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FIELD SUMMARY REPORT FOR THE IN-SITU CHEMICAL OXIDATION PILOT TESTS AT INSTALLATION RESTORATION SITES 9, 11/21, AND 16

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Alameda, California

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Acronyms and Abbreviations

bgs	below ground surface
CANs	Container Storage Area
COC	constituent(s) of concern
CPT	cone penetrometer test
DCB	dichlorobenzene
DCE	dichloroethene
EPA	U.S. Environmental Protection Agency
gpm	gallons per minute
IR	Installation Restoration
ISCO	in-situ chemical oxidation
IT	IT Corporation
MCL	maximum contaminant level
ORP	oxidation-reduction potential
PCE	tetrachloroethene
POTW	Publicly-Owned Treatment Works
PVC	polyvinyl chloride
ROI	radius of influence
SOP	Standard Operating Procedure
SVOC	semivolatile organic compound
TCE	trichloroethene
TOC	total organic carbon
TPH	total petroleum hydrocarbon
UST	underground storage tank
VOC	volatile organic compound

Executive Summary

Pilot tests for in-situ chemical oxidation (ISCO) of soils and groundwater using Fenton's reagent-based oxidation chemistry were performed at Alameda Point, Alameda, California, at Installation Restoration Sites 9, 11/21, and 16 by IT Corporation (now Shaw Environmental, Inc.). In the case of traditional Fenton's chemistry, the reaction is performed under low pH conditions to keep iron in solution. However, the modified Fenton's approach employed for the pilot tests used a chelated iron complex as a catalyst, which did not require low pH conditions and is effective at neutral conditions (pH = 7). Also the modified Fenton's approach used a relatively dilute concentration of hydrogen peroxide, which reduced or eliminated the potential for significant exothermic reactions. The active oxidant injection phase of the pilot tests began November 11, 2002 and ended November 15, 2002. The purpose of the pilot tests was to evaluate the radial effects associated with the application of the oxidant (Fenton's reagent) into the subsurface and to evaluate the effectiveness of the ISCO process to oxidize chlorinated solvent and aromatic hydrocarbon contamination in the subsurface. Also the pilot tests were conducted to ascertain the viability of the ISCO technology and to establish design parameters to support full-scale application.

Additionally in order to optimize the location and assumptions for the ISCO pilot tests, field support testing activities were completed prior to conducting the pilot tests. These activities included pretest characterization sampling, plume delineation sampling, and aquifer testing. The purposes of the activities were to establish baseline soil concentrations, confirm the placement of well screens during construction of the pilot test wells, define the extent of contaminant plumes to the maximum contaminant level at select sites, and evaluate the aquifer hydraulic properties.

The data obtained during the pilot tests indicated that the introduction of reagents into the subsurface through an injection well appeared to be very effective for reagent distribution and should be utilized during full-scale remediation at Installation Restoration Sites 9 Shallow, 16 North Shallow, and 16 South Shallow. The injection of reagents through temporary direct-push sampling points could also be used as an alternative to installation of injection wells at these sites. Multiple injection events would be required during the full-scale applications.

Based on the surfacing that occurred during injection activities at Site 9 Intermediate and review of the analytical data, it appears that an insufficient quantity of reagent (approximately 75 gallons) was introduced into the subsurface to accurately determine an effective radius of influence. Therefore, it is recommended that an additional pilot test be conducted at the site using two new injection wells to determine if the surfacing observed during the pilot test was specific to injection well P9-IWI02. Should no surfacing occur during injection into the new

wells, then the groundwater treatment radial effects and associated reagent quantities would be evaluated.

Based on the results obtained at Sites 11/21 Intermediate, it is recommended to not proceed with full-scale application since contamination located upgradient at Site 4 (Plume 4-1) may be the source of the dissolved-phase dense non-aqueous phase liquid plume at Sites 11/21. Therefore, it is recommended that an ISCO pilot test using Fenton's reagent be conducted at upgradient Site 4 (Plume 4-1) to determine the effectiveness of the ISCO on dense non-aqueous phase liquids.

1.0 Introduction

This report discusses the implementation and results of the in-situ chemical oxidation (ISCO) pilot test activities conducted by IT Corporation (IT) (now Shaw Environmental, Inc.) for oxidation of dissolved-phase chlorinated and aromatic hydrocarbons at Installation Restoration (IR) Sites 9, 11/21, and 16 located at Alameda Point, Alameda, California (Figure 1, "Facility Location Map"). The pilot tests were conducted to field test Fenton's-based oxidation chemistry, collect remedial design data, and evaluate the results to determine the viability of utilizing the ISCO technology for full-scale application. In the case of traditional Fenton's chemistry, the reaction is performed under low pH conditions to keep iron in solution. However, the modified Fenton's approach employed for the pilot tests used a chelated iron complex as a catalyst, which did not require low pH conditions and is effective at neutral conditions (pH = 7). Also the modified Fenton's approach used a relatively dilute concentration of hydrogen peroxide, which reduced or eliminated the potential for significant exothermic reactions. All activities were conducted in accordance with the *Final Project Plans, Work Plan for Chemical Oxidation Pilot Testing for Removal Actions at Installation Restoration Sites 9, 11/21, and 16, Alameda Point, Alameda, California*, herein referred to as the Work Plan (IT, 2003).

Additionally in order to optimize the location and assumptions for the ISCO pilot tests, support field testing activities were conducted prior to conducting the pilot tests. These activities included pretest characterization sampling, plume delineation sampling, and aquifer testing. The purposes of the activities were to establish baseline soil concentrations, confirm the placement of well screens during construction of the pilot test wells, define the extent of contaminant plumes to the maximum contaminant level (MCL) at select sites, and evaluate the aquifer hydraulic properties.

1.1 Pilot Test Objectives

The primary objectives of the pilot tests conducted at IR Sites 9, 11/21, and 16 were to evaluate the:

- Radial effects associated with the application of the oxidant
- Effect that the injected oxidant has on the constituent concentrations in the subsurface soil and groundwater
- Viability of the ISCO technology for full-scale application

1.2 Technical Approach

A total of five pilot tests were conducted at Sites 9, 11/21, and 16. There were two pilot test areas at Site 9 (Site 9 Shallow and Site 9 Intermediate [Figure 2, "Pilot Test Location Map IR Site 9"]), one location at Sites 11/21 (Sites 11/21 Intermediate [Figure 3, "Pilot Test Location Map IR Site 11/21"]), and two locations at Site 16 (Site 16 South Shallow and Site 16 North Shallow [Figure 4, "Pilot Test Location Map IR Site 16"]). The depth intervals and geologic units involved in each pilot test are summarized as follows:

- Site 9 Shallow – 5 to 15 feet below ground surface (bgs)
- Site 9 Intermediate – 23 to 43 feet bgs
- Sites 11/21 Intermediate – 22 to 42 feet bgs
- Site 16 South Shallow – 5 to 15 feet bgs
- Site 16 North Shallow – 5 to 15 feet bgs

The pilot tests were conducted in the first water-bearing zone and the second water-bearing zone of the Alameda Point hydrogeologic units (Figure 5, "Correlation of Hydrogeologic Units with Geologic Areas").

Each pilot test area consisted of an injection well and a set of observation wells, in addition to the miscellaneous ancillary aboveground test equipment. The injection well was used to pump water from the zone of interest during the aquifer test and for injection of the oxidant during the chemical oxidant reagent injection testing. The well locations were configured to allow for the evaluation of water-bearing zone hydraulic parameters; whether there is anisotropy in the water-bearing zones; and the potential for hydraulic communication between the shallow, intermediate, and deep water-bearing zones. The well spacing also allowed for the determination of the oxidant injection radius of influence, oxidant travel times, and impacts to the contaminants in the water-bearing zones.

Soil and groundwater baseline samples were collected and analyzed for volatile organic compounds (VOCs), metals, and total organic carbon (TOC) prior to conducting the pilot tests. During the field pilot tests, two types of monitoring were performed to obtain information related to subsurface characteristics, reagent distribution, and contaminant reduction. Field monitoring of hydrogen peroxide and ferrous iron levels in the groundwater occurred during the baseline sampling, the oxidant injection activities, and the post-oxidant injection sampling activities. Groundwater samples were collected following injection activities and one, two, and four weeks following the injection activities (post-oxidant injection samples). Post-oxidant injection soil samples were collected from coreholes drilled adjacent to the baseline corehole locations. The post-oxidant injection soil and groundwater samples were analyzed for the following:

- Volatile organic compounds by Environmental Protection Agency (EPA) Method 8260B
- Semivolatile organic compounds (SVOC) by EPA Method 8270
- Metals by EPA Method 6010,
- Total organic carbon by EPA Method 415.1
- Hexavalent chromium by EPA Method 7196A
- Technical chlordane by EPA Method 8081A (only groundwater at Site 16 South)

Additionally because of safety concerns, periodic air monitoring was conducted using a photoionization detector and explosimeter prior to, during, and following the injection activities.

2.0 Site Description and Conditions

Alameda Point is located on the western tip of Alameda Island, along the eastern margin of the San Francisco Bay (see Figure 1). The northern portion of Alameda Island was formerly tidelands, marshlands, and sloughs adjacent to the historical San Antonio Channel, now known as Oakland Inner Harbor. Filling subtidal areas, natural tidelands, marshlands, and sloughs with dredge spoils from the surrounding San Francisco Bay, Seaplane Lagoon, and Oakland Inner Harbor created most of the land that is now Alameda Point.

2.1 Site 9 — Building 410 (Paint Stripping Facility)

Installation Restoration Site 9 consists of 2.9 acres located in the southeastern corner of Operable Unit 2A at Alameda Point, and includes Buildings 351, 410, and 588 and the adjacent paved open space (Figure 6, "IR Site 9 Location Map"). Building 351 was used as a corrosion control facility until 1990, and is currently abandoned. Building 410 is the largest building at Site 9 and was used as an aircraft paint stripping facility between 1958 and 1990. Building 410 was then used between 1990 and 1996, by a garbage contractor and for stockpiling soil from drilling activities. The Building 410 drain lines, which were directly connected to the storm sewer lines east of the building, were suspected to have been used for discharge of chlorinated hydrocarbons. Demolished Building 588 was located adjacent to the northeastern edge of Building 410 and served as an industrial wastewater treatment plant to treat wastewater generated during paint stripping operations conducted at Building 410. Two removed oil/water separators were associated with a wash rack area along the southern edge of Building 410.

Remedial investigations conducted at Site 9 (TtEMI, 1999a and 1999b) determined that constituents of concern (COC) in the groundwater included chlorinated VOCs, aromatic hydrocarbons, SVOCs, and fuel components. A dissolved-phase chlorinated hydrocarbon plume and some petroleum related compounds have been delineated beneath Building 410. Constituents of concern in groundwater include:

- Cis-1,2-Dichloroethene (DCE)
- 1,1-Dichloroethane
- Vinyl chloride
- Methyl tertiary butyl ether
- Benzene

2.2 Sites 11/21 – Building 14 (Engine Test Cell)/Building 162 (Ship Fitting and Engine Repair)

Installation Restoration Site 11 is located at the southwestern corner of the intersection of Ingersol Street and Viking Street (Figure 7, "IR Sites 11/21 Location Map") and encompasses approximately 5.3 acres. The site consists primarily of Building 14, which contained 12 engine test cells. Fuel was supplied to the cells from underground storage tanks (UST) located south of Building 14. The cells historically drained to the industrial wastewater sewer system and oil/water separators. The building was constructed in the 1940s, and served as the primary site at Alameda Point for aircraft engine repair and testing. Area 37, on the southern perimeter of Site 11 was a major petroleum storage and distribution point, containing USTs that were removed between 1995 and 1998.

Installation Restoration Site 21 is located at the southwestern corner of the intersection of Atlantic Avenue and Viking Street on the northern side of West Ingersol Street and encompasses approximately 7 acres. Building 162 (Ship Fitting and Engine Repair), which was built in the 1940s, is located at the southern portion of Site 21 and was used as a maintenance shop for aircraft and ship components. Maintenance activities conducted within the building included cleaning, repair, assembly, and testing until 1996. Building 398, located at the northern portion of Site 21, contained aircraft engine test cells, an auxiliary power units shop, and a cooling air turbines shop. Operations included solvent cleaning, degreasing, abrasive blasting, and connecting/disconnecting engines.

Based on previous remedial investigations, dissolved-phase COCs in groundwater at Sites 11/21 consist of VOCs and petroleum compounds. These COCs include:

- Trichloroethene (TCE)
- Tetrachloroethene (PCE)
- 1,1-Dichloroethene
- Vinyl chloride
- Cis-1,2-Dichloroethene
- Total petroleum hydrocarbons (TPH)
- Benzene

Contamination at Sites 11/21 may be the result of not only a site-specific source but may also be from a potential upgradient source (i.e., Site 4).

2.3 Site 16 – C-2 Container Storage Area (Shipping Container Storage)

Installation Restoration Site 16, typically referred to as the Container Storage Area (CANs), is located in the southeastern corner of Alameda Point and encompasses approximately 11.1 acres. The site consists mainly of paved areas, Buildings 608 and 620, and former Buildings 338, 402,

and 586 (Figure 8, "IR Site 16 Location Map"). The Navy used this site for over 50 years as a storage area for various operations. The main portion of the site occupies 6.5 acres, including 3 acres of storage yard and 3.5 acres of large shipping containers that have been converted into storage buildings. Before the storage buildings were placed in the yard in 1948, the storage yard was used for aircraft parking and storage of unspecified paints, solvents, acids, and bases, in addition to transformers containing polychlorinated biphenyl oils. The storage yard west of the CANs is primarily unpaved, but temporary aircraft runway plates previously covered the ground surface. The temporary aircraft runway plates were removed in 1997, and the upper 2-feet of soil were excavated as part of a soil removal action. No drums or waste are currently stored on site.

Building 402 was a maintenance shop that was demolished in 1961. Building 586 was a former sewage lift station that has been removed. The site also includes Building 608, which was constructed in 1981. Building 608 comprises the southern boundary of Site 16 and was used as an auto service and repair facility from 1981 through 1996. Multiple service bays and hydraulic lifts were located in the building. One underground storage tank, UST 608-1, was located northwest of Building 608 and was used for storage of waste oil. The UST was removed in 1995. Additionally, two oil/water separators existed that received drainage from the western and eastern portion of the building. A 1,000-gallon aboveground storage tank was located north of Building 620. Building 620 was leased to a housing maintenance contractor.

Investigations conducted at the site determined that dissolved-phase COCs in groundwater included chlorinated VOCs, TPH compounds, and aromatic hydrocarbons. Specific COCs include:

- 1,2-Dichlorobenzene (DCB)
- 1,3-Dichlorobenzene
- 1,4- Dichlorobenzene
- Chlorobenzene
- Benzene
- Tetrachloroethene
- Trichloroethene
- 1,2-Dichloroethene
- Vinyl chloride

Isomers of DCB, chlorinated solvents, and benzene are present in groundwater at the northwest part of the site. Contaminants of concern found at another plume south of the CANs and north of Building 608 included chlorinated solvents. The chlorinated solvents, including PCE, TCE, 1,2-DCE, and vinyl chloride, were detected in shallow groundwater near UST 608-1 (Moju Environmental Technologies, 1998).

3.0 Field Support Testing Activities

This section summarizes the activities conducted to collect soil and groundwater samples at the pilot test locations. In order to optimize the location and assumptions for the ISCO pilot tests, field support testing activities were conducted prior to commencement of the pilot tests. These activities included:

- Pretest characterization sampling
- Plume delineation sampling
- Aquifer testing

The purposes of the activities were to establish baseline soil concentrations, confirm the placement of well screens during construction of the pilot test wells, define the extent of contaminant plumes to the MCL at select sites, evaluate the aquifer hydraulic properties, and establish baseline groundwater concentrations.

Activities necessary for support of the field support testing activities included the following:

- Plans and notification
- Drilling permits
- Boring/well location staking
- Underground utility clearance
- Decontamination
- Field documentation
- Surveying

All field support testing activities were conducted from June 17, 2002 through September 13, 2002. These activities were conducted prior to the oxidant injection activities and are described in detail in the following sections.

3.1 Plans and Notification

Planning and agency notifications were key phases needed for preparing for the field activities. The activities performed as part of the pilot tests were conducted in accordance with the approved Work Plan (IT, 2003). Additionally, the Alameda County Public Works Agency, Water Resources Section was notified of all planned drilling activities. The City of Alameda Fire Department rescue services and hazardous materials storage divisions were also notified of the pilot test activities and any associated potential hazards.

3.2 Drilling Permits

All drilling was completed in substantive compliance with the requirements for permits issued by Alameda County and the state of California in accordance with the IT Standard Operating Procedures (SOP) (IT, 2000) and the Work Plan (IT, 2003).

3.3 Boring/Well Location Staking

The field geologist conducted boring and well location staking by marking the pavement at each proposed boring/well location. The ground marking identified the boring by number. Marking was done using permanent, waterproof paint.

3.4 Underground Utility Clearance

The location of all pilot test well, corehole, cone penetrometer test (CPT), and direct-push sampling locations was marked on the ground using waterproof paint by IT representatives. Underground Service Alert marked the locations of known utilities within the pilot test areas prior to invasive activities being conducted at the site. A land surface utility clearance was conducted at each site by a subcontractor to locate potential subsurface drilling hazards in the vicinity of each proposed boring and direct-push location. All suspected underground utilities, conduits, and structures were clearly marked with appropriately colored marking paint. The IT subcontractor cleared a minimum 10-foot radius around each boring location.

3.5 Pretest Characterization Sampling

Several pretest characterization activities were conducted prior to installation of the wells for the pilot tests. These activities included:

- Drilling of coreholes
- Collection of baseline soil samples
- Collection of groundwater hydropunch samples

A complete listing of the analytical data is provided in Appendix A, "Analytical Data."

3.5.1 Drilling of Coreholes

At each of the five pilot test locations (Site 9 Shallow, Site 9 Intermediate, Sites 11/21 Intermediate, Site 16 North Shallow, and Site 16 South Shallow), three continuously cored borings were advanced linearly along the long axis of the proposed location of the pilot test wells (Figures 9, 10, and 11). These coreholes were used to provide stratigraphic data for proper placement of well screens and soil samples for baseline analysis. The coreholes were advanced adjacent to the proposed injection well and at the two farthest proposed observation wells from the injection well. Soil cores were acquired continuously at 4-foot intervals using direct-push technology. At the Site 9 Shallow, Site 16 North Shallow, and Site 16 South Shallow pilot test

locations, the soil cores were drilled and logged to approximately 40 feet below ground surface (bgs). At the Site 9 Intermediate test location, the soil cores were drilled and logged to approximately 70 feet bgs. At the Sites 11/21 Intermediate test location, the soil cores were drilled and logged to approximately 50 feet bgs. Following drilling of the coreholes at Sites 11/21, additional characterization data was obtained from another Navy contractor indicating that the contaminant plume extent was further to the northwest than previously mapped. Therefore, the pilot test location was moved and three additional soil cores (11/21-CH4, -CH5, and -CH6) were advanced and logged to approximately 42 feet bgs.

3.5.2 Collection of Baseline Soil Samples

In order to establish baseline soil concentrations at the test locations, one discrete soil sample was collected using an Encore™ sampler from each soil core at the approximate center depth of the proposed screen interval for each pilot test-specific injection well. The discrete sample was analyzed for VOCs by EPA Method 8260B. The remaining soil collected over the proposed injection well screen interval was composited into one sample to represent the test zone of interest. Composite soil samples were collected from 5 to 15 feet bgs at Site 9 Shallow, Site 16 North Shallow, and Site 16 South Shallow; from 23 to 43 feet bgs at Site 9 Intermediate; and from 22 to 42 feet bgs at Sites 11/21 (original pilot test location). The samples from the third corehole at Site 9 Intermediate (9I-CH3) could not be collected because the direct-push rig could not attain the total depth. The composite soil samples were analyzed for metals by EPA Method 6010B and for TOC by EPA Method 415.1. The detected soil sample results were used as the site-specific baseline soil concentrations for the pilot test (Table 1 through Table 5). Soil core locations are presented in Figures 9 through 11. Boring logs for each soil core have been completed and are documented in the project files.

3.5.3 Collection of Groundwater Hydropunch Samples

In order to collect baseline groundwater samples, borings were advanced at each pilot test location, using direct-push technology drilling techniques, at the proposed location of the injection well and three of four observation wells (except at the well to be located 5 feet from the injection well). The groundwater sampling locations were adjacent to the three soil coreholes described in Section 3.5.2. Discrete groundwater hydropunch samples were collected in each of the borings from the center of the proposed injection well screen interval. At Site 9 Shallow, Site 16 North Shallow, and Site 16 South Shallow up to four discrete groundwater samples were acquired at 10-foot intervals to a depth of approximately 40 feet bgs from each sampling location. At Site 9 Intermediate, up to seven discrete groundwater samples were acquired at 10-foot intervals to approximately 70 feet bgs from each sampling location. At Sites 11/21 Intermediate, up to five discrete groundwater samples were acquired at 10-foot intervals to approximately 50 feet bgs from each sampling location. The collected groundwater samples were analyzed for VOCs by EPA Method 8260B. At some discrete sampling intervals, there was

insufficient groundwater for collection of a sample, even after waiting for up to 30 minutes for water to accumulate. Discrete groundwater sampling locations are provided in Figures 9 through 11. Analytical results for the detected groundwater samples are provided in Table 6 through Table 10.

3.6 Plume Delineation Sampling

Full-scale implementation of ISCO will require that the extent of the contaminant plume(s) be defined to their respective MCL. However, based on the information presented in the Work Plan (Site 9 [Figures 12 to 17]) and Site 16 [Figures 18 to 21]) and the *Data Summary Report, Supplemental Remedial Investigation Data Gap Sampling for Operable Units 1 and 2, Alameda Point, Alameda, California* (TtEMI, 2002), the plume extent has not been defined to the MCLs for the localized chlorinated and benzene groundwater plumes at Sites 9 and 16. Therefore, CPT and discrete groundwater hydropunch sampling were performed at select locations at these sites. Cone penetrometer tests and direct-push groundwater sampling locations are provided in Figure 12 through Figure 21. At some of the hydropunch sampling intervals, there was insufficient groundwater to obtain a sample, even after waiting for groundwater to accumulate approximately 30 minutes.

At Site 9 (vicinity of both the shallow and intermediate pilot test locations), seven CPT borings were advanced. The sampling locations were placed to define the upgradient and downgradient extent of the contaminant plumes and to verify previous analytical results. The first two borings (9-1 and 9-2) located near the Site 9 Shallow test area were advanced to 40 feet bgs. The remaining five borings (9-3 through 9-7) located near the Site 9 Intermediate test area were advanced to 70 feet bgs. Adjacent to each CPT boring, another boring was advanced using direct-push drilling techniques to acquire discrete groundwater samples. At soil boring sample locations 9-1 and 9-2, up to four discrete groundwater samples were acquired at 10-foot intervals to 40 feet bgs. At the remaining sample locations, up to seven groundwater samples were acquired at 10-foot intervals to approximately 70 feet bgs. The detected analytical results are presented in Table 11, "Summary of IR Site 9 Plume Delineation Groundwater Analytical Results").

At Site 16, seven CPT borings were advanced to 40 feet bgs. The sampling locations at Site 16 North Shallow were placed to define the extent of the contaminant plume to the east. The sampling locations at Site 16 South Shallow were placed to define the plume identified near wells 608MJ-MW1 and 608MJ-MW2. Adjacent to each CPT boring, a second boring was advanced via direct-push technology drilling techniques in order to acquire discrete groundwater samples at 10-foot intervals up to approximately 40 feet bgs. Four CPT borings and four discrete groundwater sampling locations were advanced at Site 16 North Shallow. Four CPT borings and four discrete groundwater sampling locations were planned for Site 16 South Shallow; however,

at one location (boring 16S-1), subsurface obstructions believed to be sheet metal were discovered beneath the asphalt pavement. Advancement of the boring was attempted but was consequently abandoned after several attempts. The detected analytical results are presented in Table 12, "Summary of IR Site 16 Plume Delineation Groundwater Analytical Results."

3.7 Aquifer Pumping Tests

Aquifer tests were performed at each of the pilot test locations. The objectives of the aquifer pumping tests were to:

- Estimate aquifer hydraulic characteristics (i.e., hydraulic conductivity and storativity) at each test site
- Evaluate potential for vertical hydraulic communication at each test site
- Provide data to evaluate the potential radius of influence
- Provide data to estimate injection flow rates and pressures for the ISCO pilot tests

The injection and observation wells installed for the pilot test at the Site 9 Shallow test site were found to have a low well yield during well development (Figure 22, 'Aquifer Test Wells IR Site 9"). Consequently, aquifer testing at the site consisted of performing a slug test on the injection well. For the remaining site-specific test locations, well yield was found to be sufficient for conducting a constant flowrate discharge test. The testing consisted of a step-drawdown test, constant rate discharge test, and recovery rate monitoring. Wells utilized for the aquifer testing at Site 9 Intermediate, Sites 11/21 Intermediate, and Site 16 (North and South) Shallow are presented in Figures 22, 23, and 24, respectively.

The aquifer tests consisted of several phases to adequately address the aquifer test objectives. The aquifer tests were performed with the following steps, which are described in the following subsections:

1. Aquifer test set-up
2. Measurement of background groundwater levels
3. Performance of a step-drawdown test
4. Performance of a constant rate discharge test
5. Performance of a recovery test

Details of the aquifer testing activities and data interpretation and results are presented in Appendix B, "Aquifer Test Data."

3.7.1 Aquifer Test Set-Up

Groundwater pumping utilized a 2-inch diameter submersible Grundfos Redi-Flo II pump connected to a check valve and new ½-inch diameter disposable polyethylene tubing. The flow rate of the pump was regulated by a flow control system consisting of a pump controller powered by a portable generator. The tubing was connected to an in-line low flow meter, which totalized the number of gallons pumped and provided instantaneous flow rates. Groundwater was discharged into truck-mounted polyethylene tanks. Once full, the tanks were transferred using a trash pump into a holding tank located at Building 112.

The submersible pump was suspended in the injection well by a steel cable secured to the traffic-rated well box, 1-foot above the well bottom. A data logger was used to measure water level changes within the well. The data logger transducer was suspended from a wireline and was placed above the pump so as not to be influenced by turbulent water present at the pump intake.

A pressure transducer was installed in the injection well, in each of the observation wells, and in select site-specific background wells. The pressure transducers were suspended in the wells by a steel cable secured to an eyelet on the well box. Barometric influence on groundwater levels during each aquifer test was recorded with a Solinst® Baralogger. To record tidal fluctuations during the test period, a pressure transducer was fastened to a wireline connected to a pilling at the end of the pier at the Seaplane Lagoon, located approximately ½ mile west of the test sites. The wireline at the pier was made taut with a metal weight resting on the seafloor.

3.7.2 Measurement of Background Groundwater Levels

In order to determine background groundwater fluctuations and trends due to tidal and/or barometric influences at the pilot test wells, pressure transducers were set to record tidal, barometric, and pilot test well groundwater level changes over time. A transducer was also placed in one background monitoring well at each of the sites being evaluated. The following background monitoring wells were monitored during the background and constant rate discharge tests:

- Site 9 Shallow – MW410-3 (shallow zone)
- Site 9 Intermediate - D10B-01 (intermediate zone)
- Sites Intermediate 11/21- D11B-01 (intermediate zone)
- Site 16 North and South Shallow - MWC2-1 (shallow zone)

Use of a single background well at Site 16 eliminated duplication of field efforts by reducing labor and analytical costs without compromising data quality.

3.7.3 Performance of a Step-Drawdown Test

Step-drawdown tests were performed in each injection well to determine a sustainable groundwater pumping rates that would result in measurable drawdown in the observation wells. The step-drawdown tests were performed with three steps consisting of pumping the injection wells at successively higher discharge rates after drawdown in the injection well stabilized. At all sites, the discharge rates for each step were 1.5, 2, and 2.5 gallons per minute (gpm), and each step was 20 to 30 minutes in length. The step-drawdown tests were performed several days before the constant rate discharge tests. Pumping the injection wells at rates higher than 2.5 gpm would have resulted in dewatering the wells. The results of the step-drawdown tests indicated that the following pumping rates were suitable for the constant rate discharge tests:

- Site 9 Intermediate - 2.5 gpm
- Sites 11/21 Intermediate - 2.5 gpm
- Site 16 South Shallow - 2.27 gpm
- Site 16 North Shallow - 1.5 gpm

A step-drawdown test was not performed at the Site 9 Shallow test site because of the low well yield noted during well development, when the pumping well (P-9-IWS01) was bailed dry and recovered slowly.

3.7.4 Performance of a Constant Rate Discharge Test

Prior to beginning the constant rate discharge tests, the initial depth to water at all site wells was documented on a field form utilized throughout the duration of the aquifer test. All data loggers were preset to begin recording data at a set time. A few minutes after the data loggers started recording, the submersible pump was turned on and the flowrate was adjusted to the desired rate. Field personnel remained on site throughout the duration of the aquifer tests to measure depths to water at the pilot test wells, to record total gallons purged since the start of the test, to maintain a constant discharge rate by adjusting the pump controller as needed, and to dispose of purge water in the larger holding tank. The constant rate discharge tests were terminated by stopping the submersible pump after drawdown in the pilot test wells stabilized or became asymptotic with time.

3.7.5 Performance of a Recovery Test

Prior to initiating the start of the recovery tests by stopping the constant rate discharge tests, the data loggers were stopped, downloaded, and reprogrammed to begin recording data exponentially at a given time. The submersible pump was turned off a few minutes after the data loggers started recording. The recovery tests were terminated after 24-hours or after groundwater level recovery in the extraction/injection and the observation wells had stabilized or become asymptotic with time. After removing the wirelines from each well box and after

downloading the data loggers, the submersible pump was removed from the injection well in order to be decontaminated.

3.8 Decontamination

Decontamination of non-disposable sampling equipment that came in contact with samples or subsurface materials (i.e., submersible pump) was performed according to IT SOP 6.1 "Sampling Equipment and Well Material Decontamination" (IT, 2000). The decontamination was conducted to prevent the introduction of extraneous material into samples, and to maintain sample integrity. The following steps were followed for the decontamination:

- Rinse with potable water
- Wash with the nonphosphate detergent and water solution
- Rinse with potable water to remove detergent
- Rinse with distilled water to remove residues in potable water
- Air dry

All non-disposable sampling equipment that did not come in direct contact with the samples and drill rods was decontaminated by washing with a nonphosphate detergent (Liquinox™), rinsing with distilled water, and air-drying.

Decontamination water rinsate was collected in truck-mounted polyurethane containers. When the container was full, the contents were transferred to a Baker tank located at Building 112 where it was stored pending sample collection for waste profiling and subsequent disposal.

3.9 Field Documentation

Field documentation was prepared daily and maintained on-site. Field documentation consisted of Daily Remedial Action Contract Contractor Reports, Field Activity Daily Logs, Daily Quality Control Reports, Request for Analysis Chain of Custody Forms, Sample Collection Forms, and Equipment Inspection Logs.

Boring logs were prepared for each boring under the supervision of a California-registered geologist. Borings were logged in accordance with ASTM International *Method D2488-00 Description and Identification of Soils, Visual-Manual Procedure* (ASTM, 2000) and the Unified Soil Classification System.

3.10 Surveying

Each pilot test well, corehole, direct-push, CPT, or boring location was surveyed under the supervision or direction of a State of California Registered Land Surveyor. Ground surface elevations for each point were surveyed to the nearest 0.01-foot. The horizontal coordinates of each survey point were also surveyed to the nearest 0.1-foot and referenced to the

North American Datum 83, California State Plane Coordinate System Zone 3. Vertical elevations were based on the National Geodetic Vertical Datum of 1929 as adjusted by the National Geodetic Survey in June 1991 and converted to National Geodetic Vertical Datum of 1929. The horizontal and vertical measurements were referenced to established permanent control monuments.

3.11 Investigation-Derived Waste Disposal

The project investigation-derived waste streams consisted of soil cuttings, personal protective equipment, purge and development water, and decontamination rinsate generated during drilling and sampling activities. All investigation-derived waste was containerized at the Building 112 Storage Yard pending collection of a sample for waste profiling and disposal.

Soil cuttings were contained in roll-off bins. One 4-point composite soil sample was collected from the bin to represent the waste stream. The composite sample was analyzed for the following:

- Total petroleum hydrocarbons measured as diesel and motor oil by EPA Method 8015B Modified
- Semivolatile organic compounds by EPA Method 8270C
- Volatile organic compounds by EPA Method 8260B
- California Code of Regulations Title 22 Metals by EPA Methods 6010B/7000A

Additionally, one discrete soil cuttings sample, used to profile the VOCs, was collected using an EnCore™ sampler.

Equipment decontamination fluids and purge and development water was combined and stored in a 2,100 gallon Baker tank. A sample was collected and analyzed for:

- Total petroleum hydrocarbons measured as diesel and motor oil by EPA Method 8015B Modified
- Semivolatile organic compounds by EPA Method 8270
- Volatile organic compounds by EPA Method 8260B

The analytical results were evaluated by the IT transportation and disposal coordinator to determine the proper waste profiling and disposition.

Personal protective equipment was bagged and disposed of as municipal refuse. No personal protective equipment disposal samples were required.

4.0 In-Situ Chemical Oxidation Pilot Testing Activities

This section describes the ISCO field pilot testing activities conducted for Sites 9, 11/21, and 16, including well and equipment installation, pilot test well installation and development, baseline groundwater sampling, chemical oxidant reagent injection testing and sampling, and post-oxidant injection sampling. A total of five pilot tests were conducted at Sites 9, 11/21, and 16. In-situ chemical oxidation injection pilot tests, using Fenton's reagent as the oxidant, were conducted from November 12, 2002 to November 15, 2002 at Site 9 in the shallow and intermediate zones, at Sites 11/21 in the intermediate zone, and at two locations at Site 16 in the shallow zone. Initially injection was planned for both the upper and lower intermediate zone at Sites 11/21 (for a total of 6 tests); however, based on new plume delineation information (TtEMI, 2002) the pilot test well array had to be relocated, which resulted in the ability to conduct only one intermediate zone test. In-Situ Oxidative Technologies, Inc. performed the ISCO pilot tests with oversight provided by IT personnel. The objectives of the oxidant injection pilot tests were to:

- Evaluate the radial effects associated with the application of Fenton's reagent into the subsurface
- Evaluate the effectiveness of the chosen ISCO process to oxidize chlorinated solvent and aromatic hydrocarbon contamination in the subsurface
- Determine the effectiveness of the injection approach and the viability of the ISCO technology for full-scale application

4.1 Well and Equipment Installation

This section provides information for the placement of the pilot test wells. The pilot test injection wells and observation wells were installed within the higher concentrations areas of the site-specific plumes.

Each pilot test area consisted of an injection well and a set of observation wells, in addition to miscellaneous ancillary aboveground test equipment and existing monitoring wells. At Site 9, the pilot tests targeted the shallow zone (5 to 15 feet bgs) and the intermediate zone (23 to 43 feet bgs) (see Figure 2). At Sites 11/21, the pilot test targeted the intermediate zone (upper sandy zone in the Merritt Sand) (22 to 42 feet bgs) (see Figure 3). After installing some of the pilot test wells at Sites 11/21, newly released analytical data was obtained (TtEMI, 2002), which indicated that the test wells were outside the extent of the revised VOC plume. Therefore, a new set of test wells were installed approximately 90 feet Northwest of the initial test location. Wells installed but not utilized for the Sites 11/21 pilot test were wells P-11-MWI1, P-11-MW03, and P-11-MW07. At Site 16, two pilot test locations targeted the shallow zone (5 to 15 feet bgs) (see Figure 4).

4.2 Pilot Test Well Installation and Development

All injection and observation wells were installed using 8-inch inside diameter hollow-stem auger drilling techniques per IT SOP 8.1, "Monitoring Well Installation" (IT, 2000). During drilling activities, soil cuttings were collected from the auger flights and were compared to the soil cores previously drilled and logged, which were located adjacent to the test wells. Prior to drilling, the bottom auger flight was plugged with a wooden plug to prevent heaving sands from entering the interior of the augers. Once the total depth was reached, the auger flights were flooded with potable water to prevent having sands from entering the interior of the augers once the wooden plug was knocked out. Upon knocking out the wooden plug, the well screen, sand pack, transition sand, bentonite seal, and annular grout were installed according to the specification identified in the Work Plan (IT, 2003).

All observation wells were installed with 4-inch diameter well polyvinyl chloride (PVC) casing. The injection wells were installed with 4-inch diameter stainless-steel well casing. Blank well casing was attached to 0.020-inch slot screen casing by flush-jointed threads. The sand pack consisted of No. 2/12 silica sand. Above the sand pack, a 1-foot layer of No. 60 mesh transition sand was placed to prevent intrusion of the bentonite seal into the primary sand pack. Above the transition sand, a 2-foot or 3-foot thick seal was placed with ¼-inch bentonite pellets and was hydrated with potable water. A cement-bentonite grout was placed above the seal to the surface. The injection and observation wells were capped and completed with traffic rated, flush-mount well boxes.

During initial oxidant injection activities in October 2002, surfacing was observed around the annular well seals of the injection well at the Site 9 Intermediate and Site 16 North Shallow test locations. At that time it was determined to discontinue the injection activities at these sites and postpone starting the injection activities at the remaining test locations. It was thought that a modification to the well construction was necessary because the current completion was not adequately sealing the escaping gases caused by the reaction of the injected chemical oxidation material with the groundwater. Therefore, the compromised injection wells at Site 9 Intermediate and Site 16 North Shallow were overdrilled, removed, and abandoned. New 2-inch diameter injection wells were installed at each test location and the 4-inch injection wells at the Site 9 Shallow, Sites 11/21 Intermediate, and Site 16 South Shallow test locations were used as an additional observation well.

The 2-inch diameter injection wells were constructed with Schedule 40 PVC casing. Blank well casing was attached to Schedule 40 PVC 0.020-inch slot screen casing by flush-jointed threads. The sand pack consisted of No. 2/12 silica sand. For the deep completion wells (Site 9 Intermediate and Sites 11/21 Intermediate) a 16-foot thick seal consisting of hydrated ¼-inch bentonite pellets was installed above the sand pack. For the shallow completion wells (Site 9

Shallow, Site 16 North Shallow, and Site 16 South Shallow), 3-foot thick seals consisting of hydrated ¼-inch bentonite pellets were installed. The remainder of the borehole annulus (approximately 5 feet) was filled with concrete. The injection wells were capped and completed with traffic-rated, flush-mount well boxes.

Following is a brief summary of wells installed at each pilot test location:

- Site 9 Shallow (See Figure 2)
  - 4-inch diameter injection well (P-9-IWS01) screened from 5.5 to 15.5 feet bgs (was used as observation well for pilot test)
  - 2-inch diameter injection well (P-9-IWS02) screened from 8 to 15 feet bgs
  - Observation wells (P-9-MWS01 through P-9-MWS04) screened from 5 to 15 feet bgs
  - Observation well (P-9-MWI01) screened from 26 to 31 feet bgs
  - Intermediate depth observation well (P-9-MWI01) screened in the artificial fill, Bay Sediment Unit, and upper sandy zone of the Merritt Sand (as identified through logging of soil cores drilled at corehole locations 9S-CH1, 9S-CH2, and 9S-CH3)
- Site 9 Intermediate (See Figure 2)
  - 4-inch diameter injection well (P-9-IWI01) screened from 23 to 43 feet bgs
  - Well P-9-IWI01 was overdrilled and abandoned following initial surfacing conditions
  - 2-inch diameter injection well (P-9-IWI02) screened 22 to 42 feet bgs (replacement well for P-9-IWI01)
  - Observation wells (P-9-MWI02 through P-9-MWI05) screened from 23 to 33 feet bgs
  - Observation wells (P-9-MWI06 through P-9-MWI09) screened from 33 to 43 feet bgs
  - Observation well (P-9-MWI10) screened from 53 to 58 feet bgs
  - Deeper observation wells (P-9-MWI06 through P-9-MWI10) screened in the upper sandy zone of the Merritt Sand (as identified through soil cores drilled at corehole locations 9I-CH1, 9I-CH2, and 9I-CH3).

- Sites 11/21 Intermediate (See Figure 3)
  - 4-inch diameter injection well (11/21-IWI01) screened from 22 to 42 feet bgs (was used for observation well for pilot test)
  - 2-inch diameter injection well (11/21-IWI3 screened from 22 to 42 feet bgs
  - Observation wells (11/21-MW01 and 11/21-MW03) screened from 32 to 42 feet bgs
  - Observation wells (11/21-MW02 and 11/21-MW04) screened from 22 to 32 feet bgs
  - Deeper observation wells (11/21-MW01 and 11/21-MW03) screened in the upper sandy zone of the Merritt Sand as identified through soil cores drilled at six corehole locations (11/21-CH1 through 11/21-CH3 and 11/21-CH5 through 11/21-CH7)
- Site 16 South Shallow (See Figure 4)
  - 4-inch diameter injection well (P-16-IWI01) screened from 5 to 15 feet bgs (was used as observation well for pilot test)
  - 2-inch diameter injection well (P-16-IWI03) from 8 to 15 feet bgs
  - Observation wells (P-16-MWS01, P-16-MWS03, P-16-MWS05, P-16-MWS07) screened from 5 to 15 feet bgs
  - Observation well (P-16-MWI01) screened from 20 to 25 feet bgs
  - Deep well (P-16-MWI01) screened in the upper sandy zone of the Merritt Sand (as identified through logging of soil cores drilled at corehole locations 16S-CH1, 16S-CH2, and 16S-CH3)
- Site 16 North Shallow (See Figure 4)
  - 4-inch diameter injection well (P-16-IWI02) screened from 5 to 15 feet bgs
  - Well P-16-IWI02 was overdrilled and abandoned following initial surfacing conditions
  - 2-inch diameter injection well (P-16-IWI04) screened from 8 to 15 feet bgs (replacement well for P-16-IWI02)
  - Observation wells (P-16-MWS02, P-16-MWS04, P-16-MWS06, P-16-MWS08) screened from 5 to 15 feet bgs
  - Observation well (P-16-MWI02) screened from 20 to 25 feet bgs

- Deep well (P-16-MWI02) screened in the artificial fill and upper sandy zone of the Merritt Sand (as identified through logging of soil cores drilled at corehole locations 16N-CH1, 16N-CH2, and 16N-CH3)

All wells were developed at least 48 hours after construction and in accordance with IT SOP 8.2, "Monitoring Well Development" (IT, 2000). Well development was performed to remove any residual soil, soil cuttings, or sand pack in the wells. The extraction/injection and observation wells were developed by gently surging the well followed by pumping with a submersible or peristaltic pump. During well development, pH, specific conductance, turbidity, dissolved oxygen, and temperature readings were periodically monitored. Development was considered complete when these indicator parameters stabilized to within 10 percent of the previous two readings. All equipment (i.e., surge block, bailer, submersible pump) was decontaminated prior to developing each well. Well development logs generated during field activities are documented in project files.

Water generated during well development activities was containerized in a holding tank located at Building 112. The purge water was sampled and analyzed for disposal to the Publicly-Owned Treatment Works (POTW). The analytical results and POTW disposal permit application were submitted to Alameda County, which approved disposal of the purge water to a designated POTW inlet.

4.3 Baseline Groundwater Sampling

After completion of the aquifer testing activities (Section 3.7) and prior to the oxidant injection testing, baseline groundwater samples were collected at each pilot test location from the injection well and observation wells and at specified site background wells using a peristaltic pump in accordance with Appendix A of the Work Plan (IT, 2003) and IT SOP 9.1 "Groundwater Sampling" (IT, 2000). Samples were analyzed for laboratory analytical and field parameters. The groundwater samples were analyzed for VOCs by EPA Method 8260B, TOC by EPA Method 415.1, and metals by EPA Method 6010B. In addition, the groundwater samples were field tested for:

- pH
- Temperature
- Oxidation-reduction potential (ORP)
- Dissolved oxygen, specific conductivity
- Hydrogen peroxide
- Ferrous iron

Results are presented in Table 13 through Table 17.

4.4 Chemical Oxidant Reagent Injection Testing and Sampling

Details of the chemical oxidant injection testing and results and conclusions are provided in In-Situ Oxidative Technologies, Inc.'s Draft Pilot Test Program Report (Appendix C).

Groundwater grab samples were collected from the observation wells during the active oxidant injection phase at each test site to monitor field. Groundwater grab samples were obtained from the bottom of each observation well using a disposable bailer. The field parameters monitored were ferrous iron and hydrogen peroxide using Hach field test kits, and temperature, pH, conductivity, dissolved oxygen, and ORP.

4.5 Post-Oxidant Injection Sampling

Post-oxidant injection soil and groundwater samples were collected immediately following completion of oxidant injection (week 0), and at 1, 2, and 4-week intervals following completion of injection (November 18, 2002 to December 24, 2002). The post-oxidant groundwater samples were collected from the observation wells, background wells, and injection wells. Additionally, three soil borings were drilled at each test site corresponding to the location of the corehole samples drilled during pretest characterization sampling activities. Soil samples were collected over the injection well screen interval from each of the borings. Both discrete (for VOCs using and EnCore™ sampler) and composite samples were collected from each boring. The soil and groundwater samples were analyzed for VOCs by EPA Method 8260B, TOC by EPA Method 415.1, and metals by EPA Method 6010 consistent with the bench scale test sample analyses.

Additionally because the regulatory agencies were concerned about possible chemical byproducts from the reactions, both the soil and groundwater samples were analyzed for hexavalent chromium (Chromium VI) by EPA Method 7196A, SVOCs by EPA Method 8270, and technical chlordane by EPA Method 8081A (Site 16 South only). Groundwater samples were also tested for the following field measured parameters (Table 18, "Summary of Groundwater Field Parameter Measurements"):

- Temperature
- pH
- Conductivity
- Dissolved oxygen
- ORP
- Hydrogen peroxide
- Ferrous iron

The post-oxidant injection soil and groundwater samples were compared to the baseline groundwater samples collected to evaluate changes and assess the effectiveness of the oxidant

injection tests (Table 19, "Summary of Post-Oxidant Injection Soil Analytical Results" and Table 20, "Summary of Post-Oxidant Injection Groundwater Analytical Results").

5.0 Conclusions and Recommendations

The following is a summary of the conclusions and recommendations presented in Appendix C for each of the pilot tests.

5.1 Site 9 Shallow

Based on the results of the baseline groundwater sampling, well P9-MWS04, which is located approximately 23 feet from the injection well, had the highest detections of contaminants. These included mainly trimethylbenzene and vinyl chloride, and low levels of benzene, 1,1-DCA, and 1,2-DCE. Significant reductions in contaminant concentrations were observed in monitoring well P9-MWS04 following oxidant injection. It is important to note that this well was the only on-site monitoring well with baseline 1,2,4-trimethylbenzene and vinyl chloride concentrations detected above 5 micrograms per liter. Post injection groundwater samples indicated a reduction in 1,2,4-trimethylbenzene and vinyl chloride concentrations of 60 percent and 51 percent, respectively. Additionally, DCA, DCE, and benzene were reduced to low levels or below the quantitation limit. This reduction in contaminants in P9-MWS04 indicates that the effective treatment radius of influence (ROI) is approximately 20 to 25 feet.

The introduction of reagents into the subsurface through an injection well appeared to be very effective for reagent distribution and should be utilized during full-scale remediation at this site. The injection of reagents through temporary direct-push sampling points could be used as an alternative to installation of injection wells. Multiple injection events would be required during the full-scale application.

5.2 Site 9 Intermediate

Based on the results of the baseline groundwater sampling, well P9-MWI09 had the highest detections of contaminants. These included mainly 1,1-DCA, 1,2-DCE, and vinyl chloride. However, surfacing occurred at this site after only 75 gallons of hydrogen peroxide was injected into well P9-IWI02. The surfacing was observed approximately ten feet southwest of the injection well and the injection activities were immediately terminated. In-Situ Oxidative Technologies, Inc. returned two days later to again attempt injection into well P9-IWI02 at a slower injection rate. No surfacing was observed.

Based on the surfacing that occurred during injection activities and review of the analytical data, it appears that an insufficient quantity of reagent was introduced into the subsurface to accurately determine an effective ROI. Therefore, it is recommended that an additional pilot test be conducted at the site using new injection wells to determine if the surfacing observed during the pilot test was specific to injection well P9-IWI02, the new injection wells are proposed to be

approximately 25 to 35 feet away from the original injection well. Should no surfacing occur during injection into the new wells, then the groundwater treatment radial effects and associated reagent quantities can be evaluated

5.3 Sites 11/21 Intermediate

Based on the results of the baseline groundwater sampling, well P11/21-MW04 had the highest detections of contaminants. These included mainly TCE and low levels of 1,1-DCE, 1,2-DCE, vinyl chloride, and PCE. Review of the analytical data indicates that TCE concentrations at the Sites 11/21 Intermediate pilot test area decreased early on following injection, but rebounded near their baseline concentrations by the week 4 post-oxidant injection sampling. This may be due to desorption of dense non-aqueous phase liquid-range concentrations from the aquifer material. Based on the volume of reagent injected and the close proximity of the on-site monitoring wells, it appears that there is a preferential flow away, and to the south and/or east from the monitoring well network. Shaw recommends an ISCO pilot test using Fenton's reagent be conducted at upgradient Site 4 to determine the effects on dense non-aqueous phase liquid. Site 4 (Plume 4-1) may be the source of the dissolved-phase dense non-aqueous phase liquid plume at Sites 11/21.

5.4 Site 16 North Shallow

Based on the results of the baseline groundwater sampling, well P16-MWS08 had the highest detections of contaminants. These included mainly 1,2-DCB and low level 1,3-DCB, 1,4-DCB, chlorobenzene, 1,2-DCE, and TCE. Reductions of all contaminant concentrations were observed in groundwater at the maximum distance sampled, 27 feet. Reductions of dissolved 1,2-DCB concentrations greater than 60 percent were documented at distances within 15 feet. Specifically, observation well P16-MWS02, located approximately 7.5 feet from the injection well, was reduced 73 percent, and well P16-MWS06, located approximately 11.5 feet from the injection well, was reduced 73 percent. The monitoring well located 27 feet from injection well (P16-MWS04), showed a concentration reduction of 1,2-DCB of 51 percent. Based on the observed contaminant reductions in the sampled wells relative to the location from the injection well indicates that the effective treatment ROI is approximately 15 to 30 feet.

The introduction of reagents into the subsurface at through an injection well appeared to be effective for reagent distribution and should be utilized during a full-scale remediation at the site. The injection of reagents through temporary direct-push well points could be used as an alternative to installation of injection wells. Multiple injection events would be required during the full-scale application.

5.5 Site 16 South Shallow

Based on the results of the baseline groundwater sampling, well P16-MWS07 had the highest detections of contaminants. These included mainly PCE, TCE, and 1,2-DCE. A significant reduction in contaminant concentration was observed in monitoring well P16-MWS07, which is located approximately 18.5 feet from the injection well. It is important to note that this well was the only on-site well with a baseline TCE and PCE concentration above 10 micrograms per liter. Post injection groundwater samples indicated a reduction in TCE and PCE concentrations of 91 percent and 90 percent, respectively. This reduction in contaminants in well P16-MWS017 indicates an effective treatment ROI of at least 20 feet.

The introduction of reagents into the subsurface at through an injection well appeared to be very effective for reagent distribution and should be utilized during a full-scale remediation at the site. The injection of reagents through temporary direct-push well points could be used as an alternative to installation of injection wells. Multiple injection events would be required during the full-scale application.

6.0 References

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Tables

Table 1
Summary of Baseline Soil Detected Analytical Results

Sample Number		**9S-CH1**		**9S-CH2**		**9S-CH3**	
Location		**9S-CH1**		**9S-CH2**		**9S-CH3**	
Sample Date		**21-Jun-02**		**21-Jun-02**		**21-Jun-02**	
Parameter	Units	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES							
1,2,4-Trimethylbenzene	mg/kg	0.0051	U	0.025		28	
1,3,5-Trimethylbenzene	mg/kg	0.0051	U	0.0053	U	2.4	
Acetone	mg/kg	0.024		0.024		0.0517	
Benzene, Propyl-	mg/kg	0.0051	U	0.0053	U	0.24	
Cis-1,2-Dichloroethene	mg/kg	0.0051	U	0.0053	U	0.023	
Ethylbenzene	mg/kg	0.0051	U	0.0053	U	0.12	
Isopropylbenzene	mg/kg	0.0021	J	0.0088		0.1	
Methylene Chloride	mg/kg	0.0056	JB	0.0069	JB	0.0077	JB
Naphthalene	mg/kg	0.013		0.04		0.17	
N-Butylbenzene	mg/kg	0.0051	U	0.0053	U	0.15	
O-Xylene	mg/kg	0.0051	U	0.0053	U	0.047	
Sec-Butylbenzene	mg/kg	0.0051	U	0.0053	U	0.11	
Tert-Butylbenzene	mg/kg	0.0051	U	0.0053	U	0.15	
Toluene	mg/kg	0.0051	U	0.0053	U	0.012	
Total Xylenes	mg/kg	0.0051	U	0.0053	U	0.32	
GENERAL CHEM							
Carbon, Total Organic	Percent	0.2		0.1	U	0.39	
Percent Solids	Percent	88.5		89.2		67.7	
METALS							
Aluminum	mg/kg	6220		5610		20500	
Antimony	mg/kg	1.5	UN	0.31	BN	0.35	BN
Arsenic	mg/kg	2.3		1.5		5.7	
Barium	mg/kg	91.6		143		78.9	
Beryllium	mg/kg	0.19		0.16		0.49	
Cadmium	mg/kg	0.1	B	0.1	B	0.32	B
Calcium	mg/kg	4840		2390		3780	
Chromium	mg/kg	38.2		28.5		76.8	
Cobalt	mg/kg	4.3		4.3		12.9	
Copper	mg/kg	8.3		5.9		28.3	
Iron	mg/kg	10500		10900		30200	
Lead	mg/kg	4.2		3.3		44.6	
Magnesium	mg/kg	2390	N	2730	N	7050	N
Manganese	mg/kg	123	N	98.4	N	270	N
Mercury	mg/kg	0.01	B	0.03	U	0.1	
Molybdenum	mg/kg	0.86		0.13	B	0.34	B
Nickel	mg/kg	29.1		22		78.1	
Potassium	mg/kg	839		764		2580	
Sodium	mg/kg	235		500		1300	
Vanadium	mg/kg	26.3		27.7		56.9	
Zinc	mg/kg	20.6		16.5		66.6	

Table 2
Summary of Pretest Characterization Groundwater Hydropunch Detected Analytical Results

Sample Number		**9I-CH1**	**9I-CH2**
Location		**9I-CH1**	**9I-CH2**
Sample Date		**24-Jun-02**	**24-Jun-02**
Parameter	Units	Result Qual	Result Qual
8260 VOLATILES			
1,1-Dichloroethane	mg/kg	0.0021 J	0.0038 J
Acetone	mg/kg	0.0083 J	0.011
Methylene Chloride	mg/kg	0.0046 JB	0.0056 JB
GENERAL CHEM			
Carbon, Total Organic	Percent	0.21	0.1 U
Percent Solids	Percent	82.6	80.7
METALS			
Aluminum	mg/kg	7350	6960
Antimony	mg/kg	0.35 BN	0.33 BN
Arsenic	mg/kg	2.1	2.4
Barium	mg/kg	57.4	55.7
Beryllium	mg/kg	0.22	0.2
Cadmium	mg/kg	0.21 B	0.19 B
Calcium	mg/kg	2610 N	2180 N
Chromium	mg/kg	38.5	35.9
Cobalt	mg/kg	5.8	5.8
Copper	mg/kg	8.8	7.5
Iron	mg/kg	13100	11900
Lead	mg/kg	2.7	2.5
Magnesium	mg/kg	3860	3300
Manganese	mg/kg	148	138
Molybdenum	mg/kg	0.18 B	0.12 B
Nickel	mg/kg	37.9	38.8
Potassium	mg/kg	996	904
Silver	mg/kg	0.07 B	0.21 U
Sodium	mg/kg	1410 E	878 E
Vanadium	mg/kg	26.8	24
Zinc	mg/kg	25.7	21.6

Table 3
Summary of Site 9 Plume Delineation Groundwater Detected Analytical Results

Sample Number		**11/21-CH1B**		**11/21-CH2B**		**11/21-CH3B**	
Location		**11/21-CH1**		**11/21-CH2**		**11/21-CH3**	
Sample Date		**25-Jun-02**		**25-Jun-02**		**25-Jun-02**	
Parameter	Units	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES							
1,2,3-Trichlorobenzene	mg/kg	0.0049	U	0.005	J	0.0052	U
1,2,4-Trichlorobenzene	mg/kg	0.0049	U	0.0035	J	0.0052	U
1,2-Dibromo-3-Chloropropane	mg/kg	0.0049	U	0.0022	J	0.0052	U
Acetone	mg/kg	0.0094	J	0.015		0.011	
Methylene Chloride	mg/kg	0.0097	JB	0.01	JB	0.01	JB
Naphthalene	mg/kg	0.0049	U	0.021		0.0051	J
Trichloroethene	mg/kg	0.0049	U	0.0051	U	0.0025	J
GENERAL CHEM							
Percent Solids	Percent	85.2		85.1		84.6	
METALS							
Aluminum	mg/kg	6710		6900		5920	
Antimony	mg/kg	0.26	BN	1.6	UN	0.34	BN
Arsenic	mg/kg	2.3		1.6		2.3	
Barium	mg/kg	48.3		72.5		51.1	
Beryllium	mg/kg	0.19		0.18		0.16	
Cadmium	mg/kg	0.14	B	0.17	B	0.16	B
Calcium	mg/kg	2090	N	1880	N	2000	N
Chromium	mg/kg	38.1		34.7		34.1	
Cobalt	mg/kg	5.2		5.5		5.2	
Copper	mg/kg	7		7.1		6.4	
Iron	mg/kg	11500		11000		10500	
Lead	mg/kg	2.3		2.5		2.3	
Magnesium	mg/kg	2600		2710		2390	
Manganese	mg/kg	127		103		143	
Mercury	mg/kg	0.1		0.01	B	0.03	U
Molybdenum	mg/kg	0.17	B	0.15	B	0.18	B
Nickel	mg/kg	34		34.2		31.1	
Potassium	mg/kg	928		993		756	
Silver	mg/kg	0.22	U	0.07	B	0.08	B
Sodium	mg/kg	1070	E	1680	E	925	E
Vanadium	mg/kg	24.1		23.3		22.2	
Zinc	mg/kg	20.7		21.6		18	

Table 4
Summary of Site 16 Plume Delineation Detected Analytical Results

Sample Number		16N-CH1		16N-CH2		16N-CH3	
Location		**16N-CH1**		**16N-CH2**		**16N-CH3**	
Sample Date		**18-Jun-02**		**18-Jun-02**		**18-Jun-02**	
Parameter	Units	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES							
1,2-Dichlorobenzene	mg/kg	0.0088		0.011		0.006	U
1,4-Dichlorobenzene	mg/kg	0.0032	J	0.004	J	0.006	U
Acetone	mg/kg	0.023		0.018		0.019	
Chlorobenzene	mg/kg	0.0079	U	0.073		0.006	U
cis-1,2-Dichloroethene	mg/kg	0.0079	U	0.011		0.006	U
Methylene Chloride	mg/kg	0.017	JB	0.013	JB	0.013	JB
GENERAL CHEM							
Percent Solids	Percent	63.2		83.2		83.4	
Total Organic Carbon	Percent	0.3		0.2		0.2	
METALS							
Aluminum	mg/kg	13900		5220		5420	
Antimony	mg/kg	0.48	BN	1.3	UN	1.4	UN
Arsenic	mg/kg	7		1.7		4.7	
Barium	mg/kg	52.3		32.6		21.5	
Beryllium	mg/kg	0.37		0.15		0.17	
Cadmium	mg/kg	0.3	B	0.1	B	0.14	B
Calcium	mg/kg	7680		4170		12600	
Chromium	mg/kg	56.9		30.4		30	
Cobalt	mg/kg	10.9		3.9		7	
Copper	mg/kg	20.4		5.9		6.7	
Iron	mg/kg	21500		8580		9480	
Lead	mg/kg	14.4		2.3		10.1	
Magnesium	mg/kg	5530	N	2320	N	2270	N
Manganese	mg/kg	312	N	103	N	167	N
Mercury	mg/kg	0.13		0.03	U	0.08	
Molybdenum	mg/kg	0.39	B	0.11	B	0.19	B
Nickel	mg/kg	54.2		23.5		23.7	
Potassium	mg/kg	2220		742		947	
Sodium	mg/kg	1380		128	B	592	
Vanadium	mg/kg	44.5		22.1		22.9	
Zinc	mg/kg	56.7		16.9		30.8	

Table 5
Summary of Investigation-Derived Waste Analytical Results

Sample Number		**16S-CH1**		**16S-CH2**		**16S-CH3**	
Location		**16S-CH1**		**16S-CH2**		**16S-CH3**	
Sample Date		**18-Jun-02**		**18-Jun-02**		**18-Jun-02**	
Parameter	Units	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES							
1,2,3-Trichlorobenzene	mg/kg	0.0063	U	0.0094		0.006	U
1,2,4-Trichlorobenzene	mg/kg	0.0063	U	0.0065		0.006	U
Acetone	mg/kg	0.017		0.022		0.017	
cis-1,2-Dichloroethene	mg/kg	0.0063	U	0.0062	U	0.015	
Methylene Chloride	mg/kg	0.014	JB	0.013	JB	0.013	JB
Naphthalene	mg/kg	0.0063	U	0.022		0.0078	
Tetrachloroethene	mg/kg	0.0063	U	0.0062	U	0.047	
Trichloroethene	mg/kg	0.0063	U	0.0062	U	0.011	
GENERAL CHEM							
Percent Solids	Percent	79.4		80.6		83.9	
Total Organic Carbon	Percent	0.11		0.11		0.18	
METALS							
Aluminum	mg/kg	5630		5340		4270	
Antimony	mg/kg	0.26	BN	1.7	UN	0.29	BN
Arsenic	mg/kg	1.6		1.3	B	2.3	
Barium	mg/kg	41.5		41.9		21.7	
Beryllium	mg/kg	0.16		0.16	B	0.13	B
Cadmium	mg/kg	0.08	B	0.08	B	0.08	B
Calcium	mg/kg	2550		2420		4080	
Chromium	mg/kg	31.4		29		25.3	
Cobalt	mg/kg	4.3		4.3		3.6	
Copper	mg/kg	5.8		5.2		4.7	
Iron	mg/kg	8980		8530		6970	
Lead	mg/kg	1.8		1.6		2.5	
Magnesium	mg/kg	2770	N	2650	N	1930	N
Manganese	mg/kg	116	N	114	N	92	N
Mercury	mg/kg	0.01	B	0.03	U	0.02	B
Molybdenum	mg/kg	0.13	B	0.14	B	0.26	B
Nickel	mg/kg	28		26.7		19.5	
Potassium	mg/kg	872		890		665	
Sodium	mg/kg	184		173	B	158	B
Vanadium	mg/kg	21.6		20.3		18.1	
Zinc	mg/kg	18.2		17.3		14.4	

Table 6
Summary of Baseline Groundwater
Detected Analytical Results

Sample Number			9S-CH1-10		9S-CH1-20		9S-CH1-30		9S-CH2-10		9S-CH2-20		9S-CH2-30		9S-CH2-40		9S-CH3-10	
Location			9S-CH1		9S-CH1		9S-CH1		9S-CH2		9S-CH2		9S-CH2		9S-CH2		9S-CH3	
Sample Date			27-Jun-02		27-Jun-02		27-Jun-02		28-Jun-02		28-Jun-02		28-Jun-02		28-Jun-02		27-Jun-02	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																		
1,1,2-Trichloroethane	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U	0.001	U
1,1-Dichloroethane	mg/L	0.005	0.00057	J	0.001	U	0.001	U	0.0018		0.001	U	0.001	U	0.002	U	0.001	U
1,2,4-Trimethylbenzene	mg/L	NA	0.014		0.001	U	0.00083	J	0.016		0.094		0.013		0.063		0.001	U
1,3,5-trimethylbenzene	mg/L	NA	0.01		0.001	U	0.001	U	0.008		0.071		0.011		0.047		0.001	U
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.013		0.005	U	0.005	U	0.005	U	0.01	U	0.005	U
4-Isopropyltoluene	mg/L	NA	0.0034		0.001	U	0.001	U	0.0019		0.021		0.0038		0.013		0.057	
Acetone	mg/L	NA	0.0099	B	0.005	U	0.035	B	0.01		0.005	U	0.005	U	0.014		0.018	B
Benzene	mg/L	0.001	0.0014		0.001	U	0.001	U	0.0015		0.001	U	0.001	U	0.002	U	0.0054	
cis-1,2-Dichloroethene	mg/L	0.006	0.0019		0.001	U	0.001	U	0.0066		0.001	U	0.001	U	0.002	U	0.03	
Ethylbenzene	mg/L	0.7	0.001	U	0.001	U	0.001	U	0.001	U	0.0019		0.001	U	0.0017	J	0.12	
Isopropylbenzene	mg/L	NA	0.00068	J	0.001	U	0.001	U	0.00096	J	0.0046		0.00086	J	0.0035		0.093	
m,p-Xylenes	mg/L	1.75	0.0014		0.001	U	0.001	U	0.0015		0.0096		0.0019		0.0075		0.001	U
Methylene Chloride	mg/L	0.005	0.00094	JB	0.00082	JB	0.00089	JB	0.0017	B	0.0016	B	0.0017	B	0.006	B	0.00074	JB
Naphthalene	mg/L	NA	0.0023		0.001	U	0.001	U	0.0089		0.017		0.003		0.009		0.25	
n-Butylbenzene	mg/L	NA	0.0017		0.001	U	0.001	U	0.001	U	0.01		0.0023		0.0064		0.05	
n-Propylbenzene	mg/L	NA	0.0015		0.001	U	0.001	U	0.0017		0.011		0.0023		0.0064		0.19	
o-Xylene	mg/L	1.75	0.001	U	0.001	U	0.001	U	0.00076	J	0.0042		0.001	U	0.0042		0.001	U
Sec-Butylbenzene	mg/L	NA	0.0026		0.001	U	0.001	U	0.0013		0.012		0.0024		0.0079		0.087	
Toluene	mg/L	0.15	0.001	U	0.001	U	0.00053	J	0.001	U	0.00067	J	0.0013		0.0011	J	0.0007	J
Vinyl Chloride	mg/L	0.0005	0.0032		0.001	U	0.001	U	0.009		0.001	U	0.001	U	0.002	U	0.042	

Table 6
Summary of Baseline Groundwater
Detected Analytical Results

Sample Number			**9S-CH3-20**		**9S-CH3-30**		**9S-CH3-40**		**9S-CH4-10**		**9S-CH4-20**		**9S-CH4-30**		**9S-CH4-40**	
Location			**9S-CH3**		**9S-CH3**		**9S-CH3**		**9S-CH4**		**9S-CH4**		**9S-CH4**		**9S-CH4**	
Sample Date			**27-Jun-02**		**28-Jun-02**		**28-Jun-02**		**28-Jun-02**		**28-Jun-02**		**28-Jun-02**		**28-Jun-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																
1,1,2-Trichloroethane	mg/L	0.005	0.001	U	0.0027		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethane	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	mg/L	NA	0.016		0.027		0.044		0.0086		0.0058		0.026		0.071	
1,3,5-trimethylbenzene	mg/L	NA	0.012		0.021		0.032		0.0066		0.0045		0.059		0.055	
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.0041	J	0.005	U	0.005	U	0.005	U	0.0045	J
4-Isopropyltoluene	mg/L	NA	0.023		0.029		0.041		0.002		0.0015		0.018		0.016	
Acetone	mg/L	NA	0.0056	B	0.01		0.0078		0.0058		0.0071		0.0066		0.0074	
Benzene	mg/L	0.001	0.001	U	0.00064	J	0.00092	J	0.0012		0.001	U	0.001	U	0.00058	J
cis-1,2-Dichloroethene	mg/L	0.006	0.0021		0.0023		0.0041		0.0065		0.001	U	0.00075	J	0.001	U
Ethylbenzene	mg/L	0.7	0.009		0.018		0.043		0.00052	J	0.001	U	0.0015		0.0017	
Isopropylbenzene	mg/L	NA	0.015		0.027		0.053		0.00079	J	0.001	U	0.0036		0.0039	
m,p-Xylenes	mg/L	1.75	0.0024		0.0046		0.0071		0.0015		0.0013		0.007		0.0078	
Methylene Chloride	mg/L	0.005	0.00072	JB	0.0018	B	0.0018	B	0.002	B	0.0017	B	0.002	B	0.002	B
Naphthalene	mg/L	NA	0.04		0.054		0.26		0.0018		0.0013		0.013		0.016	
n-Butylbenzene	mg/L	NA	0.021		0.025		0.032		0.0011		0.001	U	0.0087		0.0077	
n-Propylbenzene	mg/L	NA	0.042		0.085		0.28		0.0016		0.001	U	0.0085		0.0082	
o-Xylene	mg/L	1.75	0.00078	J	0.0014		0.0023		0.001	U	0.001	U	0.001	U	0.001	U
Sec-Butylbenzene	mg/L	NA	0.031		0.041		0.052		0.0016		0.00086	J	0.01		0.0097	
Toluene	mg/L	0.15	0.001	U	0.0023		0.0017		0.0012		0.0011		0.0016		0.0017	
Vinyl Chloride	mg/L	0.0005	0.00068	J	0.00056	J	0.00086	J	0.0023		0.001	U	0.001	U	0.001	U

Table 7
Summary of Baseline Groundwater
Measured Field Parameters

Sample Number			9I-CH1-10		9I-CH1-30		9I-CH1-40		9I-CH1-50		9I-CH1-60		9I-CH2-10		9I-CH2-30		9I-CH2-40	
Location			**9I-CH1**		**9I-CH1**		**9I-CH1**		**9I-CH1**		**9I-CH1**		**9I-CH2**		**9I-CH2**		**9I-CH2**	
Sample Date			**2-Jul-02**		**3-Jul-02**		**3-Jul-02**		**3-Jul-02**		**3-Jul-02**		**3-Jul-02**		**3-Jul-02**		**3-Jul-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																		
1,1-Dichloroethane	mg/L	0.005	0.001	U	0.015		0.3		0.0039		0.002		0.001	U	0.042		0.17	
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	mg/L	0.6	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.0028	J	0.005	U	0.00092	J	0.005	U	0.0013	J	0.005	U	0.005	U	0.005	U
Acetone	mg/L	NA	0.01		0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Benzene	mg/L	0.001	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloromethane	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00055	J	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.00093	J	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Methylene Chloride	mg/L	0.005	0.00064	JB	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00066	JB	0.001	U
Naphthalene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Toluene	mg/L	0.15	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Vinyl Chloride	mg/L	0.0005	0.001	U	0.001	U	0.0066		0.001	U	0.001	U	0.001	U	0.0006	J	0.002	

Table 7
Summary of Baseline Groundwate
Measured Field Parameters

Sample Number			9I-CH2-50		9I-CH2-60		9I-CH2-70		9I-CH3-10		9I-CH3-20		9I-CH3-30		9I-CH3-40		9I-CH3-50		9I-CH3-60	
Location			**9I-CH2**		**9I-CH2**		**9I-CH2**		**9I-CH3**		**9I-CH3**		**9I-CH3**		**9I-CH3**		**9I-CH3**		**9I-CH3**	
Sample Date			**8-Jul-02**		**8-Jul-02**		**8-Jul-02**		**25-Jun-02**		**25-Jun-02**		**25-Jun-02**		**9-Jul-02**		**9-Jul-02**		**9-Jul-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																				
1,1-Dichloroethane	mg/L	0.005	0.001	U	0.002	U	0.0016		0.001	U	0.00079	J	1.5		0.15		0.0026		0.0034	
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.0062		0.0013		0.001	U	0.001	U
1,2-Dichlorobenzene	mg/L	0.6	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.00097	J	0.0014	J	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.0063	
Acetone	mg/L	NA	0.005	U	0.01	U	0.005	U	0.0035	JB	0.0076	B	0.0056	B	0.0086		0.005	U	0.018	
Benzene	mg/L	0.001	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.00093	J	0.001	U	0.001	U	0.001	U
Chloromethane	mg/L	NA	0.001	U	0.002	U	0.001	U	0.0037		0.001	J	0.00089	J	0.001	U	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.0026		0.001	U	0.001	U	0.001	U
Methylene Chloride	mg/L	0.005	0.0018		0.0042		0.0023		0.0014	B	0.0014	B	0.0015	B	0.001	B	0.0013	B	0.0014	B
Naphthalene	mg/L	NA	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Toluene	mg/L	0.15	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00054	J	0.001	U	0.00055	J
Trichloroethene	mg/L	0.005	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Vinyl Chloride	mg/L	0.0005	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.03		0.0016		0.001	U	0.001	U

Table 7
Summary of Baseline Groundwate
Measured Field Parameters

Sample Number			9I-CH3-70		9I-CH4-10		9I-CH4-20		9I-CH4-30		9I-CH4-40		9I-CH4-50		9I-CH4-60	
Location			**9I-CH3**		**9I-CH4**		**9I-CH4**		**9I-CH4**		**9I-CH4**		**9I-CH4**		**9I-CH4**	
Sample Date			**9-Jul-02**		**3-Jul-02**		**3-Jul-02**		**3-Jul-02**		**8-Jul-02**		**8-Jul-02**		**8-Jul-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																
1,1-Dichloroethane	mg/L	0.005	0.014		0.0026		0.0005	J	0.012		0.07		0.00091	J	0.001	U
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	mg/L	0.6	0.00095	J	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.0015	J
Acetone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.0057		0.0042	J
Benzene	mg/L	0.001	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloromethane	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Methylene Chloride	mg/L	0.005	0.00063	JB	0.0005	JB	0.00065	JB	0.00059	JB	0.0019		0.0021		0.0021	
Naphthalene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Toluene	mg/L	0.15	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Vinyl Chloride	mg/L	0.0005	0.001	U	0.001	U	0.001	U	0.001	U	0.001		0.001	U	0.001	U

Table 8
Summary of Pilot Test Groundwater
Measured Field Parameters

Sample Number			11/21-CH1-10		11/21-CH1-20		11/21-CH1-30		11/21-CH1-40		11/21-CH1-50		11/21-CH2-10		11/21-CH2-20	
Location			11/21-CH1		11/21-CH1		11/21-CH1		11/21-CH1		11/21-CH1		11/21-CH2		11/21-CH2	
Sample Date			9-Jul-02		9-Jul-02		10-Jul-02		10-Jul-02		10-Jul-02		10-Jul-02		10-Jul-02	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																
1,1-Dichloroethane	mg/L	0.005	0.001	U	0.0044		0.001	U	0.001	U	0.001	U	0.001	U	0.0012	
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.0011		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.0029	J	0.0027	J	0.005	U	0.005	U
Acetone	mg/L	NA	0.0045	J	0.005	U	0.0028	J	0.006		0.0058		0.005	U	0.005	U
Benzene	mg/L	0.001	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chlorobenzene	mg/L	0.07	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloroform	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.0033		0.001	U
Methylene Chloride	mg/L	0.005	0.001	U	0.001	U	0.0012	B	0.00069	JB	0.00067	JB	0.001	U	0.001	U
Naphthalene	mg/L	NA	0.001	U	0.00061	J	0.001	U	0.001	U	0.00052	J	0.00058	J	0.001	U
Toluene	mg/L	0.15	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00063	J	0.001	U
Vinyl Chloride	mg/L	0.0005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U

Table 8
Summary of Pilot Test Groundwater
Measured Field Parameters

Sample Number			11/21-CH2-30		11/21-CH2-40		11/21-CH2-50		11/21-CH3-10		11/21-CH3-20		11/21-CH3-30		11/21-CH3-40	
Location			**11/21-CH2**		**11/21-CH2**		**11/21-CH2**		**11/21-CH3**		**11/21-CH3**		**11/21-CH3**		**11/21-CH3**	
Sample Date			**10-Jul-02**		**10-Jul-02**		**10-Jul-02**		**10-Jul-02**		**10-Jul-02**		**10-Jul-02**		**10-Jul-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																
1,1-Dichloroethane	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.00053	J	0.001	U	0.001	U
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.005	U	0.0012	J	0.0017	J	0.005	U	0.0011	J	0.00073	J	0.00075	J
Acetone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Benzene	mg/L	0.001	0.001	U	0.001	U	0.00051	J	0.001	U	0.001	U	0.001	U	0.001	U
Chlorobenzene	mg/L	0.07	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloroform	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.01		0.002	
Methylene Chloride	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.00064	JB	0.001	B	0.00086	JB
Naphthalene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Toluene	mg/L	0.15	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.08		0.0015	
Vinyl Chloride	mg/L	0.0005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	J	0.00094	J

Table 8
Summary of Pilot Test Groundwater
Measured Field Parameters

Sample Number			11/21-CH3-50	11/21-CH4-1(	11/21-CH4-20	11/21-CH4-30	11/21-CH4-40	11/21-CH4-50
Location			**11/21-CH3**	**11/21-CH4**	**11/21-CH4**	**11/21-CH4**	**11/21-CH4**	**11/21-CH4**
Sample Date			**11-Jul-02**	**11-Jul-02**	**11-Jul-02**	**11-Jul-02**	**11-Jul-02**	**11-Jul-02**
Parameter	Units	MCL	Result Qual	Result Qu	Result Qu	Result Qu	Result Qu	Result Qual
8260 VOLATILES								
1,1-Dichloroethane	mg/L	0.005	0.001 U	0.001 U	0.0019	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
2-Butanone	mg/L	NA	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Acetone	mg/L	NA	0.0083	0.013	0.005 U	0.0079	0.014	0.01
Benzene	mg/L	0.001	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	mg/L	0.07	0.001 U	0.0011	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform	mg/L	NA	0.001 U	0.0011	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	mg/L	0.006	0.001 U	0.016	0.001 U	0.001 U	0.001 U	0.001 U
Methylene Chloride	mg/L	0.005	0.0011 B	0.0011 B	0.0011 B	0.00097 JB	0.00073 JB	0.00089 JB
Naphthalene	mg/L	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	mg/L	0.15	0.00052 J	0.001 U	0.001 U	0.001 U	0.001 U	0.00062 J
Trichloroethene	mg/L	0.005	0.0011	0.0048	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl Chloride	mg/L	0.0005	0.001 U	0.00051 J	0.001 U	0.001 U	0.001 U	0.001 U

Table 9
Comparison of Baseline Soil and
Post-Oxidant Injection Detected Analytical Results

Sample Number			**16N-CH1-10**		**16N-CH1-20**		**16N-CH1-30**		**16N-CH2-10**		**16N-CH2-20**		**16N-CH2-30**		**16N-CH2-40**	
Location			**16N-CH1**		**16N-CH1**		**16N-CH1**		**16N-CH2**		**16N-CH2**		**16N-CH2**		**16N-CH2**	
Sample Date			**3-Jul-02**		**3-Jul-02**		**3-Jul-02**		**8-Jul-02**		**8-Jul-02**		**8-Jul-02**		**8-Jul-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																
1,2-Dichlorobenzene	mg/L	0.6	0.097		0.015		0.012		0.2		0.0073		0.0043		0.0059	
1,3-Dichlorobenzene	mg/L	NA	0.0028		0.001	U	0.01	U	0.0038		0.005	U	0.001	U	0.001	U
1,4-Dichlorobenzene	mg/L	0.005	0.017		0.0041		0.01	U	0.026		0.005	U	0.0011		0.0014	
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.01	J	0.005	U	0.025	U	0.0011	J	0.0014	J
Acetone	mg/L	NA	0.005	U	0.005	U	0.029	J	0.0066		0.042		0.011		0.0039	J
Chlorobenzene	mg/L	0.07	0.03		0.018		0.0092	J	0.053		0.0027	J	0.003		0.0034	
Chloromethane	mg/L	NA	0.001	U	0.001	U	0.0057	J	0.001	U	0.005	U	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.00085	J	0.00077	J	0.01	U	0.0033		0.005	U	0.001	U	0.001	U
Methylene Chloride	mg/L	0.005	0.001	U	0.00054	JB	0.016	B	0.0022		0.021		0.0022		0.0024	
Naphthalene	mg/L	NA	0.001	U	0.001	U	0.01	U	0.001	U	0.005	U	0.001	U	0.001	U
Toluene	mg/L	0.15	0.001	U	0.001	U	0.01	U	0.001	U	0.005	U	0.001	U	0.001	U
trans-1,2-dichloroethene	mg/L	0.01	0.001	U	0.001	U	0.01	U	0.001	U	0.005	U	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.001	U	0.001	U	0.01	U	0.001	U	0.005	U	0.001	U	0.001	U

Table 9
Comparison of Baseline Soil and
Post-Oxidant Injection Detected Analytical Results

Sample Number			**16N-CH3-10**		**16N-CH3-20**		**16N-CH3-30**		**16N-CH3-40**		**16N-CH4-10**		**16N-CH4-20**		**16N-CH4-30**		**16N-CH4-40**	
Location			**16N-CH3**		**16N-CH3**		**16N-CH3**		**16N-CH3**		**16N-CH4**		**16N-CH4**		**16N-CH4**		**16N-CH4**	
Sample Date			**9-Jul-02**		**9-Jul-02**		**9-Jul-02**		**9-Jul-02**		**9-Jul-02**		**9-Jul-02**		**9-Jul-02**		**9-Jul-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																		
1,2-Dichlorobenzene	mg/L	0.6	0.06		0.0012		0.0013		0.007		0.091		0.0024		0.0021		0.0028	
1,3-Dichlorobenzene	mg/L	NA	0.0013		0.001	U	0.001	U	0.002	U	0.0026		0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	mg/L	0.005	0.0099		0.001	U	0.001	U	0.001	J	0.016		0.001	U	0.001	U	0.00059	J
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.01	U	0.005	U	0.005	U	0.005	U	0.005	U
Acetone	mg/L	NA	0.005	U	0.005	U	0.0049	J	0.01	U	0.005	U	0.005	U	0.005	U	0.0056	
Chlorobenzene	mg/L	0.07	0.16		0.0013		0.0022		0.011		0.053		0.0019		0.0014		0.0016	
Chloromethane	mg/L	NA	0.001	U	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.0059		0.001	U	0.001	U	0.002	U	0.0041		0.00068	J	0.001	U	0.001	U
Methylene Chloride	mg/L	0.005	0.0013	B	0.0012	B	0.0016	B	0.004	B	0.001	U	0.00056	JB	0.001	U	0.00074	JB
Naphthalene	mg/L	NA	0.001	U	0.00075	J	0.001	U	0.002	U	0.0005	J	0.001	U	0.001	U	0.001	U
Toluene	mg/L	0.15	0.001	U	0.001	U	0.00062	J	0.002	U	0.00058	J	0.001	U	0.00055	J	0.001	U
trans-1,2-dichloroethene	mg/L	0.01	0.00053	J	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.00076	J	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U

Table 10
Comparison of Baseline Groundwater
and Post-Oxidant Injection Detected Analytical Results

Sample Number			**16S-CH1-10**		**16S-CH1-20**		**16S-CH1-30**		**16S-CH1-40**		**16S-CH2-10**		**16S-CH2-30**		**16S-CH**
Location			**16S-CH1**		**16S-CH1**		**16S-CH1**		**16S-CH1**		**16S-CH2**		**16S-CH2**		**16S-C**
Sample Date			**9-Jul-02**		**9-Jul-02**		**9-Jul-02**		**9-Jul-02**		**10-Jul-02**		**10-Jul-02**		**10-Jul**
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result
8260 VOLATILES															
1,3,5-trimethylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.0013
4-Isopropyltoluene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001
Acetone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.0055		0.005	U	0.005	U	0.0029
cis-1,2-Dichloroethene	mg/L	0.006	0.0022		0.001	U	0.001	U	0.001	U	0.008		0.001	U	0.001
Isopropylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001
Methylene Chloride	mg/L	0.005	0.001	U	0.001	U	0.0006	JB	0.001	U	0.00054	JB	0.001	U	0.0013
Tetrachloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001
Toluene	mg/L	0.15	0.001	U	0.001	U	0.001	U	0.00053	J	0.001	U	0.001	U	0.001
Trichloroethene	mg/L	0.005	0.00077	J	0.001	U	0.001	U	0.001	U	0.00086	J	0.001	U	0.001

Table 10
Comparison of Baseline Groundwater
and Post-Oxidant Injection Detected Analytical Results

Sample Number			**l2-40**	**16S-CH3-10**	**16S-CH3-20**	**16S-CH3-30**	**16S-CH3-40**	**16S-CH4-10**	**16S-CH4-20**
Location			**:H2**	**16S-CH3**	**16S-CH3**	**16S-CH3**	**16S-CH3**	**16S-CH4**	**16S-CH4**
Sample Date			**l-02**	**10-Jul-02**	**10-Jul-02**	**10-Jul-02**	**10-Jul-02**	**15-Jul-02**	**15-Jul-02**
Parameter	Units	MCL	Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
8260 VOLATILES									
1,3,5-trimethylbenzene	mg/L	NA	U	0.0062	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U
2-Butanone	mg/L	NA	J	0.005 U	0.005 U	0.00088 J	0.003 J	0.005 U	0.005 U
4-Isopropyltoluene	mg/L	NA	U	0.001 U	0.001 U	0.001 U	0.002 U	0.0018	0.001 U
Acetone	mg/L	NA	J	0.005 U	0.0042 J	0.003 JB	0.007 J	0.0045 J	0.013
cis-1,2-Dichloroethene	mg/L	0.006	U	0.022	0.0013	0.001 U	0.002 J	0.0063	0.001 U
Isopropylbenzene	mg/L	NA	U	0.0013	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U
Methylene Chloride	mg/L	0.005	B	0.001 U	0.002 B	0.001 U	0.001 JB	0.0015 B	0.0025 B
Tetrachloroethene	mg/L	0.005	U	0.64	0.005	0.0035	0.006	0.001 U	0.001 U
Toluene	mg/L	0.15	U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U
Trichloroethene	mg/L	0.005	U	0.023	0.001 U	0.001 U	0.002 U	0.0013	0.001 U

Table 11
Summary of IR Site 9 Plume Delineation
Groundwater Analytical Results

Sample Number			9-1-10		9-1-20		9-1-30		9-1-40		9-2-10		9-2-20		9-2-30		9-2-40	
Location			**9-1**		**9-1**		**9-1**		**9-1**		**9-2**		**9-2**		**9-2**		**9-2**	
Sample Date			**27-Jun-02**		**27-Jun-02**		**27-Jun-02**		**27-Jun-02**		**27-Jun-02**		**27-Jun-02**		**27-Jun-02**		**27-Jun-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																		
1,1-Dichloroethane	mg/L	0.005	0.0018		0.001	U	0.001	U	0.001	U	0.001	U	0.0012		0.001	U	0.001	U
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	mg/L	NA	0.13		0.038		0.014		0.0083		0.17		0.0023		0.37		0.061	
1,2-Dichloropropane	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3,5-trimethylbenzene	mg/L	NA	0.1		0.032		0.012		0.0068		0.14		0.0018		0.3		0.056	
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.0076		0.005	U	0.0025	J	0.005	U	0.0033	J
4-Isopropyltoluene	mg/L	NA	0.03		0.0084		0.004		0.0025		0.054		0.001	U	0.057		0.017	
Acetone	mg/L	NA	0.005	U	0.0041	JB	0.005	U	0.02	B	0.014	B	0.0078	B	0.011	B	0.0075	B
Benzene	mg/L	0.001	0.0027		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chlorobenzene	mg/L	0.07	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.037		0.00062	J	0.001	U	0.0006	J	0.027		0.00086	J	0.0026		0.0019	
Ethylbenzene	mg/L	0.7	0.0063		0.0016		0.00062	J	0.001	U	0.004		0.001	U	0.0063		0.00095	J
Isopropylbenzene	mg/L	NA	0.0078		0.0021		0.0008	J	0.001	U	0.01		0.001	U	0.014		0.0026	
m,p-Xylenes	mg/L	1.75	0.016		0.0064		0.0023		0.0013		0.021		0.001	U	0.034		0.0055	
Methylene Chloride	mg/L	0.005	0.001	JB	0.0011	B	0.001	JB	0.0017	B	0.00095	JB	0.0011	B	0.0012	B	0.00094	JB
MTBE	mg/L	0.013	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Naphthalene	mg/L	NA	0.014		0.0036		0.0011		0.0012		0.03		0.0057		0.058		0.014	
n-Butylbenzene	mg/L	NA	0.001	U	0.0034		0.0016		0.0012		0.023		0.0013		0.025		0.0088	
n-Propylbenzene	mg/L	NA	0.017		0.0044		0.0018		0.0011		0.026		0.001	U	0.029		0.0062	
o-Xylene	mg/L	1.75	0.0034		0.0023		0.00075	J	0.001	U	0.015		0.001	U	0.029		0.0046	
Sec-Butylbenzene	mg/L	NA	0.012		0.0039		0.001	U	0.0012		0.026		0.001	U	0.027		0.0082	
tert-Butylbenzene	mg/L	NA	0.011		0.0035		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Toluene	mg/L	0.15	0.00056	J	0.001	U	0.001	U	0.00058	J	0.0032		0.00059	J	0.0054		0.0011	
Vinyl Chloride	mg/L	0.0005	0.28		0.0014		0.00064	J	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U

Table 11
Summary of IR Site 9 Plume Delineation
Groundwater Analytical Results

Sample Number			9-3-20		9-3-30		9-3-40		9-3-55		9-3-63		9-4-20		9-4-30		9-4-40	
Location			9-3		9-3		9-3		9-3		9-3		9-4		9-4		9-4	
Sample Date			28-Jun-02		28-Jun-02		28-Jun-02		2-Jul-02		2-Jul-02		1-Jul-02		1-Jul-02		1-Jul-02	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																		
1,1-Dichloroethane	mg/L	0.005	0.00063	J	0.088		0.0017	J	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.0017		0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane	mg/L	NA	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	mg/L	NA	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloropropane	mg/L	0.005	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3,5-trimethylbenzene	mg/L	NA	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.01	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
4-Isopropyltoluene	mg/L	NA	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Acetone	mg/L	NA	0.0099		0.0085		0.023		0.017		0.017		0.005	U	0.0036	JB	0.0052	B
Benzene	mg/L	0.001	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chlorobenzene	mg/L	0.07	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.00051	J	0.00093	J	0.0013	
cis-1,2-Dichloroethene	mg/L	0.006	0.001	U	0.001	J	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Ethylbenzene	mg/L	0.7	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Isopropylbenzene	mg/L	NA	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
m,p-Xylenes	mg/L	1.75	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Methylene Chloride	mg/L	0.005	0.0028	B	0.0021	B	0.0073	B	0.0006	JB	0.00069	JB	0.0013	B	0.0015	B	0.0016	B
MTBE	mg/L	0.013	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Naphthalene	mg/L	NA	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00067	J
n-Butylbenzene	mg/L	NA	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
n-Propylbenzene	mg/L	NA	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
o-Xylene	mg/L	1.75	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Sec-Butylbenzene	mg/L	NA	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
tert-Butylbenzene	mg/L	NA	0.001	U	0.001	U	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Toluene	mg/L	0.15	0.00052	J	0.00057	J	0.002	U	0.001	U	0.001	U	0.00074	J	0.0011		0.0013	
Vinyl Chloride	mg/L	0.0005	0.001	U	0.0015		0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U

Table 11
Summary of IR Site 9 Plume Delineation
Groundwater Analytical Results

Sample Number			9-4-50		9-4-57		9-5-30		9-5-40		9-5-50		9-5-60		9-6-20		9-6-30	
Location			9-4		9-4		9-5		9-5		9-5		9-5		9-6		9-6	
Sample Date			1-Jul-02		1-Jul-02		2-Jul-02		2-Jul-02		2-Jul-02		2-Jul-02		2-Jul-02		2-Jul-02	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																		
1,1-Dichloroethane	mg/L	0.005	0.002	U	0.001	U	0.012		0.06		0.012		0.0005	J	0.001	U	0.002	U
1,1-Dichloroethene	mg/L	0.006	0.002	U	0.001	U	0.0091		0.003		0.001	U	0.001	U	0.001	U	0.002	U
1,2,3-Trichloropropane	mg/L	NA	0.002	U	0.001	U	0.009		0.0054		0.001	U	0.001	U	0.001	U	0.002	U
1,2,4-Trimethylbenzene	mg/L	NA	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
1,2-Dichloropropane	mg/L	0.005	0.002	U	0.001	U	0.001	J	0.0017		0.001	U	0.001	U	0.001	U	0.002	U
1,3,5-trimethylbenzene	mg/L	NA	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
2-Butanone	mg/L	NA	0.01	U	0.005	U	0.005	U	0.005	U	0.005	U	0.0066		0.005	U	0.01	U
4-Isopropyltoluene	mg/L	NA	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Acetone	mg/L	NA	0.014	B	0.01	B	0.019		0.0043	J	0.011		0.014		0.014		0.014	
Benzene	mg/L	0.001	0.002	U	0.00054	J	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Chlorobenzene	mg/L	0.07	0.0024		0.001	U	0.0013		0.0022		0.0027		0.0044		0.001	U	0.002	U
cis-1,2-Dichloroethene	mg/L	0.006	0.002	U	0.001	U	0.00056	J	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Ethylbenzene	mg/L	0.7	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Isopropylbenzene	mg/L	NA	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
m,p-Xylenes	mg/L	1.75	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Methylene Chloride	mg/L	0.005	0.0051	B	0.0013	B	0.00066	JB	0.00071	JB	0.00073	JB	0.0008	JB	0.00068	JB	0.0046	B
MTBE	mg/L	0.013	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Naphthalene	mg/L	NA	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
n-Butylbenzene	mg/L	NA	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
n-Propylbenzene	mg/L	NA	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
o-Xylene	mg/L	1.75	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Sec-Butylbenzene	mg/L	NA	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
tert-Butylbenzene	mg/L	NA	0.002	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Toluene	mg/L	0.15	0.0013	J	0.002		0.001	U	0.001	U	0.001	U	0.00057	J	0.001	U	0.002	U
Vinyl Chloride	mg/L	0.0005	0.002	U	0.001	U	0.0013		0.0085		0.0017		0.001	U	0.001	U	0.002	U

Table 11
Summary of IR Site 9 Plume Delineation
Groundwater Analytical Results

Sample Number			9-6-40		9-6-47		9-6-59		9-7-20		9-7-30		9-7-37	
Location			**9-6**		**9-6**		**9-6**		**9-7**		**9-7**		**9-7**	
Sample Date			**2-Jul-02**		**2-Jul-02**		**2-Jul-02**		**1-Jul-02**		**1-Jul-02**		**1-Jul-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES														
1,1-Dichloroethane	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.013		0.002	U
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
1,2,3-Trichloropropane	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
1,2,4-Trimethylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
1,2-Dichloropropane	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
1,3,5-trimethylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.0061		0.005	U	0.01	U
4-Isopropyltoluene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Acetone	mg/L	NA	0.017		0.0058		0.005	U	0.027	B	0.01	B	0.013	B
Benzene	mg/L	0.001	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Chlorobenzene	mg/L	0.07	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
cis-1,2-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Ethylbenzene	mg/L	0.7	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Isopropylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
m,p-Xylenes	mg/L	1.75	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Methylene Chloride	mg/L	0.005	0.0008	JB	0.00065	JB	0.00067	JB	0.0014	B	0.0014	B	0.0045	B
MTBE	mg/L	0.013	0.001	U	0.001	U	0.001	U	0.011		0.001	U	0.002	U
Naphthalene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.00077	J	0.001	U	0.002	U
n-Butylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
n-Propylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
o-Xylene	mg/L	1.75	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Sec-Butylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
tert-Butylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U
Toluene	mg/L	0.15	0.001	U	0.001	U	0.001	U	0.00078	J	0.00063	J	0.002	U
Vinyl Chloride	mg/L	0.0005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.002	U

Table 12
Summary of IR Site 16 Plume Delineation
Groundwater Analytical Results

Sample Number			16N-1-10		16N-1-20		16N-1-30		16N-2-10		16N-2-20		16N-2-30		16N-2-40		16N-3-10	
Location			**16N-1**		**16N-1**		**16N-1**		**16N-2**		**16N-2**		**16N-2**		**16N-2**		**16N-3**	
Sample Date			**12-Jul-02**		**12-Jul-02**		**12-Jul-02**		**12-Jul-02**		**12-Jul-02**		**12-Jul-02**		**12-Jul-02**		**12-Jul-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																		
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.00074	J	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene	mg/L	0.07	0.0017		0.001	U	0.001	U	0.0043		0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	mg/L	0.6	3.6		0.0074		0.057		4.9		0.057		0.016		0.0009	J	0.15	
1,3-Dichlorobenzene	mg/L	NA	0.15		0.001	U	0.0024		0.17		0.0025		0.00054	J	0.001	U	0.0082	
1,4-Dichlorobenzene	mg/L	0.005	0.59		0.0011		0.0096		0.74		0.01		0.0025		0.001	U	0.035	
2-Butanone	mg/L	NA	0.005	U	0.00077	J	0.0019	J	0.005	U	0.005	U	0.0012	J	0.005	U	0.005	U
2-Chlorotoluene	mg/L	NA	0.00064	J	0.001	U	0.001	U	0.0008	J	0.001	U	0.001	U	0.001	U	0.001	U
Acetone	mg/L	NA	0.005	U	0.01		0.0032	J	0.0027	J	0.0087		0.005	U	0.005	U	0.0032	J
Benzene	mg/L	0.001	0.0006	J	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00055	J
Bromobenzene	mg/L	NA	0.0013		0.001	U	0.001	U	0.0035		0.001	U	0.001	U	0.001	U	0.001	U
Chlorobenzene	mg/L	0.07	0.035		0.001	U	0.00089	J	0.025		0.0014		0.00093	J	0.001	U	0.036	
Chloromethane	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.00053	J	0.001	U	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.0025		0.001	U	0.001	U	0.0035		0.001	U	0.001	U	0.001	U	0.00086	J
Methylene Chloride	mg/L	0.005	0.0007	JB	0.0024	B	0.00075	JB	0.00072	JB	0.0031	B	0.00057	JB	0.001	U	0.00053	JB
Tetrachloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00055	J	0.001	U	0.001	U
trans-1,2-dichloroethene	mg/L	0.01	0.001	U	0.001	U	0.001	U	0.00074	J	0.001	U	0.001	U	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.00055	J	0.001	U	0.001	U	0.0016		0.001	U	0.001	U	0.001	U	0.001	U
Vinyl Chloride	mg/L	0.0005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U

Table 12
Summary of IR Site 16 Plume Delineation
Groundwater Analytical Results

Sample Number			16N-3-20		16N-3-30		16N-3-40		16N-4-10		16N-4-20		16N-4-30		16S-2-10		16S-3-10	
Location			16N-3		16N-3		16N-3		16N-4		16N-4		16N-4		16S-2		16S-3	
Sample Date			12-Jul-02		12-Jul-02		12-Jul-02		12-Jul-02		12-Jul-02		12-Jul-02		11-Jul-02		15-Jul-02	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																		
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.005	U	0.005	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00056	J
1,2,4-Trichlorobenzene	mg/L	0.07	0.001	U	0.005	U	0.005	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	mg/L	0.6	0.022		0.02		0.075		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene	mg/L	NA	0.00069	J	0.005	U	0.0035	J	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	mg/L	0.005	0.0032		0.0029	J	0.015		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.005	U	0.025	U	0.025	U	0.005	U	0.0013	J	0.0018	J	0.005	U	0.005	U
2-Chlorotoluene	mg/L	NA	0.001	U	0.005	U	0.005	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Acetone	mg/L	NA	0.0098		0.014	J	0.025	U	0.005	U	0.003	J	0.0034	J	0.005	U	0.027	
Benzene	mg/L	0.001	0.001	U	0.005	U	0.005	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromobenzene	mg/L	NA	0.001	U	0.005	U	0.005	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chlorobenzene	mg/L	0.07	0.0055		0.0037	J	0.0057		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloromethane	mg/L	NA	0.001	U	0.005	U	0.005	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.001	U	0.005	U	0.005	U	0.0076		0.001	U	0.001	U	0.0028		0.14	
Methylene Chloride	mg/L	0.005	0.0021	B	0.0085	B	0.0085	B	0.0008	JB	0.0011	B	0.0009	JB	0.0012	B	0.0035	B
Tetrachloroethene	mg/L	0.005	0.001	U	0.005	U	0.005	U	0.001	U	0.001	U	0.001	U	0.001	U	0.0027	
trans-1,2-dichloroethene	mg/L	0.01	0.001	U	0.005	U	0.005	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00056	J
Trichloroethene	mg/L	0.005	0.001	U	0.005	U	0.005	U	0.0006	J	0.001	U	0.001	U	0.00085	J	0.0021	
Vinyl Chloride	mg/L	0.0005	0.001	U	0.005	U	0.005	U	0.001	U	0.001	U	0.001	U	0.001	U	0.0099	

Table 12
Summary of IR Site 16 Plume Delineation
Groundwater Analytical Results

Sample Number			**16S-3-20**		**16S-4-10**		**16S-4-20**	
Location			**16S-3**		**16S-4**		**16S-4**	
Sample Date			**15-Jul-02**		**11-Jul-02**		**11-Jul-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES								
1,1-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene	mg/L	0.07	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	mg/L	0.6	0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene	mg/L	NA	0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	mg/L	0.005	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.005	U
2-Chlorotoluene	mg/L	NA	0.001	U	0.001	U	0.001	U
Acetone	mg/L	NA	0.013		0.005	U	0.012	
Benzene	mg/L	0.001	0.001	U	0.001	U	0.001	U
Bromobenzene	mg/L	NA	0.001	U	0.001	U	0.001	U
Chlorobenzene	mg/L	0.07	0.001	U	0.001	U	0.001	U
Chloromethane	mg/L	NA	0.001	U	0.001	U	0.001	U
cis-1,2-Dichloroethene	mg/L	0.006	0.0007	J	0.00057	J	0.001	U
Methylene Chloride	mg/L	0.005	0.0029	B	0.00093	JB	0.00081	JB
Tetrachloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U
trans-1,2-dichloroethene	mg/L	0.01	0.001	U	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U
Vinyl Chloride	mg/L	0.0005	0.001	U	0.001	U	0.001	U

Table 13
Summary of IR Site 9 Shallow Baseline Groundwater Analytical Results

Sample Number			SITE9-019		SITE9-020		SITE9-021		SITE9-022		SITE9-023		SITE9-024		SITE9-025	
Location			**P-9-MWS-03**		**P-9-IWS-01**		**P-9-IWS-01**		**P-9-MWS-01**		**P-9-MWS-04**		**P-9-MWI-01**		**P-9-MWS-02**	
Sample Date			**10-Sep-02**		**10-Sep-02**		**10-Sep-02**		**11-Sep-02**		**11-Sep-02**		**11-Sep-02**		**11-Sep-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																
1,1-Dichloroethane	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.00059	J	0.001	U	0.001	U
1,2,3-Trichlorobenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene	mg/L	0.07	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.0034		0.13		0.001	U	0.001	U
1,2-Dichlorobenzene	mg/L	0.6	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3,5-Trimethylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.002		0.069		0.001	U	0.001	U
1,3-Dichlorobenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
2-Chlorotoluene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-Chlorotoluene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-Isopropyltoluene	mg/L	NA	0.0017		0.0032		0.0044		0.001	U	0.055		0.001	U	0.0014	
Acetone	mg/L	NA	0.0044	JB	0.0096	B	0.011	B	0.005	U	0.005	U	0.005	U	0.005	U
Benzene	mg/L	0.001	0.001	J	0.002		0.0019		0.0017		0.0056		0.001	U	0.001	U
Benzene, Propyl-	mg/L	NA	0.0034		0.01		0.014		0.027		0.056		0.001	U	0.001	U
Bromobenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloroform	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloromethane	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.0013		0.0046		0.001	U
Cis-1,2-Dichloroethene	mg/L	0.006	0.0038		0.0012		0.0012		0.0014		0.013		0.001	U	0.0012	
Ethylbenzene	mg/L	0.7	0.001	U	0.001	U	0.001	U	0.0012		0.09		0.001	U	0.001	U
Hexachlorobutadiene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Isopropylbenzene	mg/L	NA	0.0054		0.012		0.015		0.018		0.051		0.001	U	0.001	U
Methylene Chloride	mg/L	0.005	0.00065	JB	0.00063	JB	0.001	U	0.001	U	0.001	U	0.001	U	0.00058	JB
Naphthalene	mg/L	NA	0.0028		0.0018		0.0032		0.0054		0.058		0.0019		0.001	U
N-Butylbenzene	mg/L	NA	0.0045		0.0054		0.0069		0.0093		0.055		0.001	U	0.001	U
O-Xylene	mg/L	1.75	0.001	U	0.001	U	0.001	U	0.001		0.0008	J	0.001	U	0.001	U

Table 13
Summary of IR Site 9 Shallow Baseline Groundwater Analytical Results

Sample Number			SITE9-019		SITE9-020		SITE9-021		SITE9-022		SITE9-023		SITE9-024		SITE9-025	
Location			**P-9-MWS-03**		**P-9-IWS-01**		**P-9-IWS-01**		**P-9-MWS-01**		**P-9-MWS-04**		**P-9-MWI-01**		**P-9-MWS-02**	
Sample Date			**10-Sep-02**		**10-Sep-02**		**10-Sep-02**		**11-Sep-02**		**11-Sep-02**		**11-Sep-02**		**11-Sep-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Sec-Butylbenzene	mg/L	NA	0.003		0.0042		0.0056		0.022		0.019		0.001	U	0.001	U
Styrene	mg/L	0.1	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tert-Butylbenzene	mg/L	NA	0.001	U	0.0012		0.0016		0.0034		0.001	U	0.001	U	0.001	U
Tetrachloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Toluene	mg/L	0.15	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Total Xylenes	mg/L	1.75	0.001	U	0.001	U	0.001	U	0.0016		0.0082		0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Vinyl Chloride	mg/L	0.0005	0.0022		0.003		0.0031		0.0025		0.099		0.001	U	0.001	U
GENERAL CHEM																
Carbon, Total Organic	mg/L	NA	17		17		28		20		31		4.4		9.3	
METALS																
Aluminum	mg/L	1	0.131	BN	0.465	N	0.494	N	0.115	B	0.192	B	0.128	B	0.337	
Antimony	mg/L	0.006	0.02	U	0.02	U	0.0032	B	0.02	U	0.02	U	0.02	U	0.02	U
Arsenic	mg/L	0.05	0.0174	B	0.0362		0.0395		0.016	B	0.016	B	0.02	U	0.0215	
Barium	mg/L	1	0.0235		0.126		0.127		0.192		0.0291		0.234		0.0335	
Beryllium	mg/L	0.004	0.00016	B	0.0002	B	0.00018	B	0.00023	B	0.00019	B	0.00019	B	0.00014	B
Cadmium	mg/L	0.005	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U
Calcium	mg/L	NA	53.7		41.2		42.2		38.8		27.9		39.9		23.2	
Chromium	mg/L	0.05	0.0018	B	0.0035	B	0.004	B	0.0019	B	0.0032	B	0.005	U	0.0021	B
Cobalt	mg/L	NA	0.0022	B	0.0016	B	0.0015	B	0.0023	B	0.0034	B	0.0035	B	0.0006	B
Copper	mg/L	1	0.0022	B	0.0024	B	0.0032	B	0.0017	B	0.0016	B	0.0012	B	0.0025	B
Iron	mg/L	NA	0.227		2.9		2.93		3.96		1.45		0.15	U	0.414	
Lead	mg/L	0.015	0.0028	B	0.0028	B	0.0029	B	0.002	B	0.0022	B	0.01	U	0.002	B
Magnesium	mg/L	NA	39.4		32.6		33.4		42.4		38.1		65.3		19.8	
Manganese	mg/L	NA	0.525		1.3		1.32		0.457		0.527		0.917		0.167	
Mercury	mg/L	0.002	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Molybdenum	mg/L	NA	0.0055		0.0056		0.0054		0.0034	B	0.0016	B	0.0037	B	0.0061	
Nickel	mg/L	0.1	0.0103		0.0177		0.0188		0.0146		0.0212		0.0459		0.0095	B

Table 13
Summary of IR Site 9 Shallow Baseline Groundwater Analytical Results

Sample Number			**SITE9-019**		**SITE9-020**		**SITE9-021**		**SITE9-022**		**SITE9-023**		**SITE9-024**		**SITE9-025**	
Location			**P-9-MWS-03**		**P-9-IWS-01**		**P-9-IWS-01**		**P-9-MWS-01**		**P-9-MWS-04**		**P-9-MWI-01**		**P-9-MWS-02**	
Sample Date			**10-Sep-02**		**10-Sep-02**		**10-Sep-02**		**11-Sep-02**		**11-Sep-02**		**11-Sep-02**		**11-Sep-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Potassium	mg/L	NA	19.9		22.9		23.4		38.1		41.7		30.8		19.9	
Selenium	mg/L	0.05	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Silver	mg/L	NA	0.00083	B	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Sodium	mg/L	NA	274		353		361		406		881		1680		446	
Vanadium	mg/L	NA	0.0019	B	0.0023	B	0.0024	B	0.0024	B	0.0048	B	0.0044	B	0.0052	B
Zinc	mg/L	NA	0.0089	B	0.0227		0.031		0.0041	B	0.0083	B	0.0073	B	0.0095	B

Table 14
Summary of IR Site 9 Intermediate
Baseline Groundwater Analytical Results

Sample Number			SITE9-008		SITE9-009		SITE9-010		SITE9-011		SITE9-012		SITE9-013		SITE9-014		SITE9-015		SITE9-016	
Location			**P-9-MWI-06**		**P-9-IWI-01**		**P-9-MWI-04**		**P-9-MWI-04**		**P-9-MWI-02**		**P-9-MWI-08**		**P-9-MWI-05**		**P-9-MWI-09**		**P-9-MWI-10**	
Sample Date			**9-Sep-02**		**9-Sep-02**		**9-Sep-02**		**9-Sep-02**		**10-Sep-02**		**10-Sep-02**		**10-Sep-02**		**10-Sep-02**		**10-Sep-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																				
1,1-Dichloroethane	mg/L	0.005	0.38		0.019		0.0065		0.0061		0.015		0.18		0.35		1.2		0.031	
1,1-Dichloroethene	mg/L	0.006	0.015		0.0021		0.0021		0.0021		0.0014		0.012		0.0093		0.038		0.001	U
1,2,4-Trimethylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.005	U	0.0065		0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.033	
Acetone	mg/L	NA	0.005	U	0.0085		0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.014	
Chloroform	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloromethane	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Cis-1,2-Dichloroethene	mg/L	0.006	0.0009	J	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00093	J	0.0017		0.001	U
Methylene Chloride	mg/L	0.005	0.00064	JB	0.00085	JB	0.00072	JB	0.00077	JB	0.00083	JB	0.00084	JB	0.00072	JB	0.00079	JB	0.001	JB
Naphthalene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Toluene	mg/L	0.15	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Vinyl Chloride	mg/L	0.0005	0.0065		0.001	U	0.001	U	0.001	U	0.001	U	0.0023		0.014		0.036		0.00059	J
GENERAL CHEM																				
Carbon, Total Organic	mg/L	NA	1	U	8.17		4.08		5.9		3.6		6.6		5.4		11		1.3	
METALS																				
Aluminum	mg/L	1	0.855		4.3		2.64		3.27		3.12	N	0.905	N	0.501	N	0.438	N	0.778	BN
Antimony	mg/L	0.006	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.2	U
Arsenic	mg/L	0.05	0.0071	B	0.0061	B	0.0082	B	0.0089	B	0.0097	B	0.0048	B	0.0113	B	0.0037	B	0.2	U
Barium	mg/L	1	0.0518		0.0252		0.0265		0.0294		0.03		0.0938		0.0223		0.0521		0.137	
Beryllium	mg/L	0.004	0.002	U	0.002	U	0.002	U	0.002	U	0.00017	B	0.00018	B	0.00017	B	0.00016	B	0.0017	B
Cadmium	mg/L	0.005	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.06	U
Calcium	mg/L	NA	34.7		2.96		3.44		3.52		5.33		91.3		4.16		88.3		1590	
Chromium	mg/L	0.05	0.0043	B	0.0291		0.0115		0.0142		0.0124		0.0036	B	0.0022	B	0.0017	B	0.05	U
Cobalt	mg/L	NA	0.0015	B	0.0109		0.0042	B	0.0047	B	0.0119		0.0035	B	0.0024	B	0.0021	B	0.0124	B
Copper	mg/L	1	0.0027	B	0.0088	B	0.0042	B	0.0188		0.0047	B	0.0015	B	0.0029	B	0.0039	B	0.1	U
Iron	mg/L	NA	1.21		6.21		3.76		4.7		4.54		1.02		0.672		0.33		1.33	B
Lead	mg/L	0.015	0.01	U	0.0025	B	0.0022	B	0.0021	B	0.0025	B	0.0019	B	0.01	U	0.0028	B	0.1	U
Magnesium	mg/L	NA	43.4		3.35		3.22		3.36		2.98		118		4.47		132		1810	
Manganese	mg/L	NA	0.305		0.0835		0.0671		0.0754		0.0672		0.981		0.0462		1.18		18.6	
Mercury	mg/L	0.002	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Molybdenum	mg/L	NA	0.003	B	0.0055		0.0067		0.0071		0.0045	B	0.0049	B	0.0124		0.0057		0.05	U
Nickel	mg/L	0.1	0.0205		0.111		0.0318		0.033		0.0793		0.033		0.0237		0.106		0.0298	B
Potassium	mg/L	NA	11		6.87		6.29		6.44		7.3		17.1		14.3		37.7		22.5	
Selenium	mg/L	0.05	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.2	U
Silver	mg/L	NA	0.01		0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.03	U
Sodium	mg/L	NA	668		244		235		235		212		1160		398		1670		5170	
Vanadium	mg/L	NA	0.0035	B	0.0354		0.0154		0.0169		0.0186		0.005	B	0.0043	B	0.002	B	0.1	U
Zinc	mg/L	NA	0.0999		1.29		0.0278		0.0296		0.0399		0.155		0.0191	B	0.107		0.2	U

Table 14
Summary of IR Site 9 Intermediate
Baseline Groundwater Analytical Results

Sample Number			**SITE9-017**		**SITE9-018**	
Location			**P-9-MWI-07**		**P-9-MWI-03**	
Sample Date			**10-Sep-02**		**10-Sep-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual
8260 VOLATILES						
1,1-Dichloroethane	mg/L	0.005	0.0016		0.099	
1,1-Dichloroethene	mg/L	0.006	0.00095	J	0.0076	
1,2,4-Trimethylbenzene	mg/L	NA	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.005	U	0.005	U
Acetone	mg/L	NA	0.005	U	0.005	U
Chloroform	mg/L	NA	0.001	U	0.00084	J
Chloromethane	mg/L	NA	0.001	U	0.001	U
Cis-1,2-Dichloroethene	mg/L	0.006	0.001	U	0.001	U
Methylene Chloride	mg/L	0.005	0.00069	JB	0.00078	JB
Naphthalene	mg/L	NA	0.001	U	0.001	U
Toluene	mg/L	0.15	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.001	U	0.001	U
Vinyl Chloride	mg/L	0.0005	0.001	U	0.0021	
GENERAL CHEM						
Carbon, Total Organic	mg/L	NA	8.3		1.6	
METALS						
Aluminum	mg/L	1	0.453	N	4.44	N
Antimony	mg/L	0.006	0.02	U	0.02	U
Arsenic	mg/L	0.05	0.02	U	0.007	B
Barium	mg/L	1	0.0125		0.148	
Beryllium	mg/L	0.004	0.002	U	0.00027	B
Cadmium	mg/L	0.005	0.006	U	0.006	U
Calcium	mg/L	NA	4.07		37.7	
Chromium	mg/L	0.05	0.0039	B	0.0194	
Cobalt	mg/L	NA	0.00074	B	0.0056	
Copper	mg/L	1	0.0022	B	0.0063	B
Iron	mg/L	NA	0.52		6.69	
Lead	mg/L	0.015	0.01	U	0.003	B
Magnesium	mg/L	NA	2.73		50.6	
Manganese	mg/L	NA	0.0269		0.387	
Mercury	mg/L	0.002	0.0002	U	0.0002	U
Molybdenum	mg/L	NA	0.0032	B	0.0058	
Nickel	mg/L	0.1	0.0065	B	0.049	
Potassium	mg/L	NA	11		11.2	
Selenium	mg/L	0.05	0.02	U	0.02	U
Silver	mg/L	NA	0.003	U	0.003	U
Sodium	mg/L	NA	278		725	
Vanadium	mg/L	NA	0.0024	B	0.0169	
Zinc	mg/L	NA	0.0281		0.0984	

Table 15
Summary of IR Site 11/21 Intermediate Baseline Groundwater Analytical Results

Sample Number			SITE11-21-036		SITE11-21-037		SITE11-21-038		SITE11-21-039		SITE11-21-040		SITE11-21-041	
Location			**IW-01**		**MW-01**		**MW-02**		**MW-03**		**MW-04**		**MW-04**	
Sample Date			**12-Sep-02**		**12-Sep-02**		**12-Sep-02**		**12-Sep-02**		**12-Sep-02**		**12-Sep-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES														
1,1,2-Trichloroethane	mg/L	0.005	0.0023		0.001	U	0.0031		0.0012		0.0039		0.0033	
1,1-Dichloroethene	mg/L	0.006	0.0032		0.0019		0.0044		0.0025		0.0044		0.0031	
1,2-Dichlorobenzene	mg/L	0.6	0.035		0.001	U	0.08	E	0.0088		0.11	E	0.089	E
1,2-Dichloroethane	mg/L	0.0005	0.0072		0.0019		0.012		0.001	U	0.013		0.011	
1,4-Dichlorobenzene	mg/L	0.005	0.0023		0.001	U	0.0047		0.001	U	0.0064		0.0051	
Acetone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.005	U	0.0047	J	0.005	U
Chlorobenzene	mg/L	0.07	0.001	U	0.001	U	0.00089	J	0.001	U	0.0012		0.00095	J
Chloroform	mg/L	NA	0.00051	J	0.001	U	0.00091	J	0.001	U	0.0011		0.00095	J
Cis-1,2-Dichloroethene	mg/L	0.006	0.11		0.05		0.14	E	0.11	E	0.15	E	0.13	E
Methylene Chloride	mg/L	0.005	0.0012	B	0.00084	JB	0.0011	B	0.00085	JB	0.0012	B	0.00092	JB
Tetrachloroethene	mg/L	0.005	0.00071	J	0.001	U	0.0014		0.001	U	0.0016		0.0014	
Trans-1,2-Dichloroethene	mg/L	0.01	0.0012		0.001	U	0.0017		0.0006	J	0.0018		0.002	
Trichloroethene	mg/L	0.005	8.1		3.2		12		4.8		15		14	
Vinyl Chloride	mg/L	0.0005	0.014		0.0064		0.018		0.013		0.018		0.013	
GENERAL CHEM														
Carbon, Total Organic	mg/L	NA	2.2		1	U	1	U	1	U	1	U	1	U
METALS														
Aluminum	mg/L	1	1.42	B	4.92		2.71	B	4	U	2.08	B	1.95	B
Arsenic	mg/L	0.05	0.4	U	0.4	U	0.4	U	0.4	U	0.0695	B	0.4	U
Barium	mg/L	1	0.0496	B	0.0708	B	0.0787	B	0.0549	B	0.0613	B	0.06	B
Beryllium	mg/L	0.004	0.0022	B	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Calcium	mg/L	NA	322		491		183		348		186		190	
Cobalt	mg/L	NA	0.0597	B	0.105		0.0269	B	0.0579	B	0.0184	B	0.0203	B
Iron	mg/L	NA	3	U	2.51	B	1.54	B	3	U	1.06	B	0.582	B
Magnesium	mg/L	NA	1030		1590		552		1070		551		567	
Manganese	mg/L	NA	4.08		6.27		1.97		4.51		1.96		2.01	
Nickel	mg/L	0.1	0.13	B	0.225		0.0571	B	0.134	B	0.06	B	0.0594	B
Potassium	mg/L	NA	432		585		272		443		279		280	
Silver	mg/L	NA	0.06	U	0.0139	B	0.06	U	0.06	U	0.06	U	0.06	U
Sodium	mg/L	NA	10400		14400		6870		11800		7060		7060	
Zinc	mg/L	NA	0.4	U	0.198	B	0.4	U	2.39		0.4	U	0.113	B

Table 16
Summary of IR Site 16 North Shallow
Baseline Groundwater Analytical Results

Sample Number			SITE16N-026	SITE16N-027	SITE16N-028	SITE16N-029	SITE16N-030	SITE16N-031
Location			**P-16-MWS-08**	**P-16-MWS-02**	**P-16-IWS-02**	**P-16-MWS-06**	**P-16-MWI-02**	**P-16-MWS-04**
Sample Date			**11-Sep-02**	**11-Sep-02**	**11-Sep-02**	**11-Sep-02**	**11-Sep-02**	**11-Sep-02**
Parameter	Units	MCL	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
8260 VOLATILES								
1,1-Dichloroethene	mg/L	0.006	0.0008 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,3-Trichlorobenzene	mg/L	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,4-Trichlorobenzene	mg/L	0.07	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,4-Trimethylbenzene	mg/L	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	mg/L	0.6	0.08	0.0045	0.0047	0.036	0.001 U	0.0095
1,3-Dichlorobenzene	mg/L	NA	0.0018	0.001 U	0.001 U	0.0015	0.001 U	0.00077 J
1,4-Dichlorobenzene	mg/L	0.005	0.011	0.0012	0.0014	0.01	0.001 U	0.0034
2-Butanone	mg/L	NA	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chlorobenzene	mg/L	0.07	0.078 E	0.001 U	0.001 U	0.023	0.001 U	0.001 U
Chloroform	mg/L	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane	mg/L	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.00056 J	0.001 U
Cis-1,2-Dichloroethene	mg/L	0.006	0.0043	0.001 U	0.001 U	0.0016	0.001 U	0.001 U
Hexachlorobutadiene	mg/L	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Methylene Chloride	mg/L	0.005	0.00055 JB	0.00059 JB	0.0007 JB	0.00097 JB	0.0022 B	0.0024 B
Naphthalene	mg/L	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
N-Butylbenzene	mg/L	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Sec-Butylbenzene	mg/L	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Tert-Butylbenzene	mg/L	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Tetrachloroethene	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trans-1,2-Dichloroethene	mg/L	0.01	0.0008 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	mg/L	0.005	0.0018	0.0011	0.00097 J	0.0012	0.001 U	0.0006 J
GENERAL CHEM								
Carbon, Total Organic	mg/L	NA	6	3	3	3.8	4.2	1.6
METALS								
Aluminum	mg/L	1	0.128 B	0.0956 B	0.0921 B	0.108 B	0.173 B	0.117 B
Antimony	mg/L	0.006	0.02 U	0.02 U	0.0027 B	0.034	0.02 U	0.02 U
Arsenic	mg/L	0.05	0.0086 B	0.02 U	0.02 U	0.0146 B	0.0049 B	0.02 U
Barium	mg/L	1	0.0695	0.0477	0.0667	0.0819	0.0389	0.007
Beryllium	mg/L	0.004	0.00016 B	0.00011 B	0.00016 B	0.0006 B	0.00011 B	0.002 U
Cadmium	mg/L	0.005	0.006 U	0.006 U	0.006 U	0.0012 B	0.006 U	0.006 U
Calcium	mg/L	NA	35.5	35.1	29	38	8.44	23.5
Chromium	mg/L	0.05	0.0067	0.0021 B	0.002 B	0.0078	0.0014 B	0.002 B
Cobalt	mg/L	NA	0.005 U	0.005 U	0.005 U	0.0068	0.005 U	0.005 U

Table 16
Summary of IR Site 16 North Shallow
Baseline Groundwater Analytical Results

Sample Number			**SITE16N-026**		**SITE16N-027**		**SITE16N-028**		**SITE16N-029**		**SITE16N-030**		**SITE16N-031**	
Location			**P-16-MWS-08**		**P-16-MWS-02**		**P-16-IWS-02**		**P-16-MWS-06**		**P-16-MWI-02**		**P-16-MWS-04**	
Sample Date			**11-Sep-02**		**11-Sep-02**		**11-Sep-02**		**11-Sep-02**		**11-Sep-02**		**11-Sep-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Copper	mg/L	1	0.0023	B	0.002	B	0.0021	B	0.0055	B	0.0015	B	0.0012	B
Iron	mg/L	NA	0.113	B	0.15	U	0.0332	B	0.0486	B	0.115	B	0.0304	B
Lead	mg/L	0.015	0.0018	B	0.002	B	0.01	U	0.01	U	0.0019	B	0.0021	B
Magnesium	mg/L	NA	14.4		16.2		14.7		18.9		17.4		6.93	
Manganese	mg/L	NA	0.093		0.0226		0.0225		0.0597		0.0798		0.0099	
Molybdenum	mg/L	NA	0.0048	B	0.0028	B	0.0035	B	0.0076		0.0617		0.0046	B
Nickel	mg/L	0.1	0.0034	B	0.01	U	0.01	U	0.0044	B	0.0029	B	0.01	U
Potassium	mg/L	NA	19.1		15.1		14.5		20.3		37.4		12.5	
Selenium	mg/L	0.05	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Silver	mg/L	NA	0.003	U	0.003	U	0.003	U	0.005		0.003	U	0.003	U
Sodium	mg/L	NA	136		25.5		42.1		58.3		916		13	
Thallium	mg/L	0.002	0.03	U	0.03	U	0.03	U	0.0153	B	0.03	U	0.03	U
Vanadium	mg/L	NA	0.0036	B	0.0048	B	0.0111		0.0115		0.0026	B	0.0087	B
Zinc	mg/L	NA	0.0069	B	0.0508		0.0116	B	0.0077	B	0.212		0.0095	B

Table 17
Summary of IR Site 16 South Shallow
Baseline Groundwater Analytical Results

Sample Number			SITE16S-001		SITE16S-002		SITE16S-003		SITE16S-004		SITE16S-005		SITE16S-006		SITE16S-007	
Location			P-16-IWS-01		P-16-MWS-01		P-16-IWS-01		P-16-MWS-07		P-16-MWS-03		P-16-MWS-05		P-16-MWI-01	
Sample Date			20-Aug-02		20-Aug-02		20-Aug-02		20-Aug-02		20-Aug-02		20-Aug-02		20-Aug-02	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8260 VOLATILES																
1,1,2,2-Tetrachloroethane	mg/L	0.001	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethane	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichlorobenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene	mg/L	0.07	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	mg/L	0.6	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3,5-Trimethylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.0022		0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	mg/L	0.005	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Acetone	mg/L	NA	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Chloromethane	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Cis-1,2-Dichloroethene	mg/L	0.006	0.001	U	0.001	U	0.001	U	0.19		0.001	U	0.001	U	0.001	U
Hexachlorobutadiene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Isopropylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.0008	J	0.001	U	0.001	U	0.001	U
Methylene Chloride	mg/L	0.005	0.0009	JB	0.0008	JB	0.0008	JB	0.0026	B	0.001	U	0.0023	B	0.0021	B
Naphthalene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
N-Butylbenzene	mg/L	NA	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tetrachloroethene	mg/L	0.005	0.0049		0.0058		0.0052		0.43		0.001	U	0.001	U	0.001	U
Trans-1,2-Dichloroethene	mg/L	0.01	0.001	U	0.001	U	0.001	U	0.0016		0.001	U	0.001	U	0.001	U
Trichloroethene	mg/L	0.005	0.0012		0.0013		0.0011		0.09		0.001	U	0.0011		0.001	U
Trichlorofluoromethane	mg/L	0.15	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
GENERAL CHEM																
Carbon, Total Organic	mg/L	NA	2.2		3		2.1		2.8		1.2		1.9		5.4	
METALS																
Aluminum	mg/L	1	0.249		0.0484	B	0.206		0.2	U	0.106	B	0.0836	B	0.292	
Antimony	mg/L	0.006	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Arsenic	mg/L	0.05	0.0042	B	0.0035	B	0.0043	B	0.0048	B	0.0042	B	0.0092	B	0.0089	B

Table 17
Summary of IR Site 16 South Shallow
Baseline Groundwater Analytical Results

Sample Number			**SITE16S-001**		**SITE16S-002**		**SITE16S-003**		**SITE16S-004**		**SITE16S-005**		**SITE16S-006**		**SITE16S-007**	
Location			**P-16-IWS-01**		**P-16-MWS-01**		**P-16-IWS-01**		**P-16-MWS-07**		**P-16-MWS-03**		**P-16-MWS-05**		**P-16-MWI-01**	
Sample Date			**20-Aug-02**		**20-Aug-02**		**20-Aug-02**		**20-Aug-02**		**20-Aug-02**		**20-Aug-02**		**20-Aug-02**	
Parameter	Units	MCL	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Barium	mg/L	1	0.0168		0.0247		0.0173		0.0254		0.0026	B	0.0156		0.0209	
Beryllium	mg/L	0.004	0.002	U	0.002	U	0.002	U	0.0001	B	0.002	U	0.002	U	0.002	U
Cadmium	mg/L	0.005	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U
Calcium	mg/L	NA	11.7	N	14.4	N	11.8	N	16.9	N	6.87	N	11.1	N	3.4	N
Chromium	mg/L	0.05	0.0017	B	0.005	U	0.0016	B	0.005	U	0.005	U	0.005	U	0.005	U
Cobalt	mg/L	NA	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Copper	mg/L	1	0.0026	B	0.0017	B	0.0034	B	0.0013	B	0.0015	B	0.0019	B	0.002	B
Iron	mg/L	NA	0.366		0.0404	B	0.342		0.15	U	0.108	B	0.135	B	0.26	
Lead	mg/L	0.015	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Magnesium	mg/L	NA	6.25		7.13		6.24		8.94		3.81		4.38		3.34	
Manganese	mg/L	NA	0.0488		0.0558		0.0486		0.1		0.0072		0.0578		0.0154	
Mercury	mg/L	0.002	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Molybdenum	mg/L	NA	0.0021	B	0.0012	B	0.002	B	0.0018	B	0.0013	B	0.005	U	0.0296	
Nickel	mg/L	0.1	0.0024	B	0.01	U	0.0021	B	0.01	U	0.01	U	0.01	U	0.0031	B
Potassium	mg/L	NA	10.7		10.3		10.5		16.4		5.04		10.8		12.5	
Selenium	mg/L	0.05	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Silver	mg/L	NA	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Sodium	mg/L	NA	19.7		16.9		19.8		26.6		9.7		13.9		377	
Thallium	mg/L	0.002	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Vanadium	mg/L	NA	0.006	B	0.0021	B	0.0061	B	0.0023	B	0.002	B	0.0015	B	0.0121	
Zinc	mg/L	NA	0.013	B	0.0068	B	0.0181	B	0.0047	B	0.0059	B	0.0063	B	0.144	

Table 18
Summary of Groundwater Field Parameter Measurements

Well Number	Sample Date	pH	Tempurature (degrees C)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Fe (mg/L)	H2O2 (mg/L)
Site 9 Shallow									
P-9-IWS01	10-Sep-02	6.90	23.22	0.19	-122	0.80	25	1.8	---
P-9-IWS01	18-Nov-02	7.03	22.52	2.36	245	108.15	9	0.4	1.4
P-9-IWS01	25-Nov-02	6.40	22.81	2.13	-91	29.80	0	0.5	0.0
P-9-IWS01	02-Dec-02	6.72	22.28	2.42	-178	12.30	0	1.1	1.0
P-9-IWS01	18-Dec-02	6.99	20.81	4.05	-154	4.82	3	1.2	1.8
P-9-IWS02	11-Sep-02	7.60	22.65	44.00	35	4.10	4	0.0	---
P-9-IWS02	20-Nov-02	5.03	26.47	4.89	173	24.48	0	1.0	2.8
P-9-IWS02	25-Nov-02	4.84	24.29	4.50	83	18.23	4	>3.3	0.0
P-9-IWS02	02-Dec-02	5.71	23.00	4.86	-120	5.99	2	3.3	10.0
P-9-IWS02	19-Dec-02	6.43	20.67	5.90	-190	4.03	1	3.3	>20
P-9-MWS01	11-Sep-02	7.00	21.46	0.23	-112	2.30	13	3.3	---
P-9-MWS01	18-Nov-02	6.54	23.47	4.33	15	80.61	36	3.3	>10
P-9-MWS01	25-Nov-02	5.97	22.78	4.07	-192	9.02	12	>3.3	>8
P-9-MWS01	02-Dec-02	6.47	22.56	4.21	-195	8.78	0	3.3	6.0
P-9-MWS01	18-Dec-02	6.59	21.54	4.73	-186	4.02	4	2.9	>20
P-9-MWS02	11-Sep-02	7.20	23.14	0.21	-44	0.70	16	0.3	---
P-9-MWS02	18-Nov-02	7.21	22.43	2.42	-43	108.36	38	0.6	1.2
P-9-MWS02	25-Nov-02	6.70	21.59	2.36	-135	26.16	31	0.1	0.6
P-9-MWS02	02-Dec-02	6.95	20.90	2.44	-102	33.55	34	0.3	0.6
P-9-MWS02	17-Dec-02	7.25	20.93	3.40	-144	4.50	13	0.7	1.2
P-9-MWS03	10-Sep-02	6.80	23.44	0.17	-6	0.17	0	0.0	---
P-9-MWS03	18-Nov-02	6.57	22.38	3.69	301	108.18	114	3.3	>10
P-9-MWS03	25-Nov-02	5.90	21.72	3.38	120	30.67	5	0.4	>8
P-9-MWS03	02-Dec-02	6.21	21.65	3.10	-52	29.37	0	3.3	1.0
P-9-MWS03	18-Dec-02	6.44	21.18	3.41	-154	4.19	7	2.6	2.0
P-9-MWS04	11-Sep-02	7.10	21.00	0.39	-110	2.10	9	1.8	---

Table 18
Summary of Groundwater Field Parameter Measurements

Well Number	Sample Date	pH	Tempurature (degrees C)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Fe (mg/L)	H2O2 (mg/L)
P-9-MWS04	18-Nov-02	7.00	20.76	5.40	-142	67.26	12	2.3	2.0
P-9-MWS04	25-Nov-02	6.42	20.65	5.14	-134	13.17	0	1.7	1.2
P-9-MWS04	02-Dec-02	6.66	20.27	5.21	-134	18.00	4	1.8	3.0
P-9-MWS04	18-Dec-02	6.86	19.37	6.88	-157	4.00	7	2.2	0.8
P-9-MWI01	11-Sep-02	7.30	20.68	0.82	-42	2.50	22	0.2	---
P-9-MWI01	18-Nov-02	7.12	21.03	8.54	-44	110.81	1	0.1	0.4
P-9-MWI01	25-Nov-02	6.61	20.62	8.55	-56	17.27	0	0.9	0.0
P-9-MWI01	02-Dec-02	6.86	20.78	9.03	-32	17.21	0	0.0	0.2
P-9-MWI01	18-Dec-02	6.92	20.87	9.44	-66	4.55	4	0.1	0.8
MW410-3	12-Sep-02	7.90	22.89	0.15	27	4.20	14	---	---
MW410-3	18-Nov-02	7.45	20.62	0.60	28	26.30	2	0.1	0.8
MW410-3	25-Nov-02	6.99	20.41	0.64	26	1.68	0	0.0	0.6
MW410-3	02-Dec-02	7.16	20.01	0.67	-20	4.69	0	0.0	0.4
MW410-3	18-Dec-02	7.19	19.08	0.54	8	5.01	-3	0.1	1.6
Site 9 Intermediate									
P-9-IWI02	09-Sep-02	7.90	22.93	0.11	10	3.50	110	0.0	---
P-9-IWI02	20-Nov-02	6.66	20.93	2.90	129	19.99	371	1.3	>20
P-9-IWI02	25-Nov-02	6.76	21.26	3.32	127	19.99	520	3.3	>20
P-9-IWI02	02-Dec-02	7.09	20.62	3.08	92	19.99	57	1.6	>20
P-9-IWI02	17-Dec-02	6.67	20.14	4.14	38	9.40	19	3.0	1.8
P-9-MWI02	10-Sep-02	8.30	19.66	87.00	95	2.00	200	0.0	---
P-9-MWI02	19-Nov-02	8.39	19.62	1.17	133	19.99	45	0.5	0.8
P-9-MWI02	25-Nov-02	8.00	20.45	1.08	128	19.99	19	0.3	0.8
P-9-MWI02	02-Dec-02	8.10	20.03	1.13	154	19.99	23	0.4	0.4
P-9-MWI02	17-Dec-02	7.88	19.80	1.11	87	18.57	7	0.2	1.0
P-9-MWI03	10-Sep-02	7.90	20.80	0.37	-20	3.00	142	0.0	---
P-9-MWI03	18-Nov-02	8.27	19.66	1.69	39	0.00	13	0.1	0.8

Table 18
Summary of Groundwater Field Parameter Measurements

Well Number	Sample Date	pH	Tempurature (degrees C)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Fe (mg/L)	H2O2 (mg/L)
P-9-MWI03	25-Nov-02	8.20	18.34	1.88	49	0.00	11	0.2	0.4
P-9-MWI03	02-Dec-02	8.69	20.12	1.94	-19	0.00	2	0.3	0.6
P-9-MWI03	17-Dec-02	7.74	19.67	1.82	30	5.64	5	0.2	0.6
P-9-MWI04	09-Sep-02	8.00	21.24	0.11	164	1.80	147	0.0	---
P-9-MWI04	18-Nov-02	7.89	20.39	1.03	131	0.02	182	0.5	1.6
P-9-MWI04	25-Nov-02	7.93	20.09	1.10	102	19.99	19	0.3	0.6
P-9-MWI04	02-Dec-02	8.07	20.23	1.14	153	19.99	20	0.4	1.0
P-9-MWI04	17-Dec-02	7.64	19.78	1.12	115	16.72	22	0.3	0.6
P-9-MWI05	10-Sep-02	8.00	19.87	0.19	-70	2.00	28	---	---
P-9-MWI05	19-Nov-02	8.93	18.63	1.82	-70	2.63	6	0.1	>20
P-9-MWI05	25-Nov-02	8.38	19.99	2.00	-141	0.00	0	0.2	1.0
P-9-MWI05	03-Dec-02	9.39	18.96	1.97	-132	0.00	9	0.4	2.4
P-9-MWI05	16-Dec-02	7.74	19.17	1.86	-119	4.84	1	0.0	2.8
P-9-MWI06	09-Sep-02	8.00	21.09	0.32	181	2.80	70	0.0	NM
P-9-MWI06	19-Nov-02	7.35	18.32	21.30	164	9.65	26	0.3	0.4
P-9-MWI06	25-Nov-02	7.04	20.35	16.10	145	19.99	42	0.4	0.8
P-9-MWI06	02-Dec-02	7.24	20.16	14.00	17	19.99	60	---	0.4
P-9-MWI06	16-Dec-02	7.23	19.40	11.80	159	13.85	6	0.0	0.0
P-9-MWI07	10-Sep-02	8.00	20.61	0.13	-58	3.80	30	0.0	---
P-9-MWI07	18-Nov-02	8.14	20.08	1.35	8	0.32	71	0.2	1.4
P-9-MWI07	25-Nov-02	8.35	19.86	1.39	-27	0.00	2	0.2	0.4
P-9-MWI07	02-Dec-02	8.30	20.16	1.41	-30	0.00	3	0.3	0.6
P-9-MWI07	17-Dec-02	7.26	19.73	1.49	-25	4.59	3	0.2	0.1
P-9-MWI08	10-Sep-02	7.60	20.06	0.79	130	3.60	42	0.0	---
P-9-MWI08	19-Nov-02	7.43	18.20	20.70	148	8.02	77	0.1	0.4
P-9-MWI08	25-Nov-02	7.38	19.90	11.10	137	8.43	0	0.1	0.4
P-9-MWI08	02-Dec-02	7.31	20.02	18.00	173	4.40	1	0.3	0.4

Table 18
Summary of Groundwater Field Parameter Measurements

Well Number	Sample Date	pH	Tempurature (degrees C)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Fe (mg/L)	H2O2 (mg/L)
P-9-MWI08	17-Dec-02	7.22	20.05	10.90	108	6.93	0	0.2	0.4
P-9-MWI09	10-Sep-02	7.40	20.33	0.84	-56	1.70	26	---	---
P-9-MWI09	19-Nov-02	8.09	19.60	10.80	-49	0.00	4	0.2	0.6
P-9-MWI09	25-Nov-02	7.02	19.83	14.60	-32	0.00	0	0.3	1.0
P-9-MWI09	03-Dec-02	8.11	19.15	17.50	-16	0.00	7	0.4	0.6
P-9-MWI09	16-Dec-02	7.16	19.12	14.40	-4	4.79	2	0.1	0.0
P-9-MWI10	10-Sep-02	6.80	20.85	3.80	-124	6.20	30	2.8	---
P-9-MWI10	19-Nov-02	8.04	19.49	40.60	-125	0.49	93	3.3	>20
P-9-MWI10	26-Nov-02	8.38	19.29	42.50	-115	5.33	32	3.3	1.0
P-9-MWI10	03-Dec-02	8.58	19.06	43.00	-129	0.00	17	3.1	0.6
P-9-MWI10	17-Dec-02	6.82	18.99	47.30	-127	4.73	0	2.6	>20
D10B-01	12-Sep-02	6.90	20.97	3.50	5	2.10	4	---	---
D10B-01	25-Nov-02	6.26	19.99	36.97	129	48.90	0	0.2	0.2
D10B-01	26-Nov-02	6.29	20.61	38.22	136	6.52	0	0.2	0.6
D10B-01	02-Dec-02	6.29	20.18	40.68	73	1.16	5	0.2	0.6
D10B-01	23-Dec-02	6.86	19.13	40.70	16	4.25	0	0.9	0.0
Site 11/21 Intermediate									
P-11/21-MWI03	11-Sep-02	7.10	21.99	0.74	56	3.20	21	---	---
P-11/21-MWI07	12-Sep-02	7.30	20.08	1.50	116	3.20	8	0.3	---
P-11/21-MWI11	12-Sep-02	6.60	19.61	5.70	124	1.80	54	0.3	---
P-11/21-IW01	12-Sep-02	6.50	20.14	5.40	126	1.30	41	---	---
P-11/21-IW01	20-Nov-02	6.36	20.47	55.20	174	14.02	64	0.6	0.8
P-11/21-IW01	26-Nov-02	6.38	20.19	58.80	169	758.00	0	0.4	0.8
P-11/21-IW01	03-Dec-02	6.44	19.97	62.90	159	4.37	18	0.6	1.0
P-11/21-IW01	20-Dec-02	6.52	19.60	59.00	157	7.61	44	0.3	0.0

Table 18
Summary of Groundwater Field Parameter Measurements

Well Number	Sample Date	pH	Tempurature (degrees C)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Fe (mg/L)	H2O2 (mg/L)
P-11/21-IW03	21-Nov-02	5.43	20.49	13.58	293	329.80	81	1.1	>20
P-11/21-IW03	26-Nov-02	6.02	20.54	33.80	162	19.99	54	0.4	>20
P-11/21-IW03	03-Dec-02	6.30	20.38	46.30	164	19.99	90	0.8	2.6
P-11/21-IW03	23-Dec-02	6.16	19.62	44.30	164	19.99	11	0.3	>20
M03-05	20-Nov-02	7.34	22.29	7.29	-145	26.00	0	0.2	2.6
M03-05	26-Nov-02	8.81	21.35	7.59	-187	0.00	0	0.5	>20
M03-05	16-Dec-02	9.45	20.74	5.46	-196	0.00	0	0.3	>20
M03-05	21-Dec-02	7.24	19.35	1.86	-117	4.66	0	0.5	0.1
P-11/21-MW01	12-Sep-02	6.50	20.50	6.20	128	2.60	94	0.8	---
P-11/21-MW01	20-Nov-02	6.99	20.47	62.80	60	0.11	803	1.3	1.2
P-11/21-MW01	26-Nov-02	6.43	20.23	67.10	145	0.00	23	0.4	1.0
P-11/21-MW01	20-Dec-02	6.41	19.02	69.00	93	3.22	12	0.1	0.0
P-11/21-MW02	12-Sep-02	6.90	20.50	3.20	111	2.20	240	0.8	---
P-11/21-MW02	20-Nov-02	7.19	20.40	41.00	84	0.39	659	1.2	1.2
P-11/21-MW02	26-Nov-02	6.61	20.27	35.50	151	0.00	21	0.4	1.4
P-11/21-MW02	03-Dec-02	6.78	20.18	37.00	162	0.00	14	0.0	1.8
P-11/21-MW02	20-Dec-02	6.95	17.86	28.40	70	3.72	13	0.2	0.1
P-11/21-MW03	12-Sep-02	6.70	20.79	5.20	125	3.30	27	0.8	---
P-11/21-MW03	20-Nov-02	6.54	20.69	50.10	151	1.40	26	0.1	0.8
P-11/21-MW03	26-Nov-02	6.42	20.71	52.10	171	0.00	1	0.7	1.6
P-11/21-MW03	16-Dec-02	6.54	20.30	44.70	181	0.00	0	0.0	0.8
P-11/21-MW03	20-Dec-02	6.66	20.10	58.00	153	4.24	92	0.0	0.1
P-11/21-MW04	12-Sep-02	6.90	20.70	3.30	117	1.40	72	0.4	---
P-11/21-MW04	20-Nov-02	7.10	21.14	39.90	103	3.40	51	0.4	1.4
P-11/21-MW04	26-Nov-02	6.85	20.65	38.80	111	0.00	88	0.8	2.0
P-11/21-MW04	16-Dec-02	6.91	20.33	33.20	144	0.00	5	1.1	1.2
P-11/21-MW04	23-Dec-02	6.69	19.82	40.20	112	3.98	8	0.7	0.0

Table 18
Summary of Groundwater Field Parameter Measurements

Well Number	Sample Date	pH	Tempurature (degrees C)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Fe (mg/L)	H2O2 (mg/L)
D11-01	12-Sep-02	6.90	20.81	5.90	-7	2.00	32	---	---
D11-01	20-Nov-02	6.12	20.73	60.03	25	1.07	1	0.4	0.4
D11-01	26-Nov-02	7.28	20.18	63.70	-25	0.01	1	1.3	0.8
D11-01	04-Dec-02	7.80	19.99	54.20	-40	0.00	0	3.2	0.8
D11-01	19-Dec-02	6.74	18.79	71.80	-17	4.07	8	2.0	0.1
Site 16 North Shallow									
P-16-IWS04	20-Nov-02	5.50	29.01	3.65	130	22.86	14	0.8	>6
P-16-IWS04	25-Nov-02	5.58	25.89	3.64	90	27.05	5	0.8	>8
P-16-IWS04	03-Dec-02	6.16	23.04	3.55	15	8.78	9	1.3	9.0
P-16-IWS04	20-Dec-02	6.65	19.24	3.05	-19	4.03	5	1.1	3.2
P-16-MWI01	20-Aug-02	8.60	22.20	0.20	77	2.30	0	0.0	NM
P-16-MWI01	20-Nov-02	8.39	19.76	1.63	-17	4.52	3	0.6	0.1
P-16-MWI01	26-Nov-02	8.06	19.69	1.81	40	99.80	0	0.0	0.4
P-16-MWI01	04-Dec-02	7.95	19.50	1.88	3	2.50	0	0.0	0.4
P-16-MWI01	23-Dec-02	8.00	18.72	1.65	-105	4.47	2	0.3	0.1
P-16-MWS01	20-Nov-02	7.65	19.82	0.30	172	13.01	9	0.0	0.4
P-16-MWS01	21-Nov-02	6.89	19.71	0.24	200	92.10	0	0.1	0.6
P-16-MWS01	26-Nov-02	7.65	19.59	0.30	123	13.82	0	0.1	0.6
P-16-MWS01	03-Dec-02	7.50	19.20	0.31	75	0.30	0	0.0	0.2
P-16-MWS01	23-Dec-02	7.85	17.22	0.30	69	0.13	39	0.0	0.7
P-16-MWS03	20-Aug-02	8.30	23.60	15.00	167	2.60	2	0.0	NM
P-16-MWS03	19-Nov-02	7.52	20.45	0.21	63	1.82	7	0.1	3.2
P-16-MWS03	26-Nov-02	8.49	21.00	0.01	114	23.28	0	0.0	2.0
P-16-MWS03	04-Dec-02	7.57	19.46	0.25	102	2.14	0	0.0	0.2
P-16-MWS03	23-Dec-02	7.50	17.85	0.25	126	6.35	10	0.1	---

Table 18
Summary of Groundwater Field Parameter Measurements

Well Number	Sample Date	pH	Tempurature (degrees C)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Fe (mg/L)	H2O2 (mg/L)
P-16-MWS05	20-Aug-02	7.90	21.80	24.00	-48	1.80	0	0.0	NM
P-16-MWS05	19-Nov-02	7.04	19.95	0.31	219	21.72	49	0.1	2.8
P-16-MWS05	27-Nov-02	7.31	19.08	0.32	95	7.45	38	0.1	0.6
P-16-MWS05	03-Dec-02	7.08	19.18	0.31	-18	5.74	11	0.1	0.4
P-16-MWS05	23-Dec-02	7.35	16.55	0.33	-64	4.31	-3	0.2	0.0
P-16-MWS07	20-Aug-02	7.70	23.20	36.00	55	2.80	0	0.0	NM
P-16-MWS07	19-Nov-02	6.73	21.23	0.65	276	33.68	137	0.0	>4
P-16-MWS07	26-Nov-02	7.43	20.61	0.50	116	32.18	0	0.2	1.2
P-16-MWS07	04-Dec-02	7.45	19.36	0.48	130	7.52	0	6.0	0.4
P-16-MWS07	23-Dec-02	7.81	17.91	0.44	55	4.34	5	0.7	0.0
MWC2-2	19-Nov-02	6.76	20.67	1.84	156	34.12	2	0.1	0.6
MWC2-2	26-Nov-02	6.90	20.05	1.97	160	106.26	0	0.0	0.4
MWC2-2	03-Dec-02	6.80	19.95	1.98	69	0.96	0	0.0	0.4
MWC2-2	20-Dec-02	7.23	18.68	1.49	154	4.44	6	0.0	0.4
Site 16 South Shallow									
P-16-IWS01	20-Aug-02	7.80	22.16	37.00	152	2.00	0	0.0	NM
P-16-IWS01	27-Nov-02	8.02	19.43	0.35	146	15.59	18	0.2	0.6
P-16-IWS01	04-Dec-02	7.92	19.15	0.36	125	5.63	79	0.4	0.3
P-16-IWS01	19-Dec-02	7.59	18.45	4.39	-22	4.62	9	0.0	0.1
P-16-IWS03	20-Nov-02	6.57	24.61	2.28	181	26.08	1371	---	---
P-16-IWS03	26-Nov-02	6.66	22.67	3.32	60	98.34	1067	1.1	10.0
P-16-IWS03	03-Dec-02	6.42	21.32	2.06	-12	0.33	999	3.0	1.4
P-16-IWS03	23-Dec-02	7.17	19.04	0.98	99	10.77	197	---	0.1
P-16-MWS02	11-Sep-02	7.50	22.14	40.00	27	3.10	0	0.0	---
P-16-MWS02	19-Nov-02	6.20	23.39	3.64	101	31.22	27	1.2	>4
P-16-MWS02	25-Nov-02	6.17	23.16	2.46	16	22.26	5	1.7	>8

Table 18
Summary of Groundwater Field Parameter Measurements

Well Number	Sample Date	pH	Tempurature (degrees C)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Fe (mg/L)	H2O2 (mg/L)
P-16-MWS02	03-Dec-02	6.50	21.81	1.63	40	7.41	10	1.0	0.8
P-16-MWS02	19-Dec-02	6.93	18.65	0.88	73	15.76	3	0.0	0.7
P-16-MWS04	11-Sep-02	8.70	22.24	24.00	22	1.70	0	0.0	---
P-16-MWS04	19-Nov-02	8.33	20.41	0.27	139	8.83	1	0.1	0.6
P-16-MWS04	26-Nov-02	8.38	20.14	0.30	169	38.20	0	0.0	0.4
P-16-MWS04	03-Dec-02	8.24	19.67	0.31	59	6.33	0	0.0	0.5
P-16-MWS04	20-Dec-02	8.68	18.04	0.29	57	9.19	2	0.0	0.0
P-16-MWS06	11-Sep-02	7.60	22.53	54.00	34	2.90	0	0.1	---
P-16-MWS06	19-Nov-02	7.08	20.63	0.77	242	34.25	3	0.0	0.4
P-16-MWS06	25-Nov-02	6.98	20.98	0.81	113	26.16	0	0.0	0.4
P-16-MWS06	03-Dec-02	7.15	20.31	0.89	93	21.18	0	0.0	0.4
P-16-MWS06	20-Dec-02	7.34	18.74	1.07	192	17.18	-1	0.0	0.7
P-16-MWS08	11-Sep-02	7.70	22.43	80.00	9	3.50	10	0.1	---
P-16-MWS08	19-Nov-02	7.30	20.73	0.87	208	24.77	0	0.0	0.5
P-16-MWS08	26-Nov-02	7.38	20.62	0.91	167	69.75	0	0.0	0.4
P-16-MWS08	03-Dec-02	7.36	19.41	0.93	58	3.03	0	0.0	0.2
P-16-MWS08	20-Dec-02	7.53	18.43	1.01	69	6.01	1	0.0	0.4
P-16-MWI02	11-Sep-02	7.80	20.71	0.41	25	0.80	9	0.0	---
P-16-MWI02	19-Nov-02	7.42	20.05	3.84	120	34.52	1	0.2	0.4
P-16-MWI02	26-Nov-02	7.42	19.84	4.22	180	50.90	0	0.0	0.4
P-16-MWI02	03-Dec-02	7.30	19.87	4.28	68	0.44	0	0.0	0.4
P-16-MWI02	23-Dec-02	7.57	19.32	4.29	3	4.46	3	0.0	0.0
MWC2-3	20-Nov-02	7.29	20.00	0.40	23	1.80	0	0.1	0.2
MWC2-3	27-Nov-02	7.26	19.89	0.40	102	14.28	0	0.0	0.6
MWC2-3	16-Dec-02	7.26	19.37	0.47	80	4.14	0	0.0	0.2
MWC2-3	23-Dec-02	7.54	16.88	0.32	100	0.46	10	0.0	---

Table ~~10~~ ~~21~~ /9
Summary of Post-Oxidant Injection
Soil Analytical Results

Sample Number		11/21-CH10-080A	11/21-CH10-080B	16S-CH1-099	9I-CH5-068A	9I-CH5-068B	9I-CH6-069A	9I-CH6-069B	9I-CH7-070A	9I-CH7-070B
Location		11/21-CH10-SHALLOW	11/21-CH10-DEEP	16S-CH1	9I-CH5-SHALLOW	9I-CH5-DEEP	9I-CH6-SHALLOW	9I-CH6-DEEP	9I-CH7-SHALLOW	9I-CH7-DEEP
Sample Date		22-Nov-02	22-Nov-02	18-Nov-02	21-Nov-02	21-Nov-02	21-Nov-02	21-Nov-02	21-Nov-02	21-Nov-02
Parameter	Units									
8260 VOLATILES										
1,1-Dichloroethane	mg/kg	0.0054 U	0.0051 U	0.0055 U	0.0037 J	0.024	0.0087	0.0069	0.08	0.11
1,1-Dichloroethene	mg/kg	0.0054 U	0.0051 U	0.0055 U	0.005 U	0.0017 J	0.0052 U	0.0051 U	0.0056 U	0.0037 J
1,2,3-Trichlorobenzene	mg/kg	0.0054 U	0.0051 U	0.0019 J	0.005 U	0.005 U	0.0052 U	0.0051 U	0.0026 J	0.0055 U
1,2,3-Trichloropropane	mg/kg	0.0054 U	0.0051 U	0.0055 U	0.005 U	0.005 U	0.0052 U	0.0051 U	0.0056 U	0.0019 J
1,2,4-Trichlorobenzene	mg/kg	0.0054 U	0.0051 U	0.0018 J	0.005 U	0.005 U	0.0052 U	0.0051 U	0.0025 J	0.0055 U
2-Butanone	mg/kg	0.0053 J	0.01 U	0.011 U	0.0099 U	0.01 U	0.0045 J	0.013	0.011 U	0.011 U
Acetone	mg/kg	0.013 B	0.012 B	0.012 B	0.012 B	0.01 U	0.015 B	0.017 B	0.017 B	0.014 B
Chloromethane	mg/kg	0.0023 J	0.002 J	0.011 U	0.0029 J	0.01 U	0.0043 J	0.01 U	0.011 U	0.011 U
Cis-1,2-Dichloroethene	mg/kg	0.017	0.0051 U	0.0055 U	0.005 U	0.005 U	0.0052 U	0.0051 U	0.0056 U	0.0055 U
Methylene Chloride	mg/kg	0.0086 JB	0.0083 JB	0.017 B	0.011 B	0.01 B	0.015 B	0.013 B	0.017 B	0.016 B
Naphthalene	mg/kg	0.0054 U	0.0051 U	0.0045 J	0.005 U	0.005 U	0.0052 U	0.0051 U	0.005 JB	0.0055 U
Trichloroethene	mg/kg	2.5	0.02 B	0.0017 JB	0.0013 JB	0.0013 JB	0.0013 JB	0.0013 JB	0.0016 JB	0.0014 JB
GENERAL CHEM										
Carbon, Total Organic	mg/kg	430	300	810	380	240	270	570	190	290
Percent Solids	Percent	82	85	82	85	83	83	82	83	82
METALS										
Aluminum	mg/kg	6250	13100	6420	6000	7280	6760	6730	6730	6570
Antimony	mg/kg	1.4 UN	1.5 UN	1.3 UN	1.5 UN	1.7 UN	1.4 UN	1.7 UN	1.4 UN	0.36 BN
Arsenic	mg/kg	2.5	3	1.6	1.2 B	2.8	2	2.4	3	2.3
Barium	mg/kg	41.5 *	26.5 *	43.8	42.8 *	66.2 *	52.6 *	51.1 *	54.7 *	46.5 *
Beryllium	mg/kg	0.17	0.38	0.18	0.16	0.22	0.19	0.2	0.22	0.19
Calcium	mg/kg	1890 N	1820 N	2570	2120 N	2120 N	2170 N	2430 N	2220 N	2400 N
Chromium	mg/kg	41.4	69.5	36.4	39.9	40.3	40.2	40.5	40	39.2
Cobalt	mg/kg	5.5	9.1	4.7	4.8	5.6	5.7	5.7	6.4	5.7
Copper	mg/kg	7	17	7.3	6.1	9.2	7.3	8	7.8	7.4
Hexavalent Chromiu	mg/kg	3.9	1.9	0.49 U	0.47 U	1.7	0.93	0.89	0.76	3.1
Iron	mg/kg	11400	17700	10700	9930	12500	12000	12300	14300	12400
Lead	mg/kg	2.3	3.4	2.7	2.2	2.9	2.4	2.7	2.6	2.5
Magnesium	mg/kg	2680	3890	2650	2510	3090	2820	3250	2870	3190
Manganese	mg/kg	112	149	121	113	142	143	140	149	144
Mercury	mg/kg	0.038 U	0.034 U	0.019 B	0.037 U	0.033 U	0.036 U	0.037 U	0.034 U	0.034 U
Molybdenum	mg/kg	0.11 B	0.11 B	0.22 B	0.1 B	0.17 B	0.1 B	0.15 B	0.12 B	0.13 B
Nickel	mg/kg	35	54.5	32.8	32.2	35	36.5	37	39.8	36.7
Potassium	mg/kg	923 E	1530 E	897 N	715 E	840 E	886 E	840 E	904 E	837 E
Sodium	mg/kg	2590	4380	403	709	1010	789	805	791	1040
Thallium	mg/kg	2.1 U	2.2 U	2 U	2.3 U	2.5 U	2.1 U	2.5 U	2.1 U	0.53 B
Vanadium	mg/kg	24.3	37	25.3	22.5	28	26.1	26.9	30.9	26.4
Zinc	mg/kg	21.6	31.7	21.1	19.1	24	22.9	26.5	24.2	21.8

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			D10B-01-067	D10B-01-212	D10B-01-239	D10B-01-240	D10B-01-300	D10B-01-348	D11-01-077	D11-01-201	D11-01-248	D11-01-249	D11-01-309	D11-01-355	M03-05-076	M03-05-247	M03-05-308	M03-05-354
Location			D10B-01	D10B-01	D10B-01	D10B-01	D10B-01	D10B-01	D11-01	D11-01	D11-01	D11-01	D11-01	D11-01	M03-05	M03-05	M03-05	M03-05
Sample Date			21-Nov-02	21-Nov-02	26-Nov-02	26-Nov-02	2-Dec-02	23-Dec-02	20-Nov-02	20-Nov-02	26-Nov-02	26-Nov-02	4-Dec-02	19-Dec-02	20-Nov-02	26-Nov-02	4-Dec-02	23-Dec-02
Parameter	Units	MCL																
8260 VOLATILES																		
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.0028 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.0022 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.005 U	.0029 J	.0014 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0013 JB	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.01 U	.01 U	.01 U	.0037 JB	.01 U	.01 U	.01 U	.01 U	.0042 JB	.01 U	.0065 JB	.01 U	.01 U	.01 U	.0053 J	.01 U
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.0014 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Methylene Chloride	mg/L	0.005	.00099 JB	.001 JB	.0055 JB	.0059 JB	.0051 JB	.0032 JB	.0047 JB	.0044 JB	.0054 JB	.0082 JB	.018 B	.0041 JB	.0073 JB	.0066 JB	.0055 JB	.0033 JB
Naphthalene	mg/L	NA	.005 U	.005 U	.005 U	.0035 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0037 J	.005 U	.005 U	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.001 J	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	.005 U	.005 U	.0011 JB	.0013 J	.005 U	.005 U	.005 U	.005 U	.0097	.0014 J	.005 U	.005 U	.0068	.02	.019	.005 U
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.01 U	.011 U	.0056 J	.011 U	.0063 J	.011 B	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.0029 JB
Hexachlorobutadiene	mg/L	NA	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U
Pyrene	mg/L	NA	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.0016 J	.0011 J	.0016 J	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			D10B-01-067	D10B-01-212	D10B-01-239	D10B-01-240	D10B-01-300	D10B-01-348	D11-01-077	D11-01-201	D11-01-248	D11-01-249	D11-01-309	D11-01-355	M03-05-076	M03-05-247	M03-05-308	M03-05-354
Location			D10B-01	D10B-01	D10B-01	D10B-01	D10B-01	D10B-01	D11-01	D11-01	D11-01	D11-01	D11-01	D11-01	M03-05	M03-05	M03-05	M03-05
Sample Date			21-Nov-02	21-Nov-02	26-Nov-02	26-Nov-02	2-Dec-02	23-Dec-02	20-Nov-02	20-Nov-02	26-Nov-02	26-Nov-02	4-Dec-02	19-Dec-02	20-Nov-02	26-Nov-02	4-Dec-02	23-Dec-02
Parameter	Units	MCL																
GENERAL CHEM																		
Carbon, Total Organic	mg/L	NA	1 U	1 U	1.06	1 U	1.8	1 U	3.5	14	1.97	1.1	1.3	1.6	9.7	5.7	15	4.1
METALS																		
Aluminum	mg/L	1	.121 B	.292	.0835 B	.0848 B	.119 B	.409	.0806 B	.947	.157 B	.0506 B	.0619 B	.505	.2 U	.2 U	.0621 B	.188 B
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.0025 B	.02 U	.02 U
Arsenic	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.0043 B	.0046 B	.0035 B	.02 U	.0067 B	.02 U	.0059 B	.02 U	.0069 B
Barium	mg/L	1	.0444	.0458	.0458	.044	.0453 E	.0508	.0592	.0621	.0473	.0503	.0475	.0513	.132	.119	.136	.0468
Beryllium	mg/L	0.004	.002 U	.00011 B	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U
Cadmium	mg/L	0.005	.002 B	.0021 B	.0016 B	.0014 B	.0016 B	.00086 B	.002 B	.002 B	.00043 B	.0014 B	.00052 B	.0012 B	.006 U	.006 U	.006 U	.006 U
Calcium	mg/L	NA	1190	1190	1210	1190	1160 E	1190	879	907	952	882	936	958	49.1	42.4	47.2	28.2
Chromium	mg/L	0.05	.05 U	.05 U	.1 U	.1 U	.1 U	.025 U	.25 U	.25 U	.25 U	.025 U	.25 U	.025 U	.0016 B	.005 U	.005 U	.005 U
Cobalt	mg/L	NA	.0074	.0079	.0075	.0076	.0083	.0075	.0343	.0347	.0288	.0345	.0315	.0311	.005 U	.005 U	.005 U	.005 U
Copper	mg/L	1	.0022 B	.0047 B	.0021 B	.0017 B	.0023 B	.0115	.0043 B	.0146	.0019 B	.0018 B	.01 U	.0063 B	.0013 B	.01 U	.01 U	.0017 B
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Iron	mg/L	NA	1.5 U	1.5 U	3 U	3 U	3 U	.72 B	7.5 U	7.5 U	7.5 U	.75 U	7.5 U	1.59	.332	.485	.992	.828
Lead	mg/L	0.015	.01 U	.0021 B	.01 U	.01 U	.01 U	.0035 B	.0037 B	.0127	.0035 B	.01 U	.01 U	.0047 B	.01 U	.01 U	.01 U	.01 U
Magnesium	mg/L	NA	1310	1310	1370	1340	1310 E	1330	1510	1560	1740	1690	1730	1710	60.9	55.8	60.9	20.1
Manganese	mg/L	NA	12.5	12.5	13.3	13		12.4	26.3	27.2	29.3	27.6	27.5	28.1	.54	.477	.574	.455
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U
Molybdenum	mg/L	NA	.0022 B	.0015 B	.0017 B	.0018 B	.003 B	.0021 B	.0012 B	.005 U	.0015 B	.005 U	.005 U	.002 B	.0023 B	.003 B	.0027 B	.004 B
Nickel	mg/L	0.1	.005 B	.0057 B	.0057 B	.0051 B	.0079 B	.0084 B	.0338	.0348	.0258	.0328	.0283	.0296	.01 U	.01 U	.01 U	.01 U
Potassium	mg/L	NA	14.9	14.9	16.6	15.7	15.3 E	9.22	76.8	82.9	85.9	82.8	92.2	46.8 E	77.8	68.6	77.1	26.1
Selenium	mg/L	0.05	.2 U	.2 U	.4 U	.4 U	.4 U	.1 U	1 U	1 U	1 U	.1 U	1 U	.1 U	.02 U	.02 U	.02 U	.02 U
Silver	mg/L	NA	.003 U	.0013 B	.003 U	.003 U	.0013 B	.003 U	.0029 B	.0025 B	.0013 B	.0016 B	.00081 B	.0016 B	.003 U	.003 U	.003 U	.003 U
Sodium	mg/L	NA	5360	5460	5370	5250	5270 E	5310	12100	12400	12300	12700	12600	11700	1520	1380	1430	353
Thallium	mg/L	0.002	.3 U	.3 U	.6 U	.6 U	.6 U	.15 U	1.5 U	1.5 U	1.5 U	.15 U	1.5 U	.15 U	.03 U	.03 U	.03 U	.03 U
Vanadium	mg/L	NA	.0021 B	.0024 B	.0014 B	.0016 B	.0016 B	.0025 B	.0038 B	.0057 B	.00086 B	.0024 B	.01 U	.0019 B	.0063 B	.0052 B	.0051 B	.0037 B
Zinc	mg/L	NA	.0483	.0613	.0365	.0456	.0259	.0778	.0424	.0503	.0166 B	.0203	.0186 B	.02 B	.0147 B	.0083 B	.0092 B	.0142 B

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number Location Sample Date			M03-05-363 M03-05 23-Dec-02	MW410-3-053 MW410-3 18-Nov-02	MW410-3-227 MW410-3 25-Nov-02	MW410-3-228 MW410-3 25-Nov-02	MW410-3-288 MW410-3 2-Dec-02	MW410-3-346 MW410-3 18-Dec-02	MWC2-2-088 MWC2-2 19-Nov-02	MWC2-2-258 MWC2-2 26-Nov-02	MWC2-2-318 MWC2-2 3-Dec-02	MWC2-2-362 MWC2-2 20-Dec-02	MWC2-3-098 MWC2-3 20-Nov-02	MWC2-3-267 MWC2-3 27-Nov-02	MWC2-3-364 MWC2-3 23-Dec-02	MWC2-364 MWC2 23-Dec-02
Parameter	Units	MCL														
8260 VOLATILES																
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
1,1-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.0025 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.0022 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.0011 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.16	.22 E	.16	1.4	.005 U	.005 U		.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.013	.016	.013	.066	.005 U	.005 U		.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.052	.059	.048	.22	.005 U	.005 U		.005 U
2-Butanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.005 JB	.01 U	.015	.01 U		.01 U
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.012	.01 U		.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0013 J	.005 U	.005 U		.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0062	.005 U	.0032 J	.19	.005 U	.005 U		.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0017 J	.0017 J	.0014 J	.01	.005 U	.005 U		.005 U
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Methylene Chloride	mg/L	0.005	.0035 JB	.019 B	.0043 JB	.005 JB	.0067 JB	.0043 JB	.019 B	.0057 JB	.0057 JB	.0041 J	.0058 JB	.0057 JB		.0032 JB
Naphthalene	mg/L	NA	.005 U	.0048 JB	.0074 B	.0064 B	.009 B	.0034 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.0053	.0039 J	.0042 J	.0041 J	.0074	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Toluene	mg/L	0.15	.005 U	.0021 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.0022 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.002 J	.005 U	.005 U		.005 U
Trichloroethene	mg/L	0.005	.005 U	.0036 JB	.0015 J	.0018 J	.0025 J	.005 U	.011	.0054 B	.0036 J	.0035 J	.005 U	.0018 JB		.005 U
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Vinyl Chloride	mg/L	0.0005	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.014 U	.011 U	.011 U	.015 U	.011 U	.011 U	.011 U	.01 U	.22 U	.01 U	.01 U		.01 U
1,2-Dichlorobenzene	mg/L	0.6	.011 U	.014 U	.011 U	.011 U	.015 U	.011 U	.15	.12	.11	1.4	.01 U	.01 U		.01 U
1,3-Dichlorobenzene	mg/L	NA	.011 U	.014 U	.011 U	.011 U	.015 U	.011 U	.011	.0074 J	.0097 J	.044 J	.01 U	.01 U		.01 U
1,4-Dichlorobenzene	mg/L	0.005	.011 U	.014 U	.011 U	.011 U	.015 U	.011 U	.048	.032	.037	.22 J	.01 U	.01 U		.01 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.014 U	.011 U	.011 U	.015 U	.011 U	.011 U	.011 U	.01 U	.22 U	.01 U	.01 U		.01 U
2-Methylnaphthalene	mg/L	NA	.011 U	.014 U	.011 U	.011 U	.015 U	.011 U	.011 U	.011 U	.01 U	.22 U	.01 U	.01 U		.01 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.011 U	.014 U	.011 U	.011 U	.015 U	.011 U	.011 U	.011 U	.01 U	.22 U	.01 U	.01 U		.004 JB
Di-N-Butyl Phthalate	mg/L	NA	.0048 JB	.014 U	.0054 JB	.0058 JB	.0079 J	.011 U	.011 U	.011 U	.01 U	.22 U	.01 U	.0021 J		.01 U
Hexachlorobutadiene	mg/L	NA	.011 U	.014 U	.011 U	.011 U	.015 U	.011 U	.011 U	.011 U	.01 U	.22 U	.01 U	.01 U		.01 U
Naphthalene	mg/L	NA	.011 U	.014 U	.011 U	.011 U	.015 U	.011 U	.011 U	.011 U	.01 U	.22 U	.01 U	.01 U		.01 U
Pyrene	mg/L	NA	.011 U	.014 U	.011 U	.011 U	.015 U	.011 U	.011 U	.011 U	.01 U	.22 U	.01 U	.01 U		.01 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			M03-05-363	MW410-3-053	MW410-3-227	MW410-3-228	MW410-3-288	MW410-3-346	MWC2-2-088	MWC2-2-258	MWC2-2-318	MWC2-2-362	MWC2-3-098	MWC2-3-267	MWC2-3-364	MWC2-364
Location			M03-05	MW410-3	MW410-3	MW410-3	MW410-3	MW410-3	MWC2-2	MWC2-2	MWC2-2	MWC2-2	MWC2-3	MWC2-3	MWC2-3	MWC2
Sample Date			23-Dec-02	18-Nov-02	25-Nov-02	25-Nov-02	2-Dec-02	18-Dec-02	19-Nov-02	26-Nov-02	3-Dec-02	20-Dec-02	20-Nov-02	27-Nov-02	23-Dec-02	23-Dec-02
Parameter	Units	MCL														
GENERAL CHEM																
Carbon, Total Organic	mg/L	NA	4.1	3.5	3.7	4.3	17.2	1.9	5.9	12	3.7	4.2	1.6	13		3.2
METALS																
Aluminum	mg/L	1	.104 B	.0426 U	.0455 B	.2 U	.2 U	.0593 B	.2 U	.0458 B	.2 U	.2 U	.2 U	.2 U		.047 B
Antimony	mg/L	0.006	.02 U	.0024 U	.02 U	.0026 B	.02 U	.02 U	.02 U	.02 U	.0027 B	.02 U	.02 U	.02 U		.02 U
Arsenic	mg/L	0.05	.02 U	.0038 U	.02 U	.02 U	.02 U	.0042 B	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U		.02 U
Barium	mg/L	1	.0412	.143	.14	.128	.135 E	.129	.179	.172	.172	.101	.0865	.0893		.0748
Beryllium	mg/L	0.004	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.00024 B	.002 U	.002 U	.002 U	.002 U	.002 U		.002 U
Cadmium	mg/L	0.005	.006 U	.0003 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U		.006 U
Calcium	mg/L	NA	21.9	45.7	41.2	39.3	40 E	44.2	175	170	186	121	28.5	30		24.8
Chromium	mg/L	0.05	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Cobalt	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U
Copper	mg/L	1	.0021 B	.0008 U	.01 U	.01 U	.01 U	.01 U	.0029 B	.01 U	.01 U	.0018 B	.0027 B	.01 U		.0039 B
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U		.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	
Iron	mg/L	NA	.617	.15 U	.15 U	.15 U	.15 U	.0978 B	.0552 B	.15 U	.15 U	.15 U	.15 U	.15 U		.12 B
Lead	mg/L	0.015	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U
Magnesium	mg/L	NA	19.2	20.6	19 E	17.8 E	18.2 E	19	73.6	71.7	76	46.9	9.82	11.1		10.1
Manganese	mg/L	NA	.389	.098	.0945	.0806	.0811 E	.102	.446	.469	.568	.363	.115	.123		.0764
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.001	.0002 U	.0002 U	.0002 U		.0002 U
Molybdenum	mg/L	NA	.0038 B	.0041 B	.0035 B	.0038 B	.0045 B	.0063	.0013 B	.005 U	.0017 B	.0021 B	.0013 B	.005 U		.005 U
Nickel	mg/L	0.1	.01 U	.01 U	.0015 B	.01 U	.0029 B	.0013 B	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U
Potassium	mg/L	NA	28.7	19.8	19.1	18.6	18 E	19 E	33.3 E	34.9	35	25.4	14.1	15.4		13.6
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U		.02 U
Silver	mg/L	NA	.003 U	.0008 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.00085 B	.00064 B	.003 U		.003 U
Sodium	mg/L	NA	417	34.5	33.1	34.6	32 E	24.3	90.2	89.2	88.6	86.4	20.2	21.1		16.1
Thallium	mg/L	0.002	.03 U	.0061 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U		.03 U
Vanadium	mg/L	NA	.0035 B	.0033 B	.0035 B	.0036 B	.0032 B	.0042 B	.0014 B	.0012 B	.00051 B	.0016 B	.0019 B	.0016 B		.0014 B
Zinc	mg/L	NA	.0074 B	.007 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.0058 B		.0094 B

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P11/21-IWI01-071	P11/21-IWI01-241	P11/21-IWI01-301	P11/21-IWI01-349	P11/21-IWI03-242	P11/21-IWI03-302	P11/21-IWI03-372	P11/21-MW01-072	P11/21-MW01-243	P11/21-MW01-303
Location			P11/21-IWI01	P11/21-IWI01	P11/21-IWI01	P11/21-IWI01	P11/21-IWI03	P11/21-IWI03	P11/21-IWI03	P11/21-MW01	P11/21-MW01	P11/21-MW01
Sample Date			20-Nov-02	26-Nov-02	3-Dec-02	20-Dec-02	26-Nov-02	3-Dec-02	23-Dec-02	20-Nov-02	26-Nov-02	4-Dec-02
Parameter	Units	MCL										
8260 VOLATILES												
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.0024 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethene	mg/L	0.006	.0023 J	.0018 J	.0025 J	.0057	.005 U	.005 U	.005 U	.005 U	.0025 J	.0018 J
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.019	.02 B	.016	.047	.005 U	.005 U	.005 U	.0016 J	.0022 JB	.005 U
1,2-Dichloroethane	mg/L	0.0005	.0055	.0067	.0048 J	.011	.005 U	.005 U	.005 U	.005 U	.0029 J	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.0015 J	.005 U	.005 U	.0049 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.54	.0057 JB	.0048 JB	.01 U	.0068 JB	.16 B	.26 E	.029	.034 B	.011 B
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.11 B	.035 B	.11	.01 U	.01 U	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.019	.01	.0062	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.29	.16	.067	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.0012 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.068	.04	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.0097	.0055	.0053	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.014	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.07	.059	.071	.14	.012	.013	.037	.065	.061	.055
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Methylene Chloride	mg/L	0.005	.0067 JB	.0071 JB	.0058 JB	.0044 J	.0059 JB	.0054 JB	.011 B	.0062 JB	.0049 JB	.01 U
Naphthalene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0055 B	.005 U	.005 U	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.0018 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	4.7	8.1 B	5.6	8.5	.54 B	.61	1.3	2.4	3.9 B	2.4
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.0087 J	.005 J	.011	.02	.01 U	.01 U	.0043 J	.0096 J	.0091 J	.0074 J
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.016	.019	.011	.037	.011 U	.011 U	.0028 J	.011 U	.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.011 U	.011 U	.01 U	.0029 J	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.011 U	.0074 J	.01 U	.011 U	.0034 J	.011 U	.0052 JB	.0028 J	.0022 J	.011 U
Hexachlorobutadiene	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Pyrene	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P11/21-IWI01-071	P11/21-IWI01-241	P11/21-IWI01-301	P11/21-IWI01-349	P11/21-IWI03-242	P11/21-IWI03-302	P11/21-IWI03-372	P11/21-MW01-072	P11/21-MW01-243	P11/21-MW01-303
Location			P11/21-IW01	P11/21-IWI01	P11/21-IWI01	P11/21-IWI01	P11/21-IWI03	P11/21-IWI03	P11/21-IWI03	P11/21-MW01	P11/21-MW01	P11/21-MW01
Sample Date			20-Nov-02	26-Nov-02	3-Dec-02	20-Dec-02	26-Nov-02	3-Dec-02	23-Dec-02	20-Nov-02	26-Nov-02	4-Dec-02
Parameter	Units	MCL										
GENERAL CHEM												
Carbon, Total Organic	mg/L	NA	1.7	3.7	5.8	1 U	57	98	31	5.1	3.2	4.6
METALS												
Aluminum	mg/L	1	3.12	.598	.21	.583	.454	.337	.17 B	16.5	.48	.173 B
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.003 B	.0034 B
Arsenic	mg/L	0.05	.02 U	.02 U	.02 U	.0038 B	.0116 B	.0145 B	.008 B	.0058 B	.02 U	.02 U
Barium	mg/L	1	.0631	.0465	.0484	.0502	.0157	.0298	.0223	.0984	.0417	.043
Beryllium	mg/L	0.004	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.00027 B	.002 U	.002 U
Cadmium	mg/L	0.005	.0012 B	.00085 B	.00093 B	.00078 B	.0031 B	.0058 B	.0027 B	.0018 B	.00072 B	.00062 B
Calcium	mg/L	NA	351	312	375	293	142	267	239	395	375	409
Chromium	mg/L	0.05	.0081	.005 U	.005 U	.005 U	.262	.139	.0777	.0446	.005 U	.005 U
Cobalt	mg/L	NA	.0599	.0544	.0674	.0467	.401	.698	.757	.085	.0746	.0813
Copper	mg/L	1	.0078 B	.0025 B	.0017 B	.0046 B	.247	.408	.209	.0163	.0021 B	.0015 B
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U		.01 U	.02		.03	.01 U	.01 U	.01 U
Iron	mg/L	NA	7.5 U	7.5 U	7.5 U	.687	8.62	17.8	6.3	13.7	7.5 U	7.5 U
Lead	mg/L	0.015	.01 U	.01 U	.01 U	.01 U	.003 B	.0048 B	.01 U	.0043 B	.01 U	.01 U
Magnesium	mg/L	NA	1210	1280	1410	892	492	941	749	1420	1470	1480
Manganese	mg/L	NA	4.53	3.97	4.88	3.52	4.57	8.39	5.55	5.43	4.96	5.21
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0058	.0038	.00067	.0002 U	.0002 U	.0002 U
Molybdenum	mg/L	NA	.002 B	.005 U	.0019 B	.002 B	.0021 B	.0026 B	.0021 B	.0121	.0017 B	.0022 B
Nickel	mg/L	0.1	.134	.119	.147	.108	.845	1.39	1.21	.205	.153	.164
Potassium	mg/L	NA	464	440	486	364	455	539	452	527	486	532
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.04 U	.02 U	.02 U	.02 U
Silver	mg/L	NA	.0029 B	.0018 B	.0014 B	.0015 B	.006	.0083	.0025 B	.003 U	.003 U	.003 U
Sodium	mg/L	NA	12600	12100	13400	9920	4770	8050	6810	14300	13400	14100
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.06 U	.03 U	.03 U	.03 U
Vanadium	mg/L	NA	.0085 B	.0031 B	.0015 B	.0036 B	.0287	.0139	.0096 B	.0318	.0026 B	.0014 B
Zinc	mg/L	NA	.015 B	.0154 B	.0121 B	.0151 B	.484	.844	.249	.0378	.0112 B	.0125 B

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number Location Sample Date			P11/21-MW01-350 P11/21-MW01 20-Dec-02	P11/21-MW02-073 P11/21-MW02 20-Nov-02	P11/21-MW02-244 P11/21-MW02 26-Nov-02	P11/21-MW02-304 P11/21-MW02 3-Dec-02	P11/21-MW02-305 P11/21-MW02 3-Dec-02	P11/21-MW02-351 P11/21-MW02 20-Dec-02	P11/21-MW03-074 P11/21-MW03 20-Nov-02	P11/21-MW03-245 P11/21-MW03 26-Nov-02	P11/21-MW03-306 P11/21-MW03 4-Dec-02	P11/21-MW03-352 P11/21-MW03 20-Dec-02
Parameter	Units	MCL										
8260 VOLATILES												
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.0026 J	.0031 J	.003 J	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.0021 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethene	mg/L	0.006	.0035 J	.0051	.0043 J	.0036 J	.0034 J	.005 U	.0033 J	.0033 J	.0025 J	.0052
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.0025 J	.058	.074 B	.06	.06	.053	.011	.023 B	.016	.017
1,2-Dichloroethane	mg/L	0.0005	.005 U	.0095	.016	.012	.012	.011	.0055	.0068	.0052	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.0042 J	.0048 J	.005 U	.005 U	.0038 J	.005 U	.0014 J	.005 U	.0011 J
2-Butanone	mg/L	NA	.01 U	.01 U	.01 U	.0063 JB	.005 JB	.01 U	.01 U	.01 U	.0065 JB	.01 U
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.017	.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.0013 J	.0011 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.1	.14	.13	.14	.14	.097	.11	.11	.1	.14
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Methylene Chloride	mg/L	0.005	.0039 J	.0062 JB	.005 JB	.0052 JB	.005 JB	.0046 J	.0071 JB	.0047 JB	.007 JB	.004 J
Naphthalene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.005 U	.0013 J	.001 J	.005 U	.0011 J	.005 U	.005 U	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.0018 J	.0019 J	.0018 J	.0016 J	.0019 J	.005 U	.005 U	.005 U	.0015 J
Trichloroethene	mg/L	0.005	4.3	11	16 B	12	13	7.9	4.8	7.9 B	4.3	5.5
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.015	.025	.018	.019	.018	.014	.014	.016	.013	.019
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.011 U	.04	.053	.04	.038	.043	.0083 J	.014	.011	.011 J
1,3-Dichlorobenzene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.011 U	.0028 J	.003 J	.0026 J	.0026 J	.003 J	.011 U	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.011 U	.011 U	.0076 J	.011 U	.011 U	.011 U	.014	.011 U	.011 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.011 U	.011 U	.0016 J	.011 U	.011 U	.0055 J	.011 U	.011 U	.011 U	.011 U
Hexachlorobutadiene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Pyrene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P11/21-MW01-350	P11/21-MW02-073	P11/21-MW02-244	P11/21-MW02-304	P11/21-MW02-305	P11/21-MW02-351	P11/21-MW03-074	P11/21-MW03-245	P11/21-MW03-306	P11/21-MW03-352
Location			P11/21-MW01	P11/21-MW02	P11/21-MW02	P11/21-MW02	P11/21-MW02	P11/21-MW02	P11/21-MW03	P11/21-MW03	P11/21-MW03	P11/21-MW03
Sample Date			20-Dec-02	20-Nov-02	26-Nov-02	3-Dec-02	3-Dec-02	20-Dec-02	20-Nov-02	26-Nov-02	4-Dec-02	20-Dec-02
Parameter	Units	MCL										
GENERAL CHEM												
Carbon, Total Organic	mg/L	NA	1 U	1.3	3.9	3.7	4.8	5.3	1.9	3.2	3.8	1 U
METALS												
Aluminum	mg/L	1	.571	1.86	.65	.227	.199 B	.362	.0445 B	.2 U	.0501 B	.0887 B
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U
Arsenic	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U
Barium	mg/L	1	.0469	.0632	.0547	.0595	.0603	.0526	.0496	.0445	.0495	.0483
Beryllium	mg/L	0.004	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U
Cadmium	mg/L	0.005	.0013 B	.00031 B	.006 U	.006 U	.006 U	.006 U	.0004 B	.006 U	.00031 B	.00034 B
Calcium	mg/L	NA	415	160	149	166	168	100	279	252	305	282
Chromium	mg/L	0.05	.005 U	.0066	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Cobalt	mg/L	NA	.0776	.0186	.0164	.0181	.0185	.0087	.0505	.0481	.0583	.0488
Copper	mg/L	1	.0059 B	.0059 B	.0023 B	.0011 B	.0022 B	.0017 B	.0045 B	.0017 B	.0022 B	.004 B
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U	.01 U			.01 U	.01 U	.01 U	.01 U	.01 U
Iron	mg/L	NA	1.5 U	2.46	.952	.316	.302	.537	3 U	7.5 U	7.5 U	.152 B
Lead	mg/L	0.015	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Magnesium	mg/L	NA	1410	475	479	525	532	290	927	995	1040	884
Manganese	mg/L	NA	5.22	1.87	1.77	2	2.03	1.19	3.76	3.42	4.01	3.64
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U
Molybdenum	mg/L	NA	.0054	.0016 B	.005 U	.0015 B	.0014 B	.0016 B	.0014 B	.0016 B	.0022 B	.0022 B
Nickel	mg/L	0.1	.164	.0479	.0419	.045	.0464	.026	.101	.0981	.118	.105
Potassium	mg/L	NA	502	256	250	271	271	183	426	381	417	401
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U
Silver	mg/L	NA	.0017 B	.003 U	.003 U	.003 U	.003 U	.003 U	.00089 B	.003 U	.003 U	.0014 B
Sodium	mg/L	NA	13600	6820	6700	7160	7160	4920	11400	10600	11100	10700
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U
Vanadium	mg/L	NA	.0027 B	.0076 B	.0041 B	.003 B	.003 B	.0031 B	.0026 B	.0018 B	.0014 B	.0014 B
Zinc	mg/L	NA	.0141 B	.0236	.0266	.0286	.0269	.138	.0759	.0236	.0145 B	.0549

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number Location Sample Date			P11/21-MW04-075 P11/21-MW04 20-Nov-02	P11/21-MW04-246 P11/21-MW04 26-Nov-02	P11/21-MW04-307 P11/21-MW04 4-Dec-02	P11/21-MW04-353 P11/21-MW04 23-Dec-02	P16-IWS01-259 P-16-IWS-01 27-Nov-02	P16-IWS01-319 P-16-IWS-01 4-Dec-02	P16-IWS01-92 P-16-IWS-01 21-Nov-02	P16-IWS02-356 P-16-IWS-02 19-Dec-02	P16-IWS03-212 P-16-IWS-03 20-Nov-02	P16-IWS03-260 P-16-IWS-03 26-Nov-02	P16-IWS03-320 P-16-IWS-03 3-Dec-02	P16-IWS03-365 P-16-IWS-03 23-Dec-02
Parameter	Units	MCL												
8260 VOLATILES														
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.0025 J	.0027 J	.0035 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethene	mg/L	0.006	.0046 J	.0043 J	.0039 J	.0059	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.064	.099 B	.069	.067	.005 U	.005 U	.005 U	.005 U	.005 U	.0013 JB	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.011	.016	.012	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.0011 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.0045 J	.0067	.005 U	.0051	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.01 U	.0041 JB	.0055 JB	.01 U	.01 U	.0054 JB	.0061 J	.01 U	.045	.038 B	.024 B	.01 U
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.092	.19 B	.038 B	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.001 J	.005 U	.0012 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.0013 J	.0011 J	.005 U	.005 U	.005 U	.005 U	.005 U	.0024 J	.0044 J	.0021 J	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.022	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.12	.12	.12	.13	.005 U	.005 U	.00075 J	.005 U	.0053	.0023 J	.0042 J	.0073
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Methylene Chloride	mg/L	0.005	.0072 JB	.0052 JB	.0073 JB	.004 JB	.0058 JB	.0081 JB	.0013 JB	.0043 JB	.0071 JB	.0056 JB	.0064 JB	.0032 JB
Naphthalene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0082 B	.0027 JB	.005 U	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.0013 J	.005 U	.0041 J	.0074	.0049 J	.0069	.0042 J	.005 U	.005 U	.005 U	.0017 J
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.0016 J	.0018 J	.0017 J	.0025 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	9.8	17 B	12	14	.004 JB	.0018 J	.0019 J	.005 U	.0064	.0063	.0014 J	.0029 J
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.0014 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.013	.016	.015	.02	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.011 U	.011 U	.011 U	.011 U	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.044	.076	.055	.068	.011 U	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.011 U	.0044 J	.011 U	.011 U	.011 U	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.0031 J	.0043 J	.0036 J	.005 J	.011 U	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.011 U	.003 J	.011 U	.011 U	.011 U	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.011 U	.0073 J	.011 U	.0069 JB	.002 J	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
Hexachlorobutadiene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
Pyrene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.015 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P11/21-MW04-075	P11/21-MW04-246	P11/21-MW04-307	P11/21-MW04-353	P16-IWS01-259	P16-IWS01-319	P16-IWS01-92	P16-IWS02-356	P16-IWS03-212	P16-IWS03-260	P16-IWS03-320	P16-IWS03-365
Location			P11/21-MW04	P11/21-MW04	P11/21-MW04	P11/21-MW04	P-16-IWS-01	P-16-IWS-01	P-16-IWS-01	P-16-IWS-02	P-16-IWS-03	P-16-IWS-03	P-16-IWS-03	P-16-IWS-03
Sample Date			20-Nov-02	26-Nov-02	4-Dec-02	23-Dec-02	27-Nov-02	4-Dec-02	21-Nov-02	19-Dec-02	20-Nov-02	26-Nov-02	3-Dec-02	23-Dec-02
Parameter	Units	MCL												
GENERAL CHEM														
Carbon, Total Organic	mg/L	NA	7.1	3.1	3.8	4 U	19	1.63	1.8	4.5	180	180	130	25
METALS														
Aluminum	mg/L	1	59.6	1.78	.458	1.04	1.53	1.39	.335	.506	128	61.6	13.2	34.6
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.02 U	.0035 B	.02 U	.02 U	.02 U	.0048 B	.0024 B	.02 U	.02 U
Arsenic	mg/L	0.05	.0233	.02 U	.02 U	.02 U	.0046 B	.004 B	.02 U	.0063 B	.0779	.0578	.0528	.0572
Barium	mg/L	1	.295	.0552	.052	.0526	.043	.0444	.0488	.0415	.518	.281	.0685	.179
Beryllium	mg/L	0.004	.00085 B	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.0039	.0014 B	.002 U	.00089 B
Cadmium	mg/L	0.005	.0046 B	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.0196	.0186	.0222	.0015 B
Calcium	mg/L	NA	407	159	190	158	19.8	18.8	16.4	7.33	57.7	60.1	25.1	15.2
Chromium	mg/L	0.05	.188	.0073	.005 U	.0066	.0065	.0067	.005 U	.005 U	.519	.258	.0605	.142
Cobalt	mg/L	NA	.0823	.0216	.0248	.0237	.005 U	.005 U	.005 U	.0008 B	.337	.479	.351	.055
Copper	mg/L	1	.0558	.0028 B	.0017 B	.0033 B	.012	.0099 B	.0027 B	.001 B	1.05	1.43	2.15	.231
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	
Iron	mg/L	NA	76.3	2.26	7.5 U	1.31	2.05	2.06	.324	.693	270	196	58.1	54.1
Lead	mg/L	0.015	.0183	.01 U	.01 U	.01 U	.0081 B	.01 U	.01 U	.01 U	.174	.162	.139	.0329
Magnesium	mg/L	NA	1190	511	666	491	10.3	10.4	7.93	15.5	61.1	37	12.6	13.9
Manganese	mg/L	NA	4.76	1.94	2.28	1.91	.0562	.0454	.0575	.044	9.57	7	6.97	1.97
Mercury	mg/L	0.002	.00014 B	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.00044	.00046	.00061	.0002 U
Molybdenum	mg/L	NA	.002 B	.005 U	.005 U	.0031 B	.0039 B	.0037 B	.0032 B	.0725	.0137	.006	.0084	.0061
Nickel	mg/L	0.1	.294	.0519	.0584	.0571	.0074 B	.0047 B	.01 U	.0041 B	1.08	1.24	.899	.242
Potassium	mg/L	NA	497	275	302	259	13.9	15.1	11.4	32.7 E	122	137	101	40.1
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.0048 B	.02 U	.02 U	.02 U	.0049 B	.0253	.0225	.0073 B
Silver	mg/L	NA	.00092 B	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.0012 B	.003 U	.003 U	.003 U
Sodium	mg/L	NA	13300	7340	8120	6850	27	26.2	21	786	412	449	306	174
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U
Vanadium	mg/L	NA	.128	.0068 B	.0036 B	.0048 B	.0214	.0169	.0119	.0044 B	.432	.269	.116	.183
Zinc	mg/L	NA	.174	.0199 B	.0154 B	.016 B	.0122 B	.0227	.02 U	.0193 B	.668	.489	.289	.132

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P16-IWS04-082	P16-IWS04-251	P16-IWS04-311	P16-IWS04-361	P16-MWC2-3-328	P16-MWI01-097	P16-MWI01-266	P16-MWI01-327	P16-MWI01-366	P16-MWI02-087	P16-MWI02-257	P16-MWI02-317
Location			P-16-IWS-04	P-16-IWS-04	P-16-IWS-04	P-16-IWS-04	P-16-MWC2-3	P-16-MWI-01	P-16-MWI-01	P-16-MWI-01	P-16-MWI-01	P-16-MWI-02	P-16-MWI-02	P-16-MWI-02
Sample Date			20-Nov-02	25-Nov-02	3-Dec-02	20-Dec-02	4-Dec-02	20-Nov-02	26-Nov-02	4-Dec-02	23-Dec-02	19-Nov-02	26-Nov-02	3-Dec-02
Parameter	Units	MCL												
8260 VOLATILES														
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.012	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.016	.018	.015	.0066	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.001 J	.0013 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.0058	.0063	.005 U	.0024 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.17	.034	.014 B	.01 U	.01 U	.47	3.7	1.7	.93	.01 U	.01 U	.0051 JB
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.32	.14 B	.028 B	.01 U	.01 U	.01 U	.021 B	.011 B	.009 J	.01 U	.01 U	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.0054	.0031 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.0031 J	.0029 J	.0027 J	.0036 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Methylene Chloride	mg/L	0.005	.0046 JB	.0042 JB	.0052 JB	.0052 JB	.0073 JB	.0069 JB	.0089 JB	.0073 JB	.0097 JB	.0039 JB	.0056 JB	.0058 JB
Naphthalene	mg/L	NA	.0033 J	.005 U	.005 U	.011	.005 U	.005 U	.005 U	.005 U	.005 U	.0054 B	.005 U	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.0048 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	.005 U	.0014 J	.0019 J	.005 U	.005 U	.005 U	.0015 J	.005 U	.005 U	.005 U	.0012 JB	.005 U
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0017 J	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.01 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.0088 J	.016	.0077 J	.0056 J	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.01 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.0032 J	.005 J	.0026 J	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.01 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.01 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.01 U	.0042 J	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.01 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.0058 JB	.0087 J	.011 U	.011 U
Hexachlorobutadiene	mg/L	NA	.01 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.01 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Pyrene	mg/L	NA	.01 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P16-IWS04-082	P16-IWS04-251	P16-IWS04-311	P16-IWS04-361	P16-MWC2-3-328	P16-MWI01-097	P16-MWI01-266	P16-MWI01-327	P16-MWI01-366	P16-MWI02-087	P16-MWI02-257	P16-MWI02-317
Location			P-16-IWS-04	P-16-IWS-04	P-16-IWS-04	P-16-IWS-04	P-16-MWC2-3	P-16-MWI-01	P-16-MWI-01	P-16-MWI-01	P-16-MWI-01	P-16-MWI-02	P-16-MWI-02	P-16-MWI-02
Sample Date			20-Nov-02	25-Nov-02	3-Dec-02	20-Dec-02	4-Dec-02	20-Nov-02	26-Nov-02	4-Dec-02	23-Dec-02	19-Nov-02	26-Nov-02	3-Dec-02
Parameter	Units	MCL												
GENERAL CHEM														
Carbon, Total Organic	mg/L	NA	510	350	130	220	1.7	17	1.1	10	9.6	6.3	11	2.9
METALS														
Aluminum	mg/L	1	.727	.276	.232	.316	.0747 B	.516	.194 B	.288	.305	.09 B	.0484 B	.2 U
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.0024 B	.02 U
Arsenic	mg/L	0.05	.0047 B	.02 U	.02 U	.0126 B	.02 U	.0116 B	.0079 B	.0049 B	.0073 B	.02 U	.02 U	.02 U
Barium	mg/L	1	.0286	.0226	.016	.0073	.0962	.0152	.0138	.0149	.0161	.0335	.0412	.0438
Beryllium	mg/L	0.004	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.00023 B	.002 U	.002 U
Cadmium	mg/L	0.005	.0085	.018	.0262	.0548	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U
Calcium	mg/L	NA	65.5	70.4	64.2	67.3	30.4	3.21	3.64	3.3	3.79	6.87	6.54	7.27
Chromium	mg/L	0.05	.0622	.0323	.0477	.025 U	.005 U	.0035 B	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Cobalt	mg/L	NA	.351	.424	.502	.701	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Copper	mg/L	1	.461	.82	1.62	3.3	.01 U	.0039 B	.0016 B	.01 U	.0016 B	.0025 B	.01 U	.01 U
Hexavalent Chromium	mg/L	0.05	.01 U	.01	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Iron	mg/L	NA	147	104	98.3	91.6	.0704 B	.578	.223	.307	.394	.0995 B	.15 U	.15 U
Lead	mg/L	0.015	.0037 B	.0097 B	.0622	.349	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Magnesium	mg/L	NA	20.6	20.8	21	21	12.7	2.37	2.67	2.92	2.31	14.3	15.1	16.1
Manganese	mg/L	NA	1.85	2.24	5.84	17.2	.125	.0107	.0127	.0144	.0127	.0299	.0658	.0682
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U
Molybdenum	mg/L	NA	.0015 B	.0032 B	.0027 B	.005	.005 U	.0434	.0414	.0398	.0426	.069	.0642	.0689
Nickel	mg/L	0.1	.938	.909	1.15	1.19	.01 U	.005 B	.0041 B	.0021 B	.0043 B	.01 U	.0019 B	.0029 B
Potassium	mg/L	NA	184	244	270	209	16.7	11.1	11.7	12.1	11.2	32.6 E	36.1	38.4
Selenium	mg/L	0.05	.0112 B	.0125 B	.0181 B	.0262 B	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U
Silver	mg/L	NA	.00091 B	.003 U	.003 U	.0011 B	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U
Sodium	mg/L	NA	648	625	488	400	22	363	377	388	354	782	832	857
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.15 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U
Vanadium	mg/L	NA	.0017 B	.0011 B	.0066 B	.0097 B	.0014 B	.0183	.0094 B	.0056 B	.0092 B	.002 B	.0033 B	.0025 B
Zinc	mg/L	NA	.267	.43	.592	.546	.02 U	.0245	.012 B	.0079 B	.014 B	.0272	.0112 B	.0078 B

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P16-MWI02-373	P16-MWS01-093	P16-MWS01-261	P16-MWS01-321	P16-MWS01-367	P16-MWS02-083	P16-MWS02-252	P16-MWS02-253	P16-MWS02-312	P16-MWS02-357	P16-MWS03-094	P16-MWS03-262
Location			P-16-MWI-02	P-16-MWS-01	P-16-MWS-01	P-16-MWS-01	P-16-MWS-01	P-16-MWS-02	P-16-MWS-02	P-16-MWS-02	P-16-MWS-02	P-16-MWS-02	P-16-MWS-03	P-16-MWS-03
Sample Date			23-Dec-02	20-Nov-02	26-Nov-02	3-Dec-02	23-Dec-02	19-Nov-02	25-Nov-02	26-Nov-02	3-Dec-02	19-Dec-02	19-Nov-02	26-Nov-02
Parameter	Units	MCL												
8260 VOLATILES														
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.0024 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.005 U	.005 U	.0055	.005 U	.031	.016	.0018 J	.0063	.0012 J	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.0019 J	.005 U	.0017 J	.0014 J	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.005 U	.005 U	.0019 J	.005 U	.0088	.0079	.005 U	.0043 J	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.029	.0057 J	.01 U	.0054 JB	.01 U	.034 B	.01 U	.01 U	.0045 JB	.01 U	.093	.017 B
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.073	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.0098	.0069	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.0078	.0045 J	.005 U	.0031 J	.0015 J	.005 U	.005 U
Chloromethane	mg/L	NA	.016	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Methylene Chloride	mg/L	0.005	.0036 JB	.0042 JB	.0092 JB	.0067 JB	.0033 JB	.0062 JB	.0049 JB	.0058 JB	.006 JB	.0047 JB	.0059 JB	.0095 JB
Naphthalene	mg/L	NA	.0078 B	.005 U	.005 U	.005 U	.005 U	.005 U	.0056 B	.005 U	.005 U	.005 U	.005 U	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.0053	.0061	.0045 J	.013	.005 U	.005 U	.005 U	.005 U	.0023 J	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	.005 U	.0013 J	.0034 J	.0017 J	.0035 J	.005 U	.002 J	.0013 JB	.0011 J	.005 U	.005 U	.002 J
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.01 U	.011 U	.011 U	.011 U	.01 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.011 U	.01 U	.011 U	.011 U	.011 U	.022	.0087 J	.011 U	.0027 J	.011 U	.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.011 U	.01 U	.011 U	.011 U	.011 U	.01 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.011 U	.01 U	.011 U	.011 U	.011 U	.0063 J	.005 J	.011 U	.0033 J	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.01 U	.011 U	.011 U	.011 U	.01 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.011 U	.01 U	.011 U	.011 U	.011 U	.01 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.011 U	.01 U	.011 U	.011 U	.011 U	.01 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.0061 JB	.01 U	.011 U	.011 U	.011 U	.01 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
Hexachlorobutadiene	mg/L	NA	.011 U	.01 U	.011 U	.011 U	.011 U	.01 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.011 U	.01 U	.011 U	.011 U	.011 U	.01 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U
Pyrene	mg/L	NA	.011 U	.01 U	.011 U	.011 U	.011 U	.01 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P16-MWI02-373	P16-MWS01-093	P16-MWS01-261	P16-MWS01-321	P16-MWS01-367	P16-MWS02-083	P16-MWS02-252	P16-MWS02-253	P16-MWS02-312	P16-MWS02-357	P16-MWS03-094	P16-MWS03-262
Location			P-16-MWI-02	P-16-MWS-01	P-16-MWS-01	P-16-MWS-01	P-16-MWS-01	P-16-MWS-02	P-16-MWS-02	P-16-MWS-02	P-16-MWS-02	P-16-MWS-02	P-16-MWS-03	P-16-MWS-03
Sample Date			23-Dec-02	20-Nov-02	26-Nov-02	3-Dec-02	23-Dec-02	19-Nov-02	25-Nov-02	26-Nov-02	3-Dec-02	19-Dec-02	19-Nov-02	26-Nov-02
Parameter	Units	MCL												
GENERAL CHEM														
Carbon, Total Organic	mg/L	NA	3.1	3.9	1 U	2.8	3.45	430	210	5	8	13	3.1	1 U
METALS														
Aluminum	mg/L	1	.26	.66	.179 B	.201	.206	.482	.11 B	.051 B	.178 B	.321	.2 U	.0784 B
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.0031 B	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U
Arsenic	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.02 U	.0049 B	.0037 B	.02 U	.02 U	.02 U	.02 U	.02 U
Barium	mg/L	1	.0407	.0537	.0531	.0577	.0628	.0599	.0501	.0403	.0444	.0297	.005 U	.0065
Beryllium	mg/L	0.004	.002 U	.002 U	.002 U	.002 U	.002 U	.0003 B	.002 U	.002 U	.002 U	.002 U	.00023 B	.002 U
Cadmium	mg/L	0.005	.006 U	.006 U	.006 U	.006 U	.006 U	.0224	.0191	.006 U	.0076	.0013 B	.006 U	.006 U
Calcium	mg/L	NA	7.18	19	20.2	19.6	21.3	138	121	6.5	81	50.4	.111 B	14.9
Chromium	mg/L	0.05	.005 U	.0018 B	.005 U	.005 U	.005 U	.0436	.007	.005 U	.005 U	.005 U	.005 U	.005 U
Cobalt	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.354	.299	.005 U	.144	.036	.005 U	.005 U
Copper	mg/L	1	.0014 B	.0043 B	.0025 B	.0012 B	.0026 B	1.43	.946	.01 U	.514	.135	.0022 B	.01 U
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U	.01 U	.01 U		.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Iron	mg/L	NA	.351	.548	.238	.25	.281	144	74.7	.15 U	34.2	6.98	.15 U	.0889 B
Lead	mg/L	0.015	.01 U	.01 U	.01 U	.01 U	.01 U	.238	.117	.01 U	.0511	.0064 B	.01 U	.01 U
Magnesium	mg/L	NA	15.3	8.78	9.15	9.38	10.1	76.1	51.5	14.8	36.6	23.7	.25 U	8.61
Manganese	mg/L	NA	.0424	.0687	.0539	.0454	.101	7.4	6.26	.0613	2.76	.484	.005 U	.0401
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.00023 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U
Molybdenum	mg/L	NA	.0683	.0039 B	.0023 B	.0024 B	.005 U	.0026 B	.0039 B	.0638	.0031 B	.0033 B	.005 U	.005 U
Nickel	mg/L	0.1	.0045 B	.01 U	.0014 B	.01 U	.0014 B	.628	.483	.01 U	.289	.0897	.01 U	.01 U
Potassium	mg/L	NA	35.4	12.2	11.8	11.6	11.3	91.1 E	63.7	35.4	44.4	32.8 E	.0576 BE	6.89
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.02 U	.0178 B	.009 B	.02 U	.0121 B	.0293	.02 U	.02 U
Silver	mg/L	NA	.003 U	.00062 B	.003 U	.003 U	.003 U	.003 U	.00085 B	.003 U	.003 U	.003 U	.003 U	.003 U
Sodium	mg/L	NA	852	22.6	21.9	19.6	19.2	521	301	832	160	66.8	2.5 U	12.1
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.0066 B	.03 U
Vanadium	mg/L	NA	.0036 B	.014	.0098 B	.009 B	.0065 B	.0112	.0204	.0027 B	.0161	.0042 B	.01 U	.00097 B
Zinc	mg/L	NA	.0151 B	.0041 B	.02 U	.0101 B	.02 U	.423	.211	.0116 B	.0924	.031	.02 U	.007 B

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P16-MWS03-322	P16-MWS03-323	P16-MWS03-368	P16-MWS04-084	P16-MWS04-254	P16-MWS04-313	P16-MWS04-314	P16-MWS04-358	P16-MWS05-095	P16-MWS05-263	P16-MWS05-324
Location			P-16-MWS-03	P-16-MWS-03	P-16-MWS-03	P-16-MWS-04	P-16-MWS-04	P-16-MWS-04	P-16-MWS-04	P-16-MWS-04	P-16-MWS-05	P-16-MWS-05	P-16-MWS-05
Sample Date			4-Dec-02	4-Dec-02	23-Dec-02	19-Nov-02	26-Nov-02	3-Dec-02	3-Dec-02	19-Dec-02	19-Nov-02	27-Nov-02	3-Dec-02
Parameter	Units	MCL											
8260 VOLATILES													
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.0029 JB	.005 U	.005 U	.005 U	.005 U	.0026 JB	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.0024 JB	.005 U	.005 U	.005 U	.005 U	.0021 JB	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.005 U	.005 U	.012	.079	.016	.018	.0047 J	.005 U	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.0042 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.005 U	.005 U	.0041 J	.019	.005 U	.005 U	.0013 J	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.0063 JB	.0058 JB	.01 U	.01 U	.01 U	.0056 JB	.005 JB	.01 U	.004 JB	.0042 JB	.0049 JB
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.0047 J	.026	.0056	.0058	.0013 J	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.0075 J	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.0024 J	.0014 J	.0016 J	.005 U	.005 U	.005 U	.005 U
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.0014 J	.005 U	.005 U	.005 U	.005 U	.0012 J	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Methylene Chloride	mg/L	0.005	.0079 JB	.0075 JB	.0035 JB	.0056 JB	.0058 JB	.0063 JB	.0063 JB	.0049 JB	.0059 JB	.0056 JB	.0065 JB
Naphthalene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.0036 JB	.01	.005 U	.005 U	.0034 JB	.0034 JB	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.0011 J	.005 U	.005 U	.005 U	.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.0019 JB	.0012 J	.005 U	.005 U	.005 U	.0028 JB	.0013 J
Trichlorofluoromethane	mg/L	0.15	.0027 J	.0023 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.011 U	.011 U	.011 U	.011 U	.0085 J	.0036 J	.0026 J	.011 U	.011 U	.014 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U
2-Methylnaphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.011 U	.011 U	.011 U	.0045 J	.014 U	.011 U	.011 U	.011 U	.0084 J	.014 U	.011 U
Hexachlorobutadiene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U
Naphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U
Pyrene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U	.011 U	.011 U	.011 U	.014 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P16-MWS03-322	P16-MWS03-323	P16-MWS03-368	P16-MWS04-084	P16-MWS04-254	P16-MWS04-313	P16-MWS04-314	P16-MWS04-358	P16-MWS05-095	P16-MWS05-263	P16-MWS05-324
Location			P-16-MWS-03	P-16-MWS-03	P-16-MWS-03	P-16-MWS-04	P-16-MWS-04	P-16-MWS-04	P-16-MWS-04	P-16-MWS-04	P-16-MWS-05	P-16-MWS-05	P-16-MWS-05
Sample Date			4-Dec-02	4-Dec-02	23-Dec-02	19-Nov-02	26-Nov-02	3-Dec-02	3-Dec-02	19-Dec-02	19-Nov-02	27-Nov-02	3-Dec-02
Parameter	Units	MCL											
GENERAL CHEM													
Carbon, Total Organic	mg/L	NA	1 U	1 U	1 U	2.2	2.29	1 U	1.3	1 U	2.8	16.4	1.5
METALS													
Aluminum	mg/L	1	.0991 B	.113 B	.323	.177 B	.0881 B	.0592 B	.0612 B	.216	2.52	2.71	1.3
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.02 U	.02 U	.0028 B	.02 U	.02 U	.02 U	.02 U	.02 U
Arsenic	mg/L	0.05	.02 U	.02 U	.02 U	.0059 B	.0085 B	.0052 B	.0064 B	.0087 B	.0108 B	.0105 B	.0065 B
Barium	mg/L	1	.0074	.0072	.0164	.0148	.0153	.0204	.0205	.0239	.0366	.0478	.0573
Beryllium	mg/L	0.004	.002 U	.002 U	.002 U	.00026 B	.002 U	.002 U	.002 U	.002 U	.00032 B	.002 U	.002 U
Cadmium	mg/L	0.005	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U
Calcium	mg/L	NA	14.9	14.9	14.6	18.7	18.6	20.5	21	22.9	17.9	20.6	19.9
Chromium	mg/L	0.05	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0041 B	.0106	.011	.0055
Cobalt	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.00066 B	.005 U
Copper	mg/L	1	.01 U	.01 U	.0024 B	.0032 B	.01 U	.01 U	.01 U	.0019 B	.0179	.0137	.007 B
Hexavalent Chromium	mg/L	0.05	.01 U			.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U
Iron	mg/L	NA	.0817 B	.0735 B	.461	.228	.0672 B	.15 U	.15 U	.273	3.3	3.74	1.82
Lead	mg/L	0.015	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.0035 B	.01 U
Magnesium	mg/L	NA	9	8.98	9.06	7.01	6.91	7.58	7.81	7.36	6.93	7.6	7.63
Manganese	mg/L	NA	.0246	.0268	.0797	.0184	.0107	.0113	.0113	.0125	.136	.155	.132
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.00014 B
Molybdenum	mg/L	NA	.005 U	.005 U	.005 U	.0043 B	.0047 B	.0045 B	.0045 B	.0046 B	.0019 B	.0017 B	.005 U
Nickel	mg/L	0.1	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.006 B	.0096 B	.0042 B
Potassium	mg/L	NA	7.16	7.2	5.97	12.1 E	13.5	13.7	14.5	13.6 E	10.9 E	12.7	12.8
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.02 U	.0098 B	.0101 B	.0284	.02 U	.02 U	.02 U
Silver	mg/L	NA	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U
Sodium	mg/L	NA	12.1	12.4	18.3	18.6	21.8	19.7	20.2	13.2	31.6	27.6	18.7
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U
Vanadium	mg/L	NA	.00098 B	.0017 B	.0025 B	.0199	.0202	.0177	.0184	.0192	.0308	.0242	.0122
Zinc	mg/L	NA	.02 U	.02 U	.018 B	.0095 B	.02 U	.02 U	.02 U	.0117 B	.024	.0105 B	.0123 B

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P16-MWS05-369	P16-MWS06-085	P16-MWS06-255	P16-MWS06-315	P16-MWS06-359	P16-MWS07-096	P16-MWS07-264	P16-MWS07-265	P16-MWS07-325	P16-MWS07-326	P16-MWS07-370
Location			P-16-MWS-05	P-16-MWS-06	P-16-MWS-06	P-16-MWS-06	P-16-MWS-06	P-16-MWS-07	P-16-MWS-07	P-16-MWS-07	P-16-MWS-07	P-16-MWS-07	P-16-MWS-07
Sample Date			23-Dec-02	19-Nov-02	25-Nov-02	3-Dec-02	20-Dec-02	19-Nov-02	26-Nov-02	26-Nov-02	4-Dec-02	4-Dec-02	23-Dec-02
Parameter	Units	MCL											
8260 VOLATILES													
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
1,1-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
1,2,3-Trichlorobenzene	mg/L	NA	.0038 JB	.005 U	.005 U	.005 U	.0051	.005 U	.005 U	.005 U		.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.0028 J	.005 U	.005 U	.005 U	.0036 J	.005 U	.005 U	.005 U		.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.0011 J	.005 U	.005 U	.005 U		.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.005 U	.0025 J	.005 U	.0025 J	.005 U	.005 U	.005 U		.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.0015 J	.005 U	.005 U	.005 U		.005 U	.005 U
2-Butanone	mg/L	NA	.01 U	.01 U	.01 U	.0049 JB	.01 U	.19 B	.01 U	.005 JB		.006 JB	.01 U
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.12	.01 U	.01 U		.01 U	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.0021 J	.005 U	.0013 J	.005 U	.005 U	.005 U		.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.0011 J	.0017 J	.0027 J	.005 U	.005 U	.005 U		.005 U	.005 U
Chloromethane	mg/L	NA	.013	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U	.012
Cis-1,2-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.0017 J	.005 U	.019	.034	.034		.03	.01
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Methylene Chloride	mg/L	0.005	.01 B	.0054 JB	.0035 JB	.0056 JB	.0053 JB	.005 JB	.0054 JB	.0055 JB		.0087 JB	.0035 JB
Naphthalene	mg/L	NA	.01 B	.005 U	.005 U	.005 U	.0037 J	.0066 B	.005 U	.005 U		.005 U	.0026 JB
N-Butylbenzene	mg/L	NA	.0018 J	.005 U	.005 U	.005 U	.0028 J	.005 U	.005 U	.005 U		.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.0011 J	.005 U	.005 U	.005 U		.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.0013 J	.005 U	.005 U	.005 U		.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.0033 J	.005 U	.005 U	.005 U	.0048 J	.051	.1	.1		.075	.041
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0012 J	.0013 J		.005 U	.005 U
Trichloroethene	mg/L	0.005	.005 U	.005 U	.0013 J	.0035 J	.005 U	.013	.026 B	.03		.021	.0098
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U		.0014 J	.005 U
Vinyl Chloride	mg/L	0.0005	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U	.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.015 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U		.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.015 U	.011 U	.011 U	.0022 J	.011 U	.011 U	.011 U	.01 U		.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.015 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U		.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.015 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U		.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.015 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U		.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.015 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U		.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.0031 JB	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U		.011 U	.0022 JB
Di-N-Butyl Phthalate	mg/L	NA	.0065 JB	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U		.011 U	.0059 JB
Hexachlorobutadiene	mg/L	NA	.015 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U		.011 U	.011 U
Naphthalene	mg/L	NA	.015 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U		.011 U	.011 U
Pyrene	mg/L	NA	.015 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U		.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P16-MWS05-369	P16-MWS06-085	P16-MWS06-255	P16-MWS06-315	P16-MWS06-359	P16-MWS07-096	P16-MWS07-264	P16-MWS07-265	P16-MWS07-325	P16-MWS07-326	P16-MWS07-370
Location			P-16-MWS-05	P-16-MWS-06	P-16-MWS-06	P-16-MWS-06	P-16-MWS-06	P-16-MWS-07	P-16-MWS-07	P-16-MWS-07	P-16-MWS-07	P-16-MWS-07	P-16-MWS-07
Sample Date			23-Dec-02	19-Nov-02	25-Nov-02	3-Dec-02	20-Dec-02	19-Nov-02	26-Nov-02	26-Nov-02	4-Dec-02	4-Dec-02	23-Dec-02
Parameter	Units	MCL											
GENERAL CHEM													
Carbon, Total Organic	mg/L	NA	1.42	4.2	4.1	5.2	10	17	3.4	4.3		2.3	3
METALS													
Aluminum	mg/L	1	.55	.171 B	.0704 B	.066 B	.102 B	1.63	.328	.32		.189 B	.877
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.0029 B	.02 U	.0026 B	.0031 B	.0035 B		.0026 B	.02 U
Arsenic	mg/L	0.05	.0062 B	.02 U	.02 U	.02 U	.0044 B	.0267	.0131 B	.012 B		.0071 B	.0064 B
Barium	mg/L	1	.0397	.15	.179	.179	.233	.0865	.067	.0678		.0646	.0647
Beryllium	mg/L	0.004	.002 U	.00024 B	.002 U	.002 U	.002 U	.00028 B	.002 U	.002 U		.002 U	.002 U
Cadmium	mg/L	0.005	.006 U	.006 U	.006 U	.006 U	.0089	.006 U	.006 U	.006 U		.006 U	.00038 B
Calcium	mg/L	NA	21.4	46.2	49.3	47.5	70.2	29.3	23.3	23.6		24.3	23.8
Chromium	mg/L	0.05	.0032 B	.005 U	.005 U	.005 U	.005 U	.0321	.005 U	.005 U		.005 U	.0043 B
Cobalt	mg/L	NA	.005 U	.005 U	.005 U	.0009 B	.0381	.0033 B	.005 U	.005 U		.005 U	.0029 B
Copper	mg/L	1	.0054 B	.006 B	.0105	.0322	.514	.0311	.0165	.0166		.011	.0105
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U	.01 U	.01 U		.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Iron	mg/L	NA	.914	.231	.0822 B	.0637 B	.464	2.28	.419	.384		.22	1.31
Lead	mg/L	0.015	.01 U	.01 U	.01 U	.01 U	.0406	.01 U	.01 U	.0025 B		.01 U	.01 U
Magnesium	mg/L	NA	8.63	25.7	24.7	25.8	35.5	18	13.5	13.7		13.8	13.2
Manganese	mg/L	NA	.123	.0401	.031	.0324	.585	.194	.0997	.0995		.0964	.191
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U		.0002 U	.0002 U
Molybdenum	mg/L	NA	.0016 B	.0041 B	.0047 B	.0036 B	.0044 B	.014	.0085	.009		.0064	.0041 B
Nickel	mg/L	0.1	.0016 B	.01 U	.01 U	.0042 B	.0929	.0131	.0024 B	.0021 B		.01 U	.0089 B
Potassium	mg/L	NA	12.7	24 E	25.7	26.9	28.2	34.5 E	26.8	27.1		26.1	19.5
Selenium	mg/L	0.05	.02 U	.0179 B	.0227	.023	.0253	.0128 B	.0069 B	.007 B		.02 U	.02 U
Silver	mg/L	NA	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U		.003 U	.003 U
Sodium	mg/L	NA	18.8	68.2	72.9	80.2	73.8	62.3	37.5	37.7		31.8	30.9
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U		.03 U	.03 U
Vanadium	mg/L	NA	.0189	.016	.0164	.0159	.0146	.112	.0542	.055		.0396	.0356
Zinc	mg/L	NA	.02 U	.02 U	.02 U	.02 U	.0453	.0107 B	.02 U	.0071 B		.02 U	.008 B

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number Location Sample Date			P16-MWS07-371 P-16-MWS-07 23-Dec-02	P16-MWS08-086 P-16-MWS-08 19-Nov-02	P16-MWS08-256 P-16-MWS-08 26-Nov-02	P16-MWS08-316 P-16-MWS-08 3-Dec-02	P16-MWS08-360 P-16-MWS-08 19-Dec-02	P9-IWIS01-057 P-9-IWI-01 20-Nov-02	P9-IWIS01-229 P-9-IWI-01 25-Nov-02	P9-IWIS01-289 P-9-IWI-01 2-Dec-02	P9-IWIS01-329 P-9-IWS-01 17-Dec-02	P9-IWS01-047 P-9-IWS-01 18-Nov-02	P9-IWS01-220 P-9-IWS-01 25-Nov-02	P9-IWS01-280 P-9-IWS-01 2-Dec-02
Parameter	Units	MCL												
8260 VOLATILES														
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.01	.013	.019	.017	.0013 J	.005 U	.0013 J
1,1-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0016 J	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.1	.16	.11	.09	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.0014 J	.0026 J	.0017 J	.0012 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.0068	.011	.0085	.0064	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.01 U	.045	.0066 J	.0049 JB	.01 U	.2	.13	.032	.01 U	.01 U	.01 U	.01 U
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.001 J
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.061	.089 B	.034	.024	.01 U	.01 U	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0013 J
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0043 J	.0073
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.024	.04	.053	.041	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.0078	.0064	.0066	.0051	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.0094 J	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.01	.0021 J	.0032 J	.0035 J	.0053	.005 U	.005 U	.005 U	.005 U	.0017 J	.0011 J	.002 J
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0042 J	.0069
Methylene Chloride	mg/L	0.005	.0036 JB	.019 B	.0059 JB	.0054 JB	.0064 JB	.0056 JB	.0039 JB	.012 B	.0059 JB	.0087 B	.0046 JB	.012 B
Naphthalene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0032 JB	.01 U	.005 U	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.004 J	.0047 J	.0067
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0024 J	.0038 J
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.043	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0018 JB	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	.01	.0024 J	.004 JB	.013	.0021 J	.005 U	.005 U	.005 U	.005 U	.0019 JB	.005 U	.005 U
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.0012 J	.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.011 U	.087	.094	.085	.066	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.011 U	.011 U	.0056 J	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.011 U	.0051 J	.0054 J	.0059 J	.0041 J	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.017	.011 U	.011 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.0081 J	.011 U	.0028 JB	.0054 J	.0055 J	.011 U	.011 U	.011 U
Hexachlorobutadiene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Pyrene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P16-MWS07-371	P16-MWS08-086	P16-MWS08-256	P16-MWS08-316	P16-MWS08-360	P9-IWIS01-057	P9-IWIS01-229	P9-IWIS01-289	P9-IWIS01-329	P9-IWS01-047	P9-IWS01-220	P9-IWS01-280
Location			P-16-MWS-07	P-16-MWS-08	P-16-MWS-08	P-16-MWS-08	P-16-MWS-08	P-9-IWI-01	P-9-IWI-01	P-9-IWI-01	P-9-IWS-01	P-9-IWS-01	P-9-IWS-01	P-9-IWS-01
Sample Date			23-Dec-02	19-Nov-02	26-Nov-02	3-Dec-02	19-Dec-02	20-Nov-02	25-Nov-02	2-Dec-02	17-Dec-02	18-Nov-02	25-Nov-02	2-Dec-02
Parameter	Units	MCL												
GENERAL CHEM														
Carbon, Total Organic	mg/L	NA	3.4	11	8.1	8.5	4.1	330	360	180	110	27	19	160
METALS														
Aluminum	mg/L	1	.773	.0495 B	.32	.048 B	.107 B	1.61	16.8	1.82	.896	.266	.0866 B	.07 B
Antimony	mg/L	0.006	.02 U	.02 U	.0025 B	.02 U	.02 U	.02 U	.02 U	.02 U	.0024 B	.0037 B	.0028 B	.02 U
Arsenic	mg/L	0.05	.0065 B	.0067 B	.0098 B	.0071 B	.012 B	.02 U	.0177 B	.0268	.0257	.0177 B	.0289	.0278
Barium	mg/L	1	.0634	.0871	.0941	.103	.0939	.0634	.207	.0446 E	.0502	.177	.191	.184 E
Beryllium	mg/L	0.004	.002 U	.00024 B	.002 U	.002 U	.002 U	.002 U	.00011 B	.002 U	.002 U	.0001 U	.002 U	.002 U
Cadmium	mg/L	0.005	.00035 B	.006 U	.006 U	.006 U	.006 U	.0039 B	.0076	.0173	.023	.006 U	.006 U	.006 U
Calcium	mg/L	NA	23.5	33.9	31.6	34.3	36.5	24	33	36.3 E	40.2	38.9	39.7	37.3 E
Chromium	mg/L	0.05	.0036 B	.005 U	.005 U	.005 U	.005 U	.0487	.167	.0876	.0327	.0032 U	.005 U	.005 U
Cobalt	mg/L	NA	.0033 B	.005 U	.005 U	.005 U	.005 U	.138	.452	.74	.976	.0041 B	.001 B	.0021 B
Copper	mg/L	1	.0104	.0034 B	.01 U	.01 U	.0014 B	.159	.353	.451	.494	.0285	.0017 B	.0016 B
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U	.01 U	.01 U	.01 U	.01 U
Iron	mg/L	NA	1.11	.0682 B	.373	.15 U	.186	131	93	55.8	55.6	.502	.848	1.46
Lead	mg/L	0.015	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.0165	.0344	.0525	.0037 B	.0026 B	.01 U
Magnesium	mg/L	NA	13.1	14.8	13.9	14.8	15.6	16.2	23 E	16.9 E	26.4	35	32.6 E	31.1 E
Manganese	mg/L	NA	.19	.0621	.0905	.0981	.0971	1.18	2.34	6.85 E	11.3	.79	1.03	1.08 E
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.00022	.00015 B	.0002 U	.0001 B	.0001 U	.0002 U	.0002 U
Molybdenum	mg/L	NA	.0039 B	.0046 B	.0045 B	.0048 B	.0055	.0013 B	.0024 B	.0066	.0082	.0195	.0137	.0109
Nickel	mg/L	0.1	.0091 B	.01 U	.0036 B	.0029 B	.0052 B	.561	1.13	1.18	1.35	.0271	.0141	.0186
Potassium	mg/L	NA	20.3	17.2 E	18	18.3	19.7 E	125	134	98.4 E	129	28.4	25.2	23.8 E
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.0045 B	.02 U	.04 U	.0041 U	.02 U	.02 U
Silver	mg/L	NA	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.0008 U	.003 U	.003 U
Sodium	mg/L	NA	30.8	127	127	129	129	598	525	460 E	623	446	352	380 E
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.06 U	.03 U	.03 U	.03 U
Vanadium	mg/L	NA	.0347	.0179	.0119	.0107	.0117	.0099 B	.058	.0358	.0285	.0175	.0038 B	.0022 B
Zinc	mg/L	NA	.02 U	.02 U	.02 U	.02 U	.02 U	.0535	.261	.449	.563	.0285	.0078 B	.02 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number Location Sample Date			P9-IWS01-339 P-9-IWS-01 18-Dec-02	P9-IWS02-210 P-9-IWS-02 20-Nov-02	P9-IWS02-221 P-9-IWS-02 25-Nov-02	P9-IWS02-281 P-9-IWS-02 2-Dec-02	P9-IWS02-347 P9-IWS-02 19-Dec-02	P9-MWI01-226 P-9-MWI-01 25-Nov-02	P9-MWI01-287 P-9-MWI-01 2-Dec-02	P9-MWI01-345 P9-MWI-01 18-Dec-02	P9-MWI02-058 P-9-MWI-02 19-Nov-02	P9-MWI02-230 P-9-MWI-02 25-Nov-02	P9-MWI02-290 P-9-MWI-02 2-Dec-02	P9-MWI02-330 P9-MWI-02 17-Dec-02	P9-MWI03-059 P-9-MWI-03 18-Nov-02
Parameter	Units	MCL													
8260 VOLATILES															
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.0019 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.062	.05	.04	.031	.048
1,1-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0086	.0066	.0054	.0026 J	.0053
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.033	.022	.013	.0088	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.0053	.0037 J	.0023 J	.0013 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.01 U	.98	.33 E	.093	.037	.01 U	.01 U	.01 U	.46	.32	.01 U	.01 U	.01 U
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.01 U	1.2	.61 BE	.52	.19	.01 U	.01 U	.01 U	.019	.011 B	.01 U	.01 U	.01 U
Benzene	mg/L	0.001	.0014 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.0015 J	.02	.024	.02	.015	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.013	.0097	.0081	.0028 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.0039 J	.005 U	.0017 J	.0015 J	.0022 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Ethylbenzene	mg/L	0.7	.005 U	.0046 J	.005	.0035 J	.0026 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.0019 J	.011	.013	.011	.009	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Methylene Chloride	mg/L	0.005	.0049 JB	.0049 JB	.0048 JB	.0081 JB	.0053 JB	.0054 JB	.012 B	.0059 JB	.0042 JB	.0044 JB	.014 B	.005 JB	.021 B
Naphthalene	mg/L	NA	.005 U	.021	.019 B	.013 B	.0075 B	.0051 B	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.01 U
N-Butylbenzene	mg/L	NA	.0019 J	.0066	.0093	.0058	.0029 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.0021 J	.0017 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.001 J	.0084	.009	.0078	.0053	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.0047 J	.0038 J	.0025 J	.0015 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.0023 J	.005 U	.005 U	.005 U	.0021 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.0026 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0019 JB
Total Xylenes	mg/L	1.75	.005 U	.0064	.0068	.0038 J	.0023 J	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0019 JB
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.0012 J	.01 U	.01 U	.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.017 U	.01 U	.011 U	.011 U	.017 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.017 U	.01 U	.011 U	.011 U	.017 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.017 U	.01 U	.011 U	.011 U	.017 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.017 U	.01 U	.011 U	.011 U	.017 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.017 U	.01 U	.0022 J	.011 U	.017 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.017 U	.0026 J	.0016 J	.0026 J	.017 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.017 U	.01 U	.011 U	.011 U	.017 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.0024 J	.0019 J
Di-N-Butyl Phthalate	mg/L	NA	.017 U	.01 U	.011 U	.0074 J	.017 U	.0032 JB	.011 U	.011 U	.011 U	.011 U	.011 U	.0051 J	.0097 J
Hexachlorobutadiene	mg/L	NA	.017 U	.01 U	.011 U	.011 U	.017 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.017 U	.023	.016	.015	.0087 J	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Pyrene	mg/L	NA	.017 U	.01 U	.011 U	.011 U	.017 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P9-IWS01-339	P9-IWS02-210	P9-IWS02-221	P9-IWS02-281	P9-IWS02-347	P9-MWI01-226	P9-MWI01-287	P9-MWI01-345	P9-MWI02-058	P9-MWI02-230	P9-MWI02-290	P9-MWI02-330	P9-MWI03-059
Location			P-9-IWS-01	P-9-IWS-02	P-9-IWS-02	P-9-IWS-02	P9-IWS-02	P-9-MWI-01	P-9-MWI-01	P9-MWI-01	P-9-MWI-02	P-9-MWI-02	P-9-MWI-02	P9-MWI-02	P-9-MWI-03
Sample Date			18-Dec-02	20-Nov-02	25-Nov-02	2-Dec-02	19-Dec-02	25-Nov-02	2-Dec-02	18-Dec-02	19-Nov-02	25-Nov-02	2-Dec-02	17-Dec-02	18-Nov-02
Parameter	Units	MCL													
GENERAL CHEM															
Carbon, Total Organic	mg/L	NA	22	540	420	280	210	4.9	350	1.5	5.5	7	37	2.4	5.9
METALS															
Aluminum	mg/L	1	.113 B	1.38	1.14	.39	.169 B	.0462 B	.2 U	.2 U	.82	.977	.791	.986	.218
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.0024 U
Arsenic	mg/L	0.05	.0159 B	.004 B	.0054 B	.0091 B	.0257	.02 U	.02 U	.0048 B	.0092 B	.0105 B	.0117 B	.0106 B	.0038 U
Barium	mg/L	1	.131	.106	.0792	.0631 E	.0732	.225	.235 E	.224	.0175	.0167	.0157 E	.0163	.0347
Beryllium	mg/L	0.004	.002 U	.00035 B	.002 U	.002 U	.002 U	.002 U	.002 U	.002 U	.00025 B	.002 U	.002 U	.002 U	.0001 U
Cadmium	mg/L	0.005	.006 U	.0032 B	.0032 B	.0045 B	.0028 B	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.0003 U
Calcium	mg/L	NA	34.4	120	113	104 E	151	34.5	35.1 E	41.3	6.36	5.56	6.04 E	5.42	9.2
Chromium	mg/L	0.05	.0042 B	.165	.123	.0462	.0111	.005 U	.005 U	.005 U	.005 U	.005	.0054	.0074	.0032 U
Cobalt	mg/L	NA	.0045 B	.208	.263	.277	.336	.0024 B	.004 B	.0026 B	.0058	.0061	.0073	.0084	.0012 B
Copper	mg/L	1	.0012 B	.556	.338	.0742	.0346	.01 U	.01 U	.01 U	.0057 B	.0015 B	.0043 B	.0019 B	.0008 U
Hexavalent Chromium	mg/L	0.05		.01	.01 U	.01 U	.01 U		.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	
Iron	mg/L	NA	2.12	139	119	163	181	.0521 B	.15 U	.0771 B	.398	1.38	1.15	1.58	.265
Lead	mg/L	0.015	.01 U	.0028 B	.0054 B	.0058 B	.0095 B	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.0035 B
Magnesium	mg/L	NA	37.6	59.3	58.7 E	53.6 E	75.6	59.3 E	60.4 E	68.9	2.78	2.51 E	2.72 E	2.42	11.5
Manganese	mg/L	NA	.979	7.54	7.63	6.88 E	6.72	.896	.975 E	1.08	.0146	.0162	.0138 E	.0205	.0271
Mercury	mg/L	0.002	.0002 U	.0002 U	.0001 B	.0002 U	.00018 B	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0001 U
Molybdenum	mg/L	NA	.0064	.005 U	.005 U	.002 B	.0021 B	.0043 B	.0048 B	.0044 B	.0029 B	.0032 B	.0047 B	.0035 B	.0038 B
Nickel	mg/L	0.1	.0393	1.5	1.74	1.76	2.09	.0442	.0501	.0501	.0522	.0495	.0579	.061	.0261
Potassium	mg/L	NA	29.8 E	141	150	167 E	178 E	30	30.3 E	24 E	7.13 E	6.94	7.27 E	6.87	6.3
Selenium	mg/L	0.05	.02 U	.0231	.0176 B	.0097 B	.0063 B	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.0041 U
Silver	mg/L	NA	.0012 B	.00073 B	.003 U	.00087 B	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.0008 U
Sodium	mg/L	NA	693	857	744	674 E	780	1690	1650 E	1670	230	215	227 E	214	350
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.0061 U
Vanadium	mg/L	NA	.0049 B	.005 B	.0069 B	.0304	.319	.0031 B	.0038 B	.0035 B	.0237	.0229	.0251	.023	.007 B
Zinc	mg/L	NA	.02 U	.198	.3	.336	.286	.0195 B	.02 U	.02 U	.0139 B	.02 U	.02 U	.0119 B	.0137 B

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number Location Sample Date			P9-MWI03-231 P-9-MWI-03 25-Nov-02	P9-MWI03-291 P-9-MWI-03 2-Dec-02	P9-MWI03-292 P-9-MWI-03 2-Dec-02	P9-MWI03-331 P9-MWI-03 17-Dec-02	P9-MWI04-060 P-9-MWI-04 18-Nov-02	P9-MWI04-232 P-9-MWI-04 25-Nov-02	P9-MWI04-293 P-9-MWI-04 2-Dec-02	P9-MWI04-332 P9-MWI-04 17-Dec-02	P9-MWI05-061 P-9-MWI-05 19-Nov-02	P9-MWI05-233 P-9-MWI-05 25-Nov-02	P9-MWI05-294 P-9-MWI-05 3-Dec-02	P9-MWI05-333 P9-MWI-05 16-Dec-02	P9-MWI06-062 P-9-MWI-06 19-Nov-02
Parameter	Units	MCL													
8260 VOLATILES															
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.072	.13	.13	.1	.014	.008	.0064	.0043 J	.26	.41	.3	.31	.39
1,1-Dichloroethene	mg/L	0.006	.007	.013	.014	.009	.0028 J	.0025 J	.0027 J	.0019 J	.0097	.011	.0072	.01	.019
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.46	.15	.01 U	.01 U	.0075 JB	.01 U	.0045 JB	.01 U	.28
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.021 B	.011 B	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0011 J	.005 U
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Methylene Chloride	mg/L	0.005	.004 JB	.015 B	.013 B	.0086 JB	.019 B	.0041 JB	.016 B	.0084 JB	.0036 JB	.0037 JB	.0055 JB	.0046 JB	.0041 JB
Naphthalene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.01 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.002 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.0018 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0014 J	.005 U
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.013	.011	.012	.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.011 U	.011 U	.011 U	.011 U	.0083 J	.011 U	.0032 J	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.011 U	.0054 J	.006 J	.011 U	.011 U	.011 U	.0048 J	.011 U	.01 U	.0076 JB	.0017 J	.008 J	.011 U
Hexachlorobutadiene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U
Pyrene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P9-MWI03-231	P9-MWI03-291	P9-MWI03-292	P9-MWI03-331	P9-MWI04-060	P9-MWI04-232	P9-MWI04-293	P9-MWI04-332	P9-MWI05-061	P9-MWI05-233	P9-MWI05-294	P9-MWI05-333	P9-MWI06-062
Location			P-9-MWI-03	P-9-MWI-03	P-9-MWI-03	P9-MWI-03	P-9-MWI-04	P-9-MWI-04	P-9-MWI-04	P9-MWI-04	P-9-MWI-05	P-9-MWI-05	P-9-MWI-05	P9-MWI-05	P-9-MWI-06
Sample Date			25-Nov-02	2-Dec-02	2-Dec-02	17-Dec-02	18-Nov-02	25-Nov-02	2-Dec-02	17-Dec-02	19-Nov-02	25-Nov-02	3-Dec-02	16-Dec-02	19-Nov-02
Parameter	Units	MCL													
GENERAL CHEM															
Carbon, Total Organic	mg/L	NA	4.6	58	41.8	3.2	6.1	6.8	35	3.9	6.4	13	9	3	5.2
METALS															
Aluminum	mg/L	1	.166 B	.0508 B	.0915 B	.546	1.1	.547	.3	.377	.0814 B	.128 B	.132 B	.979	.211
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.02 U	.0024 U	.02 U	.02 U	.02 U	.02 U	.0025 B	.02 U	.02 U	.02 U
Arsenic	mg/L	0.05	.0057 B	.0054 B	.0056 B	.0047 B	.009 B	.0076 B	.0092 B	.0091 B	.0098 B	.0102 B	.012 B	.0117 B	.02 U
Barium	mg/L	1	.0496	.0356 E	.0385 E	.034	.0153	.0111	.0097 E	.0144	.019	.0158	.0164	.0171	.103
Beryllium	mg/L	0.004	.002 U	.002 U	.002 U	.002 U	.0001 U	.002 U	.002 U	.002 U	.00024 B	.002 U	.002 U	.002 U	.00026 B
Cadmium	mg/L	0.005	.006 U	.006 U	.006 U	.006 U	.0003 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.0016 B
Calcium	mg/L	NA	12	8.78 E	9.48 E	7.92	3.66	3.03	3.34 E	3.68	3.35	3.23	3.31	2.95	224
Chromium	mg/L	0.05	.005 U	.005 U	.005 U	.005 U	.0084	.0034 B	.0036 B	.0045 B	.005 U	.005 U	.005 U	.005 U	.005 U
Cobalt	mg/L	NA	.002 B	.0031 B	.0036 B	.0013 B	.0016 B	.0014 B	.0021 B	.0022 B	.00083 B	.00096 B	.00082 B	.0014 B	.0017 B
Copper	mg/L	1	.01 U	.01 U	.001 B	.01 U	.004 B	.0013 B	.0028 B	.00082 B	.0032 B	.01 U	.01 U	.01 U	.0042 B
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Iron	mg/L	NA	.212	.0708 B	.131 B	.924	1.57	.705	.432	.429	.138 B	.191	.172	.596	.242
Lead	mg/L	0.015	.01 U	.01 U	.01 U	.01 U	.0024 U	.01 U	.01 U	.01 U	.0064 B	.01 U	.01 U	.01 U*	.01 U
Magnesium	mg/L	NA	13.9 E	10 E	10.8 E	8.98	2.61	2.15 E	2.22 E	2.32	3.81	3.79 E	3.81	3.5	301
Manganese	mg/L	NA	.122	.104 E	.114 E	.0398	.019	.008	.0053 E	.015	.0495	.051	.0524	.0529	2.94
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0001 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U
Molybdenum	mg/L	NA	.0033 B	.0037 B	.0049 B	.0035 B	.0058	.0056	.0072	.0052	.0132	.0121	.0145	.0157	.0017 B
Nickel	mg/L	0.1	.0257	.032	.0337	.03	.024	.0178	.0187	.0203	.0114	.018	.0162	.0154	.0214
Potassium	mg/L	NA	7.46	6.41 E	6.71 E	5.34	6.84	6.54	6.11 E	7.02	13.7 E	14.2	14.6	13.9 E	16.2 E
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.0041 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U
Silver	mg/L	NA	.003 U	.003 U	.0013 B	.003 U	.0008 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U
Sodium	mg/L	NA	400	340 E	360 E	302	236	220	225 E	232	389	389	408	383	2150
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.03 U	.0061 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U
Vanadium	mg/L	NA	.0074 B	.0068 B	.0079 B	.0086 B	.0272	.0216	.0222	.021	.0026 B	.0022 B	.0024 B	.0039 B	.0085 B
Zinc	mg/L	NA	.02 U	.02 U	.0087 B	.0161 B	.0088 B	.02 U	.02 U	.0127 B	.0074 B	.02 U	.02 U	.02 U	.0208

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P9-MWI06-234	P9-MWI06-295	P9-MWI06-334	P9-MWI07-063	P9-MWI07-235	P9-MWI07-296	P9-MWI07-335	P9-MWI08-064	P9-MWI08-236	P9-MWI08-297	P9-MWI08-336	P9-MWI09-065	P9-MWI09-200
Location			P-9-MWI-06	P-9-MWI-06	P9-MWI-06	P-9-MWI-07	P-9-MWI-07	P-9-MWI-07	P9-MWI-07	P-9-MWI-08	P-9-MWI-08	P-9-MWI-08	P9-MWI-08	P-9-MWI-09	P-9-MWI-09
Sample Date			25-Nov-02	2-Dec-02	16-Dec-02	18-Nov-02	25-Nov-02	2-Dec-02	17-Dec-02	19-Nov-02	25-Nov-02	2-Dec-02	17-Dec-02	19-Nov-02	19-Nov-02
Parameter	Units	MCL													
8260 VOLATILES															
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.36	.38	.38	.0045 J	.004 J	.0045 J	.0053	.26	.2	.29	.27	1	1
1,1-Dichloroethene	mg/L	0.006	.018	.021	.016	.0028 J	.0033 J	.0039 J	.0037 J	.02	.018	.037	.022	.039	.033
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.2	.15	.01 U	.01 U	.01 U	.01 U	.01 U	.32	.043	.01 U	.01 U	.01 U	.01 U
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.011 B	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Methylene Chloride	mg/L	0.005	.0032 JB	.014 B	.0051 JB	.019 B	.0042 JB	.015 B	.0084 JB	.004 JB	.0043 JB	.015 B	.0085 JB	.004 JB	.0045 JB
Naphthalene	mg/L	NA	.005 U	.005 U	.005 U	.01 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.002 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.0018 JB	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.0022 J	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.031	.025
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U
1,2-Dichlorobenzene	mg/L	0.6	.011 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U
1,3-Dichlorobenzene	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U
1,4-Dichlorobenzene	mg/L	0.005	.011 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U
2-Methylnaphthalene	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.011 U	.011 U	.0025 J	.011 U	.011 U	.018	.0023 J	.0017 J	.011 U	.011 U	.011 U	.011 U	.01 U
Di-N-Butyl Phthalate	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.0039 J	.0015 J	.011 U	.011 U	.0042 J	.011 U	.011 U	.01 U
Hexachlorobutadiene	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U
Naphthalene	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U
Pyrene	mg/L	NA	.011 U	.011 U	.01 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.01 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P9-MWI06-234	P9-MWI06-295	P9-MWI06-334	P9-MWI07-063	P9-MWI07-235	P9-MWI07-296	P9-MWI07-335	P9-MWI08-064	P9-MWI08-236	P9-MWI08-297	P9-MWI08-336	P9-MWI09-065	P9-MWI09-200
Location			P-9-MWI-06	P-9-MWI-06	P9-MWI-06	P-9-MWI-07	P-9-MWI-07	P-9-MWI-07	P9-MWI-07	P-9-MWI-08	P-9-MWI-08	P-9-MWI-08	P9-MWI-08	P-9-MWI-09	P-9-MWI-09
Sample Date			25-Nov-02	2-Dec-02	16-Dec-02	18-Nov-02	25-Nov-02	2-Dec-02	17-Dec-02	19-Nov-02	25-Nov-02	2-Dec-02	17-Dec-02	19-Nov-02	19-Nov-02
Parameter	Units	MCL													
GENERAL CHEM															
Carbon, Total Organic	mg/L	NA	20	54	1.8	3.9	3.6	44	1.4	5.7	18	39	3.1	3.6	15
METALS															
Aluminum	mg/L	1	.234	.584	.963	.633	.134 B	.0443 B	.478	.183 B	.123 B	.525	.105 B	.2 U	.2 U
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.0024 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U
Arsenic	mg/L	0.05	.0039 B	.02 U	.02 U	.0038 U	.0048 B	.02 U	.02 U	.02 U	.0046 B	.0046 B	.0059 B	.0044 B	.0059 B
Barium	mg/L	1	.0941	.0883 E	.085	.0151	.0115	.0105 E	.0172	.129	.0712	.115 E	.0859	.047	.0478
Beryllium	mg/L	0.004	.002 U	.002 U	.002 U	.0001 U	.002 U	.002 U	.002 U	.00022 B	.002 U	.002 U	.002 U	.0002 B	.00023 B
Cadmium	mg/L	0.005	.0011 B	.0013 B	.0011 B	.0003 U	.006 U	.006 U	.006 U	.00099 B	.006 U	.00093 B	.006 U	.006 U	.006 U
Calcium	mg/L	NA	209	188 E	196	4.48	3.64	3.57 E	4.15	192	46	161 E	92.8	98.9	114
Chromium	mg/L	0.05	.005 U	.005 U	.0057	.0032 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Cobalt	mg/L	NA	.0016 B	.002 B	.0021 B	.0008 U	.005 U	.001 B	.00085 B	.0036 B	.005 U	.0028 B	.005 U	.0011 B	.005 U
Copper	mg/L	1	.01 U	.003 B	.0026 B	.0022 B	.01 U	.01 U	.01 U	.0039 B	.01 U	.0015 B	.01 U	.0036 B	.004 B
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U	.01 U		.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Iron	mg/L	NA	.269	.803	1.27	.929	.175	.0715 B	.703	.2	.101 B	.504	.111 B	.057 B	.0559 B
Lead	mg/L	0.015	.01 U	.01 U	.01 U*	.0024 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Magnesium	mg/L	NA	271 E	243 E	257	2.94	2.32 E	2.26 E	2.62	258	59.6 E	210 E	116	161	187
Manganese	mg/L	NA	2.75	2.57 E	2.58	.0332	.0225	.022 E	.0358	2.44	.334	2.02 E	.92	1.53	1.84
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0001 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U
Molybdenum	mg/L	NA	.0013 B	.0028 B	.0015 B	.0023 B	.0028 B	.0039 B	.0027 B	.0026 B	.0047 B	.0043 B	.004 B	.0041 B	.0036 B
Nickel	mg/L	0.1	.0206	.0239	.0249	.0071 B	.0051 B	.0072 B	.01	.0275	.03	.0322	.0343	.0909	.0933
Potassium	mg/L	NA	16.4	15.5 E	17.3 E	12.3	11.5	11 E	12.1	17 E	11	17.4 E	13.3	40.3 E	41.8 E
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.0041 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U
Silver	mg/L	NA	.003 U	.003 U	.003 U	.0008 U	.003 U	.001 B	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U	.003 U
Sodium	mg/L	NA	2430	2100 E	2140	299	275	261 E	287	1910	734	1920 E	1130	1860	2060
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.0061 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U	.03 U
Vanadium	mg/L	NA	.0078 B	.0097 B	.0111	.005 B	.004 B	.0039 B	.0052 B	.0056 B	.0082 B	.0053 B	.0072 B	.0011 B	.00074 B
Zinc	mg/L	NA	.0134 B	.0195 B	.0167 B	.0111 B	.02 U	.02 U	.0101 B	.0385	.0502	.0246	.0407	.0218	.0244

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P9-MWI09-237	P9-MWI09-298	P9-MWI09-337	P9-MWI10-066	P9-MWI10-238	P9-MWI10-299	P9-MWI10-338	P9-MWS01-048	P9-MWS01-222	P9-MWS01-282	P9-MWS01-283	P9-MWS01-340	P9-MWS02-049
Location			P-9-MWI-09	P-9-MWI-09	P9-MWI-09	P-9-MWI-10	P-9-MWI-10	P-9-MWI-10	P9-MWI-10	P-9-MWS-01	P-9-MWS-01	P-9-MWS-01	P-9-MWS-01	P9-MWS-01	P-9-MWS-02
Sample Date			25-Nov-02	3-Dec-02	16-Dec-02	19-Nov-02	26-Nov-02	3-Dec-02	17-Dec-02	18-Nov-02	25-Nov-02	2-Dec-02	2-Dec-02	18-Dec-02	18-Nov-02
Parameter	Units	MCL													
8260 VOLATILES															
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.71	.49	.89	.037	.028	.027	.03	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethene	mg/L	0.006	.026	.015	.039	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0023 JB	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0022 JB	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0049 J	.0033 J	.0022 J	.0022 J	.0014 J	.0019 J
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0024 J	.0012 J	.005 U	.005 U	.005 U	.005 U
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.01 U	.005 JB	.01 U	.01 U	.0044 JB	.0047 JB	.01 U	.031	.043	.056	.058	.01 U	.01 U
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0025 J	.0023 J	.0024 J	.0012 J	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.25 B	.26 BE	.32	.21	.017	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.006	.016	.017	.017	.0074	.005 U
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0025 J	.0013 J	.005 U	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0017 J	.002 J
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0042 J	.011	.011	.012	.0056	.005 U
Methylene Chloride	mg/L	0.005	.0031 JB	.0057 JB	.0054 JB	.0075 JB	.0051 JB	.0053 JB	.0049 JB	.012 B	.0047 JB	.011 B	.013 B	.0058 JB	.0098 B
Naphthalene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0078 B	.0045 JB	.0043 J	.0055	.005 U	.005 U
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0047 J	.0068	.0072	.0073	.0027 J	.005 U
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.014	.014	.015	.0062	.005 U
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0021 J	.005 U	.005 U	.005 U	.005 U	.005 U
Tetrachloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0016 JB	.005 U	.005 U	.005 U	.005 U	.0014 JB
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	.005 U	.005 U	.011	.005 U	.0014 J	.005 U	.005 U	.0017 JB	.005 U	.005 U	.005 U	.005 U	.0015 JB
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.02	.014	.033	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2-Methylnaphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.011 U	.011 U	.011 U	.0017 J	.0088 J	.011 U	.011 U	.011 U	.0047 JB	.011 U	.011 U	.011 U	.011 U
Hexachlorobutadiene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.003 J	.0036 J	.0034 J	.0019 J	.011 U
Pyrene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P9-MWI09-237	P9-MWI09-298	P9-MWI09-337	P9-MWI10-066	P9-MWI10-238	P9-MWI10-299	P9-MWI10-338	P9-MWS01-048	P9-MWS01-222	P9-MWS01-282	P9-MWS01-283	P9-MWS01-340	P9-MWS02-049
Location			P-9-MWI-09	P-9-MWI-09	P9-MWI-09	P-9-MWI-10	P-9-MWI-10	P-9-MWI-10	P9-MWI-10	P-9-MWS-01	P-9-MWS-01	P-9-MWS-01	P-9-MWS-01	P9-MWS-01	P-9-MWS-02
Sample Date			25-Nov-02	3-Dec-02	16-Dec-02	19-Nov-02	26-Nov-02	3-Dec-02	17-Dec-02	18-Nov-02	25-Nov-02	2-Dec-02	2-Dec-02	18-Dec-02	18-Nov-02
Parameter	Units	MCL													
GENERAL CHEM															
Carbon, Total Organic	mg/L	NA	3	5.8	5.9	1 U	1.7	7.6	4.7	150	130	210	67	72	32
METALS															
Aluminum	mg/L	1	.0678 B	.0938 B	.405	1.32	1.55	.507	.454	.2 B	.114 B	.0842 B	.0731 B	.204	.369
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.02 U	.0026 B	.02 U	.02 U	.02 U	.02 U	.0026 B
Arsenic	mg/L	0.05	.0049 B	.02 U	.0041 B	.0097 B	.0093 B	.0087 B	.0083 B	.0082 B	.018 B	.0177 B	.0178 B	.0388	.0194 B
Barium	mg/L	1	.046	.0543	.0506	.121	.133	.136	.121	.16	.149	.137 E	.133 E	.119	.0342
Beryllium	mg/L	0.004	.002 U	.002 U	.002 U	.00027 B	.002 U	.002 U	.002 U	.0001 U	.002 U	.002 U	.002 U	.002 U	.0001 U
Cadmium	mg/L	0.005	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.006 U	.0041 B	.00068 B	.00099 B	.00078 B	.006 U	.0003 U
Calcium	mg/L	NA	108	146	99.6	1550	1520	1620	1600	193	140	130 E	126 E	142	23.7
Chromium	mg/L	0.05	.005 U	.005 U	.005 U	.0129	.1 U	.1 U	.025 U	.0032 U	.005 U	.005 U	.005 U	.0034 B	.0032 U
Cobalt	mg/L	NA	.0018 B	.002 B	.0017 B	.0051	.005	.0023 B	.0044 B	.123	.0605	.0429	.0422	.0378	.0008 U
Copper	mg/L	1	.01 U	.01 U	.00083 B	.0053 B	.0036 B	.0016 B	.0019 B	.108	.0138	.0049 B	.004 B	.0026 B	.0111
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U		.01 U	.01 U	.01 U	.01 U	
Iron	mg/L	NA	.0824 B	.122 B	.547	3.57	4.45	2.44 B	2.18	47.5	55.8	51.3	49.6	39	.637
Lead	mg/L	0.015	.01 U	.01 U	.01 U*	.01 U	.0027 B	.01 U	.01 U	.0302	.0095 B	.0053 B	.0064 B	.0118	.0024 U
Magnesium	mg/L	NA	172 E	232	159	1770	1730	1870	1760	156	119 E	112 E	108 E	119	21.5
Manganese	mg/L	NA	1.79	2.55	1.6	16.5	19.9	20.6	18.3	2.7	2.38	2.37 E	2.33 E	2.98	.271
Mercury	mg/L	0.002	.0002 U	.0001 B	.0002 U	.0002 U	.0002 U	.0002 U	.0002 U	.0001 U	.0002 U	.0002 U	.0002 U	.0002 U	.0001 U
Molybdenum	mg/L	NA	.0025 B	.0018 B	.0031 B	.0019 B	.0021 B	.0025 B	.0035 B	.0149	.0087	.0043 B	.0046 B	.0019 B	.0074
Nickel	mg/L	0.1	.0777	.0782	.0957	.0134	.0145	.0088 B	.0086 B	.677	.57	.533	.518	.599	.0089 B
Potassium	mg/L	NA	45.6	58.8	48.9 E	28.4 E	35	21.1	31.8	101	79.9	73.5 E	71.1 E	71.6 E	21
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.04 U	.4 U	.4 U	.1 U	.0104 B	.02 U	.02 U	.02 U	.02 U	.0041 U
Silver	mg/L	NA	.003 U	.003 U	.003 U	.0013 B	.003 U	.003 U	.003 U	.0008 U	.003 U	.003 U	.003 U	.003 U	.0008 U
Sodium	mg/L	NA	2260	2860	2130	5120	5250	5820	5260	546	508	499 E	486 E	629	492
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.06 U	.6 U	.6 U	.15 U	.0061 U	.03 U	.03 U	.03 U	.03 U	.0061 U
Vanadium	mg/L	NA	.001 B	.00093 B	.002 B	.0032 B	.0035 B	.00086 B	.0018 B	.0128	.0323	.0365	.036	.0849	.0032 B
Zinc	mg/L	NA	.0135 B	.02 U	.0195 B	.0714	.0907	.0567	.0502	1.68	.133	.0595	.0625	.0469	.007 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P9-MWS02-223	P9-MWS02-284	P9-MWS02-341	P9-MWS02-342	P9-MWS03-050	P9-MWS03-224	P9-MWS03-285	P9-MWS03-343	P9-MWS04-051	P9-MWS04-225	P9-MWS04-286	P9-MWS04-344
Location			P-9-MWS-02	P-9-MWS-02	P9-MWS-02	P9-MWS-02	P-9-MWS-03	P-9-MWS-03	P-9-MWS-03	P9-MWS-03	P-9-MWS-04	P-9-MWS-04	P-9-MWS-04	P9-MWS-04
Sample Date			25-Nov-02	2-Dec-02	18-Dec-02	18-Dec-02	18-Nov-02	25-Nov-02	2-Dec-02	18-Dec-02	18-Nov-02	25-Nov-02	2-Dec-02	18-Dec-02
Parameter	Units	MCL												
8260 VOLATILES														
1,1,2,2-Tetrachloroethane	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1,2-Trichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethane	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,1-Dichloroethene	mg/L	0.006	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0025 J	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,3-Trichloropropane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.016	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trichlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0022 J	.005 U	.005 U	.005 U	.005 U	.005 U
1,2,4-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.0057	.0041 J	.0067	.15	.089	.074	.052
1,2-Dichlorobenzene	mg/L	0.6	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0013 J	.005 U	.005 U	.005 U	.005 U	.005 U
1,2-Dichloroethane	mg/L	0.0005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
1,3,5-Trimethylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.016	.0068	.0085	.054	.032	.029	.0091
1,3-Dichlorobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0013 J	.005 U	.005 U	.005 U	.005 U	.005 U
1,4-Dichlorobenzene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0013 J	.005 U	.005 U	.005 U	.005 U	.005 U
2-Butanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.14	.01 U	.015	.048	.01 U	.01 U	.01 U	.01 U
2-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0014 J	.005 U	.005 U	.005 U	.005 U	.005 U
4-Chlorotoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0016 J	.005 U	.005 U	.005 U	.005 U	.005 U
4-Isopropyltoluene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0019 J	.005 U	.039	.005 U	.005 U	.005 U
4-Methyl-2-Pentanone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Acetone	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.75 B	.055 B	.029	.053	.012	.014 B	.011	.01 U
Benzene	mg/L	0.001	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0046 J	.0044 J	.0042 J	.0037 J
Benzene, Propyl-	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.003 J	.0019 J	.0027 J	.065	.049	.048	.042
Bromobenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0011 J	.005 U	.005 U	.005 U	.005 U	.005 U
Bromodichloromethane	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Bromoform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorobenzene	mg/L	0.07	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chlorodibromomethane	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Chloroform	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.0077	.0052	.0031 J	.001 J	.005 U	.005 U	.005 U	.005 U
Chloromethane	mg/L	NA	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U
Cis-1,2-Dichloroethene	mg/L	0.006	.005 U	.0016 J	.0017 J	.0016 J	.005 U	.0014 J	.0021 J	.01	.0057	.0048 J	.004 J	.0061
Ethylbenzene	mg/L	0.7	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.063	.052	.049	.043
Hexachlorobutadiene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0013 J	.005 U	.005 U	.005 U	.005 U	.005 U
Isopropylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.0014 J	.0014 J	.0019 J	.044	.034	.032	.028
Methylene Chloride	mg/L	0.005	.01 U	.012 B	.0072 JB	.0081 JB	.01 B	.0045 JB	.0079 JB	.0059 JB	.012 B	.0045 JB	.0068 JB	.0044 JB
Naphthalene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.0026 JB	.0078 B	.005 U	.15 B	.063 B	.085 B	.035 B
N-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.0071	.0041 J	.0046 J	.048	.011	.0094	.028
O-Xylene	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0013 J
Sec-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.004 J	.0024 J	.0031 J	.032	.014	.014	.013
Styrene	mg/L	0.1	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0011 J	.005 U	.005 U	.005 U	.005 U	.005 U
Tert-Butylbenzene	mg/L	NA	.005 U	.005 U	.005 U	.005 U	.005 U	.014	.0058	.0096	.005 U	.027	.027	.021
Tetrachloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0043 J
Toluene	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0024 JB	.005 U	.005 U	.005 U
Total Xylenes	mg/L	1.75	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.0056	.0045 J	.0042 J	.0064
Trans-1,2-Dichloroethene	mg/L	0.01	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Trichloroethene	mg/L	0.005	.005 U	.005 U	.005 U	.005 U	.0014 JB	.005 U	.005 U	.005 U	.0017 JB	.005 U	.005 U	.005 U
Trichlorofluoromethane	mg/L	0.15	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U	.005 U
Vinyl Chloride	mg/L	0.0005	.0017 J	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.01 U	.054	.053	.055	.049
1,2,4-Trichlorobenzene	mg/L	0.07	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,2-Dichlorobenzene	mg/L	0.6	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,3-Dichlorobenzene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
1,4-Dichlorobenzene	mg/L	0.005	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
2,4-Dimethylphenol	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.0053 J	.011 U	.0059 J	.011 U
2-Methylnaphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.0052 J	.011 U	.0054 J	.0016 J
Bis(2-Ethylhexyl)Phthalate	mg/L	0.004	.0034 J	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.0095 J	.0041 J	.011 U	.011 U
Di-N-Butyl Phthalate	mg/L	NA	.004 JB	.0062 J	.011 U	.011 U	.01 U	.0059 JB	.011 U	.011 U	.011 U	.0018 JB	.011 U	.011 U
Hexachlorobutadiene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U
Naphthalene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.082	.05	.083	.038
Pyrene	mg/L	NA	.011 U	.011 U	.011 U	.011 U	.01 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U	.011 U

Table 20
Summary of Post-Oxidant Injection
Groundwater Analytical Results

Sample Number			P9-MWS02-223	P9-MWS02-284	P9-MWS02-341	P9-MWS02-342	P9-MWS03-050	P9-MWS03-224	P9-MWS03-285	P9-MWS03-343	P9-MWS04-051	P9-MWS04-225	P9-MWS04-286	P9-MWS04-344
Location			P-9-MWS-02	P-9-MWS-02	P9-MWS-02	P9-MWS-02	P-9-MWS-03	P-9-MWS-03	P-9-MWS-03	P9-MWS-03	P-9-MWS-04	P-9-MWS-04	P-9-MWS-04	P9-MWS-04
Sample Date			25-Nov-02	2-Dec-02	18-Dec-02	18-Dec-02	18-Nov-02	25-Nov-02	2-Dec-02	18-Dec-02	18-Nov-02	25-Nov-02	2-Dec-02	18-Dec-02
Parameter	Units	MCL												
GENERAL CHEM														
Carbon, Total Organic	mg/L	NA	37	55	9.2	12	270	150	310	68	60	47	280	22
METALS														
Aluminum	mg/L	1	.142 B	.275	.432	.432	8.67	.251	.0957 B	1.98	.466	.116 B	.282	.107 B
Antimony	mg/L	0.006	.02 U	.02 U	.02 U	.02 U	.0032 B	.0031 B	.0027 B	.02 U	.0024 U	.02 U	.02 U	.02 U
Arsenic	mg/L	0.05	.0199 B	.0198 B	.0158 B	.015 B	.0074 B	.0055 B	.0071 B	.0272	.0105 B	.0113 B	.0097 B	.011 B
Barium	mg/L	1	.0296	.0302 E	.0465	.0467	.0893	.0268	.017 E	.0666	.0413	.0338	.0365 E	.0463
Beryllium	mg/L	0.004	.002 U	.002 U	.002 U	.002 U	.00033 B	.002 U	.002 U	.002 U	.0001 U	.002 U	.002 U	.002 U
Cadmium	mg/L	0.005	.006 U	.006 U	.006 U	.006 U	.0028 B	.0081	.0067	.00077 B	.0003 U	.006 U	.006 U	.006 U
Calcium	mg/L	NA	21.6	21.9 E	21.8	21.7	82.2	83.4	96.3 E	103	32.9	26.9	27 E	37.4
Chromium	mg/L	0.05	.005 U	.005 U	.005 U	.0032 B	.039	.0041 B	.0034 B	.0106	.0039 B	.005 U	.0033 B	.005 U
Cobalt	mg/L	NA	.005 U	.005 U	.0013 B	.0016 B	.169	.208	.191	.103	.0022 B	.0023 B	.0023 B	.0026 B
Copper	mg/L	1	.0091 B	.0062 B	.0012 B	.0014 B	.34	.348	.155	.0253	.0017 B	.0012 B	.01 U	.0011 B
Hexavalent Chromium	mg/L	0.05	.01 U	.01 U	.01 U	.01 U		.01 U	.01 U	.01 U		.01 U	.01 U	
Iron	mg/L	NA	.37	.633	.851	1.07	25.7	16.1	22.6	34.2	3.19	2.78	3.21	3.53
Lead	mg/L	0.015	.01 U	.01 U	.01 U	.01 U	.0174	.0155	.0171	.0092 B	.0024 U	.01 U	.01 U	.01 U
Magnesium	mg/L	NA	19.2 E	19 E	21.4	21.3	54.1	48.8 E	49.3 E	56.1	53.7	38.1 E	39.3 E	65.2
Manganese	mg/L	NA	.275	.299 E	.374	.373	1.76	2.04	2.47 E	2.7	.667	.517	.581 E	.745
Mercury	mg/L	0.002	.0002 U	.0002 U	.0002 U	.0002 U	.0001 U	.0002 U	.0002 U	.0002 U	.0001 U	.0002 U	.0002 U	.0002 U
Molybdenum	mg/L	NA	.0062	.0071	.0056	.0056	.0114	.0067	.0075	.0056	.0013 U	.005 U	.0019 B	.0016 B
Nickel	mg/L	0.1	.0082 B	.0096 B	.0204	.0217	.345	.408	.334	.313	.0196	.0177	.0206	.0235
Potassium	mg/L	NA	19.4	18.3 E	20.8 E	21 E	118	75.1	54.8 E	50.5 E	47.7	40.7	40.2 E	44.6 E
Selenium	mg/L	0.05	.02 U	.02 U	.02 U	.02 U	.0076 B	.0065 B	.02 U	.02 U	.0041 U	.02 U	.02 U	.02 U
Silver	mg/L	NA	.003 U	.003 U	.003 U	.003 U	.0008 U	.003 U	.003 U	.003 U	.0008 U	.003 U	.003 U	.003 U
Sodium	mg/L	NA	427	395 E	637	641	641	474	375 E	464	1130	1040	1010 E	1190
Thallium	mg/L	0.002	.03 U	.03 U	.03 U	.03 U	.0061 U	.03 U	.03 U	.03 U	.0061 U	.03 U	.03 U	.03 U
Vanadium	mg/L	NA	.0027 B	.0048 B	.0029 B	.0034 B	.157	.0387	.0659	.191	.0044 B	.0037 B	.0037 B	.0041 B
Zinc	mg/L	NA	.02 U	.02 U	.02 U	.02 U	.101	.229	.265	.117	.0078 B	.02 U	.02 U	.02 U

Figures

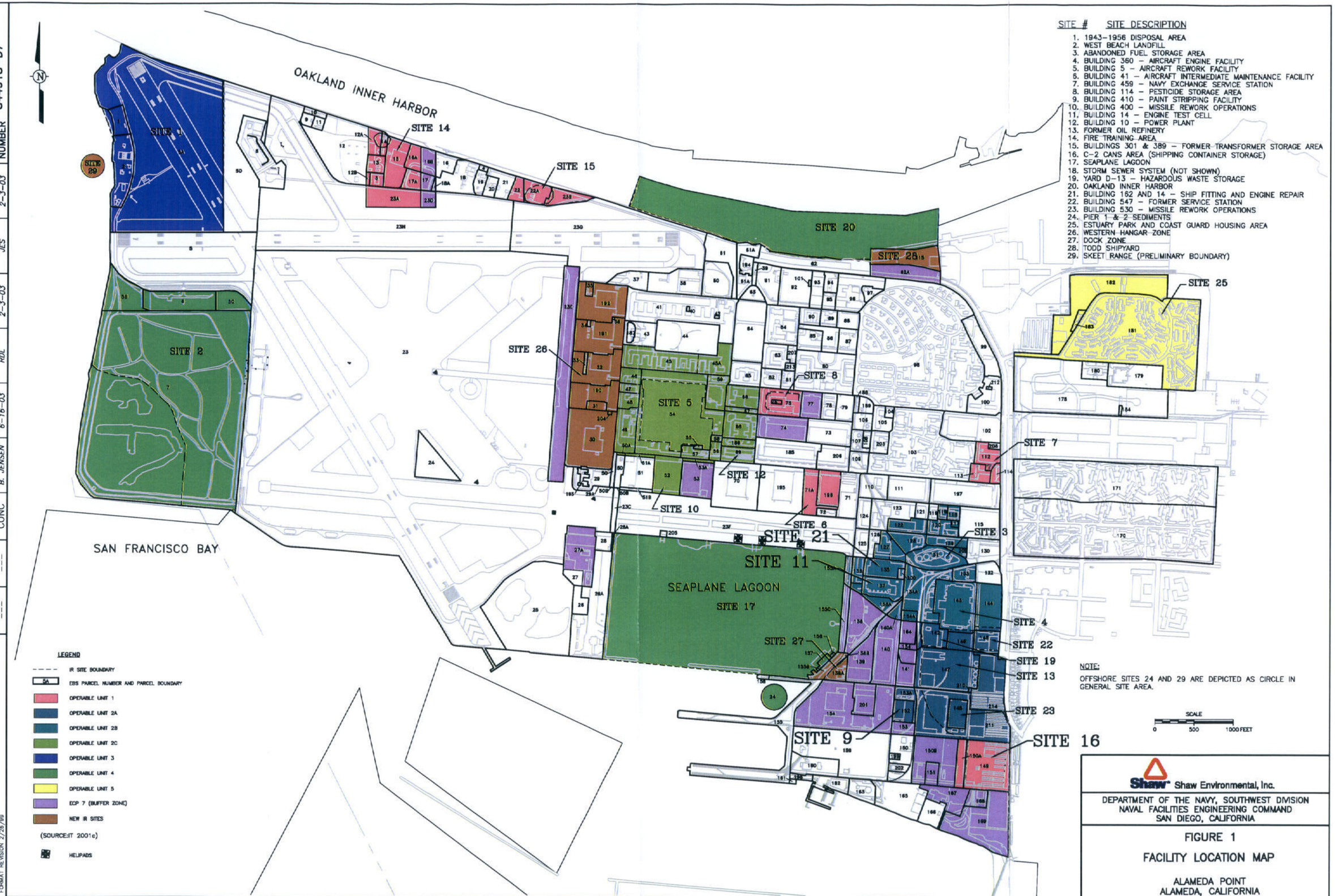


IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	CONC	B. JENSEN 6-16-03	RDL 2-3-03	JES 2-3-03	844918-D7

FORMAT REVISION 2/26/99

FIELD ACTIVITY REPORT

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	ALA1BASE	CONC	B. JENSEN 7-1-03	- -	- -	844918-D18

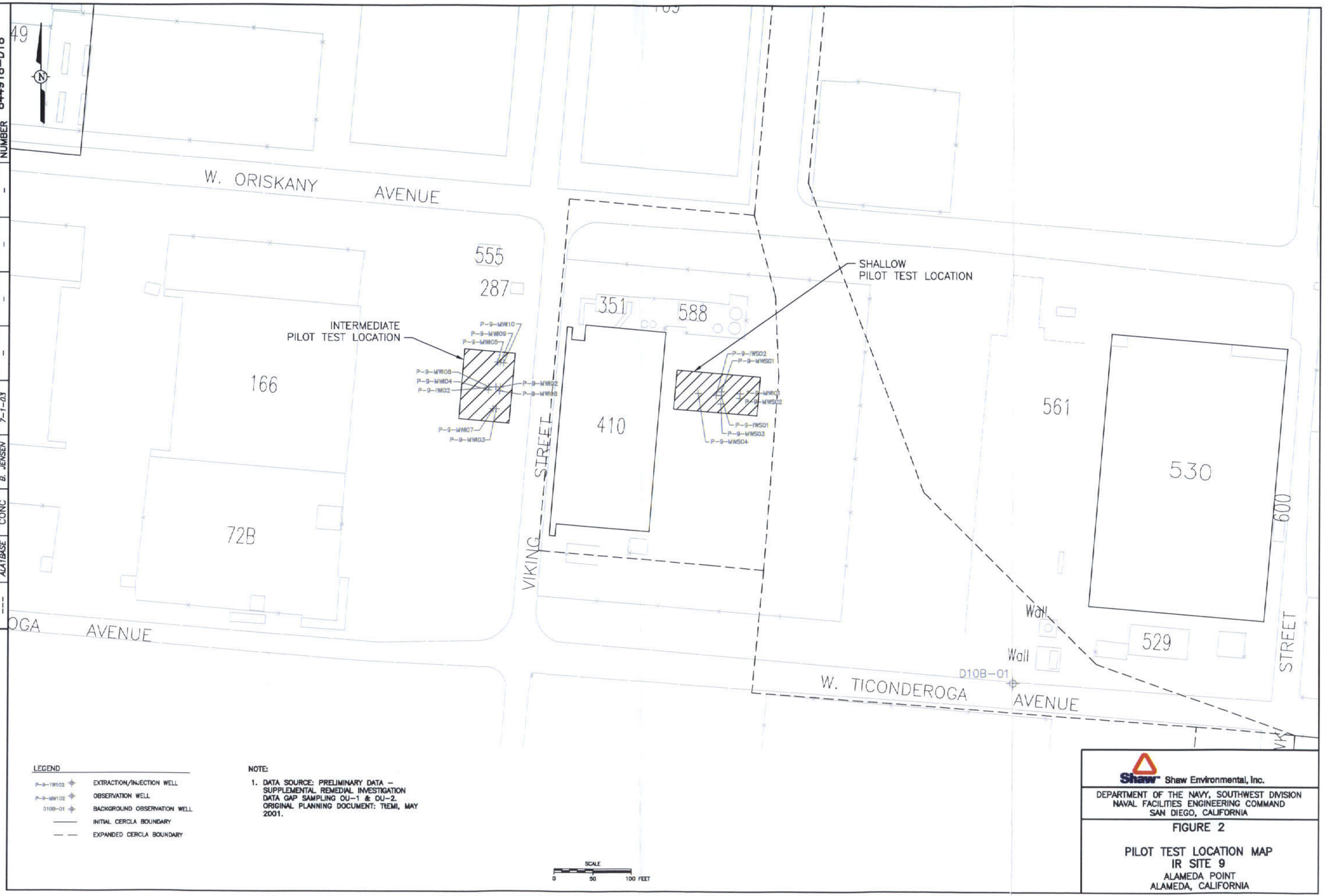
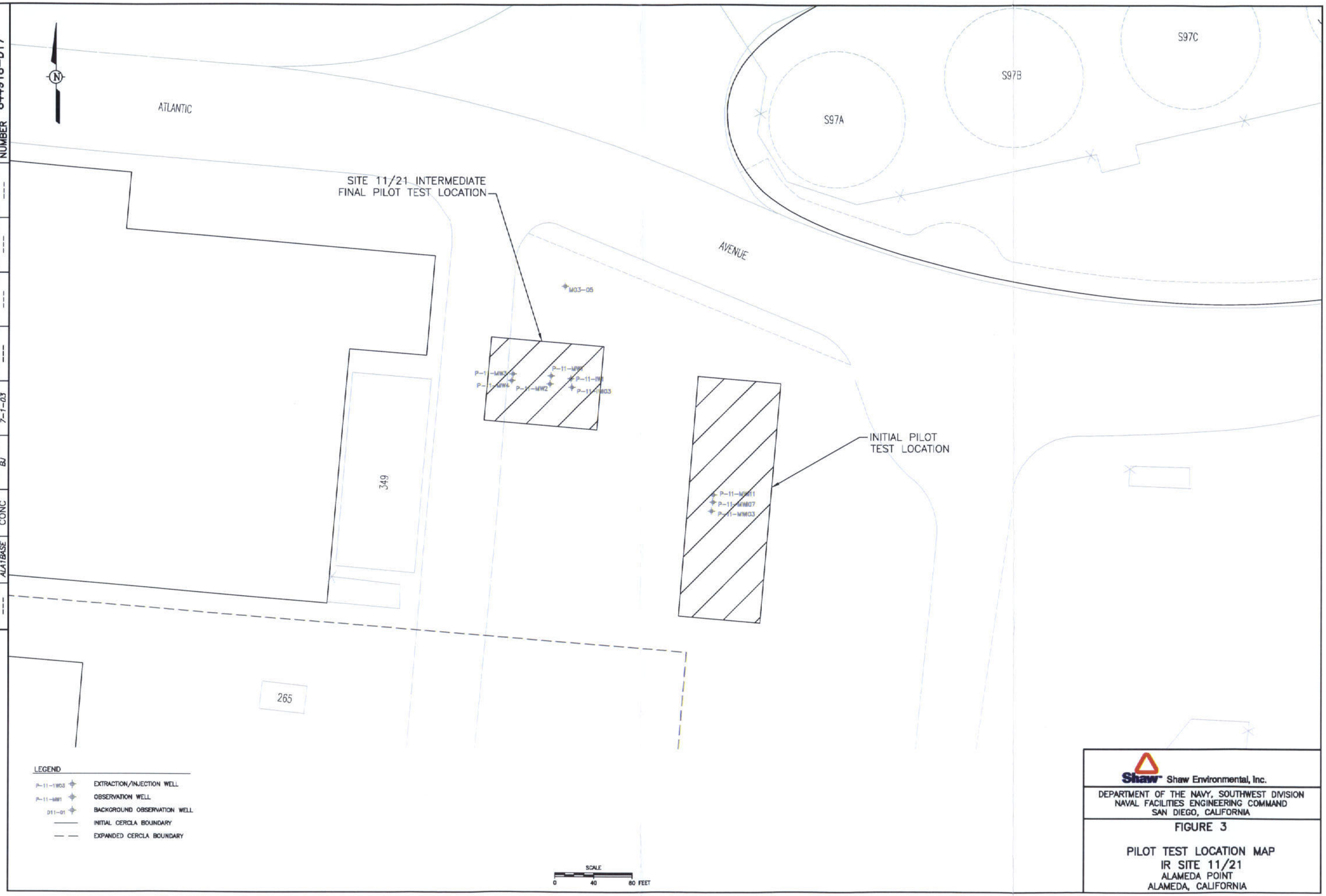


IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	ALA1BASE	CONC	BJ 7-1-03	---	--- --- ---	844918-D17



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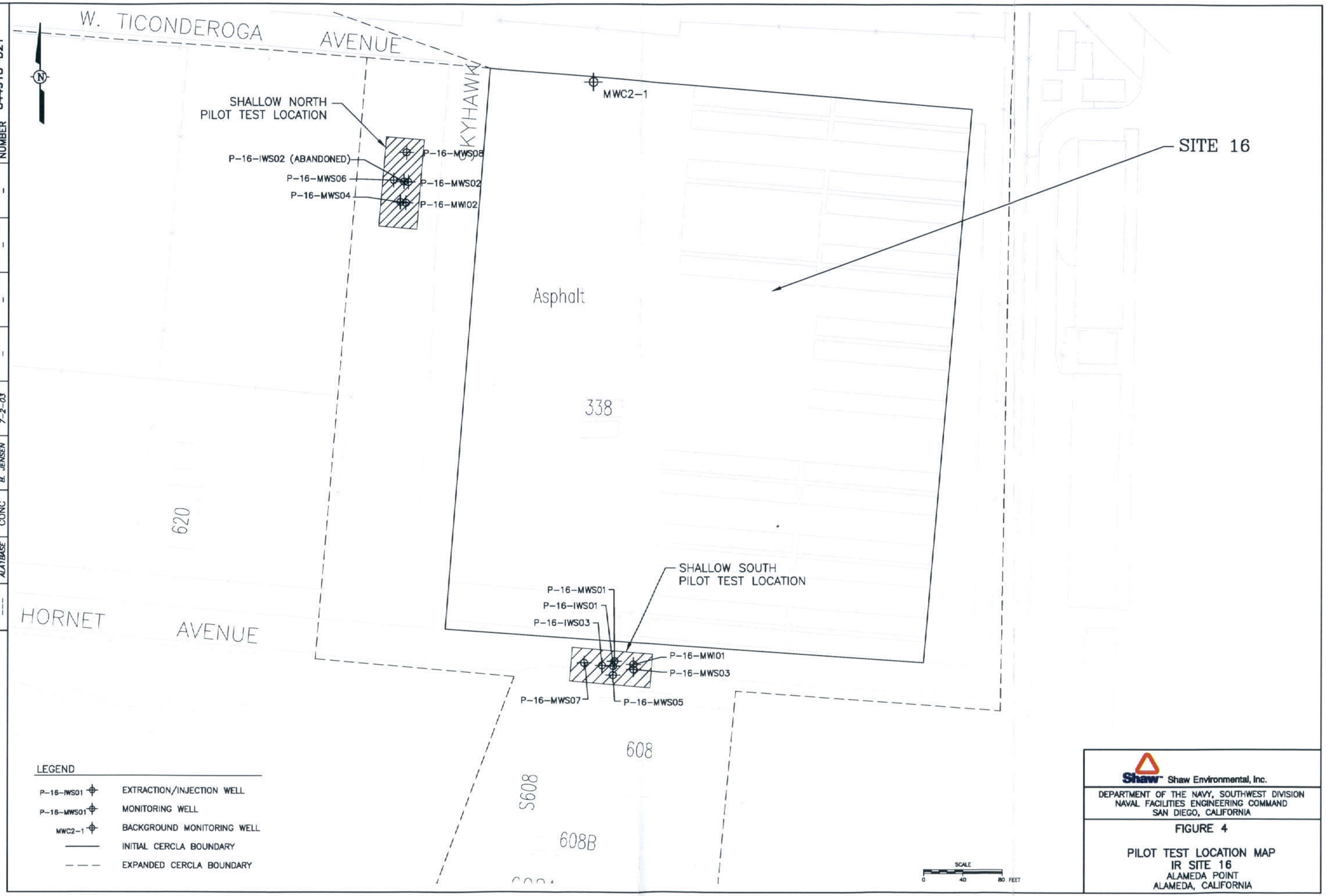
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 3

PILOT TEST LOCATION MAP
IR SITE 11/21
ALAMEDA POINT
ALAMEDA, CALIFORNIA


W. TICONDEROGA AVENUE
HORNET AVENUE
SHALLOW NORTH PILOT TEST LOCATION
P-16-IWS02 (ABANDONED)
P-16-MWS06
P-16-MWS04
P-16-MWS08
P-16-MWS02
P-16-MWI02
MWC2-1
SITE 16
Asphalt
338
620
SHALLOW SOUTH PILOT TEST LOCATION
P-16-MWS01
P-16-IWS01
P-16-IWS03
P-16-MWI01
P-16-MWS03
P-16-MWS07
P-16-MWS05
608
S608
608B
LEGEND
P-16-IWS01 EXTRACTION/INJECTION WELL
P-16-MWS01 MONITORING WELL
MWC2-1 BACKGROUND MONITORING WELL
INITIAL CERCLA BOUNDARY
EXPANDED CERCLA BOUNDARY
SCALE
0 40 80 FEET
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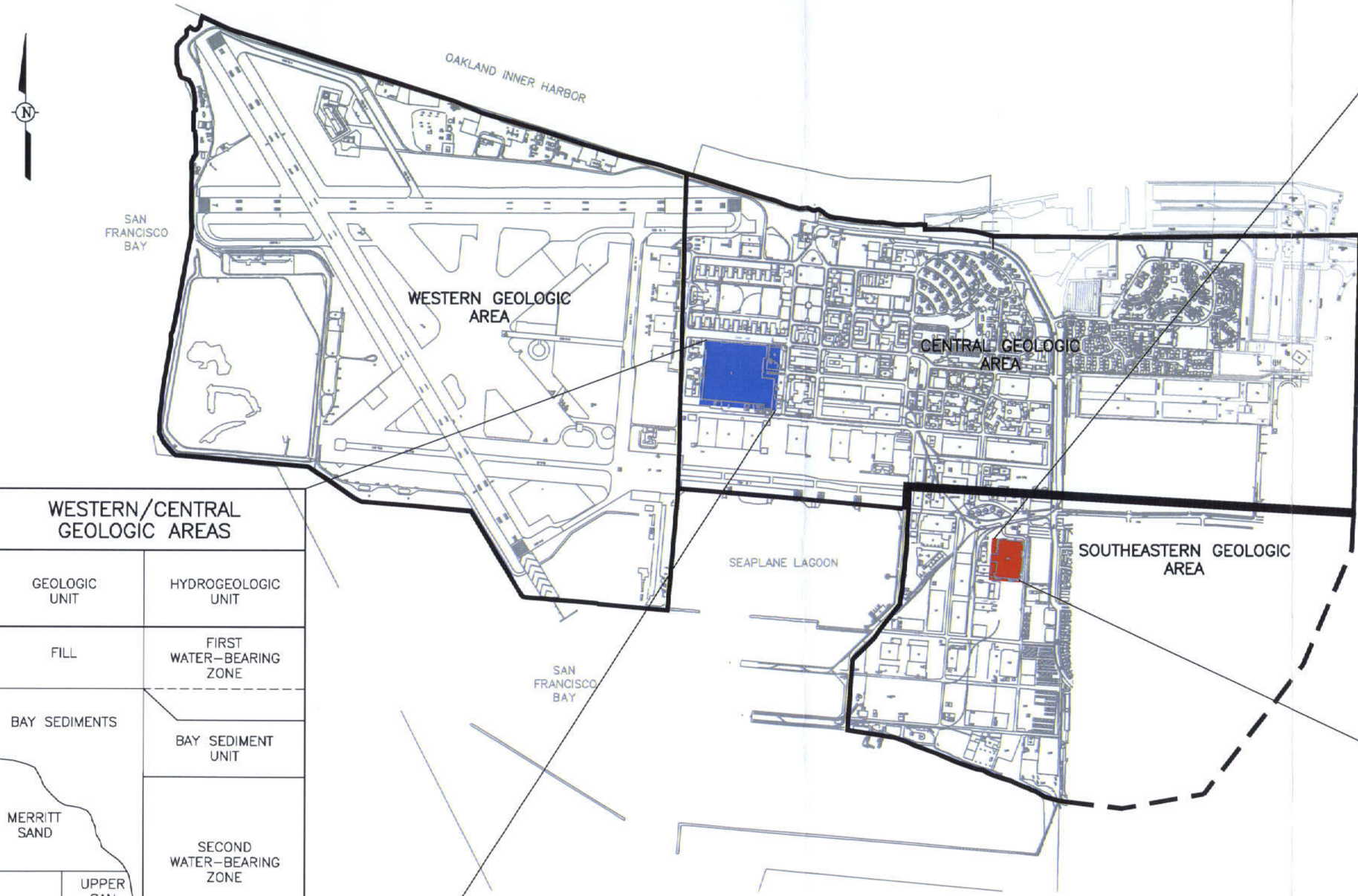
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA
FIGURE 4
PILOT TEST LOCATION MAP
IR SITE 16
ALAMEDA POINT
ALAMEDA, CALIFORNIA
DRAWING NUMBER 844918-D21
APPROVED BY
CHECKED BY
DRAWN BY B. JENSEN 7-2-03
OFFICE CONC
X-REF ALA1BASE
IMAGE



WESTERN/CENTRAL GEOLOGIC AREAS		
GEOLOGIC UNIT		HYDROGEOLOGIC UNIT
FILL		FIRST WATER-BEARING ZONE
BAY SEDIMENTS		BAY SEDIMENT UNIT
MERRITT SAND		SECOND WATER-BEARING ZONE
SAN ANTONIO FORMATION	UPPER SAN ANTONIO UNIT	
	LOWER SAN ANTONIO UNIT (YERBA BUENA MUD)	YERBA BUENA MUD AQUITARD
ALAMEDA FORMATION		ALAMEDA FORMATION WATER-BEARING ZONE
FRANCISCAN BEDROCK		

SOUTHEASTERN GEOLOGIC AREA		
GEOLOGIC UNIT		HYDROGEOLOGIC UNIT
FILL		FIRST ① WATER-BEARING ZONE
BAY SEDIMENT UNIT	U	
MERRITT SAND	M	
	L	SECOND ① WATER-BEARING ZONE
SAN ANTONIO FORMATION	UPPER SAN ANTONIO UNIT	
	LOWER SAN ANTONIO UNIT (YERBA BUENA MUD)	YERBA BUENA MUD AQUITARD
ALAMEDA FORMATION		ALAMEDA FORMATION WATER-BEARING ZONE
FRANCISCAN BEDROCK		

① FIRST (WATER BEARING ZONE) AND SECOND WBZ ARE IN HYDRAULIC CONNECTION WHERE THE (BAY SEDIMENT UNIT) IS ABSENT.

SCALE

0 1500 3000 FEET

SOURCE: (AFTER)
TETRA TECH EM INC. JULY 2000. DETERMINATION OF THE BENEFICIAL USES OF GROUNDWATER, ALAMEDA POINT, CALIFORNIA (FINAL).

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FIGURE 5

CORRELATION OF HYDROGEOLOGIC UNITS WITH GEOLOGIC AREAS
ALAMEDA POINT
ALAMEDA, CALIFORNIA

DRAWING NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	OFFICE	X-REF	IMAGE
844918-B1			6-30-03 BJ	CONCORD	alatbase	---

W. ORISKANY AVENUE
555
287
SITE 9
351
588
(DEMOLISHED)
166
410
72B
VIKING STREET
AVENUE
W. TICONDEROGA AVENUE
Wall
SCALE
0 40 80 FEET
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NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA
FIGURE 6
IR SITE 9
LOCATION MAP
ALAMEDA POINT
ALAMEDA, CALIFORNIA
IMAGE
X-REF
ALA1BASE
OFFICE
CONC
DRAWN BY
B. JENSEN
2-3-03
CHECKED BY
APPROVED BY
DRAWING NUMBER
844918-D15

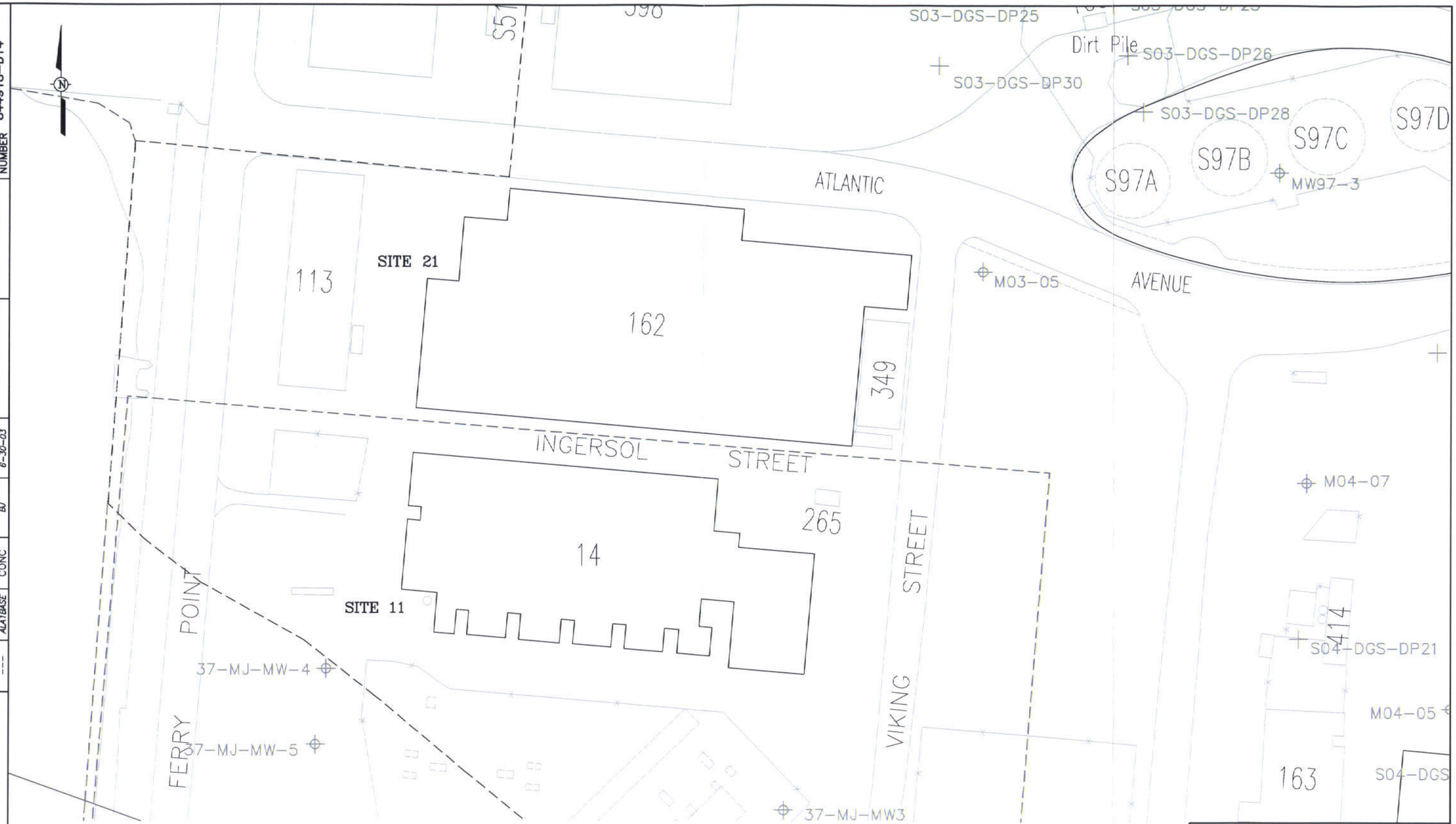

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	ALA1BASE	CONC	BJ 6-30-03			844918-D14

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NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 7

IR SITES 11/21
LOCATION MAP
ALAMEDA POINT
ALAMEDA, CALIFORNIA

DRAWING NUMBER 844918-D13
APPROVED BY
CHECKED BY
DRAWN BY B. JENSEN 6-30-03
OFFICE CONC
X-REF ALA1BASE
IMAGE
GA AVENUE
SKYHAWK
Asphalt
SITE 16
620
RNET AVENUE
608
SCALE
0 50 100 FEET
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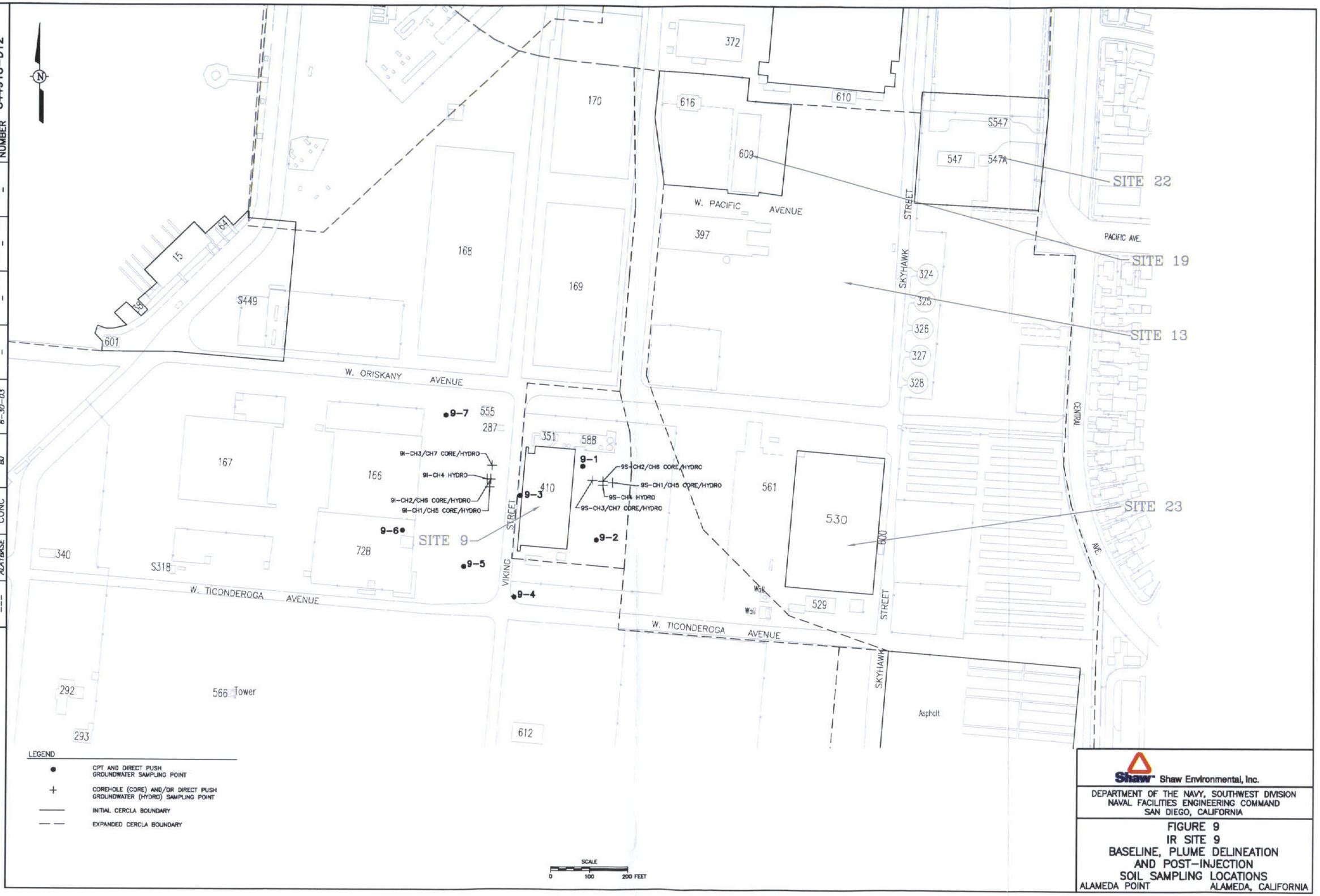
DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA
FIGURE 8
IR SITE 16
LOCATION MAP
ALAMEDA POINT
ALAMEDA, CALIFORNIA

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	ALA1BASE	CONC	BJ 6-30-03	-	-	844918-D12



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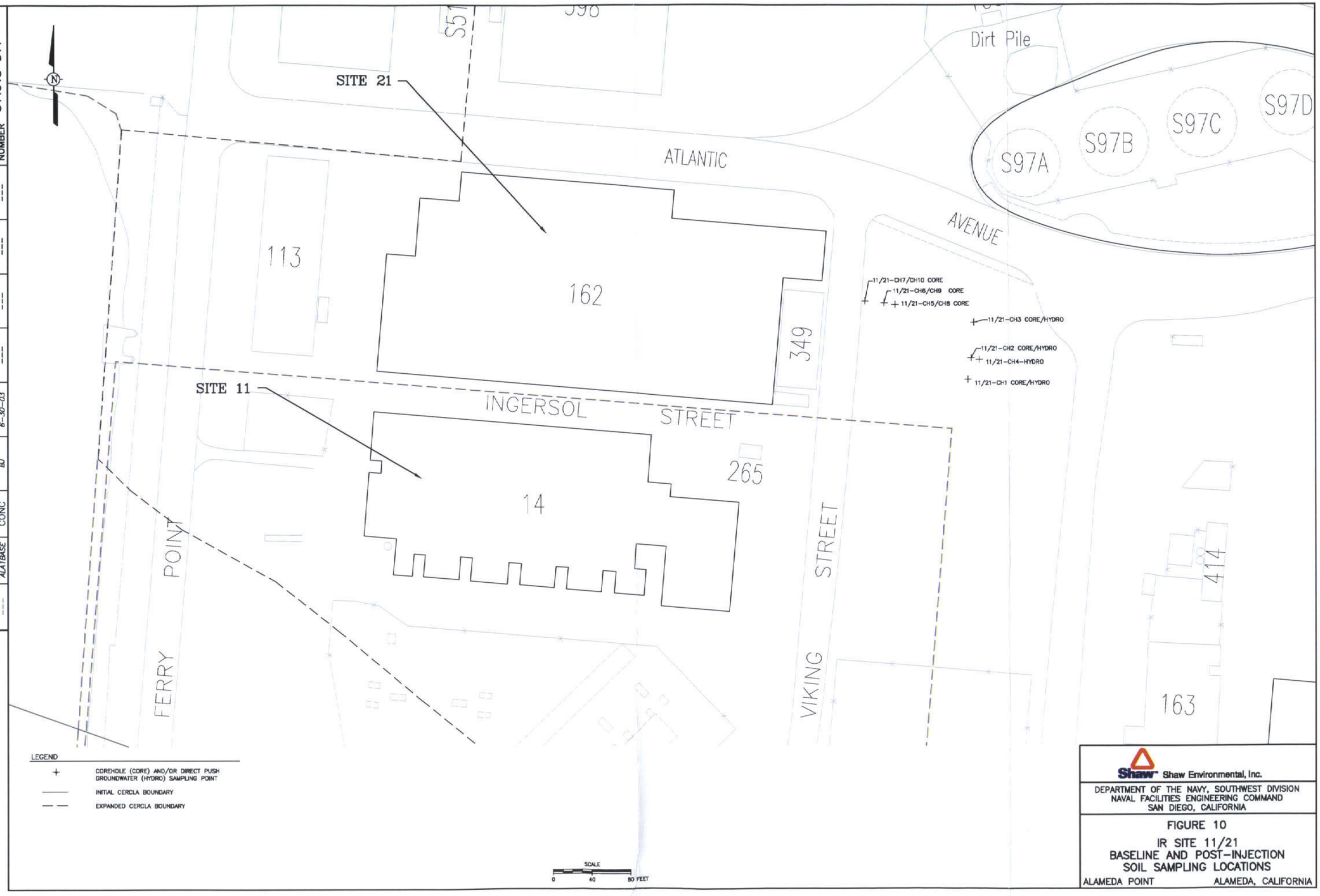
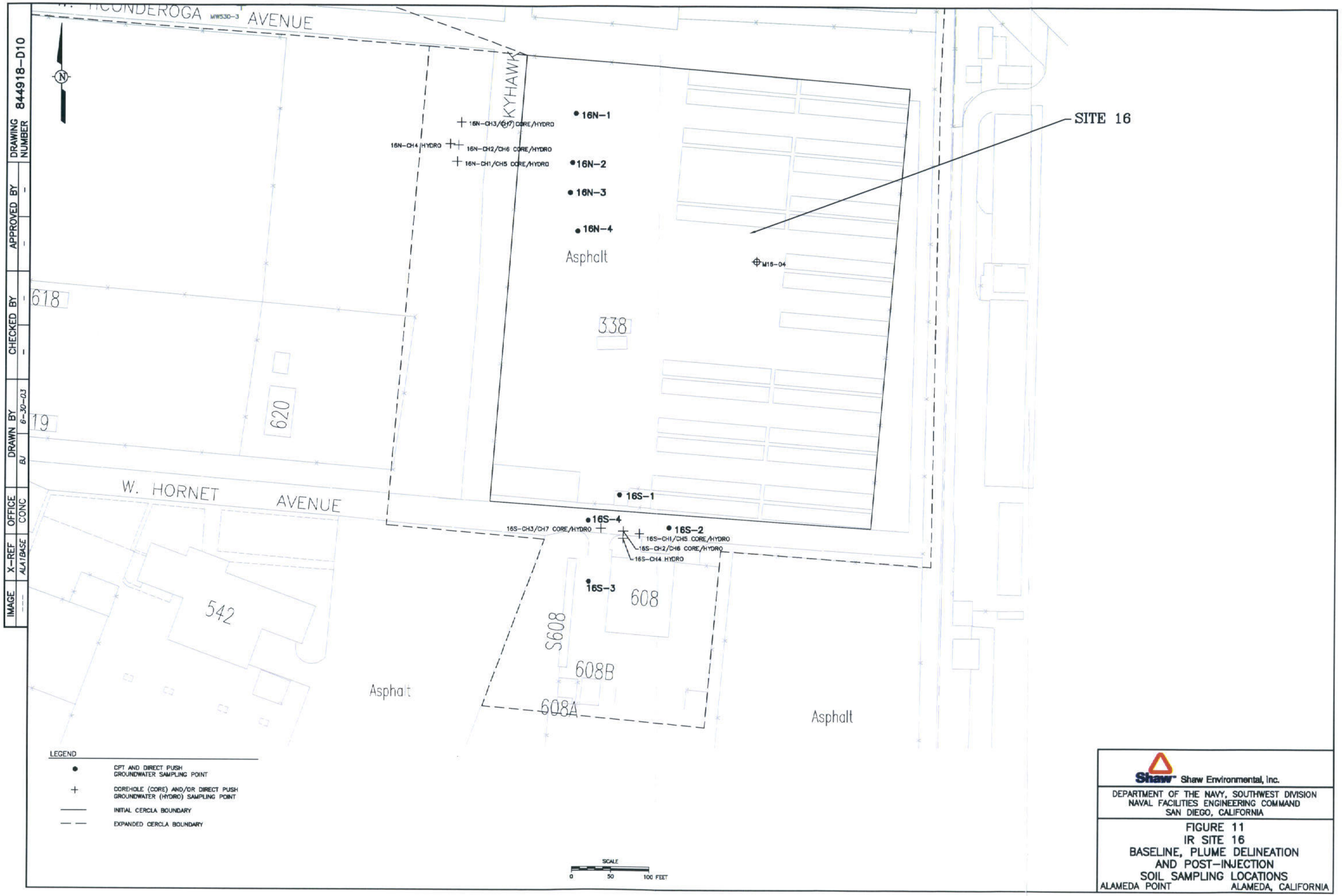
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 9
IR SITE 9
BASELINE, PLUME DELINEATION
AND POST-INJECTION
SOIL SAMPLING LOCATIONS

ALAMEDA POINT ALAMEDA, CALIFORNIA


SITE 21
SITE 11
ATLANTIC
AVENUE
INGERSOL
STREET
FERRY
POINT
VIKING
STREET
Dirt Pile
S97A
S97B
S97C
S97D
113
162
349
265
14
414
163
11/21-CH7/CH10 CORE
11/21-CH6/CH9 CORE
11/21-CH5/CH8 CORE
11/21-CH3 CORE/HYDRO
11/21-CH2 CORE/HYDRO
11/21-CH4-HYDRO
11/21-CH1 CORE/HYDRO
LEGEND
COREHOLE (CORE) AND/OR DIRECT PUSH GROUNDWATER (HYDRO) SAMPLING POINT
INITIAL CERCLA BOUNDARY
EXPANDED CERCLA BOUNDARY
SCALE
0
40
80 FEET
Shaw Environmental, Inc.
DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA
FIGURE 10
IR SITE 11/21
BASELINE AND POST-INJECTION
SOIL SAMPLING LOCATIONS
ALAMEDA POINT
ALAMEDA, CALIFORNIA
DRAWING NUMBER 844918-D11
APPROVED BY
CHECKED BY
DRAWN BY BJ 6-30-03
OFFICE CONC
X-REF ALA1BASE
IMAGE



Shaw Environmental, Inc.

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NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 11
IR SITE 16
BASELINE, PLUME DELINEATION
AND POST-INJECTION
SOIL SAMPLING LOCATIONS

ALAMEDA POINT ALAMEDA, CALIFORNIA

DRAWING NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	OFFICE	X-REF	IMAGE
844918-D9	---	---	B. JENSEN 7-1-03	CONC	ALATBASE	---

LEGEND

+	HYDROPUNCH
	MONITORING WELL
•	CT059 HYDROPUNCH (5)
—5—	1,1-DICHLOROETHANE PLUME MCL (5 µg/L) (3) CONTOUR
MWD13-3	POINT NUMBER
385-S19-D03	SAMPLE NUMBER
3.00	RESULT (µg/L)
— —	CERCLA BOUNDARY
J	ESTIMATED RESULT } QUALIFIER
D	DILUTION } QUALIFIER

NOTES:

1. FADED POINT LOCATIONS NOT SAMPLED FOR PLOTTED CONSTITUENT IN INDICATED WATER BEARING ZONE (WBZ).
2. DATA SOURCE: PRELIMINARY DATA – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL PLANNING DOCUMENT: TtEMI, MAY 2001.
3. MCL (TITLE 26 CALIFORNIA CODE OF REGULATIONS).
4. SAMPLE POINTS WITHOUT CONCENTRATION DATA WERE NON-DETECT FOR THE ANALYTE OF INTEREST.
5. CT059 HYDROPUNCH SAMPLE LOCATIONS ARE NOT SURVEYED.

SCALE 0 40 80 FEET

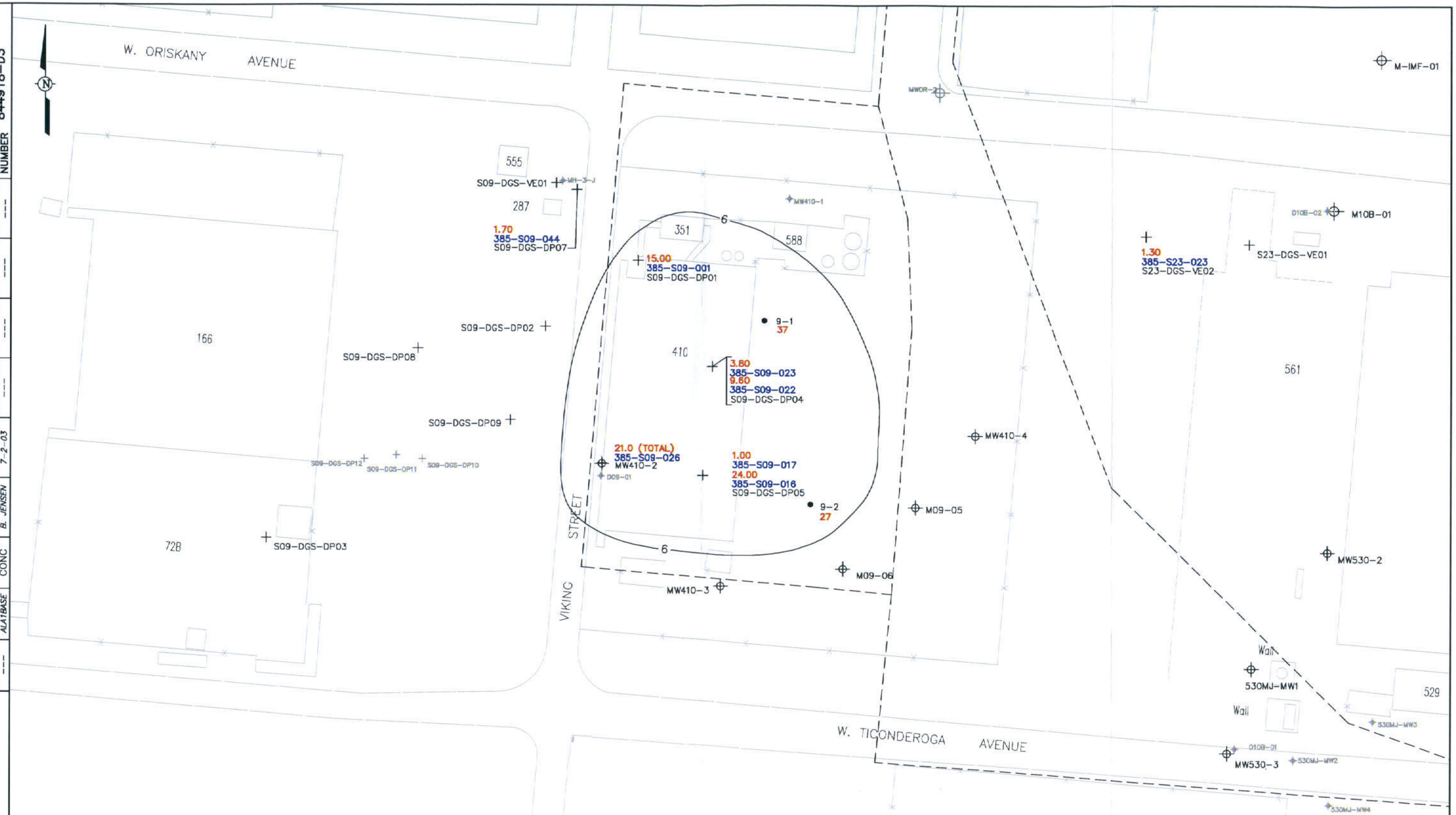
Shaw Environmental, Inc.

DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 12

PLUME MAP
1,1-DICHLOROETHANE – FILL/BSU
IR SITE 9

ALAMEDA POINT ALAMEDA, CALIFORNIA



LEGEND

+	HYDROPUNCH
✦	MONITORING WELL
●	CT059 HYDROPUNCH (5)
—0.6—	CIS 1,2-DICHLOROETHENE PLUME MCL (6 µg/L) (3) CONTOUR
S21-DGS-DP105	POINT NUMBER
385-S21-120A	SAMPLE NUMBER
1.30	RESULT (µg/L)
— —	CERCLA BOUNDARY
J	ESTIMATED RESULT } QUALIFIER
D	DILUTION } QUALIFIER

NOTES:

1. FADED POINT LOCATIONS NOT SAMPLED FOR PLOTTED CONSTITUENT IN INDICATED WATER BEARING ZONE (WBZ).
2. DATA SOURCE: PRELIMINARY DATA – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL PLANNING DOCUMENT: TEMI, MAY 2001.
3. MCL (TITLE 26 CALIFORNIA CODE OF REGULATIONS).
4. SAMPLE POINTS WITHOUT CONCENTRATION DATA WERE NON-DETECT FOR THE ANALYTE OF INTEREST.
5. CT059 HYDROPUNCH SAMPLE LOCATIONS ARE NOT SURVEYED.

SCALE
0 40 80 FEET

Shaw Environmental, Inc.

DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 13

PLUME MAP
TOTAL AND CIS-1,2-DICHLOROETHENE – FILL/BSU
IR SITE 9

ALAMEDA POINT ALAMEDA, CALIFORNIA

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	ALATBASE	CONC	B. JENSEN 7-2-03	--- ---	--- ---	844918-D3

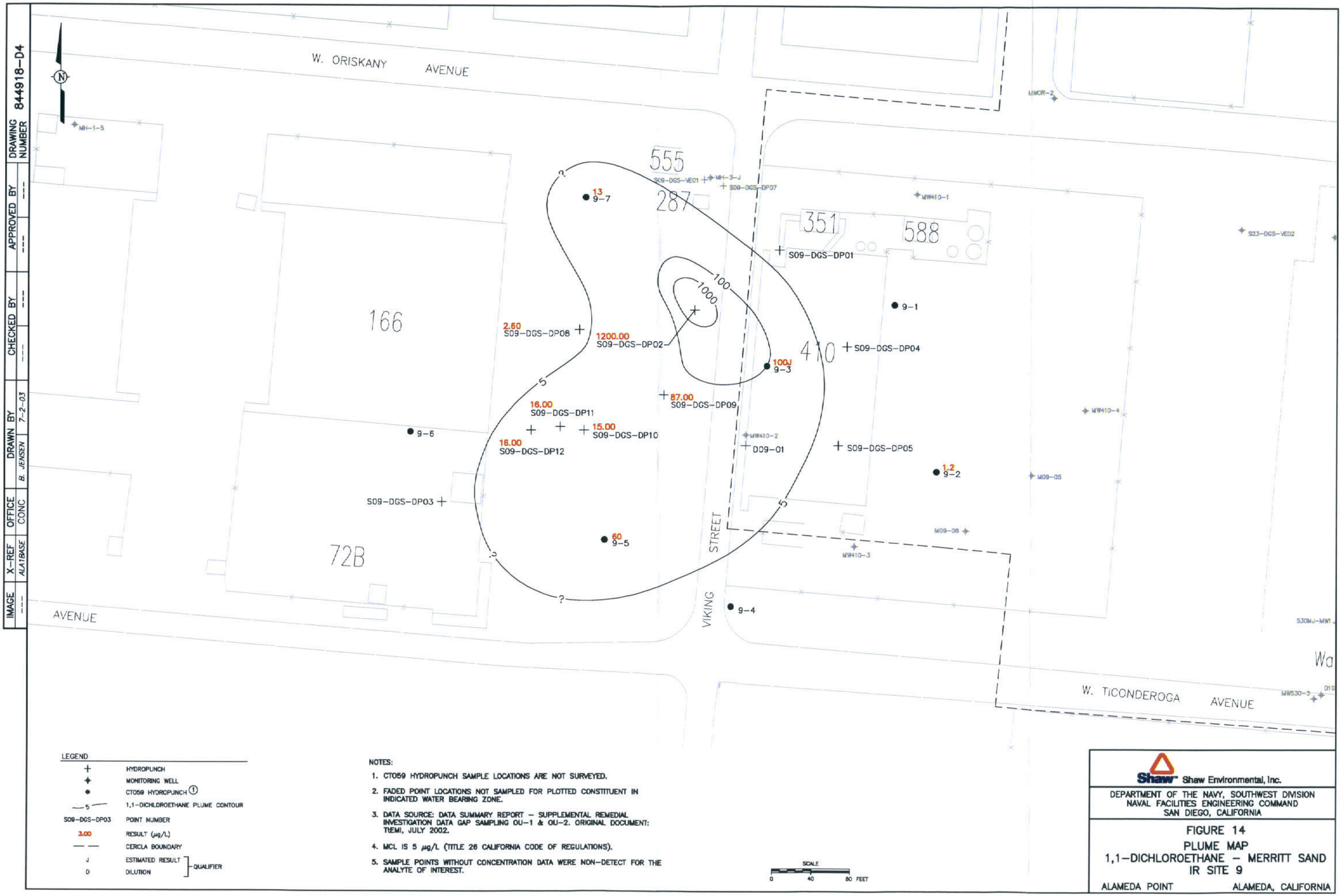


IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	ALA1BASE	CONC	B. JENSEN 7-2-03	---	--- ---	844918-D4

LEGEND

+	HYDROPUNCH
✦	MONITORING WELL
●	CT059 HYDROPUNCH ①
—5—	1,1-DICHLOROETHANE PLUME CONTOUR
S09-DGS-DP03	POINT NUMBER
3.00	RESULT (µg/L)
— —	CERCLA BOUNDARY
J	ESTIMATED RESULT] QUALIFIER
D	DILUTION] QUALIFIER

NOTES:

1. CT059 HYDROPUNCH SAMPLE LOCATIONS ARE NOT SURVEYED.
2. FADED POINT LOCATIONS NOT SAMPLED FOR PLOTTED CONSTITUENT IN INDICATED WATER BEARING ZONE.
3. DATA SOURCE: DATA SUMMARY REPORT – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL DOCUMENT: TtEMI, JULY 2002.
4. MCL IS 5 µg/L (TITLE 26 CALIFORNIA CODE OF REGULATIONS).
5. SAMPLE POINTS WITHOUT CONCENTRATION DATA WERE NON-DETECT FOR THE ANALYTE OF INTEREST.

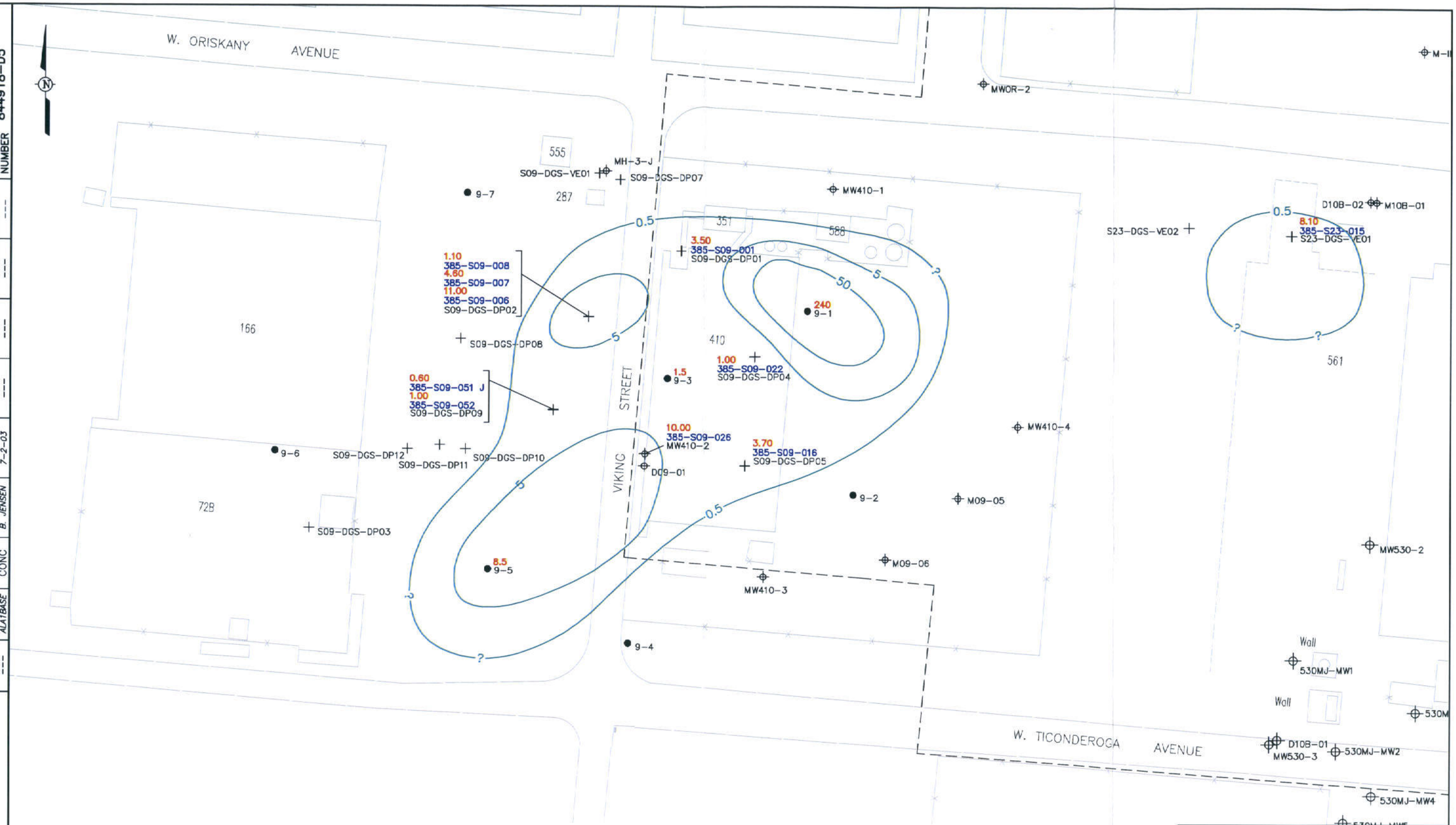
SCALE
0 40 80 FEET

Shaw Environmental, Inc.

DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 14
PLUME MAP
1,1-DICHLOROETHANE – MERRITT SAND
IR SITE 9

ALAMEDA POINT ALAMEDA, CALIFORNIA



DRAWING NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	OFFICE	X-REF	IMAGE
844918-D5	---	---	B. JENSEN 7-2-03	CONC	ALATBASE	---

LEGEND

+	HYDROPUNCH
✦	MONITORING WELL
●	CT059 HYDROPUNCH (5)
—0.5—	VINYL CHLORIDE PLUME MCL (0.5 µg/L) (3) CONTOUR
S21-DGS-DP105	POINT NUMBER
385-DGS-320A	SAMPLE NUMBER
0.60	RESULT (µg/L)
— —	CERCLA BOUNDARY
J	ESTIMATED RESULT } QUALIFIER
D	DILUTION } QUALIFIER

NOTES:

1. FADED POINT LOCATIONS NOT SAMPLED FOR PLOTTED CONSTITUENT IN INDICATED WATER BEARING ZONE (WBZ).
2. DATA SOURCE: DATA SUMMARY REPORT – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL PLANNING DOCUMENT: TtEMI, JULY 2002.
3. MCL IS 0.5 µg/L (TITLE 26 CALIFORNIA CODE OF REGULATIONS).
4. SAMPLE POINTS WITHOUT CONCENTRATION DATA WERE NON-DETECT FOR THE ANALYTE OF INTEREST.
5. CT059 HYDROPUNCH SAMPLE LOCATIONS ARE NOT SURVEYED.

SCALE
0 40 80 FEET

Shaw Environmental, Inc.

DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 15

PLUME MAP
VINYL CHLORIDE – FILL/BSU/MERRITT SAND
IR SITE 9

ALAMEDA POINT ALAMEDA, CALIFORNIA

DRAWING NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	OFFICE	X-REF	IMAGE
844918-D6	---	---	B. JENSEN 7-2-03	CONC	ALA1BASE	---

LEGEND

+	HYDROPUNCH
✦	MONITORING WELL
●	CTO59 HYDROPUNCH (6)
—13—	METHYL-T-BUTYL ETHER PLUME MCL (13 µg/L)(3) CONTOUR
S09-DGS-MW-410	POINT NUMBER
385-S09-026	SAMPLE NUMBER
20.00	RESULT (µg/L)
— —	CERCLA BOUNDARY
J	ESTIMATED RESULT } QUALIFIER
D	DILUTION } QUALIFIER

NOTES:

1. FADED POINT LOCATIONS NOT SAMPLED FOR PLOTTED CONSTITUENT IN INDICATED WATER BEARING ZONE (WBZ).
2. DATA SOURCE: PRELIMINARY DATA – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL PLANNING DOCUMENT: TtEMI, JULY 2002.
3. MCL IS 13 µg/L (TITLE 26 CALIFORNIA CODE OF REGULATIONS).
4. SAMPLE POINTS WITHOUT CONCENTRATION DATA WERE NON-DETECT FOR THE ANALYTE OF INTEREST.
5. MERRITT SAND DATA FROM CTO59 HYDROPUNCH SAMPLES ONLY.
6. CTO59 HYDROPUNCH SAMPLE LOCATIONS ARE NOT SURVEYED.

SCALE
0 40 80 FEET

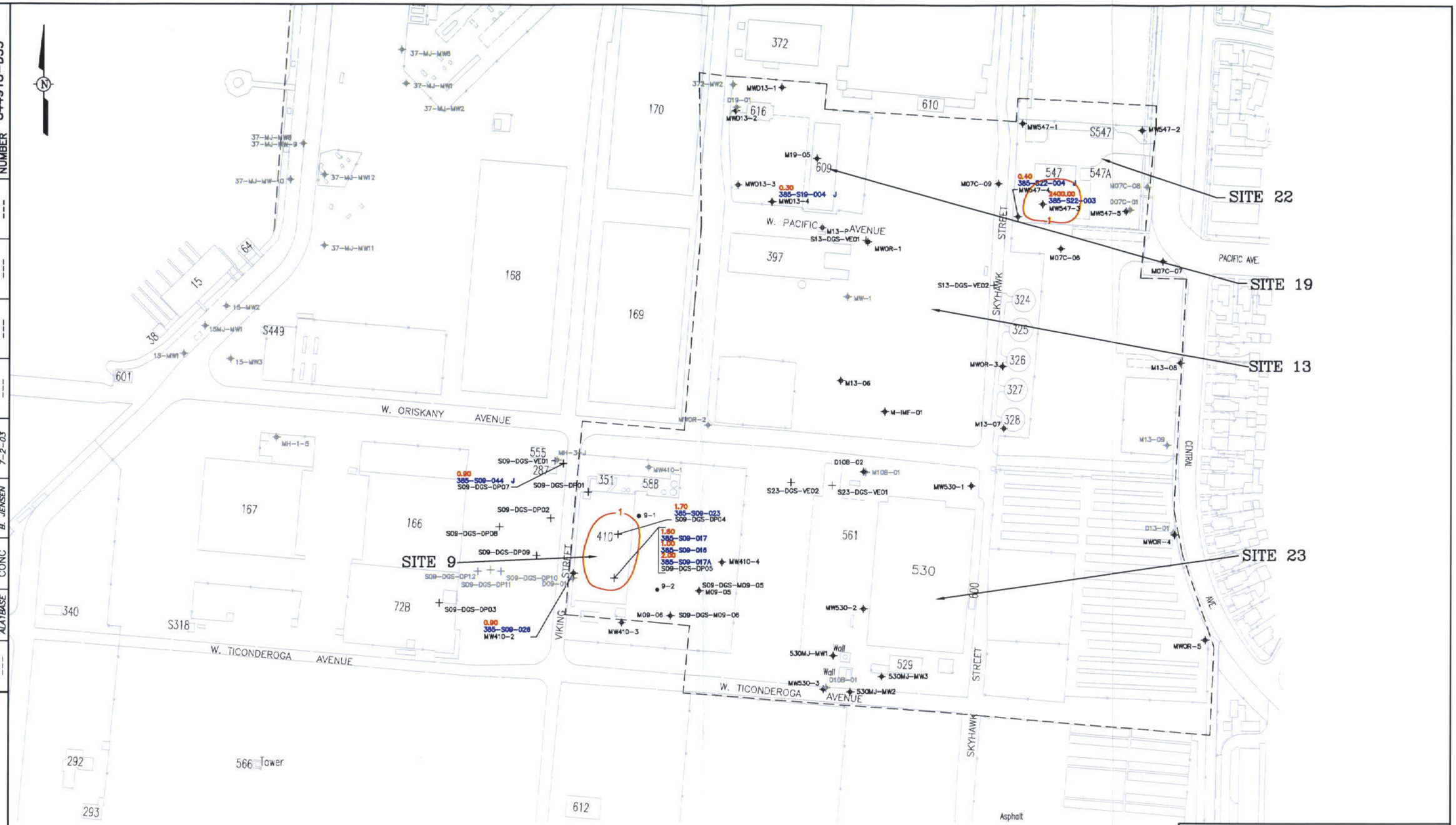
Shaw Environmental, Inc.

DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 16
PLUME MAP
METHYL-T-BUTYL ETHER
FILL/BSU/MERRITT SAND
IR SITE 9

ALAMEDA POINT ALAMEDA, CALIFORNIA

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	ALA1BASE	CONC	B. JENSEN 7-2-03	---	---	844918-D33



LEGEND

+	HYDROPUNCH
✦	MONITORING WELL
•	CT059 HYDROPUNCH (5)
—1—	BENZENE PLUME MCL (1 µg/L)(3) CONTOUR
S21-DGS-DP105	POINT NUMBER
385-S21-320A	SAMPLE NUMBER
62.00	RESULT (µg/L)
— —	CERCLA BOUNDARY
J	ESTIMATED RESULT — QUALIFIER
D	DILUTION — QUALIFIER

NOTES:

1. FADED POINT LOCATIONS NOT SAMPLED FOR PLOTTED CONSTITUENT IN INDICATED WATER BEARING ZONE (WBZ).
2. DATA SOURCE: PRELIMINARY DATA – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL PLANNING DOCUMENT: TtEMI, MAY 2001.
3. MCL (TITLE 26 CALIFORNIA CODE OF REGULATIONS).
4. SAMPLE POINTS WITHOUT CONCENTRATION DATA WERE NON-DETECT FOR THE ANALYTE OF INTEREST.
5. CT059 HYDROPUNCH SAMPLE LOCATIONS ARE NOT SURVEYED.

SCALE 0 100 200 FEET

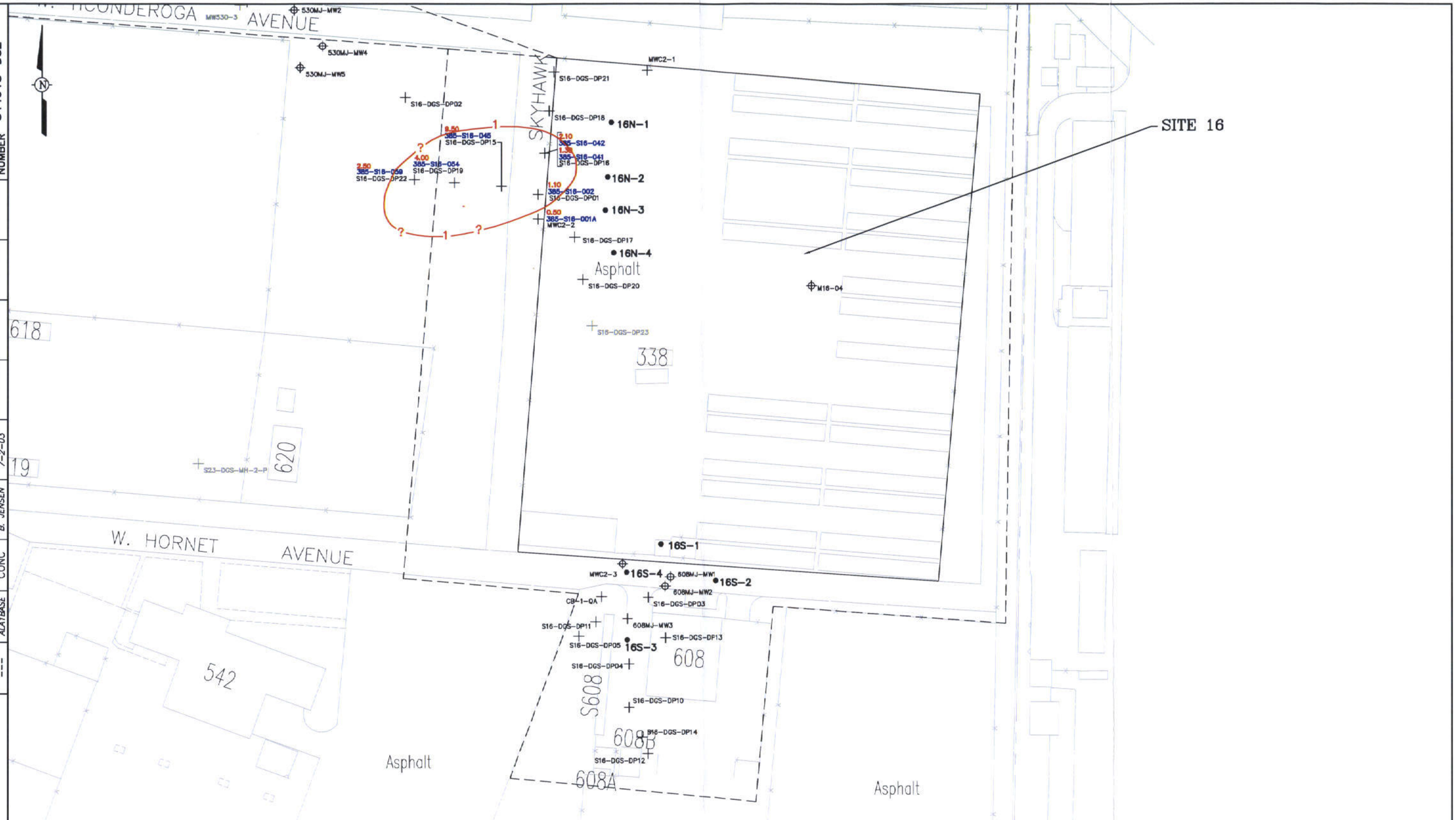
Shaw Environmental, Inc.

DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 17

PLUME MAP
BENZENE – FILL/BSU
IR SITE 9

ALAMEDA POINT ALAMEDA, CALIFORNIA



LEGEND

- ● PLUME DELINEATION SAMPLING LOCATION
- MONITORING WELLS
- + HYDROPUNCH
- —1— BENZENE PLUME (µg/L) ④
- S11-DGS-DP19 POINT NUMBER
- 385-S16-59 SAMPLE NUMBER
- 2.50 RESULT (µg/L)
- ——— INITIAL CERCLA BOUNDARY
- — — EXPANDED CERCLA BOUNDARY

NOTES:

1. OUTER PLUME BOUNDARIES PLOTTED. INTERIOR PLUME CONCENTRATIONS NOT DEPICTED.
2. FADED POINT LOCATIONS NOT SAMPLED FOR PLOTTED CONSTITUENT IN INDICATED WATER BEARING ZONE (WBZ).
3. DATA SOURCE: PRELIMINARY DATA – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL PLANNING DOCUMENT: TREMI, MAY 2001.
4. MCL (TITLE 26 CALIFORNIA CODE OF REGULATIONS).

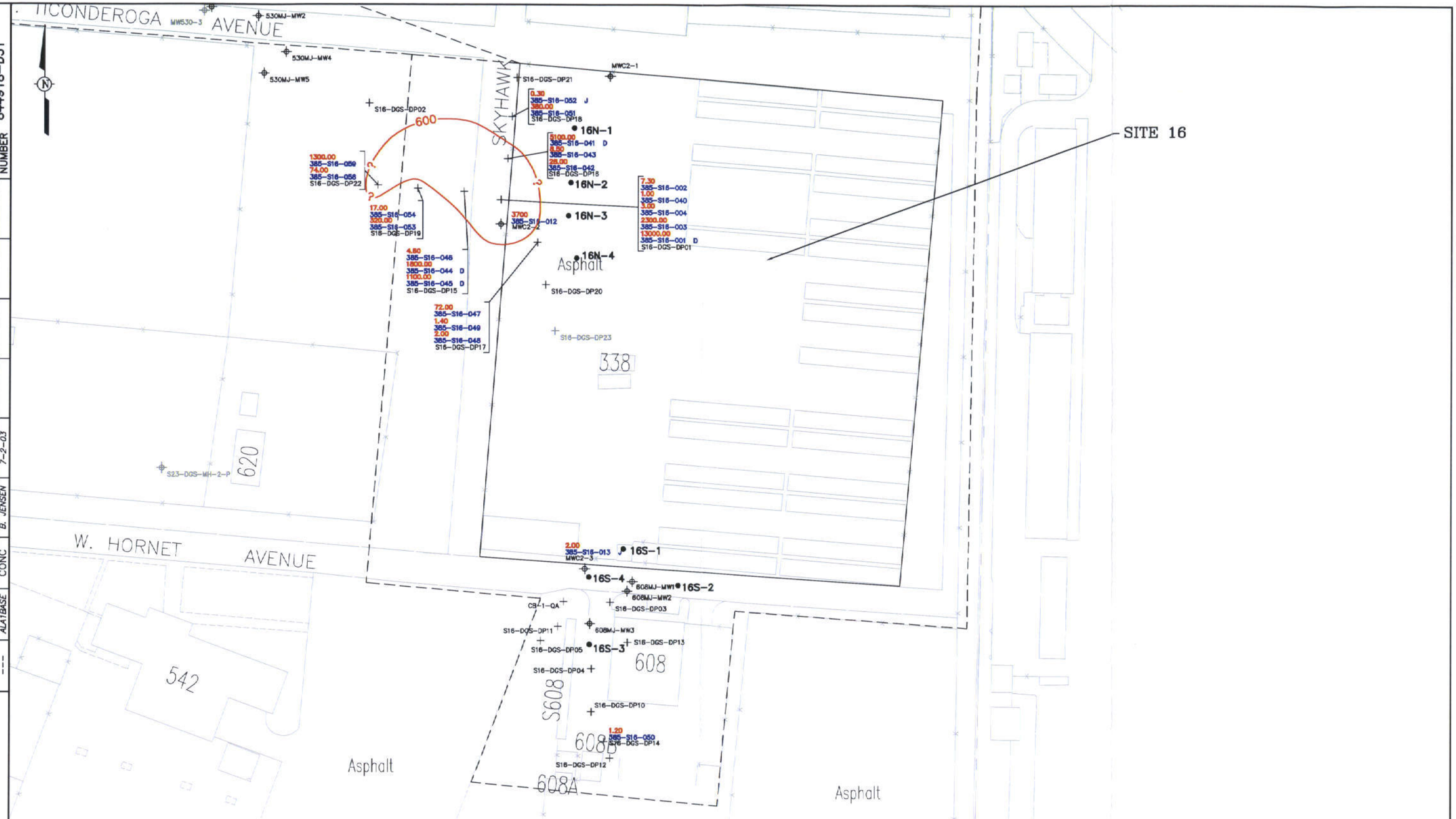
SCALE
0 50 100 FEET

Shaw Environmental, Inc.

DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 18
PLUME BOUNDARY MAP ①
BENZENE – FILL/BSU
IR SITE 16 OPERABLE UNIT 1
ALAMEDA POINT
ALAMEDA, CALIFORNIA

DRAWING NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	OFFICE	X-REF	IMAGE
844918-D32			B. JENSEN 7-2-03	CONC	ALATBASE	---



LEGEND

●	PLUME DELINEATION SAMPLING LOCATION
+	DIRECT PUSH GROUNDWATER SAMPLING POINT
✦	MONITORING WELL LOCATION
—600—	1,2-DICHLOROBENZENE PLUME (µg/L) ④
S21-DGS-DP105	POINT NUMBER
385-S21-120A	SAMPLE NUMBER
82.00	RESULT (µg/L)
———	INITIAL CERCLA BOUNDARY
— —	EXPANDED CERCLA BOUNDARY

J ESTIMATED RESULT
D DILUTION
} QUALIFIER

NOTES:

1. OUTER PLUME BOUNDARIES PLOTTED. INTERIOR PLUME CONCENTRATIONS NOT DEPICTED.
2. FADED POINT LOCATIONS NOT SAMPLED FOR PLOTTED CONSTITUENT IN INDICATED WATER BEARING ZONE (WBZ).
3. DATA SOURCE: PRELIMINARY DATA – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL PLANNING DOCUMENT: TIEMI, MAY 2001.
4. MCL (TITLE 26 CALIFORNIA CODE OF REGULATIONS)

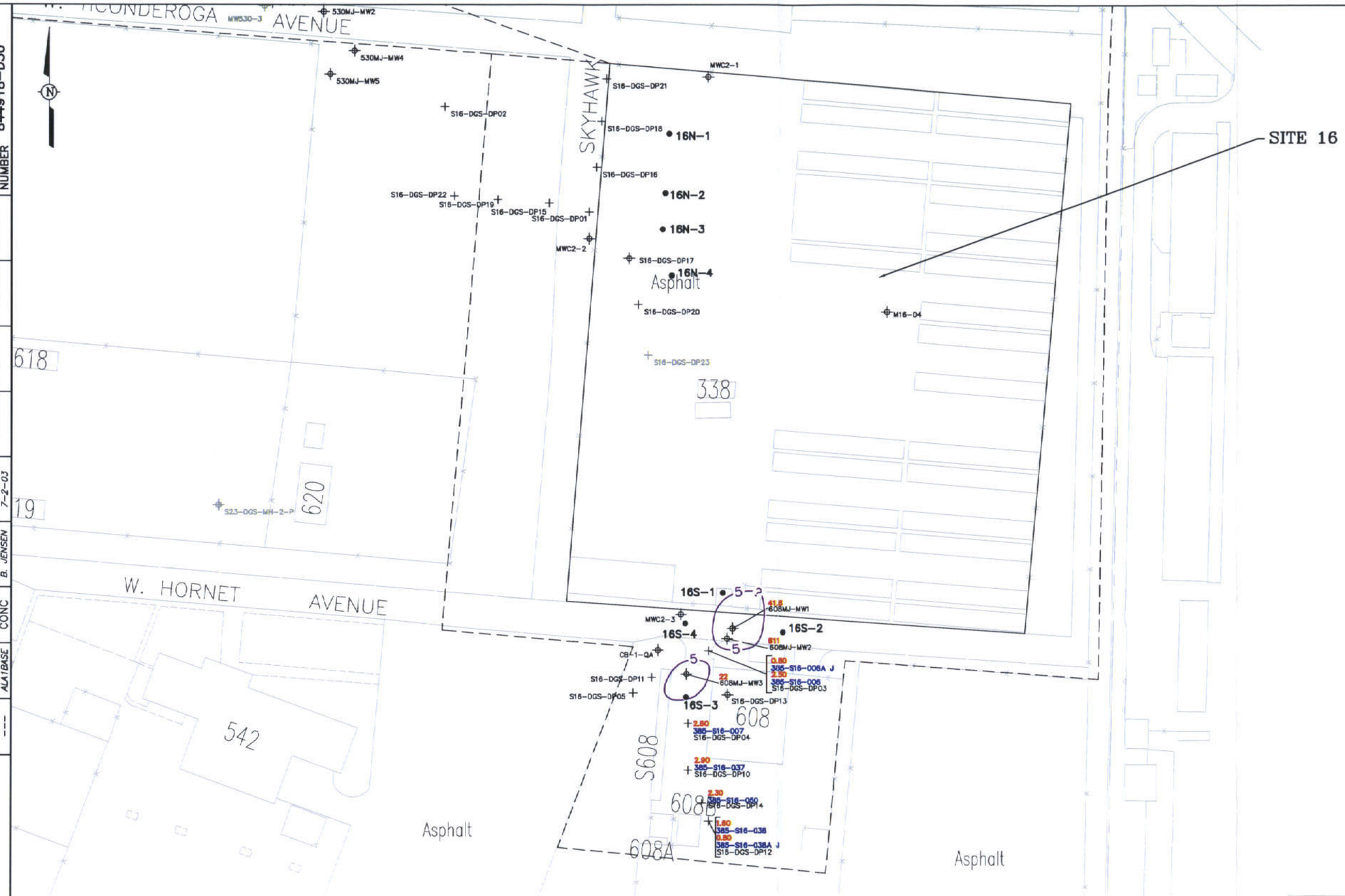
SCALE
0 50 100 FEET

Shaw Environmental, Inc.

DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 19
PLUME BOUNDARY MAP ①
1,2-DICHLOROBENZENE – FILL/BSU
IR SITE 16 OPERABLE UNIT 1
ALAMEDA POINT
ALAMEDA, CALIFORNIA

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	ALA1BASE	CONC	B. JENSEN 7-2-03			844918-D31



LEGEND

●	PLUME DELINEATION SAMPLING LOCATION
+	DIRECT PUSH GROUNDWATER SAMPLING POINT
⌖	MONITORING WELL LOCATION
—5—	TETRACHLOROETHENE PLUME (µg/L) ④
S21-DGS-DP105	POINT NUMBER
385-S21-120A	SAMPLE NUMBER
82.00	RESULT (µg/L)
———	INITIAL CERCLA BOUNDARY
— —	EXPANDED CERCLA BOUNDARY

J ESTIMATED RESULT
D DILUTION
} QUALIFIER

NOTES:

1. OUTER PLUME BOUNDARIES PLOTTED. INTERIOR PLUME CONCENTRATIONS NOT DEPICTED.
2. FADED POINT LOCATIONS NOT SAMPLED FOR PLOTTED CONSTITUENT IN INDICATED WATER BEARING ZONE (WBZ).
3. DATA SOURCE: PRELIMINARY DATA – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL PLANNING DOCUMENT: TtEMI, MAY 2001.
4. MCL (TITLE 26 CALIFORNIA CODE OF REGULATIONS)

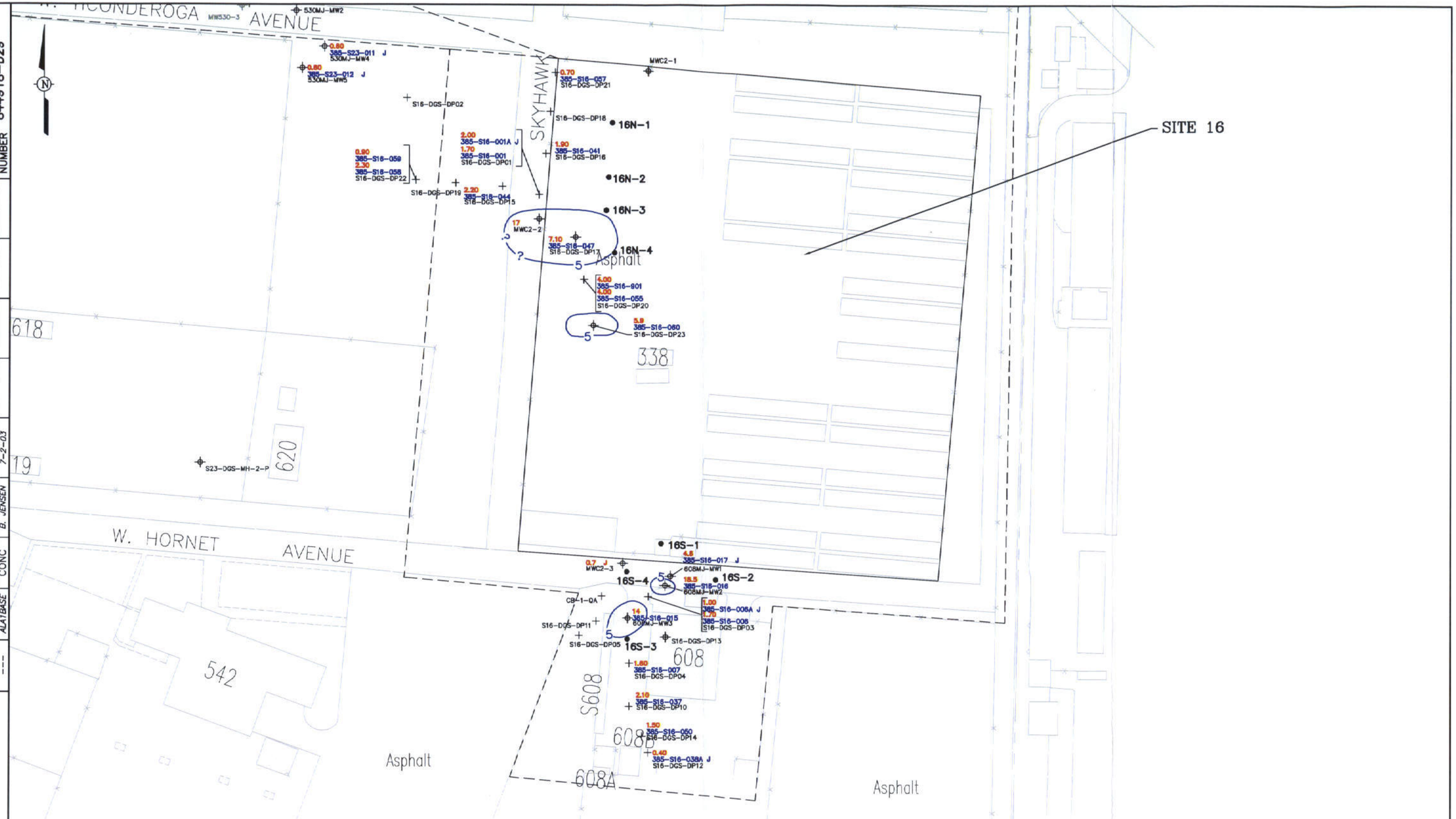
SCALE
0 50 100 FEET

Shaw Environmental, Inc.

DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 20
PLUME BOUNDARY MAP ①
TETRACHLOROETHENE – FILL/BSU
IR SITE 16 OPERABLE UNIT 1
ALAMEDA POINT
ALAMEDA, CALIFORNIA

DRAWING NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	OFFICE	X-REF	IMAGE
844918-D30			B. JENSEN 7-2-03	CONC	ALA1BASE	---



DRAWING NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	OFFICE	X-REF	IMAGE
844918-D29			B. JENSEN 7-2-03	CONC	ALATBASE	---

LEGEND

- ● PLUME DELINEATION SAMPLING LOCATION
- + DIRECT PUSH GROUNDWATER SAMPLING POINT
- MONITORING WELL LOCATION
- TRICHLOROETHENE PLUME (µg/L) ④
- S21-DGS-DP105 POINT NUMBER
- 385-S21-120A SAMPLE NUMBER
- 4.00 RESULT (µg/L)
- INITIAL CERCLA BOUNDARY
- EXPANDED CERCLA BOUNDARY

J ESTIMATED RESULT
D DILUTION
} QUALIFIER

NOTES:

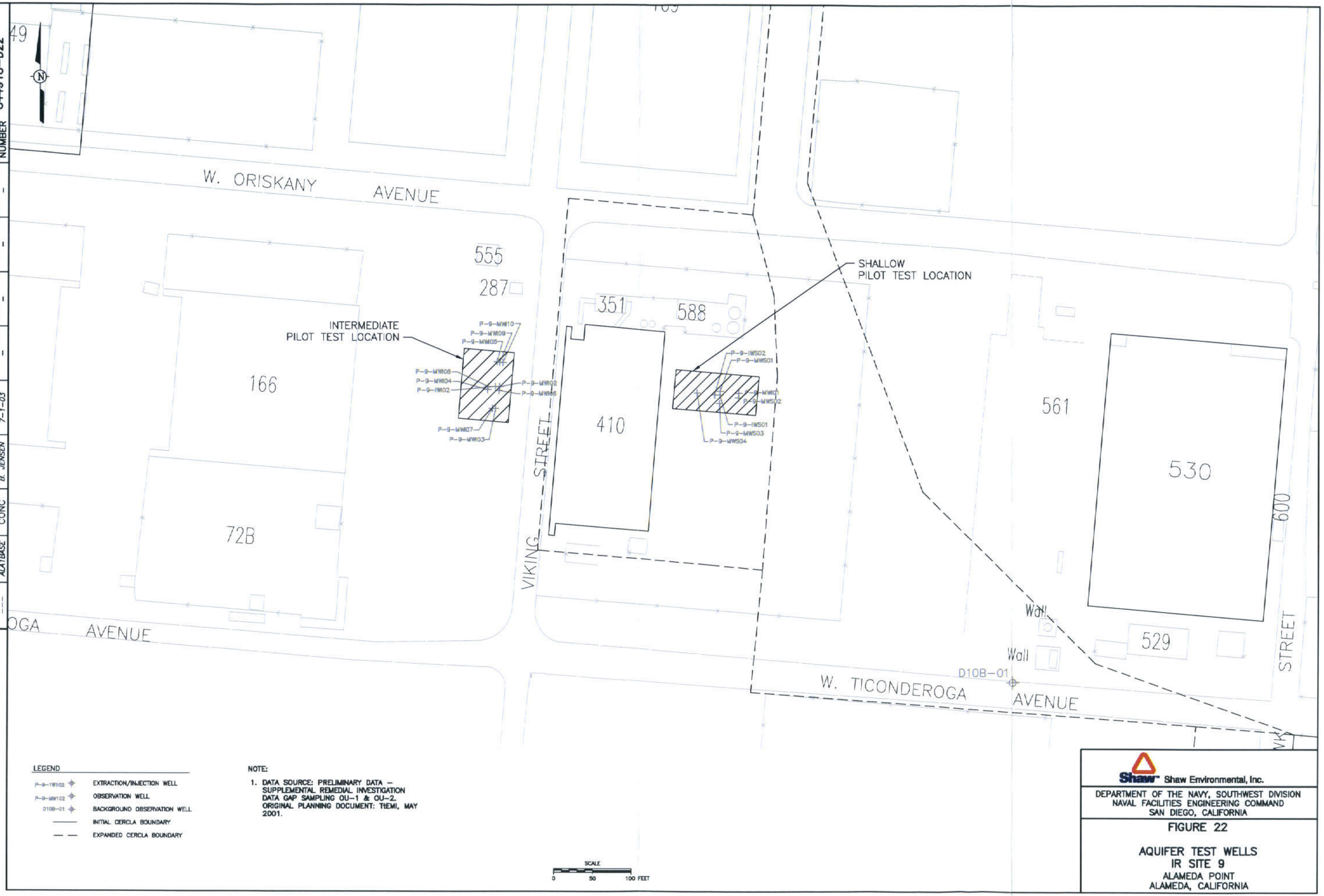
1. OUTER PLUME BOUNDARIES PLOTTED. INTERIOR PLUME CONCENTRATIONS NOT DEPICTED.
2. FADED POINT LOCATIONS NOT SAMPLED FOR PLOTTED CONSTITUENT IN INDICATED WATER BEARING ZONE (WBZ).
3. DATA SOURCE: PRELIMINARY DATA – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL PLANNING DOCUMENT: TREMI, MAY 2001.
4. MCL (TITLE 26 CALIFORNIA CODE OF REGULATIONS)

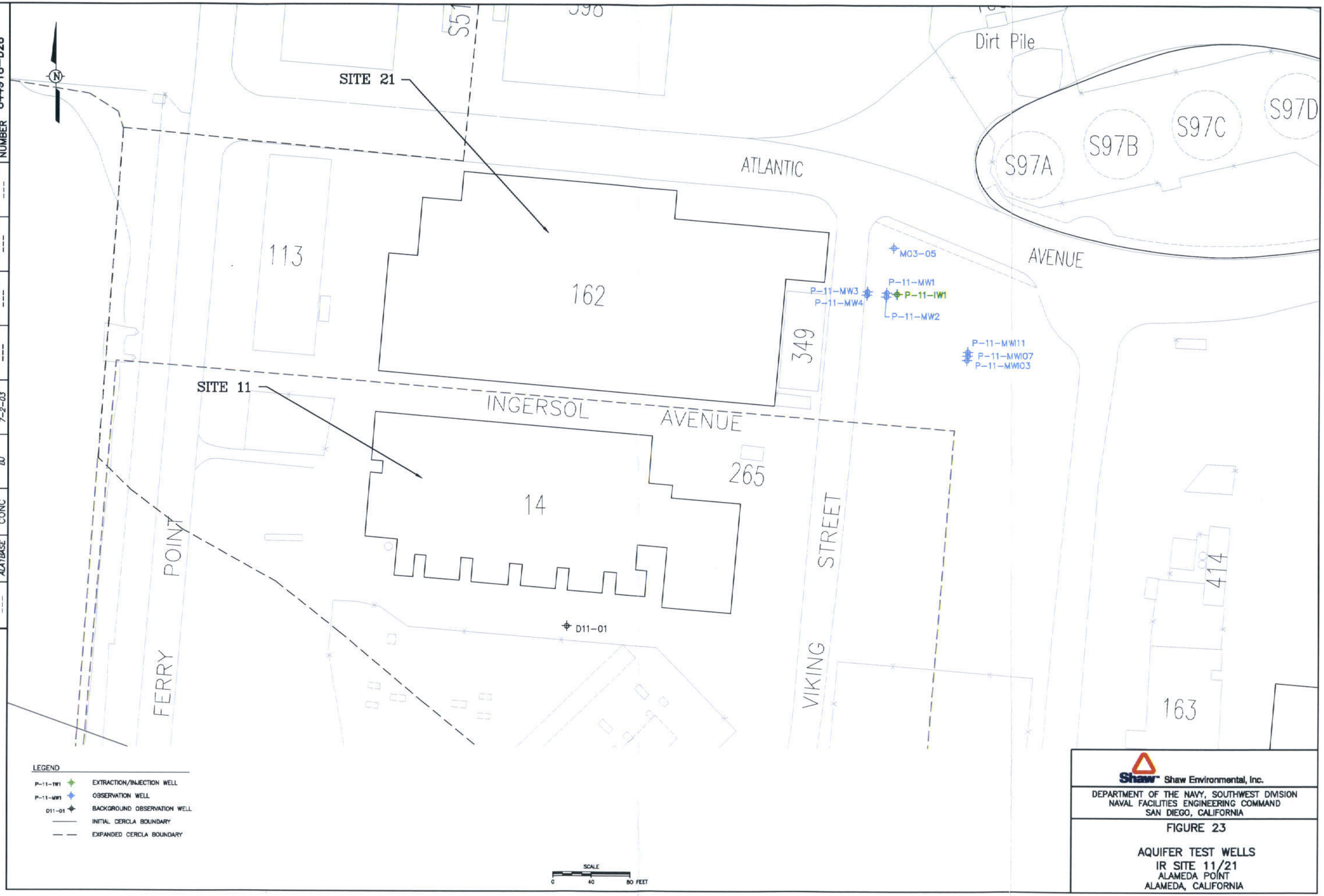
SCALE
0 50 100 FEET

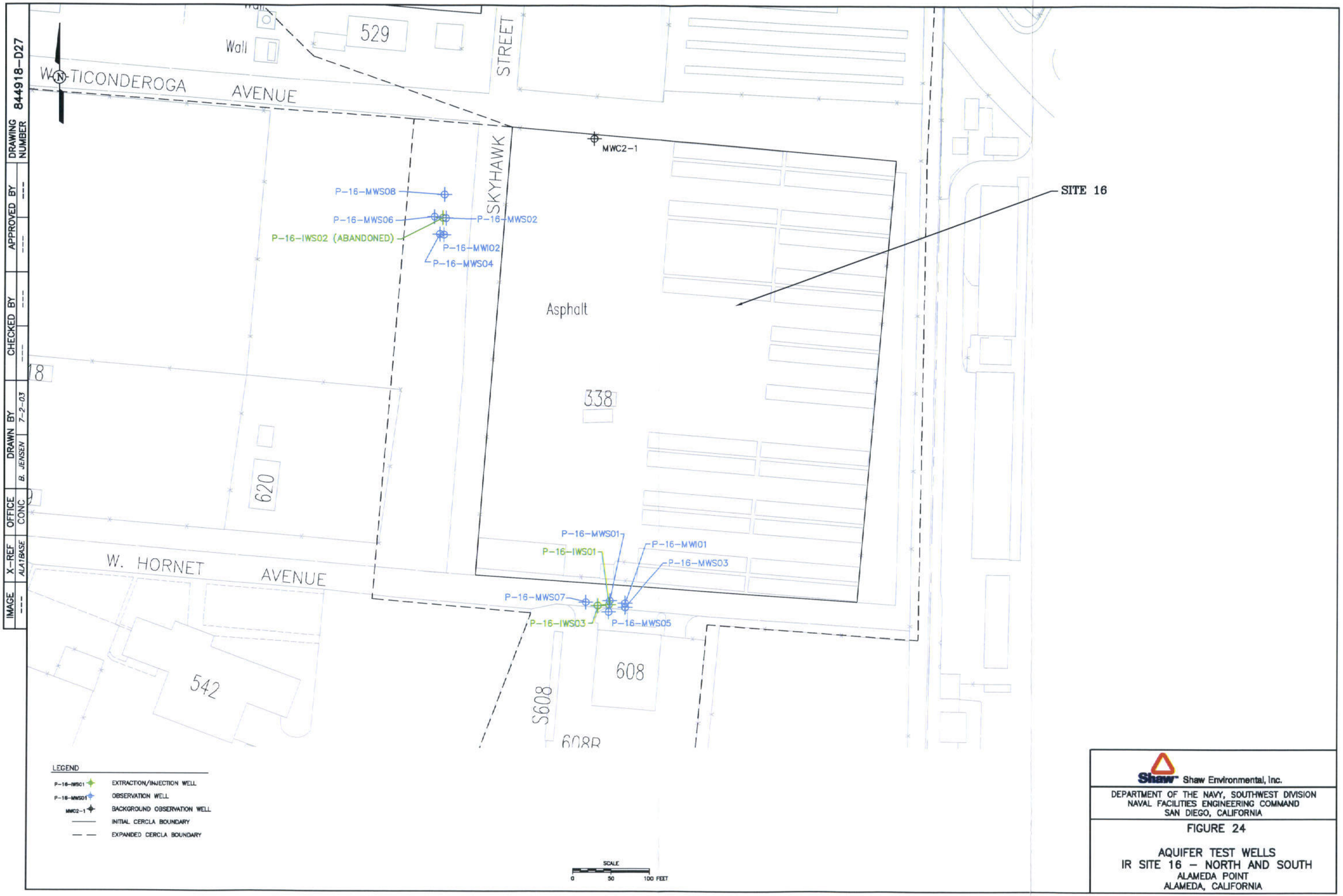
Shaw Environmental, Inc.

DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

FIGURE 21
PLUME BOUNDARY MAP ①
TRICHLOROETHENE – FILL/BSU
IR SITE 16 OPERABLE UNIT 1
ALAMEDA POINT
ALAMEDA, CALIFORNIA


W. ORISKANY AVENUE
OGA AVENUE
W. TICONDEROGA AVENUE
VIKING STREET
STREET
49
555
287
351
588
166
410
561
530
529
600
72B
INTERMEDIATE PILOT TEST LOCATION
SHALLOW PILOT TEST LOCATION
P-9-MW10
P-9-MW09
P-9-MW05
P-9-MW08
P-9-MW04
P-9-IW02
P-9-MW02
P-9-MW06
P-9-MW07
P-9-MW03
P-9-IWS02
P-9-MWS01
P-9-MW01
P-9-MWS02
P-9-IWS01
P-9-MWS03
P-9-MWS04
Wall
Wall
D10B-01
LEGEND
P-9-IW102 EXTRACTION/INJECTION WELL
P-9-MW102 OBSERVATION WELL
D10B-01 BACKGROUND OBSERVATION WELL
INITIAL CERCLA BOUNDARY
EXPANDED CERCLA BOUNDARY
NOTE:
1. DATA SOURCE: PRELIMINARY DATA – SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING OU-1 & OU-2. ORIGINAL PLANNING DOCUMENT: TtEMI, MAY 2001.
SCALE
0 50 100 FEET
Shaw Environmental, Inc.
DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA
FIGURE 22
AQUIFER TEST WELLS
IR SITE 9
ALAMEDA POINT
ALAMEDA, CALIFORNIA
DRAWING NUMBER 844918-D22
APPROVED BY -
CHECKED BY -
DRAWN BY B. JENSEN 7-1-03
OFFICE CONC
X-REF ALA1BASE
IMAGE


SITE 21
SITE 11
ATLANTIC
AVENUE
INGERSOL
AVENUE
FERRY
POINT
VIKING
STREET
Dirt Pile
S97A
S97B
S97C
S97D
113
162
349
265
14
414
163
M03-05
P-11-MW1
P-11-MW3
P-11-MW4
P-11-IW1
P-11-MW2
P-11-MW11
P-11-MW107
P-11-MW103
D11-01
LEGEND
P-11-IW1 EXTRACTION/INJECTION WELL
P-11-MW1 OBSERVATION WELL
D11-01 BACKGROUND OBSERVATION WELL
INITIAL CERCLA BOUNDARY
EXPANDED CERCLA BOUNDARY
SCALE
0 40 80 FEET
Shaw Environmental, Inc.
DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA
FIGURE 23
AQUIFER TEST WELLS
IR SITE 11/21
ALAMEDA POINT
ALAMEDA, CALIFORNIA
DRAWING NUMBER 844918-D28
APPROVED BY
CHECKED BY
DRAWN BY BJ 7-2-03
OFFICE CONC
X-REF ALA1BASE
IMAGE


W. TICONDEROGA AVENUE
STREET
SKYHAWK
W. HORNET AVENUE
529
Wall
620
618
338
542
608
608B
S608
Asphalt
MWC2-1
SITE 16
P-16-MWS08
P-16-MWS06
P-16-MWS02
P-16-IWS02 (ABANDONED)
P-16-MWI02
P-16-MWS04
P-16-MWS01
P-16-IWS01
P-16-MWI01
P-16-MWS03
P-16-MWS07
P-16-IWS03
P-16-MWS05
LEGEND
P-16-IWS01 EXTRACTION/INJECTION WELL
P-16-MWS01 OBSERVATION WELL
MWC2-1 BACKGROUND OBSERVATION WELL
INITIAL CERCLA BOUNDARY
EXPANDED CERCLA BOUNDARY
SCALE
0 50 100 FEET
DRAWING NUMBER 844918-D27
APPROVED BY ---
CHECKED BY ---
DRAWN BY B. JENSEN 7-2-03
OFFICE CONC
X-REF ALA1BASE
IMAGE ---
Shaw Environmental, Inc.
DEPARTMENT OF THE NAVY, SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA
FIGURE 24
AQUIFER TEST WELLS
IR SITE 16 – NORTH AND SOUTH
ALAMEDA POINT
ALAMEDA, CALIFORNIA

Appendix A
Analytical Results

N00236.000763
ALAMEDA POINT
SSIC NO. 5090.3

APPENDIX A – ANALYTICAL RESULTS, IS CONTAINED IN ELECTRONIC FORMAT AND IS TOO VOLUMINOUS TO PRINT

TO VIEW THE DATA, CONTACT:

DIANE C. SILVA
RECORDS MANAGEMENT SPECIALIST
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Appendix B
Aquifer Test Data

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Acronyms and Abbreviations

IT	IT Corporation
FWBZ	first water-bearing zone
gpm	gallons per minute
SWBZ	second water-bearing zone

1.0 Data Interpretation and Evaluation

As described in the Work Plan, Final Project Plans, Work Plan for Chemical Oxidation Pilot Testing for Removal Actions at Installation Restoration Sites 9, 11/21, and 16, Alameda Point, (IT Corporation [IT], 2003), an aquifer test was conducted at each of the pilot test locations. The tests were conducted to determine aquifer hydraulic conductivity, transmissivity, and storage coefficient. A constant rate pumping test was conducted at each of the sites except at Site 9 Shallow where slug tests were completed due to low well yield. Data were collected using submersible pressure transducers and data loggers. Prior to completion of each constant rate pumping test, pretest water level, barometric, and tidal levels were monitored for post test analysis. All data were analyzed using the aquifer test analysis program AquiferTest Version 3.5. The tests conducted discussed below.

Note that the parameter estimates are reported to two significant figures, while the values reported on the type curve matches are reported to a greater precision. Standard practice for hydrologic parameters estimate calculations is to report results to two or three significant figures, as natural variation in the aquifer system is high.

1.1 Site 9 Shallow Results

The objective of the test was to determine the aquifer properties for the first water-bearing zone (FWBZ) at Site 9 Shallow. The slug test method was chosen to determine aquifer properties because of low well yield noted during well development. During well development the pumping well (P9-IWS01) was bailed dry and recovered slowly. The other Site 9 shallow wells also demonstrated low well yield during well development. Therefore, a pumping test at the site was determined to not be appropriate. A slug test was performed only on the injection well (P9-IWS01). This well is screened from 5 to 15 feet below ground surface and total depth of the well is 15.41 feet. During slug testing, no other wells were monitored.

The slug test is used to measure hydraulic conductivity in low yield formations and has a limitation of only evaluating the hydraulic conductivity in very near field (radius of several feet) of the formation. The slug test at well P9-IWS01 was competed on September 5, 2002. The procedure for the test was to insert section of polyvinyl chloride casing (slug) that is filled with water and sealed. The water level response due to slug insertion was record using a pressure transducer and data logger. Once the water level stabilized, data logger was reset and the slug was then withdrawn and the water level response was again recorded. This was repeated three times.

The FWBZ at Site 9 is under unconfined conditions. Slug test analysis was performed using the aquifer test analysis program *AquiferTest Version 3.5*. The data were evaluated using the

Bouwer and Rice analysis method, *A Slug Test Method for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells* and *The Bouwer and Rice Slug Test – An Update,* (Bouwer and Rice 1976, 1989). Table 1-1, "Site 9 Shallow Slug Test Results – First Water-Bearing Zone," lists the results of the data analysis and provides the average hydraulic conductivity value for the FWBZ at Site 9. The plotted data and line fit for the three slug insertions and withdrawals are provided in Attachment 1 – "Site 9 Shallow Slug Test Analysis Report."

The values estimated for all tests are in good agreement and are reasonable. The estimate average of 1.7 feet per day is representative of the formation in close proximity to the tested well, and variation in the hydraulic conductivity may occur nearby.

Table 1-1
Site 9 Shallow Slug Test Results— First Water-Bearing Zone

Test	Hydraulic Conductivity (feet per day)
Slug In # 1	1.6
Slug Out # 1	1.6
Slug In # 2	1.5
Slug Out # 2	1.8
Slug In # 3	1.6
Slug Out # 3	1.9
Average	**1.7**

1.2 Site 9 Intermediate Results

The objective of the test was to determine the aquifer properties for the second water-bearing zone (SWBZ) at Site 9. The pumping well (P9-IWI01) and nine monitoring wells were completed in the SWBZ. Wells monitored in the SWBZ were P9-MWI02, P9-MWI03, P9-MWI04, P9-MWI05, P9-MWI06, P9-MWI07, P9-MWI08, P9-MWI09, and P9-MWI10. Also monitored was background well 10B-01. Table 1-2, "Site 9 Intermediate Well Attributes," shows the well completions and distances from the pumping well P16S-IW01.

Pretest monitoring was started at 19:00 on August 15, 2002 and ended at 07:40 on August 20, 2002. Pretest monitoring consisted of monitoring water levels in the pumping and all monitoring wells and recording barometric pressure and tidal changes using data loggers. The barometric pressure was recorded at the IT office at Alameda Point and tidal changes were recorded using a pressure transducer placed in Seaplane Lagoon located approximately ¼ mile west of the test site.

Table 1-2
Site 9 Intermediate Well Attributes

Well Name	Screen Interval (feet below ground surface)	Water-Bearing Zone	Distance from Pumping Well (feet)	Estimated Tidal Efficiency
P9-IWI01	23 – 43	SWBZ	Pumping well	0.04
P9-MWI02	23 – 33	SWBZ	7.2	0.03
P9-MWI03	33 – 43	SWBZ	24.1	0.03
P9-MWI04	23 – 33	SWBZ	19.4	0.03
P9-MWI05	23 – 33	SWBZ	36.3	0.03
P9-MWI06	33 – 43	SWBZ	5.5	0.03
P9-MWI07	23 – 33	SWBZ	24.2	0.03
P9-MWI08	33 – 43	SWBZ	9.9	0.04
P9-MWI09	33 – 43	SWBZ	36.2	0.03
P9-MWI10	53 – 58	SWBZ	36.7	0.11
D10B-01	50 – 60	SWBZ	767.0	NC

NC denotes tidal efficiency not calculated

Pretest data were evaluated to determine whether barometric pressure or tidal changes influenced water levels at the site. Wells completed in the SWBZ were strongly influenced by tidal changes and to a much lesser degree from barometric pressure changes. The tidal data were used to estimate a tidal efficiency for each well (Table 1-2). The tidal efficiency is an estimate of the relative water level response to changes in tides. No barometric efficiency was calculated as barometric response was overwhelmed by the tidal response and could not be accurately determined.

The SWBZ at Site 9 is a leaky confined aquifer. The term leaky refers to vertical recharge that occurs through the overlying or underlying aquitard. Water levels within the SWBZ are significantly influenced by changes in earth tides. Based on pretest monitoring, water levels change in response to water level changes at Sea Plane Lagoon with very little time delay (less than 40 minutes). All data were processed to remove tidal effects by subtracting the water level change recorded at Sea Plane Lagoon, corrected for tidal efficiency, from the recorded water level in the well. These data were then used for analysis. Water level data were analyzed using the aquifer test analysis program *AquiferTest Version 3.5*. The data were evaluated using the analysis method of Walton, *Selected Analytical Methods for Well and Aquifer Evaluation,* (Walton, 1962). This method is an extension of the Hantush-Jacob Method, *Non-steady radial Flow in an Infinite Leaky Aquifer,* (Hantush, M.S. and C.E. Jacob 1955) for drawdown leaky confined aquifers with nonsteady-state flow. Table 1-3, "Site 9 Intermediate Second Water-

Bearing Zone Hydrologic Property Estimate," lists the results of the data analysis and provides average values for the hydrologic properties. Type curve matches are shown in Attachment 2, "Installation Restoration Site 9 Intermediate Pumping Test Analysis Report."

Values for hydraulic conductivity, transmissivity and storativity are reasonable. No estimates are provided for well P9-MWI10. This well is completed 10 feet below the bottom of the pumping well and if any drawdown occurred it was by tidal influences that could not be removed.

Table 1-3
Site 9 Intermediate Second Water-Bearing Zone Hydrologic Property Estimates

Well Name	Hydraulic Conductivity (feet per day)	Transmissivity (square feet per day)	Storativity
P9-MWI02	2.5	57	3.5 E-03
P9-MWI03	1.9	44	1.2 E-03
P9-MWI04	2.3	53	1.9 E-03
P9-MWI05	2.3	53	6.7 E-04
P9-MWI06	2.3	52	7.0 E-04
P9-MWI07	3.3	76	1.2 E-04
P9-MWI08	1.3	30	3.0 E-04
P9-MWI09	2.3	52	7.8 E-04
Average	2.3	52	2.4 E-03

1.3 Sites 11/21 Intermediate Results

The objective of the test was to determine the aquifer properties for the SWBZ at Sites 11/21. The pumping well (P11/21-IW01) and six monitoring wells were completed in the SWBZ. Well P11-MWI03 was completed in the FWBZ and was also monitored. The wells monitored, screened interval, water-bearing zone, and other information are listed on Table 1-4, "Sites 11/21 Well Attributes." Also monitored was well M03-05 which is completed in the first water-bearing zone and background well D11-01.

Pretest monitoring was started at 15:00 on August 23, 2002 and ended at 07:40 on August 27, 2002. Pretest monitoring consisted of monitoring water levels in the pumping and monitoring wells P11-MW01, P11-MW02, P11-MW03, and P11-MW04 and recording barometric pressure and tidal changes using data loggers. The barometric pressure was recorded and tidal changes were recorded using a pressure transducer placed in Seaplane Lagoon located approximately ¼ mile west of the test site.

Table 1-4
Sites 11/21 Well Attributes

Well Name	Screen Interval (feet below ground surface)	Water-Bearing Zone	Distance from Pumping Well (feet)	Estimated Tidal Efficiency
P11/21-IW01	22 – 42	SWBZ	Pumping well	0.035
P11/21-MW01	32 – 42	SWBZ	10.4	0.008
P11/21-MW02	22 – 32	SWBZ	11.1	0.03
P11/21-MW03	32 – 42	SWBZ	30.1	0.008
P11/21-MW04	22 – 32	SWBZ	30.6	0.008
P11-MWI03	11 – 19	FWBZ	99.5	NC
P11-MWI07	22 – 32	SWBZ	96.9	NC
P11-MWI11	32 - 42	SWBZ	94.7	0.008
M03-05	3 – 13	FWBZ	48.2	0.008
D11B-01	50 - 60	SWBZ	482.6	NC

NC denotes tidal efficiency not calculated

Pretest data were evaluated to determine whether barometric pressure or tidal changes influenced water levels at the site. Wells completed in the SWBZ were strongly influenced by tidal changes and to a much lesser degree from barometric pressure changes. The tidal data were used to estimate a tidal efficiency for each well. Estimated tidal efficiency for each well is listed on Table 1-4. The tidal efficiency is an estimate of the relative water level response to changes in tides. No barometric efficiency was calculated for wells completed in the SWBZ as barometric response was overwhelmed by the tidal response and could not be accurately determined.

The Site 11 Intermediate aquifer test was started at 10:21 on August 27, 2002 and terminated at 02:32 on August 28, 2002 for a total of 971 minutes pumping time. The well was pumped at 2.5 gallons per minute (gpm). Well development testing indicated that a pumping rate of 2.5 gpm would stress the aquifer sufficiently to achieve measurable drawdown in the monitored wells. Water level recovery was monitored following termination of pumping. During the test, barometric pressure and tidal changes were recorded using pressure transducers and data loggers.

The SWBZ at Site 11 is a leaky confined aquifer. The term leaky refers to vertical recharge that occurs through the overlying or underlying aquitard. Water levels within the SWBZ are significantly influenced by changes in earth tides. Based on pretest monitoring, water levels change in response to water level changes at Seaplane Lagoon with a delay time of approximately 60 minutes. All data were processed to remove tidal effects by subtracting the

water level change recorded at Seaplane Lagoon, corrected for tidal efficiency, from the recorded water level in the well. The data for wells P11-MWI07 and P11-MWI11 were also corrected for tidal influence by comparing uncorrected drawdown plots with a plot of tidal changes and estimating a tidal efficiency correction. The estimated tidal efficiency is listed on Table 1-4.

Although, the two observation wells completed in the FWBZ were not monitored during the pretest monitoring period, barometric efficiency estimates were made by comparing uncorrected drawdown data to recorded barometric pressure changes. A barometric efficiency correction of 0.6 was applied to the drawdown data from wells P11-MWI03 and M03-05.

These data were then used for analysis. Water level data were analyzed using the aquifer test analysis program *AquiferTest Version 3.5*. The data were evaluated using the analysis method of Walton (1962). This method is an extension of the Hantush-Jacob Method (1955) for drawdown leaky confined aquifers with nonsteady-state flow. Table 1-5, "Sites 11/21 Intermediate Second Water-Bearing Zone Hydrologic Property Estimates," lists the results of the data analysis and provides average values for the hydrologic properties. Type curve matches are shown in Attachment 3, "Installation Restoration Sites 11/21 Intermediate Pumping Test Analysis Report."

Table 1-5
Sites 11/21 Intermediate Second Water-Bearing Zone Hydrologic Property Estimates

Well Name	Hydraulic Conductivity (feet per day)	Transmissivity (square feet per day)	Storativity
P11/21-MW01	2.5	55	2.9 E-03
P11/21-MW02	2.4	53	2.0 E-03
P11/21-MW03	3.8	84	1.5 E-03
P11/21-MW04	3.8	84	7.5 E-04
P11-MWI07	7.3	160	4.6 E-04
P11-MWI11	6.8	150	5.2 E-04
Average	**4.4**	**98**	**1.4 E-03**

The values for hydraulic conductivity, transmissivity, and storativity are reasonable.

No estimates are provided for wells P11-MWI03 and M03-05. These wells are completed in the FWBZ and although drawdown was observed no estimate of aquifer properties can be made as pumping was completed in an underlying aquifer. Observed drawdown in these two FWBZ wells demonstrates that either the Bay Sediment Unit is not of infinite areal extent, the aquitard is leaky, or a combination of the two. The Bay Sediment Unit is known to be absent east of the

test site and is thin (less than 3 feet thick) at the test site. Therefore, the drawdown in these wells is considered to be the result of both limited areal extent and leakage.

1.4 Site 16 North Shallow Results

The objective of the test was to determine the aquifer properties for the FWBZ at Site 16 North. The pumping well (P16-IW02) and four monitoring wells were completed in the FWBZ with screens set at 5 to 15 feet below ground surface. Wells monitored in the FWBZ were P16-MWS02, P16-MWS04, P16-MWS06, P16-MWS08, and MWC2-1. Also monitored was well P16-MWI02 completed in the upper portion on the SWBZ. Table 1-6, "Site 16 North Well Attributes," shows the well completions and distances from the pumping well P16S-IW01.

Table 1-6
Site 16 North Well Attributes

Well Name	Screen Interval (feet below ground surface)	Water-Bearing Zone	Distance from Pumping Well (feet)
P16-IWS02	5 – 15	FWBZ	Pumping well
P16-MWS02	5 –15	FWBZ	4.3
P16-MWS04	5 – 15	FWBZ	21.3
P16-MWS06	5 – 15	FWBZ	10.5
P16-MWS08	5 – 15	FWBZ	30.0
MWC2-1	5 –15	FWBZ	219.7
P16-MWI02	20 – 25	SWBZ	21.9

FWBZ denotes first water-bearing zone

Pretest monitoring was started at 14:00 on August 19, 2002 and ended at 08:00 on August 22, 2002. Pretest monitoring consisted of monitoring water levels in the pumping and all monitoring wells and recording barometric pressure and tidal changes using data loggers. The barometric pressure was recorded at the IT office at Alameda Point and tidal changes were recorded using a pressure transducer placed in Seaplane Lagoon located approximately ½ mile west of the test site. However, the data logger files for the barometric pressure and tidal recordings were lost and could not be recovered.

Pretest data were evaluated to determine whether barometric pressure or tidal changes influenced water levels at the site. Wells completed in the FWBZ were strongly influenced by barometric pressure changes but not tides. The well completed in the SWBZ (P16-MWI02) was strongly influenced by tidal changes and to a lesser extent barometric pressure changes. Because of the lost data logger data, the barometric efficiency (0.6) calculated for the test at Site 16 South was used. This is appropriate as the two tests are completed in the same water-bearing zone and with

similar geology. The barometric efficiency is an estimate of the relative water level response to changes in barometric pressure. No tidal efficiency was calculated as there was no drawdown observed in the single well completed in the SWBZ.

The Site 16 North aquifer test was started at 10:32 on August 22, 2002 and terminated at 08:56 on August 23, 2002 for a total of 1,343 minutes pumping time. The well was pumped at 1.5 gpm. Well development testing indicated that a pumping rate of 1.5 gpm would stress the aquifer sufficiently to achieve measurable drawdown in the monitored wells. Water level recovery was monitored following termination of pumping. During the test, barometric pressure and tidal changes were recorded using pressure transducers and data loggers.

The FWBZ at Site 16 North is an unconfined aquifer that shows delayed yield effects due to gravity drainage. In addition, the FWBZ also shows significant response to barometric pressure change. Barometric response is typical of confined aquifer systems but can also occur in unconfined systems. Water level data were processed by removing barometric pressure change effects by subtracting the barometric pressure, corrected for barometric efficiency, from the recorded water level. These data were then used for analysis. Water level data were analyzed using the aquifer test analysis program *AquiferTest Version 3.5*. The data were evaluated using the analysis method of Moench, *Computation of Type Curves for Flow to Partially Penetrating Wells in Water-Table Aquifers,* (Moench, 1993). This method is an extension of the Neuman Method, *Analysis of Pumping Test Data from Anisotropic Unconfined Aquifers Considering Delayed Yield,* (Neuman, 1975) for drawdown in homogeneous, isotropic, confined or unconfined aquifers, with either a fully or partially penetrating pumping well and multiple observation wells. The Moench Method also allows for the analysis of delayed yield effecting in unconfined aquifers. Table 1-7, "Site 16 North First Water-Bearing Zone Hydrologic Property Estimates," lists the results of the data analysis and provides average values for the hydrologic properties. Type curve matches are shown in Attachment 4, "Installation Restoration Site 16 North Pumping Test Analysis Report."

Table 1-7
Site 16 North First Water-Bearing Zone Hydrologic Property Estimates

Well Name	Hydraulic Conductivity (feet per day)	Transmissivity (square feet per day)	Specific Yield
P16-MWS02	**17**	**170**	**0.23**
P16-MWS04	28	280	0.17
P16-MWS06	22	220	0.12
P16-MWS08	11	110	0.52
Average	20	200	0.17

Values for hydraulic conductivity, transmissivity, and specific yield appear reasonable except for the specific yield value for well P16-MWS08. The specific yield value calculated for this well appears high and is not considered reasonable. Typically specific yield values should not exceed 0.3. This is likely due to insufficient test duration for this well, as the determination of specific yield is dependent on late time data. The hydraulic conductivity value for well P16-MWS08 is somewhat low compared to the other test wells. However, the hydraulic conductivity value is determined using early time data and there are sufficient data to provide an estimate.

1.5 Site 16 South Shallow Results

The objective of the test was to determine the aquifer properties for the FWBZ at Site 16 South. The pumping well (P16-IW01) and six monitoring wells were completed in upper water-bearing zone with screens set at 5 to 15 feet below ground surface. Wells monitored in the FWBZ were P16-MWS01, P16-MWS03, P16-MWS05, P16-MWS07, 608MJ-MW01, 608MJ-MW02, MWC2-3, and MWC2-1. Also monitored was well P16-MWI01 completed in the upper portion on the SWBZ. Table 1-8, "Site 16 South Well Attributes," shows the well completions and distances from the pumping well P16S-IW01.

Pretest monitoring was started at 13:00 on August 9, 2002 and ended at 15:00 on August 10, 2002. The pretest monitoring was terminated early due to the data loggers capacity was filled. During pretest monitoring, the barometric pressure and tidal changes were monitored and recorded using data loggers. The barometric pressure was recorded and tidal changes were recorded using a pressure transducer placed in Seaplane Lagoon located approximately ½ mile west of the test site.

Table 1-8
Site 16 South Well Attributes

Well Name	Screen Interval (feet below ground surface)	Water-Bearing Zone	Distance from Pumping Well (feet)
P16S-IWS01	5 – 15	FWBZ	Pumping well
P16S-MWS01	5 –15	FWBZ	5.1
P16S-MWS03	5 – 15	FWBZ	21.4
P16S-MWS05	5 – 15	FWBZ	9.2
P16S-MWS07	5 – 15	FWBZ	29.9
608MJ-MW01	5 – 15 [a]	FWBZ	14.0
608MJ-MW02	5 – 15 [a]	FWBZ	22.6
MWC2-3	5 –15	FWBZ	70.1
P16S-MWI01	20 – 25	SWBZ	21.9

[a] *Screen interval is uncertain, no well log was available.*

Pretest data were evaluated to determine whether barometric pressure or tidal changes influenced water levels at the site. Wells completed in the FWBZ were strongly influenced by barometric pressure changes but not tides. The well completed in the SWBZ (P16S-MWI01) was strongly influenced by tidal changes and to a lesser extent barometric pressure changes. Using these pretest data, a barometric efficiency of 0.6 was calculated for the FWBZ. The barometric efficiency is an estimate of the relative water level response to changes in barometric pressure. No tidal efficiency was calculated as there was no drawdown observed in the single well completed in the SWBZ.

The Site 16 South aquifer test was started at 10:07 on August 13, 2002 and terminated at 07:52 on August 14, 2002. The well was pumped at 2.27 gpm. Well development testing indicated that a pumping rate of 2.25 gpm would stress the aquifer sufficiently to achieve measurable drawdown in the monitored wells. Water level recovery was monitored following termination of pumping. During the test, barometric pressure and tidal changes were recorded using pressure transducers and data loggers.

The FWBZ at Site 16 South is an unconfined aquifer that shows delayed well yield effects due to gravity drainage. In addition, the FWBZ also shows significant response to barometric pressure change. Barometric response is typical of confined aquifer systems but can also occur in unconfined systems. Water level data were processed by removing barometric pressure change effects by subtracting the barometric pressure, corrected for barometric efficiency, from the recorded water level. These data were then used for analysis. Water level data were analyzed using the aquifer test analysis program *AquiferTest Version 3.5*. The data were evaluated using the analysis method of Moench (1993). This method is an extension of the Newman Method (Neuman, 1975) for drawdown in homogeneous, isotropic, confined or unconfined aquifers, with either a fully or partially penetrating pumping well and multiple observation wells. The Moench Method also allows for the analysis of delayed yield effects in unconfined aquifers. Table 1-9, "Site 16 South First Water-Bearing Zone Hydrologic Property Estimates," lists the results of the data analysis and provides average values for the hydrologic properties. Type curve matches are shown in Attachment 5, "Installation Restoration Site 16 South Pumping Test Analysis Report."

Table 1-9
Site 16 South First Water-Bearing Zone Hydrologic Property Estimates

Well Name	Hydraulic Conductivity (feet per day)	Transmissivity (square feet per day)	Specific Yield
P16-MWS01	23	250	0.22
P16-MWS03	18	190	0.21
P16-MWS05	23	250	0.19

Table 1-9 (Continued)
Site 16 South First Water-Bearing Zone Hydrologic Property Estimates

Well Name	Hydraulic Conductivity (feet per day)	Transmissivity (square feet per day)	Specific Yield
P16-MWS07	35	370	0.19
608MJ-MW01	28	300	0.12
608MJ-MW02	17	170	0.20
Average	24	260	0.19

The estimated hydraulic parameter values appear to be reasonable for the unconfined FWBZ. Less than 0.1 feet of drawdown was observed at well MWC2-3 and therefore, no hydraulic parameter estimates were completed.

2.0 References

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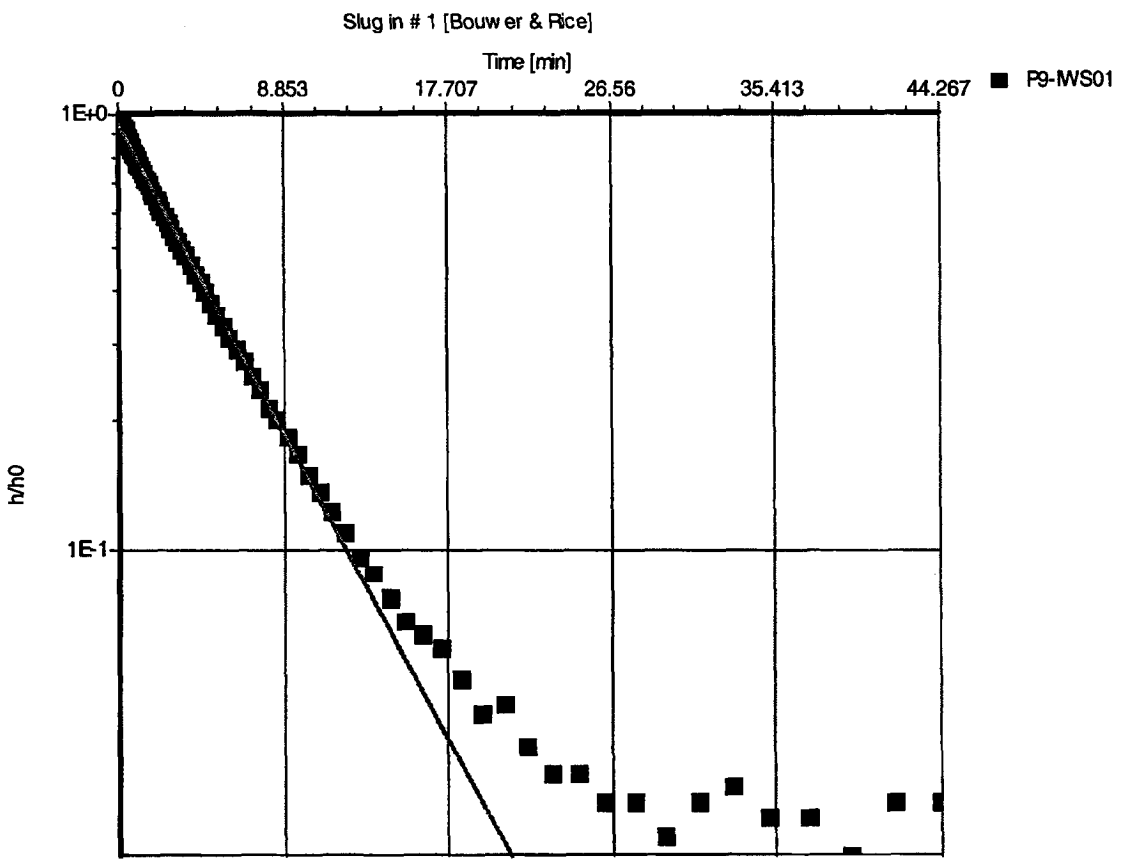
Neuman, S.P., 1975, *Analysis of Pumping Test Data from Anisotropic Unconfined Aquifers Considering Delayed Yield,* Water Resources Research, Vol. 11, No. 2, pp. 329-342.

Walton, W.C., 1962, *Selected Analytical Methods for Well and Aquifer Evaluation,* Illinois State Water Survey, Bulletin No. 49.

Attachment 1
Installation Restoration Site 9 Shallow Slug Test Analysis Report

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Slug Test Analysis Report**
	Project: IR Site 9 Shallow
	Number:
	Client:



Slug Test: **Slug In # 1**

Analysis Method: **Bouwer & Rice**

Analysis Results: Conductivity: 1.61E+0 [ft/d]

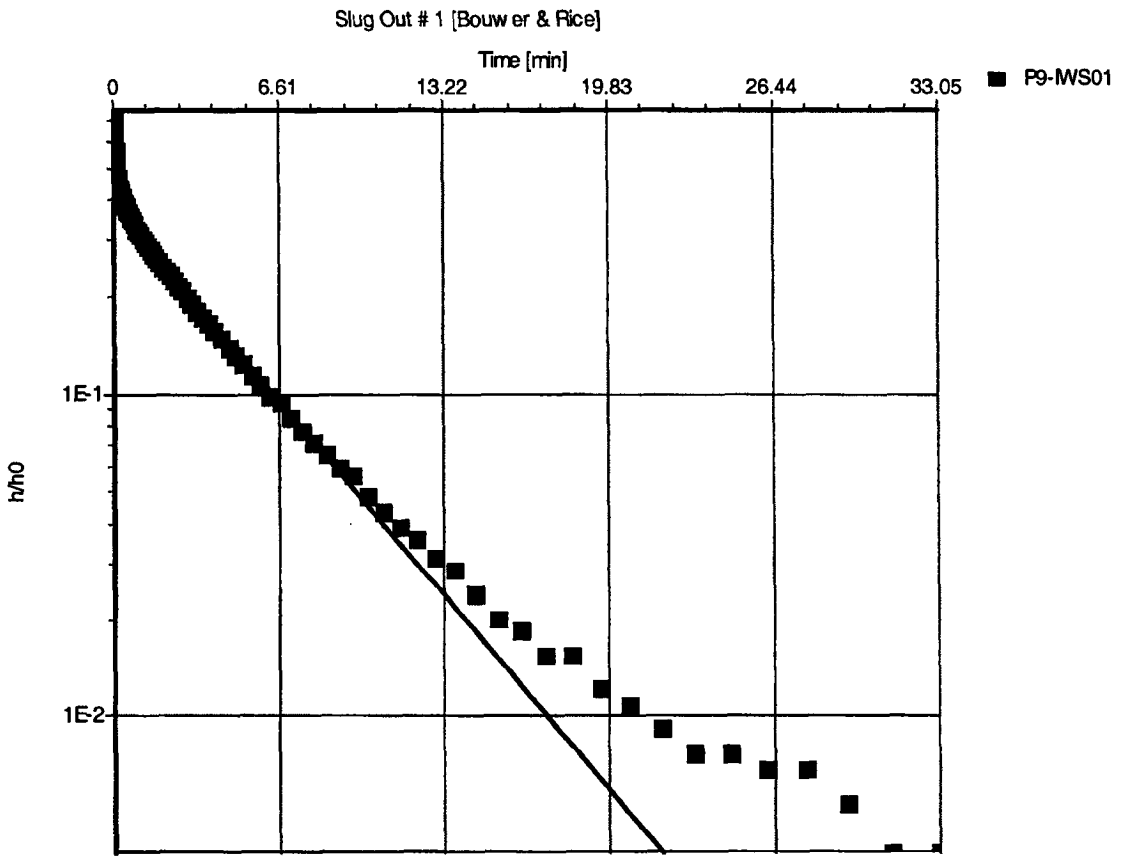
Test parameters:				
	Test Well:	P9-IWS01	Aquifer Thickness:	8.59 [ft]
	Casing radius:	0.1667 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Boring radius:	0.3334 [ft]		
	r(eff):	0.221 [ft]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Slug Test Analysis Report**
	Project: IR Site 9 Shallow
	Number:
	Client:



Slug Test: **Slug Out # 1**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 1.62E+0 [ft/d]

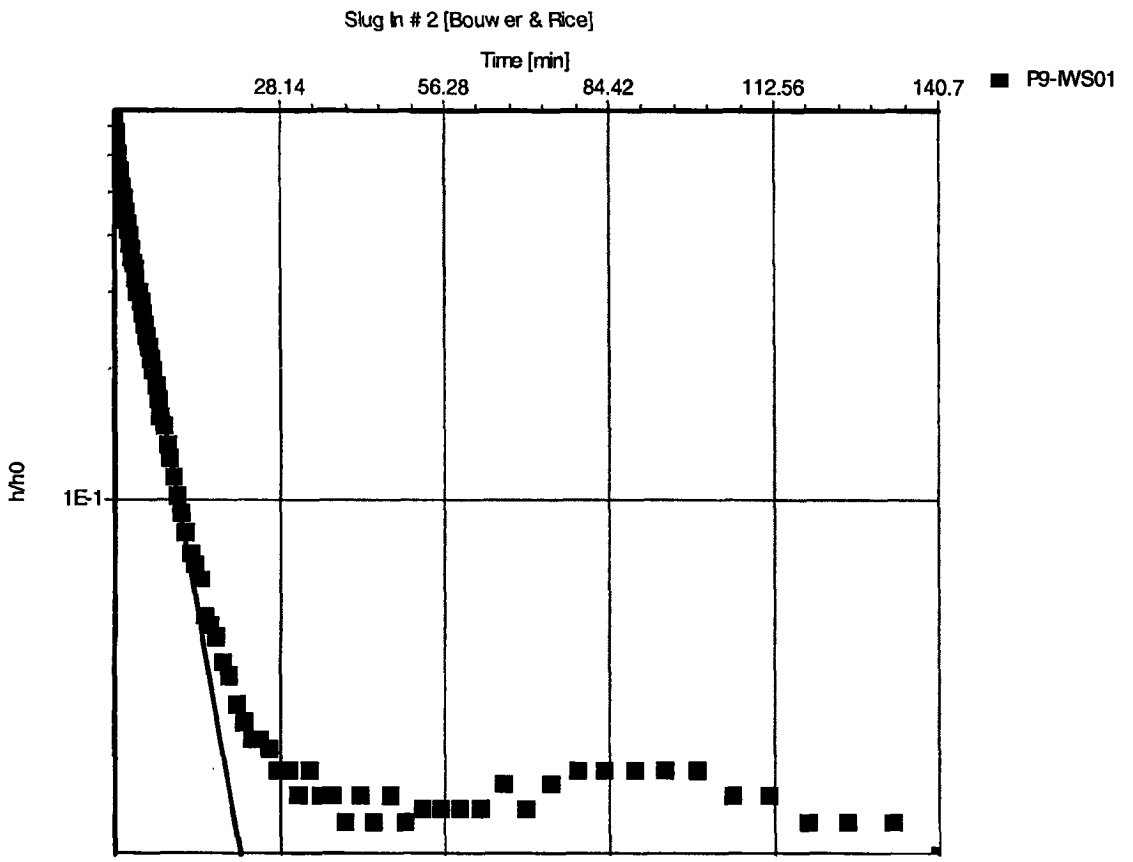
Test parameters:				
	Test Well:	P9-IWS01	Aquifer Thickness:	8.59 [ft]
	Casing radius:	0.1667 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Boring radius:	0.3334 [ft]		
	r(eff):	0.221 [ft]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Slug Test Analysis Report**
	Project: IR Site 9 Shallow
	Number:
	Client:



Slug Test: **Slug In # 2**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 1.51E+0 [ft/d]

Test parameters:

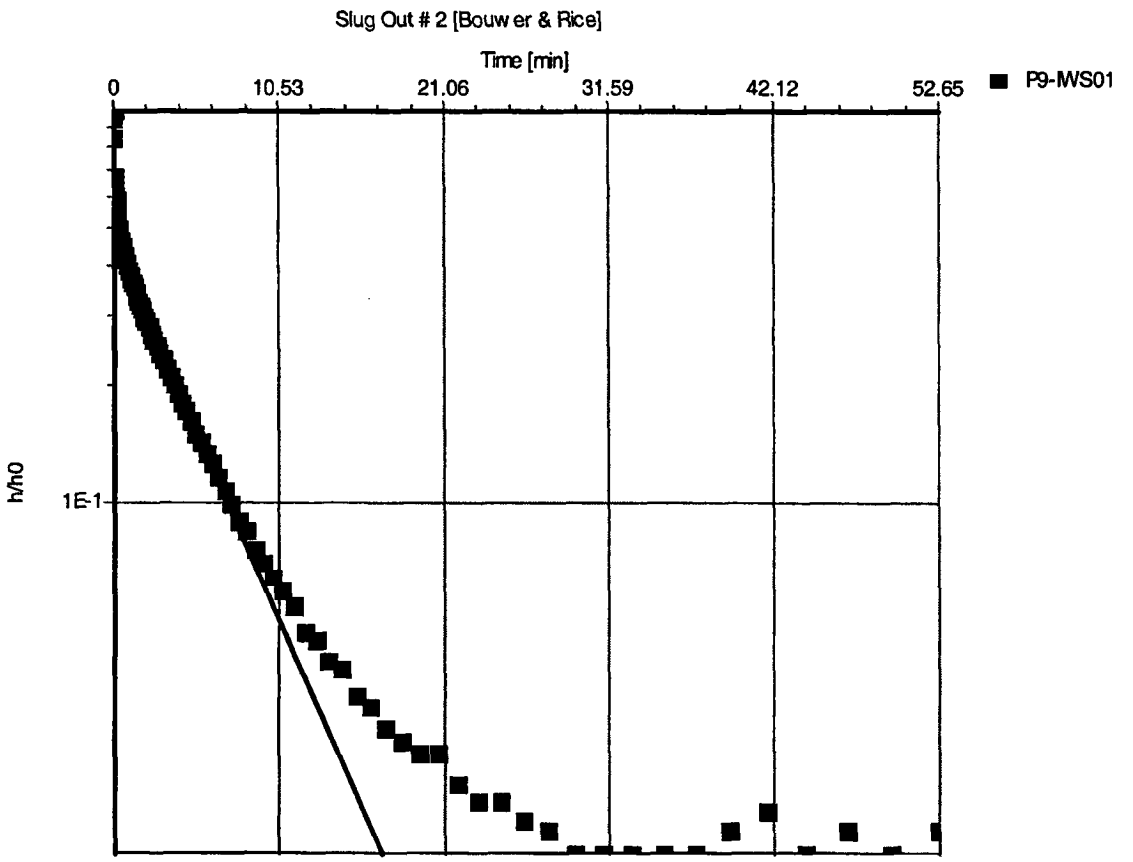
Test Well:	P9-IWS01	Aquifer Thickness:	8.59 [ft]
Casing radius:	0.1667 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Boring radius:	0.3334 [ft]		
r(eff):	0.221 [ft]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Slug Test Analysis Report**
	Project: IR Site 9 Shallow
	Number:
	Client:



Slug Test: **Slug Out # 2**

Analysis Method: **Bouwer & Rice**

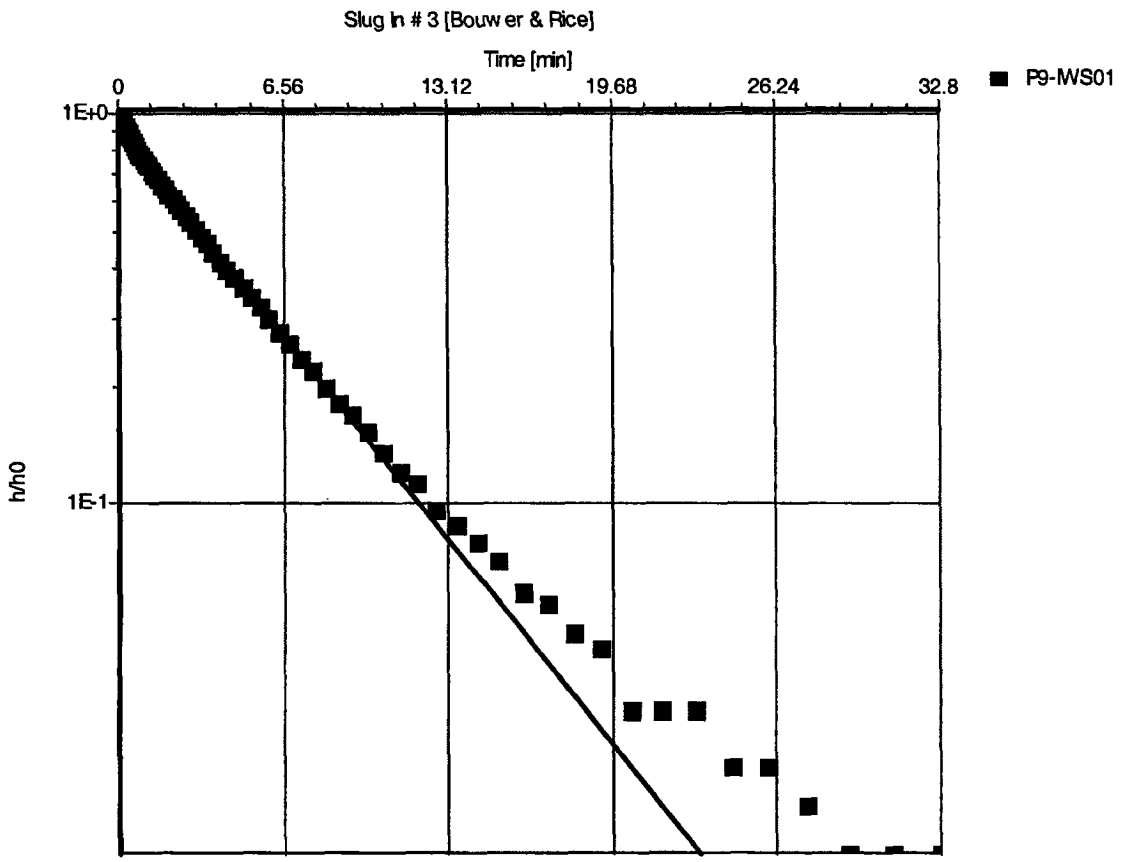
Analysis Results:			Conductivity:	1.84E+0 [ft/d]
Test parameters:	Test Well:	P9-IWS01	Aquifer Thickness:	8.59 [ft]
	Casing radius:	0.1667 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Boring radius:	0.3334 [ft]		
	r(eff):	0.221 [ft]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Slug Test Analysis Report**
	Project: IR Site 9 Shallow
	Number:
	Client:



Slug Test: **Slug In # 3**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 1.62E+0 [ft/d]

Test parameters:

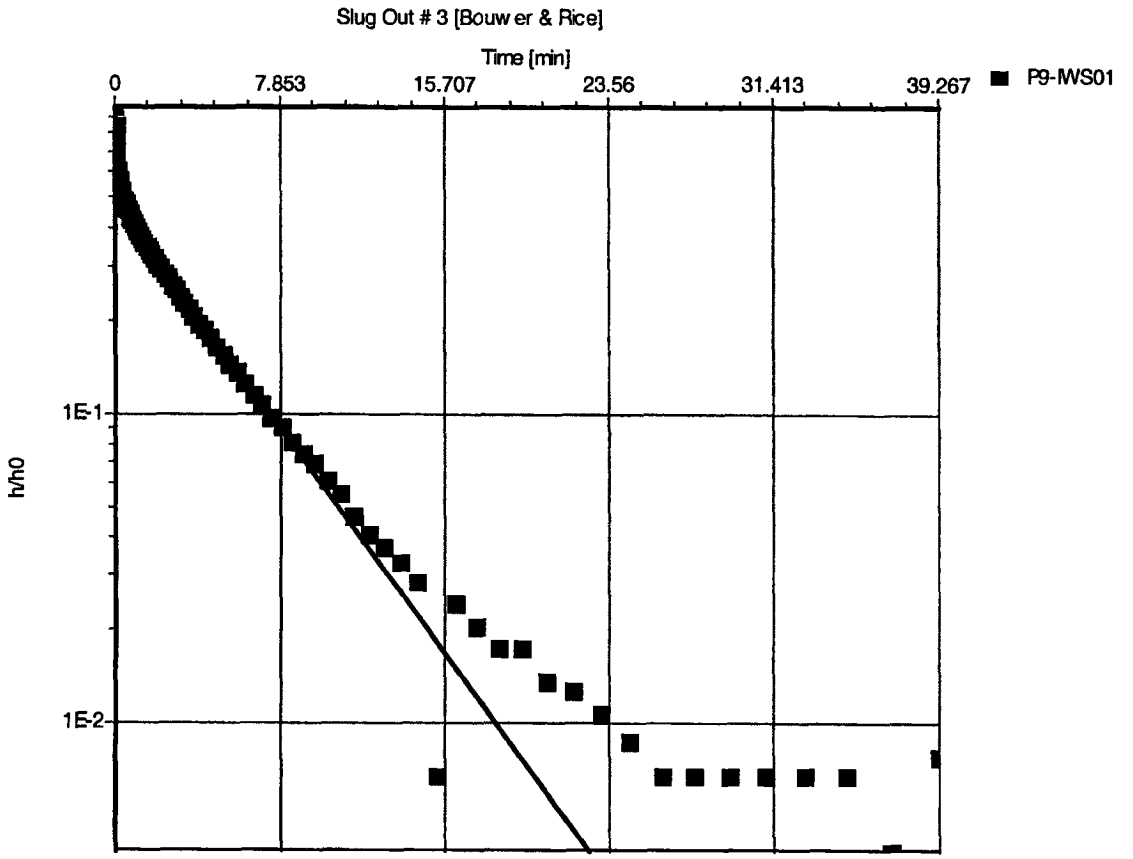
Test Well:	P9-IWS01	Aquifer Thickness:	8.59 [ft]
Casing radius:	0.1667 [ft]	Gravel Pack Porosity (%)	25
Screen length:	10 [ft]		
Boring radius:	0.3334 [ft]		
r(eff):	0.221 [ft]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Slug Test Analysis Report**
	Project: IR Site 9 Shallow
	Number:
	Client:



Slug Test: **Slug Out # 3**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 1.87E+0 [ft/d]

Test parameters:				
	Test Well:	P9-IWS01	Aquifer Thickness:	8.59 [ft]
	Casing radius:	0.1667 [ft]	Gravel Pack Porosity (%)	25
	Screen length:	10 [ft]		
	Boring radius:	0.3334 [ft]		
	r(eff):	0.221 [ft]		

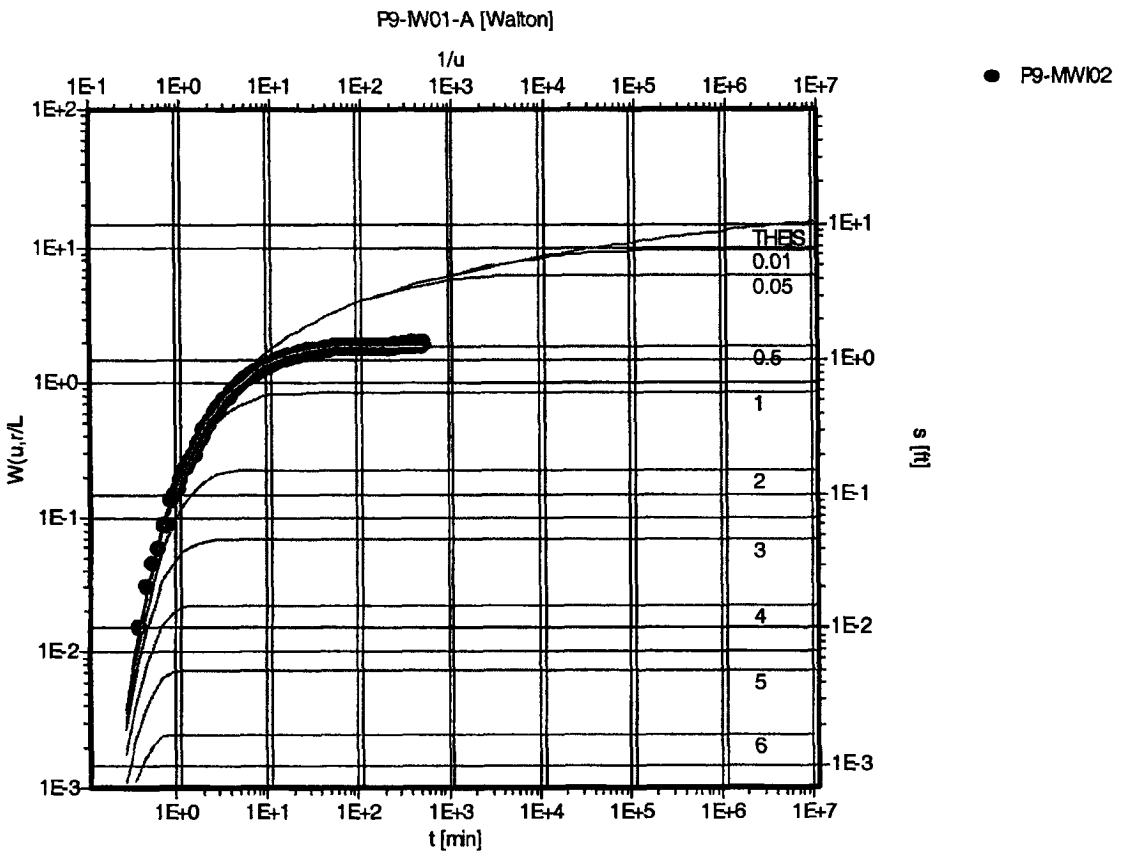
Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Attachment 2
Installation Restoration Site 9 Intermediate Pumping Test Analysis Report

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 9 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 9 Inter - A**

Analysis Method: **Walton**

Analysis Results:	Transmissivity:	5.66E+1 [ft²/d]	Conductivity:	2.46E+0 [ft/d]
	Storativity:	3.47E-3	c:	1.32E+7 [min]

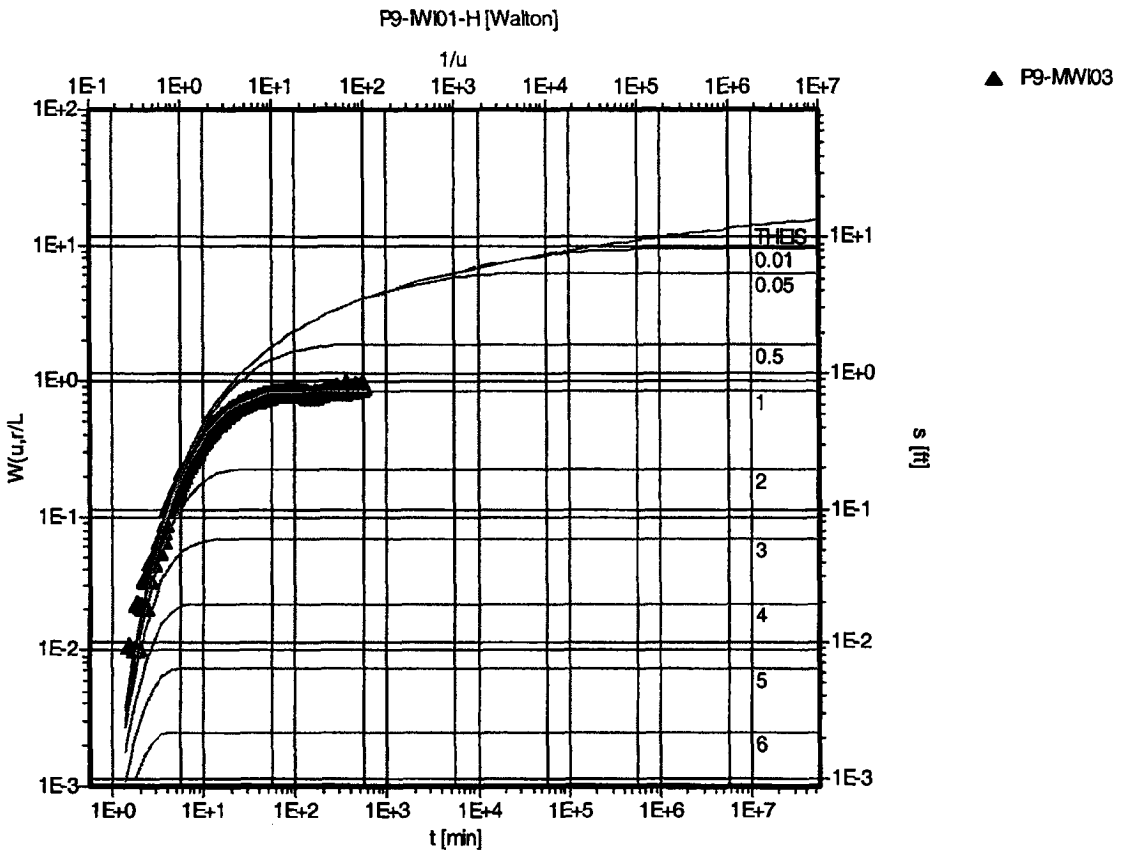
Test parameters:	Pumping Well:	P9-IWI01	Aquifer Thickness:	23 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.3334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 9 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 9 Inter - I**

Analysis Method: **Walton**

Analysis Results:	Transmissivity:	4.40E+1 [ft²/d]	Conductivity:	1.91E+0 [ft/d]
	Storativity:	1.18E-3	c:	1.90E+8 [min]

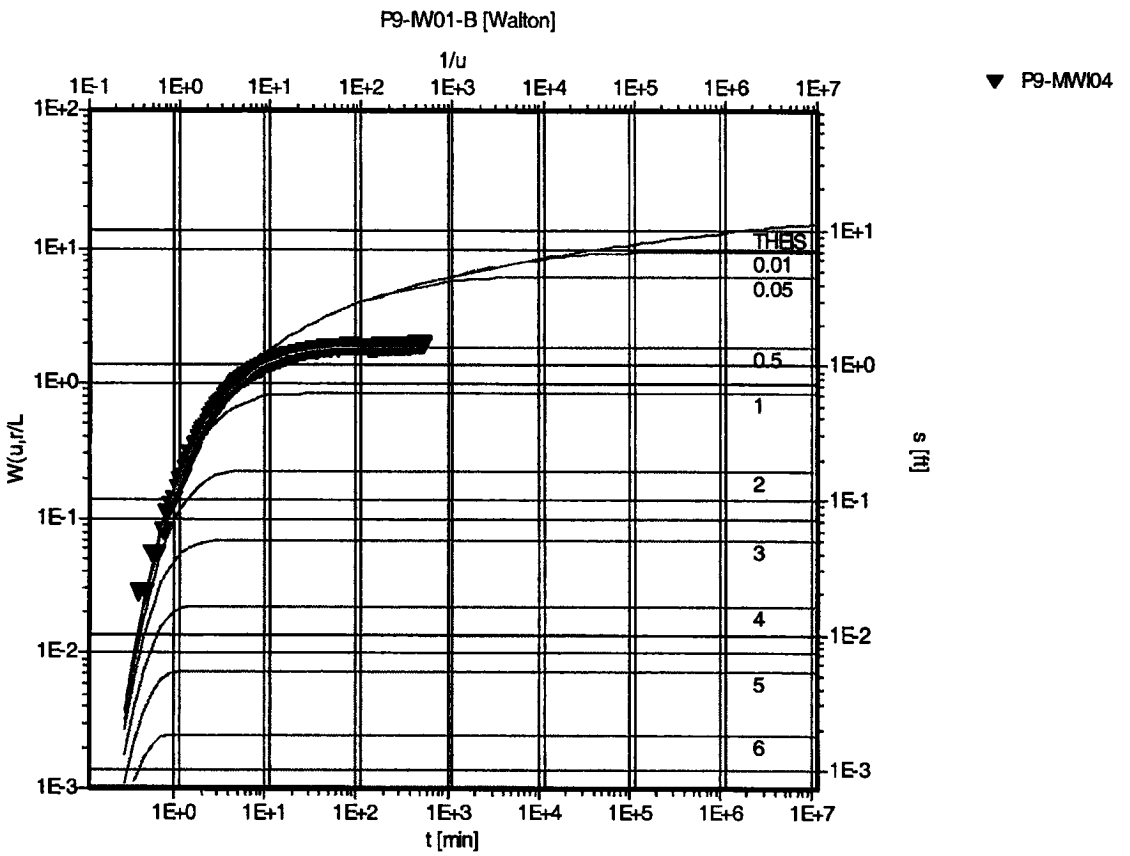
Test parameters:	Pumping Well:	P9-IWI01	Aquifer Thickness:	23 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.3334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 9 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 9 Inter - B**

Analysis Method: **Walton**

Analysis Results:				
	Transmissivity:	5.29E+1 [ft²/d]	Conductivity:	2.30E+0 [ft/d]
	Storativity:	1.91E-3	c:	2.41E+7 [min]

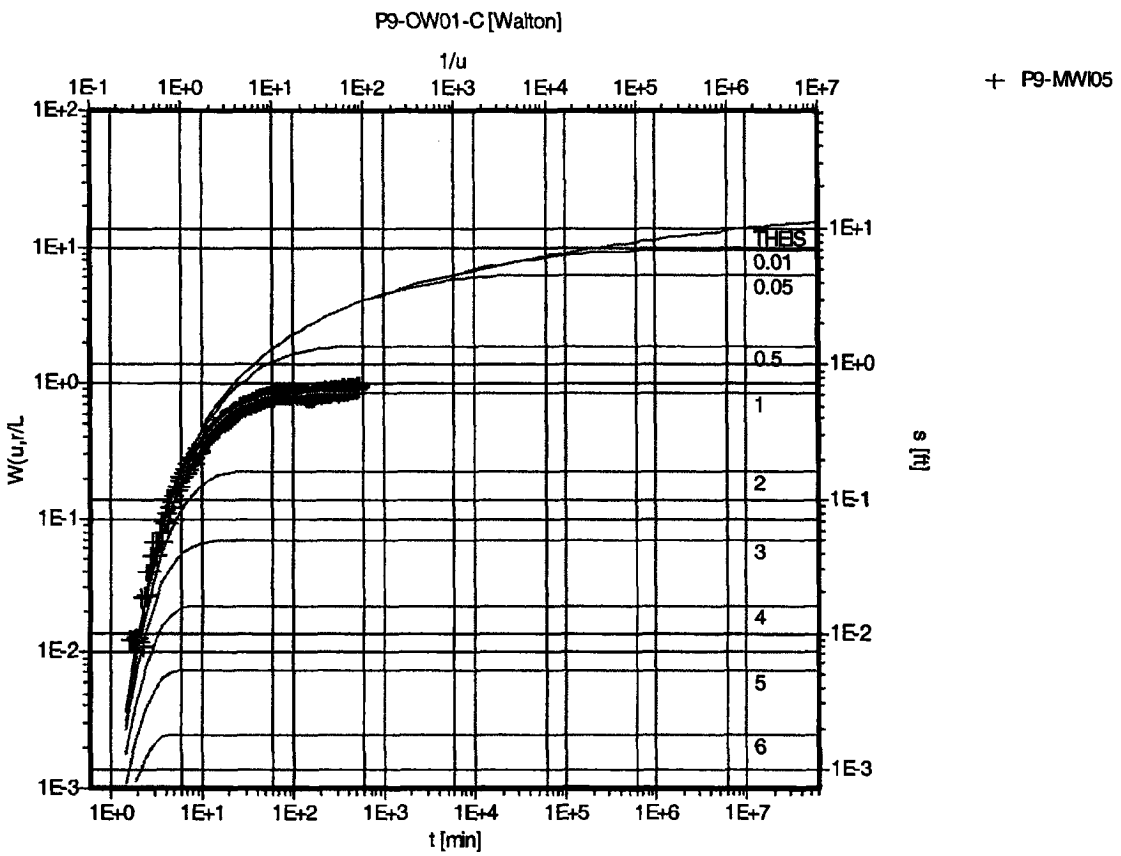
Test parameters:				
	Pumping Well:	P9-IWI01	Aquifer Thickness:	23 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.3334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report** Project: IR Site 9 Intermediate Number: Client:



Pumping Test: **IR Site 9 Inter - C**

Analysis Method: **Walton**

Analysis Results:	Transmissivity:	5.29E+1 [ft²/d]	Conductivity:	2.30E+0 [ft/d]
	Storativity:	6.71E-4	c:	3.59E+8 [min]

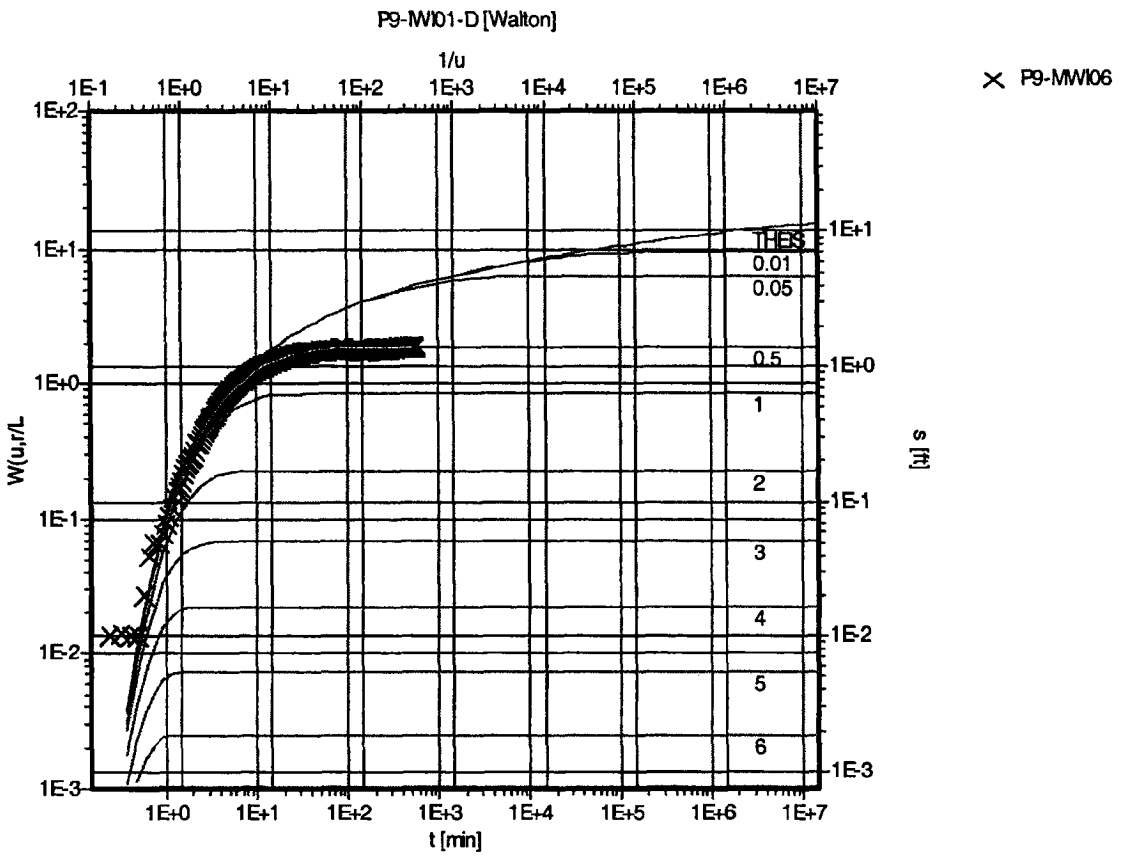
Test parameters:	Pumping Well:	P9-IWI01	Aquifer Thickness:	23 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.3334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report** Project: IR Site 9 Intermediate Number: Client:



Pumping Test: **IR Site 9 Inter - D**

Analysis Method: **Walton**

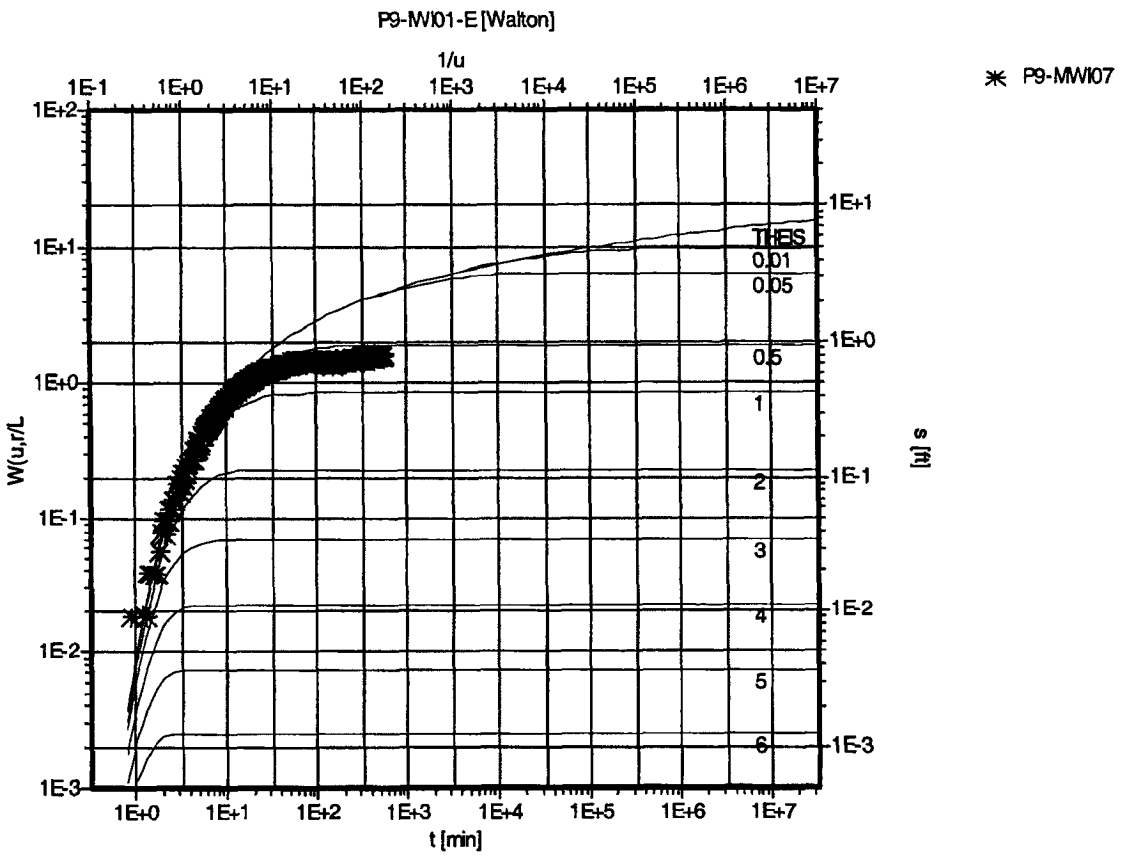
Analysis Results:	Transmissivity:	5.17E+1 [ft²/d]	Conductivity:	2.25E+0 [ft/d]
	Storativity:	7.04E-3	c:	8.41E+6 [min]
Test parameters:	Pumping Well:	P9-IWI01	Aquifer Thickness:	23 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.3334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 9 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 9 Inter - E**

Analysis Method: **Walton**

Analysis Results:				
	Transmissivity:	7.64E+1 [ft²/d]	Conductivity:	3.32E+0 [ft/d]
	Storativity:	1.20E-3	c:	1.11E+8 [min]

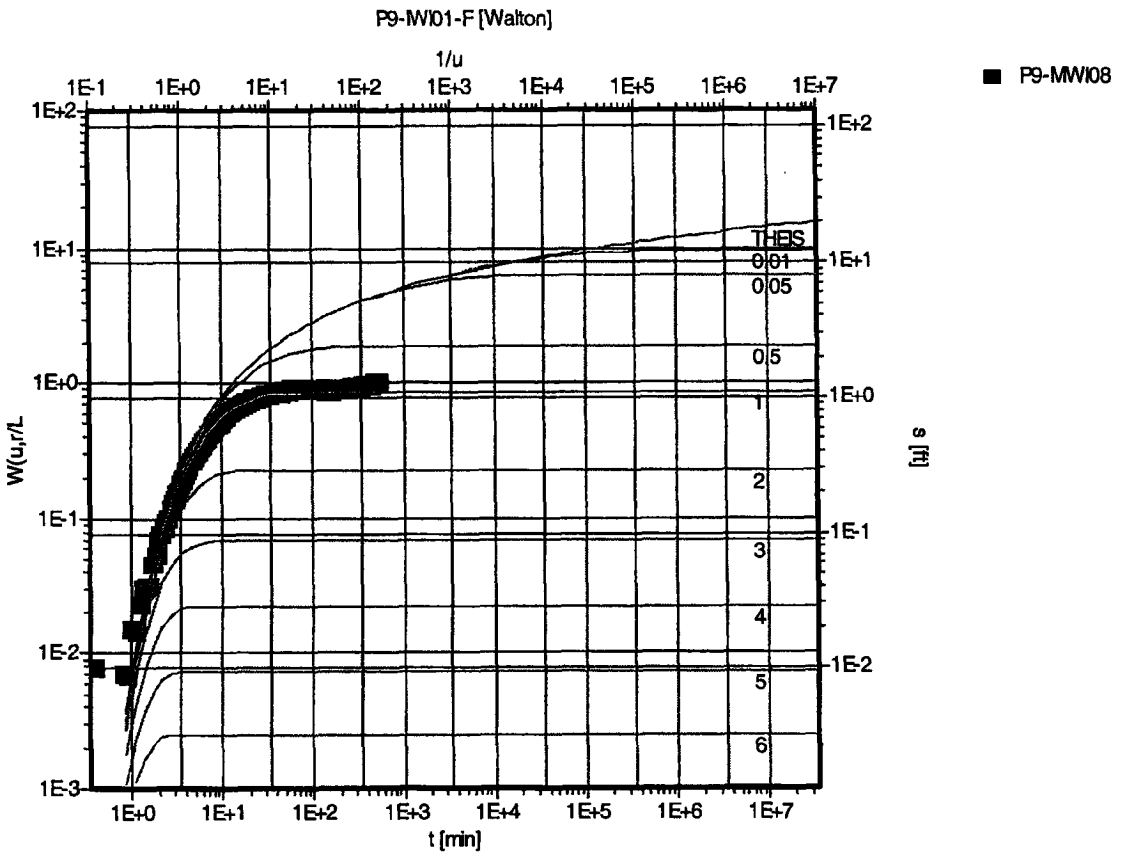
Test parameters:				
	Pumping Well:	P9-IWI01	Aquifer Thickness:	23 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.3334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 9 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 9 Inter - F**

Analysis Method: **Walton**

Analysis Results:				
	Transmissivity:	2.97E+1 [ft²/d]	Conductivity:	1.29E+0 [ft/d]
	Storativity:	2.96E-3	c:	4.69E+7 [min]

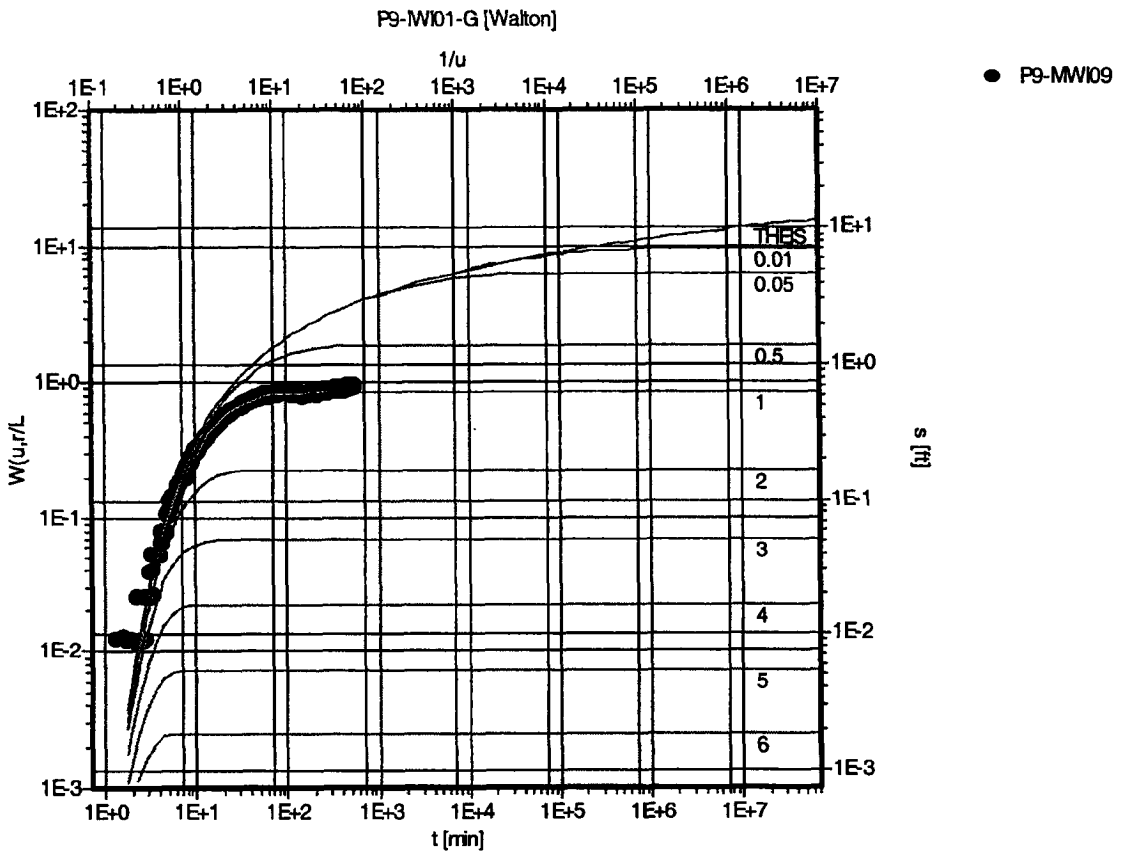
Test parameters:				
	Pumping Well:	P9-IWI01	Aquifer Thickness:	23 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.3334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 9 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 9 Inter - G**

Analysis Method: **Walton**

Analysis Results:	Transmissivity:	5.17E+1 [ft²/d]	Conductivity:	2.25E+0 [ft/d]
	Storativity:	7.80E-4	c:	3.63E+8 [min]

Test parameters:	Pumping Well:	P9-IWI01	Aquifer Thickness:	23 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.3334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

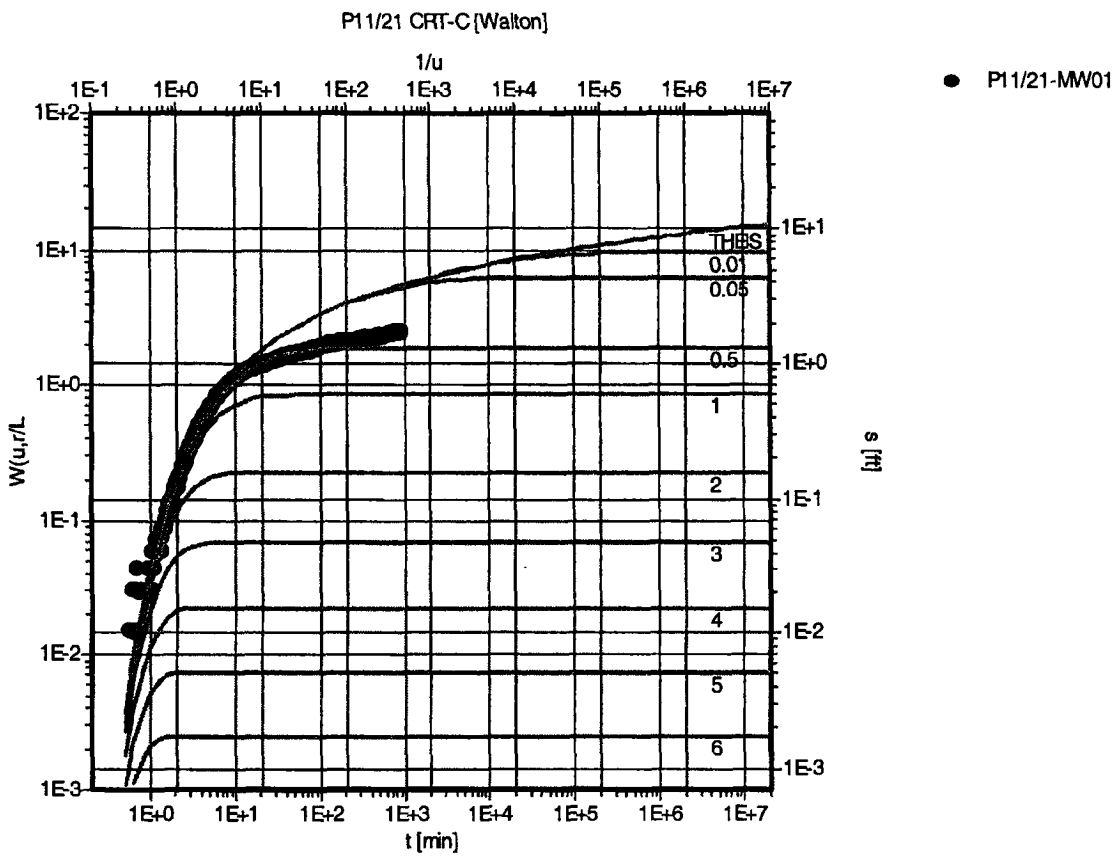
Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Attachment 3
Installation Restoration Site 11/21 Intermediate Pumping Test Analysis Report

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 11/21 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 11/21 Inter - B**

Analysis Method: **Walton**

Analysis Results:	Transmissivity:	5.54E+1 [ft²/d]	Conductivity:	2.52E+0 [ft/d]
	Storativity:	2.90E-3	c:	2.82E+7 [min]

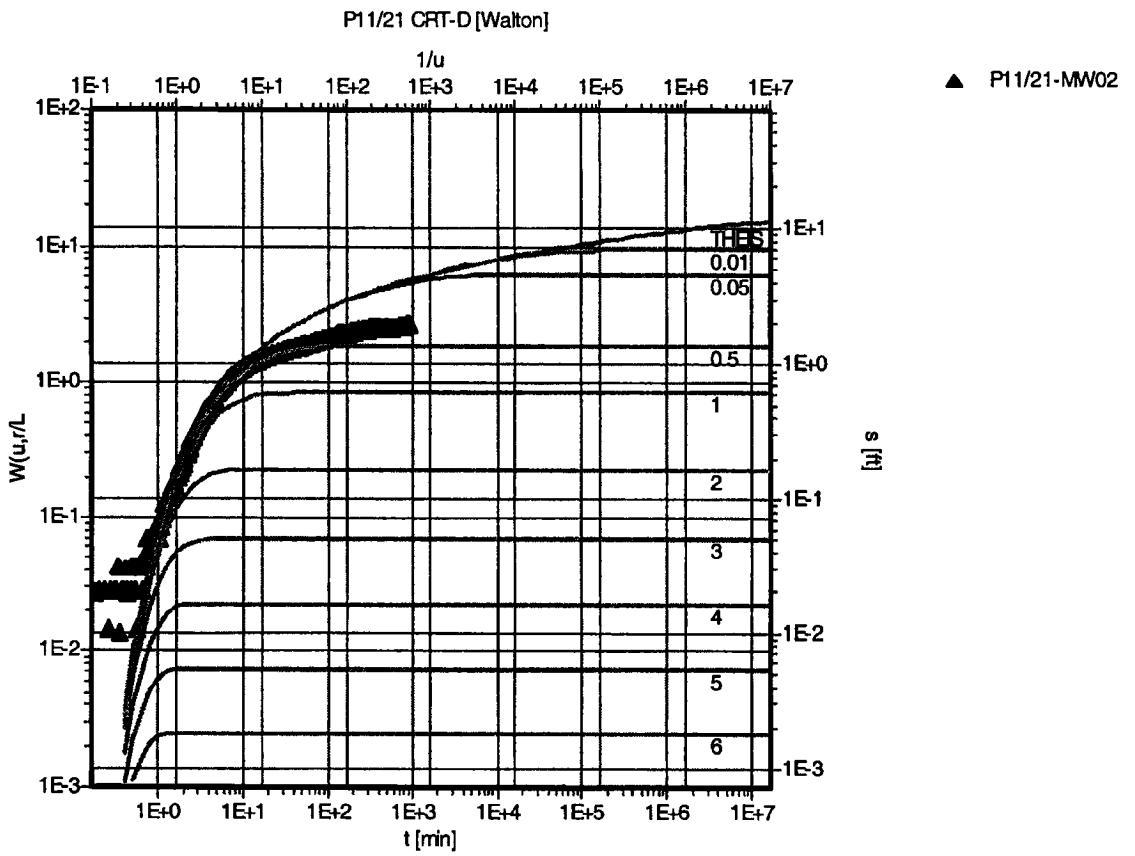
Test parameters:	Pumping Well:	P11/21-IWI1	Aquifer Thickness:	22 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 11/21 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 11/21 Inter - C**

Analysis Method: **Walton**

Analysis Results:	Transmissivity:	5.29E+1 [ft²/d]	Conductivity:	2.40E+0 [ft/d]
	Storativity:	1.97E-3	c:	3.36E+7 [min]

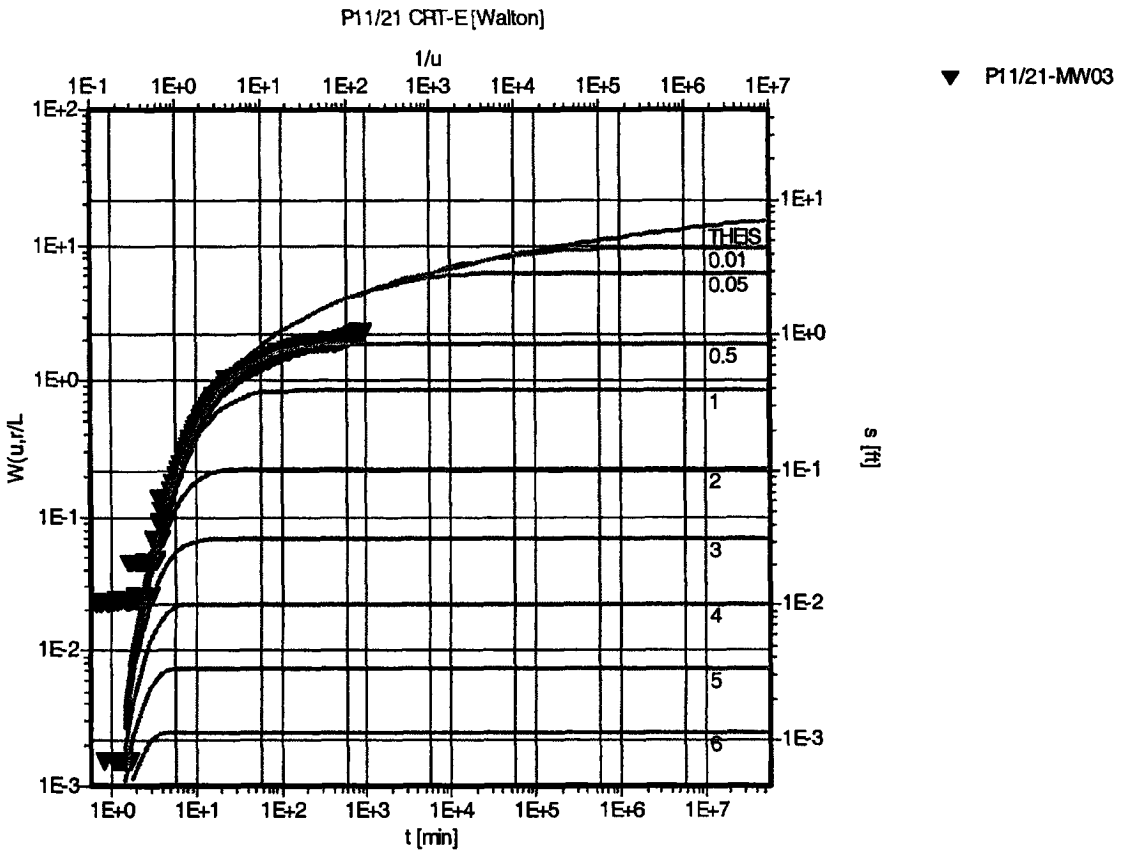
Test parameters:	Pumping Well:	P11/21-IWI1	Aquifer Thickness:	22 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 11/21 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 11/21 Inter-D**

Analysis Method: **Walton**

Analysis Results:	Transmissivity:	8.38E+1 [ft²/d]	Conductivity:	3.81E+0 [ft/d]
	Storativity:	1.48E-3	c:	1.56E+8 [min]

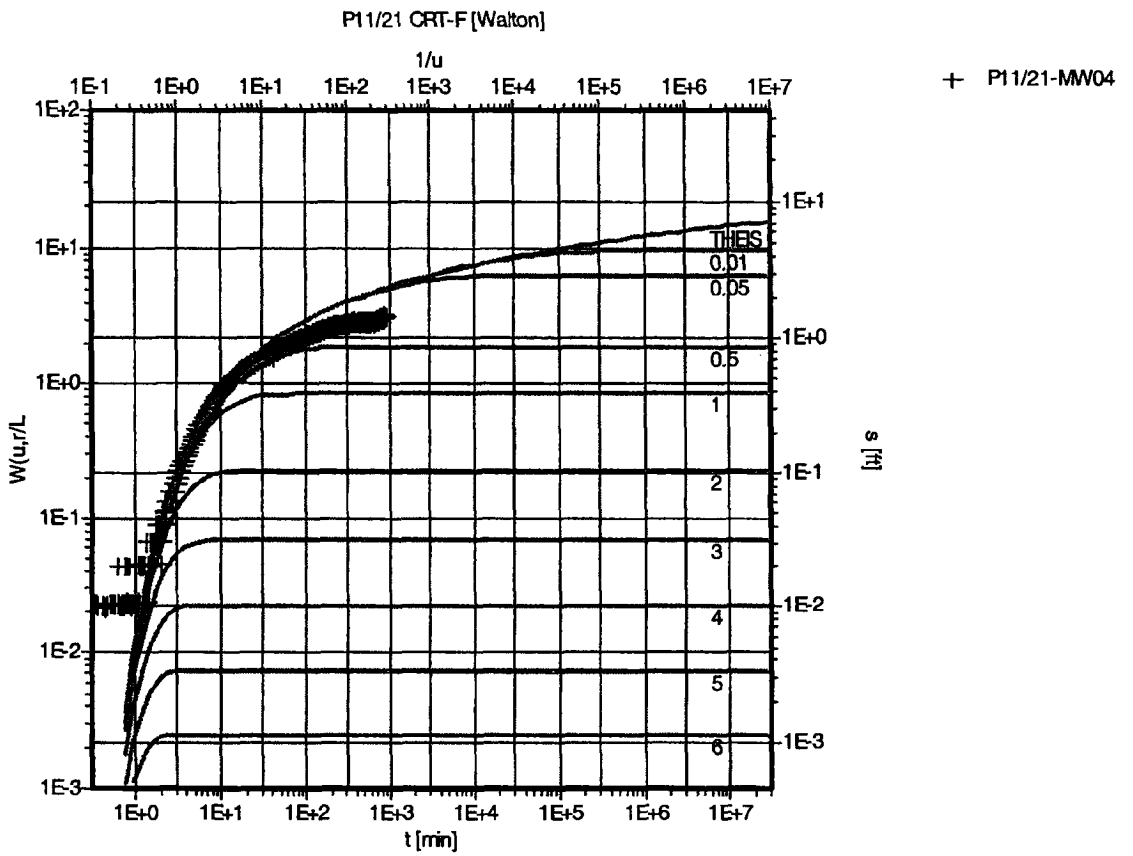
Test parameters:	Pumping Well:	P11/21-IWI1	Aquifer Thickness:	22 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 11/21 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 11/21 Inter - E**

Analysis Method: **Walton**

Analysis Results:	Transmissivity:	8.38E+1 [ft²/d]	Conductivity:	3.81E+0 [ft/d]
	Storativity:	7.50E-4	c:	1.61E+8 [min]

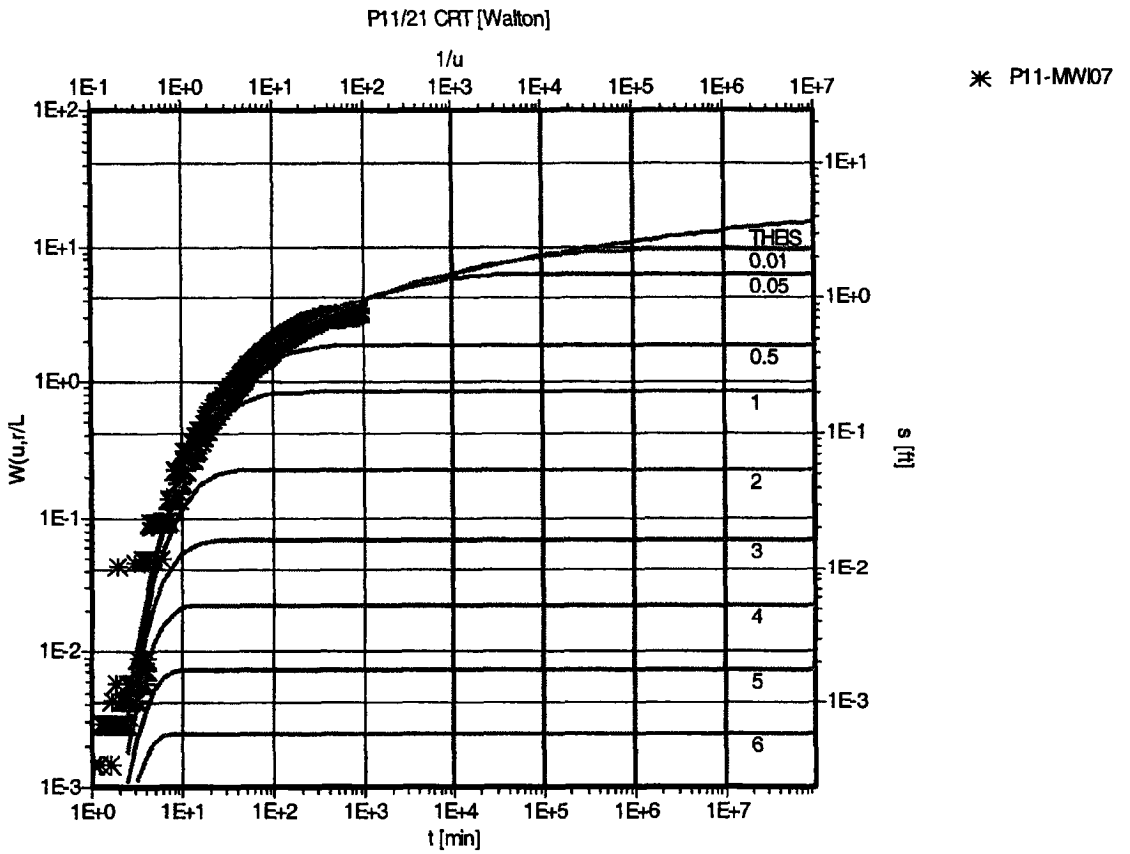
Test parameters:	Pumping Well:	P11/21-IWI1	Aquifer Thickness:	22 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 11/21 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 11/21 Inter-A**

Analysis Method: **Walton**

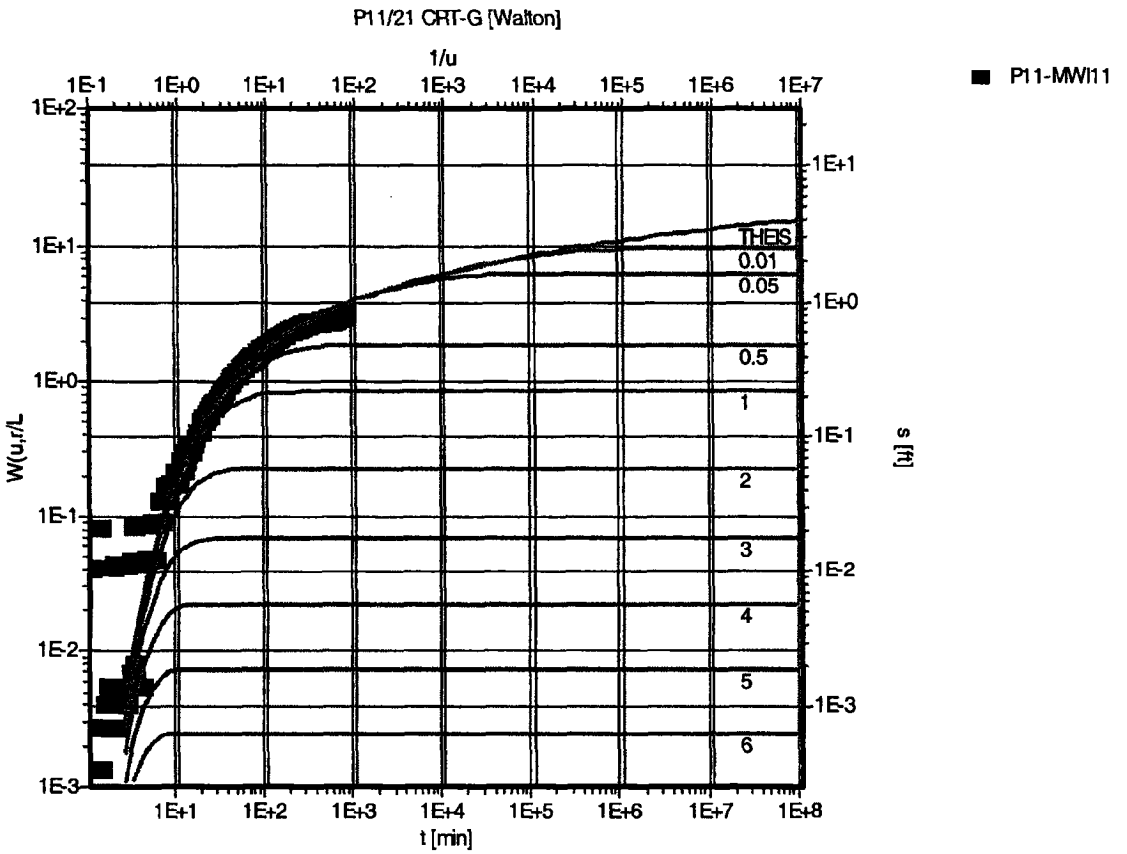
Analysis Results:	Transmissivity:	1.60E+2 [ft²/d]	Conductivity:	7.26E+0 [ft/d]
	Storativity:	4.61E-4	c:	8.47E+8 [min]
Test parameters:	Pumping Well:	P11/21-IWI1	Aquifer Thickness:	22 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: IR Site 11/21 Intermediate
	Number:
	Client:



Pumping Test: **IR Site 11/21 Inter-F**

Analysis Method: **Walton**

Analysis Results:	Transmissivity:	1.49E+2 [ft²/d]	Conductivity:	6.77E+0 [ft/d]
	Storativity:	5.18E-4	c:	8.67E+8 [min]
Test parameters:	Pumping Well:	P11/21-IWI1	Aquifer Thickness:	22 [ft]
	Casing radius:	0.1667 [ft]	r/L:	0.01
	Screen length:	20 [ft]		
	Boring radius:	0.334 [ft]		
	Discharge Rate:	2.5 [U.S. gal/min]		

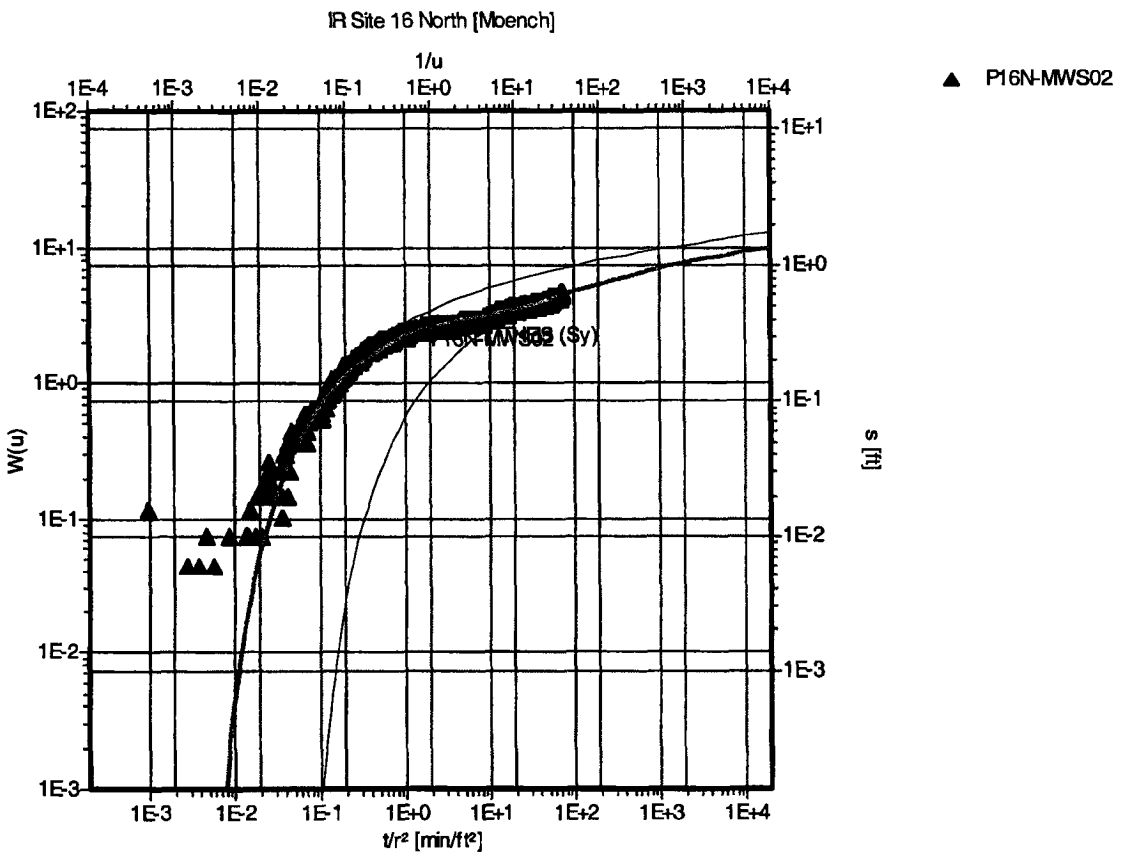
Comments:

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Attachment 4
Installation Restoration Site 16 North Pumping Test Analysis Report

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: CTO 59 16 North
	Number:
	Client:



Pumping Test: **IR Site 16 North**

Analysis Method: **Moench**

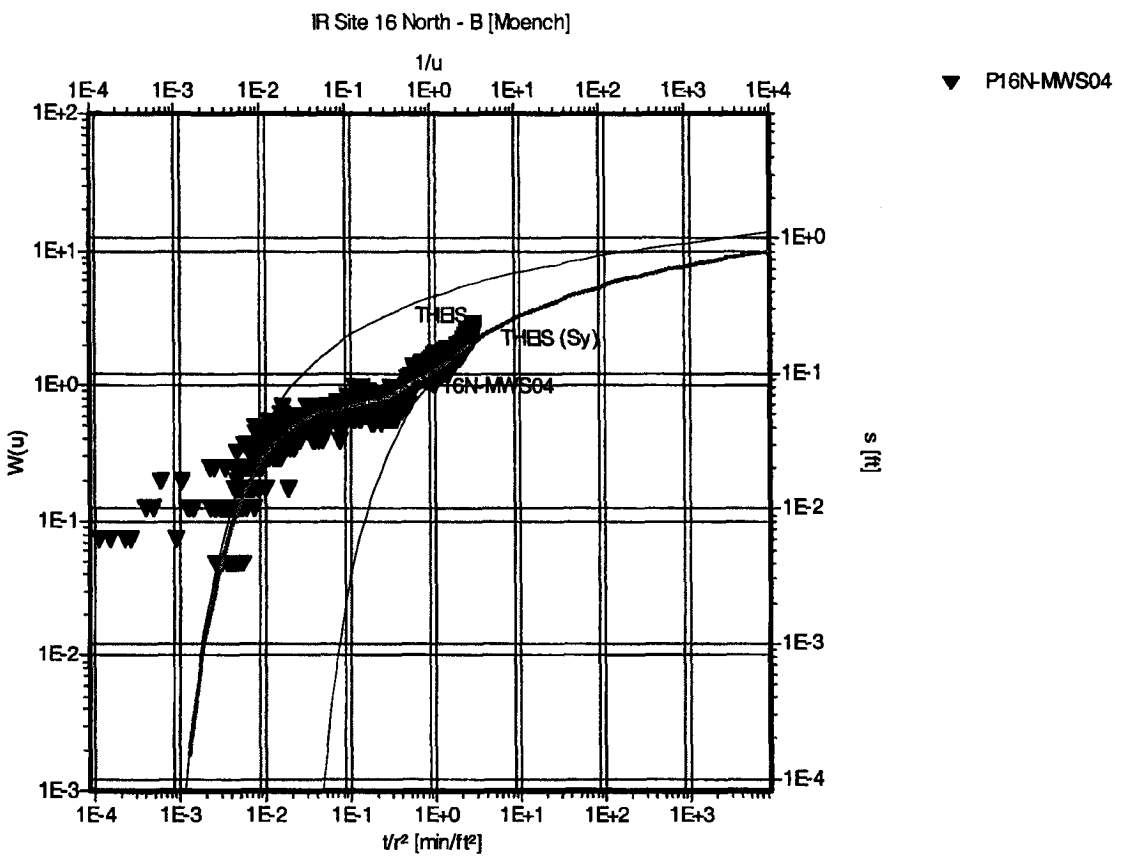
Analysis Results:	Transmissivity:	1.70E+2 [ft²/d]	Conductivity:	1.70E+1 [ft/d]
	Storativity:	2.25E-1	Conductivity (vertical):	1.70E+0 [ft/d]
Test parameters:	Pumping Well:	P16N-IWS02	Aquifer Thickness:	10 [ft]
	Casing radius:	0.1667 [ft]	Unconfined Aquifer	
	Screen length:	20 [ft]	S/Sy:	0.075
	Boring radius:	0.3334 [ft]	Kv/Kh:	0.1
	Discharge Rate:	1.5 [U.S. gal/min]	Gamma:	1E9
	b:	9.27 [ft]		

Comments: Specific Yield is labled as Storativity

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report** Project: CTO 59 16 North Number: Client:



Pumping Test: **IR Site 16 North - B**

Analysis Method: **Moench**

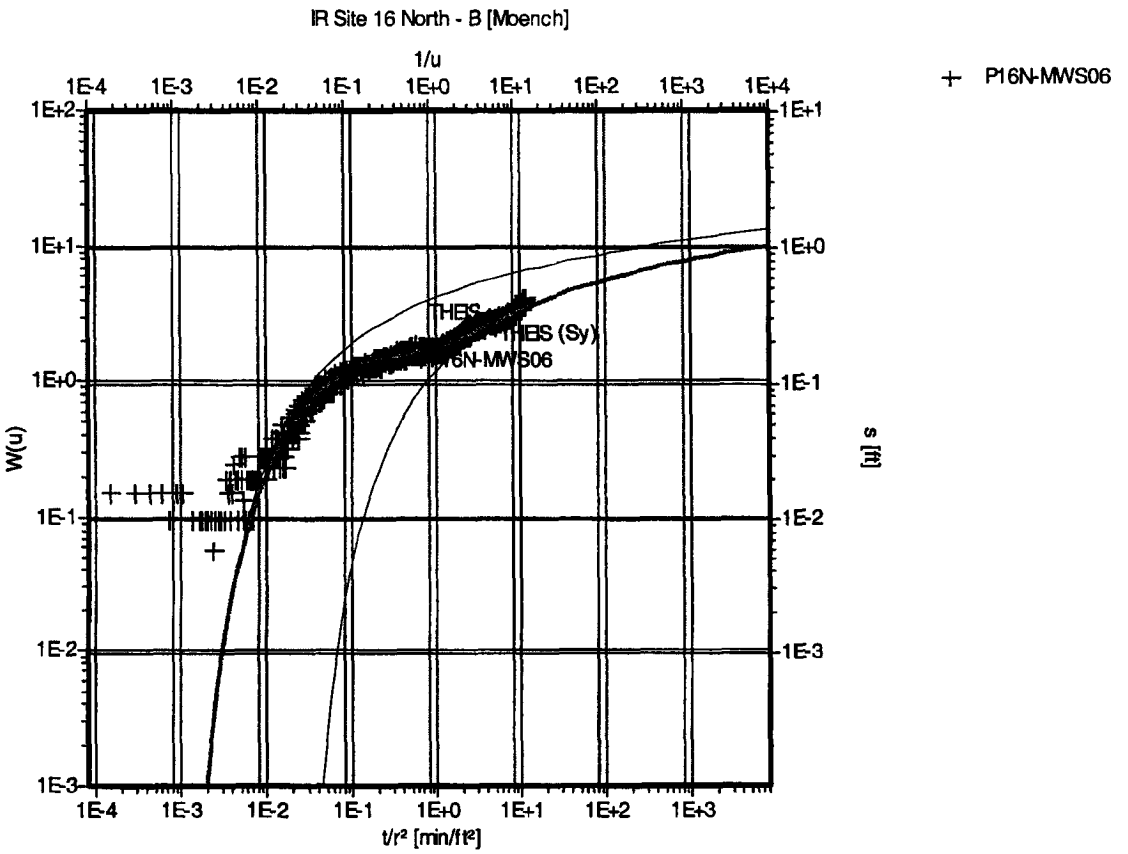
Analysis Results:	Transmissivity:	2.83E+2 [ft²/d]	Conductivity:	2.83E+1 [ft/d]
	Storativity:	1.67E-1	Conductivity (vertical):	2.83E+0 [ft/d]
Test parameters:	Pumping Well:	P16N-IWS02	Aquifer Thickness:	10 [ft]
	Casing radius:	0.1667 [ft]	Unconfined Aquifer	
	Screen length:	20 [ft]	S/Sy:	0.025
	Boring radius:	0.3334 [ft]	Kv/Kh:	0.1
	Discharge Rate:	1.5 [U.S. gal/min]	Gamma:	1E9
	b:	9.27 [ft]		

Comments: Specific Yield is labled as Storativity

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: CTO 59 16 North
	Number:
	Client:



Pumping Test: **IR Site 16 North - B**

Analysis Method: **Moench**

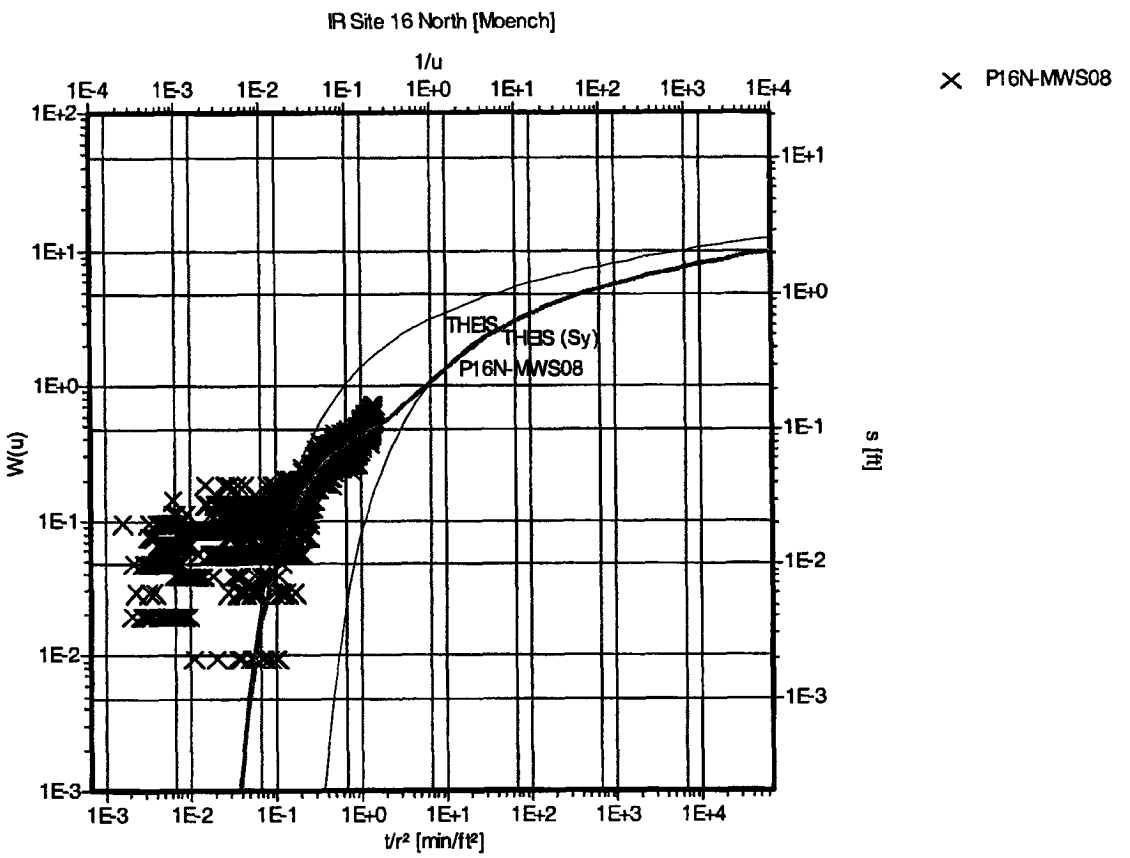
Analysis Results:	Transmissivity:	2.19E+2 [ft²/d]	Conductivity:	2.19E+1 [ft/d]
	Storativity:	1.24E-1	Conductivity (vertical):	2.19E+0 [ft/d]
Test parameters:	Pumping Well:	P16N-IWS02	Aquifer Thickness:	10 [ft]
	Casing radius:	0.1667 [ft]	Unconfined Aquifer	
	Screen length:	20 [ft]	S/Sy:	0.045
	Boring radius:	0.3334 [ft]	Kv/Kh:	0.1
	Discharge Rate:	1.5 [U.S. gal/min]	Gamma:	1E9
	b:	9.27 [ft]		

Comments: Specific Yield is labled as Storativity

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: CTO 59 16 North
	Number:
	Client:



Pumping Test: **IR Site 16 North**

Analysis Method: **Moench**

Analysis Results:				
	Transmissivity:	1.10E+2 [ft²/d]	Conductivity:	1.10E+1 [ft/d]
	Storativity:	5.16E-1	Conductivity (vertical):	1.10E+0 [ft/d]

Test parameters:				
	Pumping Well:	P16N-IWS02	Aquifer Thickness:	10 [ft]
	Casing radius:	0.1667 [ft]	Unconfined Aquifer	
	Screen length:	20 [ft]	S/Sy:	0.1
	Boring radius:	0.3334 [ft]	Kv/Kh:	0.1
	Discharge Rate:	1.5 [U.S. gal/min]	Gamma:	1E9
	b:	9.27 [ft]		

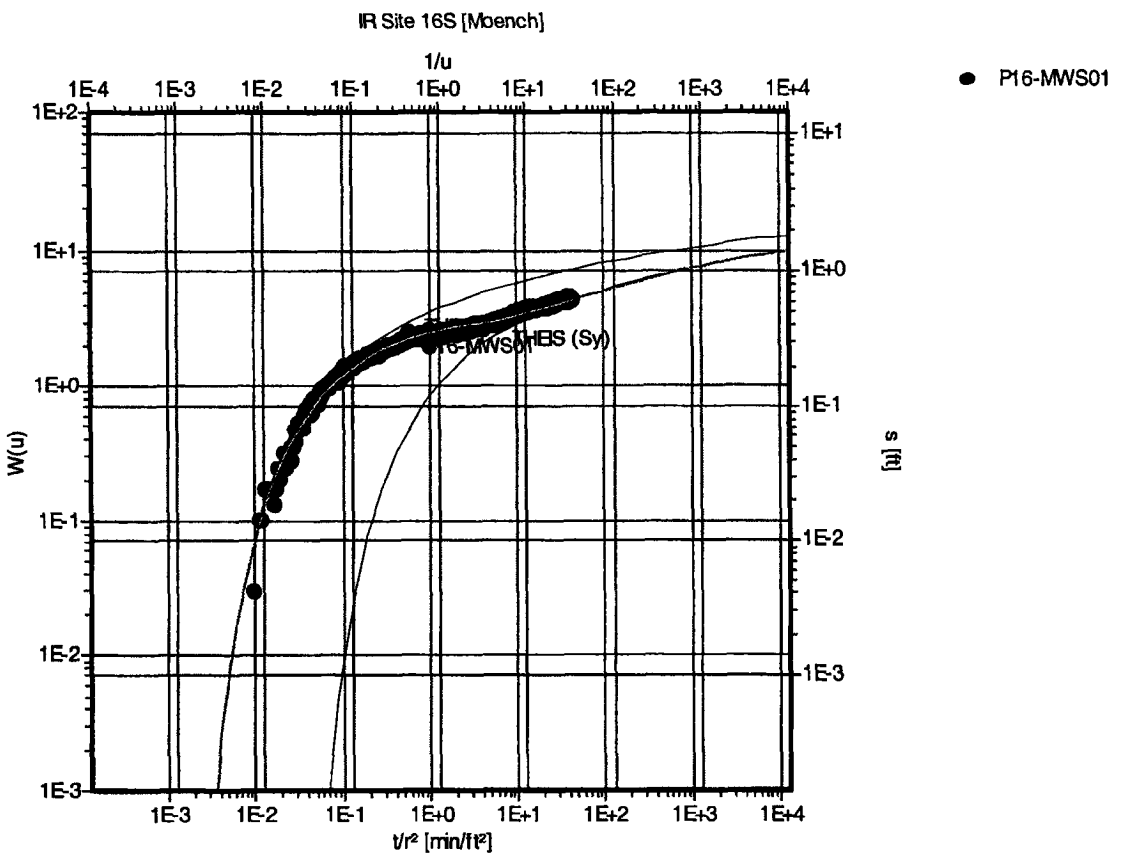
Comments:

Evaluated by:

Evaluation Date: 9/25/2002

Attachment 5
Installation Restoration Site 16 South Pumping Test Analysis Report

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: CTO 59 16 South
	Number:
	Client:



Pumping Test: **IR Site 16 South**

Analysis Method: **Moench**

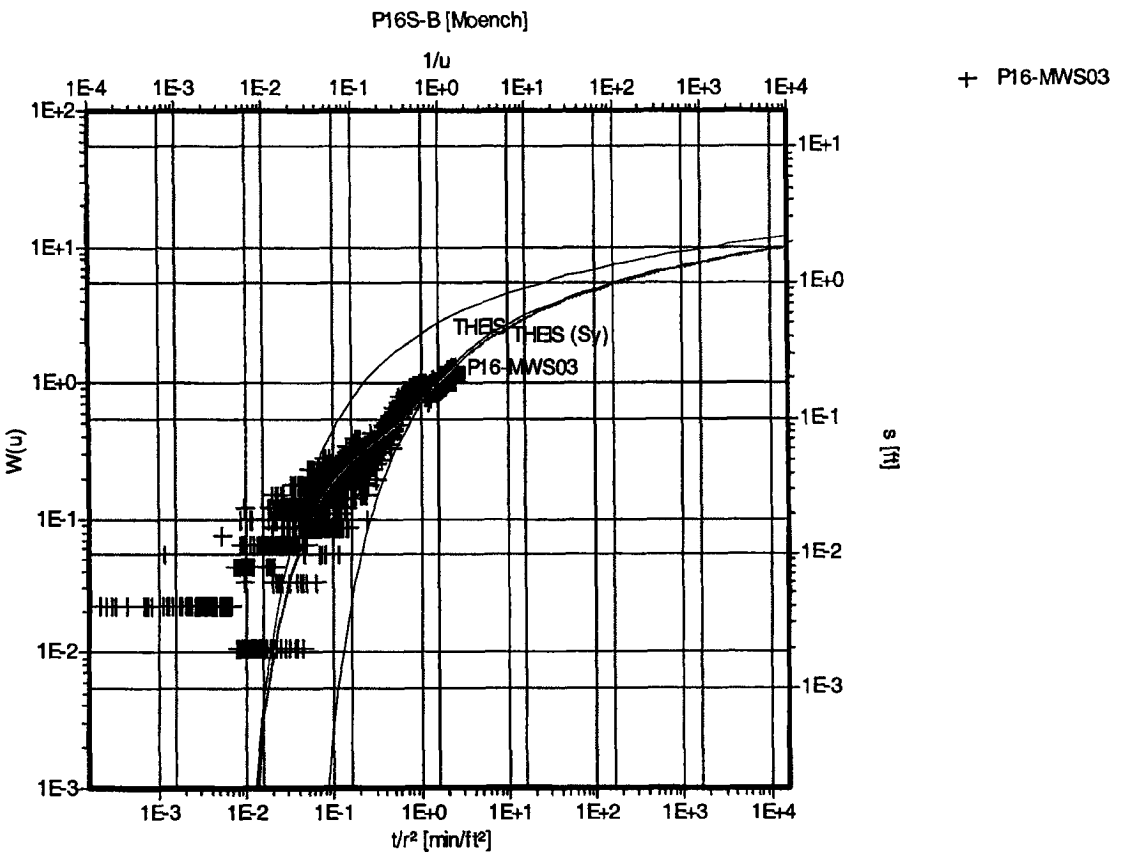
Analysis Results:	Transmissivity:	2.46E+2 [ft²/d]	Conductivity:	2.32E+1 [ft/d]
	Storativity:	2.20E-1	Conductivity (vertical):	2.32E+0 [ft/d]
Test parameters:	Pumping Well:	P16-IWS01	Aquifer Thickness:	10.59 [ft]
	Casing radius:	0.1167 [ft]	Unconfined Aquifer	
	Screen length:	10 [ft]	S/Sy:	0.052
	Boring radius:	0.3333 [ft]	Kv/Kh:	0.1
	Discharge Rate:	2.27 [U.S. gal/min]	Gamma:	1000000
	b:	10.59 [ft]		

Comments: Speciifc Yield is labled as Storativity

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: CTO 59 16 South
	Number:
	Client:



Pumping Test: **IR Site 16 South**

Analysis Method: **Moench**

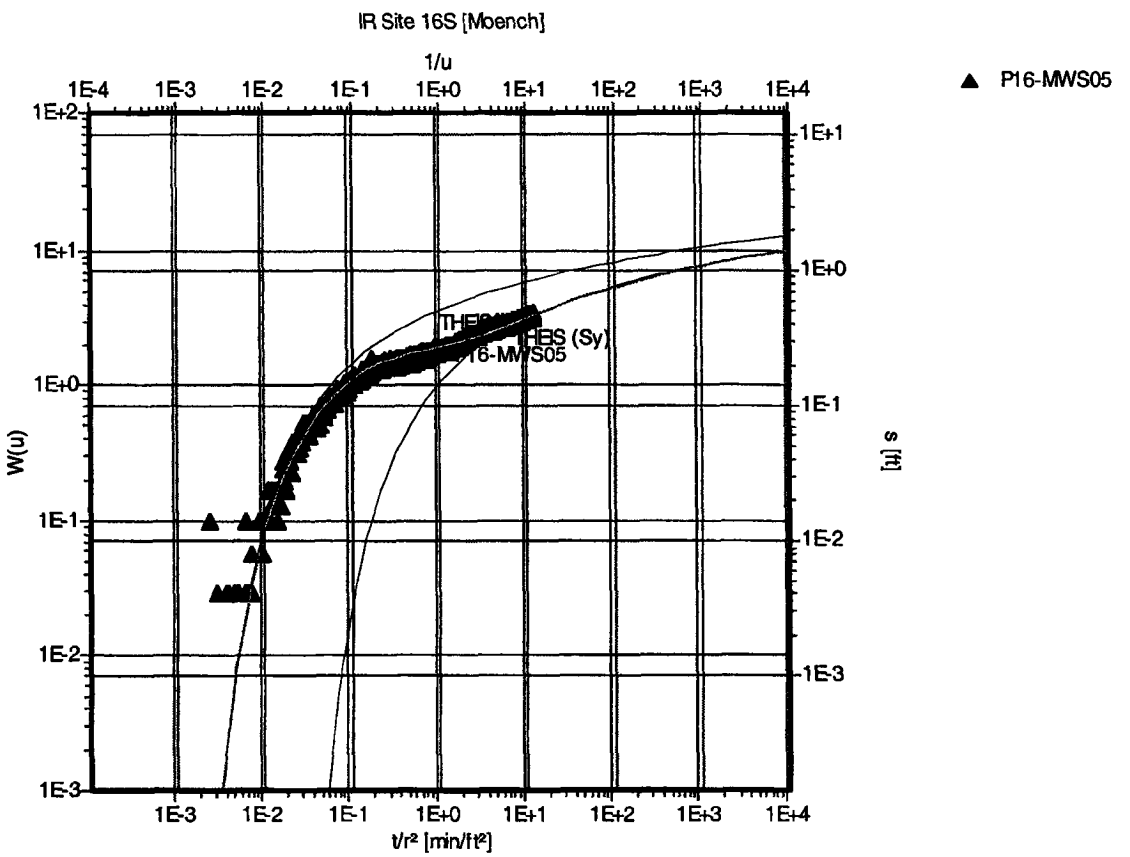
Analysis Results:	Transmissivity:	1.91E+2 [ft²/d]	Conductivity:	1.80E+1 [ft/d]
	Storativity:	2.10E-1	Conductivity (vertical):	5.41E+0 [ft/d]
Test parameters:	Pumping Well:	P16-IWS01	Aquifer Thickness:	10.59 [ft]
	Casing radius:	0.1667 [ft]	Unconfined Aquifer	
	Screen length:	10 [ft]	S/Sy:	0.15
	Boring radius:	0.3333 [ft]	Kv/Kh:	0.3
	Discharge Rate:	2.27 [U.S. gal/min]	Gamma:	1E9
	b:	10.6 [ft]		

Comments: Specific Yield is labled as Storativity

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report** Project: CTO 59 16 South Number: Client:



Pumping Test: **IR Site 16 South**

Analysis Method: **Moench**

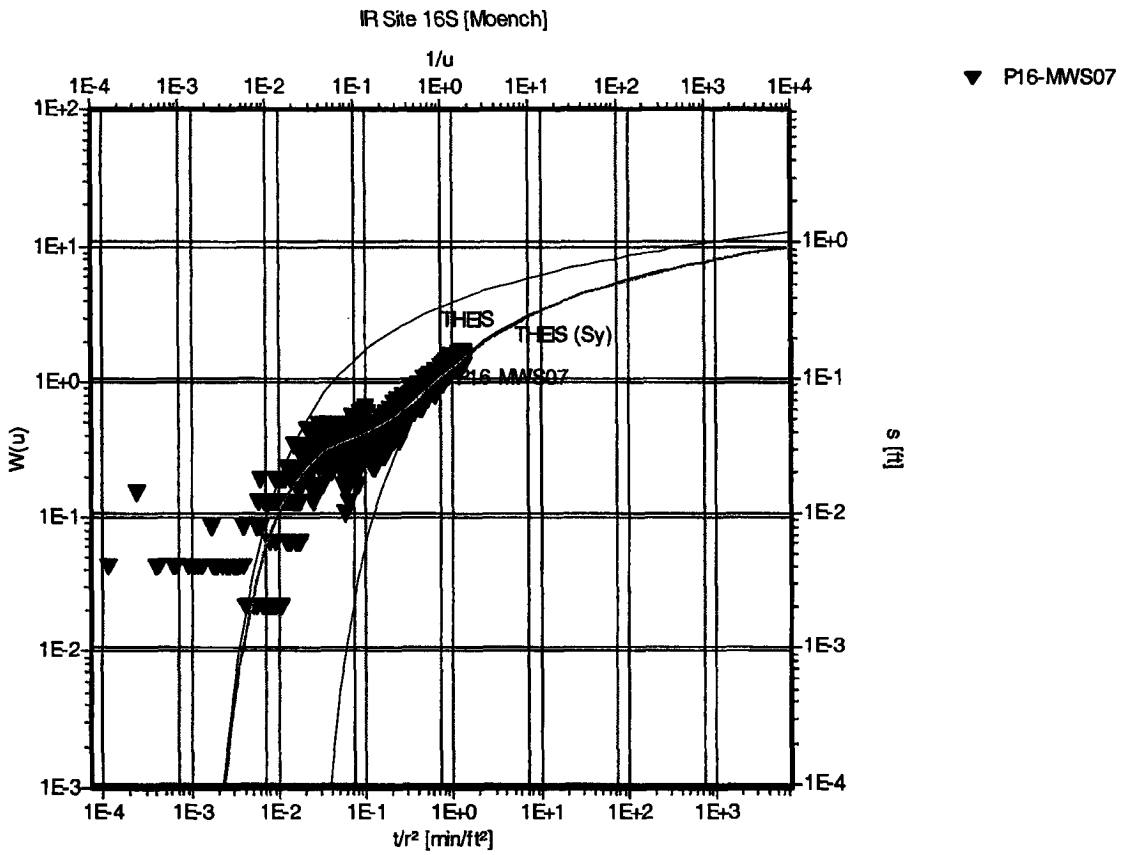
Analysis Results:	Transmissivity:	2.46E+2 [ft²/d]	Conductivity:	2.32E+1 [ft/d]
	Storativity:	1.92E-1	Conductivity (vertical):	2.32E+0 [ft/d]
Test parameters:	Pumping Well:	P16-IWS01	Aquifer Thickness:	10.59 [ft]
	Casing radius:	0.1167 [ft]	Unconfined Aquifer	
	Screen length:	10 [ft]	S/Sy:	0.061
	Boring radius:	0.3333 [ft]	Kv/Kh:	0.1
	Discharge Rate:	2.27 [U.S. gal/min]	Gamma:	1E9
	b:	10.59 [ft]		

Comments: Specific Yield is labled as Storativity

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: CTO 59 16 South
	Number:
	Client:



Pumping Test: **IR Site 16 South**

Analysis Method: **Moench**

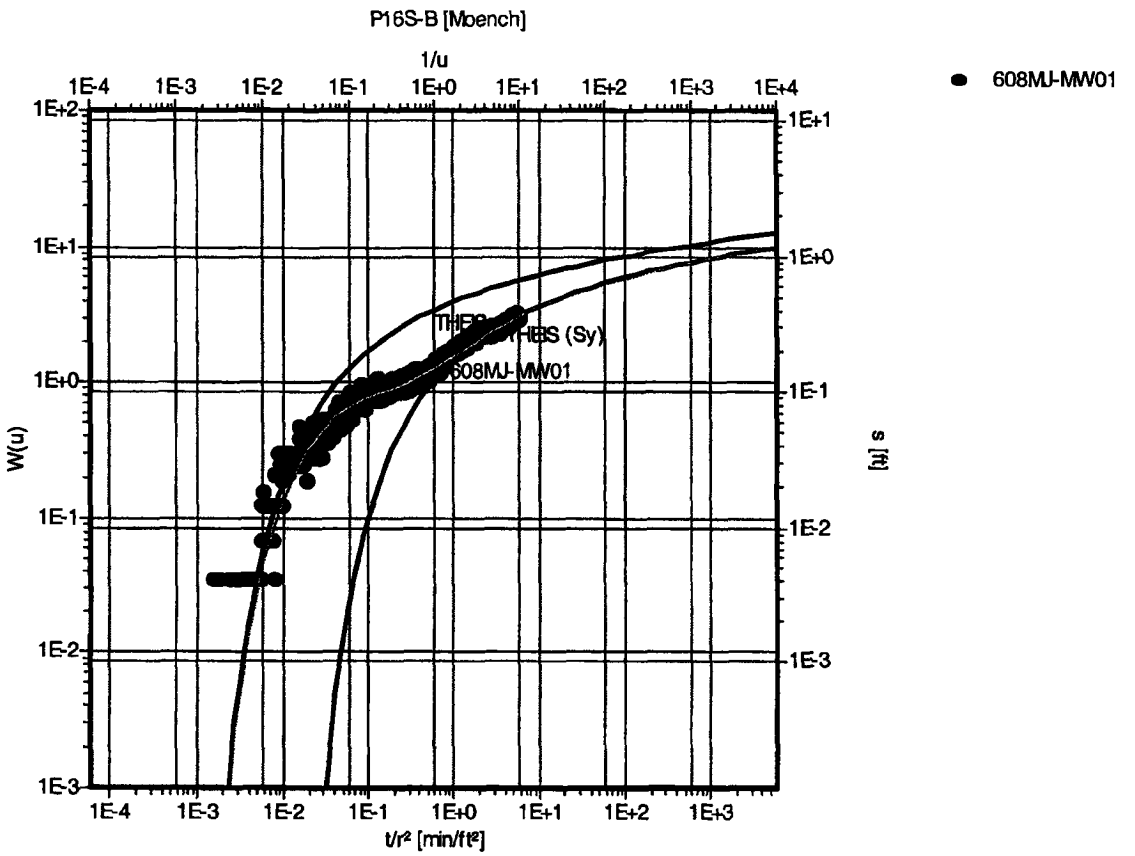
Analysis Results:	Transmissivity:	3.73E+2 [ft²/d]	Conductivity:	3.52E+1 [ft/d]
	Storativity:	1.87E-1	Conductivity (vertical):	4.22E+0 [ft/d]
Test parameters:	Pumping Well:	P16-IWS01	Aquifer Thickness:	10.59 [ft]
	Casing radius:	0.1167 [ft]	Unconfined Aquifer	
	Screen length:	10 [ft]	S/Sy:	0.06
	Boring radius:	0.3333 [ft]	Kv/Kh:	0.12
	Discharge Rate:	2.27 [U.S. gal/min]	Gamma:	10000
	b:	10.59 [ft]		

Comments: Specific Yield is labled as Storativity

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: CTO 59 16 South
	Number:
	Client:



Pumping Test: **IR Site 16 South**

Analysis Method: **Moench**

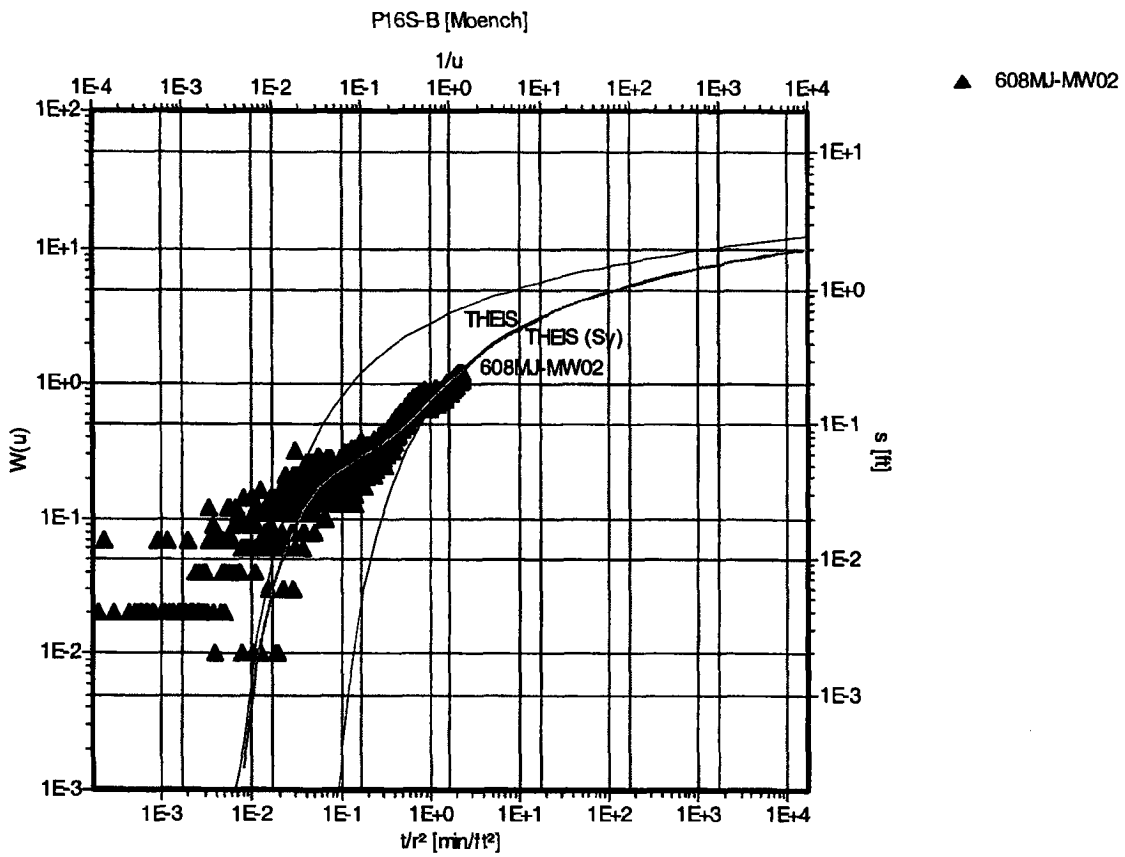
Analysis Results:	Transmissivity:	2.96E+2 [ft²/d]	Conductivity:	2.79E+1 [ft/d]
	Storativity:	1.21E-1	Conductivity (vertical):	5.59E+0 [ft/d]
Test parameters:	Pumping Well:	P16-IWS01	Aquifer Thickness:	10.59 [ft]
	Casing radius:	0.1667 [ft]	Unconfined Aquifer	
	Screen length:	10 [ft]	S/Sy:	0.075
	Boring radius:	0.3333 [ft]	Kv/Kh:	0.2
	Discharge Rate:	2.27 [U.S. gal/min]	Gamma:	10000000
	b:	10.6 [ft]		

Comments: Specific Yield is labled as Storativity

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Shaw E & I 1045 Jadwin Ave. Suite C Richland, WA	**Pumping Test Analysis Report**
	Project: CTO 59 16 South
	Number:
	Client:



Pumping Test: **IR Site 16 South**

Analysis Method: **Moench**

Analysis Results:	Transmissivity:	1.74E+2 [ft²/d]	Conductivity:	1.65E+1 [ft/d]
	Storativity:	2.06E-1	Conductivity (vertical):	4.94E+0 [ft/d]
Test parameters:	Pumping Well:	P16-IWS01	Aquifer Thickness:	10.59 [ft]
	Casing radius:	0.1667 [ft]	Unconfined Aquifer	
	Screen length:	10 [ft]	S/Sy:	0.08
	Boring radius:	0.3333 [ft]	Kv/Kh:	0.3
	Discharge Rate:	2.27 [U.S. gal/min]	Gamma:	1E9
	b:	10.6 [ft]		

Comments: Specific Yield is labled as Storativity

Evaluated by: R. D. Landon

Evaluation Date: 9/25/2002

Appendix C
In-Situ Oxidative Technologies, Inc. Draft Pilot Test Program Report

PILOT TEST PROGRAM REPORT

INSTALLATION RESTORATION SITES 9, 11/21, AND 16
FORMER NAVAL AIR STATION ALAMEDA
ALAMEDA POINT
ALAMEDA, CALIFORNIA

FEBRUARY 14, 2003

PREPARED FOR

SHAW ENVIRONMENTAL & INFRASTRUCTURE
4005 PORT CHICAGO HIGHWAY
CONCORD, CALIFORNIA 94520

PREPARED BY

IN-SITU OXIDATIVE TECHNOLOGIES, INC.
5600 SOUTH QUEBEC STREET, SUITE 320 D
ENGLEWOOD, COLORADO 80111

ISOTEC PROJECT NO. 900062

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1.0 INTRODUCTION

In-Situ Oxidative Technologies, Inc. (ISOTEC) was retained by Shaw Environmental & Infrastructure (Shaw) to conduct an in-situ chemical oxidation pilot test program associated with groundwater contamination at the former Naval Air Station Alameda (NAS Alameda), Alameda Point, Alameda, California (Figure 1). The pilot test program included individual tests at Installation Restoration (IR) Sites 9 Shallow and Intermediate, 11/21 Intermediate, and Site 16 South Shallow and North Shallow. The primary contaminants of environmental concern at NAS Alameda are chlorinated solvents including tetrachlorethene (PCE), trichloroethylene (TCE), 1,2-dichlorobenzene (1,2-DCB), 1,1-dichloroethane (1,1-DCA), 1,2,4-trimethylbenzene, and vinyl chloride (VC).

This pilot test program report contains details of ISOTEC's field activities associated with the injection of ISOTEC reagents. Reagents were injected to treat contaminants through the use of in-situ chemical oxidation. The field activities occurred during the week of November 11, 2002.

1.1 PILOT TEST PROGRAM OBJECTIVES

The primary objective of the pilot test program was to evaluate radial effects of ISOTEC's in-situ chemical oxidation process. The specific objectives of the study are outlined below:

- Evaluate the radial effects associated with the application of the ISOTEC reagents into the subsurface at the test site areas;
- Evaluate the effectiveness of the ISOTEC process to oxidize chlorinated solvent contamination in the subsurface;
- Determine the most effective injection approach for chlorinated solvent oxidation at the five subject sites for potential full-scale application.

2.0 TECHNOLOGY OVERVIEW

The ISOTEC process is an in-situ remedial technology that destroys organic contamination using Fenton's reagent-based oxidation chemistry. Fenton's chemistry was first documented by H.J.H. Fenton in 1894. It is characterized by the combination of soluble iron with low concentrations of hydrogen peroxide to produce hydroxyl radicals ($OH^{\bullet}$). These hydroxyl radicals are very powerful and short-lived oxidizers. Similar to the reaction of other oxidizers, the hydroxyl radicals attack the carbon double bonds of the chlorinated hydrocarbon molecule. Under certain conditions reductive species can also be formed by Fenton's chemistry. This gives Fenton's reagent two separate pathways to attack a wide range of contaminants. The summary equation for Fenton's chemistry is shown below.

$$Fe^{+2} + H_2O_2 \rightarrow Fe^{+3} + OH^- + OH^{\bullet}$$

Where H_2O_2 is hydrogen peroxide, Fe^{+2} is ferrous iron, Fe^{+3} is ferric iron, $OH^{\bullet}$ is hydroxyl free radical and OH^- is hydroxide ion.

Iron is used to catalyze the reaction. Maintaining iron in solution is important for the process to be successful in an in-situ application. To eliminate the necessity of performing the reaction under low pH conditions, as is the case with traditional Fenton's chemistry, complexed iron is used in in-situ applications via the ISOTEC process. The hydrogen peroxide and dissolved iron solutions are injected through a site-specific delivery system providing sufficient distribution to selectively treat the area of concern. Reaction time is very fast, with oxidation capacity of the reagent being used up in a matter of a few days. Hydrogen peroxide breaks down into water and oxygen and the iron catalyst is oxidized and precipitates out of solution. It is important to note that the concentration of hydrogen peroxide is relatively dilute, generally less than 15%, which eliminates the potential for significant exothermic reactions that are associated with higher concentrations of hydrogen peroxide. Experience with this process using low hydrogen peroxide concentrations and complexed iron has resulted in less than a 25° F temperature increase in field applications.

ISOTEC's Fenton based oxidation process is effective on a wide range of contaminants including hard to-treat recalcitrant compounds such as chlorinated solvents, gasoline additives including MTBE and BTEX, petroleum hydrocarbons and pesticides. Hydroxyl radicals generated by the ISOTEC process will oxidize nearly all contaminants with carbon / carbon double bonds (i.e., DCE and PCE) and single bonded contaminants with extractable hydrogen (i.e., TCA).

The ISOTEC process consists of injecting stabilized hydrogen peroxide and complexed iron catalysts into contaminated aquifers or vadose zones. As compared to conventional Fenton's Reagent which requires acidic conditions (pH $\leq$ 3) the ISOTEC process is effective at neutral (pH = 7) conditions. This is an important consideration in full-scale application since acidifying an aquifer is typically impractical. ISOTEC's oxidation

method utilizes a site-specific delivery system(s) designed to treat organic contaminants within an area of concern. ISOTEC oxidants and catalysts generate hydroxyl radicals, which react with the organic contaminants within the subsurface producing innocuous by-products such as carbon dioxide and water (and chloride ions if chlorinated compounds are being treated).

Safety is a priority with the ISOTEC process. ISOTEC has not had a health and safety incident in over six years of field application. Most negative effects noted with in-situ oxidation occur with aggressive oxidation reactions utilizing high concentration reagents under pressurized conditions. These conditions can create a significant temperature rise and an enormous amount of carbon dioxide and/or oxygen off-gas, which can mobilize vapors and contaminants within the subsurface. ISOTEC does not utilize this approach. Reagents utilized by ISOTEC are stabilized and at low concentrations, with injection in a controlled manner to reduce the possibility of surface breakout or subsequent migration.

3.0 ISOTEC PILOT TEST PROGRAM

ISOTEC's pilot test program at NAS Alameda included individual sites at IR Site 9 Shallow, Site 9 Intermediate, Site 11/21 Intermediate, Site 16 Shallow and Site 16 Intermediate (Figures 2 through 7). The target treatment zone for Shallow pilot test sites was the first water-bearing zone, which is the 5 to 15 foot below grade surface (bgs) interval. The target treatment zone for Intermediate pilot test sites was the second water-bearing zone at depths between 22 and 43 feet bgs. The specific screened interval for each injection well at the five pilot test sites are as follows: Site 9 Shallow – 5 to 15 feet bgs, Site 9 Intermediate - 23 to 43 feet bgs, Site 11/21 Intermediate - 22 to 42 feet bgs, Site 16 North Shallow - 5 to 15 feet bgs, and Site 16 South Shallow - 5 to 15 feet bgs.

Baseline soil and groundwater conditions were documented with samples collected by Shaw. Remediation progress was also documented with groundwater samples collected from pilot test monitoring wells following the injection event.

3.1 ISOTEC PROCESS FIELD METHODS

ISOTEC technicians prepared stabilized 12% hydrogen peroxide from 35% hydrogen peroxide. The 35% hydrogen peroxide was delivered to NAS Alameda and stored in Department of Transportation approved 55-gallon drums.

Two box trucks were used for containment of chemicals; one truck contained the hydrogen peroxide, and one truck contained catalyst. To avoid spills of chemicals, secondary containment was constructed inside each of the box trucks. The 35% hydrogen peroxide was transferred into a 300-gallon polyethylene tank with an electric drum pump. The technicians wore proper personal protective equipment and used appropriate safety procedures during the transfer. The 12% peroxide tank was located and staged inside an ISOTEC field truck. The iron catalyst was mixed in a 300-gallon polyethylene tank using on-site water, dry ISOTEC chemicals and an electric mixing motor with attached mixing blade. The iron catalyst tank was located and staged inside a second ISOTEC field truck.

The injections were accomplished using air-operated diaphragm pumps, flow meters, polyvinyl chloride (PVC) flexible tubing and PVC wellhead assemblies. The wellheads, with pressure gauges and relief valves, were attached to the injection wells. The wellhead assemblies were attached with PVC tubing to an air-operated diaphragm pump and from the pump to either the peroxide, catalyst or water tanks with tubing. The peroxide, catalyst and water were injected through the PVC tubing using the pump. A water flush, pumping water through the equipment and down the injection well, was completed after each of the catalyst or peroxide injections.

3.2 ISOTEC FIELD ACTIVITIES

ISOTEC reagents were injected using one injection well at each pilot test site to deliver reagents into the subsurface. A total of five pilot tests were conducted during ISOTEC's

NAS Alameda site visit: Site 9 Shallow, Site 9 Intermediate, Site 11/21 Intermediate, Site 16 North Shallow and Site 16 South Shallow.

ISOTEC reagents were injected into between November 12 and 15, 2002. The injected reagent volumes, as well as injection pressures and rates are presented in Table 1.

ISOTEC field personnel also collected groundwater grab samples from designated monitoring wells at each of the five pilot test sites. Groundwater samples were collected prior to and during injection activities and were analyzed for hydrogen peroxide and iron. The baseline and daily field samples collected to monitor the injection process were collected using disposable bailers and were analyzed in the field using Chemets colorimetric test kits. Please refer to Tables 2 through 6 for field monitoring data results for each of the pilot test sites.

The injected reagent volumes, injection pressures and rates, and field monitoring data are discussed in the following sections by pilot test area.

3.2.1 Site 9 Shallow

On November 12, 2002, ISOTEC mobilized to Site 9 Shallow and setup on injection well P9-IWS02. ISOTEC injected a water flush, followed by 40 gallons catalyst. ISOTEC then injected a water flush, followed by 50 gallons of peroxide. ISOTEC continued injection activities into well P9-IWS02 with a water flush, an additional 50 gallons of catalyst, and a final water flush. Injection pressure at the wellhead of P9-IWS02 ranged from 0-6 psi, while the injection rate ranged from 4 to 5 gpm during injection activities.

On November 13, 2002, ISOTEC returned to Site 9 Shallow and setup on injection well P9-IWS02. ISOTEC injected a water flush, followed by 200 gallons catalyst. ISTOEC then injected a water flush, followed by 200 gallons of peroxide, and a final water flush. The average wellhead pressure was 6 psi at a rate of 5 gpm. Injection pressure at the wellhead of P9-IWS02 ranged from 0-8 psi, while the injection rate ranged from 4 to 6 gpm during injection activities.

On November 14, 2002, ISOTEC once again setup on injection well P9-IWS02. ISOTEC injected a water flush, 100 gallons of peroxide, a water flush, 100 gallons of catalyst and a water flush. The well then received an additional 100 gallons of peroxide, a water flush, 100 gallons of catalyst and a final water flush. Injection pressure at the wellhead of P9-IWS02 ranged from 0-6 psi, while the injection rate ranged from 4 to 5 gpm during injection activities.

3.2.1.1 Field Monitoring Data

On November 12, 2002, baseline samples were collected from Site 9 Shallow monitoring wells: P9-IWS01, P9-MWS01, P9-MWS02, P9-MWS03, P9-MWS04, P9-MWI01. Baseline iron concentrations ranged from 0.1 mg/L to 2.5 mg/L. Hydrogen peroxide concentrations were not detected in the sampled wells.

The only significant increases in hydrogen peroxide and/or iron concentrations were observed in monitoring wells P9-MWS01 and P9-MWS03. Specifically, at the completion of the first day's injection, the iron concentration increased in well P9-MWS01 from a baseline of 2mg/L to 30 mg/L. On November 13, 2002, the hydrogen peroxide concentration in well P9-MWS01 was 1,000 mg/L. Samples collected following the November 14, 2002, injection activities indicated hydrogen peroxide concentrations monitoring wells P9-MWS01 and P9-MWS03 of 20 mg/L and 10,000 mg/L, respectively.

3.2.2 Site 9 Intermediate

On November 12, 2002, ISOTEC setup at Site 9 Intermediate and began injections into injection well P9-IWI02. ISOTEC injected an initial water flush followed by 150 gallons of catalyst, a water flush, and 75 gallons of hydrogen peroxide. Surfacing (an escape to surface of reagent, groundwater and/or gas) occurred after 75 gallons of hydrogen peroxide was injected into well P9-IWI02. The surfacing was observed approximately ten feet southwest of the injection well through a joint in the concrete parking lot, and injection activities were immediately terminated. Injection pressure at the wellhead of P9-IWI02 ranged from 4-14 psi, while the injection rate ranged from 8 to 11 gpm during injection activities.

On November 14, 2002, ISOTEC once again setup on well P9-IWI02. Due to the fact that surfacing occurred during the previous days' injections, ISOTEC injected less reagents at a slower injection rate into injection well P9-IWI02. ISOTEC injected a water flush, 50 gallons of catalyst, a water flush, 50 gallons of peroxide and a water flush. Surfacing was not observed during injection activities. Average wellhead pressure was 3 psi, while the injection rate ranged from 2 to 3 gpm during injection activities.

3.2.2.1 Field Monitoring Data

On November 12, 2002, baseline samples were collected from Site 9 Intermediate monitoring wells: P9-MWI05, P9-MWI09, P9-MWI10, P9-MWI06, P9-MWI02, P9-MWI03, P9-MWI07, P9-MWI04 and P9-MWI08. The baseline field sample results indicated that no hydrogen peroxide or iron was observed in the sampled wells. No significant increases in hydrogen peroxide or iron concentration were observed in the sampled wells (P9-MWI02, P9-MWI04, P9-MWI06, and P9-MWI08) during the pilot test program.

3.2.3 Site 11/21 Intermediate

On November 13, 2002, ISOTEC mobilized to Site 11/21 Intermediate and setup on well P11/21-IWI03. ISOTEC injected a water flush, 50 gallons of catalyst, a water flush, 75 gallons of peroxide and a final water flush. Average wellhead pressure was 6 psi, while the injection rate averaged 5 gpm during injection activities.

On November 14, 2002, ISOTEC setup at Site 11/21 Intermediate and injected a water flush and 200 gallons of catalyst into injection well P11/21-IWI03. ISOTEC then injected a water flush, 200 gallons of peroxide, and a final water flush. Average wellhead pressure was 5 psi, while the injection rate averaged 5 gpm during injection activities.

On November 15, 2002, ISOTEC again setup on injection well P11/21-IWI03. ISOTEC cycled reagents into injection well P11/21-IWI03. Specifically, ISOTEC injected a water flush, 75 gallons of peroxide, a water flush, 75 gallons of catalyst and a water flush. ISOTEC continued injection activities with an additional 75 gallons of peroxide, a water flush, 75 gallons of catalyst, and a final water flush. Average wellhead pressure was 7 psi, while the injection rate averaged 5 gpm during injection activities.

3.2.3.1 Field Monitoring Data

On November 13, 2002, baseline samples were collected from Site 11/21 Intermediate monitoring wells: P11/21-IW01, P11/21-MW01, P11/21-MW02, P11/21-MW03, P11/21-MW04. Baseline sample results indicated that no iron was observed in the sampled wells. Baseline hydrogen peroxide concentrations ranged from 0 mg/L to 0.2 mg/L.

No significant increases in hydrogen peroxide or iron concentrations were observed in the sampled wells during the pilot test program.

3.2.4 Site 16 North Shallow

On November 12, 2002, ISOTEC setup on well P16-IWS04. ISOTEC injected an initial water flush, 50 gallons of catalyst, a water flush, 50 gallons of peroxide, a water flush, an additional 50 gallons of catalyst, and a final water flush. Average wellhead pressure was 2 psi, while the injection rate averaged 5 gpm during injection activities.

ISOTEC returned to Site 16 North Shallow on November 13, 2002, and setup on injection well P16-IWS04. ISOTEC injected a water flush, 200 gallons of catalyst, a water flush, 200 gallons of peroxide and a final water flush. Average wellhead pressure was 3 psi, while the injection rate averaged 5 gpm during injection activities.

On November 14, 2002, ISOTEC again setup on well P16-IWS04 and injected a water flush, 100 gallons of peroxide, a water flush, and 100 gallons of catalyst. ISOTEC then injected an additional water flush, 100 gallons of peroxide, a water flush, 100 gallons of catalyst and a final water flush. Average wellhead pressure was 5 psi, while the injection rate averaged 5 gpm during injection activities.

3.2.4.1 Field Monitoring Data

On November 12, 2002 baseline samples were collected from Site 16 North Shallow monitoring wells: P16-MWS02, P16-MWI02, P16-MWS06, P16-MWS04 and P16-MWS08. Baseline iron and hydrogen peroxide concentrations ranged from 0.0 mg/L to 1.5 mg/L and 0.0 to 0.4 mg/L, respectively.

The only significant increase in hydrogen peroxide and/or iron concentrations was observed in monitoring well P16-MWS02. Specifically, on November 13, 2002, the hydrogen peroxide concentration increased from a baseline of 0.0 mg/L to 40 mg/L, while the iron concentration increased from a baseline of 0.0 mg/L to 20 mg/L. Samples collected following the November 14, 2002, showed a hydrogen peroxide concentration in well P16-MWS02 of 2,000 mg/L.

3.2.5 Site 16 South Shallow

On November 12, 2002, ISOTEC setup on well P16-IWS03. ISOTEC injected an initial water flush, 50 gallons of catalyst, a water flush, 50 gallons of peroxide and a final water flush. Average wellhead pressure was 2 psi, while the injection rate averaged 5 gpm during injection activities.

ISOTEC returned to Site 16 South Shallow on November 13, 2002, and setup on well P16-IWS03. ISOTEC injected a water flush, 200 gallons of catalyst, a water flush, 100 gallons of peroxide and a final water flush. Average wellhead pressure was 7 psi, while the injection rate averaged 3 gpm during injection activities.

On November 14, 2002, ISOTEC again setup on well P16-IWS03. ISOTEC injected the initial water flush and 50 gallons of hydrogen peroxide into P16-IWS03. Surfacing was observed approximately 3 feet south of injection well P16-IWS03 after the 50 gallon peroxide injection. Injection activities were terminated following a 5-gallon water flush. Average wellhead pressure was 10 psi, while the injection rate averaged 2.5 gpm during injection activities.

3.2.5.1 Field Monitoring Data

On November 12, 2002 baseline samples were collected from Site 16 South Shallow designated monitoring wells: P16-IWS01, P16-MWS07, P16-MWS01, P16-MWI01, P16-MWS03, P16-MWS05. Baseline iron and hydrogen peroxide concentrations ranged from 0.0 mg/L to 0.1 mg/L and 0.0 to 0.2 mg/L, respectively. No significant increases in hydrogen peroxide or iron concentrations were observed in the sampled wells during the pilot test program.

4.0 MONITORING RESULTS

Shaw Environmental collected groundwater samples at five separate times during the pilot test program; prior to injection activities (baseline), and one, two, three and four weeks following ISOTEC injection activities. Groundwater samples were collected from various monitoring and injection wells within each pilot test area. For discussion purposes, ISTOEC will compare baseline analytical data to the week 4 sampling event analytical data. The sample events and sample collection dates discussed by ISOTEC in the following sections as well as the pilot test areas and wells sampled are as follows:

PILOT TEST AREA	WELLS SAMPLED	SAMPLE EVENT	COLLECTION DATES
Site 9 Shallow	P9-MWS01 P9-MWS02 P9-MWS03 P9-MWS04 P9-MWI01 P9-IWS01 P9-IWS02	Baseline	
		Week 4	12/16/02 – 12/20/02
Site 9 Intermediate	P9-MWI02 P9-MWI03 P9-MWI04 P9-MWI05 P9-MWI06 P9-MWI07 P9-MWI08 P9-MWI09 P9-MWI10 P9-IWS02	Baseline	
		Week 4	12/16/02 – 12/20/02
Site 11/21	P11/21-MW01 P11/21-MW02 P11/21-MW03 P11/21-MW04 P11/21-IW01	Baseline	
		Week 4	12/16/02 – 12/20/02
Site 16 North Shallow	P16-MWS02 P16-MWS04 P16-MWS06 P16-MWS08 P16-MWI02 P16-IWS02 P16-IWS04	Baseline	
		Week 4	12/16/02 – 12/20/02
Site 16 South Shallow	P16-MWS01 P16-MWS03 P16-MWS05 P16-MWS07 P16-MWI01 P16-IWS01	Baseline	
		Week 4	12/16/02 – 12/20/02

The baseline and week 4 analytical data is discussed in **Section 4.2 through Section 4.6** by the above mentioned pilot test area. The groundwater samples were analyzed for total volatile organic compounds by EPA method 8260.

Review of the analytical data indicated that the presence of volatile organic compounds varied from pilot test area to pilot test area. As a result, ISOTEC compared volatile organic compounds specific to each pilot test area. These individual compounds were compared from baseline concentrations to week 4 concentrations. The specific compounds evaluated for each pilot test area are as follows:

PILOT TEST AREA	COMPOUNDS EVALUATED
Site 9 Shallow	1,2,4 Trimethylbenzene, Vinyl Chloride
Site 9 Intermediate	1,1 Dichloroethane (1,1 DCA)
Site 11/21	Trichloroethene (TCE)
Site 16 North Shallow	1,2 Dichlorobenzene (1,2 DCB)
Site 16 South Shallow	Trichloroethene (TCE), Tetrachloroethene (PCE)

The analytical data with percent reduction calculations for each pilot test area are presented in **Tables 3** through **9**. Well locations and analytical data for each pilot test areas are presented in **Figures 2** through **8**. The laboratory analytical data was provided to ISOTEC by Shaw and is included in **Appendix 1**.

4.1 SITE 9 SHALLOW

The average baseline 1,2,4-trimethylbenzene concentration in the groundwater samples collected from the on-site wells was 23 ug/l. Additionally, review of the analytical results indicated that baseline 1,2,4-trimethylbenzene concentrations above 1.0 ug/l were present in only two of the six monitoring wells sampled. Specifically, the 1,2,4-trimethylbenzene concentration in monitor well P9-MWS01 was 3.2 ug/L, and 130 ug/L in P9-MWS04.

Following the ISTOEC injection, the average 1,2,4-trimethylbenzene concentration in the groundwater samples collected from on-site wells was 10 ug/l. This represents a 55% reduction in concentrations compared to baseline. The maximum 1,2,4-trimethylbenzene concentration reduction was observed in monitoring well P9-MWS04. The 1,2,4-trimethylbenzene concentration was reduced from 130 ug/l to 52 ug/L, a reduction of 60%.

One monitoring well within the Site 9 Shallow pilot test area showed an increase in 1,2,4-trimethylbenzene concentration compared to baseline. Monitoring well P9-MWS03 increased from a baseline concentration of <1.0 ug/l to 6.7 ug/l.

The average baseline vinyl chloride (VC) concentration in the samples collected from the on-site monitoring wells was 18 ug/L. Baseline vinyl chloride concentrations ranged from <1.0 ug/L in P9-MWI01 and P9-MWS02 to 99 ug/L in P9-MWS04.

Following the ISOTEC injection, the average VC concentration of the sampled wells was 7 ug/l. This represents a 59% reduction in concentrations compared to baseline. The maximum VC concentration reduction was observed in monitoring well P9-MWS04. The VC concentration was reduced from 99 ug/l to 49 ug/L, a 51% reduction.

Figure 2 presents a map of the Site 9 Shallow pilot test area with baseline and post injection 1,2,4-trimethylbenzene analytical data. **Figure 3** presents a map of the Site 9 Shallow pilot test area with baseline and post injection VC analytical data. The 1,2,4-trimethylbenzene analytical data with percent reductions for each sampled well is presented in **Table 7**. The VC analytical data with percent reductions for each sampled well is presented in **Table 8**.

4.2 SITE 9 INTERMEDIATE

The average baseline 1,1-DCA concentration in the samples collected from the monitoring wells located within the Site 9 Intermediate pilot test area was 228 ug/L. Baseline 1,1-DCA concentrations ranged from 1.6 ug/L in P9-MWI07 to 1,200 ug/L in P9-MWI09.

Following the ISTOEC injection, the average 1,1-DCA concentration of the sampled wells was 204 ug/l. This represents an average concentration reduction of 11% compared to baseline. Four of the wells within the pilot test area showed reductions in concentration compared to baseline. The maximum 1,1-DCA concentration reduction was observed in monitoring well P9-MWI09, which showed a reduction from a baseline concentration of 1,200 ug/l to 890 ug/l. This represents a 26% reduction.

Five wells within the Site 9 Intermediate pilot test area showed increases in concentration compared to baseline. The wells with an increase in 1,1-DCA concentrations of any significance were P9-MWI02 and P9-MWI07. Monitoring well P9-MWI02 increased from a baseline concentration of 15 ug/l to 31 ug/l, and well P9-MWI07 increased from a baseline concentration of 1.6 ug/l to 5.3 ug/l.

Figure 4 presents a map of the Site 9 Intermediate pilot test area with baseline and post injection 1,1 DCA analytical data. The 1,1-DCA analytical data with percentage reductions for each sampled well in the Site 9 Intermediate pilot test area is presented in **Table 9.**

4.3 SITE 11/21 INTERMEDIATE

The average baseline TCE concentration in the samples collected from the monitoring wells in the Site 11/21 Intermediate pilot test area was 8,620 ug/L. Baseline TCE concentrations ranged from 3,200 ug/L in P11/21-MW01 to 15,000 ug/L in P11/21-MW04.

Following the ISTOEC injection, the average TCE concentration of the sampled wells was 6,917 ug/l. This represents a 20% reduction in concentrations compared to baseline. The TCE concentrations were reduced in two of the sampled wells. The TCE concentration in well P11/21-MW02 was reduced from 12,000 ug/l to 7,900 ug/L, a 34% reduction. The TCE concentration in well P11/21-MW04 was reduced from 15,000 ug/l to 14,000 ug/L, a 7% reduction.

Three of the sampled wells showed increases in TCE concentrations. Specifically, monitoring well P11/21-MW01 increased from 3,200 ug/l to 4,300 ug/l, well P11/21-MW03 increased from 4,800 ug/l to 5,500 ug/l, and monitor well P11/21-IW01 increased from 8,100 ug/l to 8,500 ug/l.

Figure 5 presents a map of the Site 11/21 Intermediate pilot test area with baseline and post injection TCE analytical data. The TCE analytical data with percentage reductions for each sampled well in the Site 11/21 Intermediate pilot test area is presented in **Table 10**.

4.4 SITE 16 NORTH SHALLOW

The average baseline 1,2-DCB concentration in the samples collected from the monitoring wells located within the Site 16 North Shallow pilot test area was 23 ug/L. Baseline 1,2 DCB concentrations ranged from <1.0 ug/L in P16-MWI02 to 80 ug/L in P16-MWS08.

Following the ISTOEC injection, the average 1,2-DCB concentration of the sampled wells was 18 ug/l. This represents a 22% reduction in concentrations compared to baseline. The most significant 1,2-DCB concentration reduction was observed in monitoring well P16-MWS06. Monitoring well P16-MWS06 showed a 1,2 DCB concentration reduction from 36 ug/l to 2.5 ug/L, a reduction of 93%.

A slight increase in 1,2-DCB concentration was observed in P16-MWS08, which increased from a baseline concentration of 80 ug/l to 90 ug/l.

Figure 6 presents a map of the Site 16 North Shallow pilot test area with baseline and post injection 1,2-DCB analytical data. The 1,2-DCB analytical data with percentage reductions for each sampled well in the Site 16 North Shallow pilot test area is presented in **Table 11**.

4.5 SITE 16 SOUTH SHALLOW

The average baseline TCE concentration in the samples collected from the monitoring wells located within the Site 16 South Shallow pilot test area was 19 ug/L. Baseline TCE concentrations ranged from <1.0 ug/L in P16-MWI01 and P16-MWS03, to 110 ug/L in P16-MWS07.

Following the ISTOEC injection, the average TCE concentration of the sampled wells was 3 ug/l. This represents an 84% reduction in concentrations compared to baseline. The maximum TCE concentration reduction was observed in monitoring well P16-MWS07. Monitoring well P9-MWS07 showed a TCE concentration reduction from 110 ug/l to 10 ug/L, a 91% reduction.

A small increase in TCE concentration was observed in P16-MWS01, which increased from 1.3 ug/l to 3.5 ug/l.

The average baseline PCE concentration in the samples collected from the Site 16 South Shallow pilot test monitoring wells was 74 ug/L. Baseline PCE concentrations ranged from <1.0 ug/L in P16-MWI01, P16-MWS03, and P16-MWS05, to 430 ug/L in P16-MWS07.

Following the ISTOEC injection, the average PCE concentration of the sampled wells was 10 ug/l. This represents an 80% reduction in concentrations compared to baseline.

The maximum PCE concentration reduction was observed in monitoring well P16-MWS07. The PCE concentration was reduced from 430 ug/l to 43 ug/L, a 90% reduction.

A small increase in PCE concentration was observed in P16-MWS01, which increased from 5.8 ug/l to 13.0 ug/l.

Figure 7 presents a map of the Site 16 South Shallow pilot test area with baseline and post injection TCE analytical data. **Figure 8** presents a map of the Site 16 South Shallow pilot test area with baseline and post injection PCE analytical data. The TCE analytical data with percentage reductions for each sampled well in the Site 16 South Shallow pilot test area is presented in **Table 12**. The PCE analytical data with percentage reductions for each sampled well in the Site 16 South Shallow pilot test area is presented in **Table 13**.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The primary objective of the pilot test program was to evaluate radial effects of ISOTEC's in-situ chemical oxidation process. The specific objectives of the study are outlined below:

- Evaluate the radial effects associated with the application of the ISOTEC reagents into the subsurface at the test site areas;
- Evaluate the effectiveness of the ISOTEC process to oxidize chlorinated solvent contamination in the subsurface;
- Determine the most effective injection approach for chlorinated solvent oxidation at the five subject sites for potential full-scale application.

5.1 SITE 9 SHALLOW

ISOTEC injected a total of 940 gallons of ISOTEC reagents (450 gallons of oxidizer and 490 gallons of catalyst) through injection well P9-IWS02 at pilot test Site 9 Shallow. The field activities occurred from November 12 to 14, 2002.

The ISOTEC process was successful in reducing VOC concentrations in groundwater. Specifically, average 1,2,4-trimethylbenzene and VC groundwater concentrations were reduced 55% and 59%, respectively, in the Site 9 Shallow monitoring wells sampled.

Significant reductions in contaminant concentrations were observed in monitoring well P9-MWS04, which is located 23 feet from the injection well. It is important to note that this well, P9-MWS04, was the only on-site monitoring with baseline 1,2,4-trimethylbenzene and VC concentrations above 5 ug/l. Post injection groundwater samples indicated a reduction in 1,2,4-trimethylbenzene and VC concentrations of 60% and 51%, respectively. This reduction in contaminants in P9-MWS04 indicates that the effective treatment radius of influence (ROI) is approximately 20-25 feet.

The introduction of ISOTEC reagents into the subsurface at Site 9 Shallow through an injection well appeared to be very effective for reagent distribution and should be utilized during a full-scale remediation at the site. Injection wells should be located on 40-foot centers, a 20-foot ROI, to conservatively and uniformly deliver reagents to the subsurface in the Site 9 South groundwater plume area. The injection of ISOTEC reagents through temporary direct push screens using a direct push-type rig could be used at Site 9 Shallow as an alternative to injection wells.

5.2 SITE 9 INTERMEDIATE

ISOTEC injected a total of 325 gallons of ISOTEC reagents (125 gallons of oxidizer and 200 gallons of catalyst) through injection well P9-IWI02 at pilot test Site 9 Intermediate. The field activities occurred from November 12 to 14, 2002.

Surfacing occurred on the first day of field activities after only 75 gallons of hydrogen peroxide was injected into well P9-IWI02. The surfacing was observed approximately ten feet southwest of the injection well and the days' injection activities were immediately terminated. ISOTEC return two days later to again injected into well P9-IWI02. Since surfacing occurred during the previous injection attempt, ISOTEC injected less reagents at a slower injection rate into injection well P9-IWI02. No surfacing was observed during injection activities.

Based on the surfacing that occurred during injection activities and review of the analytical data, it appears that an insufficient quantity of ISOTEC reagents was introduced into the subsurface to accurately determine an effective ROI.

Therefore, ISOTEC recommends that an additional pilot test be conducted at the site using two new injection wells. ISOTEC recommends that one injection well be installed approximately 25 feet north of injection well P9-IWI02 along the north portion of the Site 9 Intermediate pilot test area. This new location is in the immediate vicinity of monitoring wells P9-MWI05, P9-MWI09, and P9-MWI10. The second proposed injection well should be placed along the south side of the pilot test area, immediately adjacent to monitoring wells P9-MWI03 and P9-MWI07. The second injection well will be located approximately 35 feet from injection well P9-IWI02.

By placing the new injection wells 25 to 35 feet away from the injection well P9-IWI02, ISOTEC will be able to determine if the surfacing observed during the pilot test was specific to injection well P9-IWI02. Should no surfacing occur during injection into the new wells, the proximity of the above mentioned monitoring wells to the new injection wells will allow ISOTEC to evaluate the groundwater treatment radial effects and associated reagent quantities. The proposed placement of the injection wells is shown on **Figure 9**.

5.3 SITE 11/21 INTERMEDIATE

ISOTEC injected a total of 825 gallons of ISOTEC reagents (425 gallons of oxidizer and 400 gallons of catalyst) through injection well P11/21-IWI03 at pilot test Site 11/21 Intermediate. The field activities occurred during one injection event from November 13 to 15, 2002.

Review of the analytical data indicates that contaminant concentrations at the Site 11/21 Intermediate pilot test area remained relatively unchanged following the ISOTEC injection. Based on the volume of ISOTEC reagents injected and the close proximity of the on-site monitoring, it appears that there is a preferential flow away, and to the south and/or east from the monitoring well network.

Therefore, ISOTEC recommends that an additional pilot test be conducted at the site using a new injection well. The new injection well should be located along the north portion of the Site 11/21 Intermediate pilot test area, and will be used to evaluate whether the preferential flow direction is to the south and east, and if so, allow ISOTEC to evaluate the groundwater treatment radial effects and associated reagent quantities. The proposed placement of the injection well is shown of **Figure 10**.

5.4 SITE 16 NORTH SHALLOW

ISOTEC injected a total of 950 gallons of ISOTEC reagents (450 gallons of oxidizer and 500 gallons of catalyst) through injection well P16-IWS04 at pilot test Site 16 North Shallow. The field activities occurred from November 12 to 14, 2002.

The ISOTEC process was successful in reducing VOC concentrations in groundwater. Specifically, the average 1,2-DCB groundwater concentrations was reduced 22% in the Site 16 North Shallow monitoring wells sampled. Reductions in 1,2-DCB concentrations were observed in monitoring wells P16-MWS02, P16-MWS06, and P16-MWS04, with the most significant reduction observed in monitoring P16-MWS06. The 1,2-DCB concentration was reduced in this well from 36 ug/l to 2.5 ug/l, a reduction of 93%.

Reductions in contaminant concentrations were observed in groundwater at the maximum distance sampled, 27 feet. Reductions of dissolved 1,2-DCB concentrations greater than 60% were documented at distances within 15 feet. Specifically, monitoring well P16-MWS02, located approximately 7.5 feet from the injection well, was reduced 73%, and well P16-MWS06, located approximately 11.5 feet from the injection well, was reduced 73%. The monitoring well located 27 feet from the injection well, P16-MWS04, showed a 1,2-DCB concentration reduction of 51%. Based on the observed contaminant reductions in the sampled wells relative to their locations from the injection well indicates that the effective treatment ROI is approximately 15-30 feet.

The introduction of ISOTEC reagents into the subsurface at Site 16 North Shallow through an injection well appeared to be very effective for reagent distribution and should be utilized during a full-scale remediation at the site. Injection wells should be located on 40-foot centers, a 20-foot ROI, to conservatively and uniformly deliver reagents to the subsurface in the Site 16 North Shallow groundwater plume area. The injection of ISOTEC reagents through temporary direct push screens using a direct push-type rig could be used at Site 16 North Shallow as an alternative to injection wells.

5.5 SITE 16 SOUTH SHALLOW

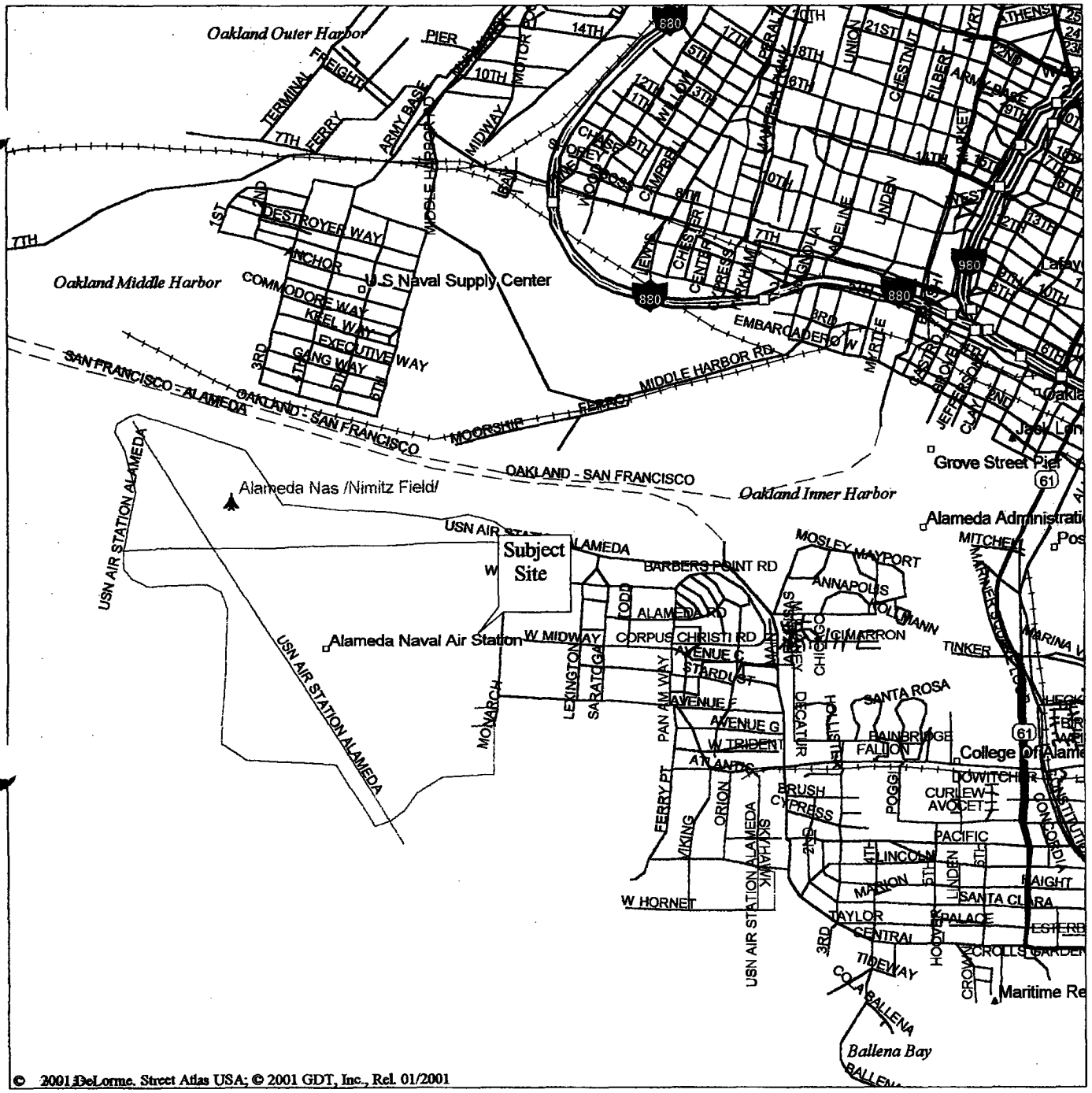
ISOTEC injected a total of 450 gallons of ISOTEC reagents (200 gallons of oxidizer and 250 gallons of catalyst) through injection well P16-IWS03 at pilot test Site 16 South Shallow. The field activities occurred during one injection event from November 12 to 14, 2002.

The ISOTEC process was successful in reducing VOC concentrations in groundwater. Specifically, average TCE and PCE groundwater concentrations were reduced 84% and 86%, respectively, in the Site 16 South Shallow monitoring wells sampled.

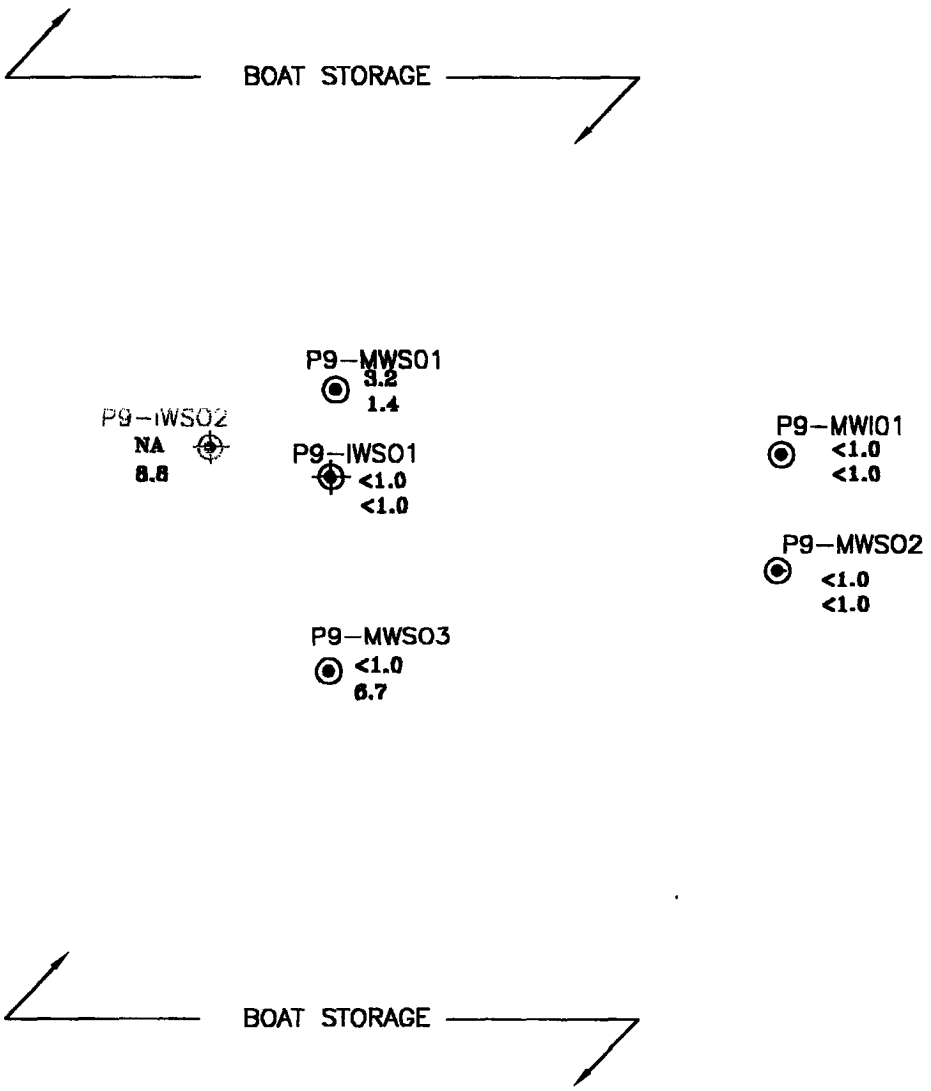
A significant reduction in contaminant concentrations was observed in monitoring well P16-MWS07, which is located approximately 18.5 feet from the injection well. It is important to note that this well, P9-MWS04, was the only on-site monitoring with baseline TCE and PCE concentrations above 10 ug/l. Post injection groundwater samples indicated a reduction in TCE and PCE concentrations of 91% and 90%, respectively. This reduction in contaminants in P16-MWS017 indicates that the effective treatment ROI at least 20 feet.

Since the ISOTEC injection process was so effective in treating VOC contaminants at Site 16 South Shallow, this approach should utilized for full-scale remediation at the site. ISOTEC recommends that injection wells be located on 40-foot centers, a 20-foot ROI, to conservatively and uniformly deliver reagents to the subsurface in the Site 16 South groundwater plume area. The injection of ISOTEC reagents through temporary direct push screens using a direct push-type rig could be used at Site 16 South Shallow as an alternative to injection wells.

FIGURES



In-Situ Oxidative Technologies, Inc. 5200 DTC Parkway, Suite 150 Englewood, Colorado 80111	SCALE: NOT TO SCALE DATE: 10/1/02	PROJECT# 900062
	DRAWN BY: SCH CHECKED BY: CN	
SITE LOCATION MAP **Former NAS Alameda** **Alameda Point** **Alameda, California**		FIGURE 1



LEGEND

⊙ Monitoring Well

⊕ Injection Well

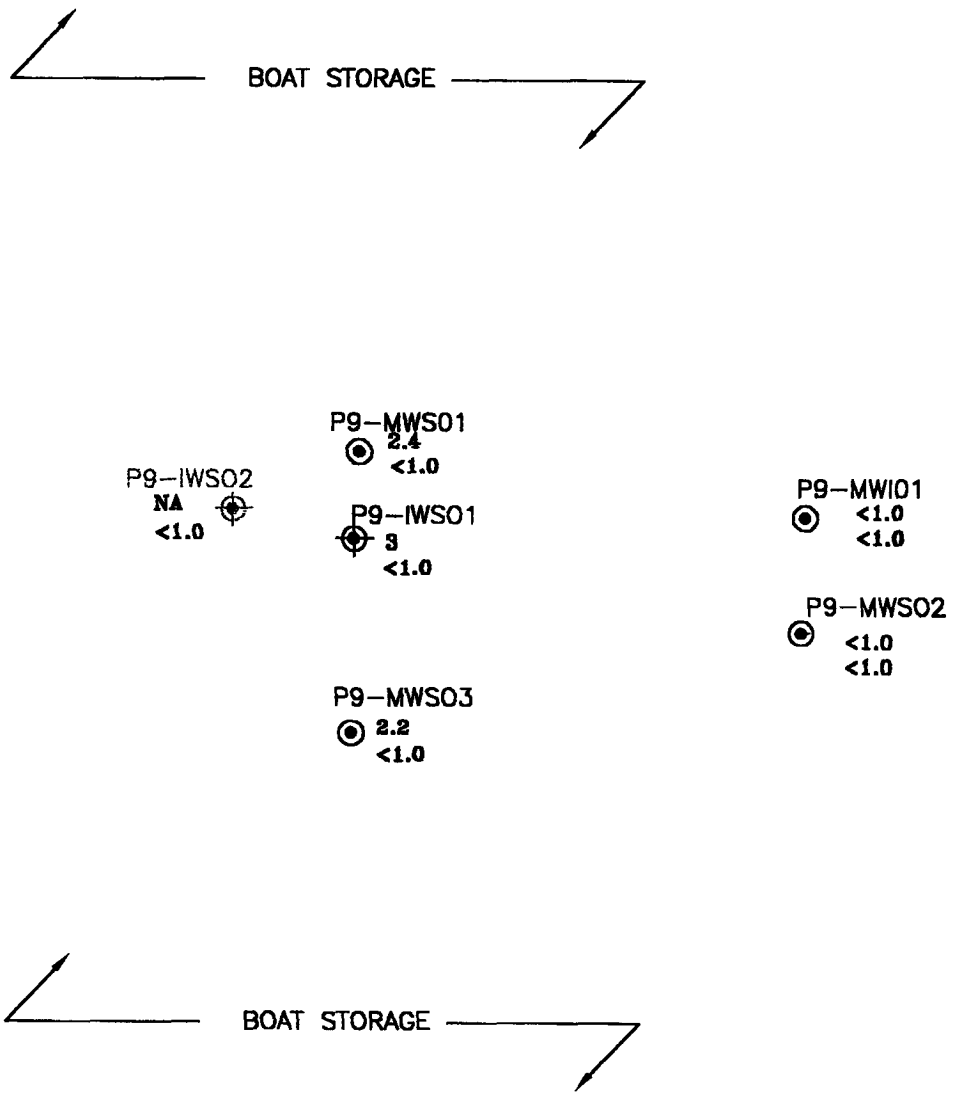
130 BASELINE – 1,2,4–Trimethylbenzene Concentration

52 POST INJECTION (12/16–20/02)– 1,2,4–Trimethylbenzene Concentration

0 5' 10'
SCALE IN FEET

N

In-Situ Oxidative Technologies, Inc. 5600 South Quebec Street, Suite 320 D Englewood, Colorado 80111 Tel: (303) 843-9079	SCALE: 1" = 10' DATE: 1/27/03 DRAWN BY: MT CHECKED BY: TE	PROJECT# 900062
Well Location and 1,2,4–Trimethylbenzene Concentration Map **Site 9 Shallow** **Former Naval Air Station Alameda**		FIGURE# 2



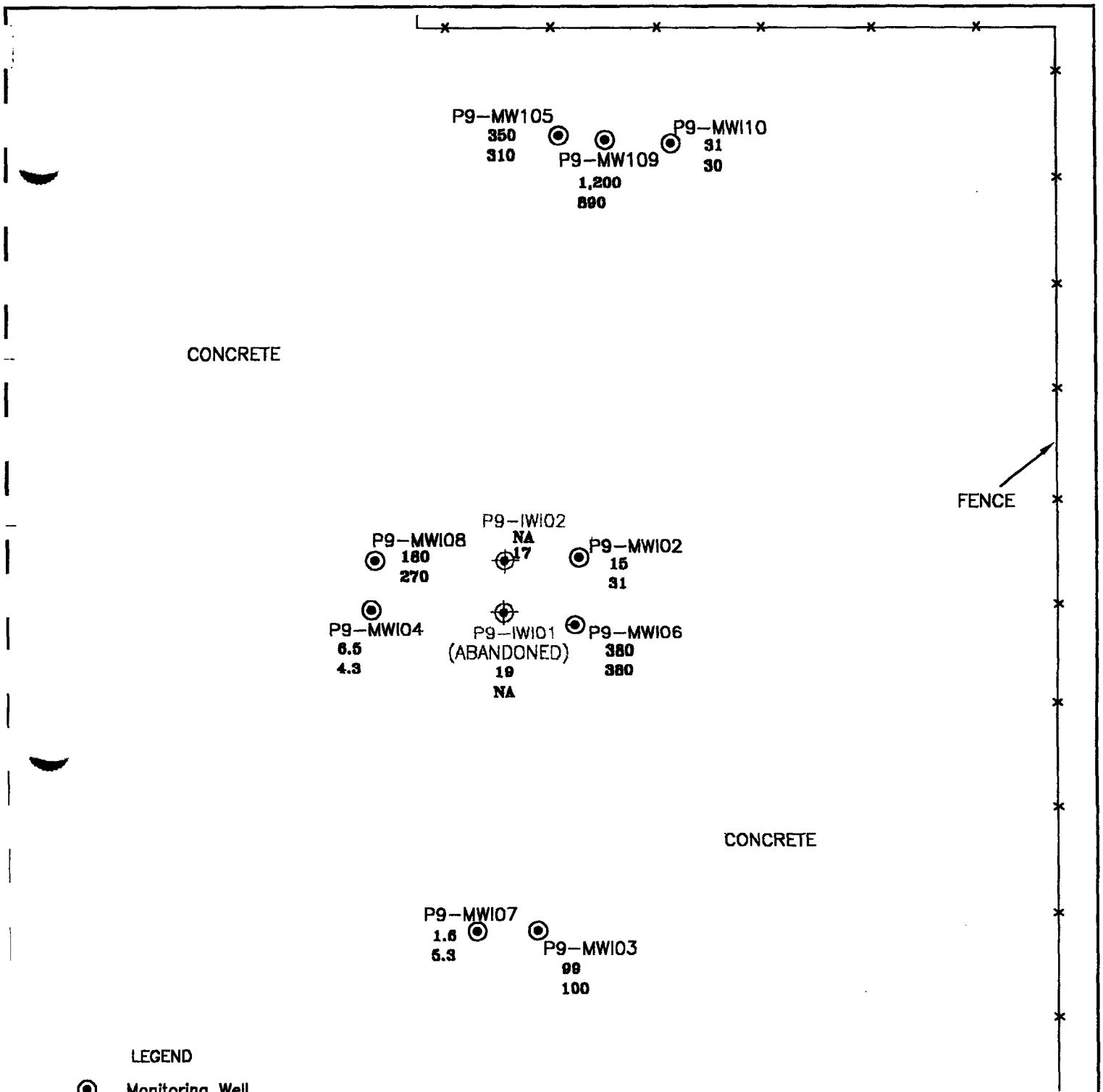
LEGEND

- Monitoring Well
- Injection Well
- 99 BASELINE – Vinyl Chloride Concentration
- 49 POST INJECTION (12/16–20/02)– Vinyl Chloride Concentration

0 5' 10'
SCALE IN FEET

N

In-Situ Oxidative Technologies, Inc. 5600 South Quebec Street, Suite 320 D Englewood, Colorado 80111 Tel: (303) 843-9079	SCALE: 1" = 10' DATE: 1/27/03 DRAWN BY: MT CHECKED BY: TE	PROJECT# 900062
Well Location and Vinyl Chloride Concentration Map **Site 9 Shallow** **Former Naval Air Station Alameda**		FIGURE# 3



LEGEND

- Monitoring Well
- Injection Well

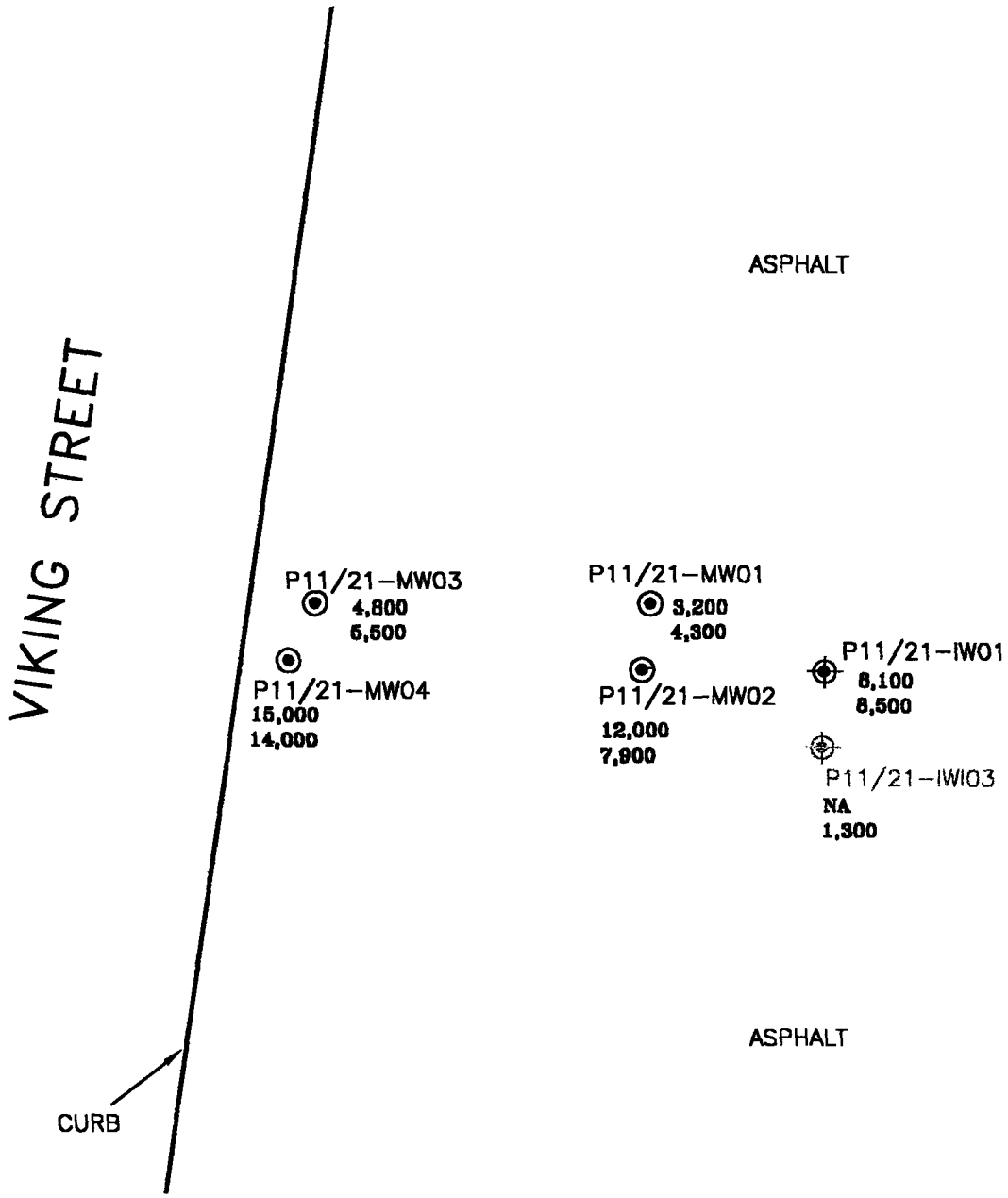
6.5 BASELINE – 1,1-DCA Concentration

4.3 POST INJECTION (12/16-20/02)– 1,1-DCA Concentration

0 5' 10'
SCALE IN FEET

N

In-Situ Oxidative Technologies, Inc. 5600 South Quebec Street, Suite 320 D Englewood, Colorado 80111 Tel: (303) 843-9079	SCALE: 1" = 10' DATE: 1/27/03	PROJECT# 900062
	DRAWN BY: MT CHECKED BY: TE	
Well Location and 1,1-DCA Concentration Map **Site 9 Intermediate** **Former Naval Air Station Alameda**		FIGURE# 4



LEGEND

Monitoring Well

Injection Well

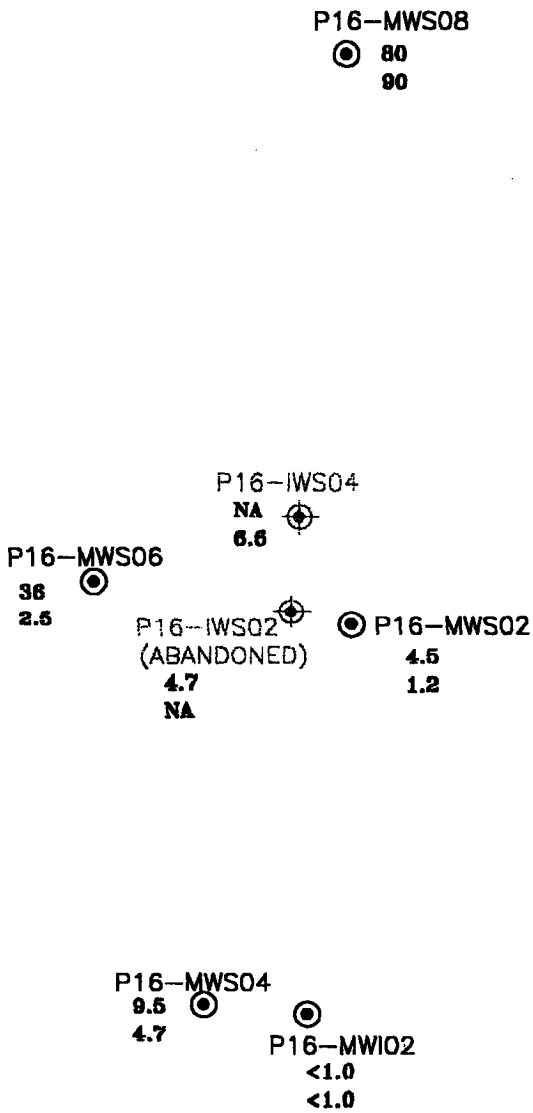
12,000 BASELINE – TCE Concentration

7,900 POST INJECTION (12/16–20/02)– TCE Concentration

0 5' 10'
SCALE IN FEET

N

In-Situ Oxidative Technologies, Inc. 5600 South Quebec Street, Suite 320 D Englewood, Colorado 80111 Tel: (303) 843-9079	SCALE: 1" = 10' DATE: 1/27/03	PROJECT# 900062
	DRAWN BY: MT CHECKED BY: TE	
Well Location and TCE Concentration Map **Site 11/21** **Former Naval Air Station Alameda**		FIGURE# 5



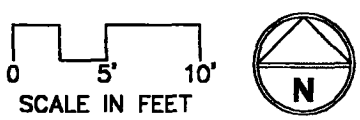
LEGEND

◉ Monitoring Well

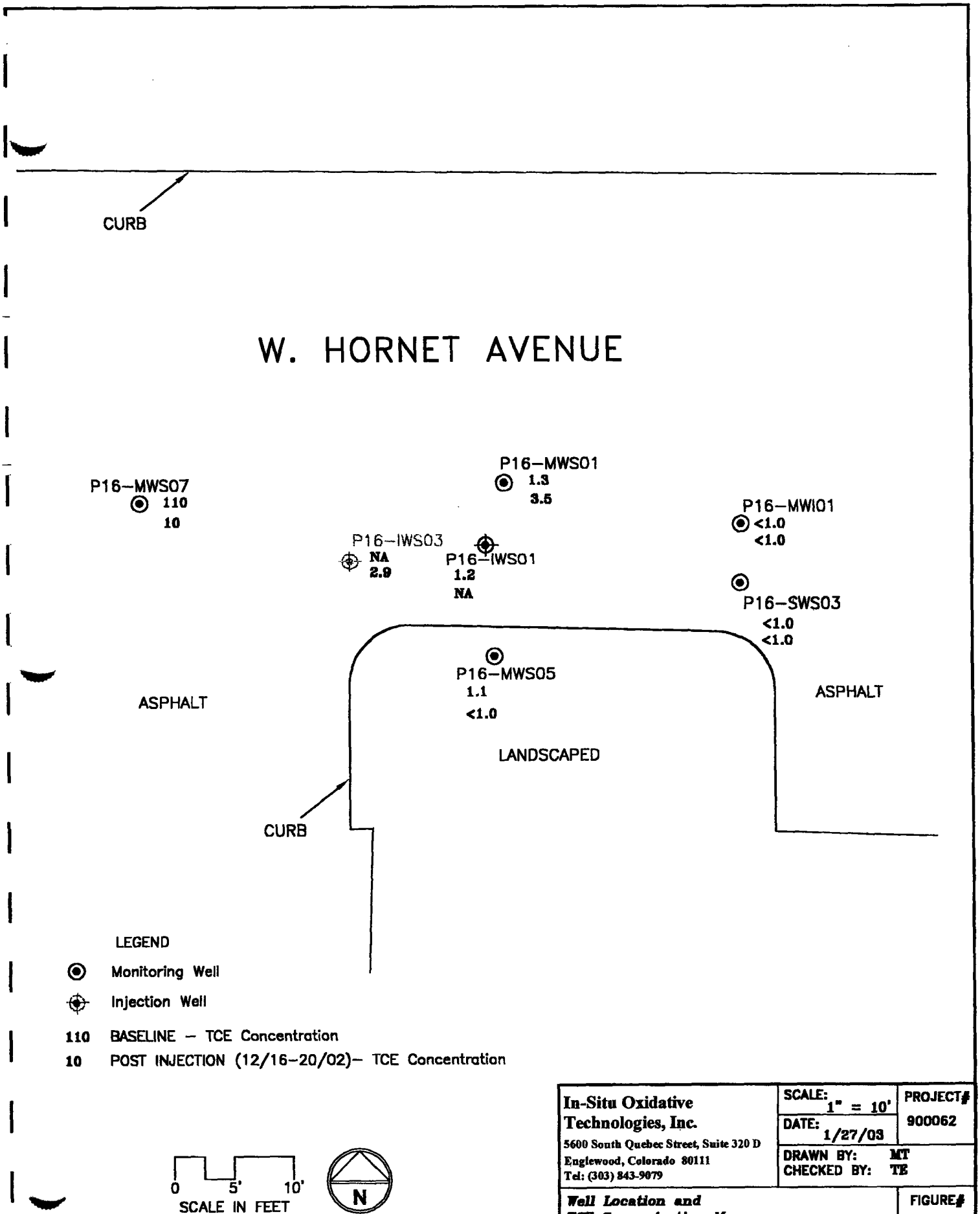
⊕ Injection Well

9.5 BASELINE – 1,2–DCB Concentration

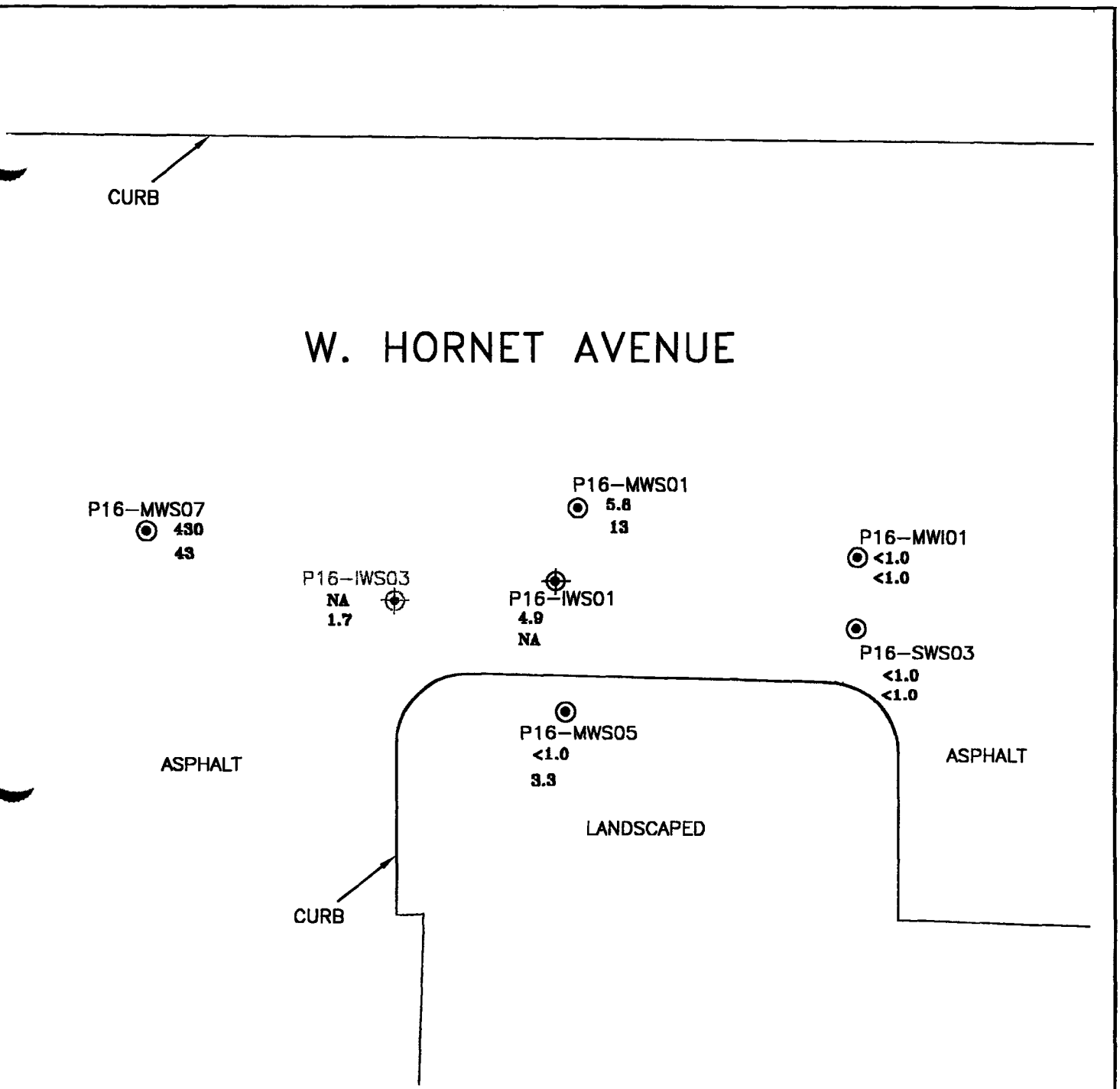
4.7 POST INJECTION (12/16–20/02)– 1,2–DCB Concentration



In-Situ Oxidative Technologies, Inc. 5600 South Quebec Street, Suite 320 D Englewood, Colorado 80111 Tel: (303) 843-9079	SCALE: 1" = 10' DATE: 1/27/03	PROJECT# 900062
	DRAWN BY: MT CHECKED BY: TE	
Well Location and 1,2–DCB Concentration Map **Site 16 North** **Former Naval Air Station Alameda**		FIGURE# 6



In-Situ Oxidative Technologies, Inc. 5600 South Quebec Street, Suite 320 D Englewood, Colorado 80111 Tel: (303) 843-9079	SCALE: 1" = 10' DATE: 1/27/03	PROJECT# 900062
	DRAWN BY: MT CHECKED BY: TE	
Well Location and TCE Concentration Map **Site 16 South** **Former Naval Air Station Alameda**		FIGURE# 7



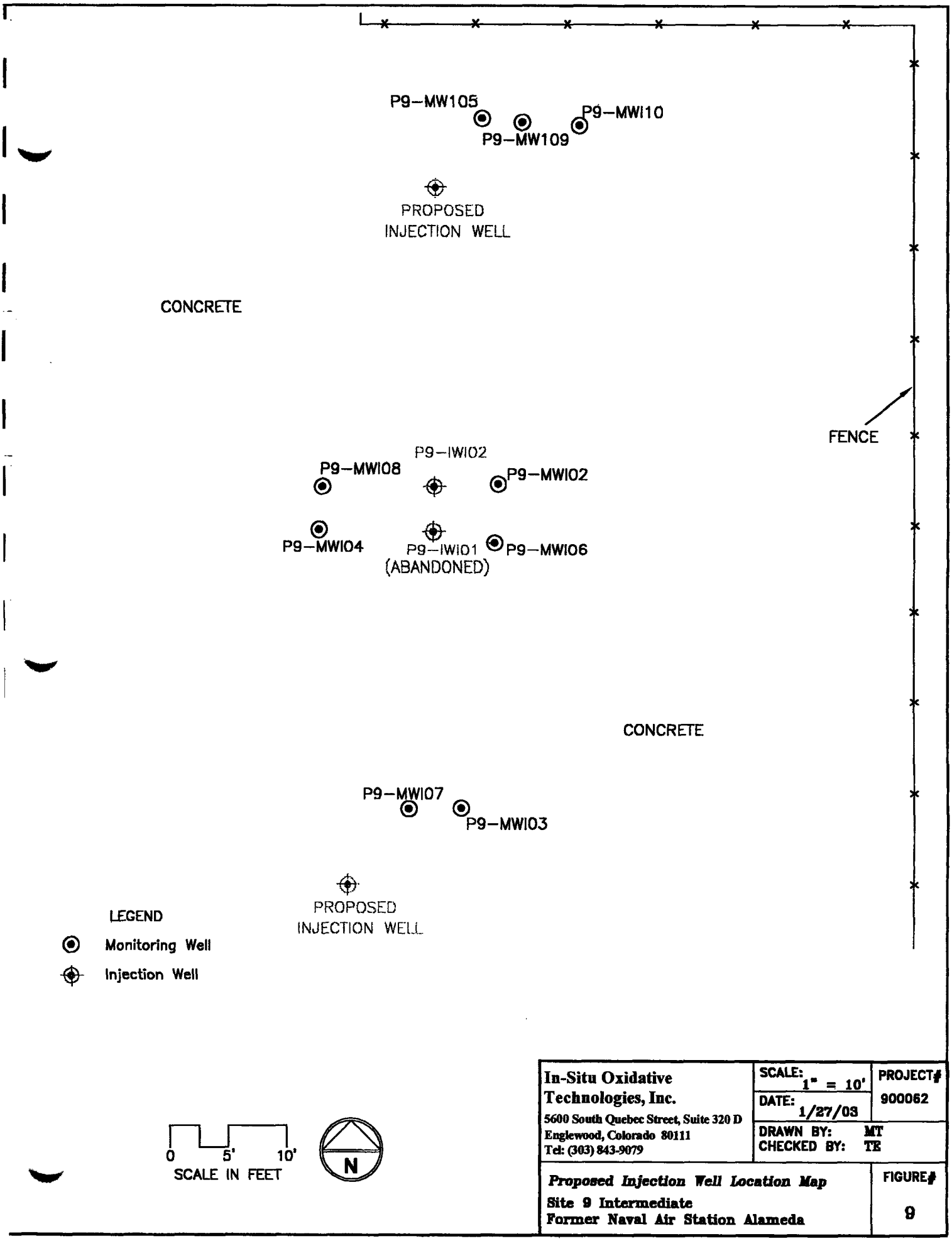
LEGEND

- Monitoring Well
- Injection Well
- 430 BASELINE – PCE Concentration
- 40 POST INJECTION (12/16–20/02)– PCE Concentration

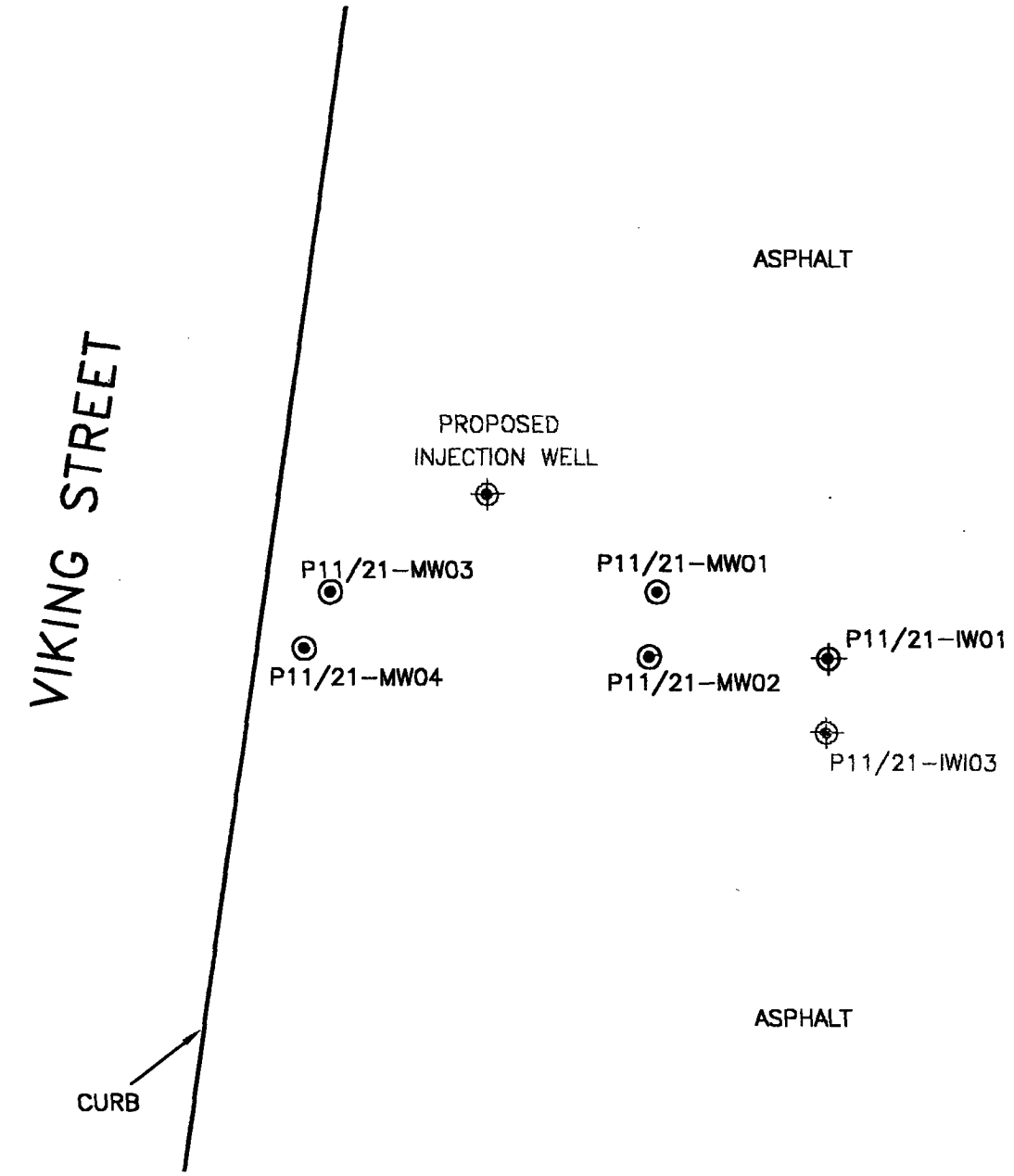
0 5' 10'
SCALE IN FEET

N

In-Situ Oxidative Technologies, Inc. 5600 South Quebec Street, Suite 320 D Englewood, Colorado 80111 Tel: (303) 843-9079	SCALE: 1" = 10' DATE: 1/27/03	PROJECT# 900062
	DRAWN BY: MT CHECKED BY: TE	
Well Location and PCE Concentration Map **Site 16 South** **Former Naval Air Station Alameda**		FIGURE# 8



In-Situ Oxidative Technologies, Inc. 5600 South Quebec Street, Suite 320 D Englewood, Colorado 80111 Tel: (303) 843-9079	SCALE: 1" = 10' DATE: 1/27/03	PROJECT# 900062
	DRAWN BY: MT CHECKED BY: TE	
Proposed Injection Well Location Map **Site 9 Intermediate** **Former Naval Air Station Alameda**		FIGURE# 9



LEGEND

Monitoring Well

Injection Well

0 5' 10'
SCALE IN FEET

N

In-Situ Oxidative Technologies, Inc. 5600 South Quebec Street, Suite 320 D Englewood, Colorado 80111 Tel: (303) 843-9079	SCALE: 1" = 10' DATE: 1/27/03	PROJECT# 900062
	DRAWN BY: MT CHECKED BY: TE	
Proposed Injection Well Location Map **Site 11/21 Intermediate** **Former Naval Air Station Alameda**		FIGURE# 10

TABLES

Ta

Pilot Test Program
Injection Event Data

Alameda NAS
Alameda, California

Pilot Test Site	Injection Point/Well	November 12, 2002 ISOTEC Reagent			November 13, 2002 ISOTEC Reagent			November 14, 2002 ISOTEC Reagent			November 15, 2002 ISOTEC Reagent			Reagent Totals
		H_2O_2 (gallons)	Catalyst	Field Observations (average psi, gpm, surfacing, etc.)	H_2O_2 (gallons)	Catalyst	Field Observations (average psi, gpm, surfacing, etc.)	H_2O_2 (gallons)	Catalyst	Field Observations (average psi, gpm, surfacing, etc.)	H_2O_2 (gallons)	Catalyst	Field Observations (average psi, gpm, surfacing, etc.)	
Site 9 Shallow	P9-IWS02	50	90	3 psi/5 gpm	200	200	6 psi/5 gpm	200	200	3 psi/5 gpm				940
Site 9 Intermediate	P9-IWI02	75	150	Surfacing observed ~ 10 ft. from P9-IWI02 after 75 gallons peroxide.				50	50	3 psi/3 gpm				325
Site 11/21 Intermediate	P11/21-IWI03				75	50	6 psi/5 gpm	200	200	5 psi/5 gpm	150	150	7 psi/5 gpm	825
Site 16 North Shallow	P16-IWS04	50	100	2 psi/5 gpm	200	200	3 psi/5 gpm	200	200	5 psi/5 gpm				950
Site 16 South Shallow	P16-IWS03	50	50	2 psi/5 gpm	100	200	7 psi/3 gpm	50	0	Surfacing observed ~3 ft. from injection well.				450
Totals		225	390		575	650		700	650		150	150		3490
Daily Total		615			1225			1350			300			

Total Catalyst	1840
Total H2O2	1650

Table 2
Pilot Test Program
Field Monitoring Data

SITE 9 SHALLOW

Alameda NAS
Alameda, California

Pilot Test Site	Sample Date	Sample Time	Sample Location	H2O2 (mg/l)	Fe (mg/l)
Site 9 Shallow	11/12/2002 (baseline)	1:01	P9-MWS03	0	1
		1:03	P9-MWS01	0	2
		1:03	P9-IWS01	0	2
		1:07	P9-MWS04	0	2.50
		1:11	P9-MWI01	0	0.10
		1:11	P9-MWS02	0	0.40
	11/12/02	2:30	P9-MWS04	0	3
		2:30	P9-MWI01	0	0.10
		2:31	P9-MWS01	0	30
		2:31	P9-MWS02	0	0.30
		2:32	P9-MWS03	0	0.80
		2:32	P9-IWS01	0	2
	11/13/02	na	P9-IWS01	0	0
		na	P9-MWS01	1,000	10
		na	P9-MWS02	0	0
		na	P9-MWS03	0.15	0
		na	P9-MWS04	0	0
		na	P9-MWI01	0	0.20
	11/14/02	12:52	P9-MWI01	0	0.04
		12:53	P9-MWS02	0	0.01
		12:57	P9-MWS04	0	0.13
		1:03	P9-MWS01	20	0.51
		1:03	P9-MWS03	10,000	4.7
		1:03	P9-IWS01	3	0.34

Table 3
Pilot Test Program
Field Monitoring Data

SITE 9 INTERMEDIATE

Alameda NAS
Alameda, California

Pilot Test Site	Sample Date	Sample Time	Sample Location	H2O2 (mg/l)	Fe (mg/l)
Site 9 Intermediate	11/12/2002 (baseline)	7:44	P9-MWI05	0	0
		7:54	P9-MWI09	0	0
		7:56	P9-MWI10	0	0
		7:58	P9-MWI06	0	0
		7:59	P9-MWI02	0	0
		7:59	P9-MWI03	0	0
		8:01	P9-MWI07	0	**0.10**
		8:03	P9-MWI04	0	0
		8:04	P9-MW-I08	0	0
	11/12/02	9:18	P9-MWI08	0	0
		9:18	P9-MWI06	0	0
		9:38	P9-MWI02	0	0
		9:38	P9-MWI04	0	0
		NS	P9-MWI05	NS	NS
		NS	P9-MWI09	NS	NS
		NS	P9-MWI10	NS	NS
		NS	P9-MWI03	NS	NS
		NS	P9-MWI07	NS	NS
	11/14/02	2:25	P9-MW-I08	0	**0.02**
		2:25	P9-MW-I02	0	**0.10**
		2:26	P9-MW-I04	0	**0.05**
		2:28	P9-MW-I06	0	**0.06**

Table 4
Pilot Test Program
Field Monitoring Data

SITE 11/21 INTERMEDIATE

Alameda NAS
Alameda, California

Pilot Test Site	Sample Date	Sample Time	Sample Location	H2O2 (mg/l)	Fe (mg/l)
Site 11/21 Intermediate	11/13/2002 (baseline)	na	P11/21-IW01	0	0
		na	P11/21-MW01	0.10	0
		na	P11/21-MW02	0	0
		na	P11/21-MW03	0.05	0
		na	P11/21-MW04	0.20	0
	11/13/02	na	P11/21-IW01	0.10	0
		na	P11/21-MW01	0.10	0
		na	P11/21-MW02	0	0
		na	P11/21-MW03	0.05	0.01
		na	P11/21-MW04	0.20	0
	11/14/02	8:40	P11/21-MW03	0	0
		8:41	P11/21-MW04	0.20	0.01
		8:42	P11/21-MW01	0	0.13
		8:44	P11/21-MW02	0	0
		8:46	P11/21-IW01	0	0

Table 5
Pilot Test Program
Field Monitoring Data

SITE 16 NORTH SHALLOW

Alameda NAS
Alameda, California

Pilot Test Site	Sample Date	Sample Time	Sample Location	H2O2 (mg/l)	Fe (mg/l)
Site 16 North	11/12/2002 (baseline)	10:25	P16-MWS02	0	0
		10:26	P16-MWI02	0.40	0
		10:26	P16-MWS06	0	0
		10:28	P16-MWS04	0	0
		10:30	P16-MWS08	0	1.50
	11/12/02	11:31	P16-MWS08	0	0.80
		11:31	P16-MWS04	0	0
		11:32	P16-MWS02	0	0
		11:32	P16-MWS06	0	0
		11:34	P16-MWI02	0.50	0
	11/13/02	na	P16-MWS02	40	20
		na	P16-MWS04	0	0
		na	P16-MWS06	0	0
		na	P16-MWS08	0	0
		na	P16-IW02	0.25	0
	11/14/02	10:48	P16-MWS08	0	0.09
		10:48	P16-MWI02	0	0
		10:48	P16-MWS04	0	0
		10:55	P16-MWS06	0	0.28
		10:55	P16-MWS02	2,000	<3.3

Table 6
Pilot Test Program
Field Monitoring Data

SITE 16 SOUTH SHALLOW

Alameda NAS
Alameda, California

Pilot Test Site	Sample Date	Sample Time	Sample Location	H2O2 (mg/l)	Fe (mg/l)
Site 16 South	11/12/2002 (baseline)	3:37	P16-IWS01	0	0
		3:37	P16-MWS07	0	0
		3:37	P16-MWS01	0	0
		3:38	P16MWI01	0	0
		3:38	P16-MWS03	**0.10**	0
		3:43	P16-MWS05	0	**0.20**
	11/12/02	4:21	P16-MWS01	0	0
		4:23	P16MWI01	0	0
		4:23	P16-MWS03	**0.10**	**0.15**
		4:25	P16-IWS01	**0.10**	0
		4:25	P16-MWS07	0	0
		4:26	P16-MWS05	0	**0.05**
	11/13/02	na	P16-IWS01	0	0
		na	P16-MWS01	0	**0.05**
		na	P16-MWS03	0	**0.01**
		na	P16-MWS05	**0.10**	0
		na	P16-MWS07	0	0
		na	P16-MWI01	**0.10**	**0.07**

Table 7
Pilot Test Program
Soil Concentrations (ug/kg) with Percent Reductions
(Locations with Detectable Concentrations Only)

Alameda NAS
Alameda, California

Pilot Test Site	Corehole Location	Compound	Baseline	Post 1st Injection	Baseline vs Post 1 Injection (% Reduction)
Site 9 Intermediate	9I-CH1	1,1-DCA	2.1	3.7	-76.2%
	9I-CH2	1,1-DCA	3.8	NR	N/A
Site 11/21 Intermediate	11/21-CH3	TCE	2.5	NR	N/A
	11/21-CH4	TCE	NR	46	N/A
	11/21-CH5	TCE	NR	11	N/A
	11/21-CH6	TCE	NR	20	N/A
Site 16 South Shallow	16S-CH1	TCE	NR	1.7	N/A
	16S-CH2	TCE	NR	1.3	N/A
	16S-CH3	TCE	NR	4.4	N/A

Notes:
N/A - Not Applicable
NR - No Data Reported

Table 8
Pilot Test Program
Site 9 Shallow
1,2,4 Trimethylbenzene Concentrations (ug/L) with Percent Reductions

Alameda NAS
Alameda, California

Injection/ Monitoring Well	Approximate Distance from Injection Well (P9-IWS02)	Baseline	Post 1st Injection	Baseline vs Post 1 (% Reduction)
P9-IWS02 (REPLACEMENT)	N/A	N/A	8.8	N/A
P9-IWS01	6.5 ft.	0.5 *	0.5 *	0%
P9-MWS01	8 ft.	3.2	1.4	56%
P9-MWS03	13 ft.	0.5 *	6.7	-1240%
P9-MWS04	23 ft.	130	52	60%
P9-MWI01	30 ft.	0.5 *	0.5 *	0%
P9-MWS02	31 ft.	0.5 *	0.5 *	0%
Average		23	10	55%

Notes:
N/A - Not Applicable
* - 1/2 of Minimum Detection Limit

Table 9
Pilot Test Program
Site 9 Shallow
Vinyl Chloride Concentrations (ug/L) with Percent Reductions

Alameda NAS
Alameda, California

Injection/ Monitoring Well	Approximate Distance from Injection Well (P9-IWS02)	Baseline	Post 1st Injection	Baseline vs Post 1 (% Reduction)
P9-IWS02 (REPLACEMENT)	N/A	N/A	0.5 *	N/A
P9-IWS01	6.5 ft.	3	0.5 *	83%
P9-MWS01	8 ft.	2.4	0.5 *	79%
P9-MWS03	13 ft.	2.2	0.5 *	77%
P9-MWS04	23 ft.	99	49	51%
P9-MWI01	30 ft.	0.5 *	0.5 *	0%
P9-MWS02	31 ft.	0.5 *	0.5 *	0%
Average		18	7	59%

Notes:
N/A - Not Applicable
* - 1/2 of Minimum Detection Limit

Table 10
Pilot Test Program
Site 9 Intermediate
1,1 DCA Concentrations (ug/L) with Percent Reductions

Alameda NAS
Alameda, California

Injection/ Monitoring Well	Approximate Distance from Injection Well (P9-IWI02)	Baseline	Post 1st Injection	Baseline vs Post 1 (% Reduction)
P9-IWI02 (REPLACEMENT)	N/A	N/A	17	N/A
P9-IWI01 (ABANDONED)	N/A	19	N/A	N/A
P9-MWI02	5.5 ft.	15	31	-107%
P9-MWI06	7 ft.	380	380	0%
P9-MWI08	9.5 ft.	180	270	-50%
P9-MWI04	10.5 ft.	6.5	4.3	34%
P9-MWI07	28.5 ft.	1.6	5.3	-231%
P9-MWI03	29 ft.	99	100	-1%
P9-MWI09	31 ft.	1,200	890	26%
P9-MWI05	32 ft.	350	310	11%
P9-MWI10	32 ft.	31	30	3%
Average		228	204	11%

Notes:
N/A - Not Applicable

Table 11
Pilot Test Program
Site 11/21
TCE Concentrations (ug/L) with Percent Reductions

Alameda NAS
Alameda, California

Injection/ Monitoring Well	Approximate Distance from Injection Well (P11/21-IWI03)	Baseline	Post 1st Injection	Baseline vs Post 1 (% Reduction)
P11/21-IWI03 (REPLACEMENT)	N/A	N/A	1,300	N/A
P11/21-IWI01	4 ft.	8,100	8,500	-5%
P11/21-MW02	11.5 ft.	12,000	7,900	34%
P11/21-MW01	12 ft.	3,200	4,300	-34%
P11/21-MW03	31 ft.	4,800	5,500	-15%
P11/21-MW04	31 ft.	15,000	14,000	7%
Average		8,620	6,917	20%

Notes:
N/A - Not Applicable

Table 12
Pilot Test Program
Site 16 North
1,2 DCB Concentrations (ug/L) with Percent Reductions

Alameda NAS
Alameda, California

Injection/ Monitoring Well	Approximate Distance from Injection Well (P16-IWS04)	Baseline	Post 1st Injection	Baseline vs Post 1 (% Reduction)
P16-IWS04 (REPLACEMENT)	N/A	N/A	6.6	N/A
P16-IWS02 (ABANDONED)	2 ft.	4.7	N/A	N/A
P16-MWS02	7.5 ft.	4.5	1.2	73%
P16-MWS06	11.5 ft.	36	2.5	93%
P16-MWS08	24 ft.	80	90	-13%
P16-MWI02	27.5 ft.	0.5 *	0.5 *	0%
P16-MWS04	27 ft.	9.5	4.7	51%
Average		23	18	22%

Notes:
N/A - Not Applicable
* - 1/2 of Minimum Detection Limit

Table 13
Pilot Test Program
Site 16 South
TCE Concentrations (ug/L) with Percent Reductions

Alameda NAS
Alameda, California

Injection/ Monitoring Well	Approximate Distance from Injection Well (P16-IWS03)	Baseline	Post 1st Injection	Baseline vs Post 1 (% Reduction)
P16-IWS03 (REPLACEMENT)	N/A	N/A	2.9	N/A
P16-IWS01	11.2 ft.	1.2	N/A	N/A
P16-MWS01	13 ft.	1.3	3.5	-169%
P16-MWS05	14.5 ft.	1.1	0.5 *	55%
P16-MWS07	18.5 ft.	110	10	91%
P16-MWI01	32 ft.	0.5 *	0.5 *	0%
P16-MWS03	32 ft.	0.5 *	0.5 *	0%
Average		19	3	84%

Notes:
N/A - Not Applicable
* - 1/2 of Minimum Detection Limit

Table 14
Pilot Test Program
Site 16 South
PCE Concentrations (ug/L) with Percent Reductions

Alameda NAS
Alameda, California

Injection/ Monitoring Well	Distance from Injection Well (P16-IWS03)	Baseline	Post 1st Injection	Baseline vs Post 1 (% Reduction)
P16-IWS03 (REPLACEMENT)	N/A	N/A	1.7	N/A
P16-IWS01	11.2 ft.	4.9	NA	N/A
P16-MWS01	13 ft.	5.8	13	-124%
P16-MWS05	14.5 ft.	0.5 *	3.3	-560%
P16-MWS07	18.5 ft.	430	43	90%
P16-MWI01	32 ft.	0.5 *	0.5 *	0%
P16-MWS03	32 ft.	0.5 *	0.5 *	0%
Average		74	10	86%

Notes:
N/A - Not Applicable
NS - Not Sampled (Well Abandoned)
* - 1/2 of Minimum Detection Limit

APPENDIX I

ANALYTICAL DATA

SOIL

SDG #	Sample Date	Sample Number	Location Code	Start Depth	End Depth	Lab Matrix	Test Group	Compound Name	Res. Type	Prep Code	Samp Purp	Result	Unit of Measure	Qlfr
206116	18-Jun-02	11/21-CH1	11/21-CH1	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	12	ug/kg	JB
206116	18-Jun-02	11/21-CH1	11/21-CH1	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.11	mg/kg	B
206116	18-Jun-02	11/21-CH1	11/21-CH1	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	3330	mg/kg	N
206116	18-Jun-02	11/21-CH1	11/21-CH1	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	112	mg/kg	N
206116	18-Jun-02	11/21-CH1	11/21-CH1	5	15	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.17	mg/kg	B
206116	18-Jun-02	11/21-CH2	11/21-CH2	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	16	ug/kg	JB
206116	18-Jun-02	11/21-CH2	11/21-CH2	5	15	SOIL	METALS	Antimony	TRG	NORM	REG	0.95	mg/kg	BN
206116	18-Jun-02	11/21-CH2	11/21-CH2	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.46	mg/kg	B
206116	18-Jun-02	11/21-CH2	11/21-CH2	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	6810	mg/kg	N
206116	18-Jun-02	11/21-CH2	11/21-CH2	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	274	mg/kg	N
206116	18-Jun-02	11/21-CH2	11/21-CH2	5	15	SOIL	METALS	Silver	TRG	NORM	REG	0.29	mg/kg	B
206116	18-Jun-02	11/21-CH3	11/21-CH3	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	17	ug/kg	JB
206116	18-Jun-02	11/21-CH3	11/21-CH3	5	15	SOIL	METALS	Antimony	TRG	NORM	REG	0.53	mg/kg	BN
206116	18-Jun-02	11/21-CH3	11/21-CH3	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	12600	mg/kg	N
206116	18-Jun-02	11/21-CH3	11/21-CH3	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	464	mg/kg	N
206116	18-Jun-02	16N-CH1	16N-CH1	5	15	SOIL	8260 VOLATILES	1,4-Dichlorobenzene	TRG	NORM	REG	3.2	ug/kg	J
206116	18-Jun-02	16N-CH1	16N-CH1	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	17	ug/kg	JB
206116	18-Jun-02	16N-CH1	16N-CH1	5	15	SOIL	METALS	Antimony	TRG	NORM	REG	0.48	mg/kg	BN
206116	18-Jun-02	16N-CH1	16N-CH1	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.3	mg/kg	B
206116	18-Jun-02	16N-CH1	16N-CH1	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	5530	mg/kg	N
206116	18-Jun-02	16N-CH1	16N-CH1	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	312	mg/kg	N
206116	18-Jun-02	16N-CH1	16N-CH1	5	15	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.39	mg/kg	B
206116	18-Jun-02	16N-CH2	16N-CH2	5	15	SOIL	8260 VOLATILES	1,4-Dichlorobenzene	TRG	NORM	REG	4	ug/kg	J
206116	18-Jun-02	16N-CH2	16N-CH2	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	13	ug/kg	JB
206116	18-Jun-02	16N-CH2	16N-CH2	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.1	mg/kg	B
206116	18-Jun-02	16N-CH2	16N-CH2	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	2320	mg/kg	N
206116	18-Jun-02	16N-CH2	16N-CH2	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	103	mg/kg	N
206116	18-Jun-02	16N-CH2	16N-CH2	5	15	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.11	mg/kg	B
206116	18-Jun-02	16N-CH2	16N-CH2	5	15	SOIL	METALS	Sodium	TRG	NORM	REG	128	mg/kg	B
206116	18-Jun-02	16N-CH3	16N-CH3	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	13	ug/kg	JB
206116	18-Jun-02	16N-CH3	16N-CH3	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.14	mg/kg	B
206116	18-Jun-02	16N-CH3	16N-CH3	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	2270	mg/kg	N
206116	18-Jun-02	16N-CH3	16N-CH3	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	167	mg/kg	N
206116	18-Jun-02	16N-CH3	16N-CH3	5	15	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.19	mg/kg	B
206116	18-Jun-02	16S-CH1	16S-CH1	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	14	ug/kg	JB
206116	18-Jun-02	16S-CH1	16S-CH1	5	15	SOIL	METALS	Antimony	TRG	NORM	REG	0.26	mg/kg	BN
206116	18-Jun-02	16S-CH1	16S-CH1	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.08	mg/kg	B
206116	18-Jun-02	16S-CH1	16S-CH1	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	2770	mg/kg	N
206116	18-Jun-02	16S-CH1	16S-CH1	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	116	mg/kg	N
206116	18-Jun-02	16S-CH1	16S-CH1	5	15	SOIL	METALS	Mercury	TRG	NORM	REG	0.01	mg/kg	B
206116	18-Jun-02	16S-CH1	16S-CH1	5	15	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.13	mg/kg	B
206116	18-Jun-02	16S-CH2	16S-CH2	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	13	ug/kg	JB
206116	18-Jun-02	16S-CH2	16S-CH2	5	15	SOIL	METALS	Arsenic	TRG	NORM	REG	1.3	mg/kg	B
206116	18-Jun-02	16S-CH2	16S-CH2	5	15	SOIL	METALS	Beryllium	TRG	NORM	REG	0.16	mg/kg	B
206116	18-Jun-02	16S-CH2	16S-CH2	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.08	mg/kg	B

SDG #	Sample Date	Sample Number	Location Code	Start Depth	End Depth	Lab Matrix	Test Group	Compound Name	Res. Type	Prep Code	Samp Purp	Result	Unit of Measure	Qlfr
206116	18-Jun-02	16S-CH2	16S-CH2	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	2650	mg/kg	N
206116	18-Jun-02	16S-CH2	16S-CH2	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	114	mg/kg	N
206116	18-Jun-02	16S-CH2	16S-CH2	5	15	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.14	mg/kg	B
206116	18-Jun-02	16S-CH2	16S-CH2	5	15	SOIL	METALS	Sodium	TRG	NORM	REG	173	mg/kg	B
206116	18-Jun-02	16S-CH3	16S-CH3	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	13	ug/kg	JB
206116	18-Jun-02	16S-CH3	16S-CH3	5	15	SOIL	METALS	Antimony	TRG	NORM	REG	0.29	mg/kg	BN
206116	18-Jun-02	16S-CH3	16S-CH3	5	15	SOIL	METALS	Beryllium	TRG	NORM	REG	0.13	mg/kg	B
206116	18-Jun-02	16S-CH3	16S-CH3	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.08	mg/kg	B
206116	18-Jun-02	16S-CH3	16S-CH3	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	1930	mg/kg	N
206116	18-Jun-02	16S-CH3	16S-CH3	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	92	mg/kg	N
206116	18-Jun-02	16S-CH3	16S-CH3	5	15	SOIL	METALS	Mercury	TRG	NORM	REG	0.02	mg/kg	B
206116	18-Jun-02	16S-CH3	16S-CH3	5	15	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.26	mg/kg	B
206116	18-Jun-02	16S-CH3	16S-CH3	5	15	SOIL	METALS	Sodium	TRG	NORM	REG	158	mg/kg	B
206116	18-Jun-02	16S-CH3	LAB	5	15	SOIL	METALS	Mercury	TRG	NORM	REG	0.02	mg/kg	B
206123	21-Jun-02	9S-CH1	9S-CH1	5	15	SOIL	8260 VOLATILES	Isopropylbenzene	TRG	NORM	REG	2.1	ug/kg	J
206123	21-Jun-02	9S-CH1	9S-CH1	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	5.6	ug/kg	JB
206123	21-Jun-02	9S-CH1	9S-CH1	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.1	mg/kg	B
206123	21-Jun-02	9S-CH1	9S-CH1	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	2390	mg/kg	N
206123	21-Jun-02	9S-CH1	9S-CH1	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	123	mg/kg	N
206123	21-Jun-02	9S-CH1	9S-CH1	5	15	SOIL	METALS	Mercury	TRG	NORM	REG	0.01	mg/kg	B
206123	21-Jun-02	9S-CH1-LR	LAB	5	15	SOIL	METALS	Antimony	TRG	NORM	LR	0.249	mg/kg	B
206123	21-Jun-02	9S-CH1-LR	LAB	5	15	SOIL	METALS	Cadmium	TRG	NORM	LR	0.07	mg/kg	B
206123	21-Jun-02	9S-CH1-LR	LAB	5	15	SOIL	METALS	Magnesium	TRG	NORM	LR	2369	mg/kg	N
206123	21-Jun-02	9S-CH1-LR	LAB	5	15	SOIL	METALS	Manganese	TRG	NORM	LR	130.3	mg/kg	N
206123	21-Jun-02	9S-CH2	9S-CH2	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	6.9	ug/kg	JB
206123	21-Jun-02	9S-CH2	9S-CH2	5	15	SOIL	METALS	Antimony	TRG	NORM	REG	0.31	mg/kg	BN
206123	21-Jun-02	9S-CH2	9S-CH2	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.1	mg/kg	B
206123	21-Jun-02	9S-CH2	9S-CH2	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	2730	mg/kg	N
206123	21-Jun-02	9S-CH2	9S-CH2	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	98.4	mg/kg	N
206123	21-Jun-02	9S-CH2	9S-CH2	5	15	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.13	mg/kg	B
206123	21-Jun-02	9S-CH3	9S-CH3	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	7.7	ug/kg	JB
206123	21-Jun-02	9S-CH3	9S-CH3	5	15	SOIL	METALS	Antimony	TRG	NORM	REG	0.35	mg/kg	BN
206123	21-Jun-02	9S-CH3	9S-CH3	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.32	mg/kg	B
206123	21-Jun-02	9S-CH3	9S-CH3	5	15	SOIL	METALS	Magnesium	TRG	NORM	REG	7050	mg/kg	N
206123	21-Jun-02	9S-CH3	9S-CH3	5	15	SOIL	METALS	Manganese	TRG	NORM	REG	270	mg/kg	N
206123	21-Jun-02	9S-CH3	9S-CH3	5	15	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.34	mg/kg	B
206142	24-Jun-02	9I-CH1	9I-CH1	5	15	SOIL	8260 VOLATILES	1,1-Dichloroethane	TRG	NORM	REG	2.1	ug/kg	J
206142	24-Jun-02	9I-CH1	9I-CH1	5	15	SOIL	8260 VOLATILES	Acetone	TRG	NORM	REG	8.3	ug/kg	J
206142	24-Jun-02	9I-CH1	9I-CH1	5	15	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	4.6	ug/kg	JB
206142	24-Jun-02	9I-CH1	9I-CH1	5	15	SOIL	METALS	Antimony	TRG	NORM	REG	0.35	mg/kg	BN
206142	24-Jun-02	9I-CH1	9I-CH1	5	15	SOIL	METALS	Cadmium	TRG	NORM	REG	0.21	mg/kg	B
206142	24-Jun-02	9I-CH1	9I-CH1	5	15	SOIL	METALS	Calcium	TRG	NORM	REG	2610	mg/kg	N
206142	24-Jun-02	9I-CH1	9I-CH1	5	15	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.18	mg/kg	B
206142	24-Jun-02	9I-CH1	9I-CH1	5	15	SOIL	METALS	Silver	TRG	NORM	REG	0.07	mg/kg	B
206142	24-Jun-02	9I-CH1	9I-CH1	5	15	SOIL	METALS	Sodium	TRG	NORM	REG	1410	mg/kg	E

SDG #	Sample Date	Sample Number	Location Code	Start Depth	End Depth	Lab Matrix	Test Group	Compound Name	Res. Type	Prep Code	Samp Purp	Result	Unit of Measure	Qlfr
206142	24-Jun-02	9I-CH2	9I-CH2	23	43	SOIL	8260 VOLATILES	1,1-Dichloroethane	TRG	NORM	REG	3.8	ug/kg	J
206142	24-Jun-02	9I-CH2	9I-CH2	23	43	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	5.6	ug/kg	JB
206142	24-Jun-02	9I-CH2	9I-CH2	23	43	SOIL	METALS	Antimony	TRG	NORM	REG	0.33	mg/kg	BN
206142	24-Jun-02	9I-CH2	9I-CH2	23	43	SOIL	METALS	Cadmium	TRG	NORM	REG	0.19	mg/kg	B
206142	24-Jun-02	9I-CH2	9I-CH2	23	43	SOIL	METALS	Calcium	TRG	NORM	REG	2180	mg/kg	N
206142	24-Jun-02	9I-CH2	9I-CH2	23	43	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.12	mg/kg	B
206142	24-Jun-02	9I-CH2	9I-CH2	23	43	SOIL	METALS	Sodium	TRG	NORM	REG	878	mg/kg	E
206142	24-Jun-02	9I-CH2D	9I-CH2	23	43	SOIL	8260 VOLATILES	1,1-Dichloroethane	TRG	NORM	FD	2	ug/kg	J
206142	24-Jun-02	9I-CH2D	9I-CH2	23	43	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	FD	5.2	ug/kg	JB
206142	24-Jun-02	9I-CH2D	9I-CH2	23	43	SOIL	METALS	Antimony	TRG	NORM	FD	0.26	mg/kg	BN
206142	24-Jun-02	9I-CH2D	9I-CH2	23	43	SOIL	METALS	Cadmium	TRG	NORM	FD	0.22	mg/kg	B
206142	24-Jun-02	9I-CH2D	9I-CH2	23	43	SOIL	METALS	Calcium	TRG	NORM	FD	2620	mg/kg	N
206142	24-Jun-02	9I-CH2D	9I-CH2	23	43	SOIL	METALS	Molybdenum	TRG	NORM	FD	0.12	mg/kg	B
206142	24-Jun-02	9I-CH2D	9I-CH2	23	43	SOIL	METALS	Sodium	TRG	NORM	FD	1060	mg/kg	E
206144	25-Jun-02	11/21-CH1B	11/21-CH1	22	42	SOIL	8260 VOLATILES	Acetone	TRG	NORM	REG	9.4	ug/kg	J
206144	25-Jun-02	11/21-CH1B	11/21-CH1	22	42	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	9.7	ug/kg	JB
206144	25-Jun-02	11/21-CH1B	11/21-CH1	22	42	SOIL	METALS	Antimony	TRG	NORM	REG	0.26	mg/kg	BN
206144	25-Jun-02	11/21-CH1B	11/21-CH1	22	42	SOIL	METALS	Cadmium	TRG	NORM	REG	0.14	mg/kg	B
206144	25-Jun-02	11/21-CH1B	11/21-CH1	22	42	SOIL	METALS	Calcium	TRG	NORM	REG	2090	mg/kg	N
206144	25-Jun-02	11/21-CH1B	11/21-CH1	22	42	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.17	mg/kg	B
206144	25-Jun-02	11/21-CH1B	11/21-CH1	22	42	SOIL	METALS	Sodium	TRG	NORM	REG	1070	mg/kg	E
206144	25-Jun-02	11/21-CH1B-LR	LAB	22	42	SOIL	METALS	Antimony	TRG	NORM	LR	0.35	mg/kg	BN
206144	25-Jun-02	11/21-CH1B-LR	LAB	22	42	SOIL	METALS	Cadmium	TRG	NORM	LR	0.16	mg/kg	B
206144	25-Jun-02	11/21-CH1B-LR	LAB	22	42	SOIL	METALS	Calcium	TRG	NORM	LR	2075	mg/kg	N
206144	25-Jun-02	11/21-CH1B-LR	LAB	22	42	SOIL	METALS	Molybdenum	TRG	NORM	LR	0.13	mg/kg	B
206144	25-Jun-02	11/21-CH2B	11/21-CH2	22	42	SOIL	8260 VOLATILES	1,2,3-Trichlorobenzene	TRG	NORM	REG	5	ug/kg	J
206144	25-Jun-02	11/21-CH2B	11/21-CH2	22	42	SOIL	8260 VOLATILES	1,2,4-Trichlorobenzene	TRG	NORM	REG	3.5	ug/kg	J
206144	25-Jun-02	11/21-CH2B	11/21-CH2	22	42	SOIL	8260 VOLATILES	1,2-Dibromo-3-Chloropropane	TRG	NORM	REG	2.2	ug/kg	J
206144	25-Jun-02	11/21-CH2B	11/21-CH2	22	42	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	10	ug/kg	JB
206144	25-Jun-02	11/21-CH2B	11/21-CH2	22	42	SOIL	METALS	Cadmium	TRG	NORM	REG	0.17	mg/kg	B
206144	25-Jun-02	11/21-CH2B	11/21-CH2	22	42	SOIL	METALS	Calcium	TRG	NORM	REG	1880	mg/kg	N
206144	25-Jun-02	11/21-CH2B	11/21-CH2	22	42	SOIL	METALS	Mercury	TRG	NORM	REG	0.01	mg/kg	B
206144	25-Jun-02	11/21-CH2B	11/21-CH2	22	42	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.15	mg/kg	B
206144	25-Jun-02	11/21-CH2B	11/21-CH2	22	42	SOIL	METALS	Silver	TRG	NORM	REG	0.07	mg/kg	B
206144	25-Jun-02	11/21-CH2B	11/21-CH2	22	42	SOIL	METALS	Sodium	TRG	NORM	REG	1680	mg/kg	E
206144	25-Jun-02	11/21-CH3B	11/21-CH3	22	42	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	10	ug/kg	JB
206144	25-Jun-02	11/21-CH3B	11/21-CH3	22	42	SOIL	8260 VOLATILES	Naphthalene	TRG	NORM	REG	5.1	ug/kg	J
206144	25-Jun-02	11/21-CH3B	11/21-CH3	22	42	SOIL	8260 VOLATILES	Trichloroethene	TRG	NORM	REG	2.5	ug/kg	J
206144	25-Jun-02	11/21-CH3B	11/21-CH3	22	42	SOIL	METALS	Antimony	TRG	NORM	REG	0.34	mg/kg	BN
206144	25-Jun-02	11/21-CH3B	11/21-CH3	22	42	SOIL	METALS	Cadmium	TRG	NORM	REG	0.16	mg/kg	B
206144	25-Jun-02	11/21-CH3B	11/21-CH3	22	42	SOIL	METALS	Calcium	TRG	NORM	REG	2000	mg/kg	N
206144	25-Jun-02	11/21-CH3B	11/21-CH3	22	42	SOIL	METALS	Molybdenum	TRG	NORM	REG	0.18	mg/kg	B
206144	25-Jun-02	11/21-CH3B	11/21-CH3	22	42	SOIL	METALS	Silver	TRG	NORM	REG	0.08	mg/kg	B
206144	25-Jun-02	11/21-CH3B	11/21-CH3	22	42	SOIL	METALS	Sodium	TRG	NORM	REG	925	mg/kg	E
207034	3-Jul-02	9I-CH1-70	9I-CH1	68	72	SOIL	8260 VOLATILES	Acetone	TRG	NORM	REG	27	ug/kg	B

SDG #	Sample Date	Sample Number	Location Code	Start Depth	End Depth	Lab Matrix	Test Group	Compound Name	Res. Type	Prep Code	Samp Purp	Result	Unit of Measure	Qlfr
207034	3-Jul-02	9I-CH1-70	9I-CH1	68	72	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	16	ug/kg	JB
207034	3-Jul-02	9I-CH1-70	9I-CH1	68	72	SOIL	8260 VOLATILES	Naphthalene	TRG	NORM	REG	6.1	ug/kg	J
207034	3-Jul-02	9I-CH1-70	9I-CH1	68	72	SOIL	8260 VOLATILES	Trichloroethene	TRG	NORM	REG	5.8	ug/kg	JB
207042	8-Jul-02	16N-CH1-40	16N-CH1	38	42	SOIL	8260 VOLATILES	Acetone	TRG	NORM	REG	52	ug/kg	B
207042	8-Jul-02	16N-CH1-40	16N-CH1	38	42	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	12	ug/kg	JB
207042	8-Jul-02	16N-CH1-40	16N-CH1	38	42	SOIL	8260 VOLATILES	Trichloroethene	TRG	NORM	REG	7.1	ug/kg	J
207099	15-Jul-02	16S-CH4-30	16S-CH4	28	32	SOIL	8260 VOLATILES	Acetone	TRG	NORM	REG	46	ug/kg	B
207099	15-Jul-02	16S-CH4-30	16S-CH4	28	32	SOIL	8260 VOLATILES	Methylene Chloride	TRG	NORM	REG	19	ug/kg	JB

For Validation code:
A - Accepted
R - Rejected
AQ - Add Qualifier
CR - Change Result
CQ - Change Qualifier
UV - Unvalidated Data
CB - Change Both Qualifier and Result form: unvalid

ALAMEDA
UNVALIDATED DATA REPORT

Post Inje ction Edds:
R eport Date: 02/20/03
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SDG No.	Sample Number	Samp Date	Lab Matrix	Test Group	Compound Name	Res. Type	Prep Code	Samp Purp	Result	Unit of Measure	Qlfr	Valid Code	R1	R2	R3	Val Qual	C
211105	16N-CH1-089	18-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	7.5	ug/kg	JB	_				_	_
211105	16N-CH1-089	18-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	15	ug/kg	B	_				_	_
211105	16N-CH1-089	18-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.5	ug/kg	JB	_				_	_
211105	16N-CH1-089	18-Nov-02	SOIL	METALS	ARSENIC	TRG	NORM	REG	1.3	mg/kg	B	_				_	_
211105	16N-CH1-089	18-Nov-02	SOIL	METALS	BERYLLIUM	TRG	NORM	REG	0.13	mg/kg	B	_				_	_
211105	16N-CH1-089	18-Nov-02	SOIL	METALS	MERCURY	TRG	NORM	REG	0.017	mg/kg	B	_				_	_
211105	16N-CH1-089	18-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	623	mg/kg	N	_				_	_
211105	16N-CH1-089	18-Nov-02	SOIL	METALS	SILVER	TRG	NORM	REG	0.066	mg/kg	B	_				_	_
211105	16N-CH1-089	18-Nov-02	SOIL	METALS	SODIUM	TRG	NORM	REG	122	mg/kg	B	_				_	_
211105	16N-CH2-090	18-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	36	ug/kg	B	_				_	_
211105	16N-CH2-090	18-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	15	ug/kg	B	_				_	_
211105	16N-CH2-090	18-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.6	ug/kg	JB	_				_	_
211105	16N-CH2-090	18-Nov-02	SOIL	METALS	ARSENIC	TRG	NORM	REG	1.4	mg/kg	B	_				_	_
211105	16N-CH2-090	18-Nov-02	SOIL	METALS	BERYLLIUM	TRG	NORM	REG	0.13	mg/kg	B	_				_	_
211105	16N-CH2-090	18-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.15	mg/kg	B	_				_	_
211105	16N-CH2-090	18-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	671	mg/kg	N	_				_	_
211105	16N-CH2-090	18-Nov-02	SOIL	METALS	SILVER	TRG	NORM	REG	0.059	mg/kg	B	_				_	_
211105	16N-CH2-090	18-Nov-02	SOIL	METALS	SODIUM	TRG	NORM	REG	138	mg/kg	B	_				_	_
211105	16N-CH3-091	18-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	10	ug/kg	JB	_				_	_
211105	16N-CH3-091	18-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	21	ug/kg	B	_				_	_
211105	16N-CH3-091	18-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.9	ug/kg	JB	_				_	_
211105	16N-CH3-091	18-Nov-02	SOIL	METALS	ANTIMONY	TRG	NORM	REG	0.41	mg/kg	BN	_				_	_
211105	16N-CH3-091	18-Nov-02	SOIL	METALS	ARSENIC	TRG	NORM	REG	1.3	mg/kg	B	_				_	_
211105	16N-CH3-091	18-Nov-02	SOIL	METALS	BERYLLIUM	TRG	NORM	REG	0.14	mg/kg	B	_				_	_
211105	16N-CH3-091	18-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	643	mg/kg	N	_				_	_
211105	16S-CH1-099	18-Nov-02	SOIL	8260 VOLATILES	1,2,3-TRICHLOROBENZENE	TRG	NORM	REG	1.9	ug/kg	J	_				_	_
211105	16S-CH1-099	18-Nov-02	SOIL	8260 VOLATILES	1,2,4-TRICHLOROBENZENE	TRG	NORM	REG	1.8	ug/kg	J	_				_	_
211105	16S-CH1-099	18-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	12	ug/kg	B	_				_	_
211105	16S-CH1-099	18-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	17	ug/kg	B	_				_	_
211105	16S-CH1-099	18-Nov-02	SOIL	8260 VOLATILES	NAPHTHALENE	TRG	NORM	REG	4.5	ug/kg	J	_				_	_
211105	16S-CH1-099	18-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.7	ug/kg	JB	_				_	_
211105	16S-CH1-099	18-Nov-02	SOIL	METALS	MERCURY	TRG	NORM	REG	0.019	mg/kg	B	_				_	_
211105	16S-CH1-099	18-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.22	mg/kg	B	_				_	_
211105	16S-CH1-099	18-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	897	mg/kg	N	_				_	_
211105	16S-CH2-100	18-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	14	ug/kg	B	_				_	_
211105	16S-CH2-100	18-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	14	ug/kg	B	_				_	_
211105	16S-CH2-100	18-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.3	ug/kg	JB	_				_	_
211105	16S-CH2-100	18-Nov-02	SOIL	METALS	ANTIMONY	TRG	NORM	REG	0.41	mg/kg	BN	_				_	_
211105	16S-CH2-100	18-Nov-02	SOIL	METALS	MERCURY	TRG	NORM	REG	0.021	mg/kg	B	_				_	_

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211105	16S-CH2-100	18-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.12	mg/kg	B	_				_	_
211105	16S-CH2-100	18-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	859	mg/kg	N	_				_	_
211105	16S-CH3-101	18-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	10	ug/kg	JB	_				_	_
211105	16S-CH3-101	18-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	17	ug/kg	B	_				_	_
211105	16S-CH3-101	18-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	4.4	ug/kg	JB	_				_	_
211105	16S-CH3-101	18-Nov-02	SOIL	METALS	ANTIMONY	TRG	NORM	REG	0.37	mg/kg	BN	_				_	_
211105	16S-CH3-101	18-Nov-02	SOIL	METALS	MERCURY	TRG	NORM	REG	0.019	mg/kg	B	_				_	_
211105	16S-CH3-101	18-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.29	mg/kg	B	_				_	_
211105	16S-CH3-101	18-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	807	mg/kg	N	_				_	_
211105	16S-CH3-101	18-Nov-02	SOIL	METALS	SILVER	TRG	NORM	REG	0.048	mg/kg	B	_				_	_
211105	9S-CH1-054	18-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	15	ug/kg	B	_				_	_
211105	9S-CH1-054	18-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	20	ug/kg	B	_				_	_
211105	9S-CH1-054	18-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	2	ug/kg	JB	_				_	_
211105	9S-CH1-054	18-Nov-02	SOIL	METALS	CADMIUM	TRG	NORM	REG	0.047	mg/kg	B	_				_	_
211105	9S-CH1-054	18-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	1620	mg/kg	N	_				_	_
211105	9S-CH1-054	18-Nov-02	SOIL	METALS	SELENIUM	TRG	NORM	REG	0.32	mg/kg	B	_				_	_
211105	9S-CH2-055	18-Nov-02	SOIL	8260 VOLATILES	2-BUTANONE	TRG	NORM	REG	7.5	ug/kg	J	_				_	_
211105	9S-CH2-055	18-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	34	ug/kg	B	_				_	_
211105	9S-CH2-055	18-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	15	ug/kg	B	_				_	_
211105	9S-CH2-055	18-Nov-02	SOIL	8260 VOLATILES	TOLUENE	TRG	NORM	REG	19	ug/kg	B	_				_	_
211105	9S-CH2-055	18-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.6	ug/kg	JB	_				_	_
211105	9S-CH2-055	18-Nov-02	SOIL	METALS	ANTIMONY	TRG	NORM	REG	0.32	mg/kg	BN	_				_	_
211105	9S-CH2-055	18-Nov-02	SOIL	METALS	CADMIUM	TRG	NORM	REG	0.3	mg/kg	B	_				_	_
211105	9S-CH2-055	18-Nov-02	SOIL	METALS	MERCURY	TRG	NORM	REG	0.032	mg/kg	B	_				_	_
211105	9S-CH2-055	18-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.12	mg/kg	B	_				_	_
211105	9S-CH2-055	18-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	753	mg/kg	N	_				_	_
211105	9S-CH3-056	18-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	1500	ug/kg	B	_				_	_
211105	9S-CH3-056	18-Nov-02	SOIL	8260 VOLATILES	NAPHTHALENE	TRG	NORM	REG	13000	ug/kg	B	_				_	_
211105	9S-CH3-056	18-Nov-02	SOIL	8260 VOLATILES	TOLUENE	TRG	NORM	REG	440	ug/kg	JB	_				_	_
211105	9S-CH3-056	18-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	360	ug/kg	JB	_				_	_
211105	9S-CH3-056	18-Nov-02	SOIL	METALS	BERYLLIUM	TRG	NORM	REG	0.15	mg/kg	B	_				_	_
211105	9S-CH3-056	18-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	773	mg/kg	N	_				_	_
211105	9S-CH3-056	18-Nov-02	SOIL	METALS	SILVER	TRG	NORM	REG	0.097	mg/kg	B	_				_	_
211138	9I-CH1-068A	21-Nov-02	SOIL	8260 VOLATILES	1,1-DICHLOROETHANE	TRG	NORM	REG	3.7	ug/kg	J	_				_	_
211138	9I-CH1-068A	21-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	12	ug/kg	B	_				_	_
211138	9I-CH1-068A	21-Nov-02	SOIL	8260 VOLATILES	CHLOROMETHANE	TRG	NORM	REG	2.9	ug/kg	J	_				_	_
211138	9I-CH1-068A	21-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	11	ug/kg	B	_				_	_
211138	9I-CH1-068A	21-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.3	ug/kg	JB	_				_	_

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211138	9I-CH1-068A	21-Nov-02	SOIL	METALS	ARSENIC	TRG	NORM	REG	1.2	mg/kg	B	_				_	_
211138	9I-CH1-068A	21-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	42.8	mg/kg	*	_				_	_
211138	9I-CH1-068A	21-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	2120	mg/kg	N	_				_	_
211138	9I-CH1-068A	21-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.1	mg/kg	B	_				_	_
211138	9I-CH1-068A	21-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	715	mg/kg	E	_				_	_
211138	9I-CH1-068B	21-Nov-02	SOIL	8260 VOLATILES	1,1-DICHLOROETHENE	TRG	NORM	REG	1.7	ug/kg	J	_				_	_
211138	9I-CH1-068B	21-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	10	ug/kg	B	_				_	_
211138	9I-CH1-068B	21-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.3	ug/kg	JB	_				_	_
211138	9I-CH1-068B	21-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	66.2	mg/kg	*	_				_	_
211138	9I-CH1-068B	21-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	2120	mg/kg	N	_				_	_
211138	9I-CH1-068B	21-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.17	mg/kg	B	_				_	_
211138	9I-CH1-068B	21-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	840	mg/kg	E	_				_	_
211138	9I-CH2-069A	21-Nov-02	SOIL	8260 VOLATILES	2-BUTANONE	TRG	NORM	REG	4.5	ug/kg	J	_				_	_
211138	9I-CH2-069A	21-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	15	ug/kg	B	_				_	_
211138	9I-CH2-069A	21-Nov-02	SOIL	8260 VOLATILES	CHLOROMETHANE	TRG	NORM	REG	4.3	ug/kg	J	_				_	_
211138	9I-CH2-069A	21-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	15	ug/kg	B	_				_	_
211138	9I-CH2-069A	21-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.3	ug/kg	JB	_				_	_
211138	9I-CH2-069A	21-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	52.6	mg/kg	*	_				_	_
211138	9I-CH2-069A	21-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	2170	mg/kg	N	_				_	_
211138	9I-CH2-069A	21-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.1	mg/kg	B	_				_	_
211138	9I-CH2-069A	21-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	886	mg/kg	E	_				_	_
211138	9I-CH2-069B	21-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	17	ug/kg	B	_				_	_
211138	9I-CH2-069B	21-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	13	ug/kg	B	_				_	_
211138	9I-CH2-069B	21-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.3	ug/kg	JB	_				_	_
211138	9I-CH2-069B	21-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	51.1	mg/kg	*	_				_	_
211138	9I-CH2-069B	21-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	2430	mg/kg	N	_				_	_
211138	9I-CH2-069B	21-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.15	mg/kg	B	_				_	_
211138	9I-CH2-069B	21-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	840	mg/kg	E	_				_	_
211138	9I-CH3-070A	21-Nov-02	SOIL	8260 VOLATILES	1,2,3-TRICHLOROBENZENE	TRG	NORM	REG	2.6	ug/kg	J	_				_	_
211138	9I-CH3-070A	21-Nov-02	SOIL	8260 VOLATILES	1,2,4-TRICHLOROBENZENE	TRG	NORM	REG	2.5	ug/kg	J	_				_	_
211138	9I-CH3-070A	21-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	17	ug/kg	B	_				_	_
211138	9I-CH3-070A	21-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	17	ug/kg	B	_				_	_
211138	9I-CH3-070A	21-Nov-02	SOIL	8260 VOLATILES	NAPHTHALENE	TRG	NORM	REG	5	ug/kg	JB	_				_	_
211138	9I-CH3-070A	21-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.6	ug/kg	JB	_				_	_
211138	9I-CH3-070A	21-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	54.7	mg/kg	*	_				_	_
211138	9I-CH3-070A	21-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	2220	mg/kg	N	_				_	_
211138	9I-CH3-070A	21-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.12	mg/kg	B	_				_	_
211138	9I-CH3-070A	21-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	904	mg/kg	E	_				_	_
211138	9I-CH3-070B	21-Nov-02	SOIL	8260 VOLATILES	1,1-DICHLOROETHENE	TRG	NORM	REG	3.7	ug/kg	J	_				_	_
211138	9I-CH3-070B	21-Nov-02	SOIL	8260 VOLATILES	1,2,3-TRICHLOROPROPANE	TRG	NORM	REG	1.9	ug/kg	J	_				_	_

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211138	9I-CH3-070B	21-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	14	ug/kg	B	_				_	_
211138	9I-CH3-070B	21-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	16	ug/kg	B	_				_	_
211138	9I-CH3-070B	21-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	1.4	ug/kg	JB	_				_	_
211138	9I-CH3-070B	21-Nov-02	SOIL	METALS	ANTIMONY	TRG	NORM	REG	0.36	mg/kg	BN	_				_	_
211138	9I-CH3-070B	21-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	46.5	mg/kg	*	_				_	_
211138	9I-CH3-070B	21-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	2400	mg/kg	N	_				_	_
211138	9I-CH3-070B	21-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.13	mg/kg	B	_				_	_
211138	9I-CH3-070B	21-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	837	mg/kg	E	_				_	_
211138	9I-CH3-070B	21-Nov-02	SOIL	METALS	THALLIUM	TRG	NORM	REG	0.53	mg/kg	B	_				_	_
211147	11/21-CH4-078A	22-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	14	ug/kg	B	_				_	_
211147	11/21-CH4-078A	22-Nov-02	SOIL	8260 VOLATILES	CIS-1,2-DICHLOROETHENE	TRG	NORM	REG	3.6	ug/kg	J	_				_	_
211147	11/21-CH4-078A	22-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	9.7	ug/kg	JB	_				_	_
211147	11/21-CH4-078A	22-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	44.2	mg/kg	*	_				_	_
211147	11/21-CH4-078A	22-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	1860	mg/kg	N	_				_	_
211147	11/21-CH4-078A	22-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.096	mg/kg	B	_				_	_
211147	11/21-CH4-078A	22-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	952	mg/kg	E	_				_	_
211147	11/21-CH4-078B	22-Nov-02	SOIL	8260 VOLATILES	2-BUTANONE	TRG	NORM	REG	6.4	ug/kg	J	_				_	_
211147	11/21-CH4-078B	22-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	12	ug/kg	B	_				_	_
211147	11/21-CH4-078B	22-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	9.6	ug/kg	JB	_				_	_
211147	11/21-CH4-078B	22-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	46	ug/kg	B	_				_	_
211147	11/21-CH4-078B	22-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	49.2	mg/kg	*	_				_	_
211147	11/21-CH4-078B	22-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	1770	mg/kg	N	_				_	_
211147	11/21-CH4-078B	22-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.12	mg/kg	B	_				_	_
211147	11/21-CH4-078B	22-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	1380	mg/kg	E	_				_	_
211147	11/21-CH4-078B-LR	22-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	LR	36.9	mg/kg	*	_				_	_
211147	11/21-CH4-078B-LR	22-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	LR	0.12	mg/kg	B	_				_	_
211147	11/21-CH4-078B-MS	22-Nov-02	SOIL	METALS	ANTIMONY	TRG	NORM	MS	48.7	Percent	N	_				_	_
211147	11/21-CH4-078B-MS	22-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	MS	178.6	Percent	N	_				_	_
211147	11/21-CH5-079A	22-Nov-02	SOIL	8260 VOLATILES	2-BUTANONE	TRG	NORM	REG	9	ug/kg	J	_				_	_
211147	11/21-CH5-079A	22-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	17	ug/kg	B	_				_	_
211147	11/21-CH5-079A	22-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	9.5	ug/kg	JB	_				_	_
211147	11/21-CH5-079A	22-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	49.1	mg/kg	*	_				_	_
211147	11/21-CH5-079A	22-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	2000	mg/kg	N	_				_	_
211147	11/21-CH5-079A	22-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.12	mg/kg	B	_				_	_
211147	11/21-CH5-079A	22-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	973	mg/kg	E	_				_	_
211147	11/21-CH5-079B	22-Nov-02	SOIL	8260 VOLATILES	1,2,3-TRICHLOROBENZENE	TRG	NORM	REG	1.8	ug/kg	J	_				_	_
211147	11/21-CH5-079B	22-Nov-02	SOIL	8260 VOLATILES	1,2,4-TRICHLOROBENZENE	TRG	NORM	REG	1.8	ug/kg	J	_				_	_
211147	11/21-CH5-079B	22-Nov-02	SOIL	8260 VOLATILES	2-BUTANONE	TRG	NORM	REG	4.3	ug/kg	J	_				_	_
211147	11/21-CH5-079B	22-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	13	ug/kg	B	_				_	_

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SDG No.	Sample Number	Samp Date	Lab Matrix	Test Group	Compound Name	Res. Type	Prep Code	Samp Purp	Result	Unit of Measure	Qlfr	Valid Code	R1	R2	R3	Val Qual	C
211147	11/21-CH5-079B	22-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	9	ug/kg	JB	_				_	_
211147	11/21-CH5-079B	22-Nov-02	SOIL	8260 VOLATILES	NAPHTHALENE	TRG	NORM	REG	3.5	ug/kg	J	_				_	_
211147	11/21-CH5-079B	22-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	11	ug/kg	B	_				_	_
211147	11/21-CH5-079B	22-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	48.3	mg/kg	*	_				_	_
211147	11/21-CH5-079B	22-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	1540	mg/kg	N	_				_	_
211147	11/21-CH5-079B	22-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	1210	mg/kg	E	_				_	_
211147	11/21-CH6-080A	22-Nov-02	SOIL	8260 VOLATILES	2-BUTANONE	TRG	NORM	REG	5.3	ug/kg	J	_				_	_
211147	11/21-CH6-080A	22-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	13	ug/kg	B	_				_	_
211147	11/21-CH6-080A	22-Nov-02	SOIL	8260 VOLATILES	CHLOROMETHANE	TRG	NORM	REG	2.3	ug/kg	J	_				_	_
211147	11/21-CH6-080A	22-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	8.6	ug/kg	JB	_				_	_
211147	11/21-CH6-080A	22-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	41.5	mg/kg	*	_				_	_
211147	11/21-CH6-080A	22-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	1890	mg/kg	N	_				_	_
211147	11/21-CH6-080A	22-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.11	mg/kg	B	_				_	_
211147	11/21-CH6-080A	22-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	923	mg/kg	E	_				_	_
211147	11/21-CH6-080B	22-Nov-02	SOIL	8260 VOLATILES	ACETONE	TRG	NORM	REG	12	ug/kg	B	_				_	_
211147	11/21-CH6-080B	22-Nov-02	SOIL	8260 VOLATILES	CHLOROMETHANE	TRG	NORM	REG	2	ug/kg	J	_				_	_
211147	11/21-CH6-080B	22-Nov-02	SOIL	8260 VOLATILES	METHYLENE CHLORIDE	TRG	NORM	REG	8.3	ug/kg	JB	_				_	_
211147	11/21-CH6-080B	22-Nov-02	SOIL	8260 VOLATILES	TRICHLOROETHENE	TRG	NORM	REG	20	ug/kg	B	_				_	_
211147	11/21-CH6-080B	22-Nov-02	SOIL	METALS	BARIUM	TRG	NORM	REG	26.5	mg/kg	*	_				_	_
211147	11/21-CH6-080B	22-Nov-02	SOIL	METALS	CALCIUM	TRG	NORM	REG	1820	mg/kg	N	_				_	_
211147	11/21-CH6-080B	22-Nov-02	SOIL	METALS	MOLYBDENUM	TRG	NORM	REG	0.11	mg/kg	B	_				_	_
211147	11/21-CH6-080B	22-Nov-02	SOIL	METALS	POTASSIUM	TRG	NORM	REG	1530	mg/kg	E	_				_	_

GROUNDWATER

Site 9 Shallow Detections P9-MW101	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2,2-PCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,2,4-Trimethylbenzene	<1.0		1.3	J	BQL	U	BQL	U	BQL	U
1,3,5-Trimethylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
4-Isopropyltoluene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Benzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Chloromethane	4.6		BQL	U	BQL	U	BQL	U	BQL	U
Ethylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Isopropylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Naphthalene	1.9		BQL	U	5.1	B	BQL	U	BQL	U
Sec-Butylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Vinyl Chloride	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
cis-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
m,p-Xylenes	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
n-Butylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
n-Propylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
o-Xylene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
tert-Butylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride	<1.0		10	B	5.4	JB	12	B	5.9	JB
Toluene	<1.0		1.5	JB	BQL	U	BQL	U	BQL	U
TCE	<1.0		1.6	JB	BQL	U	BQL	U	BQL	U
Inorganics										
Aluminum	128	B	64.7	B	46.2	B	BQL	U	BQL	U
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	<20		BQL	U	BQL	U	BQL	U	4.8	B
Barium	234		232		225		235	E	224	
Beryllium	0.19	B	BQL	U	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	39900		39200		34500		35100	E	41300	
Chromium	<5		BQL	U	BQL	U	BQL	U	BQL	U
Cobalt	3.5	B	3.1	B	2.4	B	4	B	2.6	B
Copper	1.2	B	0.99	B	BQL	U	BQL	U	BQL	U
Iron	<150		96.7	B	52.1	B	BQL	U	77.1	B
Lead	<10	B	BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	65300		68200		59300		60400	E	68900	
Manganese	917		995		896		975	E	1080	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	3.7	B	4.1	B	4.3	B	4.8	B	4.4	
Nickel	45.9		46.7		44.2		50.1		50.1	E
Potassium	30800		30900		30000		30300	E	29900	U
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	1680000		1780000		1690000		1650000	E	1670000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	4.4	B	3.8	B	3.1	B	3.8	B	3.5	B
Zinc	7.3	B	15.7	B	19.5	B	BQL	U	BQL	U
TOC	4.4 mg/L		5.6 mg/L		4.9 mg/L		350 mg/L		1.5 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
di-n-Butyl Phthalate			BQL	U	3.2	JB	BQL	U	BQL	U

Site 9 Shallow Detections P9-MWS04	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2,2-PCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA	0.59	J	BQL	U	BQL	U	BQL	U	BQL	U
1,2,4-Trimethylbenzene	130		150		89		74		52	
1,3,5-Trimethylbenzene	69		54		32		29		9.1	
4-Isopropyltoluene	55		39		BQL	U	BQL	U	BQL	U
Acetone	<5.0		12		14	B	11		BQL	U
Benzene	5.6		4.6	J	4.4	J	4.2	J	3.7	J
Chloromethane	1.3		BQL	U	BQL	U	BQL	U	BQL	U
Ethylbenzene	90		63		52		49		43	
Isopropylbenzene	51		44		34		32		28	
Naphthalene	58		150	B	63	B	85	B	35	B
Sec-Butylbenzene	19		32		14		14		13	
Vinyl Chloride	99		54		53		55		49	
cis-1,2-DCE	13		5.7		4.8	J	4	J	6.1	
m,p-Xylenes	8.2		5.6		4.5	J	4.2	J	6.4	
n-Butylbenzene	55		48		11		9.4		28	
n-Propylbenzene	56		65		49		48		42	
o-Xylene	0.8	J	BQL	U	BQL	U	BQL	U	1.3	J
tert-Butylbenzene	<1.0		BQL	U	27		27		21	
Methylene Chloride			12	B	4.5	JB	6.8	JB	4.4	JB
Toluene			2.4	JB	BQL	U	BQL	U	BQL	U
TCE			1.7	JB	BQL	U	BQL	U	BQL	U
1,2,3-Trichloropropane			BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone			BQL	U	BQL	U	BQL	U	BQL	U
1,2,3-Trichlorobenzene			BQL	U	BQL	U	BQL	U	BQL	U
1,2,4-Trichlorobenzene			BQL	U	BQL	U	BQL	U	BQL	U
Chloroform			BQL	U	BQL	U	BQL	U	BQL	U
PCE			BQL	U	BQL	U	BQL	U	4.3	J
Inorganics										
Aluminum	192	B	466		116	B	282		107	B
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	16	B	10.5	B	11.3	B	9.7	B	11	B
Barium	29.1		41.3		33.8		36.5	E	46.3	
Beryllium	0.19	B	BQL	U	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	27900		32900		26900		27000	E	37400	
Chromium	3.2	B	3.9	B	BQL	U	3.3	B	BQL	U
Cobalt	3.4	B	2.2	B	2.3	B	2.3	B	2.6	B
Copper	1.6	B	1.7	B	1.2	B	BQL	U	1.1	B
Iron	1450		3190		2780		3210		3530	
Lead	2.2	B	BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	38100		53700		38100		39300	E	65200	
Manganese	527		667		517		581	E	745	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	1.6	B	BQL	U	BQL	U	1.9	B	1.6	B
Nickel	21.2		19.6		17.7		20.6		23.5	
Potassium	41700		47700		40700		40200	E	52700	E
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	881000		1130000		1040000		1010000	E	1190000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	4.8	B	4.4	B	3.7	B	3.7	B	4.1	B
Zinc	8.3	B	7.8	B	BQL	U	BQL	U	BQL	U
TOC	31 mg/L		60 mg/L		47 mg/L		280 mg/L		22 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
2,4-Dimethylphenol			5.3	J	BQL	U	5.9	J	BQL	U
2-Methylnaphthalene			5.2	J	BQL	U	5.4	J	1.6	J
Naphthalene			82		50		83		38	
bis(2-ethylhexyl)phthalate			9.5	J	4.1	J	BQL	U	BQL	U
di-n-Butyl Phthalate			BQL	U	1.8	JB	BQL	U	BQL	U

Site 9 Shallow Detections P9-MWS03	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2,2-PCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,2,4-Trimethylbenzene	<1.0		BQL	U	5.7		4.1	J	6.7	
1,3,5-Trimethylbenzene	<1.0		BQL	U	16		6.8		8.5	
4-Isopropyltoluene	1.7		BQL	U	BQL	U	1.9	J	BQL	U
Acetone	4.4	JB	680	BE	55	B	29		53	
Benzene	1	J	BQL	U	BQL	U	BQL	U	BQL	U
Chloromethane	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Ethylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Isopropylbenzene	5.4		BQL	U	1.4	J	1.4	J	1.9	J
Naphthalene	2.8		BQL	U	2.6	JB	7.8	B	BQL	U
Sec-Butylbenzene	3		BQL	U	4	J	2.4	J	3.1	J
Vinyl Chloride	2.2		BQL	U	BQL	U	BQL	U	BQL	U
cis-1,2-DCE	3.8		BQL	U	1.4	J	2.1	J	10	
m,p-Xylenes	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
n-Butylbenzene	4.5		BQL	U	7.1		4.1	J	4.6	J
n-Propylbenzene	3.4		BQL	U	3	J	1.9	J	2.7	J
o-Xylene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
tert-Butylbenzene	<1.0		BQL	U	14		5.8		9.6	
Methylene Chloride			10	B	4.5	JB	7.9	JB	5.9	JB
Toluene			BQL	U	BQL	U	BQL	U	BQL	U
TCE			1.4	JB	BQL	U	BQL	U	BQL	U
1,2,3-Trichloropropane			16		BQL	U	BQL	U	BQL	U
2-Butanone			140		BQL	U	15		48	
Chloroform			7.7		5.2		3.1	J	1	J
1,2,3-Trichlorobenzene			BQL	U	BQL	U	2.5	J	BQL	U
1,2,4-Trichlorobenzene			BQL	U	BQL	U	2.2	J	BQL	U
1,2-Dichlorobenzene			BQL	U	BQL	U	1.3	J	BQL	U
1,3-Dichlorobenzene			BQL	U	BQL	U	1.3	J	BQL	U
1,4-Dichlorobenzene			BQL	U	BQL	U	1.3	J	BQL	U
2-Chlorotoluene			BQL	U	BQL	U	1.4	J	BQL	U
4-Chlorotoluene			BQL	U	BQL	U	1.6	J	BQL	U
Bromobenzene			BQL	U	BQL	U	1.1	J	BQL	U
Hexachlorobutadiene			BQL	U	BQL	U	1.3	J	BQL	U
Styrene			BQL	U	BQL	U	1.1	J	BQL	U
Inorganics										
Aluminum	131	BN	8670		251		95.7	B	1980	
Antimony	<20		3.2	B	3.1	B	2.7	B	BQL	U
Arsenic	17.4	B	7.4	B	5.5	B	7.1	B	27.2	
Barium	23.5		89.3		26.8		17	E	66.6	
Beryllium	0.16	B	0.33	B	BQL	U	BQL	U	BQL	U
Cadmium	<6		2.8	B	8.1		6.7		0.77	B
Calcium	53700		82200		83400		96300	E	103000	
Chromium	1.8	B	39		4.1	B	3.4	B	10.6	
Cobalt	2.2	B	169		208		191		103	
Copper	2.2	B	340		348		155		25.3	
Iron	227		25700		16100		22600		34200	
Lead	2.8	B	17.4		15.5		17.1		9.2	B
Magnesium	39400		54100		48800		49300	E	56100	
Manganese	525		1760		2040		2470	E	2700	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	5.5		11.4		6.7		7.5		5.6	
Nickel	10.3		345		408		334		313	
Potassium	19900		118000		75100		54800	E	50500	E
Selenium	<20		7.6	B	6.5	B	BQL	U	BQL	U
Silver	0.83	B	BQL	U	BQL	U	BQL	U	BQL	U
Sodium	274000		641000		474000		375000	E	464000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	1.9	B	157		38.7		65.9		191	
Zinc	8.9	B	101		229		265		117	
TOC	17 mg/L		270 mg/L		150 mg/L		310 mg/L		68 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
di-n-Butyl Phthalate			BQL	U	5.9	JB	BQL	U	BQL	U

Site 9 Shallow Detections P9-MWS02	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2,2-PCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,2,4-Trimethylbenzene	<1.0		1.9	J	BQL	U	BQL	U	BQL	U
1,3,5-Trimethylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
4-Isopropyltoluene	1.4		BQL	U	BQL	U	BQL	U	BQL	U
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Benzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Chloromethane	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Ethylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Isopropylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Naphthalene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Sec-Butylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Vinyl Chloride	<1.0		BQL	U	1.7	J	BQL	U	BQL	U
cis-1,2-DCE	1.2		2	J	BQL	U	1.6	J	1.6	J
m,p-Xylenes	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
n-Butylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
n-Propylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
o-Xylene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
tert-Butylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			9.8	B	BQL	U	12	B	8.1	JB
Toluene			1.4	JB	BQL	U	BQL	U	BQL	U
TCE			1.5	JB	BQL	U	BQL	U	BQL	U
Inorganics										
Aluminum	337		369		142	B	275		432	
Antimony	<20		2.6	B	BQL	U	BQL	U	BQL	U
Arsenic	21.5		19.4	B	19.9	B	19.8	B	15	B
Barium	33.5		34.2		29.6		30.2	E	46.7	
Beryllium	0.14	B	BQL	U	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	23200		23700		21600		21900	E	21700	
Chromium	2.1	B	BQL	U	BQL	U	BQL	U	3.2	B
Cobalt	0.6	B	BQL	U	BQL	U	BQL	U	1.6	B
Copper	2.5	B	11.1		9.1	B	6.2	B	1.4	B
Iron	414		637		370		633		1070	
Lead	2	B	BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	19800		21500		19200		19000	E	21300	
Manganese	167		271		275		299	E	373	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	6.1		7.4		6.2		7.1		5.6	
Nickel	9.5	B	8.9	B	8.2	B	9.6	B	21.7	
Potassium	19900		21000		19400		18300	E	22800	E
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	446000		492000		427000		395000	E	641000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	5.2	B	3.2	B	2.7	B	4.8	B	3.4	B
Zinc	9.5	B	BQL	U	BQL	U	BQL	U	BQL	U
TOC	9.3 mg/L		32 mg/L		37 mg/L		55 mg/L		12 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
bis(2-ethylhexyl)phthalate			BQL	U	3.4	J	BQL	U	BQL	U
di-n-Butyl Phthalate			BQL	U	4	JB	6.2	J	BQL	U

Site 9 Shallow Detections P9-MWS01	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2,2-PCA	3.2		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,2,4-Trimethylbenzene	3.2		4.9	J	3.3	J	BQL	U	1.4	J
1,3,5-Trimethylbenzene	1.8		2.4	J	1.2	J	BQL	U	BQL	U
4-Isopropyltoluene	0.99	J	BQL	U	2.5	J	BQL	U	1.2	J
Acetone	<5.0		220	E	260	BE	210		17	
Benzene	1.7		BQL	U	BQL	U	BQL	U	BQL	U
Chloromethane	0.73	J	BQL	U	BQL	U	BQL	U	BQL	U
Ethylbenzene	1.2		BQL	U	BQL	U	BQL	U	BQL	U
Isopropylbenzene	16		4.2	J	11		10	J	5.6	
Naphthalene	5.3		7.8	B	4.5	JB	BQL	U	BQL	U
Sec-Butylbenzene	20		BQL	U	14		13	J	6.2	
Vinyl Chloride	2.4		BQL	U	BQL	U	BQL	U	BQL	U
cis-1,2-DCE	1.3		BQL	U	BQL	U	BQL	U	1.7	J
m,p-Xylenes	1.6		BQL	U	BQL	U	BQL	U	BQL	U
n-Butylbenzene	8.4		4.7	J	6.8		BQL	U	2.7	J
n-Propylbenzene	24		6		16		16	J	7.4	
o-Xylene	0.95	J	BQL	U	BQL	U	BQL	U	BQL	U
tert-Butylbenzene	3		2.1	J	BQL	U	BQL	U	BQL	U
Methylene Chloride			12	B	4.7	JB	59	JB	5.8	JB
Toluene			1.6	JB	BQL	U	BQL	U	BQL	U
TCE			1.7	JB	BQL	U	BQL	U	BQL	U
1,2,3-Trichloropropane			BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone			31		43		39	J	BQL	U
1,2,3-Trichlorobenzene			2.3	JB	BQL	U	BQL	U	BQL	U
1,2,4-Trichlorobenzene			2.2	JB	BQL	U	BQL	U	BQL	U
Chloroform			2.5	J	1.3	J	BQL	U	BQL	U
Inorganics										
Aluminum	115	B	200	B	114	B	73.1	B	204	
Antimony	<20		2.6	B	BQL	U	BQL	U	BQL	U
Arsenic	16	B	8.2	B	18	B	17.8	B	38.8	
Barium	192		160		149		133	E	119	
Beryllium	0.23	B	BQL	U	BQL	U	BQL	U	BQL	U
Cadmium	<6		4.1	B	0.68	B	0.78	B	BQL	U
Calcium	38800		193000		140000		126000	E	142000	
Chromium	1.9	B	BQL	U	BQL	U	BQL	U	3.4	B
Cobalt	2.3	B	123		60.5		42.2		37.8	
Copper	1.7	B	108		13.8		4	B	2.6	B
Iron	3960		47500		55800		49600		39000	
Lead	2	B	30.2		9.5	B	6.4	B	11.8	
Magnesium	42400		156000		119000		108000	E	119000	
Manganese	457		2700		2380		2330	E	2980	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	3.4	B	14.9		8.7		4.6	B	1.9	B
Nickel	14.6		677		570		518		599	
Potassium	38100		101000		79900		71100	E	72800	E
Selenium	<20		10.4	B	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	406000		546000		508000		486000	E	629000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	2.4	B	12.8		32.3		36		84.9	
Zinc	4.1	B	1680		133		62.5		46.9	
TOC	20 mg/L		150 mg/L		130 mg/L		67 mg/L		72 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
Naphthalene			BQL	U	3	J	3.4	J	1.9	J
di-n-Butyl Phthalate			BQL	U	4.7	JB	BQL	U	BQL	U

Site 9 Shallow Detections P9-IWS01	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2,2-PCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA	<1.0		1.3	J	BQL	U	1.3	J	1.9	J
1,2,4-Trimethylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,3,5-Trimethylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
4-Isopropyltoluene	3.2		BQL	U	BQL	U	1	J	BQL	U
Acetone	9.6	B	BQL	U	BQL	U	BQL	U	BQL	U
Benzene	2		BQL	U	BQL	U	1.3	J	1.4	J
Chloromethane	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Ethylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Isopropylbenzene	12		BQL	U	4.2	J	6.9		1.9	J
Naphthalene	1.8		BQL	U	BQL	U	BQL	U	BQL	U
Sec-Butylbenzene	4.2		BQL	U	2.4	J	3.8	J	1	J
Vinyl Chloride	3		BQL	U	1.2	J	BQL	U	BQL	U
cis-1,2-DCE	1.2		1.7	J	1.1	J	2	J	3.9	J
m,p-Xylenes	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
n-Butylbenzene	5.4		4	J	4.7	J	6.7		1.9	J
n-Propylbenzene	10		BQL	U	4.3	J	7.3		1.5	J
o-Xylene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
tert-Butylbenzene	1.2		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			8.7	B	4.6	JB	12	B	4.9	JB
Toluene			1.8	JB	BQL	U	BQL	U	BQL	U
TCE			1.9	JB	BQL	U	BQL	U	BQL	U
1,2,3-Trichloropropane			BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone			BQL	U	BQL	U	BQL	U	BQL	U
Chloroform			BQL	U	BQL	U	BQL	U	BQL	U
PCE			BQL	U	BQL	U	BQL	U	2.3	J
Inorganics										
Aluminum	465	N	266		86.6	B	70	B	113	B
Antimony	<20		3.7	B	2.8	B	BQL	U	BQL	U
Arsenic	36.2		17.7	B	28.9		27.8		15.9	B
Barium	126		177		191		184	E	131	
Beryllium	0.2	B	BQL	U	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	41200		38900		39700		37300	E	34400	
Chromium	3.5	B	BQL	U	BQL	U	BQL	U	4.2	B
Cobalt	1.6	B	4.1	B	1	B	2.1	B	4.5	B
Copper	2.4	B	28.5		1.7	B	1.6	B	1.2	B
Iron	2900		502		848		1460		2120	
Lead	2.8	B	3.7	B	2.6	B	BQL	U	BQL	U
Magnesium	32600		35000		32600		31100	E	37600	
Manganese	1300		790		1030		1080	E	979	
Mercury	<0.2		?		BQL	U	BQL	U	BQL	U
Molybdenum	5.6		19.5		13.7		10.9		6.4	
Nickel	17.7		27.1		14.1		18.6		39.3	
Potassium	22900		28400		25200		23800	E	31400	E
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	1.2	B
Sodium	353000		446000		352000		380000	E	693000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	2.3	B	17.5		3.8	B	2.2	B	4.9	B
Zinc	22.7		28.5		7.8	B	BQL	U	BQL	U
TOC	17 mg/L		27 mg/L		19 mg/L		160 mg/L		22 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	

Site 9 Shallow Detections P9-IWS02 (replacement) Compound	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
VOCs										
1,1,2,2-PCA	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
1,2,4-Trimethylbenzene	NA - see IWS01		33		22		14	J	8.8	
1,3,5-Trimethylbenzene	NA - see IWS01		5.3		3.7	J	BQL	U	1.3	J
4-Isopropyltoluene	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
Acetone	NA - see IWS01		1200		610	BE	520		190	
Benzene	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
Chloromethane	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
Ethylbenzene	NA - see IWS01		4.6	J	5		BQL	U	2.6	J
Isopropylbenzene	NA - see IWS01		11		13		12	J	9	
Naphthalene	NA - see IWS01		21		19	B	BQL	U	7.5	B
Sec-Butylbenzene	NA - see IWS01		8.4		9		BQL	U	5.3	
Vinyl Chloride	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
cis-1,2-DCE	NA - see IWS01		BQL	U	1.7	J	BQL	U	2.2	J
m,p-Xylenes	NA - see IWS01		6.4		6.8		BQL	U	2.3	J
n-Butylbenzene	NA - see IWS01		6.6		9.3		BQL	U	2.9	J
n-Propylbenzene	NA - see IWS01		20		24		22	J	15	
o-Xylene	NA - see IWS01		BQL	U	2.1	J	BQL	U	BQL	U
tert-Butylbenzene	NA - see IWS01		4.7	J	3.8	J	BQL	U	1.5	J
Methylene Chloride	NA - see IWS01		4.9	JB	4.8	JB	61	JB	5.3	JB
Toluene	NA - see IWS01		BQL	U	2.6	JB	BQL	U	BQL	U
TCE	NA - see IWS01		BQL	U	BQL	U	20	J	BQL	U
1,2,3-Trichloropropane	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	NA - see IWS01		980		330	E	130		37	
Chloroform	NA - see IWS01		13		9.7		BQL	U	2.8	J
PCE	NA - see IWS01		BQL	U	BQL	U	BQL	U	2.1	J
Inorganics										
Aluminum	NA - see IWS01		1370		1140		390		169	B
Antimony	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	NA - see IWS01		3.8	B	5.4	B	9.1	B	25.7	
Barium	NA - see IWS01		106		79.2		63.1	E	73.2	
Beryllium	NA - see IWS01		0.43	B	BQL	U	BQL	U	BQL	U
Cadmium	NA - see IWS01		1.1	B	3.2	B	4.5	B	2.8	B
Calcium	NA - see IWS01		120000		113000		104000	E	151000	
Chromium	NA - see IWS01		162		123		46.2		11.1	
Cobalt	NA - see IWS01		202		263		277		336	
Copper	NA - see IWS01		541		338		74.2		34.6	
Iron	NA - see IWS01		135000		119000		163000		181000	
Lead	NA - see IWS01		2.8	B	5.4	B	5.8	B	9.5	B
Magnesium	NA - see IWS01		59700		58700		53600	E	75600	
Manganese	NA - see IWS01		7330		7630		6880	E	6720	
Mercury	NA - see IWS01		BQL	U	0.1	B	BQL	U	0.18	B
Molybdenum	NA - see IWS01		BQL	U	BQL	U	2	B	2.1	B
Nickel	NA - see IWS01		1480		1740		1760		2090	
Potassium	NA - see IWS01		140000		150000	B	167000	E	178000	E
Selenium	NA - see IWS01		19.1	B	17.6	B	9.7	B	6.3	B
Silver	NA - see IWS01		BQL	U	BQL	U	0.87	B	BQL	U
Sodium	NA - see IWS01		808000		744000		674000	E	780000	
Thallium	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	NA - see IWS01		4.2	B	6.9	B	30.4		319	
Zinc	NA - see IWS01		190		300		336		286	
TOC	NA - see IWS01		540 mg/L		420 mg/L		280 mg/L		210 mg/L	
Hex Chrome			0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
2-Methylnaphthalene			2.6	J	1.6	J	2.6	J	BQL	U
Naphthalene			23		16		15		8.7	J
2,4-Dimethylphenol			BQL	U	2.2	J	BQL	U	BQL	U
di-n-Butyl Phthalate			BQL	U	BQL	U	7.4	J	BQL	U

Site 9 Intermediate Detections P9-MWI10	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	31		37		28		27		30	
1,1-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,2-DCB	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	33		BQL	U	4.4	JB	4.7	JB	BQL	U
Acetone	14		BQL	U	BQL	U	BQL	U	BQL	U
Chloroform	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Vinyl Chloride	0.59	J	BQL	U	BQL	U	BQL	U	BQL	U
cis-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			7.5	JB	5.1	JB	5.3	JB	4.9	JB
TCE			BQL	U	1.4	J	BQL	U	BQL	U
Inorganics										
Aluminum	778	BN	1320		1550		476		454	
Antimony	<200		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	<200		9.7	B	9.3	B	10.9	B	8.3	B
Barium	137		121		133		130		121	
Beryllium	1.7	B	0.27	B	BQL	U	BQL	U	BQL	U
Cadmium	<60		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	1590000		BQL	U	1520000		1420000		1600000	
Chromium	<50		5.3	B	BQL	U	BQL	U	BQL	U
Cobalt	12.4	B	5.1		5		3.2	B	4.4	B
Copper	<100		5.3		3.6	B	2.3	B	1.9	B
Iron	1330		3760		4450		3350		2180	
Lead	<100		BQL	U	2.7	B	BQL	U	BQL	U
Magnesium	1810000		1750000		1730000		1600000		1760000	
Manganese	18600		17400		19900		17500		18300	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	<50		1.9	B	2.1	B	BQL		3.5	B
Nickel	29.8	B	13.4		14.5		10.3		8.6	B
Potassium	22500		28400	E	35000		35200		31800	
Selenium	<200		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<30		1.3	B	BQL	U	1.8	B	BQL	U
Sodium	5170000		3440000	E	5250000		3460000		5260000	
Thallium	<300		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	<100		3.2	B	3.5	B	2	B	1.8	B
Zinc	<200		71.4		90.7		43.9		50.2	
TOC	1.3 mg/L		BQL	U	1.7 mg/L		7.6 mg/L		4.7 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
di-n-Butyl Phthalate			1.7	J	8.8	J	BQL	U	BQL	U

Site 9 Intermediate Detections P9-MWI09	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	1200		1000		640	E	490		890	
1,1-DCE	38		39		26		15		39	
1,2-DCB	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	<5.0		BQL	U	BQL	U	5	JB	BQL	U
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Chloroform	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Vinyl Chloride	36		31		20		14		33	
cis-1,2-DCE	1.7		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			4	JB	3.1	JB	5.7	JB	5.4	JB
TCE			BQL	U	BQL	U	BQL	U	11	
Inorganics										
Aluminum	438	N	BQL	U	67.8	B	75	B	405	
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	3.7	B	4.4	B	4.9	B	5.5	B	4.1	B
Barium	52.1		47		46		52.3		50.6	
Beryllium	0.16	B	0.2	B	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	88300		98900		108000		150000		99600	
Chromium	1.7	B	BQL	U	BQL	U	BQL	U	BQL	U
Cobalt	2.1	B	1.1	B	1.8	B	2.4	B	1.7	B
Copper	3.9	B	3.6	B	BQL	U	1.7	B	0.83	B
Iron	330		57	B	82.4	B	47.7	B	547	
Lead	2.8	B	BQL	U	BQL	U	BQL	U	BQL	U*
Magnesium	132000		161000		172000		238000		159000	
Manganese	1180		1530		1790		2490		1600	
Mercury	<0.2		BQL	U	BQL	U	0.1	B	BQL	U
Molybdenum	5.7		4.1	B	2.5	B	1.2	B	3.1	B
Nickel	106		90.9		77.7		77.1		95.7	
Potassium	37700		40300	E	45600		56300		48900	E
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	1670000		1700000	E	2260000		2080000		2130000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	2	B	1.1	B	1	B	BQL	U	2	B
Zinc	107		21.8		13.5	B	6.7	B	19.5	B
TOC	11 mg/L		3.6 mg/L		3.0 mg/L		5.8 mg/L		5.9 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	

Site 9 Intermediate Detections P9-MW108	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	180		260		200	E	290		270	
1,1-DCE	12		20		18		33	J	22	
1,2-DCB	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	<5.0		320		43		BQL	U	BQL	U
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Chloroform	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Vinyl Chloride	2.3		BQL	U	BQL	U	BQL	U	BQL	U
cis-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			4	JB	4.3	JB	60	JB	8.5	JB
Inorganics										
Aluminum	905	N	183	B	123	B	525		105	B
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	4.8	B	BQL	U	4.6	B	4.6	B	5.9	B
Barium	93.8		129		71.2		115	E	85.9	
Beryllium	0.18	B	0.22	B	BQL	U	BQL	U	BQL	U
Cadmium	<6		0.99	B	BQL	U	0.93	B	BQL	U
Calcium	91300		192000		46000		161000	E	92800	
Chromium	3.6	B	BQL	U	BQL	U	BQL	U	BQL	U
Cobalt	3.5	B	3.6	B	BQL	U	2.8	B	BQL	U
Copper	1.5	B	3.9	B	BQL	U	1.5	B	BQL	U
Iron	1020		200		101	B	504		111	B
Lead	1.9	B	BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	118000		258000		59600		210000	E	116000	
Manganese	981		2440		334		2020	E	920	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	4.9	B	2.6	B	4.7	B	4.3	B	4	B
Nickel	33		27.5		30		32.2		34.3	
Potassium	17100		17000	E	11000		17400	E	13300	
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	1160000		1700000	E	734000		1920000		1130000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	5	B	5.6	B	8.2	B	5.3	B	7.2	B
Zinc	155		38.5		50.2		24.6		40.7	
TOC	6.6 mg/L		5.7 mg/L		18 mg/L		39 mg/L		3.1 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
di-n-Butyl Phthalate			BQL	U	BQL	U	4.2	J	BQL	U

Site 9 Intermediate Detections P9-MW107	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	1.6		4.5	J	4	J	4.5	J	5.3	
1,1-DCE	0.95	J	2.8	J	3.3	J	3.9	J	3.7	J
1,2-DCB	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Chloroform	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Vinyl Chloride	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
cis-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			19	B	4.2	JB	15	B	8.4	JB
Toluene			2	JB	BQL	U	BQL	U	BQL	U
TCE			1.8	JB	BQL	U	BQL	U	BQL	U
Inorganics										
Aluminum	453	N	633		134	B	44.3	B	478	
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	<20		BQL	U	4.8	B	BQL	U	BQL	U
Barium	12.5		15.1		11.5		10.5	E	17.2	
Beryllium	<2		BQL	U	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	4070		4480		3640		3570	E	4150	
Chromium	3.9	B	BQL	U	BQL	U	BQL	U	BQL	U
Cobalt	0.74	B	BQL	U	BQL	U	1	B	0.85	B
Copper	2.2	B	2.2	B	BQL	U	BQL	U	BQL	U
Iron	520		929		175		71.5	B	703	
Lead	<10		BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	2730		2940		2320		2260	E	2620	
Manganese	26.9		33.2		22.5		22	E	35.8	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	3.2	B	2.3	B	2.8	B	3.9	B	2.7	B
Nickel	6.5	B	7.1	B	5.1	B	7.2	B	10	
Potassium	11000		12300		11500		11000	E	12100	
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	1	B	BQL	U
Sodium	278000		299000		275000		261000	E	287000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	2.4	B	5	B	4	B	3.9	B	5.2	B
Zinc	28.1		11.1	B	BQL	U	BQL	U	10.1	B
TOC	8.3 mg/L		3.9 mg/L		3.6 mg/L		44 mg/L		1.4 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
bis(2-ethylhexyl)phthalate			BQL	U	BQL	U	18		2.3	J
di-n-Butyl Phthalate			BQL	U	BQL	U	3.9	J	1.5	J

Site 9 Intermediate Detections P9-MWI06	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	380		390		350	E	400	E	380	
1,1-DCE	15		19		18		21		16	
1,2-DCB	<1.0		BQL		BQL	U	BQL	U	BQL	U
2-Butanone	<5.0		280		200	E	150		BQL	U
Acetone	<5.0		BQL		11	B	BQL	U	BQL	U
Chloroform	<1.0		BQL		BQL	U	BQL	U	BQL	U
Vinyl Chloride	6.5		BQL		2.2	J	BQL	U	BQL	U
cis-1,2-DCE	0.9	J	BQL		BQL	U	BQL	U	BQL	U
Methylene Chloride			4.1	JB	3.2	JB	14	B	5.1	JB
Inorganics										
Aluminum	855		211		234		584		963	
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	7.1	B	BQL	U	3.9	B	BQL	U	BQL	U
Barium	51.8		103		94.1		88.3	E	85	
Beryllium	<2		0.26	B	BQL	U	BQL	U	BQL	U
Cadmium	<6		1.6	B	1.1	B	1.3	B	1.1	B
Calcium	34700		224000		209000		188000	E	196000	
Chromium	4.3	B	BQL	U	BQL	U	BQL	U	5.7	
Cobalt	1.5	B	1.7	B	1.6	B	2	B	2.1	B
Copper	2.7	B	4.2	B	BQL	U	3	B	2.6	B
Iron	1210		242		269		803		1270	
Lead	<10		BQL	U	BQL	U	BQL	U	BQL	U*
Magnesium	43400		301000		271000		243000	E	257000	
Manganese	305		2940		2750		2570	E	2580	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	3	B	1.7	B	1.3	B	2.8	B	1.5	B
Nickel	20.5		21.4		20.6		23.9		24.9	
Potassium	11000		16200	E	16400		15500	E	17300	E
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	10		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	668000		1900000	E	2430000		2100000	E	2140000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	3.5	B	8.5	B	7.8	B	9.7	B	11.1	
Zinc	99.9		20.8		13.4	B	19.5	B	16.7	B
TOC	<1.0 mg/L		5.2 mg/L		20 mg/L		54 mg/L		1.8 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
bis(2-ethylhexyl)phthalate			BQL	U	BQL	U	BQL	U	2.5	J

Site 9 Intermediate Detections P9-MWI05	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	350		260		400	E	300		310	
1,1-DCE	9.3		9.7		11		7.2		10	
1,2-DCB	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	<5.0		7.5	JB	BQL	U	4.5	JB	BQL	U
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Chloroform	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Vinyl Chloride	14		BQL	U	13		11		12	
cis-1,2-DCE	0.93	J	BQL	U	BQL	U	BQL	U	1.1	J
Methylene Chloride			3.6	JB	3.7	JB	5.5	JB	4.6	JB
TCE			BQL	U	BQL	U	BQL	U	1.4	J
Inorganics										
Aluminum	501	N	81.4	B	128	B	111	B	979	
Antimony	<20		BQL	U	2.5	B	BQL	U	BQL	U
Arsenic	11.3	B	9.8	B	10.2	B	12.3	B	11.7	B
Barium	22.3		19		15.8		15.6		17.1	
Beryllium	0.17	B	0.24	B	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	4160		3350		3230		3420		2950	
Chromium	2.2	B	BQL	U	BQL	U	BQL	U	BQL	U
Cobalt	2.4	B	0.83	B	0.96	B	1.1	B	1.4	B
Copper	2.9	B	3.2	B	BQL	U	1.8	B	BQL	U
Iron	672		138	B	191		163		596	
Lead	<10		6.4	B	BQL	U	BQL	U	BQL	U*
Magnesium	4470		3810		3790		3770		3500	
Manganese	46.2		49.5		51		51.7		52.9	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	12.4		13.2		12.1		14.2		15.7	
Nickel	23.7		11.4		18		17.6		15.4	
Potassium	14300		13700	E	14200		13900		13900	E
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	398000		389000	E	389000		392000		383000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	4.3	B	2.6	B	2.2	B	2	B	3.9	B
Zinc	19.1	B	7.4	B	BQL	U	4.2	B	BQL	U
TOC	5.4 mg/L		6.4 mg/L		13 mg/L		9.0 mg/L		3.0 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
di-n-Butyl Phthalate			BQL	U	7.6	JB	1.7	J	8	J

Site 9 Intermediate Detections P9-MW104	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	6.5		14		8		6.4		4.3	J
1,1-DCE	2.1		2.8	J	2.5	J	2.7	J	1.9	J
1,2-DCB	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	<5.0		500	E	150		BQL	U	BQL	U
Acetone	<5.0		21	B	11	B	BQL	U	BQL	U
Chloroform	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Vinyl Chloride	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
cis-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			19	B	4.1	JB	16	B	8.4	JB
Toluene			2	JB	BQL	U	BQL	U	BQL	U
TCE			1.8	JB	BQL	U	BQL	U	BQL	U
Inorganics										
Aluminum	2640		1100		547		300		377	
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	8.2	B	9	B	7.6	B	9.2	B	9.1	B
Barium	26.5		15.3		11.1		9.7	E	14.4	
Beryllium	<2		BQL	U	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	3440		3660		3030		3340	E	3680	
Chromium	11.5		8.4		3.4	B	3.6	B	4.5	B
Cobalt	4.2	B	1.6	B	1.4	B	2.1	B	2.2	B
Copper	4.2	B	4	B	1.3	B	2.8	B	0.82	B
Iron	3760		1570		705		432		429	
Lead	2.2	B	BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	3220		2610		2150		2220	E	2320	
Manganese	67.1		19		8		5.3	E	15	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	6.7		5.8		5.6		7.2		5.2	
Nickel	31.8		24		17.8		18.7		20.3	
Potassium	6290		6840		6540		6110	E	7020	
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	235000		236000		220000		225000	E	232000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	15.4		27.2		21.6		22.2		21	
Zinc	27.8		8.8	B	BQL	U	BQL	U	12.7	B
TOC	4.1 mg/L		6.1 mg/L		6.8 mg/L		35 mg/L		3.9 mg/L	
Hex Chrome			<0.01 mg/L	U	<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
bis(2-ethylhexyl)phthalate			8.3	J	BQL	U	3.2	J	BQL	U
di-n-Butyl Phthalate			BQL	U	BQL	U	4.8	J	BQL	U

Site 9 Intermediate Detections P9-MWI03	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	99		48		72		130		100	
1,1-DCE	7.6		5.3		7		14		9	
1,2-DCB	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Chloroform	0.84	J	BQL	U	BQL	U	BQL	U	BQL	U
Vinyl Chloride	2.1		BQL	U	BQL	U	BQL	U	BQL	U
cis-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			21	B	4	JB	13	B	8.6	JB
Toluene			1.9	JB	BQL	U	BQL	U	BQL	U
TCE			1.9	JB	BQL	U	BQL	U	BQL	U
Inorganics										
Aluminum	4440	N	218		166	B	91.5	B	546	
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	7	B	BQL	U	5.7	B	5.6	B	4.7	B
Barium	148		34.7		49.6		38.5	E	34	
Beryllium	0.27	B	BQL	U	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	37700		9200		12000		9480	E	7920	
Chromium	19.4		BQL	U	BQL	U	BQL	U	BQL	U
Cobalt	5.6		1.2	B	2	B	3.6	B	1.3	B
Copper	6.3	B	BQL	U	BQL	U	1	B	BQL	U
Iron	6690		265		212		131	B	924	
Lead	3	B	3.5	B	BQL	U	BQL	U	BQL	U
Magnesium	50600		11500		13900		10800	E	8980	
Manganese	387		27.1		122		114	E	39.8	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	5.8		3.8	B	3.3	B	4.9	B	3.5	B
Nickel	49		26.1		25.7		33.7		30	
Potassium	11200		6300		7460		6710	E	5340	
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	1.3	B	BQL	U
Sodium	725000		350000		400000		360000	E	302000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	16.9		7	B	7.4	B	7.9	B	8.6	B
Zinc	98.4		13.7	B	BQL	U	8.7	B	16.1	B
TOC	1.6 mg/L		5.9 mg/L		4.6 mg/L		42 mg/L		3.2 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
di-n-Butyl Phthalate			9.7	J	BQL	U	6	J	BQL	U

Site 9 Intermediate Detections P9-MWI02	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	15		62		50		40		31	
1,1-DCE	1.4		8.6		6.6		5.4		2.6	J
1,2-DCB	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	<5.0		460		210	E	BQL	U	BQL	U
Acetone	<5.0		BQL	U	11	B	BQL	U	BQL	U
Chloroform	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Vinyl Chloride	<1.0		BQL	U	1.2	J	BQL	U	BQL	U
cis-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			4.2	JB	4.4	JB	14	B	5	JB
Inorganics										
Aluminum	3120	N	820		977		791		986	
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	9.7	B	9.2	B	10.5	B	11.7	B	10.6	B
Barium	30		17.5		16.7		15.7	E	16.3	
Beryllium	0.17	B	0.25	B	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	5330		6360		5560		6040	E	5420	
Chromium	12.4		BQL	U	5		5.4		7.4	
Cobalt	11.9		5.8		6.1		7.3		8.4	
Copper	4.7	B	5.7	B	1.5	B	4.3	B	1.9	B
Iron	4540		398		1380		1150		1580	
Lead	2.5	B	BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	2980		2780		2510		2720	E	2420	
Manganese	67.2		14.6		16.2		13.8	E	20.5	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	4.5	B	2.9	B	3.2	B	4.7	B	3.5	B
Nickel	79.3		52.2		49.5		57.9		61	
Potassium	7300		7130	E	6940		7270	E	6870	
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	212000		230000	E	215000		227000	E	214000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	18.6		23.7		22.9		25.1		23	
Zinc	39.9		13.9	B	BQL	U	BQL	U	11.9	B
TOC	3.6 mg/L		5.5 mg/L		7.0 mg/L		37 mg/L		2.4 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
bis(2-ethylhexyl)phthalate			BQL	U	BQL	U	BQL	U	2.4	J
di-n-Butyl Phthalate			BQL	U	BQL	U	BQL	U	5.1	J

Site 9 Intermediate Detections P9-IW101 (abandoned)	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Week 2 (12/2 - 12/6) Concentration (ug/L)	Week 4 (12/16 - 12/20) Concentration (ug/L)
Compound							
VOCs							
1,1-DCA	19						
1,1-DCE	2.1						
1,2-DCB	<1.0						
2-Butanone	6.5						
Acetone	8.5						
Chloroform	<1.0						
Vinyl Chloride	<1.0						
cis-1,2-DCE	<1.0						
Methylene Chloride							
Inorganics							
Aluminum	4300						
Antimony	<20						
Arsenic	6.1						
Barium	25.2						
Beryllium	<2						
Cadmium	<6						
Calcium	2960						
Chromium	29.1						
Cobalt	10.9						
Copper	8.8						
Iron	6210						
Lead	2.5						
Magnesium	3350						
Manganese	83.5						
Mercury	<0.2						
Molybdenum	5.5						
Nickel	111						
Potassium	6870						
Selenium	<20						
Silver	<3						
Sodium	244000						
Thallium	<30						
Vanadium	35.4						
Zinc	1290						
TOC	8.2 mg/L						
Hex Chrome							
SVOCs							
di-n-Butyl Phthalate							

Site 9 Intermediate Detections P9-IWIS01 (P9-IWI02) (replacement) Compound	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
VOCs										
1,1-DCA	NA - see IWI01		10		13		19		17	
1,1-DCE	NA - see IWI01		BQL	U	BQL	U	1.6	J	BQL	U
1,2-DCB	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	NA - see IWI01		200		130		32		BQL	U
Acetone	NA - see IWI01		61		89	B	34		24	
Chloroform	NA - see IWI01		7.8		6.4		6.6		5.1	
Vinyl Chloride	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
cis-1,2-DCE	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride	NA - see IWI01		5.6	JB	3.9	JB	12	B	5.9	JB
Naphthanene	NA - see IWI01		BQL	U	BQL	U	BQL	U	3.2	JB
Inorganics										
Aluminum	NA - see IWI01		1580		16800		1820		896	
Antimony	NA - see IWI01		BQL	U	BQL	U	BQL	U	2.4	B
Arsenic	NA - see IWI01		BQL	U	17.7	B	26.8		25.7	
Barium	NA - see IWI01		84		207		44.6	E	50.2	
Beryllium	NA - see IWI01		0.28	B	0.11	B	BQL	U	BQL	U
Cadmium	NA - see IWI01		0.92	B	7.6		17.3		23	
Calcium	NA - see IWI01		23500		33000		36300	E	40200	
Chromium	NA - see IWI01		48.1		167		87.6		32.7	
Cobalt	NA - see IWI01		136		452		740		976	
Copper	NA - see IWI01		149		353		451		494	
Iron	NA - see IWI01		128000		93000		55800		55600	
Lead	NA - see IWI01		BQL	U	16.5		34.4		52.5	
Magnesium	NA - see IWI01		16700		23000		16900	E	26400	
Manganese	NA - see IWI01		1140		2340		6850	E	11300	
Mercury	NA - see IWI01		0.22		0.15	B	BQL	U	0.1	B
Molybdenum	NA - see IWI01		BQL	U	2.4	B	6.6		8.2	
Nickel	NA - see IWI01		579		1130		1180		1350	
Potassium	NA - see IWI01		122000		134000		98400	E	129000	
Selenium	NA - see IWI01		BQL	U	4.5	B	BQL	U	BQL	U
Silver	NA - see IWI01		0.62	B	BQL	U	BQL	U	BQL	U
Sodium	NA - see IWI01		566000		525000		460000	E	623000	
Thallium	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	NA - see IWI01		8.7	B	58		35.8		28.5	
Zinc	NA - see IWI01		51.7		261		449		563	
TOC	NA - see IWI01		330 mg/L		360 mg/L		180 mg/L		110 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
bis(2-ethylhexyl)phthalate			BQL	U	BQL	U	BQL	U	17	
di-n-Butyl Phthalate			BQL	U	2.8	JB	5.4	J	5.5	J

Site 11/21 Intermediate Detections P11/21-MW04	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2-TCA	3.9		2.5	J	2.7	J	3.5	J	BQL	U
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCE	4.4		4.6	J	4.3	J	3.9	J	5.9	
1,2-Dichlorobenzene	110	E	64		99	B	69		67	
1,2-DCA	13		11		16		12		BQL	U
1,4-Dichlorobenzene	6.4		4.5	J	6.7		BQL	U	5.1	
Acetone	4.7	J	BQL	U	BQL	U	BQL	U	BQL	U
Chlorobenzene	1.2		BQL	U	1	J	BQL	U	1.2	J
Chloroform	1.1		BQL	U	1.3	J	1.1	J	BQL	U
PCE	1.6		BQL	U	1.3	J	BQL	U	4.1	J
TCE	15000		9800		1600 or 17000DI	E or B	12000		14000	
Vinyl Chloride	18		13		16		15		20	
cis-1,2-DCE	150		120		120		120		130	
trans-1,2-DCE	1.8		1.6	J	1.8	J	1.7	J	2.5	J
Methylene Chloride			7.2	JB	5.2	JB	7.3	JB	4	JB
2-Butanone			BQL	U	4.1	JB	5.5	JB	BQL	U
1,3-Dichlorobenzene			BQL	U	1.1	J	BQL	U	BQL	U
Chloromethane			BQL	U	BQL	U	BQL	U	22	
Inorganics										
Aluminum	2080	B	57100		1780		458		1040	
Antimony	<400		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	69.5	B	21		BQL	U	BQL	U	BQL	U
Barium	61.3		299		55.2		52		52.6	
Beryllium	<40		1.1	B	BQL	U	BQL	U	BQL	U
Cadmium	<120		2.4	B	BQL	U	BQL	U	BQL	U
Calcium	186000		407000		159000		190000		158000	
Chromium	<100		190		7.3		BQL	U	6.6	
Cobalt	18.4	B	82.3		21.6		24.8		23.7	
Copper	<200		51.7		2.8	B	1.7	B	3.3	B
Iron	1060	B	65400		2260		BQL	U	1310	
Lead	<200		17.2		BQL	U	BQL	U	BQL	U
Magnesium	551000		1020000		511000		666000		491000	
Manganese	1960		4670		1940		2280		1910	
Mercury	<0.2		0.14	B	BQL	U	BQL	U	BQL	U
Molybdenum	<100		1.6	B	BQL	U	BQL	U	3.1	B
Nickel	60	B	311		51.9		58.4		57.1	
Potassium	279000		BQL	U	275000		302000		259000	
Selenium	<400		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<60		1.4	B	BQL	U	BQL	U	BQL	U
Sodium	7060000		5740000		7340000		8120000		6850000	
Thallium	<600		4.2	B	BQL	U	BQL	U	BQL	U
Vanadium	<200		123		6.8	B	3.6	B	4.8	B
Zinc	<400		176		19.9	B	15.4	B	16	B
TOC	<1.0 mg/L		7.1 mg/L		3.1 mg/L		3.8 mg/L		BQL	U
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
1,2-DCB			44		76		?		68	
1,3-DCB			BQL	U	4.4	J	?		BQL	U
1,4-DCB			3.1	J	4.3	J	?		5	J
bis(2-ethylhexyl)phthalate			BQL	U	3	J	?		BQL	U
di-n-Butyl Phthalate			BQL	U	7.3	J	?		6.9	JB

Site 11/21 Intermediate Detections P11/21-MW03	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2-TCA	1.2		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCE	2.5		3.3	J	3.3	J	2.5	J	5.2	
1,2-Dichlorobenzene	8.8		11		23	B	16		17	
1,2-DCA	<1.0		5.5		6.8		5.2		BQL	U
1,4-Dichlorobenzene	<1.0		BQL	U	1.4	J	BQL	U	1.1	J
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Chlorobenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Chloroform	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
PCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
TCE	4800		4800		1300 or 7900DL	E or B	4300		5500	
Vinyl Chloride	13		14		16		13		19	
cis-1,2-DCE	110		110		110		100		140	
trans-1,2-DCE	0.6	J	BQL	U	BQL	U	BQL	U	1.5	J
Methylene Chloride			7.1	JB	4.7	JB	7	JB	4	J
2-Butanone			BQL	U	BQL	U	6.5	JB	BQL	U
4-Methyl-2-Pentanone			BQL	U	17					
Inorganics										
Aluminum	<4000		99.6	B	BQL	U	50.1	B	88.7	B
Antimony	<400		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	<400		BQL	U	BQL	U	BQL	U	BQL	U
Barium	54.9	B	49.7		44.5		49.5		48.3	
Beryllium	<40		0.14	B	BQL	U	BQL	U	BQL	U
Cadmium	<120		BQL	U	BQL	U	0.31	B	0.34	B
Calcium	348000		275000		252000		305000		282000	
Chromium	<100		BQL	U	BQL	U	BQL	U	BQL	U
Cobalt	57.9		49.5		48.1		58.3		48.8	
Copper	<200		1.8	B	1.7	B	2.2	B	4	B
Iron	<3000		322		BQL	U	BQL	U	152	B
Lead	<200		BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	1070000		848000		995000		1040000		884000	
Manganese	4510		3640		3420		4010		3640	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	<100		BQL	U	1.6	B	2.2	B	2.2	B
Nickel	134	B	106		98.1		118		105	
Potassium	443000		BQL	U	381000		417000		436000	
Selenium	<400		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<60		BQL	U	BQL	U	BQL	U	1.4	B
Sodium	11800000		5220000		10600000		11100000		10700000	
Thallium	<600		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	<200		1.5	B	1.8	B	1.4	B	1.4	B
Zinc	2390		76.4		23.6		14.5	B	54.9	
TOC	<1.0 mg/L		1.9 mg/L		3.2 mg/L		3.8 mg/L		BQL	U
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
1,2-DCB			8.3	J	14		?		11	J
bis(2-ethylhexyl)phthalate			14		BQL	U	?		BQL	U

Site 11/21 Intermediate Detections P11/21-MW02	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2-TCA	3.1		BQL	U	2.6	J	3.1	J	BQL	U
1,1-DCA	<1.0		BQL	U	BQL	U	2.1	J	BQL	U
1,1-DCE	4.4		5.1		4.3	J	3.6	J	BQL	U
1,2-Dichlorobenzene	80	E	58		74	B	60		53	
1,2-DCA	12		9.5		16		12		11	
1,4-Dichlorobenzene	4.7		4.2	J	4.8	J	BQL	U	3.8	J
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Chlorobenzene	0.89	J	BQL	U	BQL	U	BQL	U	BQL	U
Chloroform	0.91	J	BQL	U	1.3	J	1.1	J	BQL	U
PCE	1.4		BQL	U	1.3	J	1	J	1.1	J
TCE	12000		11000		1400 or 16000DI	E or B	12000		7900	
Vinyl Chloride	18		25		18		19		14	
cis-1,2-DCE	140		140		130		140		97	
trans-1,2-DCE	1.7		1.8	J	1.9	J	1.8	J	1.9	J
Methylene Chloride			6.2	JB	5	JB	5.2	JB	4.6	J
2-Butanone			BQL	U	BQL	U	6.3	JB	BQL	U
Inorganics										
Aluminum	2710	B	1860		650		197	B	362	
Antimony	<400		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	<400		BQL	U	BQL	U	BQL	U	BQL	U
Barium	78.7	B	64.3		54.7		58.1		52.6	
Beryllium	<40		0.11	B	BQL	U	BQL	U	BQL	U
Cadmium	<120		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	183000		158000		149000		165000		100000	
Chromium	<100		5.8		BQL	U	BQL	U	BQL	U
Cobalt	26.9	B	18		16.4		16.7		8.7	
Copper	<200		3.3	B	2.3	B	2.8	B	1.7	B
Iron	1540	B	2430		952		323		537	
Lead	<200		1.6	B	BQL	U	BQL	U	BQL	U
Magnesium	552000		491000		479000		518000		290000	
Manganese	1970		1820		1770		1930		1190	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	<100		1.5	B	BQL	U	BQL	U	1.6	B
Nickel	57.1	B	49.7		41.9		43.5		26	
Potassium	272000		BQL	U	250000		BQL	U	199000	
Selenium	<400		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<60		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	6870000		3990000		6700000		3900000		4920000	
Thallium	<600		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	<200		6.9	B	4.1	B	2.6	B	3.1	B
Zinc	<400		24		26.6		23.9		138	
TOC	<1.0 mg/L		1.3 mg/L		3.9 mg/L		3.7 mg/L		5.3 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
1,2-DCB			40		53		40		43	
1,4-DCB			2.8	J	3	J	2.6		3	J
bis(2-ethylhexyl)phthalate			BQL	U	7.6	J	BQL	U	BQL	U
di-n-Butyl Phthalate			BQL	U	1.6	J	BQL	U	5.5	J

Site 11/21 Intermediate Detections P11/21-MW01	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2-TCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCE	1.9		BQL	U	2.5	J	1.8	J	3.5	J
1,2-Dichlorobenzene	<1.0		1.6	J	2.2	JB	BQL	U	2.5	J
1,2-DCA	1.9		BQL	U	2.9	J	BQL	U	BQL	U
1,4-Dichlorobenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Chlorobenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Chloroform	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
PCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
TCE	3200		2400		1900 or 3900 DL	E or B	2400		4300	
Vinyl Chloride	6.4		9.6	J	9.1	J	7.4	J	15	
cis-1,2-DCE	50		65		61		55		100	
trans-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			6.2	JB	4.9	JB	BQL	U	3.9	J
2-Butanone			29		34	B	11	B	BQL	U
1,2-Dichloropropane			BQL	U	13		BQL	U	BQL	U
Inorganics										
Aluminum	4920		15900		480		173	B	571	
Antimony	<400		BQL	U	3	B	3.4	B	BQL	U
Arsenic	<400		BQL	U	BQL	U	BQL	U	BQL	U
Barium	70.8	B	100		41.7		43		46.9	
Beryllium	<40		0.38	B	BQL	U	BQL	U	BQL	U
Cadmium	<120		1.1	B	0.72	B	0.62	B	1.3	B
Calcium	491000		392000		375000		409000		415000	
Chromium	<100		44.9		BQL	U	BQL	U	BQL	U
Cobalt	105		84.2		74.6		81.3		77.6	
Copper	<200		13.1		2.1	B	1.5	B	5.9	B
Iron	2510	B	15600		BQL	U	BQL	U	BQL	U
Lead	<200		3.9	B	BQL	U	BQL	U	BQL	U
Magnesium	1590000		1220000		1470000		1480000		1410000	
Manganese	6270		5330		4960		5210		5220	
Mercury	<0.23		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	<100		10.9		1.7	B	2.2	B	5.4	
Nickel	225		217		153		164		164	
Potassium	585000		BQL	U	486000		532000		553000	
Selenium	<400		BQL	U	BQL	U	BQL	U	BQL	U
Silver	13.9	B	BQL	U	BQL	U	BQL	U	1.7	B
Sodium	14400000		6090000		13400000		14100000		13600000	
Thallium	<600		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	<200		28.2		2.6	B	1.4	B	2.7	B
Zinc	198	B	37.4		11.2	B	12.5	B	14.1	B
TOC	<1.0 mg/L		5.1 mg/L		3.2 mg/L		4.6 mg/L		BQL	U
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
di-n-Butyl Phthalate			2.8	J	2.2	J	?		BQL	U

Site 11/21 Intermediate Detections P11/21-IWI01	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1,2-TCA	2.3		BQL	U	BQL	U	BQL	U	2.4	J
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCE	3.2		2.3	J	1.8	J	2.5	J	5.7	
1,2-Dichlorobenzene	35		19		20	B	16		47	
1,2-DCA	7.2		5.5		6.7		4.8	J	11	
1,4-Dichlorobenzene	2.3		1.5	J	1.5	J	BQL	U	4.9	J
Acetone	<5.0		BQL	U	BQL	U	BQL	U	BQL	U
Chlorobenzene	<1.0		BQL	U	BQL	U	BQL	U	1.2	J
Chloroform	0.51	J	BQL	U	BQL	U	BQL	U	BQL	U
PCE	0.71	J	BQL	U	BQL	U	BQL	U	BQL	U
TCE	8100		4700		2100 or 8100DL	E or B	5600		8500	
Vinyl Chloride	14		8.7	J	5	J	11		20	
cis-1,2-DCE	110		70		59		71		140	
trans-1,2-DCE	1.2		BQL	U	BQL	U	BQL	U	1.8	J
Methylene Chloride			6.7	JB	7.1	JB	5.8	JB	4.4	J
2-Butanone			540	J	5.7	JB	4.8	JB	BQL	U
Inorganics										
Aluminum	1420	B	2980		598		158	B	583	
Antimony	<400		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	<400		BQL	U	BQL	U	BQL	U	3.8	B
Barium	49.6	B	62.7		46.5		45.3		50.2	
Beryllium	2.2	B	0.21	B	BQL	U	0.12	B	BQL	U
Cadmium	<120		1	B	0.85	B	1	B	0.78	B
Calcium	322000		346000		312000		349000		293000	
Chromium	<100		8.2		BQL	U	BQL	U	BQL	U
Cobalt	59.7	B	59.9		54.4		61.4		46.7	
Copper	<200		4.4	B	2.5	B	3.2	B	4.6	B
Iron	<3000		3410		BQL	U	576		687	
Lead	<200		BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	1030000		1080000		1280000		1120000		892000	
Manganese	4080		4390		3970		4540		3520	
Mercury	<0.23		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	<100		1.2	B	BQL	U	BQL	U	2	B
Nickel	130	B	139		119		135		108	
Potassium	432000		BQL	U	440000		BQL	U	401000	
Selenium	<400		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<60		3		1.8	B	1.8	B	1.5	B
Sodium	10400000		5640000		12100000		5580000		9920000	
Thallium	<600		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	<200		7.3	B	3.1	B	1.7	B	3.6	B
Zinc	<400		15	B	15.4	B	9.1	B	15.1	B
TOC	2.2 mg/L		1.7 mg/L		3.7 mg/L		5.8 mg/L		BQL	U
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
1,2-DCB			16		19		11		37	
1,4-DCB			BQL	U	BQL	U	BQL	U	2.9	J
di-n-Butyl Phthalate			BQL	U	7.4	J	BQL	U	BQL	U

Site 11/21 Intermediate Detections P11/21-IWI03 (IWI02) (replacement) Compound	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
VOCs										
1,1,2-TCA	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCE	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
1,2-Dichlorobenzene	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
1,2-DCA	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
1,4-Dichlorobenzene	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
Acetone	NA - see IWI01		89	BE	110	B	35	B	110	
Chlorobenzene	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
Chloroform	NA - see IWI01		5.7		9.7		5.5		5.3	
PCE	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
TCE	NA - see IWI01		85		540	B	610		1300	
Vinyl Chloride	NA - see IWI01		BQL	U	BQL	U	BQL	U	4.3	J
cis-1,2-DCE	NA - see IWI01		1.9	J	12		13		37	
trans-1,2-DCE	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride	NA - see IWI01		1.2	JB	5.9	JB	5.4	JB	11	B
2-Butanone	NA - see IWI01		44		6.8	JB	160	B	260	E
Bromodichloromethane	NA - see IWI01		12		19		10		6.2	
Bromoform	NA - see IWI01		180		270	E	160		67	
Dibromochloromethane	NA - see IWI01		44		68		40		BQL	U
Chloromethane			BQL	U	BQL	U	BQL	U	14	
Naphthalene			BQL	U	BQL	U	BQL	U	5.5	B
Inorganics										
Aluminum	NA - see IWI01		904		454		303		170	B
Antimony	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	NA - see IWI01		12.1	B	11.6	B	14.8	B	8	B
Barium	NA - see IWI01		7.6		15.7		29.7		22.3	
Beryllium	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
Cadmium	NA - see IWI01		BQL	U	3.1	B	6	B	2.7	B
Calcium	NA - see IWI01		45000		142000		267000		239000	
Chromium	NA - see IWI01		310		262		134		77.7	
Cobalt	NA - see IWI01		94.5		401		672		757	
Copper	NA - see IWI01		41.1		247		419		209	
Iron	NA - see IWI01		4540		8620		16100		6300	
Lead	NA - see IWI01		2.4	B	3	B	5.4	B	BQL	U
Magnesium	NA - see IWI01		129000		492000		850000		749000	
Manganese	NA - see IWI01		1350		4570		8210		5550	
Mercury	NA - see IWI01		5.7		5.8		3.8		0.67	
Molybdenum	NA - see IWI01		3.5	B	2.1	B	1.5	B	2.1	B
Nickel	NA - see IWI01		255		845		1340		1210	
Potassium	NA - see IWI01		BQL	U	455000		BQL	U	452000	
Selenium	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
Silver	NA - see IWI01		1.8	B	6		8.7		2.5	B
Sodium	NA - see IWI01		1810000		4770000		4260000		6810000	
Thallium	NA - see IWI01		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	NA - see IWI01		345		28.7		12.9		9.6	B
Zinc	NA - see IWI01		75.6		484		666		249	
TOC	NA - see IWI01		47 mg/L		57 mg/L		98 mg/L		31 mg/L	
Hex Chrome			<0.01 mg/L		0.02 mg/L		0.13 mg/L		0.03 mg/L	
SVOCs										
di-n-Butyl Phthalate			BQL	U	3.4	J	BQL	U	5.2	JB
1,2-DCB			BQL	U	BQL	U	BQL	U	2.8	J

Site 16 North Detections P16-MWI02	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	<1.0		BQL		BQL	U	BQL	U	BQL	U
1,2-DCB	<1.0		BQL		BQL	U	BQL	U	BQL	U
1,3-DCB	<1.0		BQL		BQL	U	BQL	U	BQL	U
1,4-DCB	<1.0		BQL		BQL	U	BQL	U	BQL	U
Chlorobenzene	<1.0		BQL		BQL	U	BQL	U	BQL	U
Chloromethane	0.56	J	BQL		BQL	U	BQL	U	16	
TCE	<1.0		BQL		1.2	JB	BQL	U	BQL	U
cis-1,2-DCE	<1.0		BQL		BQL	U	BQL	U	BQL	U
trans-1,2-DCE	<1.0		BQL		BQL	U	BQL	U	BQL	U
Methylene Chloride			3.9	JB	5.6	JB	5.8	JB	3.6	JB
2-Butanone			BQL		BQL	U	5.1	JB	29	
Acetone			BQL		BQL	U	BQL	U	BQL	U
Chloroform			BQL		BQL	U	BQL	U	BQL	U
Naphthalene			5.4	B	BQL	U	BQL	U	7.8	B
Inorganics										
Aluminum	173	B	90	B	48.4	B	BQL	U	260	
Antimony	<20		BQL	U	2.4	B	BQL	U	BQL	U
Arsenic	4.9	B	BQL	U	BQL	U	BQL	U	BQL	U
Barium	38.9		33.5		41.2		41.9		40.7	
Beryllium	0.11	B	0.23	B	BQL	U	BQL	U	BQL	U
Cadmium	<6	B	BQL	U	BQL	U	BQL	U	BQL	U
Calcium	8440		6870		6540		7430		7180	
Chromium	1.4	B	BQL	U	BQL	U	BQL	U	BQL	U
Cobalt	<5		BQL	U	BQL	U	BQL	U	BQL	U
Copper	1.5	B	2.5	B	BQL	U	1.5	B	1.4	B
Iron	115	B	99.5	B	BQL	U	BQL	U	351	
Lead	1.9	B	BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	17400		14300		15100		15700		15300	
Manganese	79.8		29.9		65.8		66.6		42.4	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	61.7		69		64.2		67.1		68.3	
Nickel	2.9	B	BQL	U	1.9	B	3.6	B	4.5	B
Potassium	37400		32600	E	36100		37300		35400	
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	916000		782000	E	832000		807000		852000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	2.6	B	2	B	3.3	B	2.6	B	3.6	B
Zinc	212		27.2		11.2	B	8.9	B	15.1	B
TOC	4.2 mg/L		6.3 mg/L		11 mg/L		2.9 mg/L		3.1 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
di-n-Butyl Phthalate			8.7	J	BQL	U	BQL	U	6.1	JB

Site 16 North Detections P16-MWS08	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	0.8	J	BQL	U	BQL	U	BQL	U	BQL	U
1,2-DCB	80		100		160		110		90	
1,3-DCB	1.8		1.4	J	2.6	J	1.7	J	1.2	J
1,4-DCB	11		6.8		11		8.5		6.4	
Chlorobenzene	78		24		40		53		41	
Chloromethane	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
TCE	1.8		2.4	J	4	JB	13		2.1	J
cis-1,2-DCE	4.3		2.1	J	3.2	J	3.5	J	5.3	
trans-1,2-DCE	0.8	J	BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			19	B	5.9	JB	5.4	JB	6.4	JB
2-Butanone			45		6.6	J	4.9	JB	BQL	U
Acetone			BQL	U	BQL	U	BQL	U	BQL	U
Chloroform			BQL	U	BQL	U	BQL	U	BQL	U
Inorganics										
Aluminum	128	B	49.5	B	320		BQL	U	107	B
Antimony	<20		BQL	U	2.5	B	BQL	U	BQL	U
Arsenic	8.6	B	6.7	B	9.8	B	8.4	B	12	B
Barium	69.5		87.1		94.1		99.7		93.9	
Beryllium	0.16	B	0.24	B	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	35500		33900		31600		34900		36500	
Chromium	6.7		BQL	U	BQL	U	BQL	U	BQL	U
Cobalt	<5		BQL	U	BQL	U	BQL	U	BQL	U
Copper	2.3	B	3.4	B	BQL	U	2.3	B	1.4	B
Iron	113	B	68.2	B	373		BQL	U	186	
Lead	1.8	B	BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	14400		14800		13900		14400		15600	
Manganese	93		62.1		90.5		96.2		97.1	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	4.8	B	4.6	B	4.5	B	4.7	B	5.5	
Nickel	3.4	B	BQL	U	3.6	B	4.8	B	5.2	B
Potassium	19100		17200	E	18000		17800		19700	E
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	136000		127000	E	127000		132000		129000	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	3.6	B	17.9		11.9		10.1		11.7	
Zinc	6.9	B	BQL	U	BQL	U	BQL	U	BQL	U
TOC	6.0 mg/L		11 mg/L		8.1 mg/L		8.5 mg/L		4.1 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
1,2-DCB			87		94		85		66	
1,3-DCB			BQL	U	5.6	J	BQL	U	BQL	U
1,4-DCB			5.1	J	5.4	J	5.9	J	4.1	J
di-n-Butyl Phthalate			BQL	U	BQL	U	BQL	U	8.1	J

Site 16 North Detections P16-MWS06	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,2-DCB	36		BQL	U	2.5	J	BQL	U	2.5	J
1,3-DCB	1.5		BQL	U	BQL	U	BQL	U	BQL	U
1,4-DCB	10		BQL	U	BQL	U	BQL	U	1.5	J
Chlorobenzene	23		BQL	U	2.1	J	BQL	U	1.3	J
Chloromethane	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
TCE	1.2		BQL	U	1.3	J	3.5	J	BQL	U
cis-1,2-DCE	1.6		BQL	U	BQL	U	1.7	J	BQL	U
trans-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			5.4	JB	3.5	JB	5.6	JB	5.3	JB
Chloroform			BQL	U	1.1	J	1.7	J	2.7	J
2-Butanone			BQL	U	BQL	U	4.9	JB	BQL	U
1,2,3-Trichlorobenzene			BQL	U	BQL	U	BQL	U	5.1	
1,2,4-Trichlorobenzene			BQL	U	BQL	U	BQL	U	3.6	J
1,2,4-Trimethylbenzene			BQL	U	BQL	U	BQL	U	1.1	J
Naphthalene			BQL	U	BQL	U	BQL	U	3.7	J
Sec-Butylbenzene			BQL	U	BQL	U	BQL	U	1.1	J
PCE			BQL	U	BQL	U	BQL	U	4.8	J
n-Butylbenzene			BQL	U	BQL	U	BQL	U	2.8	J
tert-Butylbenzene			BQL	U	BQL	U	BQL	U	1.3	J
Inorganics										
Aluminum	108	B	171	B	134	B	38.5	B	102	B
Antimony	34		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	14.6	B	BQL	U	BQL	U	3.9	B	4.4	B
Barium	81.9		150		180		172		233	
Beryllium	0.6	B	0.24	B	BQL	U	BQL	U	BQL	U
Cadmium	1.2	B	BQL	U	BQL	U	0.37	B	8.9	
Calcium	38000		46200		48700		48200		70200	
Chromium	7.8		BQL	U	BQL	U	BQL	U	BQL	U
Cobalt	6.8		BQL	U	BQL	U	1.4	B	38.1	
Copper	5.5	B	6	B	6.5	B	34.3		514	
Iron	48.6	B	231		72.9	B	BQL	U	464	
Lead	<10		BQL	U	BQL	U	BQL	U	40.6	
Magnesium	18900		25700		26000		25200		35500	
Manganese	59.7		40.1		30.4		31.7		585	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	7.6		4.1	B	3.9	B	4.3	B	4.4	B
Nickel	4.4	B	BQL	U	BQL	U	5.7	B	92.9	
Potassium	20300		24000	E	24500		25900		28200	
Selenium	<20		17.9	B	22.4		23.4		25.3	
Silver	5		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	58300		68200	E	69000		81800		73800	
Thallium	15.3	B	BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	11.5		16		15		15.2		14.6	
Zinc	7.7	B	BQL	U	BQL	U	BQL	U	45.3	
TOC	3.8 mg/L		4.2 mg/L		4.1 mg/L		5.2 mg/L		10 mg/L	
Hex Chrome			<0.1 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
1,2-DCB			BQL	U	BQL	U	2.2	J	BQL	U

Site 16 North Detections P16-MWS04	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,2-DCB	9.5		12		79		18		4.7	J
1,3-DCB	0.77	J	BQL	U	4.2	J	BQL	U	BQL	U
1,4-DCB	3.4		4.1	J	19		BQL	U	1.3	J
Chlorobenzene	<1.0		4.7	J	26		5.8		1.3	J
Chloromethane	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
TCE	0.55	J	BQL	U	1.9	JB	BQL	U	BQL	U
cis-1,2-DCE	<1.0		BQL	U	2.4	J	1.6	JB	BQL	U
trans-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			5.6	JB	5.8	JB	6.3	JB	4.9	JB
2-Butanone			BQL	U	BQL	U	5	JB	BQL	U
Acetone			BQL	U	BQL	U	BQL	U	BQL	U
Chloroform			BQL	U	BQL	U	BQL	U	BQL	U
1,2,3-TCB			BQL	U	2.9	JB	BQL	U	BQL	U
1,2,4-TCB			BQL	U	2.4	JB	BQL	U	BQL	U
Hexachlorobutadiene			BQL	U	1.4	J	BQL	U	BQL	U
Naphthalene			BQL	U	3.6	JB	BQL	U	BQL	U
Inorganics										
Aluminum	117	B	177	B	88.1	B	BQL	U	216	
Antimony	<20	B	BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	<20		5.9	B	8.5	B	5.8	B	8.7	B
Barium	7		14.8		15.3		19.1		23.9	
Beryllium	<2		0.26	B	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	23500		18700		18600		20700		22900	
Chromium	2	B	BQL	U	BQL	U	BQL	U	4.1	B
Cobalt	<5		BQL	U	BQL	U	BQL	U	BQL	U
Copper	1.2	B	3.2	B	BQL	U	BQL	U	1.9	B
Iron	30.4	B	228		67.2	B	BQL	U	273	
Lead	2.1	B	BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	6930		7010		6910		7260		7360	
Manganese	9.9		18.4		10.7		10.8		12.5	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	4.6	B	4.3	B	4.7	B	4.4	B	4.6	B
Nickel	<10		BQL	U	BQL	U	BQL	U	BQL	U
Potassium	12500		12100	E	13500		13900		13600	E
Selenium	<20		BQL	U	BQL	U	11.7	B	28.4	
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	13000		18600	E	21800		20400		13200	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	8.7	B	19.9		20.2		17.1		19.2	
Zinc	9.5	B	9.5	B	BQL	U	BQL	U	11.7	B
TOC	1.6 mg/L		2.2 mg/L		2.3 mg/L		1.3 mg/L		BQL	U
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
1,4-DCB			BQL	U	8.5	J	2.6	J	BQL	U
di-n-Butyl Phthalate			4.5	J	BQL	U	BQL	U	BQL	U

Site 16 North Detections P16-MWS02	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,1-DCA	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
1,2-DCB	4.5		31		16		6.3		1.2	J
1,3-DCB	<1.0		1.7	J	1.4	J	BQL	U	BQL	U
1,4-DCB	1.2		8.8		7.9		4.3	J	BQL	U
Chlorobenzene	<1.0		9.8		6.9		BQL	U	BQL	U
Chloromethane	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
TCE	1.1		BQL	U	2	J	1.1	J	BQL	U
cis-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
trans-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride			6.2	JB	4.9	JB	6	JB	4.7	JB
2-Butanone			34	B	BQL	U	4.5	JB	BQL	U
Acetone			73		BQL	U	BQL	U	BQL	U
Chloroform			7.8		4.5	J	3.1	J	1.5	J
Naphthalene			BQL	U	5.6	B	BQL	U	BQL	U
PCE			BQL	U	BQL	U	BQL	U	2.3	J
Inorganics										
Aluminum	95.6	B	482		174	B	134	B	321	
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	<20		4.9	B	BQL	U	BQL	U	BQL	U
Barium	47.7		59.9		50		42.9		29.7	
Beryllium	0.11	B	0.3	B	0.13	B	BQL	U	BQL	U
Cadmium	<6		22.4		16.6		8.4		1.3	B
Calcium	35100		138000		117000		83400		50400	
Chromium	2.1	B	43.6		6.2		2.3	B	BQL	U
Cobalt	<5		354		290		140		36	
Copper	2	B	1430		875		517		135	
Iron	<150	B	144000		71500		33000		6980	
Lead	2	B	238		115		48.4		6.4	B
Magnesium	16200		76100		52700		36100		23700	
Manganese	22.6		7400		5960		2710		484	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	2.8	B	2.6	B	2.5	B	3.1	B	3.3	B
Nickel	<10		628		497		277		89.7	
Potassium	15100		91100	E	61100		43000		32800	E
Selenium	<20		17.8	B	6.5	B	15.1	B	29.3	
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	25500		521000	E	285000		163000		66800	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	4.8	B	11.2		18.3		15.6		4.2	B
Zinc	50.8		423		208		86.6		31	
TOC	3		430 mg/L		210 mg/L		8.0 mg/L		13 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
1,2-DCB			22		8.7	J	2.7	J	BQL	U
1,4-DCB			6.3	J	5	J	3.3	J	BQL	U

Site 16 North: Detections P16-IWS02 (abandoned) Compound	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Week 2 (12/2 - 12/6) Concentration (ug/L)	Week 4 (12/16 - 12/20) Concentration (ug/L)
VOCs							
1,1-DCA	<1.0		NA				
1,2-DCB	4.7		NA				
1,3-DCB	<1.0		NA				
1,4-DCB	1.4		NA				
Chlorobenzene	<1.0		NA				
Chloromethane	<1.0		NA				
TCE	0.97	J	NA				
cis-1,2-DCE	<1.0		NA				
trans-1,2-DCE	<1.0		NA				
Methylene Chloride							
2-Butanone							
Acetone							
Chloroform							
Inorganics							
Aluminum	92.1		NA				
Antimony	2.7		NA				
Arsenic	<20		NA				
Barium	66.7		NA				
Beryllium	0.16		NA				
Cadmium	<6		NA				
Calcium	29000		NA				
Chromium	2		NA				
Cobalt	<5		NA				
Copper	2.1		NA				
Iron	33.2		NA				
Lead	<10		NA				
Magnesium	14700		NA				
Manganese	22.5		NA				
Mercury	<0.2		NA				
Molybdenum	3.5		NA				
Nickel	<10		NA				
Potassium	14500		NA				
Selenium	<20		NA				
Silver	<3		NA				
Sodium	42100		NA				
Thallium	<30		NA				
Vanadium	11.1		NA				
Zinc	11.6		NA				
			NA				
TOC	3.0 mg/L		NA				
Hex Chrome			NA				

Site 16 North Detections P16-IWS04 (replacement) Compound	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
VOCs										
1,1-DCA	NA - see IWS02		BQL	U	BQL	U	BQL	U	BQL	U
1,2-DCB	NA - see IWS02		16		18		15		6.6	
1,3-DCB	NA - see IWS02		1	J	1.3	J	BQL	U	BQL	U
1,4-DCB	NA - see IWS02		5.8		6.3		BQL	U	2.4	J
Chlorobenzene	NA - see IWS02		5.4		3.1	J	BQL	U	BQL	U
Chloromethane	NA - see IWS02		BQL	U	BQL	U	BQL	U	BQL	U
TCE	NA - see IWS02		BQL	U	1.4	J	1.9	J	BQL	U
cis-1,2-DCE	NA - see IWS02		BQL	U	BQL	U	BQL	U	BQL	U
trans-1,2-DCE	NA - see IWS02		BQL	U	BQL	U	BQL	U	BQL	U
Methylene Chloride	NA - see IWS02		4.6	JB	4.2	JB	5.2	JB	5.2	JB
2-Butanone	NA - see IWS02		170		34		14	B	BQL	U
Acetone	NA - see IWS02		320		140	B	28	B	BQL	U
Chloroform	NA - see IWS02		3.1	J	2.9	J	2.7	J	3.6	J
Naphthalene	NA - see IWS02		3.3	J	BQL	U	BQL	U	11	
PCE	NA - see IWS02		BQL	U	BQL	U	BQL	U	4.8	J
Inorganics										
Aluminum	NA - see IWS02		752		315		169	B	316	
Antimony	NA - see IWS02		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	NA - see IWS02		BQL	U	BQL	U	BQL	U	12.6	B
Barium	NA - see IWS02		29		22.2		15.6		7.3	
Beryllium	NA - see IWS02		0.18	B	0.17	B	BQL	U	BQL	U
Cadmium	NA - see IWS02		6.1		14.5		28.2		54.8	
Calcium	NA - see IWS02		64900		67200		66700		67300	
Chromium	NA - see IWS02		60.9		31.7		46.6		BQL	U
Cobalt	NA - see IWS02		345		408		493		701	
Copper	NA - see IWS02		447		743		1640		3300	
Iron	NA - see IWS02		143000		98200		95800		91600	
Lead	NA - see IWS02		4.2	B	11		62		349	
Magnesium	NA - see IWS02		21000		21300		21100		21000	
Manganese	NA - see IWS02		1800		2120		5810		17200	
Mercury	NA - see IWS02		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	NA - see IWS02		BQL	U	2.9	B	3.5	B	5	
Nickel	NA - see IWS02		943		928		1130		1190	
Potassium	NA - see IWS02		189000		233000		264000		209000	
Selenium	NA - see IWS02		9.8	B	9.3	B	20.2		26.2	B
Silver	NA - see IWS02		BQL	U	0.61	B	BQL	U	1.1	B
Sodium	NA - see IWS02		620000		559000		485000		400000	
Thallium	NA - see IWS02		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	NA - see IWS02		BQL	U	1.1	B	6.6	B	9.7	B
Zinc	NA - see IWS02		258		424		561		546	
TOC	NA - see IWS02		510 mg/L		350 mg/L		130 mg/L		220 mg/L	
Hex Chrome			<0.01 mg/L		0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
1,2-DCB			8.8	J	16		7.7	J	5.6	J
1,4-DCB			3.2	J	5	J	2.6	J	BQL	U
bis(2-ethylhexyl)phthalate			BQL	U	4.2	J	BQL	U	BQL	U

Site 16 South Detections P16-MWI01	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,3,5-TMB	<0.1		BQL	U	BQL	U	BQL	U	BQL	U
Isopropylbenzene	<0.1		BQL	U	BQL	U	BQL	U	BQL	U
PCE	<0.1		BQL	U	BQL	U	BQL	U	BQL	U
TCE	<0.1		BQL	U	1.5	J	BQL	U	BQL	U
cis-1,2-DCE	<0.1		BQL	U	BQL	U	BQL	U	BQL	U
trans-1,2-DCE	<0.1		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone			470		4100	BE	1700		930	
Methylene Chloride			6.9	JB	8.9	JB	7.3	JB	9.7	JB
Naphthalene			BQL	U	BQL	U	BQL	U	BQL	U
1,1,2,2-PCA			BQL	U	12		BQL	U	BQL	U
Acetone			BQL	U	21	B	11	B	9	J
TCFM			BQL	U	BQL	U	1.7	J	BQL	U
Inorganics										
Aluminum	292		542		?		288		305	
Antimony	<20		BQL	U	?		BQL	U	BQL	U
Arsenic	8.9	B	10.9	B	?		4.9	B	7.3	B
Barium	20.9		15.1		?		14.9		16.1	
Beryllium	<2		BQL	U	?		BQL	U	BQL	U
Cadmium	<6		BQL	U	?		BQL	U	BQL	U
Calcium	3400	N	3120		?		3300		3790	
Chromium	<5		3.4	B	?		BQL	U	BQL	U
Cobalt	<5		BQL	U	?		BQL	U	BQL	U
Copper	2	B	1.4	B	?		BQL	U	1.6	B
Iron	260		556		?		307		394	
Lead	<10		BQL	U	?		BQL	U	BQL	U
Magnesium	3340		2440		?		2920		2310	
Manganese	15.4		10.6		?		14.4		12.7	
Mercury	<0.2		BQL	U	?		BQL	U	BQL	U
Molybdenum	29.6	E	42.2		?		39.8		42.6	
Nickel	3.1	B	5.2	B	?		2.1	B	4.3	B
Potassium	12500		10600		?		12100		11200	
Selenium	<20		BQL	U	?		BQL	U	BQL	U
Silver	<3		BQL	U	?		BQL	U	BQL	U
Sodium	377000		351000		?		388000		354000	
Thallium	<30		BQL	U	?		BQL	U	BQL	U
Vanadium	12.1		17.1		?		5.6	B	9.2	B
Zinc	144		24.4		?		7.9	B	14	B
TOC	5.4 mg/L		17 mg/L		1.1 mg/L		10 mg/L		9.6 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	
SVOCs										
di-n-Butyl Phthalate			BQL	U	BQL	U	BQL	U	5.8	JB

Site 16 South Detections P16-MWS07	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,3,5-TMB	2.2		BQL	U	BQL	U	BQL	U	BQL	U
Isopropylbenzene	0.78	J	BQL	U	BQL	U	BQL	U	BQL	U
PCE	430		51		100		75		43	
TCE	110		13		26	B	21		10	
cis-1,2-DCE	190		19		34		30		10	
trans-1,2-DCE	1.6		BQL	U	1.2	J	BQL	U	BQL	U
2-Butanone			190	B	BQL	U	6	JB	BQL	U
Methylene Chloride			5	JB	5.4	JB	8.7	JB	3.6	JB
Naphthalene			6.6	B	BQL	U	BQL	U	BQL	U
TCFM			BQL	U	BQL	U	1.4	J	BQL	U
Acetone			120		BQL	U	BQL	U	BQL	U
Chloromethane			BQL	U	BQL	U	BQL	U	9.4	J
Inorganics										
Aluminum	<200		1630		328		189	B	773	
Antimony	<20		2.6	B	3.1	B	2.6	B	BQL	U
Arsenic	4.8	B	26.7		13.1	B	7.1	B	6.5	B
Barium	25.4		86.5		67		64.6		63.4	
Beryllium	0.13	B	0.28	B	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	0.35	B
Calcium	16900	N	29300		23300		24300		23500	
Chromium	<5		32.1		BQL	U	BQL	U	3.6	B
Cobalt	<5		3.3	B	BQL	U	BQL	U	3.3	B
Copper	1.3	B	31.1		16.5		11		10.4	
Iron	<150		2280		419		220		1110	
Lead	<10		BQL	U	BQL	U	BQL	U	BQL	U
Magnesium	8940		18000		13500		13800		13100	
Manganese	100		194		99.7		96.4		190	
Mercury	<0.2		BQL	U	BQL	U	BQL	U	BQL	U
Molybdenum	1.8	BE	14		8.5		6.4		3.9	B
Nickel	<10		13.1		2.4	B	BQL	U	9.1	B
Potassium	16400		34500	E	26800		26100		20300	
Selenium	<20		12.8	B	6.9	B	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	26600		62300	E	37500		31800		30800	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	2.3	B	112		54.2		39.6		34.7	
Zinc	4.7	B	10.7	B	BQL	U	BQL	U	BQL	U
TOC	2.8 mg/L		17 mg/L		3.4 mg/L		2.3 mg/L		3.4 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	

Site 16 South Detections P16-MWS05	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,3,5-TMB	<1.0		BQL	U	BQL		BQL	U	BQL	U
Isopropylbenzene	<1.0		BQL	U	BQL		BQL	U	BQL	U
PCE	<1.0		BQL	U	BQL		BQL	U	3.3	JB
TCE	1.1		BQL	U	2.8	JB	1.3	J	BQL	U
cis-1,2-DCE	<1.0		BQL	U	BQL		BQL	U	BQL	U
trans-1,2-DCE	<1.0		BQL	U	BQL		BQL	U	BQL	U
2-Butanone			4	JB	4.2	JB	4.9	JB	BQL	U
Methylene Chloride			5.9	JB	5.6	JB	6.5	JB	10	B
Naphthalene			3.4	JB	3.4	JB	BQL	U	10	B
1,2,3-Trichlorobenzene			BQL	U	2.6	JB	BQL	U	3.8	JB
1,2,4-Trichlorobenzene			BQL	U	2.1	JB	BQL	U	2.8	JB
Hexachlorobutadiene			BQL	U	1.2	J	BQL	U	BQL	U
Chloromethane			BQL	U	BQL	U	BQL	U	13	
n-Butylbenzene			BQL	U	BQL	U	BQL	U	1.8	J
Inorganics										
Aluminum	83.6	B	2520		2710		1240		550	
Antimony	<20		BQL	U	BQL	U	BQL	U	BQL	U
Arsenic	9.2	B	10.8	B	10.5	B	8	B	6.2	B
Barium	15.6		36.6		47.8		54.4		39.7	
Beryllium	<2		0.32	B	BQL	U	BQL	U	BQL	U
Cadmium	<6		BQL	U	BQL	U	BQL	U	BQL	U
Calcium	11100	N	17900		20600		20100		21400	
Chromium	<5		10.6		11		5.2		3.2	B
Cobalt	<5		BQL	U	0.66	B	BQL	U	BQL	U
Copper	1.9	B	17.9		13.7		8.3	B	5.4	B
Iron	135	B	3300		3740		1710		914	
Lead	<10		BQL	U	3.5	B	BQL	U	BQL	U
Magnesium	4380		6930		7600		7250		8630	
Manganese	57.8		136		155		126		123	
Mercury	<0.2		BQL	U	BQL	U	0.14	B	BQL	U
Molybdenum	0.94	BE	1.9	B	1.7	B	1.8	B	1.6	B
Nickel	<10		6	B	9.6	B	4.6	B	1.6	B
Potassium	10800		10900	E	12700		12400		12700	
Selenium	<20		BQL	U	BQL	U	BQL	U	BQL	U
Silver	<3		BQL	U	BQL	U	BQL	U	BQL	U
Sodium	13900		31600	E	27600		19100		18800	
Thallium	<30		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	1.5	B	30.8		24.2		11.4		18.9	
Zinc	6.3	B	24		10.5	B	13	B	BQL	U
TOC	1.9 mg/L		2.8 mg/L		16 mg/L		1.5 mg/L		1.4 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.0. mg/L	
SVOCs										
di-n-Butyl Phthalate			8.4	J	BQL	U	BQL	U	6.5	JB

Site 16 South Detections P16-MWS03	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,3,5-TMB	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Isopropylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
PCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
TCE	<1.0		BQL	U	2	J	BQL	U	BQL	U
cis-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
trans-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone			230	BE	17	B	5.8	JB	BQL	U
Methylene Chloride			5.9	JB	9.5	JB	7.5	JB	3.5	JB
TCFM			BQL	U	BQL	U	2.3	J	BQL	U
Chloromethane			BQL	U	BQL	U	BQL	U	7.5	J
Inorganics										
Aluminum	106	B	BQL	U	?		113	B	323	
Antimony	<20		BQL	U	?		BQL	U	BQL	U
Arsenic	4.2	B	BQL	U	?		BQL	U	BQL	U
Barium	2.6	B	BQL	U	?		7.2		16.4	
Beryllium	<2		0.23	B	?		BQL	U	BQL	U
Cadmium	<6		BQL	U	?		BQL	U	BQL	U
Calcium	6870	N	111	B	?		14900		14600	
Chromium	<5		BQL	U	?		BQL	U	BQL	U
Cobalt	<5		BQL	U	?		BQL	U	BQL	U
Copper	1.5	B	2.2	B	?		BQL	U	2.4	B
Iron	108	B	BQL	U	?		73.5	B	461	
Lead	<10		BQL	U	?		BQL	U	BQL	U
Magnesium	3610		BQL	U	?		8980		9060	
Manganese	7.2		BQL	U	?		26.8		79.7	
Mercury	<0.2		BQL	U	?		BQL	U	BQL	U
Molybdenum	1.3	BE	BQL	U	?		BQL	U	BQL	U
Nickel	<10		BQL	U	?		BQL	U	BQL	U
Potassium	5040		57.6	BE	?		7200		5970	
Selenium	<20		BQL	U	?		BQL	U	BQL	U
Silver	<3		BQL	U	?		BQL	U	BQL	U
Sodium	9700		BQL	UE	?		12400		18300	
Thallium	<30		6.6	B	?		BQL	U	BQL	U
Vanadium	2	B	BQL	U	?		1.7	B	2.5	B
Zinc	5.9	B	BQL	U	?		BQL	U	18	B
TOC	1.2 mg/L		3.1 mg/L		BQL	U	BQL	U	BQL	U
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	

Site 16 South Detections P16-MWS01	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,3,5-TMB	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
Isopropylbenzene	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
PCE	5.8		5.3		6.1		4.5	J	13	
TCE	1.3		1.3	J	3.4	J	1.7	J	3.5	J
cis-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
trans-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone			5.7	J	BQL	U	5.4	JB	BQL	U
Methylene Chloride			4.2	JB	9.2	JB	6.7	JB	3.3	JB
Naphthalene			BQL	U	BQL	U	BQL	U	BQL	U
1,1-DCA			2.4	J	BQL	U	BQL	U	BQL	U
1,2-DCB			BQL	U	BQL	U	5.5		BQL	U
1,3-DCB			BQL	U	BQL	U	1.9	J	BQL	U
1,4-DCB			BQL	U	BQL	U	1.9	J	BQL	U
Inorganics										
Aluminum	48.4	B	688		?		158	B	206	
Antimony	<20		BQL	U	?		BQL	U	BQL	U
Arsenic	3.5	B	BQL	U	?		5.5	B	BQL	U
Barium	24.7		53.7		?		54.3		62.8	
Beryllium	<2		BQL	U	?		BQL	U	BQL	U
Cadmium	<6		BQL	U	?		BQL	U	BQL	U
Calcium	14400	N	18900		?		19500		21300	
Chromium	<5		2.2	B	?		BQL	U	BQL	U
Cobalt	<5		BQL	U	?		BQL	U	BQL	U
Copper	1.7	B	3	B	?		3.1	B	2.6	B
Iron	40.4	B	565		?		219		281	
Lead	<10		BQL	U	?		BQL	U	BQL	U
Magnesium	7130		9060		?		8850		10100	
Manganese	55.8		68.1		?		43.2		101	
Mercury	<0.2		BQL	U	?		BQL	U	BQL	U
Molybdenum	1.2	BE	2.9	B	?		2.3	B	BQL	U
Nickel	<10		1.3	B	?		1.8	B	1.4	B
Potassium	10300		11900		?		11100		11300	
Selenium	<20		BQL	U	?		BQL	U	BQL	U
Silver	<3		BQL	U	?		BQL	U	BQL	U
Sodium	16900		22200		?		19900		19200	
Thallium	<30		BQL	U	?		BQL	U	BQL	U
Vanadium	2.1	B	13.9		?		8.6	B	6.5	B
Zinc	6.8	B	4.4	B	?		11.3	B	BQL	U
TOC	3.1 mg/L		3.9 mg/L		BQL	U	2.8 mg/L		3.5 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	

Site 16 South Detections P16-IWS01	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
Compound										
VOCs										
1,3,5-TMB	<1.0		BQL	U	BQL	U	BQL	U	?	
Isopropylbenzene	<1.0		BQL	U	BQL	U	BQL	U		?
PCE	4.9		6.9		7.4		4.9	J		?
TCE	1.2		1.9		4	JB	1.8	J		?
cis-1,2-DCE	<1.0		0.75	J	BQL	U	BQL	U		?
trans-1,2-DCE	<1.0		BQL	U	BQL	U	BQL	U		?
2-Butanone			6.1	J	BQL	U	5.4	JB		?
Methylene Chloride			1.3	JB	5.8	JB	8.1	JB		?
Naphthalene			BQL	U	BQL	U	BQL	U		?
TCFM			BQL	U	BQL	U	1.4	J		?
Inorganics										
Aluminum	249		335		1530		1390			?
Antimony	<20		BQL	U	3.5	B	BQL	U		?
Arsenic	4.2		BQL	U	4.6	B	4	B		?
Barium	16.8		48.8		43		44.4			?
Beryllium	<2		BQL	U	BQL	U	BQL	U		?
Cadmium	<6		BQL	U	BQL	U	BQL	U		?
Calcium	11700		16400		19800		18800			?
Chromium	1.7		BQL	U	6.5		6.7			?
Cobalt	<5		BQL	U	BQL	U	BQL	U		?
Copper	2.6		2.7	B	12		9.9	B		?
Iron	366		324		2050		2060			?
Lead	<10		BQL	U	8.1	B	BQL	U		?
Magnesium	6250		7930		10300		10400			?
Manganese	48.8		57.5		56.2		45.4			?
Mercury	<0.2		BQL	U	BQL	U	BQL	U		?
Molybdenum	2.1		3.2	B	3.9	B	3.7	B		?
Nickel	2.4		BQL	U	7.4	B	4.7	B		?
Potassium	10700		11400		13900		15100			?
Selenium	<20		BQL	U	4.8	B	BQL	U		?
Silver	<3		BQL	U	BQL	U	BQL	U		?
Sodium	19700		21000		27000		26200			?
Thallium	<30		BQL	U	BQL	U	BQL	U		?
Vanadium	6		11.9		21.4		16.9			?
Zinc	13		BQL	U	12.2	B	22.7			?
TOC	2.2 mg/L		1.8 mg/L		19 mg/L		1.6 mg/L			?
Hex Chrome			?		<0.01 mg/L		<0.01 mg/L			?
SVOCs										
di-n-Butyl Phthalate			BQL	U	2	J	?			

Site 16 South Detections P16-IWS03 (replacement) Compound	Baseline Concentration (ug/L)	Qualifier	Week 0 (11/18 - 11/22) Concentration (ug/L)	Qualifier	Week 1 (11/25 - 11/29) Concentration (ug/L)	Qualifier	Week 2 (12/2 - 12/6) Concentration (ug/L)	Qualifier	Week 4 (12/16 - 12/20) Concentration (ug/L)	Qualifier
VOCs										
1,3,5-TMB	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
Isopropylbenzene	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
PCE	NA - see IWS01		BQL	U	BQL	U	BQL	U	1.7	JB
TCE	NA - see IWS01		6.4		6.3		1.4	J	2.9	J
cis-1,2-DCE	NA - see IWS01		5.3		2.3	J	4.2	J	7.3	
trans-1,2-DCE	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
2-Butanone	NA - see IWS01		45		38	B	24	B	BQL	U
Methylene Chloride	NA - see IWS01		7.1	JB	5.6	JB	6.4	JB	3.2	JB
Naphthalene	NA - see IWS01		8.2	B	2.7	JB	BQL	U	BQL	U
Acetone	NA - see IWS01		92		190	B	38	B	BQL	U
Chloroform	NA - see IWS01		2.4	J	4.4	J	2.1	J	BQL	U
1,2-DCB	NA - see IWS01		BQL	U	1.3	JB	BQL	U	BQL	U
Inorganics										
Aluminum	NA - see IWS01		122000		61600		13000		34600	
Antimony	NA - see IWS01		6.9	B	2.4	B	2.6	B	BQL	U
Arsenic	NA - see IWS01		76.9		57.8		53.5		57.2	
Barium	NA - see IWS01		516		281		65.1		179	
Beryllium	NA - see IWS01		4		1.4	B	0.3	B	0.89	B
Cadmium	NA - see IWS01		14.6		18.6		22.7		1.5	B
Calcium	NA - see IWS01		57300		60100		25500		15200	
Chromium	NA - see IWS01		514		258		57.5		142	
Cobalt	NA - see IWS01		330		479		337		55	
Copper	NA - see IWS01		1010		1430		2130		231	
Iron	NA - see IWS01		263000		196000		55600		54100	
Lead	NA - see IWS01		171		162		132		32.9	
Magnesium	NA - see IWS01		62500		37000		12100		13900	
Manganese	NA - see IWS01		9300		7000		6730		1970	
Mercury	NA - see IWS01		0.44		0.46		0.61		BQL	U
Molybdenum	NA - see IWS01		13.6		6		7.9		6.1	
Nickel	NA - see IWS01		1090		1240		849		242	
Potassium	NA - see IWS01		118000		137000		99100		40100	
Selenium	NA - see IWS01		BQL	U	25.3		24.4		7.3	B
Silver	NA - see IWS01		0.99	B	BQL	U	0.8	B	BQL	U
Sodium	NA - see IWS01		406000		449000		301000		174000	
Thallium	NA - see IWS01		BQL	U	BQL	U	BQL	U	BQL	U
Vanadium	NA - see IWS01		415		269		114		183	
Zinc	NA - see IWS01		661		489		266		132	
TOC	NA - see IWS01		180 mg/L		180 mg/L		130 mg/L		25 mg/L	
Hex Chrome			<0.01 mg/L		<0.01 mg/L		<0.01 mg/L		<0.01 mg/L	