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Groundwater Monitoring and Soil-Vapor Extraction/Air Sparging System Operation Report for the Period July 1 through September 30, 2010

Former Pacific Electric Motors Site
1009 66th Avenue, Oakland, California
(Fuel Leak Case Number RO0000411)

November 15, 2010

ARCADIS

Ron Goloubow, P.G.
Senior Associate Geologist

Eric Ehlers, P.G.
Senior Engineering Geologist

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Former Pacific Electric Motors Site, 1009 66th Avenue, Oakland, California

Prepared for:
College for Certain, LLC
1001 22nd Avenue Suite 100
Oakland, California 94606

Prepared by:
ARCADIS U.S., Inc.
1900 Powell Street
12th Floor
Emeryville
California 94608
Tel 510.652.4500
Fax 510.652.4906

Our Ref.:
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Date:
November 15, 2010

College for Certain, LLC
1001 22nd Avenue, Suite 100
Oakland, California 94606

November 11, 2010

Mr. Paresh Khatri
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

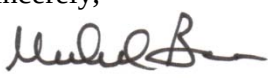
Subject: Groundwater Monitoring Report and Soil-Vapor Extraction/Air Sparging System Operation Report for the Period July 1 through September 30, 2010, Former Pacific Electric Motors Site, 1009 66th Avenue, Oakland, California (Fuel Leak Case Number RO0000411)

Dear Mr. Khatri:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or comments, please call Charles Robitaille at 925-698-1118, Ron Goloubow of ARCADIS at 510-596-9550, or me at 510-434-5000.

Sincerely,



Michael Barr
College for Certain, LLC

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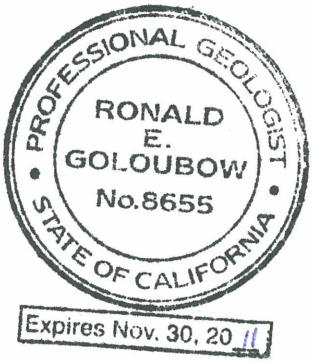
Certification

All hydrogeologic and geologic information, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by an ARCADIS U.S., Inc., California Professional Geologist .*

11/15/10

Ron Goloubow, P.G.
Senior Associate Geologist
California Professional Geologist (8655)

Date



* A professional geologist's certification of conditions comprises a declaration of his or her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations, and ordinances.

1. Introduction

ARCADIS has prepared this periodic groundwater monitoring and soil-vapor extraction/air sparging (SVE/AS) extended pilot test system report on behalf of College for Certain, LLC (CFC). This report provides a summary of activities conducted during the monitoring period from July 1 through September 30, 2010 ("the reporting quarter") at the former Pacific Electric Motors (PEM) site located at 1009 66th Avenue, Oakland, California ("the Site"; Alameda County Environmental Health [ACEH] Fuel Leak Case Number RO0000411; Figures 1 and 2).

During the excavation activities conducted at the Site as presented in the "Revised Corrective Action Plan, Proposed Aspire School Site, 1009 66th Avenue, Oakland, California," dated July 17, 2009 ("the Revised CAP"; LFR 2009c), the SVE/AS system was shut down on October 27, 2009 and disassembled. The SVE/AS system was restarted on June 16, 2010, after completion of excavation activities and removal of ponded rainwater. In all the SVE/AS system did not operate at the Site for approximately 232 days prior to restarting the system on June 16, 2010. The SVE/AS system ran without significant interruption from June 16 until September 13, 2010 (for 89 days). Groundwater monitoring was performed on July 25 and 26 to assess groundwater quality approximately 30 days after the SVE/AS system began operation, and on September 15 and 16 to assess groundwater quality just after shutting down the SVE/AS system. Each groundwater monitoring event was conducted with slight modifications relative to the Groundwater Monitoring Plan (GMP) that was prepared for the Site and submitted to ACEH on March 4, 2009 (LFR 2009a).

Representatives of ARCADIS, ACEH, and CFC met at the ACEH office on August 18, 2010 to discuss the soil removal actions, the effectiveness of the SVE/AS system, and the requirements for future soil-vapor mitigation and groundwater monitoring. The proposed shut down of the SVE/AS system and the alternatives for additional remedial actions for affected groundwater (should it become necessary) were presented.

1.1 Purpose of the Report

The purpose of the periodic groundwater monitoring and SVE/AS system operation report is to provide data that will be used to assess the groundwater quality over time and the effectiveness of the groundwater remediation at the Site.

During this monitoring period, ARCADIS completed the second phase operation of the SVE/AS pilot test system and operated the system from June 16th to September 13,

2010. As presented in Revised CAP, chemicals of concern (COCs) at the Site in groundwater include total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds), methyl tertiary-butyl ether (MTBE), and tertiary-butyl alcohol (TBA).

1.2 Background

The Site is located on the northwestern side of 66th Avenue between East 14th Street and San Leandro Street (Figures 1 and 2). The area around the Site is developed with a mixture of commercial, industrial, government, and multi-family residential buildings. The Site is currently owned by CFC. Additional historical land use information for the Site was presented in the Revised CAP (LFR 2009c).

The first industrial development of the property was in about 1948 when the two buildings were constructed by PEM. PEM occupied the Site from 1948 to 2001. Activities conducted at the Site by PEM included manufacturing specialty magnets, power supplies, and components, and repairing motors, generators, transformers, and magnets. A 2,000-gallon gasoline underground storage tank (UST) was reportedly installed at the Site by PEM in 1975. In addition, the gasoline shed in the fueling area may have stored vehicle lubricants and oil for vehicle maintenance.

The on-site buildings were occupied by Bay Area Powder Coatings in 2001. Bay Area Powder Coatings declared bankruptcy and ceased operations at the Site; however, some equipment belonging to this company was still present on the Site in 2005. No details are available as to the specific processes of Bay Area Powder Coatings.

Landeros Iron Works (“Landeros”), which subleased the property from Bay Area Powder Coatings, conducted its operations in and around the warehouse until December 2008. Landeros’ operation was primarily welding and metal structure fabrication. Landeros moved off site in June 2009.

The structures that were on the property were demolished between November 2009 and February 2010. The Site is currently relatively flat, unpaved, and vacant, and site redevelopment activities are commencing.

1.2.1 UST Removal and Remediation Activities

PEM removed the 2,000-gallon gasoline UST and associated pump island, piping, storage shed, and appurtenances in 1995. The UST was reportedly in good condition

with no holes evident; however, free-phase gasoline product was observed on the water surface in the tank excavation (W.A. Craig, Inc. 1997). Approximately 1,500 cubic yards of soil were removed in two excavation iterations completed during 1995 and stockpiled on the northern portion of the Site. Approximately 116,000 gallons of petroleum hydrocarbon-affected groundwater were pumped from the excavation. Site investigation work during this time also included the drilling of GeoProbe borings (between excavation iterations) in an attempt to define the lateral and vertical extent of gasoline constituents. A dewatering sump used during soil excavation was later converted to an 8-inch-diameter well (thought to be WAC-1) during backfilling operations. Backfill reportedly consisted of clean imported fill material. Reports indicate that the stockpiled excavated soils were disposed of in 1997 (W.A. Craig, Inc. 1995a, 1995b, 1995c, 1997).

A 30-foot- by 70-foot- by 9-foot-deep excavation for the remediation of petroleum hydrocarbon-affected soils was completed in April 2002 to the south of the original UST remedial excavation (Decon 2002a, 2002b; Figure 2). Approximately 65,000 gallons of petroleum hydrocarbon-affected groundwater were removed from the excavation. Additional over-excavation was performed southeast of the 30-foot by 70-foot excavation. During backfill operations, an 8-inch-diameter extraction well was installed (EW-1). The excavation was backfilled with an unspecified depth of drain rock. Approximately 250 pounds of oxygen-releasing compound (ORC) slurry was mixed into the gravel fill. Clean, excavated native soil and imported Class II base rock comprised the balance of backfill. Approximately 219 tons of petroleum hydrocarbon-affected soil were disposed of at an off-site facility (Decon 2002a, 2002b).

In addition, in June 2002, a total of 25 soil borings were advanced to a depth of 13 feet below ground surface (bgs) in the area of the former gasoline UST. Each of these borings was backfilled with 8 pounds of ORC followed by neat cement. ORC socks were also installed in wells MW-1 and WAC-1 (Decon 2002a, 2002b).

1.3 Previous Investigations

Several phases of investigations have been completed at the Site. According to descriptions of soil samples collected during the drilling of soil borings for groundwater monitoring wells installed at the Site, three groundwater-bearing zones designated as the “shallow zone,” “intermediate zone,” and “deep zone” have been identified at the Site (LFR 2008c). The sediments from the ground surface to approximately 8 feet bgs consist of an interval of fine-grained sediment (silt and clay) with relatively thin intervals of coarser grained sediments (sand, less than 1-foot thick). These coarser grained

sediments represent the interval of “shallow zone.” This is the interval in which the soil-vapor system is to be operated. Groundwater has been observed in this interval during the winter months of any year that has normal or above normal rainfall. The presence of groundwater in this interval may impede the operation of the SVE system during the months of November through February.

Discontinuous intervals of relatively thin, more permeable fine- to coarse-grained sand and gravels have generally been encountered between approximately 12 and 17 feet bgs. This interval of sediments contains the first groundwater at the Site, and represents the interval of “intermediate-zone” groundwater at the Site. Some of the highest concentrations of TPHg and related compounds have been detected in groundwater samples collected from this interval of saturated sediments.

An interval of poorly graded, coarser grained sediments comprised of fine sand and gravel was consistently encountered from approximately 21 to 34 feet bgs. This interval of coarser grained sediments contains groundwater and represents the “deep zone.”

The investigations conducted at the Site have also included the following:

- Collection of approximately 280 soil samples throughout the Site. The majority of these samples were collected from 0.5 or 5 feet bgs and analyzed for petroleum hydrocarbons, semivolatile organic compounds, polychlorinated biphenyls, and/or metals.

- Installation and monitoring of four groundwater monitoring wells (MW-1 through MW-4) and three shallow/intermediate/deep monitoring well clusters (nested wells NW-1 through NW-3), and collection of grab groundwater samples from 20 soil borings. Monitoring of wells MW-1 through MW-4 has been performed intermittently since 1997.

- Completion of two investigations to assess soil-gas quality at the Site in March and August 2008. The results of these investigations were presented in the Revised CAP (LFR 2009c).

- Completion of an SVE/AS pilot test at the Site in accordance with LFR Inc.’s (LFR’s) “Work Plan to Conduct an Air Injection and Soil-Vapor Extraction Pilot Test,” dated September 23, 2008 (LFR 2008a).

- Installation of seven SVE wells (SVE-2 through SVE-8), seven intermediate-zone AS wells (AS-2I through AS-8I), seven deep-zone AS wells (AS-2D through AS 8D), three SVE monitoring wells (SVMW-3 through SVMW-5), three intermediate-zone AS monitoring wells (ASMW-3I through ASMW-5I), and three deep-zone AS monitoring wells (ASMW-3D through ASMW-5D), from December 29, 2008 to January 9, 2009.

- Initial start-up of the SVE/AS extended pilot test system occurred on August 17, 2009. The system operated until October 27, 2009, at which time operations were ceased to allow for implementation of the Revised CAP, which requires remedial soil excavation. The system operated a total of 52 days, from August 17, 2009 to October 27, 2009, and removed approximately 480 pounds of mass quantified as TPHg. For additional information and system design and start-up of the SVE/AS system, please refer to the quarterly report prepared for this project (LFR 2009e).

1.4 Revised Corrective Action Plan

LFR prepared the Revised CAP for the implementation of site remedies (LFR 2009c). The Revised CAP summarized the results of previous investigations, presented the site conceptual model, quantified the baseline risk of COCs, developed site-specific risk-based cleanup goals, evaluated potential remedies, and presented an implementation plan for the selected remedies.

The Revised CAP recommended excavation and off-site disposal of affected shallow soils with SVE/AS to remediate affected soil, groundwater, and soil vapors (LFR 2009c). The Revised CAP also recommended conducting an extended SVE/AS pilot test including ozone injection, if appropriate.

As of June 30, a total of approximately 8,662 tons of affected soil has been removed from the Site and transported to either Waste Management's Kettleman Hills Class I Landfill located in Kettleman City, California or Republic Waste's Vasco Road Class II Landfill located in Livermore, California. The implementation of the CAP was reported to the ACEH in the report entitled "Soil Removal Action Completion Report, College for Certain, LLC, Former Pacific Electric Motors, 1009 66th Avenue, Oakland, California (Fuel Leak Case No. RO0000411)," dated September 15, 2010 (ARCADIS 2010d). The removal of polychlorinated biphenyl- (PCB-) affected soil was reported to the ACEH and U.S. Environmental Protection Agency (U.S. EPA) in a letter report entitled "Implementation of the Toxic Substances Control Act Self-Implementing Cleanup

Notification at the Former Pacific Electric Motors Facility, 1009 66th Avenue, Oakland, California," dated August 13, 2010 (ARCADIS 2010c).

ARCADIS operated an SVE/AS pilot test system in two phases. The first phase of SVE/AS operation was from August 13 to October 27, 2009, before soil excavation and site demolition activities began. The second phase of SVE/AS operation, from June 16 to September 13, 2010, was after completion of excavation and site demolition activities. SVE/AS operation was off for 232 days between phases of operation. Groundwater sampling to evaluate SVE/AS system performance was conducted during both phases of SVE/AS system operation. In addition, groundwater samples were collected before restarting the SVE/AS system for the second phase of operation to evaluate potential rebound of contaminants in groundwater during the period of SVE/AS system shutdown.

The following sections describe the groundwater monitoring activities and SVE/AS system performance.

2. Groundwater Monitoring

To monitor the performance of the SVE/AS system operation at the Site, groundwater monitoring was performed with slight modifications relative to the GMP and the Revised CAP (LFR 2009c). During this reporting period groundwater samples were collected on July 27 and 28, 2010 approximately one month after restarting operation of the SVE/AS system, and September 14 and 15, 2010 approximately three months after restarting operation of the SVE/AS system, to monitor current groundwater conditions and evaluate the effectiveness of the second phase of SVE/AS operations.

The following sections describe the groundwater monitoring activities for this reporting quarter.

2.1 Groundwater Monitoring Scope of Work

The following groundwater monitoring activities were performed during this reporting quarter:

- Measured depth to groundwater in 38 monitoring wells during the July sampling event.

- Measured depth to groundwater in 22 monitoring wells during the September sampling event.
- Collected groundwater samples from 10 wells on July 27 and 28, 2010.
- Collected groundwater samples from 21 wells on September 14 and 15, 2010.
- Submitted groundwater samples for laboratory analyses.

2.2 Groundwater Monitoring Wells

The groundwater monitoring well network at the Site included 21 groundwater monitoring wells prior to abandonment of 15 monitoring wells and 16 soil-vapor and air sparging wells on September 13 and October 15, 2010 (Figure 2). Well abandonment activities are described in Section 3.6. As discussed in the August 18th meeting, the proposed multi-purpose building was shifted approximately 15 feet to the north-northwest to allow wells AS-1I and AS-3I to remain in place as future groundwater monitoring wells.

- Four groundwater monitoring wells (MW-1 through MW-4) are screened from approximately 5 to 20 feet bgs.
- Three shallow-zone groundwater monitoring wells (NW-1S, NW-2S, and NW-3S; part of the triple-nested groundwater monitoring wells) are completed with screens at approximately 3 to 5 feet bgs.
- Four intermediate-zone groundwater monitoring wells (ASMW-2I through ASMW 5I) are screened from approximately 10 to 17 feet bgs.
- Three intermediate-zone groundwater monitoring wells (NW-1I, NW-2I, and NW 3I; part of the triple-nested groundwater monitoring wells) are screened from approximately 15 to 18 feet bgs.
- Four deep-zone groundwater monitoring wells (ASMW-2D, ASMW-3D, ASMW 4D, and ASMW-5D) are screened from approximately 19 to 27 feet bgs.

- Three deep-zone groundwater monitoring wells (NW-1D, NW-2D and NW-3D; part of the triple-nested groundwater monitoring wells) are completed with screens at approximately 25 to 30 feet bgs.

In addition to the 21 monitoring wells, select wells from the network of SVE/AS treatment system wells have been sampled to evaluate the effectiveness of SVE/AS treatment of affected groundwater. The SVE/AS well network consists of the following wells (Figure 2).

- Eight vadose/shallow-zone SVE wells screened from approximately 3 to 8 feet bgs.

- Eight intermediate-zone AS wells (AS-1I to AS-8I) with 3-foot screens with bottoms set at depths ranging from approximately 13.5 to 19 feet bgs.

- Eight deep-zone AS wells (AS-1D to AS-8D) with 3-foot screens with bottoms set at depths ranging from approximately 29 to 32 feet bgs.

2.3 Groundwater Elevations

Groundwater elevations were gauged on July 27 and September 14, 2010. The depth to groundwater was measured in 38 and 22 monitoring wells, respectively, using an electronic water-level indicator. The water-level indicator was lowered into the well until a tone signaled that the indicator had contacted water. The depth to groundwater was measured to the surveyed elevation mark on the top of the casing of the monitoring well. The groundwater elevation in each well was calculated by subtracting the depth to water from the surveyed top-of-casing elevation.

The installation of the SVE/AS system piping obscured the location of the surveyed elevation marks on wells AS-2I, AS-2D, AS-7I, and AS-8I; thus, the groundwater elevations for these wells are estimated. In addition, during the excavation activities, the top of casings for wells NW-3I and AS-6I were damaged, altering the top-of-casing elevations. Therefore, these wells were not used in the water-level elevation contour maps.

The groundwater elevation results are summarized in Table 1. Groundwater elevation data and contours for the intermediate and deep groundwater zones for the September event are presented on Figures 4 and 5, respectively.

Groundwater elevations in the shallow groundwater zone range from non-detect (dry) to 10.03 feet above mean sea level (msl) during the July and September sampling events. There is insufficient groundwater data this reporting period to indicate groundwater flow direction or gradient in the shallow zone.

July groundwater elevations in the intermediate zone ranged from dry to 11.03 feet above msl. September groundwater elevations in the intermediate groundwater zone ranged from 6.92 to 9.25 feet above msl. Intermediate-zone groundwater elevations contours for the September event are shown on Figure 4. The groundwater elevation contours display depressions due to the insufficient rebound of the groundwater table after the shut off of the air sparging system. The groundwater elevation data are not representative of site conditions and therefore were not used to indicate groundwater gradient during this reporting period.

July groundwater elevations in the deep zone ranged from 8.65 to 9.60 feet above msl. September groundwater elevations in the deep groundwater zone ranged from 7.68 to 9.41 feet above msl. Deep-zone groundwater elevations contours for the September event are shown on Figure 5. The groundwater elevation contours display a depression around NW-2D, which is likely due to the insufficient amount of time to allow for the rebound of the groundwater elevations after the shut off of the air sparging system. The groundwater elevation data are not representative of “natural” site conditions and therefore were not used to indicate groundwater gradient during this reporting period.

The July and September groundwater elevations and elevation contours and groundwater flow directions depicted on Figures 4 and 5 are not consistent with the historical gradient and flow direction observed at the Site prior to operating the SVE/AS system. The elevations measured in September 2010 are generally lower than previous measurements, which are likely attributed to an inadequate amount of time to allow for the rebound of the groundwater elevations following shut off of the air sparging system. The groundwater elevation and flow directions will be further assessed in the next monitoring period.

2.4 Groundwater Sampling

Ongoing monitoring and analysis of groundwater samples for TPHg, BTEX, TBA, and MTBE was conducted to assess the quality of groundwater affected by these COCs and the effectiveness of the SVE/AS system. Two groundwater sampling events were conducted during this reporting period. Groundwater samples were collected from 10

groundwater monitoring and AS wells during the July 27 and 28, 2010 event, and from 21 wells during the September 14 and 15, 2010 event.

The samples were collected using low-flow groundwater sampling techniques (Puls and Barcelona 1996). The intake of the low-flow pump was placed in the middle of the screened interval and purged continuously until groundwater parameters (pH, conductivity, temperature, oxidation-reduction potential, and dissolved oxygen) stabilized, or until the well had been purged for approximately 30 minutes or of two gallons. Wells that purged dry were allowed to recharge to approximately 80% of original depth to groundwater before samples were collected.

Groundwater samples were collected directly from the hose of the pump and conveyed into laboratory-supplied sample containers. The containers were labeled with the well identification number, the time and date of collection, the analysis requested, and the initials of the sampler. The samples were stored in an ice-chilled cooler and maintained under strict chain-of-custody protocols as they were submitted to the laboratory for analysis.

The groundwater samples were submitted to TestAmerica Laboratories, a state-certified laboratory located in Pleasanton, California, for the following analyses:

- TPHg by EPA Method 8260B
- BTEX, TBA, and MTBE by EPA Method 8260B

Results for TPHg, BTEX, and MTBE analyses are summarized in Table 2; Table 3 summarizes the analytical results for samples previously analyzed for metals; and Table 4 summarizes the groundwater monitoring parameters measured during the collection of the groundwater samples. Figures 6, 7, and 8 present the analytical results of TPHg, BTEX, and MTBE in the shallow, intermediate, and deep groundwater zones, respectively. Copies of the laboratory data sheets and chain-of-custody documents are presented in Appendix A. Copies of the monitoring well purge and sampling forms are presented in Appendix B.

2.5 Analytical Results of Groundwater Samples and Discussion

Groundwater samples were collected in July and September 2010 to provide data to evaluate the effects the operation of the SVE/AS system had on groundwater quality at the Site. The results of the July and September sampling events were compared to

results of baseline groundwater samples previously collected in March, May, and August, 2009, before the SVE/AS system was operated. The following sections summarize the analytical results of the groundwater samples collected during the current monitoring event, and compare current results to baseline results.

2.5.1 Analytical Results for TPHg, BTEX, TBA, and MTBE

The wells selected include wells being sampled in accordance with the GMP, as well as wells recently installed to monitor the SVE/AS system. The wells selected include wells screened in the shallow, intermediate, and deep groundwater zones (Table 1).

The analytical results of the baseline groundwater samples and samples collected after approximately two months of SVE/AS system operation are summarized in Table 2. The analytical results of groundwater samples collected for TPHg, BTEX, and fuel oxygenates during this monitoring period are summarized in the following sections.

2.5.1.1 Shallow Zone

Groundwater samples were collected from one shallow-zone well in July and two shallow-zone wells in September. The analytical results for TPHg, BTEX, TBA, and MTBE are summarized in Table 2 and posted for shallow-zone wells on Figure 6. Prior to operating the SVE/AS system, elevated concentrations of TPHg, BTEX, MTBE, and/or TBA had been detected in one shallow-zone groundwater sample (NW-2S) previously collected at the Site. The analytical results of the groundwater samples collected in September 2010 from NW-2S indicate TPHg and benzene concentrations were significantly reduced by approximately 99% and 94%, respectively.

2.5.1.2 Intermediate Zone

Groundwater samples were collected from 10 intermediate-zone wells. The analytical results for TPHg, BTEX, TBA, and MTBE are summarized in Table 2 and analytical results for intermediate-zone wells are posted on Figure 7. Prior to operating the SVE/AS system, elevated concentrations of TPHg, BTEX, MTBE, and/or TBA have been detected in groundwater samples previously collected from intermediate-zone wells at the Site. The baseline concentrations of fuel-related compounds detected in the samples collected from wells NW-2I, ASMW-2I, and ASMW 5I, located hydraulically downgradient from the former UST, have been some of the highest concentrations of fuel-related compounds detected in groundwater samples collected at the Site. The analytical results of the groundwater samples collected in September

2010 from NW-2I, ASMW-2I, and ASMW 5I after 141 days of total SVE/AS system operation indicate TPHg concentrations were significantly reduced by approximately 99% in all three wells (Table 2 and Figure 7).

The data indicate BTEX concentrations are significantly reduced in each of the samples collected from the intermediate-zone wells relative to concentrations detected prior to the operation of the SVE/AS system (Table 2 and Figure 7).

The following table provides a summary of the decreases in the percentages of benzene and TPHg that were detected in the samples collected in September 2010 relative to concentrations of benzene and TPHg that were detected prior to starting the SVE/AS system:

Percentage Decrease in Benzene and TPHg Concentrations Intermediate-Zone Groundwater Monitoring Wells concentrations in micrograms per liter			
Well ID	**Data**	**Benzene**	**TPHg**
ASMW-2I	13-Mar-09	18,000	49,000
	14-Sept-10	<0.50	<0.50
	Percent Decrease:	>99%	>99%
ASMW-4I	11-Mar-09	38	9,200
	14-Sept-10	1.3	460
	Percent Decrease:	92%	95%
ASMW-5I	11-Mar-09	11,000	72,000
	14-Sept-10	<0.50	<50
	Percent Decrease:	>99%	>99%
NW-2I	13-Mar-09	18,000	49,000
	14-Sept-10	<0.50	<50
	Percent Decrease:	99%	99%
AS-2I	22-Sep-09	460	<8,300
	15-Sept-10	<10	<1,000
	Percent Decrease:	98%	88%
AS-6I	26-May-09	11,000	42,000
	14-Sept-10	<0.50	<50
	Percent Decrease:	>99%	>99%

Concentrations of MTBE and TBA detected in samples collected from intermediate-zone wells after the start-up of the SVE/AS system have also significantly decreased relative to the concentrations of these compounds detected in the samples collected prior to the operation of the SVE/AS system (see Table 2 and Figure 7).

2.5.1.3 Deep Zone

Groundwater samples were collected from three deep-zone wells. The analytical results for TPHg, BTEX, TBA, and MTBE are summarized in Table 2 and posted for deep-zone wells on Figure 8. Similar to the results of the samples collected from intermediate-zone wells, the analytical results indicated that the concentrations of fuel and fuel-related compounds decreased relative to the concentrations detected from before SVE/AS system began operation.

Concentrations of TPHg, BTEX compounds, and TBA in samples collected from eight deep-zone wells during the September 2010 sampling event were below their respective laboratory method detection levels. MTBE was detected in 5 of 8 deep-zone wells at concentrations ranging from 0.52 micrograms per liter (µg/l) to 1.2 µg/l.

2.6 Site-Specific Screening Levels for Benzene in Groundwater

A site-specific screening level for benzene in groundwater has been calculated with respect to the potential volatilization of benzene from groundwater to indoor air. Site conditions including shallow groundwater (less than 5 feet bgs) and disturbed vadose soils as a result of excavation and backfilling are not conducive to collecting representative soil-gas samples. Therefore, ARCADIS developed a site-specific screening level that is protective of benzene volatilizing to indoor air from groundwater to further evaluate the success of the SVE/AS system in reducing fuel and fuel constituents in groundwater. The following sections describe how the site-specific screening level was calculated and compares current groundwater concentrations to the screening level.

2.6.1 Calculation of Groundwater Benzene Concentration Protective of the Indoor Air Pathway

ARCADIS used the California Department of Toxic Substances Control (DTSC) version of the Johnson & Ettinger model (DTSC 2009) to estimate a benzene concentration in groundwater that would not pose as a vapor intrusion concern under a commercial exposure scenario. The model first estimates an indoor air concentration based on a target health risk of 1 x 10-6. Then it subsequently back-calculates a groundwater

concentration associated this vapor intrusion potential. The model itself generates a groundwater concentration that is not associated with a vapor intrusion health risk above the DTSC target level.

Default commercial exposure input parameters were used to calculate the benzene in groundwater concentration. These include a 25-year exposure duration, 250 days per years and eight hours per day. Building-specific defaults were incorporated into the modeling effort such as slab thickness and ventilation exchange rates.

Based on the evaluation, a benzene concentration of 66 µg/l in groundwater would not be associated with a vapor intrusion health concern under the commercial exposure scenario. The exposure assumptions used under a commercial scenario are conservative for a school setting (especially a gymnasium), where exposures are expected to be significantly lower. Details concerning the vapor transport modeling are provided in Appendix C.

2.6.2 Comparison of September 2010 Groundwater Sampling Results to Site-Specific Screening Level for Benzene

Concentrations of benzene in the groundwater samples from 21 wells during the September 2010 sampling event ranged from below the laboratory detection limit (<0.50 µg/l in 20 wells) to 1.3 µg/l (in ASMW-4I). The analytical results of the groundwater samples collected during the September sampling event indicate that current concentrations of benzene in groundwater are well below the 66 µg/l screening level concentration protective of the benzene volatilization from groundwater to indoor air exposure pathway (Table 2).

3. SVE/AS System Operation

This section provides a summary of the operation and demobilization of the two phases of SVE/AS extended pilot test system operation at the Site. The overall objective of the extended pilot test is to evaluate the effectiveness of SVE/AS in reducing concentrations of TPHg, BTEX, TBA, and MTBE in groundwater, soil, and soil gas.

3.1 Initial Phase SVE/AS System

The initial phase SVE/AS extended pilot test system operated from August 17, 2009 to October 27, 2009. The initial phase SVE/AS system was shut down on October 27,

2009 to be demobilized from the Site during building demolition and soil excavation activities in accordance with the Revised CAP (LFR 2009c). Details regarding the operation of the system before demobilization were provided in the "Groundwater Monitoring Report and Soil-Vapor Extraction/Air Sparging System Construction and Initial Operation Report" submitted on November 13, 2009 (LFR 2009e). Operation of the SVE/AS extended pilot test system was restarted on June 16, 2010.

3.2 Second Phase SVE/AS System

The second phase SVE/AS system resumed operations on June 16, 2010. In order to accommodate the shallow depth to groundwater observed at the Site and to increase effectiveness of removing and capturing affected vapors, the SVE portion of the system was reconfigured using six soil-vapor extraction trenches. The treatment area was covered by 6-millimeter-thick plastic sheeting and approximately 6 inches of fill soil to facilitate capture of sparge vapors. The layout of the extraction trenches and sparge wells is shown on Figure 3. One other key revision to the SVE/AS system was the inclusion of wells ASMW-5I and ASMW-5D as sparge wells.

The second phase SVE/AS pilot system consisted of the following components (see Figure 3):

- Six SVE trenches underneath a layer of 6-milimeter-thick plastic sheeting and cover soil
- Nine intermediate-zone sparge wells (AS-1I through AS-8I and ASMW-5I)
- Nine deep-zone sparge wells (AS-1D through AS-8D and ASMW-5D)
- SVE and AS conveyance piping
- SVE blower unit with catalytic oxidizer
- AS compressor unit

Figure 3 shows the locations of the SVE/AS system wells and a system schematic. The SVE/AS system components are comparable to the equipment described in the "Groundwater Monitoring and Soil-Vapor Extraction/Air Sparging System Construction and Initial Operation Report for the Period July 1 through September 30, 2009 Former

Pacific Electric Motors Site, 1009 66th Avenue, Oakland, California," dated November 13, 2009 (LFR 2009e).

3.2.1 Vapor Abatement

In accordance with the Bay Area Air Quality Management District (BAAQMD) Permit to Operate (site number B9-464), the extracted soil vapors were required to be treated to abate benzene emissions to less than 4 pounds per year. The vapors were abated using an electric catalytic oxidizer in accordance with BAAQMD permit requirements.

3.3 Vapor Monitoring

In accordance with the BAAQMD Permit to Operate, photoionization detector (PID) readings were collected from the SVE/AS system vapor abatement technology. While operating the catalytic oxidation for vapor abatement, the system was required to maintain a temperature above approximately 600 degrees Fahrenheit. The PID readings were included as part of the daily and weekly monitoring program for the SVE/AS system, and a chart recorder was used to continuously record temperature readings.

In addition to PID monitoring, samples of the extracted soil vapors were collected at the influent to the SVE system. Influent vapor samples were collected two days after the start-up of the SVE system on June 18, 2010, and after approximately one month of operation on July 7, 2010. Influent vapor samples were collected in 1-liter Summa canisters. The vapor samples were submitted to TestAmerica, and analyzed for BTEX, TBA, and MTBE by EPA Method TO-15 and TPHg by EPA Method TO-3.

3.4 SVE/AS System Operation

ARCADIS inspected the SVE/AS system on a weekly schedule in accordance with the Revised CAP. Weekly inspections were conducted to monitor system operation time and system performance, and to perform routine maintenance. Performance monitoring included recording the system's operating mode, SVE and AS system flow rates, and pressures at each sparge well. Initial phase SVE/AS operational field logs were presented in the "Groundwater Monitoring Report and Soil-Vapor Extraction/Air Sparging System Construction and Initial Operation Report" submitted on November 13, 2009 (LFR 2009e). Second-phase SVE/AS system operational logs are included as Appendix D.

3.5 SVE/AS System Yield

Based on PID monitoring of the total SVE system influent vapor stream concentrations, the SVE/AS system has extracted approximately 159 pounds of fuel vapors during the second phase of SVE/AS system operations from June 16 to September 13, 2010. When added to the yield from the operation of the initial system from August 17, 2009 to October 27, 2009, approximately 639 pounds of fuel vapors have been recovered from the Site in approximately 141 days of operation. Table 5 presents the summary of PID monitoring results and SVE/AS system yield calculations. Figure 9 shows a graph of system yield versus time.

3.6 SVE/AS System Shutdown

The second-phase SVE/AS system was shut down on September 13, 2010, based on the reduction in groundwater concentrations and to allow redevelopment of the Site. The SVE/AS system was dismantled and removed from the Site by September 20, 2010.

In preparation for redevelopment of the Site, 31 wells (a combination of groundwater monitoring wells, air sparging wells and soil-vapor extraction wells) were abandoned. ARCADIS retained Penecore, Inc., a C-57 drilling contractor, to abandon the wells by pressure grouting. The wells were abandoned in accordance with ACEH well destruction permits W2010-0668 to W2010-0670, dated September 15, 2010. Table 6 provides a list of wells that remain at the Site and the wells that were destroyed.

4. Conclusions

Based on the baseline analytical results of the groundwater samples collected at the Site, the highest concentrations of COCs were initially detected in samples collected from wells constructed in the intermediate zone located closest to the former UST (Figures 6 through 8). The analytical results of groundwater samples collected from these wells after the first 52 days of SVE/AS system operation indicate the SVE/AS system was effective in reducing the concentrations of COCs in groundwater.

The analytical results of the samples collected from intermediate- and deep-zone wells after the SVE/AS system did not operate for 232 days indicated that the concentrations of fuel and some fuel-related compounds increased relative to the concentrations detected when the SVE/AS system was operating. However, these concentrations of fuel or fuel-related constituents in groundwater did not approach the concentrations

detected prior to starting the SVE/AS system (Table 2 and Figures 6, 7, and 8). This is a significant finding that indicates that the initial operation of the SVE/AS system was highly effective in removing the source of the fuel and fuel-related compounds in the groundwater.

Analytical results of groundwater samples collected during the 89 days of the second phase of SVE/AS operation indicated the SVE/AS further reduced concentrations of fuel and fuel constituents in groundwater. Comparison of analytical results of groundwater samples collected after 141 total days of SVE/AS operation to the calculated 66 µg/L groundwater concentration of benzene protective of volatilization to indoor air exposure pathway shows that current groundwater conditions do not pose a risk of volatilization to indoor air. These trends will be assessed during future groundwater monitoring events.

5. Recommendations

ARCADIS recommends the collection of additional groundwater samples scheduled to take place quarterly for one year after the shut down of the SVE\AS system (until September 2011). This data will be used to further evaluate the effectiveness of the SVE/AS system pilot testing in the long-term reduction of fuel and fuel-related constituents in groundwater and soil gas.

The current development plan for the Site includes the construction of a multi-purpose gymnasium building near the area where the SVE/AS system operated. This building will be equipped with vapor mitigation measures that are compliant with the “The California Department of Toxic Substances Control (DTSC) Vapor Intrusion Mitigation Advisory” (DTSC 2009). In accordance with the Revised CAP and the DTSC document, it is anticipated that the vapor mitigation measures for the multi-purpose building will include a sub-slab depressurization system and a vapor barrier. These vapor mitigation measures are being designed and will be presented to the ACEH under a separate cover.

6. Confirmation Sampling Plan

Based on the success of the SVE/AS system operation in reducing fuel and fuel constituent concentrations in groundwater, ARCADIS proposes the following confirmation sampling plan to evaluate if there is any long-term rebound in groundwater concentrations from the SVE/AS system operations. The confirmation

sampling plan addresses the different possible results and presents mitigation measures, if necessary.

The confirmation sampling plan includes collection of groundwater samples on a quarterly basis for one year:

- If concentrations of benzene in the confirmation groundwater samples remain below the site-specific screening level of 66 µg/l for that year, then ARCADIS will request a letter from the ACEH indicating that no further action (NFA) is required at this Site with respect to groundwater monitoring or remediation.

- If the groundwater sample results indicate concentrations appear to be increasing, but are below volatile screening level, then further periodic groundwater monitoring and reporting will be conducted until concentrations of TPHg and/or BTEX compounds stabilize.

- If the groundwater sample results indicate concentrations of benzene are increasing above the volatilization screening level, then a vapor sampling plan will be prepared and implemented for the gymnasium building.

If vapor sampling becomes necessary, one of three following outcomes will likely occur:

- If the concentrations of benzene in the sub-slab vapor samples remain below Environmental Screening Levels (ESLs) as provided in Table E-2 for Evaluation of Potential Indoor Air Concerns published by the Regional Water Quality Control Board (RWQCB 2008), then groundwater and vapor sampling will continue until a change is observed.

- If the concentrations of benzene in the sub-slab vapor samples are slightly above acceptable limits, then the sub-slab depressurization vapor mitigation system will become “active” (i.e., a blower will be attached to the depressurization system) and sub-slab vapor monitoring will continue.

- If the concentrations of benzene in sub-slab vapor samples are considerably above ESLs, then the sub-slab depressurization vapor mitigation system will become active, and, in addition, an oxygen compound will be injected into the intermediate- and shallow-zone groundwater until concentrations of benzene in groundwater samples collected at the Site decrease over time.

7. Schedule

Collection of groundwater confirmation samples will occur quarterly beginning fourth quarter 2010 through third quarter 2011. The next periodic groundwater monitoring event is scheduled for December 2010.

8. Limitations

The opinions and recommendations presented in this report are based upon the scope of services, information obtained through the performance of the services, and the schedule as agreed upon by ARCADIS and the party for whom this report was originally prepared. This report is an instrument of professional service and was prepared in accordance with the generally accepted standards and level of skill and care under similar conditions and circumstances established by the environmental consulting industry. No representation, warranty, or guarantee, expressed or implied, is intended or given. To the extent that ARCADIS relied upon any information prepared by other parties not under contract to ARCADIS, ARCADIS makes no representation as to the accuracy or completeness of such information. This report is expressly for the sole and exclusive use of the party for whom this report was originally prepared for a particular purpose. Only the party for whom this report was originally prepared and/or other specifically named parties have the right to make use of and rely upon this report. Reuse of this report or any portion thereof for other than its intended purpose, or if modified, or if used by third parties, shall be at the user's sole risk.

Results of any investigations or testing and any findings presented in this report apply solely to conditions existing at the time when ARCADIS' investigative work was performed. It must be recognized that any such investigative or testing activities are inherently limited and do not represent a conclusive or complete characterization. Conditions in other parts of the Site may vary from those at the locations where data were collected. ARCADIS' ability to interpret investigation results is related to the availability of the data and the extent of the investigation activities. As such, 100% confidence in environmental investigation conclusions cannot reasonably be achieved.

ARCADIS, therefore, does not provide any guarantees, certifications, or warranties regarding any conclusions regarding environmental contamination of any such property. Furthermore, nothing contained in this document shall relieve any other party of its responsibility to abide by contract documents and applicable laws, codes, regulations, or standards.

9. References

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Table 1
Groundwater Elevations
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Sample Location	Date Collected	Top-of-Casing Elevation [(1)]	Depth to Groundwater [(2)]	Groundwater Elevation [(1)]
Shallow-Zone Groundwater Monitoring Wells				
NW-1S	11-Mar-09	13.88	2.15	11.73
	26-May-09		3.53	10.35
	21-Sep-09		4.70	9.18
	27-Jul-10		dry	dry
	14-Sep-10		dry	dry
NW-2S	11-Mar-09	13.77	3.77	10.00
	26-May-09		3.63	10.14
	21-Sep-09		3.98	9.79
	27-Jul-10		5.09	8.68
	14-Sep-10		3.92	9.85
NW-3S	11-Mar-09	13.19	NM	NM
	26-May-09		2.98	10.21
	21-Sep-09		3.57	9.62
	27-Jul-10		dry	dry
	15-Sep-10		3.47	9.72
SVMW-3	21-Sep-09	13.76	4.41	9.35
	27-Jul-10	13.94	3.91	10.03
SVMW-4	21-Sep-09	13.23	4.67	8.56
Intermediate-Zone Groundwater Monitoring Wells [1]				
NW-1I [1]	11-Mar-09	13.83	2.40	11.43
	26-May-09		3.71	10.12
	21-Sep-09		NM	NM
	24-May-10		NM	NM
	27-Jul-10		dry	dry
	14-Sep-10		4.58	9.25
NW-2I [1]	11-Mar-09	13.80	5.86	7.94
	26-May-09		4.08	9.72
	10-Aug-09		5.96	7.84
	21-Sep-09		5.21	8.59
	21-Oct-09		8.54	5.26
	24-May-10		4.18	9.62
	27-Jul-10		2.77	11.03
	14-Sep-10		6.25	7.55
NW-3I [1]	11-Mar-09	13.11	NM	NM
	26-May-09		3.27	9.84
	21-Sep-09		4.48	8.63
	24-May-10	(**)	3.21	9.90
	27-Jul-10		3.13	9.98
	15-Sep-10		3.90	9.21
ASMW-2I	11-Mar-09	13.90	2.67	11.23
	26-May-09		4.02	9.88

Table 1
Groundwater Elevations
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Sample Location	Date Collected	Top-of-Casing Elevation [1]	Depth to Groundwater [2]	Groundwater Elevation [1]
	10-Aug-09		4.77	9.13
	21-Sep-09		5.39	8.51
	21-Oct-09		7.8	6.10
	24-May-10		3.63	10.27
	27-Jul-10		5.21	8.69
	14-Sep-10		6.90	7.00
ASMW-3I	11-Mar-09	13.73	2.72	11.01
	26-May-09		3.88	9.85
	10-Aug-09		4.63	9.10
	21-Sep-09		5.38	8.35
	21-Oct-09		5.74	7.99
	24-May-10		4.02	9.71
	27-Jul-10	13.71	4.84	8.87
ASMW-4I	11-Mar-09	13.09	2.06	11.03
	26-May-09		3.22	9.87
	10-Aug-09		3.96	9.13
	21-Sep-09		4.44	8.65
	21-Oct-09		3.58	9.51
	24-May-10		NM	NM
	27-Jul-10		4.32	8.77
	14-Sep-10		4.68	8.41
ASMW-5I	11-Mar-09	13.16	2.14	11.02
	26-May-09		3.26	9.90
	10-Aug-09		3.95	9.21
	21-Sep-09		4.43	8.73
	21-Oct-09		6.86	6.30
	24-May-10		4.54	8.62
	27-Jul-10	13.83	5.03	8.80
	14-Sep-10		5.93	7.90
AS-1I	26-May-09	NS	3.87	--
	24-May-10		4.91	--
	27-Jul-10	14.02	5.61	8.41
AS-2I	26-May-09	14.09	4.20	9.89
	21-Sep-09	(*)	10.30	3.79
	24-May-10		5.41	8.68
	27-Jul-10	14.27	5.84	8.43
	15-Sep-10		5.91	8.36
AS-3I	26-May-09	14.10	4.07	10.03
	24-May-10		4.10	10.00
	27-Jul-10	13.91	7.35	6.56
	14-Sep-10		6.12	7.79
AS-4I	26-May-09	13.52	3.68	9.84
	24-May-10		2.05	11.47
	27-Jul-10	14.04	6.92	7.12

Table 1
Groundwater Elevations
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Sample Location	Date Collected	Top-of-Casing Elevation [1]	Depth to Groundwater [2]	Groundwater Elevation [1]
	14-Sep-10		7.12	6.92
AS-5I	26-May-09	13.63	3.84	9.79
	24-May-10		3.90	9.73
	27-Jul-10	14.13	6.54	7.59
AS-6I	26-May-09	13.10	3.14	9.96
	21-Sep-09	(*)	3.96	9.14
	24-May-10	(**)	NM	NM
	27-Jul-10	14.01	4.82	9.19
	14-Sep-10		5.59	8.42
AS-7I	26-May-09	13.44	3.56	9.88
	21-Sep-09	(*)	5.13	8.31
	24-May-10		2.49	10.95
	27-Jul-10	13.72	4.73	8.99
	14-Sep-10		4.98	8.74
AS-8I	26-May-09	13.45	3.56	9.89
	21-Sep-09	(*)	4.79	8.66
	24-May-10		3.63	9.82
	27-Jul-10	13.46	4.50	8.96
Deep-Zone Groundwater Monitoring Wells				
MW-1	11-Mar-09	14.19	2.25	11.94
	26-May-09		3.82	10.37
	27-Jul-10		4.59	9.60
	14-Sep-10		4.78	9.41
MW-2	11-Mar-09	13.31	2.13	11.18
	26-May-09		3.45	9.86
	21-Sep-09		4.67	8.64
	27-Jul-10		4.02	9.29
MW-3	11-Mar-09	13.43	2.32	11.11
	26-May-09		3.62	9.81
	21-Sep-09		4.86	8.57
	27-Jul-10		4.37	9.06
MW-4	11-Mar-09	13.78	2.63	11.15
	26-May-09		3.91	9.87
	10-Aug-09		4.71	9.07
	21-Sep-09		5.18	8.60
	21-Oct-09		6.28	7.50
	27-Jul-10	13.94	4.89	9.05
	14-Sep-10		5.14	8.80
NW-1D	11-Mar-09	13.84	2.81	11.03
	26-May-09		3.65	10.19
	24-May-10		3.78	10.06
	27-Jul-10		4.39	9.45

Table 1
Groundwater Elevations
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Sample Location	Date Collected	Top-of-Casing Elevation [1]	Depth to Groundwater [2]	Groundwater Elevation [1]
NW-2D	11-Mar-09	13.79	2.68	11.11
	26-May-09		3.97	9.82
	10-Aug-09		4.73	9.06
	21-Sep-09		5.13	8.66
	21-Oct-09		4.13	9.66
	24-May-10		4.05	9.74
	27-Jul-10		4.75	9.04
	14-Sep-10		6.11	7.68
NW-3D	11-Mar-09	13.16	NM	NM
	26-May-09		3.32	9.84
	21-Sep-09		4.51	8.65
	24-May-10		3.33	9.83
	27-Jul-10		3.63	9.53
	15-Sep-10		3.93	9.23
ASMW-2D	11-Mar-09	13.90	3.06	10.84
	26-May-09		4.15	9.75
	10-Aug-09		4.92	8.98
	21-Sep-09		5.22	8.68
	21-Oct-09		7.5	6.40
	24-May-10		4	9.90
	27-Jul-10		4.74	9.16
ASMW-3D	11-Mar-09	13.94	2.98	10.96
	26-May-09		4.32	9.62
	11-Aug-09		4.97	8.97
	21-Sep-09		5.36	8.58
	21-Oct-09		4.65	9.29
	24-May-10		4.32	9.62
	27-Jul-10	13.95	4.95	9.00
ASMW-4D	11-Mar-09	13.07	1.93	11.14
	26-May-09		3.22	9.85
	11-Aug-09		4.01	9.06
	21-Sep-09		4.45	8.62
	21-Oct-09		3.52	9.55
	24-May-10		NM	NM
	27-Jul-10		4.01	9.06
ASMW-5D	11-Mar-09	13.01	1.88	11.13
	26-May-09		3.16	9.85
	10-Aug-09		3.93	9.08
	21-Sep-09		4.30	8.71
	21-Oct-09		3.56	9.45
	24-May-10		3.24	9.77
	27-Jul-10	13.63	4.50	9.13
	14-Sep-10		4.81	8.82
AS-1D	26-May-09	NS	3.75	--

Table 1
Groundwater Elevations
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Sample Location	Date Collected	Top-of-Casing Elevation [1]	Depth to Groundwater [2]	Groundwater Elevation [1]
	24-May-10		3.80	--
	27-Jul-10	13.96	4.80	9.16
AS-2D	26-May-09	14.16	4.35	9.81
	21-Sep-09	(*)	5.46	8.70
	24-May-10		4.56	9.60
	27-Jul-10	14.31	5.18	9.13
	15-Sep-10		5.53	8.78
AS-3D	26-May-09	13.79	3.96	9.83
	24-May-10		4.35	9.44
	27-Jul-10	14.05	4.91	9.14
	14-Sep-10		5.16	8.89
AS-4D	26-May-09	13.70	3.88	9.82
	24-May-10		3.86	9.84
	27-Jul-10	14.16	5.00	9.16
	14-Sep-10		5.32	8.84
AS-5D	26-May-09	14.06	4.26	9.80
	24-May-10		4.22	9.84
	27-Jul-10	14.25	5.09	9.16
AS-6D	26-May-09	13.25	NM	NM
	24-May-10		3.24	10.01
	27-Jul-10	13.72	4.57	9.15
AS-7D	26-May-09	13.67	3.82	9.85
	24-May-10		3.64	10.03
	27-Jul-10	13.88	4.82	9.06
AS-8D	26-May-09	13.35	3.55	9.80
	24-May-10		3.58	9.77
	27-Jul-10	13.48	4.44	9.04

Notes:

NM = water level not measured

NS = not surveyed

(*) Top of casing obscured by sparge/extraction fitting; top-of-casing value estimated

(**) Top of the casing was destroyed during excavation activities; top-of-casing elevation is inaccurate

(1) Top-of-casing elevation surveyed by Tronoff & Associates licensed land surveyor number 6415; top-of-casing and groundwater elevations are in North American Vertical Datum 1988 (feet)

(2) feet below the top of well casing

Table 2
Analytical Results for Volatile Organic Compounds
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California
(concentrations in micrograms per liter [µg/L])

Sample Location	Date Collected	Notes	TPHg	TBA	MTBE	Benzene	Toluene	Ethyl-benzene	m,p-Xylenes	o-Xylenes	Total Xylenes
Shallow-Zone Groundwater Monitoring Wells											
NW-1S	27-Dec-05		<50	NA	0.55	<0.50	<0.50	<0.50	NA	NA	<0.50
	13-Mar-09		<50	<10	0.55	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	23-Sep-09		<50	<10	<0.50	<0.50	0.69	<0.50	0.59	<0.50	0.59
NW-2S	27-Dec-05		7,100	NA	1,600	570	570	62	NA	NA	1,530
	13-Mar-09		1,800	1,900	130	520	<4.2	120	20	<4.2	20
	23-Sep-09		15,000	5,100	11,000	610	800	41	1,500	2,300	3,800
	28-Jul-10		1,000	100	34	34	30	24	NA	NA	170
	14-Sep-10		69	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	2.1
NW-3S	26-May-09		<50	<10	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	21-Sep-09		<50	<10	4.1	<0.50	0.58	<0.50	<0.50	<0.50	<0.50
	15-Sep-10		<50	<4	2.4	<0.50	<0.50	<0.50	NA	NA	<1.0
Intermediate-Zone Groundwater Monitoring Wells											
ASMW-2I	13-Mar-09		49,000	3,200	1,100	18,000	17,000	1,600	5,100	3,100	8,200
	23-Sep-09		<1,000	13,000	290	<10	13	<10	39	31	70
	22-Oct-09		<50	370	290	<0.50	4.6	<0.50	9	11	20
	25-May-10		2,000	330	98	280	50	170	NA	NA	350
	27-Jul-10		<50	<4	20	<0.50	0.8	<0.50	NA	NA	4.5
	14-Sep-10		<50	<4	0.51	<0.50	<0.50	<0.50	NA	NA	<1.0
ASMW-3I	11-Mar-09		<50	<10	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	22-Sep-09		<50	<10	3.4	<0.50	1.4	<0.50	<0.50	<0.50	<0.50
	22-Oct-09		<50	<10	6.9	<0.50	1.4	<0.50	<0.50	<0.50	<0.50
ASMW-4I	11-Mar-09		9,200	<130	<6.3	38	<6.3	570	1,800	230	2,030
	23-Sep-09		1,900	<130	<6.3	8.1	<6.3	130	120	26	146
	22-Oct-09		1,900	<10	<0.50	4.0	1	75	110	23	133
	26-May-10		1,800	<4	<0.50	4.6	<0.50	86	NA	NA	90
	27-Jul-10		940	<4	<0.50	2.9	<0.50	68	NA	NA	35
	14-Sep-10		460	<4	<0.50	1.3	<0.50	14	NA	NA	5
ASMW-5I	11-Mar-09		72,000	<1,400	76	11,000	3,600	3,800	13,000	5,400	18,400
	10-Aug-09		59,000	<1400	91	9,100	1,800	2,400	8,300	3,900	12,200
	22-Sep-09		15,000	210	78	1,100	250	280	2,000	1,200	3,200
	22-Oct-09		22,000	330	110	560	330	240	3,000	1,600	4,600

Table 2
Analytical Results for Volatile Organic Compounds
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California
(concentrations in micrograms per liter [µg/L])

Sample Location	Date Collected	Notes	TPHg	TBA	MTBE	Benzene	Toluene	Ethyl-benzene	m,p-Xylenes	o-Xylenes	Total Xylenes
	24-May-10		48,000	310	120	2,300	150	2,000	NA	NA	12,000
duplicate	24-May-10		46,000	290	120	2,200	170	2,000	NA	NA	12,000
	27-Jul-10		110	28	1.6	<0.50	<0.50	0.8	NA	NA	20
	14-Sep-10		<50	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	<1.0
NW-1I	14-Sep-10		<50	250	1.9	<0.50	<0.50	<0.50	NA	NA	<1.0
NW-2I	27-Dec-05		120,000	NA	120,000	22,000	24,000	2,100	NA	NA	12,800
	13-Mar-09		49,000	NA	1,100	18,000	17,000	1,600	NA	NA	8,200
	23-Sep-09		12,000	5,500	3,000	980	820	220	1,200	660	1,860
	22-Oct-09		4,200	3,300	330	110	110	5.8	400	250	650
	25-May-10		8,600	17,000	770	360	35	400	NA	NA	8,600
	28-Jul-10		130	300	71	0.67	<0.50	<0.50	NA	NA	8.2
	14-Sep-10		<50	6	<0.50	<0.50	<0.50	0.6	NA	NA	4.8
NW-3I	27-Dec-05		<50	NA	<2.0	<0.50	<0.50	<0.50	NA	NA	<0.50
	15-Feb-06		<50	NA	<2.0	<0.50	<0.50	<0.50	NA	NA	<0.50
	15-Feb-06		<50	NA	<2.0	<0.50	<0.50	<0.50	NA	NA	<0.50
	16-Feb-06		<50	NA	<2.0	<0.50	<0.50	<0.50	NA	NA	<0.50
	21-Sep-09		<50	<10	1.3	<0.50	0.54	<0.50	<0.50	<0.50	<0.50
	25-May-10		<50	<4	1.2	<0.50	<0.50	<0.50	NA	NA	1.7
	15-Sep-10		<50	<4	0.85	<0.50	<0.50	<0.50	NA	NA	<1.0
AS-2I	22-Sep-09		<8,300	2,900	11,000	460	120	<83	130	<83	130
	25-May-10		6,800	5,600	8,000	76	<25	220	NA	NA	<50
	28-Jul-10		<5000	8,700	1,200	<50	<50	<50	NA	NA	<100
	15-Sep-10		<1000	<80	380	<10	<10	<10	NA	NA	<20
AS-3I	14-Sep-10		<500	6.5	530	<0.50	<0.50	<0.50	NA	NA	14
AS-4I	25-May-10		310	1,500	110	2.7	<0.50	<0.50	NA	NA	<1.0
	14-Sep-10		<50	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	<1.0
AS-5I	25-May-10		<50	130	10	<0.50	<0.50	<0.50	NA	NA	<1.0
AS-6I	26-May-09		42,000	<1,000	170	11,000	780	2,400	7,300	2,900	10,200
	23-Sep-09		26,000	330	1,600	1,000	400	230	4,000	1,300	5,300
	25-May-10		840	210	25	23	<0.50	14	NA	NA	1.5
	28-Jul-10		58	450	45	<0.50	1.9	2.7	NA	NA	8.1
	14-Sep-10		<50	57	8.6	<0.50	<0.50	1.1	NA	NA	<1.0

Table 2
Analytical Results for Volatile Organic Compounds
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California
(concentrations in micrograms per liter [µg/L])

Sample Location	Date Collected	Notes	TPHg	TBA	MTBE	Benzene	Toluene	Ethyl-benzene	m,p-Xylenes	o-Xylenes	Total Xylenes
duplicate	14-Sep-10		<50	63	10	<0.50	<0.50	1.2	NA	NA	<1.0
AS-7I	26-May-09		<50	35	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	23-Sep-09		<50	<10	0.8	<0.50	0.95	<0.50	<0.50	<0.50	<0.50
	26-May-10		<50	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	<1.0
	15-Sep-10		790	<4	1.1	<0.50	<0.50	<0.50	NA	NA	<1.0
AS-8I	23-Sep-09		<50	<10	1.0	<0.50	1.6	<0.50	<0.50	<0.50	<0.50
Deep-Zone Groundwater Monitoring Wells											
ASMW-2D	11-Mar-09		<1,300	1,900	1,300	<13	<13	<13	<13	<13	<13
	23-Sep-09		<360	<71	460	<3.6	<3.6	<3.6	5.7	4.7	10.4
	22-Oct-09		<50	<10	1.9	<0.50	1.4	<0.50	1.9	2.1	4
	25-May-10		<50	<4	8.3	<0.50	<0.50	<0.50	NA	NA	<1.0
ASMW-3D	11-Mar-09		<50	34	91	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	22-Sep-09	(4)	<50	28	280	<0.50	1.1	<0.50	0.68	0.87	1.55
	22-Oct-09		<50	<10	310	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
ASMW-4D	11-Mar-09		<50	<10	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	21-Sep-09	(1)	<50	<10	5.4	<0.50	1.5	<0.50	<0.50	<0.50	<0.50
	22-Oct-09		<50	<10	6.1	<0.50	0.5	<0.50	<0.50	<0.50	<0.50
ASMW-5D	11-Mar-09	(2)	87	1,700	<0.50	84	<0.50	5.2	5.9	1.5	7.4
	21-Sep-09		<50	<10	72	<0.50	2.8	<0.50	<0.50	<0.50	<0.50
	22-Oct-09		<50	<10	76	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
duplicate	22-Oct-09		<50	<10	5.1	<0.50	0.8	<0.50	<0.50	<0.50	<0.50
	24-May-10		<250	3,900	14	<2.5	<2.5	<2.5	NA	NA	6
	27-Jul-10		<50	<4	2.6	<0.50	<0.50	<0.50	NA	NA	<1.0
	14-Sep-10		<50	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	<1.0
AS-2D	22-Sep-09		<50	<10	13	<0.50	0.8	<0.50	<0.50	<0.50	<0.50
	15-Sep-10		<50	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	<1.0
duplicate	15-Sep-10		<50	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	<1.0
AS-3D	14-Sep-10		<50	<4	0.71	<0.50	<0.50	<0.50	NA	NA	<1.0
AS-4D	14-Sep-10		<50	<4	0.92	<0.50	<0.50	<0.50	NA	NA	<1.0
NW-1D	27-Dec-05		<50	NA	37	<0.50	<0.50	<0.50	NA	NA	<0.50
	13-Mar-09		<50	<10	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Table 2
Analytical Results for Volatile Organic Compounds
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California
(concentrations in micrograms per liter [µg/L])

Sample Location	Date Collected	Notes	TPHg	TBA	MTBE	Benzene	Toluene	Ethyl-benzene	m,p-Xylenes	o-Xylenes	Total Xylenes
NW-2D	27-Dec-05		1,400	NA	1,600	300	13	<2.5	NA	NA	178
	13-Mar-09		<250	17,000	310	120	<2.5	<2.5	<2.5	<2.5	<2.5
	22-Sep-09	(3)	<50	<10	9.8	0.5	2.5	<0.50	2.0	2.1	4.1
duplicate	22-Sep-09		<50	<10	12	<0.50	1.4	<0.50	1.9	1.3	3.2
	22-Oct-09		<50	<10	<0.50	<0.50	0.8	<0.50	<0.50	<0.50	<0.50
	28-Jul-10		<50	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	<1.0
	14-Sep-10		<50	<4	0.52	<0.50	<0.50	<0.50	NA	NA	<1.0
NW-3D	27-Dec-05		<50	NA	<2.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	15-Feb-06		<50	NA	<2.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	15-Feb-06		<50	NA	2.1	<0.5	<0.5	<0.5	NA	NA	<0.5
	16-Feb-06		<50	NA	<2.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	21-Sep-09		<50	<10	1.0	<0.50	0.67	<0.50	<0.50	<0.50	<0.50
	15-Sep-10		<50	<4	1.2	<0.50	<0.50	<0.50	NA	NA	<1.0
MW-1	19-Jun-97		18,000	NA	4,900	3,300	200.0	1,100	NA	NA	<250
	29-Sep-97		29,000	NA	3,500	4,800	<25	2,000	NA	NA	<250
	16-Dec-97		<0.050	NA	0.7	1.3	<0.5	0.6	NA	NA	<5.0
	10-Mar-98		190	NA	1.7	2	<0.5	5.7	NA	NA	<5.0
	19-Jan-99		100	NA	68.0	40	<0.5	18.0	NA	NA	8.3
	15-Apr-99		<0.050	NA	0.87	0.92	0.9	0.7	NA	NA	<5.0
	30-Jul-99		1,400	NA	120	60	<0.5	63	NA	NA	13.0
	15-Nov-99		3,600	NA	620	120	<0.5	150	NA	NA	<5.0
	24-Mar-00		<0.050	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	<5.0
	18-May-00		1,300	NA	130.0	10	1.2	38.0	NA	NA	8.6
	26-Jul-00		6,400	NA	680	100	7.4	260	NA	NA	<5.0
	30-Oct-00		600	NA	950	130	14	330	NA	NA	<100
	24-Jul-01		1,200	NA	39	13	<0.5	70	NA	NA	13
	28-Nov-01		1,800	NA	160	27	0.93	72	NA	NA	<5.0
	18-Feb-02		2,400	NA	200	18	<2.5	89	NA	NA	<25
	11-Dec-02		8,400	NA	640	83	9.2	320	NA	NA	<0.5
	26-Feb-03		8,300	NA	720	12	<10	240	NA	NA	<10
	16-May-03		5,600	NA	490	22	<5.0	240	NA	NA	<5.0
	8-Mar-05		230	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	<5.0
	13-Mar-09		<50	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	26-May-09		<50	<10	<0.50	<0.50	0.67	<0.50	<0.50	<0.50	<0.50
duplicate	26-May-09		<50	<10	<0.50	<0.50	0.62	<0.50	<0.50	<0.50	<0.50
	14-Sep-10		<50	<4	3.4	<0.50	<0.50	<0.50	NA	NA	<1.0

Table 2
Analytical Results for Volatile Organic Compounds
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California
(concentrations in micrograms per liter [µg/L])

Sample Location	Date Collected	Notes	TPHg	TBA	MTBE	Benzene	Toluene	Ethyl-benzene	m,p-Xylenes	o-Xylenes	Total Xylenes
MW-2	19-Jun-97		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	29-Sep-97		--	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	16-Dec-97		--	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	10-Mar-98		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	19-Jan-99		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	15-Apr-99		<50	NA	<5.0	0.75	0.64	<0.5	NA	NA	0.74
	30-Jul-99		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	15-Nov-99		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	24-Mar-00		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	18-May-00		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	26-Jul-00		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	30-Oct-00		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	24-Jul-01		<50	NA	7.6	<0.5	<0.5	<0.5	NA	NA	<0.5
	28-Nov-01		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	18-Feb-02		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	11-Dec-02		<50	NA	5.8	<0.5	<0.5	<0.5	NA	NA	<1.0
	26-Feb-03		<50	NA	10	<0.5	<0.5	<0.5	NA	NA	<1.0
	16-May-03		<50	NA	16	<0.5	<0.5	<0.5	NA	NA	<1.0
	9-Mar-05		<50	NA	15	<0.5	<0.5	<0.5	NA	NA	<0.5
	15-Feb-06		<50	NA	19	<0.5	<0.5	<0.5	NA	NA	<0.5
	15-Feb-06		<50	NA	6.8	<0.5	<0.5	<0.5	NA	NA	<0.5
	16-Feb-06		<50	NA	5.6	<0.5	<0.5	<0.5	NA	NA	<0.5
	13-Mar-09		<50	<10	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	26-May-09		<50	<10	3.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	21-Sep-09		<50	<10	3.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
MW-3	19-Jun-97		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	29-Sep-97		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	16-Dec-97		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	10-Mar-98		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	19-Jan-99		<50	NA	8.7	0.78	<0.5	<0.5	NA	NA	<0.5
	15-Apr-99		<50	NA	23	5.4	3.9	1.7	NA	NA	5.6
	30-Jul-99		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5

Table 2
Analytical Results for Volatile Organic Compounds
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California
(concentrations in micrograms per liter [µg/L])

Sample Location	Date Collected	Notes	TPHg	TBA	MTBE	Benzene	Toluene	Ethyl-benzene	m,p-Xylenes	o-Xylenes	Total Xylenes
	15-Nov-99		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	24-Mar-00		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	18-May-00		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	26-Jul-00		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	30-Oct-00		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	24-Jul-01		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	28-Nov-01		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	18-Feb-02		<50	NA	<5.0	<0.5	<0.5	<0.5	NA	NA	<0.5
	11-Dec-02		<50	NA	0.78	<0.5	<0.5	<0.5	NA	NA	<1.0
	26-Feb-03		<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	<1.0
	16-May-03		<50	NA	2.6	<0.5	<0.5	<0.5	NA	NA	<1.0
	8-Mar-05		<50	NA	<2	<0.5	<0.5	<0.5	NA	NA	<0.5
	13-Mar-09		<50	<10	<0.50	<0.50	<0.50	<0.50	0.97	<0.50	0.97
	22-Sep-09		<50	<10	0.89	<0.50	1.1	<0.5	<0.5	<0.50	<0.50
MW-4	15-Sep-98		170,000	NA	26,000	26,000	32,000	2,900	NA	NA	18,000
	19-Jan-99		2,600	NA	13,000	1,700	3.8	25	NA	NA	29
	15-Apr-99		210,000	NA	52,000	28,000	15,000	3,700	NA	NA	19,000
	30-Jul-99		91,000	NA	68,000	16,000	7,500	2,300	NA	NA	8,500
	15-Nov-99		63,000	NA	57,000	8,500	2,400	1,400	NA	NA	4,000
	24-Mar-00		95,000	NA	44,000	16,000	13,000	2,500	NA	NA	12,000
	18-May-00		91,000	NA	64,000	15,000	10,000	2,200	NA	NA	9,600
	26-Jul-00		130,000	NA	80,000	11,000	6,400	1,700	NA	NA	6,500
	30-Oct-00		59,000	NA	68,000	6,700	2,200	750	NA	NA	3,100
	24-Jul-01		180,000	NA	44,000	25,000	23,000	3,500	NA	NA	20,000
	28-Nov-01		67,000	NA	57,000	8,100	3,300	1,400	NA	NA	5,600
	18-Feb-02		98,000	NA	47,000	20,000	12,000	2,300	NA	NA	15,000
	11-Dec-02		200,000	NA	17,000	340	<5.00	590	NA	NA	1,000
	26-Feb-03		63,000	NA	30,000	8,100	4,400	1,900	NA	NA	8,200
	16-May-03		530,000	NA	42,000	24,000	20,000	12,000	NA	NA	63,000
	9-Mar-05		152,237	NA	5,841	22,053	17,310	3,981	NA	NA	13,969
	9-Mar-05		162,863	NA	6,026	21,536	16,547	3,900	NA	NA	13,786
	13-Mar-09		55,000	<1,400	950	19,000	7,200	2,300	8,500	3,500	12,000

Table 2
Analytical Results for Volatile Organic Compounds
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California
(concentrations in micrograms per liter [µg/L])

Sample Location	Date Collected	Notes	TPHg	TBA	MTBE	Benzene	Toluene	Ethyl-benzene	m,p-Xylenes	o-Xylenes	Total Xylenes
	23-Sep-09		250	730	49	51	3.7	8.6	37	16	53
	22-Oct-09		<50	<10	3.7	<.50	1.3	<0.50	<0.50	<0.50	<0.50
	24-May-10		250	180	21	11	<0.50	3.6	NA	NA	7.1
	28-Jul-10		<50	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	<1.0
duplicate	28-Jul-10		<50	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	<1.0
	14-Sep-10		<50	<4	<0.50	<0.50	<0.50	<0.50	NA	NA	<1.0

Notes:
NA = not analyzed
TPHg = total petroleum hydrocarbons as gasoline
TBA = tertiary-butyl alcohol
MTBE = methyl tertiary-butyl ether
1,2-DCA = 1,2-dichloroethane
"<" = not detected above the laboratory reporting limit given
Samples collected in March 2009 were analyzed by Curtis & Tompkins, Ltd.

(1) 1,2-DCA results = 0.79 µg/L
(2) 1,2-DCA results = 0.88 µg/L
(3) 1,2-DCA results = 0.58 µg/L
(4) 1,2-DCA results = 0.77 µg/L

Table 3
Analytical Results for Metals in Groundwater
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California
(concentrations in micrograms per liter)

Sample Location	Date Collected	Total Chromium	Hexavalent Chromium	Total Iron	Ferrous Iron	Ferric Iron	Arsenic	Selenium	Manganese
Shallow-Zone Groundwater Monitoring Wells									
NW-1S	NS	--	--	--	--	--	--	--	--
NW-2S	NS	--	--	--	--	--	--	--	--
NW-3 S	NS	--	--	--	--	--	--	--	--
Intermediate-Zone Groundwater Monitoring Wells									
ASMW-2I	10-Aug-09	6.3	<0.5	26,000	25,000	390	23	<10	15,000
	23-Sep-09	<5	<0.5	<100	<100	<100	<5.0	<10	<5.0
ASMW-3I	11-Aug-09	<5.0	<0.5	<100	<100	<100	<5.0	<10	7,500
	22-Sep-09	<5.0	<0.5	<100	<100	<100	11	10	6,000
ASMW-4I	11-Aug-09	<5.0	<0.5	2,000	950	1,100	16	<10	3,600
	23-Sep-09	<5	<0.5	3,300	2,800	460	11	<10	4,200
ASMW-5I	10-Aug-09	<5.0	<0.5	7,300	5,200	2,100	14	<10	7,000
	22-Sep-09	<5.0	<0.5	770	610	150	10	<10	4,000
NW-2I	11-Aug-09	<5.0	<0.5	11,000	11,000	480	17	<10	1,800
	23-Sep-09	<5	<0.5	18,000	4,300	14,000	15	<10	4,000
Deep-Zone Groundwater Monitoring Wells									
ASMW-2D	10-Aug-09	<5	<0.5	<100	<100	<100	9.8	<10	4,400
	23-Sep-09	<5	1.7	<100	<100	<100	12	13	7,200
	22-Oct-09	<5	1.1	NS	NS	NS	<5.0	<10	NS
ASMW-3D	11-Aug-09	<5.0	<0.5	350	<100	350	<5.0	<10	3,400
	22-Sep-09	<5.0	<0.5	<100	<100	<100	9.7	<10	460
ASMW-4D	11-Aug-09	<5.0	<0.5	<100	<100	<100	<5.0	<10	1,200
	21-Sep-09	<5.0	<0.5	<100	<100	<100	<5.0	<10	610
ASMW-5D	11-Aug-09	<5.0	<0.5	170	<100	170	<5.0	<10	2,200
	21-Sep-09	<0.5	<0.5	<100	<100	<100	<5.0	<10	7.2
NW-2D	10-Aug-09	<5.0	<0.5	<100	<100	<100	<5.0	<10	800
	22-Sep-09	<5.0	<0.5	<100	<100	<100	<5.0	<10	<5.0
	22-Sep-09 (duplicate)	<5.0	<0.5	<100	<100	<100	<5.0	<10	<5.0
MW-4	10-Aug-09	<5.0	<0.5	8,200	6,900	1,300	<5.0	<10	2,200
	23-Sep-09	<5	<0.5	1,000	1,100	<100	7.5	<10	2,300

Note: NS = not sampled

Table 4
Field Parameters
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Sample Location	Date Collected	Temperature (degrees Celsius)	Conductivity (mmhos/cm)	pH (units)	ORP (mV)	Dissolved Oxygen (mg/L)
Shallow-Zone Groundwater Monitoring Wells						
NW-1S	23-Sep-09	23.84	764	6.42	-14.0	0.31
NW-2S	23-Sep-09	25.55	1,696	6.67	-30.1	0.20
	28-Jul-10	20.88	1,206	7.57	110.8	1.78
	14-Sep-10	22.95	959	7.53	66.7	4.62
NW-3S	21-Sep-09	21.60	681	6.43	118.9	0.75
	15-Sep-10	19.67	590	6.61	-33.9	0.96
Intermediate-Zone Groundwater Monitoring Wells						
ASMW-2I	10-Aug-09	23.49	4,195	6.21	-61.1	0.18
	23-Sep-09	21.89	6,769	6.85	170.1	5.33
	22-Oct-09	22.35	6,742	7.14	240.6	5.83
	25-May-10	18.43	8,599	6.84	-368.5	0.05
	27-Jul-10	20.07	7,781	7.13	-9.1	8.94
	14-Sep-10	21.29	6,137	7.56	138.5	8.20
ASMW-3I	11-Aug-09	22.72	8,284	6.42	62.4	0.20
	22-Sep-09	23.57	5,342	6.58	122.4	0.36
	22-Oct-09	23.49	5,232	6.64	101.8	0.71
ASMW-4I	11-Aug-09	21.11	939	6.79	-95.2	0.19
	23-Sep-98	21.82	969	6.76	-127.1	0.19
	22-Oct-09	21.74	910	6.74	-59.3	0.14
	26-May-10	16.89	1,556	6.85	-358.0	0.20
	27-Jul-10	19.30	1,022	6.84	-47.6	0.11
	14-Sep-10	19.46	889	6.88	-118.5	0.63
ASMW-5I	10-Aug-09	24.39	1,296	6.59	-74.7	0.38
	21-Sep-09	23.46	1,183	6.71	-3.1	0.11
	22-Oct-09	23.33	951	6.85	-6.6	0.46

Table 4
Field Parameters
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Sample Location	Date Collected	Temperature (degrees Celsius)	Conductivity (mmhos/cm)	pH (units)	ORP (mV)	Dissolved Oxygen (mg/L)
	24-May-10	17.96	1,941	6.75	-369.1	0.05
	27-Jul-10	20.37	790	7.24	-13.1	4.95
	14-Sep-10	20.42	899	6.97	163.4	6.33
AS-2I	22-Sep-09	23.85	4,803	7.10	55.0	0.94
	25-May-10	17.87	10,680	6.84	-488.5	0.07
	27-Jul-10	18.37	8,195	7.05	276.6	3.95
	15-Sep-10	20.66	7,064	7.12	69.3	5.39
AS-3I	14-Sep-10	23.00	12,692	6.97	174.0	5.20
AS-4I	25-May-10	17.63	1,518	7.18	-266.8	0.32
	14-Sep-10	21.09	947	7.59	110.6	8.17
AS-5I	25-May-10	18.25	15,930	6.80	-453.2	0.10
AS-6I	23-Sep-09	23.21	872	7.09	16.7	0.16
	25-May-10	17.06	834	7.53	-469.0	0.15
	28-Jul-10	20.29	908	7.93	83.5	5.36
	14-Sep-10	20.26	690	8.17	62.5	8.10
AS-7I	23-Sep-09	21.51	3,137	7.33	186.9	5.73
	26-May-10	17.66	7,628	8.00	108.4	4.97
	14-Sep-10	20.60	7,118	7.02	3.5	1.91
AS-8I	23-Sep-09	21.91	755	7.91	149.1	4.81
NW-1I	14-Sep-10	19.80	1,030	6.63	37.0	0.52
NW-2I	11-Aug-09	23.63	2,800	6.43	-73.0	0.38
	23-Sep-09	23.92	1,511	7.44	-34.7	0.38
	22-Oct-09	23.54	1,336	7.65	193.9	3.45
	25-May-10	17.89	2,773	6.88	-179.0	0.15
	28-Jul-10	21.81	1,380	6.77	78.3	0.39
	14-Sep-10	21.06	920	7.94	78.0	4.34

Table 4
Field Parameters
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Sample Location	Date Collected	Temperature (degrees Celsius)	Conductivity (mmhos/cm)	pH (units)	ORP (mV)	Dissolved Oxygen (mg/L)
NW-3I	21-Sep-09	20.49	1,772	6.74	191.5	0.49
	24-May-10	17.71	1,455	7.02	-432.7	0.90
	15-Sep-10	19.38	1,508	6.89	3.8	0.93
Deep-Zone Groundwater Monitoring Wells						
ASMW-2D	10-Aug-09	22.62	10,240	6.27	192.2	0.33
	23-Sep-09	22.15	1,850	7.27	164.9	9.12
	22-Oct-09	21.27	1,157	7.30	140.5	9.20
	25-May-10	19.33	9,681	7.08	-437.2	1.68
ASMW-3D	11-Aug-09	20.37	9,767	6.25	122.9	0.20
	22-Sep-09	20.92	9,727	6.37	162.0	1.57
	22-Oct-09	20.69	7,757	6.39	252.0	1.77
ASMW-4D	11-Aug-09	19.70	1,408	6.67	172.9	0.15
	21-Sep-09	20.79	1,804	6.70	172.3	0.17
	22-Oct-09	20.17	1,889	6.85	331.8	0.32
ASMW-5D	11-Aug-09	20.18	1,876	6.58	47.8	0.11
	21-Sep-09	21.74	1,751	6.70	133.4	2.85
	22-Oct-09	20.87	1,766	6.82	2,330.0	4.44
	24-May-10	17.75	2,664	6.88	84.6	0.42
	27-Jul-10	20.22	1,860	7.05	41.3	9.81
	14-Sep-10	19.25	1,563	6.93	170.0	8.64
AS-2D	22-Sep-09	20.48	1,151	7.36	142.9	8.61
	15-Sep-10	19.16	871	6.84	48.9	5.32
AS-3D	14-Sep-10	21.43	932	6.80	143.1	2.93
AS-4D	14-Sep-10	19.72	915	6.70	135.7	0.78
NW-2D	10-Aug-09	22.06	1,179	6.37	93.2	0.22
	22-Sep-09	22.19	759	6.63	174.1	4.55

Table 4
Field Parameters
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Sample Location	Date Collected	Temperature (degrees Celsius)	Conductivity (mmhos/cm)	pH (units)	ORP (mV)	Dissolved Oxygen (mg/L)
	22-Oct-09	21.48	199	6.70	175.0	6.40
	28-Jul-10	19.67	769	6.69	127.6	4.48
	14-Sep-10	19.90	624	6.56	94.2	5.08
NW-3D	21-Sep-09	19.53	821	6.87	198.8	0.24
	15-Sep-10	17.71	732	7.18	-37.3	0.56
MW-1	14-Sep-10	19.38	655	6.71	-147.2	0.43
MW-2	21-Sep-09	19.39	1,052	6.74	149.6	0.25
MW-3	22-Sep-09	19.62	3,104	6.67	113.3	0.15
MW-4	10-Aug-09	23.99	1,309	6.50	-82.4	0.28
	23-Sep-09	21.94	1,394	6.79	-36.7	0.41
	22-Oct-09	22.12	1,289	7.19	229.1	4.35
	24-May-10	19.50	1,995	7.03	-536.4	0.03
	28-Jul-10	20.17	1,176	7.05	100.2	3.02
	14-Sep-10	20.30	1,249	7.02	80.3	5.35
SVMW-3	22-Sep-09	24.56	4,719	6.54	27.8	0.40
SVMW-4	21-Sep-09	24.38	2,034	6.86	-14.0	0.68

Notes:
ORP = oxidation-reduction potential
mmhos/cm = milliohms per centimeter
mg/L = milligrams per liter
mV = millivolts

Table 5
Soil-Vapor Extraction/Air Sparge System Monitoring Results with System Yield and Abatement Efficiency Calculations
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Date-Time	Hour meter Reading	Interval Operation Time (Days)	Total Operation Time (Days)	INF Flow (scfm)	INF Conc. (ppmv)	MID-GAC Conc. (ppmv)	EFF Conc. (ppm_v)	Molecular Weight (gasoline) (g/mol)	Conversion Factor ([mol*lb*l_{air}*min]/ [µl*g*ft^3*day])	Yield (lb/day)	Interval Yield (pounds)	Mass Removed (as lbs TPHg)	GAC1 Abatement Efficiency	Total Abatement Efficiency
8/13/09 10:30 AM		0.0	0	24.1	155	0	0	105	0.00000373	1.5	0.0	0.0	100.00%	100.00%
8/14/09 10:30 AM		1.0	1.0	23.9	210	0	0	105	0.00000373	2.0	2.0	2.0	100.00%	100.00%
off for initial weekend														
8/17/09 1:20 PM		0.0	1.0	24.8	176	0	0	105	0.00000373	1.7	0.0	2.0	100.00%	100.00%
8/18/09 4:00 PM		1.1	2.1	25.5	320	0.6	0	105	0.00000373	3.2	3.6	5.5	99.81%	100.00%
8/19/09 1:30 PM		0.9	3.0	26.1	460	1.6	0	105	0.00000373	4.7	4.2	9.7	99.65%	100.00%
8/20/09 4:00 PM		1.1	4.1	25.8	780	0.8	0	105	0.00000373	7.9	8.7	18.4	99.90%	100.00%
8/21/09 10:00 AM		0.8	4.9	22.0	1,148	2.6	0	105	0.00000373	9.9	7.4	25.9	99.77%	100.00%
8/22/09 10:30 AM		1.0	5.9	22.2	1,110	1.3	0	105	0.00000373	9.7	9.9	35.7	99.88%	100.00%
8/23/09 11:30 AM		1.0	6.9	23.1	1,084	0.9	0	105	0.00000373	9.8	10.2	45.9	99.92%	100.00%
8/24/09 2:30 PM		1.1	8.0	22.0	1,104	1.6	0	105	0.00000373	9.5	10.7	56.6	99.86%	100.00%
8/25/09 9:58 AM		0.8	8.9	19.8	1,289	1.9	0	105	0.00000373	10.0	8.1	64.7	99.85%	100.00%
8/26/09 12:50 PM		1.1	10.0	23.1	955	4.2	0	105	0.00000373	8.6	9.7	74.4	99.56%	100.00%
8/27/09 12:35 PM		1.0	11.0	23.2	1,695	3.2	0	105	0.00000373	15.4	15.2	89.6	99.81%	100.00%
8/27/09 1:00 PM		0.02	11.0	47.0	2,850	1.9	0	105	0.00000373	52.5	0.9	90.6	99.93%	100.00%
8/27/09 2:00 PM		0.04	11.0	47.0	2,850	1.9	0	105	0.00000373	52.5	2.2	92.7	99.93%	100.00%
off to complete water tank install														
8/28/09 10:30 AM		0.0	11.0	52.5	756	1.8	0	105	0.00000373	15.5	0.0	92.7	99.76%	100.00%
8/28/09 11:45 AM		0.05	11.1	52.5	756	1.8	0	105	0.00000373	15.5	0.8	93.5	99.76%	100.00%
8/29/09 10:30 AM		0.95	12.0	44.5	680	0.8	0	105	0.00000373	11.9	11.2	104.8	99.88%	100.00%
off for high water level														
9/1/09 12:30 PM		0.0	12.0	36.6	634	0	0	105	0.00000373	9.1	0.0	104.8	100.00%	100.00%
9/1/09 1:20 PM		0.03	12.1	36.6	634	0	0	105	0.00000373	9.1	0.3	105.1	100.00%	100.00%
9/2/09 1:00 PM		0.99	13.0	38.8	520	110	0	105	0.00000373	7.9	7.8	112.9	**78.85%**	100.00%
off for carbon change														
9/8/09 9:15 AM		0.0	13.0	45.1	1,089	0.1	0	105	0.00000373	19.2	0.0	112.9	99.99%	100.00%
9/8/09 9:25 AM		0.01	13.1	45.1	1,089	0.1	0	105	0.00000373	19.2	0.1	113.0	99.99%	100.00%
9/9/09 1:00 PM		1.15	14.2	30.1	568	0.92	0	105	0.00000373	6.7	7.7	120.7	99.84%	100.00%
9/10/09 10:15 AM		0.89	15.1	28.4	927	0.2	0	105	0.00000373	10.3	9.1	129.8	99.98%	100.00%
9/11/09 2:45 PM		1.19	16.3	28.5	953	0.1	0	105	0.00000373	10.6	12.6	142.5	99.99%	100.00%
9/12/09 7:45 AM		0.71	17.0	28.1	934	0.4	0	105	0.00000373	10.3	7.3	149.8	99.96%	100.00%
9/13/09 7:45 AM		1.00	18.0	24.6	915	0.9	0	105	0.00000373	8.8	8.8	158.6	99.90%	100.00%
9/14/09 2:00 PM		1.26	19.2	27.5	901	0.1	0	105	0.00000373	9.7	12.2	170.8	99.99%	100.00%
9/15/09 9:15 AM		0.80	20.0	35.7	950	1.1	0	105	0.00000373	13.3	10.7	181.5	99.88%	100.00%
9/16/09 7:30 AM		0.93	21.0	36.2	1,108	1.1	0	105	0.00000373	15.7	14.6	196.0	99.90%	100.00%
9/17/09 1:50 PM		1.26	22.2	27.6	1,064	487	0	105	0.00000373	11.5	14.5	210.6	**54.23%**	100.00%
off for carbon change														
9/24/09 2:00 PM		0.0	22.2	47.0	503	0.2	0	105	0.00000373	9.3	0.0	210.6	99.96%	100.00%
9/25/09 7:30 AM		0.73	23.0	40.0	727	0.3	0	105	0.00000373	11.4	8.3	218.9	99.96%	100.00%
9/26/09 7:30 AM		1.00	24.0	39.3	766	0.8	0	105	0.00000373	11.8	11.8	230.7	99.90%	100.00%

Table 5
Soil-Vapor Extraction/Air Sparge System Monitoring Results with System Yield and Abatement Efficiency Calculations
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Date-Time	Hour meter Reading	Interval Operation Time (Days)	Total Operation Time (Days)	INF Flow (scfm)	INF Conc. (ppmv)	MID-GAC Conc. (ppmv)	EFF Conc. (ppm_v)	Molecular Weight (gasoline) (g/mol)	Conversion Factor ([mol*lb*l_{air}*min]/ [µl*g*ft^3*day])	Yield (lb/day)	Interval Yield (pounds)	Mass Removed (as lbs TPHg)	GAC1 Abatement Efficiency	Total Abatement Efficiency
9/27/09 7:30 AM		1.00	25.0	40.5	688	0.4	0	105	0.00000373	10.9	10.9	241.6	99.94%	100.00%
off for high water level														
9/29/09 11:15 AM		0.0	25.0	41.5	557	0.2	0	105	0.00000373	9.1	0.0	241.6	99.96%	100.00%
9/30/09 9:00 AM		0.91	25.9	40.1	2,300	1.1	0	105	0.00000373	36.1	32.7	274.3	99.95%	100.00%
10/1/09 7:30 AM		0.94	26.8	28.0	660	0.4	0	105	0.00000373	7.2	6.8	281.1	99.94%	100.00%
10/2/09 7:30 AM		1.00	27.8	28.1	720	0.6	0	105	0.00000373	7.9	7.9	289.0	99.92%	100.00%
10/3/09 11:00 AM		1.15	29.0	29.1	688	0.1	0	105	0.00000373	7.8	9.0	298.0	99.99%	100.00%
10/4/09 11:00 AM		1.00	30.0	32.5	710	0.2	0	105	0.00000373	9.0	9.0	307.0	99.97%	100.00%
10/5/09 8:00 AM		0.88	30.8	32.5	710	0.2	0	105	0.00000373	9.0	7.9	314.9	99.97%	100.00%
off to convert to catox														
10/5/09 4:10 PM		0.0	30.8	44.0	1,330	--	1.7	105	0.00000373	22.9	0.0	314.9	NA	99.87%
10/6/09 3:00 PM		0.95	31.8	37.1	1,250	--	12	105	0.00000373	18.2	17.3	332.2	NA	99.04%
10/13/09 8:30 AM		6.73	38.5	34.0	720	--	0	105	0.00000373	9.6	64.5	396.7	NA	100.00%
10/14/09 8:30 AM		1.00	39.5	34.0	800	--	0.9	105	0.00000373	10.7	10.7	407.4	NA	99.89%
10/20/09 9:30 AM		6.04	45.6	13.8	720	--	3.3	105	0.00000373	3.9	23.5	430.9	NA	99.54%
10/26/09 9:30 AM		6.00	51.6	38.3	445	--	2.5	105	0.00000373	6.7	40.1	471.0	NA	99.44%
10/27/09 11:00 AM		1.06	52.6	36.3	587	--	1.2	105	0.00000373	8.3	8.9	479.8	NA	99.80%
10/28/09 12:00 AM														
System off from October 29, 2009 to June 16, 2010														
System Re-Started on June 16, 2010 at 15:01														
10/29/09 12:00 AM														
6/16/10 3:00 PM	22751.3	0.0	52.6	201	6.8	--	0.0	105	0.00000373	0.5	0.0	479.8	NA	100.00%
6/17/10 12:45 PM	22772.9	0.9	53.5	194	77.2	--	3.1	105	0.00000373	5.9	5.3	485.1	NA	95.98%
6/18/10 15:30	22797.3	1.0	54.5	192	60.3	--	5.0	105	0.00000373	4.5	4.6	489.7	NA	91.71%
off - diesel fuel tank for generator empty														
6/21/10 12:50 PM	22846.9	0.0	54.5	190	74.0	--	0.0	105	0.00000373	5.5	0.0	489.7	NA	100.00%
6/23/10 1:10 PM	22895.3	2.0	56.6	191	107.0	--	0.0	105	0.00000373	8.0	16.1	505.9	NA	100.00%
6/25/10 2:30 PM	22944.3	2.0	58.6	167	84.0		6.0	105	0.00000373	5.5	11.2	517.1	NA	92.86%
7/1/10 12:00 AM	23050.8	4.4	63.0	117	10.0		0.7	105	0.00000373	0.5	2.0	519.1	NA	93.00%
7/7/10 3:05 PM	23193.8	6.0	69.0	103	61.0		0.8	105	0.00000373	2.5	14.7	533.8	NA	98.69%
7/14/10 1:38 PM	23331.8	5.8	74.7	121	59.5		0.2	105	0.00000373	2.8	16.2	550.0	NA	99.66%
7/22/10 10:00 AM	23476.3	6.0	80.8	91	49.0		0.3	105	0.00000373	1.7	10.5	560.5	NA	99.39%
7/29/10 1:00 PM	23600.1	5.2	85.9	154	51.0		0.0	105	0.00000373	3.1	15.9	576.4	NA	100.00%
8/4/10 10:00 AM	23741.3	5.9	91.8	121	41.0		0.0	105	0.00000373	1.9	11.4	587.8	NA	100.00%
8/10/10 9:15 AM	23884.3	6.0	97.8	125	22.3		0.0	105	0.00000373	1.1	6.5	594.3	NA	100.00%
8/18/10 9:45 AM	24077.0	8.0	105.8	124	39.7		0.0	105	0.00000373	1.9	15.5	609.8	NA	100.00%
8/25/10 10:00 AM	24243.2	6.9	112.7	32	39.5		0.1	105	0.00000373	0.5	3.4	613.2	NA	99.75%
8/31/10 10:00 AM	24387.2	6.0	118.7	104	45.5		0.0	105	0.00000373	1.9	11.1	624.3	NA	100.00%
9/8/10 9:25 AM	24578.4	8.0	126.7	79	31.5		0.0	105	0.00000373	1.0	7.8	632.1	NA	100.00%

Table 5
Soil-Vapor Extraction/Air Sparge System Monitoring Results with System Yield and Abatement Efficiency Calculations
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Date-Time	Hour meter Reading	Interval Operation Time (Days)	Total Operation Time (Days)	INF Flow (scfm)	INF Conc. (ppmv)	MID-GAC Conc. (ppmv)	EFF Conc. (ppm_v)	Molecular Weight (gasoline) (g/mol)	Conversion Factor ([mol*lb*l_{air}*min]/ [µl*g*ft^3*day])	Yield (lb/day)	Interval Yield (pounds)	Mass Removed (as lbs TPHg)	GAC1 Abatement Efficiency	Total Abatement Efficiency
9/13/10 4:40 PM	24705.8	5.3	132.0	133	25.5		0.0	105	0.00000373	1.3	7.1	639.1	NA	100.00%

Yield (lb/day) = Flow (scfm)*Concentration (ppm_v)*Molecular Weight (g/mol)*Conversion Factor ($3.73x10^{-6}$*[mol*lb*l_{air}*min]/[µl_{contam}*g*ft^3*day])

Notes:

Conc. = concentration
sfcm = standard cubic feet per minute (21.1 °F and 14.7 psi)
°F= degrees Fahrenheit
psi = pounds per square inch
ppmv = parts per million by volume
g = gram
mol = mole
lb = pound
ft^3 = cubic feet
TPHg = total petroleum hydrocarbons quantified as gasoline
l = liter
µl = microliter

Table 6

Abandoned Wells During the Reporting Period July 1 through September 30, 2010

Former Pacific Electric Motors Facility

1009 66th Avenue, Oakland, California

Groundwater Monitoring Well Name
Shallow Zone
NW-1S
NW-2S
NW-3S
SVE-2
SVE-5
SVE-7
SVE-8
SVMW-2
SVMW-3
SVMW-4
Intermediate Zone
AS-2I
AS-5I
AS-7I
AS-8I
ASMW-2I
ASMW-3I
NW-1I
NW-2I
NW-3I
Deep Zone
AS-2D
AS-5D
AS-7D
AS-8D
ASMW-2D
ASMW-3D
MW-1
MW-2
MW-3
NW-1D
NW-2D
NW-3D

MAP SOURCE: Copyright 1995, Thomas Bros. Map ALAMEDA COUNTY 2002 Edition

0 2,000 4,000 FEET

1009 66TH AVENUE, OAKLAND, CALIFORNIA

SITE VICINITY MAP

ARCADIS

FIGURE 1

DESIGN\003\09155\Figure 1 Site Vicinity - 003-09155.cdr

EXPLANATION:

- MW-1 — Monitoring Well
- NW-1 — Nested Monitoring Wells
- AS-4D — Air Injection Well
- ASMW-3I — Air Injection Monitoring Well
- SVE-4 — SVE or SVE Monitoring Well
- Property Line

NOTES:
SVE = soil-vapor extraction

APPROXIMATE LIMITS OF 1995 EXCAVATION

WAREHOUSE BUILDING

MW-1

NW-1S, 1I, 1D

APPROXIMATE LOCATION OF FORMER GAS SHED AND 2,000-GALLON GASOLINE UST

SVE-4
AS-4D
AS-4I

EW-1

SVE-2
AS-2D
AS-2I

SVE-3
AS-3D
AS-3I

NW-2S, 2I, 2D

SVE-5
AS-5D
AS-5I

SVMW-2
ASMW-2D

SVE-1
AS-1D
AS-1I
ASMW-2I

MW-4

SVE-6
AS-6D
AS-6I

SVMW-3
ASMW-3D
ASMW-3I

SVMW-5
ASMW-5D
ASMW-5I

SVE-7
AS-7D
AS-7I

SVE-8
AS-8D
AS-8I

SVMW-4
ASMW-4D
ASMW-4I

MW-3

NW-3S, 3I, 3D

MW-2

APPROXIMATE LIMITS OF 2002 EXCAVATION

N

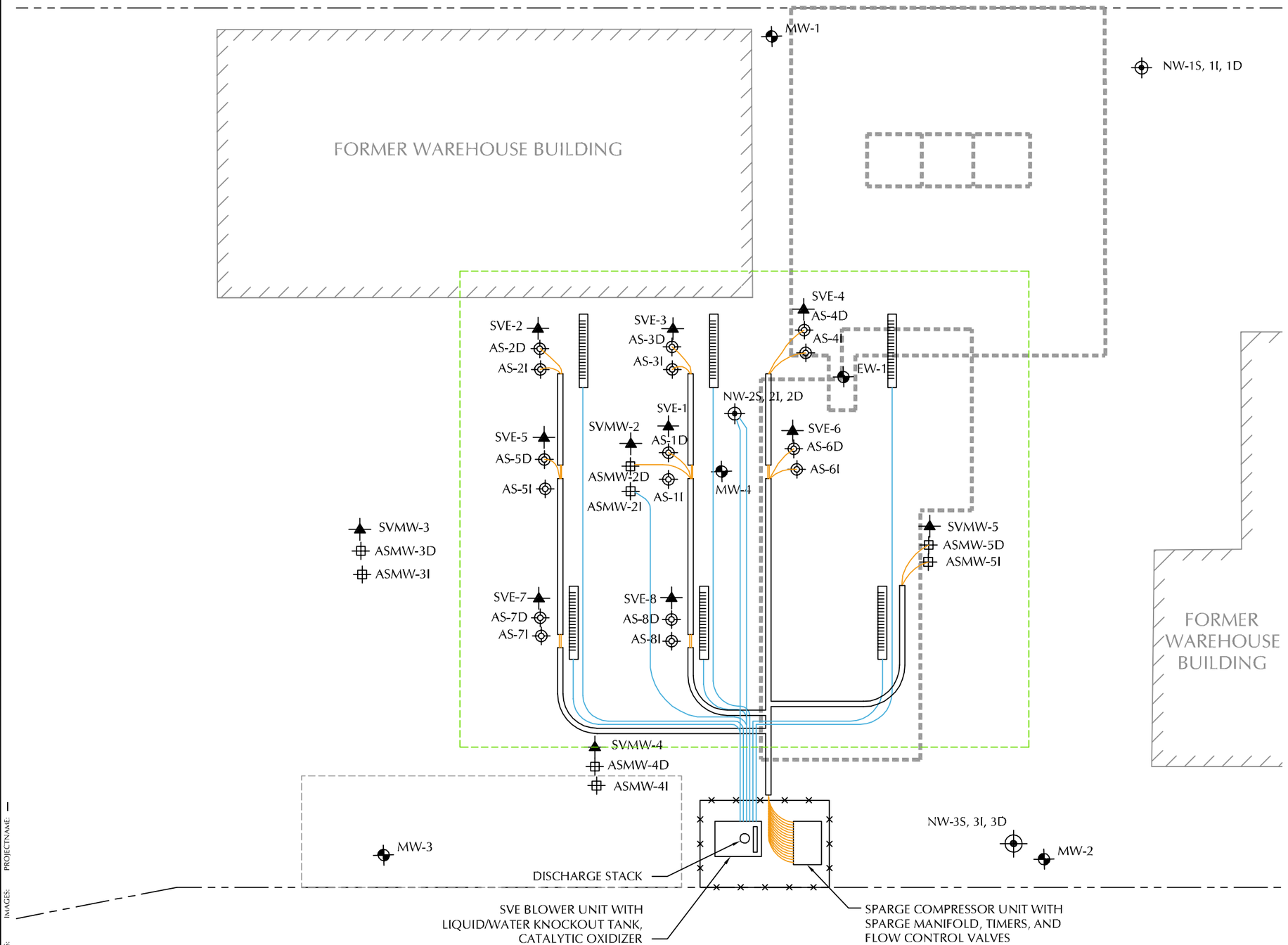
0 20 FEET
(SCALE: 1" = 20')

1009 66TH AVENUE, OAKLAND, CALIFORNIA

SITE PLAN

ARCADIS

FIGURE
2



1009 66th AVENUE, OAKLAND, CALIFORNIA

SITE PLAN SHOWING THE SOIL-VAPOR EXTRACTION AIR SPARGING SYSTEM SCHEMATIC

ARCADIS

FIGURE 3

EXPLANATION:

- MW-1 — Monitoring Well
- NW-1 — Nested Monitoring Wells
- AS-4D — Air Injection Well
- ASMW-3I — Air Injection Monitoring Well
- SVE-4 — SVE or SVE Monitoring Well
- Property Line
- 9.25 — Groundwater Elevation (feet above mean sea level)
- Groundwater Elevation Contour (feet above mean sea level) (dashed where inferred)
- NM — Not Measured
- SVE — Soil-Vapor Extraction

NOTE:
CONTOURING NOT REPRESENTATIVE OF PAST SITE CONDITIONS DUE TO SHUTDOWN OF THE AIR SPARGING SYSTEM

APPROXIMATE LIMITS OF 1995 EXCAVATION

WAREHOUSE BUILDING

MW-1

NW-1S, 1I, 1D
9.25

APPROXIMATE LOCATION OF FORMER GAS SHED AND 2,000-GALLON GASOLINE UST

9.00
8.50
8.00
7.50
7.00

SVE-2
AS-2D
AS-2I
8.36

SVE-3
AS-3D
AS-3I
7.79

NW-2S, 2I, 2D
7.55

SVE-4
AS-4D
AS-4I
6.92

EW-1

SVE-5
AS-5D
AS-5I
NM

SVMW-2
ASMW-2D
ASMW-2I
7.00

SVE-1
AS-1D
AS-1I
NM

MW-4

SVE-6
AS-6D
AS-6I
8.42

SVMW-3
ASMW-3D
ASMW-3I
NM

SVMW-5
ASMW-5D
ASMW-5I
7.90

SVE-7
AS-7D
AS-7I
8.74

SVE-8
AS-8D
AS-8I
NM

SVMW-4
ASMW-4D
ASMW-4I
8.41

MW-3

NW-3S, 3I, 3D
9.21

MW-2

APPROXIMATE LIMITS OF 2002 EXCAVATION

N

0 20 FEET
(SCALE: 1" = 20')

1009 66TH AVENUE, OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP INTERMEDIATE ZONE SEPTEMBER 2010

ARCADIS

FIGURE 4

EXPLANATION:

- MW-1 — Monitoring Well
- NW-1 — Nested Monitoring Wells
- AS-4D — Air Injection Well
- ASMW-3I — Air Injection Monitoring Well
- SVE-4 — SVE or SVE Monitoring Well
- Property Line
- 9.25 — Groundwater Elevation (feet above mean sea level)
- Groundwater Elevation Contour (feet above mean sea level) (dashed where inferred)
- NM — Not Measured
- SVE — Soil-Vapor Extraction

NOTE:
CONTOURING NOT REPRESENTATIVE OF PAST SITE CONDITIONS DUE TO SHUTDOWN OF THE AIR SPARGING SYSTEM

APPROXIMATE LIMITS OF 1995 EXCAVATION

WAREHOUSE BUILDING

MW-1 9.41

NW-1S, 1I, 1D NM

9.00

SVE-4 AS-4D 8.84 AS-4I

EW-1

SVE-2 AS-2D 8.78 AS-2I

SVE-3 AS-3D 8.89 AS-3I

8.50

NW-2S, 2I, 2D 7.68

8.00

SVE-1 AS-1D NM AS-1I

SVE-6 AS-6D NM AS-6I

MW-4 8.80

SVE-5 AS-5D NM AS-5I

SVMW-2 ASMW-2I

ASMW-2D NM

SVMW-3 ASMW-3D NM ASMW-3I

8.50

SVMW-5 ASMW-5D 8.82 ASMW-5I

9.00

SVE-7 AS-7D NM AS-7I

SVE-8 AS-8D NM AS-8I

SVMW-4 ASMW-4D NM ASMW-4I

MW-3 NM

NW-3S, 3I, 3D 9.23

MW-2 NM

APPROXIMATE LIMITS OF 2002 EXCAVATION

APPROXIMATE LOCATION OF FORMER GAS SHED AND 2,000-GALLON GASOLINE UST

N

0 20 FEET

(SCALE: 1" = 20')

1009 66TH AVENUE, OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP DEEP ZONE SEPTEMBER 2010

ARCADIS

FIGURE 5

EXPLANATION:

- MW-1 — Monitoring Well
- NW-1 — Nested Monitoring Wells
- AS-4D — Air Injection Well
- ASMW-3I — Air Injection Monitoring Well
- SVE-4 — SVE or SVE Monitoring Well
- Property Line

LOCATION ID

Date sample taken

AS-7I	26-May-09
TPHg	< 50

Concentration in micrograms per liter

Chemical

22-Sept-09 — Denotes sample collected after the soil-vapor extraction air sparging groundwater treatment system began operation in August 13, 2009 and June 16, 2010

25-May-10 — Denotes sample collected after the soil-vapor extraction air sparging groundwater treatment system stopped operation on October 27, 2009 and September 13, 2010

NOTES:

TPHg = total petroleum hydrocarbons as gasoline

TBA = tertiary-butyl alcohol

MTBE = methyl tertiary-butyl ether

"<" = not detected above the laboratory reporting limit given

SVE = soil-vapor extraction

VOCs = volatile organic compounds

NA = not analyzed

APPROXIMATE LIMITS OF 1995 EXCAVATION

WAREHOUSE BUILDING

MW-1

NW-1S, 1I, 1D

NW-1S	27-Dec-05	13-Mar-09	23-Sept-09
TPHg	< 50	< 50	< 50
TBA	NA	< 10	< 10
MTBE	0.55	0.55	< 0.50
Benzene	< 0.50	< 0.50	< 0.50
Toluene	< 0.50	< 0.50	0.69
Ethylbenzene	< 0.50	< 0.50	< 0.50
Xylenes	< 0.50	< 0.50	0.59

APPROXIMATE LOCATION OF FORMER GAS SHED AND 2,000-GALLON GASOLINE UST

SVE-2, AS-2D, AS-2I

SVE-3, AS-3D, AS-3I

SVE-4, AS-4D, AS-4I

EW-1

NW-2S, 2I, 2D

NW-2S	27-Dec-05	13-Mar-09	23–Sept-09	28-July-10	14-Sept-10
TPHg	7,100	1,800	15,000	1,000	69
TBA	NA	1,900	5,100	100	< 4
MTBE	1,600	130	11,000	34	< 0.50
Benzene	570	520	610	34	< 0.50
Toluene	570	< 4.2	800	30	< 0.50
Ethylbenzene	62	120	41	24	< 0.50
Xylenes	1,530	20	841	170	2.1

SVE-5, AS-5D, AS-5I

SVMW-2, ASMW-2D, ASMW-2I

SVE-1, AS-1D, AS-1I

MW-4

SVE-6, AS-6D, AS-6I

SVMW-3, ASMW-3D, ASMW-3I

SVMW-5, ASMW-5D, ASMW-5I

SVE-7, AS-7D, AS-7I

SVE-8, AS-8D, AS-8I

SVMW-4, ASMW-4D, ASMW-4I

MW-3

NW-3S, 3I, 3D

MW-2

NW-3S	26-May-09	21-Sept-09	15-Sept-10
TPHg	< 50	< 50	< 50
TBA	< 10	< 10	< 4
MTBE	2.6	4.1	2.4
Benzene	< 0.50	< 0.50	< 0.50
Toluene	< 0.50	0.58	< 0.50
Ethylbenzene	< 0.50	< 0.50	< 0.50
Xylenes	< 0.50	< 0.50	< 1.0

APPROXIMATE LIMITS OF 2002 EXCAVATION

0 20 FEET

(SCALE: 1" = 20')

1009 66TH AVENUE, OAKLAND, CALIFORNIA

ANALYTICAL RESULTS FOR TPHg AND VOCs IN SHALLOW-ZONE GROUNDWATER SAMPLES

ARCADIS

FIGURE 6

EXPLANATION:

- MW-1 — Monitoring Well
- NW-1 — Nested Monitoring Wells
- AS-4D — Air Injection Well
- ASMW-3I — Air Injection Monitoring Well
- SVE-4 — SVE or SVE Monitoring Well
- Property Line
- LOCATION ID
- Date sample taken

AS-7I	26-May-09
TPHg	<50

- Concentration in micrograms per liter
- Chemical
- 22-Sept-09 — Denotes sample collected after the soil-vapor extraction air sparging groundwater treatment system began operation in August 13, 2009 and June 16, 2010
- 25-May-10 — Denotes sample collected after the soil-vapor extraction air sparging groundwater treatment system stopped operation on October 27, 2009 and September 13, 2010

NOTES:

TPHg = total petroleum hydrocarbons as gasoline

TBA = tertiary-butyl alcohol

MTBE = methyl tertiary-butyl ether

"<" = not detected above the laboratory reporting limit given

SVE = soil-vapor extraction

VOCs = volatile organic compounds

NA = Not analyzed

APPROXIMATE LIMITS OF 1995 EXCAVATION

APPROXIMATE LIMITS OF 2002 EXCAVATION

AS-2I	22-Sept-09	25-May-10	28-July-10	15-Sept-10
TPHg	<8,300	8,600	<5,000	<1,000
TBA	2,900	5,600	8,700	<80
MTBE	11,000	8,000	1,200	380
Benzene	460	76	<50	<10
Toluene	120	<25	<50	<10
Ethylbenzene	<83	220	<50	<10
Xylenes	130	<50	<50	<20

AS-3I	14-Sept-10
TPHg	<500
TBA	6.5
MTBE	530
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes	14

AS-5I	25-May-10
TPHg	<50
TBA	130
MTBE	10
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes	<1.0

NW-2I	13-Mar-09	22-Oct-09	25-May-10	28-July-10	14-Sept-10
TPHg	49,000	4,200	8,600	130	<50
TBA	NA	3,300	17,000	300	6
MTBE	1,100	330	770	71	<0.50
Benzene	18,000	110	360	0.67	<0.50
Toluene	17,000	110	35	<0.50	<0.50
Ethylbenzene	1,600	5.8	400	<0.50	0.6
Xylenes	8,200	650	8,600	8.2	4.8

NW-1S, 1I, 1D

NW-1I	14-Sept-10
TPHg	<50
TBA	250
MTBE	1.9
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes	<1.0

AS-4I	25-May-10	14-Sept-10
TPHg	310	<50
TBA	1,500	<4
MTBE	110	<0.50
Benzene	2.7	<0.50
Toluene	<0.50	<0.50
Ethylbenzene	<0.50	<0.50
Xylenes	<1.0	<1.0

AS-6I	26-May-09	23-Sept-09	25-May-10	28-July-10	14-Sept-10	Sept (DUP)
TPHg	42,000	26,000	840	58	<50	<50
TBA	<1,000	330	210	450	57	63
MTBE	170	1,600	25	45	8.6	10
Benzene	11,000	1,000	23	<0.50	<0.50	<0.50
Toluene	780	400	<0.5-	1.9	<0.50	<0.50
Ethylbenzene	2,400	230	14	2.7	1.1	1.2
Xylenes	10,200	5,300	1.5	8.1	<1.0	<1.0

ASMW-3I	11-Mar-09	22-Sept-09	22-Oct-09
TPHg	<50	<50	<50
TBA	<10	<10	<10
MTBE	1.4	3.4	6.9
Benzene	<0.50	<0.50	<0.50
Toluene	<0.50	1.4	1.4
Ethylbenzene	<0.50	<0.50	<0.50
Xylenes	<0.50	<0.50	<0.50

ASMW-5I	13-Mar-09	22-Oct-09	24-May-10	27-July-10	14-Sept-10
TPHg	72,000	22,000	48,000	110	<50
TBA	<1,400	330	310	28	<4
MTBE	76	110	120	1/6	0.51
Benzene	11,000	560	2,300	<0.50	<0.50
Toluene	3,600	330	150	<0.50	<0.50
Ethylbenzene	3,800	240	2,000	0.80	<0.50
Xylenes	18,400	4,600	12,000	20	<1.0

AS-7I	26-May-09	23-Sept-09	26-May-10	15-Sept-10
TPHg	<50	<50	<50	790
TBA	35	<10	<4	<4
MTBE	2.5	0.8	<0.50	1.1
Benzene	<0.50	<0.50	<0.50	<0.50
Toluene	<0.50	0.95	<0.50	<0.50
Ethylbenzene	<0.50	<0.50	<0.50	<0.50
Xylenes	<0.50	<0.50	<1.0	<1.0

ASMW-2I	13-Mar-09	22-Oct-09	25-May-10	27-July-10	14-Sept-10
TPHg	49,000	<50	2,000	<50	<590
TBA	3,200	370	330	<4.0	<4
MTBE	1,100	290	98	20	0.51
Benzene	18,000	<0.50	280	<0.50	<0.50
Toluene	17,000	4.6	50	0.80	<0.50
Ethylbenzene	1,600	<0.50	170	<0.50	<0.50
Xylenes	8,200	20	350	4.5	<1.0

AS-8I	23-Sept-09
TPHg	<50
TBA	<10
MTBE	1.0
Benzene	<0.50
Toluene	1.6
Ethylbenzene	<0.50
Xylenes	<0.50

ASMW-4I	11-Mar-09	22-Oct-09	26-May-10	27-July-10	14-Sept-10
TPHg	9,200	1,900	1,800	940	460
TBA	<130	<10	<4	<4	<4.0
MTBE	<6.3	<0.50	<0.50	<0.50	<0.50
Benzene	38	4.0	4.6	2.9	1.3
Toluene	<6.3	1.0	<0.50	<0.50	<0.50
Ethylbenzene	570	75	86	68	14
Xylenes	2,030	133	90	35	5

NW-3I	21-Sept-09	24-May-10	15-Sept-10
TPHg	<50	<50	<50
TBA	<10	<4	<4
MTBE	1.3	1.2	0.85
Benzene	<0.50	<0.50	<0.50
Toluene	0.54	<0.50	<0.50
Ethylbenzene	<0.50	<0.50	<0.50
Xylenes	<0.50	1.7	<1.0

MW-1, SVE-4, AS-4D, AS-4I, EW-1, SVE-2, AS-2D, AS-2I, SVE-3, AS-3D, AS-3I, NW-2S, 2I, 2D, SVE-5, AS-5D, AS-5I, SVMW-2, SVE-1, AS-1D, AS-1I, MW-4, ASMW-2D, ASMW-2I, SVE-6, AS-6D, AS-6I, SVMW-3, ASMW-3D, ASMW-3I, SVMW-5, ASMW-5D, ASMW-5I, SVE-7, AS-7D, AS-7I, SVE-8, AS-8D, AS-8I, SVMW-4, ASMW-4D, ASMW-4I, MW-3, NW-3S, 3I, 3D, MW-2

0 20 FEET

(SCALE: 1" = 20')

1009 66TH AVENUE, OAKLAND, CALIFORNIA

ANALYTICAL RESULTS FOR TPHg AND VOCs IN INTERMEDIATE-ZONE GROUNDWATER SAMPLES

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FIGURE 7

EXPLANATION:

- MW-1 — Monitoring Well
- NW-1 — Nested Monitoring Wells
- AS-4D — Air Injection Well
- ASMW-3I — Air Injection Monitoring Well
- SVE-4 — SVE or SVE Monitoring Well
- Property Line
- LOCATION ID
- Date sample taken

AS-7I	26-May-09
TPHg	<50

- Concentration in micrograms per liter
- Chemical

22-Sept-09 — Denotes sample collected after the soil-vapor extraction air sparging groundwater treatment system began operation in August 13, 2009 and June 16, 2010

25-May-10 — Denotes sample collected after the soil-vapor extraction air sparging groundwater treatment system stopped operation on October 27, 2009 and September 13, 2010

NOTES:

TPHg = total petroleum hydrocarbons as gasoline

TBA = tertiary-butyl alcohol

MTBE = methyl tertiary-butyl ether

"<" = not detected above the laboratory reporting limit given

SVE = soil-vapor extraction

VOCs = volatile organic compounds

NA = not analyzed

APPROXIMATE LIMITS OF 1995 EXCAVATION

APPROXIMATE LIMITS OF 2002 EXCAVATION

APPROXIMATE LOCATION OF FORMER GAS SHED AND 2,000-GALLON GASOLINE UST

NW-2D	13-Mar-09	22-Sept-09	Sept (DUP)	22-Oct-09	28-July-10	14-Sept-10
TPHg	<250	<50	<50	<50	<50	<50
TBA	17,000	<10	<10	<10	<4	<4
MTBE	310	9.8	12	<0.50	<0.50	0.52
Benzene	120	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	<2.5	2.5	1.4	0.80	<0.50	<0.50
Ethylbenzene	<2.5	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes	<2.5	4.1	3.2	<0.50	<1.0	<1.0

AS-2D	22-Sept-09	15-Sept-10	Sept (DUP)
TPHg	<50	<50	<50
TBA	<10	<4	<4
MTBE	13	<0.50	<0.50
Benzene	<0.50	<0.50	<0.50
Toluene	0.8	<0.50	<0.50
Ethylbenzene	<0.50	<0.50	<0.50
Xylenes	<0.50	<1.0	<1.0

AS-3D	14-Sept-10
TPHg	<50
TBA	<4
MTBE	0.71
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes	<1.0

MW-1	13-Mar-09	26-May-09	May (DUP)	14-Sept-10
TPHg	<50	<50	<50	<50
TBA	<10	<10	<10	<10
MTBE	<0.50	<0.50	<0.50	3.4
Benzene	<0.50	<0.50	<0.50	<0.50
Toluene	<0.50	0.67	0.62	0.62
Ethylbenzene	<0.50	<0.50	<0.50	<0.50
Xylenes	<0.50	<0.50	<0.50	<0.50

NW-1D	13-Mar-09
TPHg	<50
TBA	<10
MTBE	1.4
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes	<0.50

AS-4D	14-Sept-10
TPHg	<50
TBA	<4
MTBE	0.92
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes	<1.0

MW-4	23-Sept-09	22-Oct-09	24-May-10	28-July-10	July (DUP)	14-Sept-10
TPHg	250	<50	250	<50	<50	<50
TBA	730	<10	180	<4	<4	<4
MTBE	49	3.7	21	<0.50	<0.50	<0.50
Benzene	51	<0.50	11	<0.50	<0.50	<0.50
Toluene	3.7	1.3	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	8.6	<0.50	3.6	<0.50	<0.50	<0.50
Xylenes	53	<0.50	7.1	<1.0	<1.0	<1.0

ASMW-5D	11-Mar-09	21-Sept-09	22-Oct-09	24-May-10	27-July-10	14-Sept-10
TPHg	87	<50	<50	<250	<50	<50
TBA	1,700	<10	<10	3,900	<4	<4
MTBE	<0.50	72	76	14	2.6	<0.50
Benzene	84	<0.50	<0.50	<2.5	<0.50	<0.50
Toluene	<0.50	2.8	<0.50	<2.5	<0.50	<0.50
Ethylbenzene	5.2	<0.50	<0.50	<2.5	<0.50	<0.50
Xylenes	7.4	<0.50	<0.50	6	<1.0	<1.0

ASMW-3D	11-Mar-09	22-Sept-09	22-Oct-09
TPHg	<50	<50	<50
TBA	34	28	<10
MTBE	91	280	310
Benzene	<0.50	<0.50	<0.50
Toluene	<0.50	1.1	<0.50
Ethylbenzene	<0.50	<0.50	<0.50
Xylenes	<0.50	1.55	<0.50

ASMW-2D	11-Mar-09	21-Sept-09	22-Oct-09	25-May-10
TPHg	<1,300	<360	<50	<50
TBA	1,900	<71	<10	<4
MTBE	1,300	460	1.9	8.3
Benzene	<13	<3.6	<0.50	<0.50
Toluene	<13	<3.6	1.4	<0.50
Ethylbenzene	<13	<3.6	<0.50	<0.50
Xylenes	<13	10.4	4	<1.0

MW-3	13-Mar-09	21-Sept-09
TPHg	<50	<50
TBA	<10	<10
MTBE	<0.50	0.89
Benzene	<0.50	<0.50
Toluene	<0.50	1.1
Ethylbenzene	<0.50	<0.50
Xylenes	0.97	<0.50

ASMW-4D	11-Mar-09	21-Sept-09	22-Oct-09
TPHg	<50	<50	<50
TBA	<10	<10	<10
MTBE	1.4	5.4	6.1
Benzene	<0.50	<0.50	<0.50
Toluene	<0.50	1.5	0.5
Ethylbenzene	<0.50	<0.50	<0.50
Xylenes	<0.50	<0.50	<0.50

MW-2	13-Mar-09	26-May-09	21-Sept-09
TPHg	<50	<50	<50
TBA	<10	<10	<10
MTBE	2.0	3.5	3.4
Benzene	<0.50	<0.50	<0.50
Toluene	<0.50	<0.50	<0.50
Ethylbenzene	<0.50	<0.50	<0.50
Xylenes	<0.50	<0.50	<0.50

NW-3D	21-Sept-09	15-Sept-10
TPHg	<50	<50
TBA	<10	<4
MTBE	1.0	1.2
Benzene	<0.50	<0.50
Toluene	0.67	<0.50
Ethylbenzene	<0.50	<0.50
Xylenes	<0.50	<1.0

MW-1, SVE-4, AS-4D, AS-4I, EW-1, SVE-2, AS-2D, AS-2I, SVE-3, AS-3D, AS-3I, NW-2S, 2I, 2D, SVE-1, AS-1D, AS-1I, SVE-5, AS-5D, AS-5I, SVMW-2, ASMW-2D, ASMW-2I, SVE-6, AS-6D, AS-6I, MW-4, SVMW-5, ASMW-5D, ASMW-5I, NW-1S, 1I, 1D, SVMW-3, ASMW-3D, ASMW-3I, SVE-7, AS-7D, AS-7I, SVE-8, AS-8D, AS-8I, SVMW-4, ASMW-4D, ASMW-4I, MW-3, NW-3S, 3I, 3D, MW-2

0 20 FEET

(SCALE: 1" = 20')

1009 66TH AVENUE, OAKLAND, CALIFORNIA

ANALYTICAL RESULTS FOR TPHg AND VOCs IN DEEP-ZONE GROUNDWATER SAMPLES

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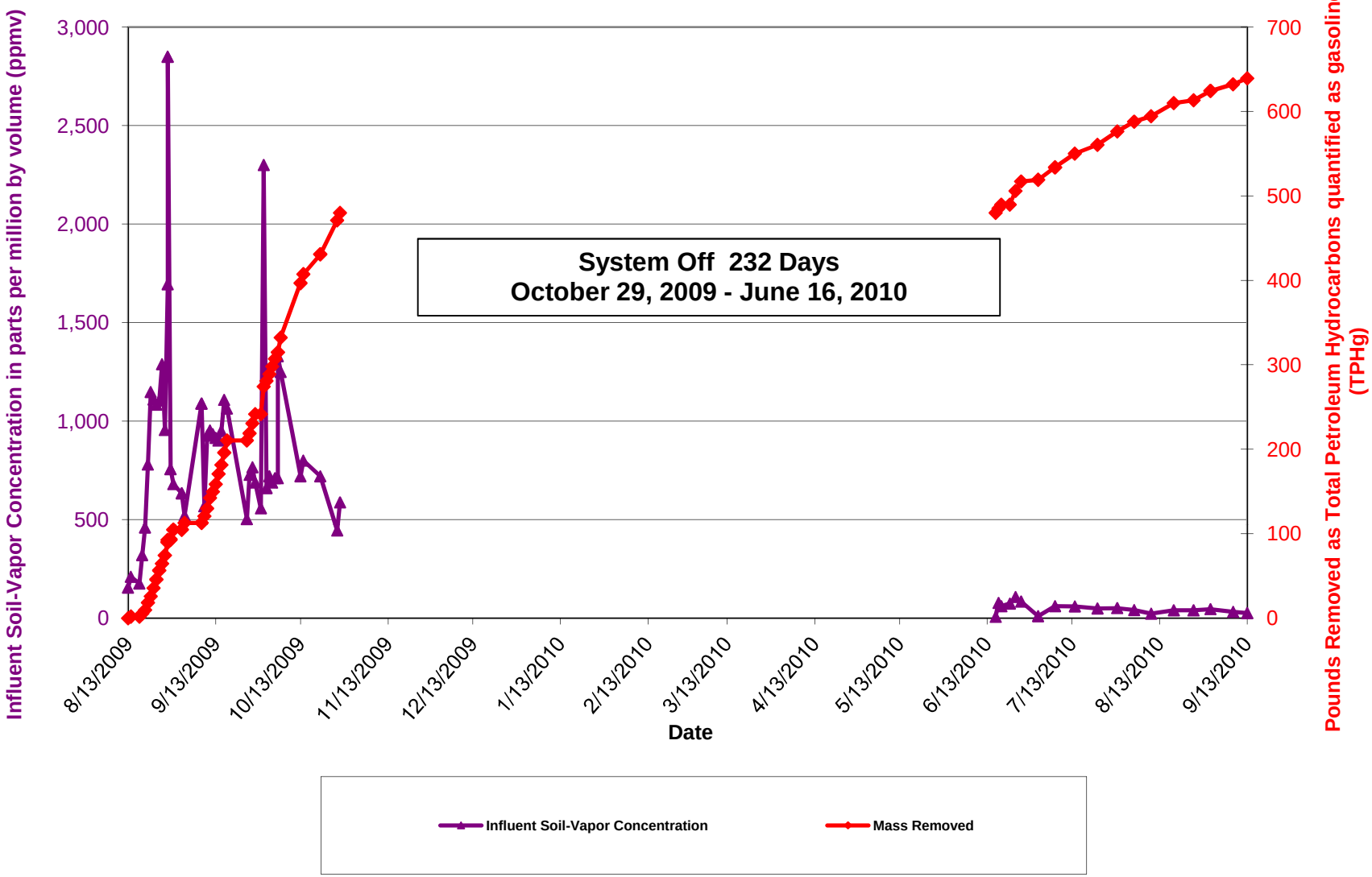
FIGURE 8

Figure 9
Influent Soil-Vapor Concentrations and Mass Removed versus Time



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Appendix A

Laboratory Analytical Reports

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 720-29579-1

Job Description: Aspire Oakland

For:
ARCADIS U.S., Inc Formerly LFR, Inc.
1900 Powell St 12th Floor
Emeryville, CA 94608-1827

Attention: Mr. Ron Goloubow

Approved for release.
Afsaneh Salimpour
Project Manager I
8/4/2010 4:28 PM

Afsaneh Salimpour
Project Manager I
afsaneh.salimpour@testamericainc.com
08/04/2010

CA ELAP Certification # 2496
The Chain(s) of Custody are included and are an integral part of this report.

A trip blank is required to be provided for volatile analyses. If trip blank results are not included in the report, either the trip blank was not submitted or requested to be analyzed.

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

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

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-29579-1	**ASMW-4I**				
Benzene		2.9	0.50	ug/L	8260B/CA_LUFTMS
Ethylbenzene		68	0.50	ug/L	8260B/CA_LUFTMS
Xylenes, Total		35	1.0	ug/L	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C5-C12		940	50	ug/L	8260B/CA_LUFTMS
720-29579-2	**ASMW-5I**				
Methyl tert-butyl ether		1.6	0.50	ug/L	8260B/CA_LUFTMS
Ethylbenzene		0.80	0.50	ug/L	8260B/CA_LUFTMS
Xylenes, Total		20	1.0	ug/L	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C5-C12		110	50	ug/L	8260B/CA_LUFTMS
TBA		28	4.0	ug/L	8260B/CA_LUFTMS
720-29579-3	**ASMW-5D**				
Methyl tert-butyl ether		2.6	0.50	ug/L	8260B/CA_LUFTMS
720-29579-4	**ASMW-2I**				
Methyl tert-butyl ether		20	0.50	ug/L	8260B/CA_LUFTMS
Toluene		0.80	0.50	ug/L	8260B/CA_LUFTMS
Xylenes, Total		4.5	1.0	ug/L	8260B/CA_LUFTMS
720-29579-5	**AS-2I**				
Methyl tert-butyl ether		1200	50	ug/L	8260B/CA_LUFTMS
TBA		8700	400	ug/L	8260B/CA_LUFTMS
720-29579-6	**NW-2I**				
Methyl tert-butyl ether		71	0.50	ug/L	8260B/CA_LUFTMS
Benzene		0.67	0.50	ug/L	8260B/CA_LUFTMS
Xylenes, Total		8.2	1.0	ug/L	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C5-C12		130	50	ug/L	8260B/CA_LUFTMS
TBA		300	4.0	ug/L	8260B/CA_LUFTMS

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-29579-9	**AS-6I**				
Methyl tert-butyl ether		45	0.50	ug/L	8260B/CA_LUFTMS
Ethylbenzene		2.7	0.50	ug/L	8260B/CA_LUFTMS
Toluene		1.9	0.50	ug/L	8260B/CA_LUFTMS
Xylenes, Total		8.1	1.0	ug/L	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C5-C12		58	50	ug/L	8260B/CA_LUFTMS
TBA		450	4.0	ug/L	8260B/CA_LUFTMS
720-29579-11	**NW-2S**				
Methyl tert-butyl ether		34	0.50	ug/L	8260B/CA_LUFTMS
Benzene		34	0.50	ug/L	8260B/CA_LUFTMS
Ethylbenzene		24	0.50	ug/L	8260B/CA_LUFTMS
Toluene		30	0.50	ug/L	8260B/CA_LUFTMS
Xylenes, Total		170	2.0	ug/L	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C5-C12		1000	100	ug/L	8260B/CA_LUFTMS
TBA		100	4.0	ug/L	8260B/CA_LUFTMS

METHOD SUMMARY

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Description	Lab Location	Method	Preparation Method
Matrix Water			
8260B / CA LUFT MS	TAL SF	SW846 8260B/CA_LUFTMS	
Purge and Trap	TAL SF		SW846 5030B

Lab References:

TAL SF = TestAmerica San Francisco

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Method	Analyst	Analyst ID
SW846 8260B/CA_LUFTMS	Chen, Amy	AC
SW846 8260B/CA_LUFTMS	Le, Lien	LL
SW846 8260B/CA_LUFTMS	Nguyen, Thuy M	TMN

SAMPLE SUMMARY

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-29579-1	ASMW-4I	Water	07/27/2010 1255	07/28/2010 1845
720-29579-2	ASMW-5I	Water	07/27/2010 1355	07/28/2010 1845
720-29579-3	ASMW-5D	Water	07/27/2010 1435	07/28/2010 1845
720-29579-4	ASMW-2I	Water	07/27/2010 1600	07/28/2010 1845
720-29579-5	AS-2I	Water	07/28/2010 0805	07/28/2010 1845
720-29579-6	NW-2I	Water	07/28/2010 0955	07/28/2010 1845
720-29579-7	NW-2D	Water	07/28/2010 1035	07/28/2010 1845
720-29579-8	MW-4	Water	07/28/2010 1145	07/28/2010 1845
720-29579-9	AS-6I	Water	07/28/2010 1235	07/28/2010 1845
720-29579-10	MW-4-D	Water	07/28/2010 1150	07/28/2010 1845
720-29579-11	NW-2S	Water	07/28/2010 1325	07/28/2010 1845
720-29579-12TB	Trip Blank	Water	07/28/2010 0000	07/28/2010 1845

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **ASMW-4I**

Lab Sample ID: 720-29579-1 Date Sampled: 07/27/2010 1255
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75451		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	07301015.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	07/30/2010 1615			Final Weight/Volume:	10 mL
Date Prepared:	07/30/2010 1615				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	2.9		0.50
Ethylbenzene	68		0.50
Toluene	ND		0.50
Xylenes, Total	35		1.0
Gasoline Range Organics (GRO)-C5-C12	940		50
TBA	ND		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	104		67 - 130
1,2-Dichloroethane-d4 (Surr)	103		67 - 130
Toluene-d8 (Surr)	96		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **ASMW-5I**

Lab Sample ID: 720-29579-2 Date Sampled: 07/27/2010 1355
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-75514 Instrument ID: HP12
Preparation: 5030B Lab File ID: 10311009.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 07/31/2010 1312 Final Weight/Volume: 10 mL
Date Prepared: 07/31/2010 1312

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	1.6		0.50
Benzene	ND		0.50
Ethylbenzene	0.80		0.50
Toluene	ND		0.50
Xylenes, Total	20		1.0
Gasoline Range Organics (GRO)-C5-C12	110		50
TBA	28		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	99		67 - 130
1,2-Dichloroethane-d4 (Surr)	89		67 - 130
Toluene-d8 (Surr)	99		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **ASMW-5D**

Lab Sample ID: 720-29579-3 Date Sampled: 07/27/2010 1435
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75514		Instrument ID:	HP12
Preparation:	5030B			Lab File ID:	10311010.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1343			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1343				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	2.6		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	99		67 - 130
1,2-Dichloroethane-d4 (Surr)	94		67 - 130
Toluene-d8 (Surr)	100		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **ASMW-2I**

Lab Sample ID: 720-29579-4 Date Sampled: 07/27/2010 1600
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75513		Instrument ID:	CHMSV2
Preparation:	5030B			Lab File ID:	07311009.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1314			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1314				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	20		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	0.80		0.50
Xylenes, Total	4.5		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	96		67 - 130
1,2-Dichloroethane-d4 (Surr)	97		67 - 130
Toluene-d8 (Surr)	96		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **AS-2I**

Lab Sample ID: 720-29579-5 Date Sampled: 07/28/2010 0805
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-75451 Instrument ID: HP9
Preparation: 5030B Lab File ID: 07301019.D
Dilution: 100 Initial Weight/Volume: 10 mL
Date Analyzed: 07/30/2010 1823 Final Weight/Volume: 10 mL
Date Prepared: 07/30/2010 1823

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	1200		50
Benzene	ND		50
Ethylbenzene	ND		50
Toluene	ND		50
Xylenes, Total	ND		100
Gasoline Range Organics (GRO)-C5-C12	ND		5000
TBA	8700		400

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	87		67 - 130
1,2-Dichloroethane-d4 (Surr)	103		67 - 130
Toluene-d8 (Surr)	90		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **NW-2I**

Lab Sample ID: 720-29579-6 Date Sampled: 07/28/2010 0955
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75513	Instrument ID:	CHMSV2
Preparation:	5030B		Lab File ID:	07311010.D
Dilution:	1.0		Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1346		Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1346			

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	71		0.50
Benzene	0.67		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	8.2		1.0
Gasoline Range Organics (GRO)-C5-C12	130		50
TBA	300		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	96		67 - 130
1,2-Dichloroethane-d4 (Surr)	98		67 - 130
Toluene-d8 (Surr)	97		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **NW-2D**

Lab Sample ID: 720-29579-7 Date Sampled: 07/28/2010 1035
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75539		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	08021013.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1559			Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1559				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	93		67 - 130
1,2-Dichloroethane-d4 (Surr)	101		67 - 130
Toluene-d8 (Surr)	92		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **MW-4**

Lab Sample ID: 720-29579-8 Date Sampled: 07/28/2010 1145
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75539		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	08021009.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1350			Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1350				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	93		67 - 130
1,2-Dichloroethane-d4 (Surr)	97		67 - 130
Toluene-d8 (Surr)	94		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **AS-6I**

Lab Sample ID: 720-29579-9 Date Sampled: 07/28/2010 1235
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75539	Instrument ID:	HP9
Preparation:	5030B		Lab File ID:	08021010.D
Dilution:	1.0		Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1422		Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1422			

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	45		0.50
Benzene	ND		0.50
Ethylbenzene	2.7		0.50
Toluene	1.9		0.50
Xylenes, Total	8.1		1.0
Gasoline Range Organics (GRO)-C5-C12	58		50
TBA	450		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	101		67 - 130
1,2-Dichloroethane-d4 (Surr)	102		67 - 130
Toluene-d8 (Surr)	95		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **MW-4-D**

Lab Sample ID: 720-29579-10 Date Sampled: 07/28/2010 1150
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75539		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	08021014.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1631			Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1631				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	92		67 - 130
1,2-Dichloroethane-d4 (Surr)	103		67 - 130
Toluene-d8 (Surr)	91		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **NW-2S**

Lab Sample ID: 720-29579-11 Date Sampled: 07/28/2010 1325
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75539		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	08021015.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1703			Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1703				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	34		0.50
Benzene	34		0.50
Ethylbenzene	24		0.50
Toluene	30		0.50
TBA	100		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	98		67 - 130
1,2-Dichloroethane-d4 (Surr)	104		67 - 130
Toluene-d8 (Surr)	96		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **NW-2S**

Lab Sample ID: 720-29579-11 Date Sampled: 07/28/2010 1325
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75607		Instrument ID:	HP5
Preparation:	5030B			Lab File ID:	080310016.D
Dilution:	2.0			Initial Weight/Volume:	10 mL
Date Analyzed:	08/03/2010 1727			Final Weight/Volume:	10 mL
Date Prepared:	08/03/2010 1727				

Analyte	Result (ug/L)	Qualifier	RL
Xylenes, Total	170		2.0
Gasoline Range Organics (GRO)-C5-C12	1000		100

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	100		67 - 130
1,2-Dichloroethane-d4 (Surr)	100		67 - 130
Toluene-d8 (Surr)	94		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Client Sample ID: **Trip Blank**

Lab Sample ID: 720-29579-12TB Date Sampled: 07/28/2010 0000
Client Matrix: Water Date Received: 07/28/2010 1845

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-75451		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	07301011.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	07/30/2010 1406			Final Weight/Volume:	10 mL
Date Prepared:	07/30/2010 1406				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	89		67 - 130
1,2-Dichloroethane-d4 (Surr)	101		67 - 130
Toluene-d8 (Surr)	91		70 - 130

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-75451					
LCS 720-75451/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-75451/8	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-75451/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-75451/9	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-75451/7	Method Blank	T	Water	8260B/CA_LUFT	
720-29579-1	ASMW-4I	T	Water	8260B/CA_LUFT	
720-29579-1MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-29579-1MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	
720-29579-5	AS-2I	T	Water	8260B/CA_LUFT	
720-29579-12TB	Trip Blank	T	Water	8260B/CA_LUFT	
Analysis Batch:720-75513					
LCS 720-75513/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-75513/7	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-75513/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-75513/8	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-75513/4	Method Blank	T	Water	8260B/CA_LUFT	
720-29571-A-15 MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-29571-A-15 MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	
720-29579-4	ASMW-2I	T	Water	8260B/CA_LUFT	
720-29579-6	NW-2I	T	Water	8260B/CA_LUFT	
Analysis Batch:720-75514					
LCS 720-75514/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-75514/7	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-75514/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-75514/8	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-75514/4	Method Blank	T	Water	8260B/CA_LUFT	
720-29579-2	ASMW-5I	T	Water	8260B/CA_LUFT	
720-29579-3	ASMW-5D	T	Water	8260B/CA_LUFT	
720-29585-A-5 MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-29585-A-5 MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-75539					
LCS 720-75539/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-75539/7	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-75539/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-75539/8	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-75539/4	Method Blank	T	Water	8260B/CA_LUFT	
720-29579-7	NW-2D	T	Water	8260B/CA_LUFT	
720-29579-8	MW-4	T	Water	8260B/CA_LUFT	
720-29579-9	AS-6I	T	Water	8260B/CA_LUFT	
720-29579-9MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-29579-9MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	
720-29579-10	MW-4-D	T	Water	8260B/CA_LUFT	
720-29579-11	NW-2S	T	Water	8260B/CA_LUFT	
Analysis Batch:720-75607					
LCS 720-75607/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-75607/7	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-75607/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-75607/8	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-75607/4	Method Blank	T	Water	8260B/CA_LUFT	
720-29579-11	NW-2S	T	Water	8260B/CA_LUFT	
720-29629-M-3 MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-29629-A-3 MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	

Report Basis
T = Total

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Method Blank - Batch: 720-75451

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID:	MB 720-75451/7	Analysis Batch:	720-75451	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07301006.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/30/2010 1104			Final Weight/Volume:	10 mL
Date Prepared:	07/30/2010 1104				

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
m-Xylene & p-Xylene	ND		1.0
o-Xylene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	90	67 - 130
1,2-Dichloroethane-d4 (Surr)	103	67 - 130
Toluene-d8 (Surr)	91	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-75451

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-75451/5	Analysis Batch:	720-75451	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07301007.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/30/2010 1148			Final Weight/Volume:	10 mL
Date Prepared:	07/30/2010 1148				

LCSD Lab Sample ID:	LCSD 720-75451/6	Analysis Batch:	720-75451	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07301008.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/30/2010 1220			Final Weight/Volume:	10 mL
Date Prepared:	07/30/2010 1220				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	101	105	62 - 130	3	20		
Benzene	96	96	82 - 127	0	20		
Ethylbenzene	109	108	86 - 135	1	20		
Toluene	96	95	83 - 129	1	20		
m-Xylene & p-Xylene	109	108	70 - 142	1	20		
o-Xylene	107	107	89 - 136	1	20		
TBA	104	102	82 - 116	2	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	103	104	67 - 130
1,2-Dichloroethane-d4 (Surr)	97	101	67 - 130
Toluene-d8 (Surr)	96	97	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-75451

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-75451/8	Analysis Batch:	720-75451	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07301009.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/30/2010 1252			Final Weight/Volume:	10 mL
Date Prepared:	07/30/2010 1252				

LCSD Lab Sample ID:	LCSD 720-75451/9	Analysis Batch:	720-75451	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07301010.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/30/2010 1324			Final Weight/Volume:	10 mL
Date Prepared:	07/30/2010 1324				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	93	78	59 - 111	18	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	101	100	67 - 130
1,2-Dichloroethane-d4 (Surr)	108	100	67 - 130
Toluene-d8 (Surr)	98	97	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-75451

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-29579-1	Analysis Batch:	720-75451	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07301013.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	07/30/2010 1510			Final Weight/Volume:	10 mL
Date Prepared:	07/30/2010 1510				

MSD Lab Sample ID:	720-29579-1	Analysis Batch:	720-75451	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07301014.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	07/30/2010 1543			Final Weight/Volume:	10 mL
Date Prepared:	07/30/2010 1543				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	105	110	60 - 138	4	20		
Benzene	101	98	60 - 140	3	20		
Ethylbenzene	103	76	60 - 140	7	20		
Toluene	98	96	60 - 140	2	20		
m-Xylene & p-Xylene	113	103	60 - 140	6	20		
o-Xylene	112	108	60 - 140	3	20		
TBA	107	104	60 - 140	3	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	103	105	67 - 130
1,2-Dichloroethane-d4 (Surr)	100	102	67 - 130
Toluene-d8 (Surr)	97	97	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Method Blank - Batch: 720-75513

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-75513/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 07/31/2010 1001
Date Prepared: 07/31/2010 1001

Analysis Batch: 720-75513
Prep Batch: N/A
Units: ug/L

Instrument ID: CHMSV2
Lab File ID: 07311004.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
m-Xylene & p-Xylene	ND		1.0
o-Xylene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	93	67 - 130
1,2-Dichloroethane-d4 (Surr)	96	67 - 130
Toluene-d8 (Surr)	97	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-75513

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-75513/5	Analysis Batch:	720-75513	Instrument ID:	CHMSV2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07311005.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1047			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1047				

LCSD Lab Sample ID:	LCSD 720-75513/6	Analysis Batch:	720-75513	Instrument ID:	CHMSV2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07311006.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1120			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1120				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	104	103	62 - 130	1	20		
Benzene	89	91	82 - 127	2	20		
Ethylbenzene	101	103	86 - 135	1	20		
Toluene	90	90	83 - 129	1	20		
m-Xylene & p-Xylene	104	106	70 - 142	2	20		
o-Xylene	99	101	89 - 136	2	20		
TBA	93	95	82 - 116	2	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	100	99	67 - 130
1,2-Dichloroethane-d4 (Surr)	91	91	67 - 130
Toluene-d8 (Surr)	99	99	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-75513

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-75513/7	Analysis Batch:	720-75513	Instrument ID:	CHMSV2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07311007.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1152			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1152				

LCSD Lab Sample ID:	LCSD 720-75513/8	Analysis Batch:	720-75513	Instrument ID:	CHMSV2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	07311008.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1224			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1224				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	88	86	59 - 111	2	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	98	98	67 - 130
1,2-Dichloroethane-d4 (Surr)	94	94	67 - 130
Toluene-d8 (Surr)	99	99	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-75513

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-29571-A-15 MS	Analysis Batch: 720-75513	Instrument ID: CHMSV2
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: 07311016.D
Dilution:	1.0		Initial Weight/Volume: 10 mL
Date Analyzed:	07/31/2010 1701		Final Weight/Volume: 10 mL
Date Prepared:	07/31/2010 1701		

MSD Lab Sample ID:	720-29571-A-15 MSD	Analysis Batch: 720-75513	Instrument ID: CHMSV2
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: 07311017.D
Dilution:	1.0		Initial Weight/Volume: 10 mL
Date Analyzed:	07/31/2010 1733		Final Weight/Volume: 10 mL
Date Prepared:	07/31/2010 1733		

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	102	105	60 - 138	3	20		
Benzene	90	90	60 - 140	1	20		
Ethylbenzene	103	102	60 - 140	1	20		
Toluene	90	89	60 - 140	1	20		
m-Xylene & p-Xylene	106	105	60 - 140	1	20		
o-Xylene	102	101	60 - 140	1	20		
TBA	96	95	60 - 140	2	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	101	101	67 - 130
1,2-Dichloroethane-d4 (Surr)	97	97	67 - 130
Toluene-d8 (Surr)	99	99	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Method Blank - Batch: 720-75514

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID:	MB 720-75514/4	Analysis Batch:	720-75514	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	10311004.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 0957			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 0957				

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
m-Xylene & p-Xylene	ND		1.0
o-Xylene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	98	67 - 130
1,2-Dichloroethane-d4 (Surr)	95	67 - 130
Toluene-d8 (Surr)	99	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-75514

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-75514/5	Analysis Batch:	720-75514	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	10311005.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1043			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1043				

LCSD Lab Sample ID:	LCSD 720-75514/6	Analysis Batch:	720-75514	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	10311006.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1114			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1114				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	97	89	62 - 130	8	20		
Benzene	99	97	82 - 127	2	20		
Ethylbenzene	103	101	86 - 135	2	20		
Toluene	96	94	83 - 129	2	20		
m-Xylene & p-Xylene	99	98	70 - 142	2	20		
o-Xylene	99	97	89 - 136	2	20		
TBA	95	94	82 - 116	1	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	101	101	67 - 130
1,2-Dichloroethane-d4 (Surr)	91	89	67 - 130
Toluene-d8 (Surr)	101	101	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-75514

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-75514/7	Analysis Batch:	720-75514	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	10311007.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1145			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1145				

LCSD Lab Sample ID:	LCSD 720-75514/8	Analysis Batch:	720-75514	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	10311008.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1216			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1216				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	103	103	59 - 111	0	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	99	101	67 - 130
1,2-Dichloroethane-d4 (Surr)	93	92	67 - 130
Toluene-d8 (Surr)	101	101	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-75514

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-29585-A-5 MS	Analysis Batch:	720-75514	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	10311016.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1649			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1649				

MSD Lab Sample ID:	720-29585-A-5 MSD	Analysis Batch:	720-75514	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	10311017.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	07/31/2010 1719			Final Weight/Volume:	10 mL
Date Prepared:	07/31/2010 1719				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	101	103	60 - 138	2	20		
Benzene	102	102	60 - 140	0	20		
Ethylbenzene	103	103	60 - 140	0	20		
Toluene	96	96	60 - 140	0	20		
m-Xylene & p-Xylene	99	99	60 - 140	0	20		
o-Xylene	100	99	60 - 140	1	20		
TBA	97	94	60 - 140	2	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	101	101	67 - 130
1,2-Dichloroethane-d4 (Surr)	94	97	67 - 130
Toluene-d8 (Surr)	99	101	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Method Blank - Batch: 720-75539

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-75539/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/02/2010 1035
Date Prepared: 08/02/2010 1035

Analysis Batch: 720-75539
Prep Batch: N/A
Units: ug/L

Instrument ID: HP9
Lab File ID: 08021004.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
m-Xylene & p-Xylene	ND		1.0
o-Xylene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	92	67 - 130
1,2-Dichloroethane-d4 (Surr)	99	67 - 130
Toluene-d8 (Surr)	93	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-75539

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-75539/5	Analysis Batch:	720-75539	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	08021005.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1121			Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1121				

LCSD Lab Sample ID:	LCSD 720-75539/6	Analysis Batch:	720-75539	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	08021006.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1153			Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1153				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	106	104	62 - 130	2	20		
Benzene	97	97	82 - 127	0	20		
Ethylbenzene	109	110	86 - 135	0	20		
Toluene	96	97	83 - 129	0	20		
m-Xylene & p-Xylene	109	110	70 - 142	0	20		
o-Xylene	108	109	89 - 136	1	20		
TBA	101	104	82 - 116	2	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	103	103	67 - 130
1,2-Dichloroethane-d4 (Surr)	98	95	67 - 130
Toluene-d8 (Surr)	97	96	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-75539

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-75539/7	Analysis Batch:	720-75539	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	08021007.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1224			Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1224				

LCSD Lab Sample ID:	LCSD 720-75539/8	Analysis Batch:	720-75539	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	08021008.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1256			Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1256				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	77	77	59 - 111	0	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	100	102	67 - 130
1,2-Dichloroethane-d4 (Surr)	99	100	67 - 130
Toluene-d8 (Surr)	97	98	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-75539

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-29579-9	Analysis Batch:	720-75539	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	08021011.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1454			Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1454				

MSD Lab Sample ID:	720-29579-9	Analysis Batch:	720-75539	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	08021012.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	08/02/2010 1527			Final Weight/Volume:	10 mL
Date Prepared:	08/02/2010 1527				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	96	101	60 - 138	2	20		
Benzene	93	94	60 - 140	0	20		
Ethylbenzene	106	106	60 - 140	0	20		
Toluene	92	92	60 - 140	1	20		
m-Xylene & p-Xylene	105	105	60 - 140	0	20		
o-Xylene	105	105	60 - 140	1	20		
TBA	110	108	60 - 140	1	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	103	105	67 - 130
1,2-Dichloroethane-d4 (Surr)	97	97	67 - 130
Toluene-d8 (Surr)	97	96	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Method Blank - Batch: 720-75607

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-75607/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/03/2010 1028
Date Prepared: 08/03/2010 1028

Analysis Batch: 720-75607
Prep Batch: N/A
Units: ug/L

Instrument ID: HP5
Lab File ID: 080310004.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
m-Xylene & p-Xylene	ND		1.0
o-Xylene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	96	67 - 130
1,2-Dichloroethane-d4 (Surr)	100	67 - 130
Toluene-d8 (Surr)	94	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-75607

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-75607/5	Analysis Batch:	720-75607	Instrument ID:	HP5
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	080310005.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	08/03/2010 1114			Final Weight/Volume:	10 mL
Date Prepared:	08/03/2010 1114				

LCSD Lab Sample ID:	LCSD 720-75607/6	Analysis Batch:	720-75607	Instrument ID:	HP5
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	080310006.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	08/03/2010 1147			Final Weight/Volume:	10 mL
Date Prepared:	08/03/2010 1147				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	107	107	62 - 130	0	20		
Benzene	104	103	82 - 127	0	20		
Ethylbenzene	110	110	86 - 135	0	20		
Toluene	106	106	83 - 129	0	20		
m-Xylene & p-Xylene	108	109	70 - 142	1	20		
o-Xylene	111	111	89 - 136	1	20		
TBA	99	100	82 - 116	0	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	99	99	67 - 130
1,2-Dichloroethane-d4 (Surr)	97	95	67 - 130
Toluene-d8 (Surr)	97	95	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-29579-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-75607

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-75607/7	Analysis Batch:	720-75607	Instrument ID:	HP5
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	080310007.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	08/03/2010 1219			Final Weight/Volume:	10 mL
Date Prepared:	08/03/2010 1219				

LCSD Lab Sample ID:	LCSD 720-75607/8	Analysis Batch:	720-75607	Instrument ID:	HP5
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	080310008.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	08/03/2010 1252			Final Weight/Volume:	10 mL
Date Prepared:	08/03/2010 1252				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	106	104	59 - 111	2	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	101	100	67 - 130
1,2-Dichloroethane-d4 (Surr)	99	99	67 - 130
Toluene-d8 (Surr)	95	95	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-75607

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-29629-M-3 MS	Analysis Batch: 720-75607	Instrument ID: HP5
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: 080310012.D
Dilution:	1.0		Initial Weight/Volume: 10 mL
Date Analyzed:	08/03/2010 1516		Final Weight/Volume: 10 mL
Date Prepared:	08/03/2010 1516		

MSD Lab Sample ID:	720-29629-A-3 MSD	Analysis Batch: 720-75607	Instrument ID: HP5
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: 080310013.D
Dilution:	1.0		Initial Weight/Volume: 10 mL
Date Analyzed:	08/03/2010 1549		Final Weight/Volume: 10 mL
Date Prepared:	08/03/2010 1549		

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	112	111	60 - 138	0	20		
Benzene	106	105	60 - 140	1	20		
Ethylbenzene	110	110	60 - 140	0	20		
Toluene	107	106	60 - 140	1	20		
m-Xylene & p-Xylene	109	109	60 - 140	1	20		
o-Xylene	112	112	60 - 140	0	20		
TBA	100	99	60 - 140	1	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	100	100	67 - 130
1,2-Dichloroethane-d4 (Surr)	98	98	67 - 130
Toluene-d8 (Surr)	95	96	70 - 130

720-29579

125925

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

SAMPLE COLLECTOR:
LFR
1900 Powell Street, 12th Floor
Emeryville, California 94608
(510) 652-4500 Fax: (510) 652-2246

PROJECT NO.: EM009155.0010 | SECTION NO.: 00002 | DATE: 7/28/10 | SAMPLER'S INITIALS: MD | SERIAL Nº 5476

PROJECT NAME: Aspire | SAMPLER (Signature): Dragan Milj

08/04/2010

Page 44 of 45

	SAMPLE ID.	DATE	TIME	Lab Sample No.	No. of Containers	TYPE: Soil	TYPE: Water	TPHd (EPA 8015M)	TPHmo (EPA 8015M)	TPHg (EPA 8015M)	BTEX (EPA 8021/602)	VOCs (EPA 8260/624)	Metals (EPA 6010/7000)	MTBE	TBA	TAT: Standard	TAT: RUSH:	TAT: HOLD	REMARKS
1	ASMW-4I	7/27/10	1255		3		X			X	X			X	X		X		
2	ASMW-5I	↓	1355		3		↓			↓	↓			↓	↓		↓		
3	ASMW-5D		1435		3														
4	ASMW-2I	↓	1600		3														
5	AS-2I	7/28/10	0805		3														
6	NW-2I		0955		3														
7	NW-2D		1035		3														
8	MW-4		1145		3														
9	AS-6I		1235		3														
10	MW-4-D		1150		3														
11	NW-2S		1325		3														
12	Trip blank	↓	—		2		↓			↓	↓			↓	↓		↓		

*VOCs: ☐ 8260 List ☐ 8240 List ☐ 8010 List ☐ 624 List
**Metals: ☐ CAM17 ☐ RCRA ☐ LUFT

SAMPLE RECEIPT: ☐ Intact ☒ Cold ☒ On Ice ☐ Ambient | Cooler Temp: | Cooler No:
Preservative Correct? ☐ Yes ☐ No ☐ N/A

METHOD OF SHIPMENT: Currier
LAB REPORT NO.:
FAX COC CONFIRMATION TO: Ron Goloubow

ANALYTICAL LABORATORY: Test 4.5°C America

FAX RESULTS TO: Ron Goloubow
SEND HARDCOPY TO: Ron Goloubow
SEND EDD TO: EMV.LABEDDS.COM

RELINQUISHED BY: 1
(SIGNATURE) Dragan Milj (DATE) 7/28/10
(PRINTED NAME) Miljan Draganic (TIME) 1450
(COMPANY) ARCADIS

RECEIVED BY:
(SIGNATURE) Ed Martinez (DATE) 7-28-10
(PRINTED NAME) Ed Martinez (TIME) 1450
(COMPANY) TPSF

RELINQUISHED BY: 2
(SIGNATURE) Ed Martinez (DATE) 7-28-10
(PRINTED NAME) Ed Martinez (TIME) 1845
(COMPANY)

RECEIVED BY: 2
(SIGNATURE) (DATE) 7/28/10
(PRINTED NAME) (TIME) 1845
(COMPANY) TPSF

RELINQUISHED BY: 3
(SIGNATURE) (DATE)
(PRINTED NAME) (TIME)
(COMPANY)

RECEIVED BY (LABORATORY): 3
(SIGNATURE) (DATE)
(PRINTED NAME) (TIME)
(COMPANY)

Shipping Copy (White) File Copy (Yellow) Field Copy (Pink)

Login Sample Receipt Check List

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-29579-1

Login Number: 29579

List Source: TestAmerica San Francisco

Creator: Hoang, Julie

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 720-30488-1

Job Description: Aspire School

For:
ARCADIS U.S., Inc Formerly LFR, Inc.
1900 Powell St 12th Floor
Emeryville, CA 94608-1827

Attention: Mr. Ron Goloubow

Approved for release.
Afsaneh Salimpour
Project Manager I
9/21/2010 3:14 PM

Afsaneh Salimpour
Project Manager I
afsaneh.salimpour@testamericainc.com
09/21/2010

CA ELAP Certification # 2496
The Chain(s) of Custody are included and are an integral part of this report.

A trip blank is required to be provided for volatile analyses. If trip blank results are not included in the report, either the trip blank was not submitted or requested to be analyzed.

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

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

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-30488-1	**AS-3I**				
Methyl tert-butyl ether		530	5.0	ug/L	8260B/CA_LUFTMS
Xylenes, Total		14	1.0	ug/L	8260B/CA_LUFTMS
TBA		6.5	4.0	ug/L	8260B/CA_LUFTMS
720-30488-2	**AS-4D**				
Methyl tert-butyl ether		0.92	0.50	ug/L	8260B/CA_LUFTMS
720-30488-4	**AS-6I**				
Methyl tert-butyl ether		8.6	0.50	ug/L	8260B/CA_LUFTMS
Ethylbenzene		1.1	0.50	ug/L	8260B/CA_LUFTMS
TBA		57	4.0	ug/L	8260B/CA_LUFTMS
720-30488-5	**ASMW-2I**				
Methyl tert-butyl ether		0.51	0.50	ug/L	8260B/CA_LUFTMS
720-30488-6	**ASMW-4I**				
Benzene		1.3	0.50	ug/L	8260B/CA_LUFTMS
Ethylbenzene		14	0.50	ug/L	8260B/CA_LUFTMS
Xylenes, Total		5.0	1.0	ug/L	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C5-C12		460	50	ug/L	8260B/CA_LUFTMS
720-30488-10	**NW-2D**				
Methyl tert-butyl ether		0.52	0.50	ug/L	8260B/CA_LUFTMS
720-30488-11	**NW-2I**				
Ethylbenzene		0.60	0.50	ug/L	8260B/CA_LUFTMS
Xylenes, Total		4.8	1.0	ug/L	8260B/CA_LUFTMS
TBA		6.0	4.0	ug/L	8260B/CA_LUFTMS
720-30488-12	**NW-2S**				
Xylenes, Total		2.1	1.0	ug/L	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C5-C12		69	50	ug/L	8260B/CA_LUFTMS

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-30488-13	**DUP-1**				
Methyl tert-butyl ether		10	0.50	ug/L	8260B/CA_LUFTMS
Ethylbenzene		1.2	0.50	ug/L	8260B/CA_LUFTMS
TBA		63	4.0	ug/L	8260B/CA_LUFTMS
720-30488-15	**AS-3D**				
Methyl tert-butyl ether		0.71	0.50	ug/L	8260B/CA_LUFTMS

METHOD SUMMARY

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Description	Lab Location	Method	Preparation Method
Matrix Water			
8260B / CA LUFT MS	TAL SF	SW846 8260B/CA_LUFTMS	
Purge and Trap	TAL SF		SW846 5030B

Lab References:

TAL SF = TestAmerica San Francisco

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Method	Analyst	Analyst ID
SW846 8260B/CA_LUFTMS	Chen, Amy	AC
SW846 8260B/CA_LUFTMS	Le, Lien	LL
SW846 8260B/CA_LUFTMS	Nguyen, Thuy M	TMN

SAMPLE SUMMARY

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-30488-1	AS-3I	Water	09/14/2010 1500	09/14/2010 1730
720-30488-2	AS-4D	Water	09/14/2010 1018	09/14/2010 1730
720-30488-3	AS-4I	Water	09/14/2010 1110	09/14/2010 1730
720-30488-4	AS-6I	Water	09/14/2010 0848	09/14/2010 1730
720-30488-5	ASMW-2I	Water	09/14/2010 1246	09/14/2010 1730
720-30488-6	ASMW-4I	Water	09/14/2010 1439	09/14/2010 1730
720-30488-7	ASMW-5D	Water	09/14/2010 0840	09/14/2010 1730
720-30488-8	ASMW-5I	Water	09/14/2010 0920	09/14/2010 1730
720-30488-9	MW-4	Water	09/14/2010 0938	09/14/2010 1730
720-30488-10	NW-2D	Water	09/14/2010 1148	09/14/2010 1730
720-30488-11	NW-2I	Water	09/14/2010 1025	09/14/2010 1730
720-30488-12	NW-2S	Water	09/14/2010 1101	09/14/2010 1730
720-30488-13	DUP-1	Water	09/14/2010 0000	09/14/2010 1730
720-30488-15	AS-3D	Water	09/14/2010 1600	09/14/2010 1730

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **AS-3I**

Lab Sample ID: 720-30488-1 Date Sampled: 09/14/2010 1500
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78061		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	09151031.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/15/2010 2345			Final Weight/Volume:	10 mL
Date Prepared:	09/15/2010 2345				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	14		1.0
TBA	6.5		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	99		67 - 130
1,2-Dichloroethane-d4 (Surr)	99		67 - 130
Toluene-d8 (Surr)	93		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **AS-3I**

Lab Sample ID: 720-30488-1 Date Sampled: 09/14/2010 1500
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78229		Instrument ID:	HP12
Preparation:	5030B			Lab File ID:	09181016.D
Dilution:	10			Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1834			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1834				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	530		5.0
Gasoline Range Organics (GRO)-C5-C12	ND		500

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	98		67 - 130
1,2-Dichloroethane-d4 (Surr)	125		67 - 130
Toluene-d8 (Surr)	96		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **AS-4D**

Lab Sample ID: 720-30488-2 Date Sampled: 09/14/2010 1018
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78061		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	09151032.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 0018			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 0018				

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	92		67 - 130
1,2-Dichloroethane-d4 (Surr)	96		67 - 130
Toluene-d8 (Surr)	92		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **AS-4D**

Lab Sample ID: 720-30488-2 Date Sampled: 09/14/2010 1018
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78160		Instrument ID:	HP4
Preparation:	5030B			Lab File ID:	091710012.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 1427			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 1427				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	0.92		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	78		67 - 130
1,2-Dichloroethane-d4 (Surr)	94		67 - 130
Toluene-d8 (Surr)	71		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **AS-4I**

Lab Sample ID: 720-30488-3 Date Sampled: 09/14/2010 1110
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78160	Instrument ID:	HP4
Preparation:	5030B		Lab File ID:	091710013.D
Dilution:	1.0		Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 1459		Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 1459			

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	76		67 - 130
1,2-Dichloroethane-d4 (Surr)	97		67 - 130
Toluene-d8 (Surr)	75		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **AS-6I**

Lab Sample ID: 720-30488-4 Date Sampled: 09/14/2010 0848
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78061 Instrument ID: HP9
Preparation: 5030B Lab File ID: 09151036.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/16/2010 0226 Final Weight/Volume: 10 mL
Date Prepared: 09/16/2010 0226

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	8.6		0.50
Benzene	ND		0.50
Ethylbenzene	1.1		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	57		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	94		67 - 130
1,2-Dichloroethane-d4 (Surr)	96		67 - 130
Toluene-d8 (Surr)	92		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **ASMW-2I**

Lab Sample ID: 720-30488-5 Date Sampled: 09/14/2010 1246
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78061 Instrument ID: HP9
Preparation: 5030B Lab File ID: 09151037.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/16/2010 0259 Final Weight/Volume: 10 mL
Date Prepared: 09/16/2010 0259

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	0.51		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	91		67 - 130
1,2-Dichloroethane-d4 (Surr)	96		67 - 130
Toluene-d8 (Surr)	92		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **ASMW-4I**

Lab Sample ID: 720-30488-6 Date Sampled: 09/14/2010 1439
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78061		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	09151038.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 0331			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 0331				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	1.3		0.50
Ethylbenzene	14		0.50
Toluene	ND		0.50
Xylenes, Total	5.0		1.0
Gasoline Range Organics (GRO)-C5-C12	460		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	99		67 - 130
1,2-Dichloroethane-d4 (Surr)	97		67 - 130
Toluene-d8 (Surr)	95		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **ASMW-5D**

Lab Sample ID: 720-30488-7 Date Sampled: 09/14/2010 0840
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78061		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	09151039.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 0403			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 0403				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	93		67 - 130
1,2-Dichloroethane-d4 (Surr)	98		67 - 130
Toluene-d8 (Surr)	92		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **ASMW-5I**

Lab Sample ID: 720-30488-8 Date Sampled: 09/14/2010 0920
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78061 Instrument ID: HP9
Preparation: 5030B Lab File ID: 09151040.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/16/2010 0435 Final Weight/Volume: 10 mL
Date Prepared: 09/16/2010 0435

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	93		67 - 130
1,2-Dichloroethane-d4 (Surr)	100		67 - 130
Toluene-d8 (Surr)	93		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **MW-4**

Lab Sample ID: 720-30488-9 Date Sampled: 09/14/2010 0938
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78061 Instrument ID: HP9
Preparation: 5030B Lab File ID: 09151041.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/16/2010 0508 Final Weight/Volume: 10 mL
Date Prepared: 09/16/2010 0508

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	89		67 - 130
1,2-Dichloroethane-d4 (Surr)	96		67 - 130
Toluene-d8 (Surr)	92		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **NW-2D**

Lab Sample ID: 720-30488-10 Date Sampled: 09/14/2010 1148
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78061 Instrument ID: HP9
Preparation: 5030B Lab File ID: 09151042.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/16/2010 0540 Final Weight/Volume: 10 mL
Date Prepared: 09/16/2010 0540

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	0.52		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	90		67 - 130
1,2-Dichloroethane-d4 (Surr)	99		67 - 130
Toluene-d8 (Surr)	91		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **NW-2I**

Lab Sample ID: 720-30488-11 Date Sampled: 09/14/2010 1025
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78061		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	09151043.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 0612			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 0612				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	0.60		0.50
Toluene	ND		0.50
Xylenes, Total	4.8		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	6.0		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	93		67 - 130
1,2-Dichloroethane-d4 (Surr)	101		67 - 130
Toluene-d8 (Surr)	93		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **NW-2S**

Lab Sample ID: 720-30488-12 Date Sampled: 09/14/2010 1101
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78160 Instrument ID: HP4
Preparation: 5030B Lab File ID: 091710014.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/17/2010 1531 Final Weight/Volume: 10 mL
Date Prepared: 09/17/2010 1531

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	2.1		1.0
Gasoline Range Organics (GRO)-C5-C12	69		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	88		67 - 130
1,2-Dichloroethane-d4 (Surr)	103		67 - 130
Toluene-d8 (Surr)	76		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **DUP-1**

Lab Sample ID: 720-30488-13 Date Sampled: 09/14/2010 0000
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78061		Instrument ID:	HP9
Preparation:	5030B			Lab File ID:	09151045.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 0717			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 0717				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	10		0.50
Benzene	ND		0.50
Ethylbenzene	1.2		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	63		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	95		67 - 130
1,2-Dichloroethane-d4 (Surr)	98		67 - 130
Toluene-d8 (Surr)	93		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Client Sample ID: **AS-3D**

Lab Sample ID: 720-30488-15 Date Sampled: 09/14/2010 1600
Client Matrix: Water Date Received: 09/14/2010 1730

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78132 Instrument ID: HP9
Preparation: 5030B Lab File ID: 09161036.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/17/2010 0259 Final Weight/Volume: 10 mL
Date Prepared: 09/17/2010 0259

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	0.71		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	93		67 - 130
1,2-Dichloroethane-d4 (Surr)	95		67 - 130
Toluene-d8 (Surr)	94		70 - 130

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-78061					
LCS 720-78061/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-78061/7	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-78061/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-78061/8	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-78061/4	Method Blank	T	Water	8260B/CA_LUFT	
720-30488-1	AS-3I	T	Water	8260B/CA_LUFT	
720-30488-2	AS-4D	T	Water	8260B/CA_LUFT	
720-30488-2MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-30488-2MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	
720-30488-4	AS-6I	T	Water	8260B/CA_LUFT	
720-30488-5	ASMW-2I	T	Water	8260B/CA_LUFT	
720-30488-6	ASMW-4I	T	Water	8260B/CA_LUFT	
720-30488-7	ASMW-5D	T	Water	8260B/CA_LUFT	
720-30488-8	ASMW-5I	T	Water	8260B/CA_LUFT	
720-30488-9	MW-4	T	Water	8260B/CA_LUFT	
720-30488-10	NW-2D	T	Water	8260B/CA_LUFT	
720-30488-11	NW-2I	T	Water	8260B/CA_LUFT	
720-30488-13	DUP-1	T	Water	8260B/CA_LUFT	
Analysis Batch:720-78132					
LCS 720-78132/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-78132/7	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-78132/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-78132/8	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-78132/4	Method Blank	T	Water	8260B/CA_LUFT	
720-30464-A-1 MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-30464-A-1 MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	
720-30488-15	AS-3D	T	Water	8260B/CA_LUFT	
Analysis Batch:720-78160					
LCS 720-78160/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-78160/7	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-78160/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-78160/8	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-78160/4	Method Blank	T	Water	8260B/CA_LUFT	
720-30488-2	AS-4D	T	Water	8260B/CA_LUFT	
720-30488-2MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-30488-2MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	
720-30488-3	AS-4I	T	Water	8260B/CA_LUFT	
720-30488-12	NW-2S	T	Water	8260B/CA_LUFT	

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-78229					
LCS 720-78229/10	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-78229/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-78229/11	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-78229/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-78229/4	Method Blank	T	Water	8260B/CA_LUFT	
720-30488-1	AS-3I	T	Water	8260B/CA_LUFT	
720-30551-A-15 MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-30551-A-15 MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	

Report Basis
T = Total

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30488-1

Method Blank - Batch: 720-78061

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-78061/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/15/2010 2313
Date Prepared: 09/15/2010 2313

Analysis Batch: 720-78061
Prep Batch: N/A
Units: ug/L

Instrument ID: HP9
Lab File ID: 09151030.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
m-Xylene & p-Xylene	ND		1.0
o-Xylene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	92	67 - 130
1,2-Dichloroethane-d4 (Surr)	92	67 - 130
Toluene-d8 (Surr)	92	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30488-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78061

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78061/5	Analysis Batch:	720-78061	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09151026.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/15/2010 2104			Final Weight/Volume:	10 mL
Date Prepared:	09/15/2010 2104				

LCSD Lab Sample ID:	LCSD 720-78061/6	Analysis Batch:	720-78061	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09151027.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/15/2010 2136			Final Weight/Volume:	10 mL
Date Prepared:	09/15/2010 2136				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	100	106	62 - 130	6	20		
Benzene	106	106	82 - 127	0.2	20		
Ethylbenzene	104	104	86 - 135	0.4	20		
Toluene	106	106	83 - 129	0.006	20		
m-Xylene & p-Xylene	100	99	70 - 142	0.7	20		
o-Xylene	102	103	89 - 136	0.6	20		
TBA	92	91	82 - 116	2	20		
DIPE	105	109	74 - 155	3	20		
TAME	108	114	79 - 129	6	20		
Ethyl t-butyl ether	97	102	70 - 130	5	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	97	97	67 - 130
1,2-Dichloroethane-d4 (Surr)	89	93	67 - 130
Toluene-d8 (Surr)	95	95	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78061

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78061/7	Analysis Batch:	720-78061	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09151028.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/15/2010 2208			Final Weight/Volume:	10 mL
Date Prepared:	09/15/2010 2208				

LCSD Lab Sample ID:	LCSD 720-78061/8	Analysis Batch:	720-78061	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09151029.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/15/2010 2241			Final Weight/Volume:	10 mL
Date Prepared:	09/15/2010 2241				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	89	94	59 - 111	5	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	98	99	67 - 130
1,2-Dichloroethane-d4 (Surr)	93	95	67 - 130
Toluene-d8 (Surr)	96	96	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-78061

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-30488-2	Analysis Batch:	720-78061	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09151033.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 0049			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 0049				

MSD Lab Sample ID:	720-30488-2	Analysis Batch:	720-78061	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09151034.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 0121			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 0121				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	105	104	60 - 138	1	20		
Benzene	107	107	60 - 140	0.3	20		
Ethylbenzene	103	102	60 - 140	0.4	20		
Toluene	104	104	60 - 140	0.2	20		
m-Xylene & p-Xylene	98	98	60 - 140	0.3	20		
o-Xylene	102	101	60 - 140	0.2	20		
TBA	91	91	60 - 140	0.7	20		
DIPE	109	110	60 - 140	1	20		
TAME	111	112	60 - 140	1	20		
Ethyl t-butyl ether	101	103	60 - 140	2	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	99	98	67 - 130
1,2-Dichloroethane-d4 (Surr)	94	91	67 - 130
Toluene-d8 (Surr)	95	95	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30488-1

Method Blank - Batch: 720-78132

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID:	MB 720-78132/4	Analysis Batch:	720-78132	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09161029.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 2314			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 2314				

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
m-Xylene & p-Xylene	ND		1.0
o-Xylene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	91	67 - 130
1,2-Dichloroethane-d4 (Surr)	95	67 - 130
Toluene-d8 (Surr)	93	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30488-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78132

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78132/5	Analysis Batch:	720-78132	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09161025.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 2105			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 2105				

LCSD Lab Sample ID:	LCSD 720-78132/6	Analysis Batch:	720-78132	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09161026.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 2137			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 2137				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	102	103	62 - 130	0.7	20		
Benzene	105	104	82 - 127	0.5	20		
Ethylbenzene	102	102	86 - 135	0.05	20		
Toluene	104	104	83 - 129	0.1	20		
m-Xylene & p-Xylene	97	98	70 - 142	0.4	20		
o-Xylene	100	101	89 - 136	0.9	20		
TBA	92	91	82 - 116	0.9	20		
DIPE	105	105	74 - 155	0.4	20		
TAME	109	110	79 - 129	0.02	20		
Ethyl t-butyl ether	98	99	70 - 130	0.6	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	95	97	67 - 130
1,2-Dichloroethane-d4 (Surr)	92	89	67 - 130
Toluene-d8 (Surr)	95	95	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78132

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78132/7	Analysis Batch:	720-78132	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09161027.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 2210			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 2210				

LCSD Lab Sample ID:	LCSD 720-78132/8	Analysis Batch:	720-78132	Instrument ID:	HP9
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09161028.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 2242			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 2242				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	92	90	59 - 111	3	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	97	96	67 - 130
1,2-Dichloroethane-d4 (Surr)	96	94	67 - 130
Toluene-d8 (Surr)	95	96	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30488-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-78132

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-30464-A-1 MS	Analysis Batch: 720-78132	Instrument ID: HP9
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: 09161031.D
Dilution:	1.0		Initial Weight/Volume: 10 mL
Date Analyzed:	09/17/2010 0018		Final Weight/Volume: 10 mL
Date Prepared:	09/17/2010 0018		

MSD Lab Sample ID:	720-30464-A-1 MSD	Analysis Batch: 720-78132	Instrument ID: HP9
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: 09161032.D
Dilution:	1.0		Initial Weight/Volume: 10 mL
Date Analyzed:	09/17/2010 0051		Final Weight/Volume: 10 mL
Date Prepared:	09/17/2010 0051		

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	110	106	60 - 138	4	20		
Benzene	111	103	60 - 140	7	20		
Ethylbenzene	103	93	60 - 140	7	20		
Toluene	105	100	60 - 140	5	20		
m-Xylene & p-Xylene	98	93	60 - 140	5	20		
o-Xylene	103	98	60 - 140	5	20		
TBA	92	94	60 - 140	2	20		
DIPE	115	109	60 - 140	5	20		
TAME	112	109	60 - 140	2	20		
Ethyl t-butyl ether	104	100	60 - 140	4	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	96	94	67 - 130
1,2-Dichloroethane-d4 (Surr)	97	96	67 - 130
Toluene-d8 (Surr)	96	97	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30488-1

Method Blank - Batch: 720-78160

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-78160/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/17/2010 0942
Date Prepared: 09/17/2010 0942

Analysis Batch: 720-78160
Prep Batch: N/A
Units: ug/L

Instrument ID: HP4
Lab File ID: 091710004.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
m-Xylene & p-Xylene	ND		1.0
o-Xylene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	87	67 - 130
1,2-Dichloroethane-d4 (Surr)	102	67 - 130
Toluene-d8 (Surr)	79	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30488-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78160

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78160/5	Analysis Batch:	720-78160	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091710005.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 1028			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 1028				

LCSD Lab Sample ID:	LCSD 720-78160/6	Analysis Batch:	720-78160	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091710006.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 1100			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 1100				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	103	99	62 - 130	4	20		
Benzene	96	95	82 - 127	0.3	20		
Ethylbenzene	102	103	86 - 135	0.6	20		
Toluene	102	102	83 - 129	0.006	20		
m-Xylene & p-Xylene	99	101	70 - 142	1	20		
o-Xylene	103	102	89 - 136	0.9	20		
TBA	98	97	82 - 116	0.2	20		
DIPE	119	114	74 - 155	4	20		
TAME	111	106	79 - 129	4	20		
Ethyl t-butyl ether	104	100	70 - 130	3	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	109	104	67 - 130
1,2-Dichloroethane-d4 (Surr)	96	91	67 - 130
Toluene-d8 (Surr)	88	88	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78160

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78160/7	Analysis Batch:	720-78160	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091710007.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 1132			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 1132				

LCSD Lab Sample ID:	LCSD 720-78160/8	Analysis Batch:	720-78160	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091710008.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 1204			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 1204				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	84	85	59 - 111	1	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	106	105	67 - 130
1,2-Dichloroethane-d4 (Surr)	99	97	67 - 130
Toluene-d8 (Surr)	93	93	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-78160

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-30488-2	Analysis Batch:	720-78160	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091710015.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 1602			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 1602				

MSD Lab Sample ID:	720-30488-2	Analysis Batch:	720-78160	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091710016.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 1635			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 1635				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	94	104	60 - 138	10	20		
Benzene	88	94	60 - 140	6	20		
Ethylbenzene	96	101	60 - 140	5	20		
Toluene	96	101	60 - 140	5	20		
m-Xylene & p-Xylene	94	98	60 - 140	4	20		
o-Xylene	97	101	60 - 140	4	20		
TBA	94	99	60 - 140	5	20		
DIPE	109	117	60 - 140	7	20		
TAME	96	106	60 - 140	9	20		
Ethyl t-butyl ether	94	103	60 - 140	9	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	107	106	67 - 130
1,2-Dichloroethane-d4 (Surr)	91	92	67 - 130
Toluene-d8 (Surr)	84	86	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30488-1

Method Blank - Batch: 720-78229

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID:	MB 720-78229/4	Analysis Batch:	720-78229	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09181004.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1145			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1145				

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Gasoline Range Organics (GRO)-C5-C12	ND		50

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	100	67 - 130
1,2-Dichloroethane-d4 (Surr)	116	67 - 130
Toluene-d8 (Surr)	99	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78229

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78229/5	Analysis Batch:	720-78229	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09181005.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1215			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1215				

LCSD Lab Sample ID:	LCSD 720-78229/6	Analysis Batch:	720-78229	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09181006.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1246			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1246				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	121	117	62 - 130	3	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	105	103	67 - 130
1,2-Dichloroethane-d4 (Surr)	119	119	67 - 130
Toluene-d8 (Surr)	102	102	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78229

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78229/10	Analysis Batch:	720-78229	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09181007.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1316			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1316				

LCSD Lab Sample ID:	LCSD 720-78229/11	Analysis Batch:	720-78229	Instrument ID:	HP12
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	09181008.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1346			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1346				

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	91	89	59 - 111	1	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	105	107	67 - 130
1,2-Dichloroethane-d4 (Surr)	121	120	67 - 130
Toluene-d8 (Surr)	101	101	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30488-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-78229

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-30551-A-15 MS	Analysis Batch: 720-78229	Instrument ID: HP12
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: 09181018.D
Dilution:	1.0		Initial Weight/Volume: 10 mL
Date Analyzed:	09/18/2010 1934		Final Weight/Volume: 10 mL
Date Prepared:	09/18/2010 1934		

MSD Lab Sample ID:	720-30551-A-15 MSD	Analysis Batch: 720-78229	Instrument ID: HP12
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: 09181019.D
Dilution:	1.0		Initial Weight/Volume: 10 mL
Date Analyzed:	09/18/2010 2004		Final Weight/Volume: 10 mL
Date Prepared:	09/18/2010 2004		

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	121	121	60 - 138	0.01	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	106	105	67 - 130
1,2-Dichloroethane-d4 (Surr)	124	123	67 - 130
Toluene-d8 (Surr)	103	104	70 - 130

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

720-30488

TESTAMERICA San Francisco Chain of Custody
1220 Quarry Lane • Pleasanton CA 94566-4756
Phone: (925) 484-1919 • Fax: (925) 600-3002

Reference #: 126830

Date 9/14/10 Page 1 of 2

09/21/2010

Report To

Attn: RON COLOUBOW
Company: ARCADIS-US INC,
Address: 1900 POWELL ST, 6TH FLOOR, EMERYVILLE, CA
Phone: 510-652-4500 Email: RON.COLOUBOW@ARCADIS-US.COM
Bill To: ARCADIS NORTHLANDS AMRCW
Sampled By: M. JONES / D. SMOLKO
Attn: —
Phone: —

Analysis Request

Sample ID	Date	Time	Matrix	Preserv	TPH EPA - ☐ 8260B ☐ Gas w/ ☐ BTEX ☐ MTBE	TEPH EPA 8015M* ☐ Silica Gel ☐ Diesel ☐ Motor Oil ☐ Other ___	EPA 8260B: ~~☒~~ Gas ~~☒~~ BTEX ~~☒~~ 5 Oxygenates ☐ DCA, EDB ☐ Ethanol	(HVOCs) EPA 8021 by 8260B	Volatile Organics GC/MS (VOCs) ☐ EPA 8260B ☐ 624	Semivolatiles GC/MS ☐ EPA 8270 ☐ 625	Oil and Grease ☐ Petroleum (EPA 1664) ☐ Total	Pesticides ☐ EPA 8081 ☐ 608 PCBs ☐ EPA 8082 ☐ 608	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other: ___	Low Level Metals by EPA 200.8/6020 (ICP-MS): ___	☐ W.E.T (STLC) ☐ TCLP	☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O)	☐ Spec. Cond. ☐ Alkalinity ☐ TSS ☐ TDS	Anions : ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4					Number of Containers
1 AS-3I	9/14/10	1500	AQ				X																			3
2 AS-4D		1018					X																			3
3 AS-4I		1110					X																			3
4 AS-6I		0848					X																			3
5 AS-MW-2I		1246					X																			3
6 ASMW-4I		1439					X																			3
7 ASMW-5D		0840					X																			3
8 ASMW-5I		0920					X																			3
9 MW-4		0938					X																			3
10 NW-2D		1148					X																			3

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Project Info

Project Name: ASPIRE SCHOOLS
Project#: EM009155.0010
PO#: —
Credit Card#: —

Sample Receipt

of Containers:
Head Space:
Temp: 5.5°C
Conforms to record:

TAT: 5 Day | 3 Day | 2 Day | 1 Day
Other:

Report: ☒ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund EDF
Special Instructions / Comments: ☐ Global ID ___

See Terms and Conditions on reverse
*TestAmerica SF reports 8015M from C_8-C_{24} (industry norm). Default for 8015B is C_{10}-C_{28}

1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Signature: [illegible] Time: 1601	Signature: Ed Martinez Time: 1730	Signature: Time:
Printed Name: MORGAN JONES Date: 9/14/10	Printed Name: Ed Martinez Date: 9.14.10	Printed Name: Date:
Company: ARCADIS	Company: TASF	Company:
1) Received by:	**2) Received by:**	**3) Received by:**
Signature: Ed Martinez Time: 1607	Signature: [illegible] Time: 1730	Signature: Time:
Printed Name: Ed Martinez Date: 9.14.10	Printed Name: [illegible] Date: 9/14/10	Printed Name: Date:
Company: TASF	Company: TASF	Company:

Rev09/09

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

720-30488

TESTAMERICA San Francisco Chain of Custody

1220 Quarry Lane • Pleasanton CA 94566-4756
Phone: (925) 484-1919 • Fax: (925) 600-3002

Reference #: 126830

Date 9/14/10 Page 2 of 2

09/21/2010

Report To

Attn: RON GOLOUBOW
Company: ARCADIS U.S. INC
Address: SRR P. 1
Phone: 510-652-4500 Email: RON.GOLOUBOW@ARCADIS-US.COM
Bill To: ARCADIS HOUCANDS PKWY
Sampled By: M. JONES / D. SMOLKO
Attn: —
Phone: —

Analysis Request

Sample ID	Date	Time	Matrix	Preserv	TPH EPA - ☐ 8260B ☐ Gas w/ ☐ BTEX ☐ MTBE	TEPH EPA 8015M* ☐ Silica Gel ☐ Diesel ☐ Motor Oil ☐ Other ___	EPA 8260B: ☐ Gas ☐ BTEX ☐ 5 Oxygenates ☐ DCA, EDB ☐ Ethanol	(HVOCs) EPA 8021 by 8260B	Volatile Organics GC/MS (VOCs) ☐ EPA 8260B ☐ 624	Semivolatiles GC/MS ☐ EPA 8270 ☐ 625	Oil and Grease ☐ Petroleum (EPA 1664) ☐ Total	Pesticides ☐ EPA 8081 ☐ 608 PCBs ☐ EPA 8082 ☐ 608	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other: ___	Low Level Metals by EPA 200.8/6020 (ICP-MS): ___	☐ W.E.T (STLC) ☐ TCLP	☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O)	☐ Spec. Cond. ☐ Alkalinity ☐ TSS ☐ TDS	Anions : ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4	HOLD				Number of Containers
11 NW-2I	9/14/10	1025	AQ	HCL			X																			3
12 NW-2S		1101					X																			3
13 DUP-1		—					X																			3
14 TB 081310	8/13/10	—																					X			2
15 AS-3D	9/14/10	1600					X																			3

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Project Info

Project Name: ASP IRR SCHOOLS
Project#: AM009155.0010
PO#: —
Credit Card#: —

Sample Receipt

of Containers:
Head Space:
Temp: 5.5°C
Conforms to record:

TAT: 5 Day | 3 Day | 2 Day | 1 Day
Other:

Report: ☒ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund EDF
Special Instructions / Comments: ☐ Global ID ___

See Terms and Conditions on reverse
*TestAmerica SF reports 8015M from C_9-C_{24} (industry norm). Default for 8015B is C_{10}-C_{28}

	1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Signature	1601	1730	
Time			
Printed Name	MOREAN JONES 9/14/10	Ed Martinez 9-14-10	
Date			
Company	ARCADIS	TASF	

	4) Received by:	5) Received by:	6) Received by:
Signature	1601	1730	
Time			
Printed Name	Ed Martinez 9-14-10		
Date			
Company	TASF	TASF	

Rev09/09

Login Sample Receipt Check List

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30488-1

Login Number: 30488

List Source: TestAmerica San Francisco

Creator: Hoang, Julie

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 720-30521-1

Job Description: Aspire Schools

For:
ARCADIS U.S., Inc Formerly LFR, Inc.
1900 Powell St 12th Floor
Emeryville, CA 94608-1827

Attention: Mr. Ron Goloubow

Approved for release.
Afsaneh Salimpour
Project Manager I
9/22/2010 3:42 PM

Afsaneh Salimpour
Project Manager I
afsaneh.salimpour@testamericainc.com
09/22/2010

CA ELAP Certification # 2496
The Chain(s) of Custody are included and are an integral part of this report.

A trip blank is required to be provided for volatile analyses. If trip blank results are not included in the report, either the trip blank was not submitted or requested to be analyzed.

Job Narrative
720-30521-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
Method(s) 8260B: The Gasoline Range Organics (GRO) concentration reported for the following sample(s) is due to the presence of discrete peaks: AS-7I (720-30521-3).

No other analytical or quality issues were noted.

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-30521-2	**AS-2I**				
Methyl tert-butyl ether		380	10	ug/L	8260B/CA_LUFTMS
720-30521-3	**AS-7I**				
Methyl tert-butyl ether		1.1	0.50	ug/L	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C5-C12		790	50	ug/L	8260B/CA_LUFTMS
720-30521-4	**MW-1**				
Methyl tert-butyl ether		3.4	0.50	ug/L	8260B/CA_LUFTMS
720-30521-5	**NW-1I**				
Methyl tert-butyl ether		1.9	0.50	ug/L	8260B/CA_LUFTMS
TBA		250	4.0	ug/L	8260B/CA_LUFTMS
720-30521-6	**NW-3D**				
Methyl tert-butyl ether		1.2	0.50	ug/L	8260B/CA_LUFTMS
720-30521-7	**NW-3I**				
Methyl tert-butyl ether		0.85	0.50	ug/L	8260B/CA_LUFTMS
720-30521-8	**NW-3S**				
Methyl tert-butyl ether		2.4	0.50	ug/L	8260B/CA_LUFTMS

METHOD SUMMARY

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Description	Lab Location	Method	Preparation Method
Matrix Water			
8260B / CA LUFT MS	TAL SF	SW846 8260B/CA_LUFTMS	
Purge and Trap	TAL SF		SW846 5030B

Lab References:

TAL SF = TestAmerica San Francisco

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Method	Analyst	Analyst ID
SW846 8260B/CA_LUFTMS	Le, Lien	LL
SW846 8260B/CA_LUFTMS	Zhao, June	JZ

SAMPLE SUMMARY

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-30521-1	AS-2D	Water	09/15/2010 0945	09/15/2010 1530
720-30521-2	AS-2I	Water	09/15/2010 1015	09/15/2010 1530
720-30521-3	AS-7I	Water	09/15/2010 1150	09/15/2010 1530
720-30521-4	MW-1	Water	09/14/2010 1703	09/15/2010 1530
720-30521-5	NW-1I	Water	09/14/2010 1606	09/15/2010 1530
720-30521-6	NW-3D	Water	09/15/2010 1124	09/15/2010 1530
720-30521-7	NW-3I	Water	09/15/2010 1206	09/15/2010 1530
720-30521-8	NW-3S	Water	09/15/2010 1252	09/15/2010 1530
720-30521-9	DUP-2	Water	09/15/2010 0000	09/15/2010 1530

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Client Sample ID: **AS-2D**

Lab Sample ID: 720-30521-1 Date Sampled: 09/15/2010 0945
Client Matrix: Water Date Received: 09/15/2010 1530

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78129		Instrument ID:	HP4
Preparation:	5030B			Lab File ID:	091610035.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 0246			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 0246				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	82		67 - 130
1,2-Dichloroethane-d4 (Surr)	100		67 - 130
Toluene-d8 (Surr)	79		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Client Sample ID: **AS-2I**

Lab Sample ID: 720-30521-2 Date Sampled: 09/15/2010 1015
Client Matrix: Water Date Received: 09/15/2010 1530

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78129		Instrument ID:	HP4
Preparation:	5030B			Lab File ID:	091610036.D
Dilution:	20			Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 0318			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 0318				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	380		10
Benzene	ND		10
Ethylbenzene	ND		10
Toluene	ND		10
Xylenes, Total	ND		20
Gasoline Range Organics (GRO)-C5-C12	ND		1000
TBA	ND		80
DIPE	ND		10
TAME	ND		10
Ethyl t-butyl ether	ND		10

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	81		67 - 130
1,2-Dichloroethane-d4 (Surr)	102		67 - 130
Toluene-d8 (Surr)	77		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Client Sample ID: **AS-7I**

Lab Sample ID: 720-30521-3 Date Sampled: 09/15/2010 1150
Client Matrix: Water Date Received: 09/15/2010 1530

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78129		Instrument ID:	HP4
Preparation:	5030B			Lab File ID:	091610032.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 0110			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 0110				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	1.1		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	790		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	88		67 - 130
1,2-Dichloroethane-d4 (Surr)	110		67 - 130
Toluene-d8 (Surr)	76		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Client Sample ID: **MW-1**

Lab Sample ID: 720-30521-4 Date Sampled: 09/14/2010 1703
Client Matrix: Water Date Received: 09/15/2010 1530

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78129 Instrument ID: HP4
Preparation: 5030B Lab File ID: 091610037.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/17/2010 0350 Final Weight/Volume: 10 mL
Date Prepared: 09/17/2010 0350

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	3.4		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	81		67 - 130
1,2-Dichloroethane-d4 (Surr)	103		67 - 130
Toluene-d8 (Surr)	79		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Client Sample ID: **NW-1I**

Lab Sample ID: 720-30521-5 Date Sampled: 09/14/2010 1606
Client Matrix: Water Date Received: 09/15/2010 1530

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78129 Instrument ID: HP4
Preparation: 5030B Lab File ID: 091610038.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/17/2010 0422 Final Weight/Volume: 10 mL
Date Prepared: 09/17/2010 0422

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	1.9		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	250		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	74		67 - 130
1,2-Dichloroethane-d4 (Surr)	107		67 - 130
Toluene-d8 (Surr)	74		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Client Sample ID: **NW-3D**

Lab Sample ID: 720-30521-6 Date Sampled: 09/15/2010 1124
Client Matrix: Water Date Received: 09/15/2010 1530

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78236		Instrument ID:	SAT 3900A
Preparation:	5030B			Lab File ID:	30521-B-6 9-18-2010
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1441			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1441				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	1.2		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	100		67 - 130
1,2-Dichloroethane-d4 (Surr)	83		67 - 130
Toluene-d8 (Surr)	86		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Client Sample ID: **NW-3I**

Lab Sample ID: 720-30521-7 Date Sampled: 09/15/2010 1206
Client Matrix: Water Date Received: 09/15/2010 1530

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78129 Instrument ID: HP4
Preparation: 5030B Lab File ID: 091610040.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/17/2010 0526 Final Weight/Volume: 10 mL
Date Prepared: 09/17/2010 0526

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	0.85		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	72		67 - 130
1,2-Dichloroethane-d4 (Surr)	104		67 - 130
Toluene-d8 (Surr)	71		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Client Sample ID: **NW-3S**

Lab Sample ID: 720-30521-8 Date Sampled: 09/15/2010 1252
Client Matrix: Water Date Received: 09/15/2010 1530

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-78129		Instrument ID:	HP4
Preparation:	5030B			Lab File ID:	091610041.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 0557			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 0557				

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	2.4		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	72		67 - 130
1,2-Dichloroethane-d4 (Surr)	106		67 - 130
Toluene-d8 (Surr)	74		70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Client Sample ID: **DUP-2**

Lab Sample ID: 720-30521-9 Date Sampled: 09/15/2010 0000
Client Matrix: Water Date Received: 09/15/2010 1530

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-78129 Instrument ID: HP4
Preparation: 5030B Lab File ID: 091610042.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 09/17/2010 0629 Final Weight/Volume: 10 mL
Date Prepared: 09/17/2010 0629

Analyte	Result (ug/L)	Qualifier	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	69		67 - 130
1,2-Dichloroethane-d4 (Surr)	104		67 - 130
Toluene-d8 (Surr)	70		70 - 130

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-78129					
LCS 720-78129/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-78129/7	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-78129/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-78129/8	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-78129/4	Method Blank	T	Water	8260B/CA_LUFT	
720-30521-1	AS-2D	T	Water	8260B/CA_LUFT	
720-30521-2	AS-2I	T	Water	8260B/CA_LUFT	
720-30521-3	AS-7I	T	Water	8260B/CA_LUFT	
720-30521-3MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-30521-3MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	
720-30521-4	MW-1	T	Water	8260B/CA_LUFT	
720-30521-5	NW-1I	T	Water	8260B/CA_LUFT	
720-30521-7	NW-3I	T	Water	8260B/CA_LUFT	
720-30521-8	NW-3S	T	Water	8260B/CA_LUFT	
720-30521-9	DUP-2	T	Water	8260B/CA_LUFT	
Analysis Batch:720-78236					
LCS 720-78236/10	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-78236/8	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-78236/11	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-78236/9	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-78236/7	Method Blank	T	Water	8260B/CA_LUFT	
720-30521-6	NW-3D	T	Water	8260B/CA_LUFT	
720-30551-A-5 MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-30551-A-5 MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	

Report Basis
T = Total

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30521-1

Method Blank - Batch: 720-78129

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-78129/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/16/2010 2303
Date Prepared: 09/16/2010 2303

Analysis Batch: 720-78129
Prep Batch: N/A
Units: ug/L

Instrument ID: HP4
Lab File ID: 091610028.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
m-Xylene & p-Xylene	ND		1.0
o-Xylene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	85	67 - 130
1,2-Dichloroethane-d4 (Surr)	97	67 - 130
Toluene-d8 (Surr)	81	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30521-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78129

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78129/5	Analysis Batch:	720-78129	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091610024.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 2056			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 2056				

LCSD Lab Sample ID:	LCSD 720-78129/6	Analysis Batch:	720-78129	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091610025.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 2127			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 2127				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	111	113	62 - 130	2	20		
Benzene	98	100	82 - 127	3	20		
Ethylbenzene	101	102	86 - 135	1	20		
Toluene	102	104	83 - 129	2	20		
m-Xylene & p-Xylene	98	100	70 - 142	2	20		
o-Xylene	101	103	89 - 136	2	20		
TBA	97	104	82 - 116	7	20		
DIPE	118	121	74 - 155	2	20		
TAME	118	120	79 - 129	1	20		
Ethyl t-butyl ether	109	110	70 - 130	1	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	108	109	67 - 130
1,2-Dichloroethane-d4 (Surr)	98	100	67 - 130
Toluene-d8 (Surr)	93	97	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78129

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78129/7	Analysis Batch:	720-78129	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091610026.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 2159			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 2159				

LCSD Lab Sample ID:	LCSD 720-78129/8	Analysis Batch:	720-78129	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091610027.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/16/2010 2231			Final Weight/Volume:	10 mL
Date Prepared:	09/16/2010 2231				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	82	83	59 - 111	1	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	105	106	67 - 130
1,2-Dichloroethane-d4 (Surr)	101	101	67 - 130
Toluene-d8 (Surr)	95	97	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-78129

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-30521-3	Analysis Batch:	720-78129	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091610033.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 0142			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 0142				

MSD Lab Sample ID:	720-30521-3	Analysis Batch:	720-78129	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	091610034.D
Dilution:	1.0			Initial Weight/Volume:	10 mL
Date Analyzed:	09/17/2010 0214			Final Weight/Volume:	10 mL
Date Prepared:	09/17/2010 0214				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	112	108	60 - 138	3	20		
Benzene	95	96	60 - 140	0.7	20		
Ethylbenzene	95	95	60 - 140	0.2	20		
Toluene	100	97	60 - 140	3	20		
m-Xylene & p-Xylene	93	92	60 - 140	1	20		
o-Xylene	98	97	60 - 140	1	20		
TBA	103	97	60 - 140	5	20		
DIPE	118	120	60 - 140	1	20		
TAME	116	115	60 - 140	0.6	20		
Ethyl t-butyl ether	105	107	60 - 140	2	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	104	103	67 - 130
1,2-Dichloroethane-d4 (Surr)	103	99	67 - 130
Toluene-d8 (Surr)	89	90	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30521-1

Method Blank - Batch: 720-78236

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-78236/7
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/18/2010 1125
Date Prepared: 09/18/2010 1125

Analysis Batch: 720-78236
Prep Batch: N/A
Units: ug/L

Instrument ID: SAT 3900A
Lab File ID: MB 9-18-2010 11;25;40 AM.d
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		0.50
Benzene	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
m-Xylene & p-Xylene	ND		1.0
o-Xylene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
TBA	ND		4.0
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	100	67 - 130
1,2-Dichloroethane-d4 (Surr)	84	67 - 130
Toluene-d8 (Surr)	84	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30521-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78236

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78236/8	Analysis Batch:	720-78236	Instrument ID:	SAT 3900A
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	LCS 9-18-2010 11;51;10 AM.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1151			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1151				

LCSD Lab Sample ID:	LCSD 720-78236/9	Analysis Batch:	720-78236	Instrument ID:	SAT 3900A
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	LCSD 9-18-2010 12;16;37 PM.d
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1216			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1216				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	100	104	62 - 130	4	20		
Benzene	101	102	82 - 127	0.9	20		
Ethylbenzene	107	105	86 - 135	2	20		
Toluene	101	97	83 - 129	4	20		
m-Xylene & p-Xylene	105	107	70 - 142	2	20		
o-Xylene	110	109	89 - 136	0.6	20		
TBA	109	101	82 - 116	7	20		
DIPE	105	106	74 - 155	1	20		
TAME	102	102	79 - 129	0.3	20		
Ethyl t-butyl ether	95	95	70 - 130	0.4	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	95	91	67 - 130
1,2-Dichloroethane-d4 (Surr)	86	86	67 - 130
Toluene-d8 (Surr)	91	89	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc. Job Number: 720-30521-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-78236

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-78236/10	Analysis Batch:	720-78236	Instrument ID:	SAT 3900A
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	LCS G 9-18-2010 12;42;06
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1242			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1242				

LCSD Lab Sample ID:	LCSD 720-78236/11	Analysis Batch:	720-78236	Instrument ID:	SAT 3900A
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	LCSD G 9-18-2010 1;07;34 PM
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	10 mL
Date Analyzed:	09/18/2010 1307			Final Weight/Volume:	10 mL
Date Prepared:	09/18/2010 1307				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C5-C12	111	99	59 - 111	12	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	91	91	67 - 130
1,2-Dichloroethane-d4 (Surr)	91	93	67 - 130
Toluene-d8 (Surr)	95	98	70 - 130

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30521-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-78236

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-30551-A-5 MS	Analysis Batch: 720-78236	Instrument ID: SAT 3900A
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: 30551-A-5MS 9-18-2010
Dilution:	1.0		Initial Weight/Volume: 10 mL
Date Analyzed:	09/18/2010 1739		Final Weight/Volume: 10 mL
Date Prepared:	09/18/2010 1739		

MSD Lab Sample ID:	720-30551-A-5 MSD	Analysis Batch: 720-78236	Instrument ID: SAT 3900A
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: 30551-A-5MSD 9-18-2010
Dilution:	1.0		Initial Weight/Volume: 10 mL
Date Analyzed:	09/18/2010 1804		Final Weight/Volume: 10 mL
Date Prepared:	09/18/2010 1804		

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	116	104	60 - 138	11	20		
Benzene	103	95	60 - 140	7	20		
Ethylbenzene	108	104	60 - 140	4	20		
Toluene	95	94	60 - 140	1	20		
m-Xylene & p-Xylene	100	97	60 - 140	4	20		
o-Xylene	104	98	60 - 140	5	20		
TBA	99	98	60 - 140	0.3	20		
DIPE	106	98	60 - 140	7	20		
TAME	113	102	60 - 140	10	20		
Ethyl t-butyl ether	103	94	60 - 140	10	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	87	91	67 - 130
1,2-Dichloroethane-d4 (Surr)	91	86	67 - 130
Toluene-d8 (Surr)	86	89	70 - 130

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

720-30521

TESTAMERICA San Francisco Chain of Custody
1220 Quarry Lane • Pleasanton CA 94566-4756
Phone: (925) 484-1919 • Fax: (925) 600-3002

Reference #: 126851

Date 9/15/10 Page 1 of 1

09/22/2010

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Report To

Attn: RON GOLOUBOW
Company: ARCADIS U.S., INC.
Address: 1900 POWELL ST. 11TH FLOOR EMERYVILLE, CA
Phone: 510-652-4500 Email: RON.GOLOUBOW@ARCADIS-US.COM

Bill To: ARCADIS HIGHLANDS RANCH
Attn: —

Sampled By: M. JONES
Phone: —

Analysis Request

#	Sample ID	Date	Time	Matrix	Preserv	TPH EPA - ☐ 8260B ☐ Gas w/ ☐ BTEX ☐ MTBE	TEPH EPA 8015M* ☐ Silica Gel ☐ Diesel ☐ Motor Oil ☐ Other ___	EPA 8260B: ~~☐ Gas~~ ☒ BTEX ☒ 6 Oxygenates ☐ DCA, EDB ☐ Ethanol	(HVOCs) EPA 8021 by 8260B	Volatile Organics GC/MS (VOCs) ☐ EPA 8260B ☐ 624	Semivolatiles GC/MS ☐ EPA 8270 ☐ 625	Oil and Grease ☐ Petroleum (EPA 1664) ☐ Total	Pesticides ☐ EPA 8081 ☐ 608 PCBs ☐ EPA 8082 ☐ 608	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other ___	Low Level Metals by EPA 200.8/6020 (ICP-MS): ___	☐ W.E.T (STLC) ☐ TCLP	☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O)	☐ Spec. Cond. ☐ Alkalinity ☐ TSS ☐ TDS	Anions : ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4	HOLD				Number of Containers
1	AS-2D	9/15/10	0945	AQ	HCL			X																			3
2	AS-2I	9/15/10	1015					X																			3
3	AS-7I	9/15/10	1150					X																			3
4	MW-1	9/14/10	1703					X																			3
5	NW-1I	9/14/10	1606					X																			3
6	NW-3D	9/15/10	1124					X																			3
7	NW-3I	9/15/10	1206					X																			3
8	NW-3S	9/15/10	1252					X																			3
9	DUP-2	9/15/10	—					X																			3
10	TB081310	8/13/10	—																						X		2

Project Info

Project Name: ASPIRE SCHOOLS
Project#: EM009155.0010
PO#: —
Credit Card#: —

Sample Receipt

of Containers:
Head Space:
Temp: 2.4°C
Conforms to record:

TAT: (5 Day) 3 Day 2 Day 1 Day
Other:

Report: ☒ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund EDF
Special Instructions / Comments: ☐ Global ID ___

See Terms and Conditions on reverse
*TestAmerica SF reports 8015M from C_9-C_{24} (industry norm). Default for 8015B is C_{10}-C_{28}

1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Signature: [signature] Time: 1300	Signature: [signature] Time: 1530	Signature: Time:
Printed Name: MORGAN JONES Date: 9/15/10	Printed Name: Bryan Thomas Date: 9/15/10	Printed Name: Date:
Company: ARCADIS	Company: TestAmerica	Company:
1) Received by:	**2) Received by:**	**3) Received by:**
Signature: [signature] Time: 1300	Signature: [signature] Time: 1530	Signature: Time:
Printed Name: Bryan Thomas Date: 9/15/10	Printed Name: [signature] Date: 9-15-10	Printed Name: Date:
Company: TestAmerica	Company: [signature]	Company:

Rev09/09

Login Sample Receipt Check List

Client: ARCADIS U.S., Inc Formerly LFR, Inc.

Job Number: 720-30521-1

Login Number: 30521

List Source: TestAmerica San Francisco

Creator: Mullen, Joan

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

ARCADIS

Appendix B

Field Logs

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	AS-2D
Date	9/15/10	Sampled By	M. JONES		
Sampling Time	0945	Recorded By	M. JONES		
Weather	COOL, OVERCAST	Coded Replicate No.	DUP-2		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—		
Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2-INCH	Screen Interval (ft bmp)	Top —	Bottom	—
Sounded Depth (ft bmp)	—	Pump Intake Depth (ft bmp)	—		—
Depth to Water (ft bmp)	5.53 *	Purge Time	Start 0927	Finish	0940

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
0927	START	PURGE	—	—	—	—	—	—	—	5.53
0934	7	300	0.3	19.31	6.81	876	46.8	5.34	CLEAR	5.57
0937	10	"	0.5	19.22	6.83	873	47.7	5.35	"	5.57
0940	13	"	0.8	19.16	6.84	871	48.9	5.32	"	5.57
0945	SAMPLE	—	—	—	—	—	—	—	—	—

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	5 + 3 DUP	HCl

Comments * MEASURED FROM TOP OF SPACER FITTING

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	AS-2I
Date	9/15/10	Sampled By	M. JONES		
Sampling Time	1015	Recorded By	"		
Weather	OVERCAST, COOL	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2-INCH	Screen Interval (ft bmp)	Top —	Bottom	
Sounded Depth (ft bmp)	14.81 *	Pump Intake Depth (ft bmp)	—		
Depth to Water (ft bmp)	5.91 *	Purge Time	Start 0959	Finish	1012

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
0959	START	PURGE								
1006	7	100	0.3	20.49	7.09	7037	72.1	5.40	CLEAR	7.02 **
1009	10	"	0.4	20.53	7.11	7052	70.4	5.34	"	7.23
1012	13	"	0.5	20.66	7.12	7064	69.3	5.39	"	7.45
1015	SAMPLE									

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40mL VOA	3	HCl

Comments * MEASURED FROM TOP OF SCREEN FITTING
** FLOW RATE SET TO MINIMUM

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Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	AS-3D
Date	9/14/10	Sampled By	Darrell Smolka		
Sampling Time	1600	Recorded By	Darrell Smolka		
Weather	70 Sunny	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2"	Screen Interval (ft bmp)	Top —	Bottom —	
Sounded Depth (ft bmp)	5.16	Pump Intake Depth (ft bmp)			
Depth to Water (ft bmp)	30.62	Purge Time	Start 1519	Finish 1545	

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1519		160	0.1	22.30	7.00	1291	147.3	3.23	—	5.18
1522			0.2	22.04	6.94	1160	148.8	2.74	-	5.18
1525			0.3	21.86	6.85	1064	150.4	2.61	—	5.18
1528			0.3	21.69	6.81	1021	150.5	2.62	—	5.19
1531			0.4	21.67	6.79	977	148.8	2.57	-	5.19
1536			0.5	21.57	6.81	952	145.8	2.77	—	5.19
1539		160	0.5	21.42	6.80	938	144.4	2.95	-	5.19
1542			0.6	21.39	6.80	935	144.0	2.95	—	5.19
1545	26		0.7	21.43	6.80	932	143.1	2.93	-	5.19
1600		Sampled								5.19

Collected Sample Condition — Color — Odor — Appearance

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	7	HCl

Comments

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Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	AS-3I
Date	9/14/10	Sampled By	Darrell Smolka		
Sampling Time		Recorded By	Jason Smolka		
Weather	70 Sunny	Coded Replicate No.			

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	
Casing Material	PVC	Purge Method	Low-flow
Casing Diameter	2"	Screen Interval (ft bmp)	Top - Bottom -
Sounded Depth (ft bmp)	12.57	Pump Intake Depth (ft bmp)	- -
Depth to Water (ft bmp)	6.12	Purge Time	Start 1153 Finish 1456

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1153		130	0.1	23.02	6.98	12771	166.8	6.62	-	7.72
1157			0.2	23.21	7.03	12770	167.8	6.09	-	8.55
1201		150	0.3	23.27	7.04	12741	167.8	6.09	-	8.90
1205			0.4	23.34	7.05	12698	168.5	5.88	-	9.46
1211			0.6	22.49	7.01	12888	170.4	6.61	-	10.03
1214			0.7	22.32	6.99	12862	171.9	6.06	-	10.2
1443			Well	Recharged					-	7.26
1447		170	0.8	22.70	7.01	12723	168.3	6.76	-	8.52
1450		140	0.9	22.59	6.97	12695	171.4	5.81	-	8.92
1453		130	0.9	22.80	6.95	12687	172.8	5.49	-	9.33
1456		120	1.0	23.00	6.97	12692	174.0	5.20	-	9.94
1500			Sampled							10.35

Collected Sample Condition — Color — Odor — Appearance

Parameter	Container	Quantity	Preservative
Gross	40 mL VOA	3	HCL

Comments

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	AS-4D
Date	9/14/10	Sampled By	Darrell Smolka		
Sampling Time	1018	Recorded By	Darrell Smolka		
Weather	60 Cloudy	Coded Replicate No.			

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	
Casing Material	PVC	Purge Method	Low-flow
Casing Diameter	2"	Screen Interval (ft bmp)	Top - Bottom -
Sounded Depth (ft bmp)	32.82	Pump Intake Depth (ft bmp)	- -
Depth to Water (ft bmp)	5.32	Purge Time	Start Finish

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
0958		185	0.2	20.02	6.67	933	137.9	0.99	-	5.35
1002			0.3	19.85	6.69	922	136.6	0.81	-	5.34
1006			0.5	19.80	6.71	919	135.6	0.78	-	5.33
1010			0.7	19.72	6.70	915	135.7	0.78	-	5.35
1018			0.9							
1018		185	0.9	Sampled						5.35

Collected Sample Condition Color Odor Appearance

Parameter	Container	Quantity	Preservative
8260	40mL VOA	3	HCl

Comments

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Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	AS-4I
Date	9/14	Sampled By	Darrell Smolka		
Sampling Time	1110	Recorded By	Darrell Smolka		
Weather	70 Sunny	Coded Replicate No.			

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2"	Screen Interval (ft bmp)	Top	Bottom	
Sounded Depth (ft bmp)	7.12	Pump Intake Depth (ft bmp)			
Depth to Water (ft bmp)	1931	Purge Time	Start	Finish	

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1036		185	0.2	21.08	7.61	950	116.5	8.64	—	8.43
1040			0.4	21.10	7.60	950	113.7	8.72	—	9.39
1044		170	0.5	21.19	7.60	950	111.9	8.63	—	10.00
1048			0.6	21.18	7.62	950	110.0	8.47	—	10.61
1053		135	0.7	21.08	7.59	950	109.0	8.36	—	11.05
1059			0.8	21.12	7.59	949	110.6	8.20	—	11.47
1103			0.9	21.04	7.59	949	109.8	8.18	-	11.76
1107			1.0	21.09	7.59	947	110.6	8.17	—	11.96
1110		135	Sampled							

Collected Sample Condition — Color _____ Odor _____ Appearance _____

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCl

Comments _____

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Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	AS-6I
Date	9/14/10	Sampled By	M. JONES		
Sampling Time	0848	Recorded By	M JONES		
Weather	COOL, OVERCAST	Coded Replicate No.	DUP-1		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—
Casing Material	PVC	Purge Method	Low-flow
Casing Diameter	2 INCH	Screen Interval (ft bmp)	Top — Bottom —
Sounded Depth (ft bmp)	—	Pump Intake Depth (ft bmp)	— —
Depth to Water (ft bmp)	5.59	Purge Time	Start 0809 Finish 0844

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
0809	START	PURGE	—	—	—	—	—	—	—	—
0821	12	220	0.4	20.12	8.28	661	51.0	8.93	—	5.91
0824	15	"	0.7	20.19	8.27	664	53.0	8.76	—	5.92
0827	18	"	0.9	20.19	8.26	668	54.5	8.63	—	5.92
0832	23	"	1.3	20.22	8.21	677	58.4	8.30	—	5.92
0835	26	"	1.5	20.23	8.20	686	59.2	8.33	—	5.92
0838	29	"	1.7	20.22	8.20	688	60.2	8.16	—	5.93
0841	32	"	1.9	20.22	8.18	690	61.5	8.12	—	5.93
0844	35	"	2.1	20.26	8.17	690	62.5	8.10	—	5.93
0848	SAMPLE	—	—	—	—	—	—	—	—	—

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCl

Comments: MEASURED DEPTH TO WATER FROM TOP OF SPARGE RISER.

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Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	AS-7I
Date	9/14/10	Sampled By	M. JONES		
Sampling Time	1150	Recorded By	" "		
Weather	CLEAR, WARM	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2-INCH	Screen Interval (ft bmp)	Top —	Bottom —	
Sounded Depth (ft bmp)	11.32 *	Pump Intake Depth (ft bmp)	—		
Depth to Water (ft bmp)	4.98 *	Purge Time	Start 1306 (9/14/10)	Finish ~~1444 (9/15/10)~~ 1332 (9/14/10)	

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
9/14/10 1306	START PURGE									
1316	10	100	0.3	20.63	7.62	5315	118.4	6.22	CLEAR	6.68
1319	13	"	0.4	20.66	7.63	5292	119.1	5.93	"	7.13
1322	16	"	0.5	20.62	7.64	5293	119.1	5.95	"	7.41
1325	19	"	0.6	20.67	7.64	5281	120.3	6.00	"	7.80
1326	INCREASE FLOW RATE TO 400 mL/MIN. ATTEMPT TO DEWATER WELL.									—
1332	WELL DEWATERED.									
1708	MEASURE DEPTH TO WATER								→	7.99
9/15/10 1142	RETURN 9/15/10 TO CHECK RECHARGE, DEPTH TO WATER =								→	6.82
1144	—	—	—	20.60	7.02	7118	3.5	1.91	O BROWN	6.84
1150	SAMPLE									

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCl

Comments * MEASURED FROM TOP OF SPACER FITTING.
POOR RECHARGE, FLOW RATE SET TO MINIMUM.
80% RECHARGE AT DTW = 6.25 ft.

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	ASMW-2I
Date	9/14/10	Sampled By	M. JONES		
Sampling Time	1246	Recorded By	M. JONES		
Weather	CLEAR, WARM	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2-INCH	Screen Interval (ft bmp)	Top —	Bottom	—
Sounded Depth (ft bmp)	—	Pump Intake Depth (ft bmp)	—		—
Depth to Water (ft bmp)	6.90 *	Purge Time	Start 1205	Finish	1243

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1205	START	PURGE	—	—	—	—	—	—	—	—
1216	11	110	0.3	21.52	7.54	5847	124.2	8.41	CLEAR	8.81 **
1221	16	"	0.5	21.61	7.55	5858	127.8	7.79	"	9.19
1224	19	"	0.6	21.61	7.53	5865	129.6	7.92	"	9.31
1227	22	"	0.7	21.61	7.53	5878	131.3	8.08	"	9.50
1231	26	"	0.8	21.52	7.56	5899	133.1	8.27	"	9.64
1234	29	"	0.9	21.51	7.56	5935	134.3	8.57	"	9.88
1237	32	"	1.1	21.41	7.58	6029	135.5	8.35	"	10.00
1240	35	"	1.2	21.31	7.55	6120	137.7	8.25	"	10.10
1243	38	"	1.3	21.29	7.56	6137	138.5	8.20	"	10.20
1246	SAMPLE	—	—	—	—	—	—	—	—	—

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCl

Comments * MEASURED FROM TOP OF SPARGE FITTING.
** POOR RECHARGE, FLOW RATE SET TO MINIMUM.

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Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	ASMW-4I
Date	9/14/10	Sampled By	M. Jones		
Sampling Time	1439	Recorded By	"		
Weather	CLEAR, WARM.	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2-INCH	Screen Interval (ft bmp)	Top —	Bottom	—
Sounded Depth (ft bmp)	—	Pump Intake Depth (ft bmp)	—		—
Depth to Water (ft bmp)	4.68 *	Purge Time	Start 1413	Finish	1435

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
1413	START PURGE									
1423	10	240	0.4 mL	19.36	6.95	910	-145.1	0.52	CLEAR	5.63
1426	13	100	0.5	19.45	6.91	901	-134.5	0.50	"	5.55
1429	16	100	0.6	19.51	6.89	892	-126.5	0.70	"	5.53
1432	19	100	0.7	19.51	6.89	890	-119.5	0.72	"	5.53
1435	22	100	0.8	19.46	6.88	889	-118.5	0.63	"	5.53
1439	SAMPLE									

Collected Sample Condition — Color CLEAR — Odor MILD ORGANIC — Appearance SOME SUSPENDED SOLIDS

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCl

Comments * MEASURED BELOW TOC - WELL BOX WAET.

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Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	ASMW-5D
Date	9/14/10	Sampled By	Darrell Smolko		
Sampling Time	0840	Recorded By	Darrell Smolko		
Weather	60 Cloudy	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	
Casing Material	PVC	Purge Method	Low-flow
Casing Diameter	2"	Screen Interval (ft bmp)	Top ____ Bottom ____
Sounded Depth (ft bmp)	27.40	Pump Intake Depth (ft bmp)	____ ____
Depth to Water (ft bmp)	4.81	Purge Time	Start 0816 Finish ____

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
0816	-		0.2	19.10	6.78	1620	183.2	8.31		4.93
0820	4		0.4	19.21	6.80	1606	176.9	8.29		4.94
0823	7		0.6	19.22	6.92	1591	172.6	8.50		4.96
0830	14		1.0	19.25	6.93	1585	171.1	8.59		4.95
0834	18		1.3	19.25	6.93	1574	171.1	8.63		4.95
0837	21		1.5	19.25	6.93	1563	170.0	8.64		4.97
0840	24		Sampled							4.97

Collected Sample Condition — Color ____ Odor ____ Appearance ____

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCl

Comments ____

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Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	ASMW-5I
Date	9/14/10	Sampled By	Darrell Smolko		
Sampling Time	0920	Recorded By	Darrell Smolko		
Weather	60	Coded Replicate No.			

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	
Casing Material	PVC	Purge Method	Low-flow
Casing Diameter	2"	Screen Interval (ft bmp)	Top _____ Bottom _____
Sounded Depth (ft bmp)	12.88	Pump Intake Depth (ft bmp)	_____ _____
Depth to Water (ft bmp)	5.93	Purge Time	Start _____ Finish _____

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
0855	-		0.2	20.45	6.95	925	171.6	7.41	-	7.73
0900	5		0.4	20.56	6.95	915	169.0	6.85	-	8.40
0904	9		0.5	20.44	6.90	901	169.6	7.19	-	8.96
0908	13		0.6	20.44	6.96	900	165.8	6.39	-	9.31
0912	17		0.7	20.36	6.97	900	164.2	6.43	-	9.53
0916	21		0.8	20.42	6.97	899	163.4	6.33	-	9.53
0920	25	171	Sampled							9.51

Collected Sample Condition Color_____ Odor_____ Appearance_____

Parameter	Container	Quantity	Preservative
8260	40 ml VOA	3	HCl

Comments _____

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Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	MW-1
Date	9/14/10	Sampled By	M. JONES		
Sampling Time	1703	Recorded By	M. JONES		
Weather	CLEAR, WARM	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2-INCH	Screen Interval (ft bmp)	Top —	Bottom	—
Sounded Depth (ft bmp)	—	Pump Intake Depth (ft bmp)	—		—
Depth to Water (ft bmp)	4.78	Purge Time	Start 1642	Finish	1659

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
1642	START PURGE									
1650	8	180	0.3	18.86	6.72	654	-151.0	0.48	CLEAR	5.40
1653	11	100	0.4	19.11	6.72	654	-152.6	0.46	"	5.48
1656	14	100	0.5	19.27	6.73	655	-144.5	0.41	"	5.55
1659	17	100	0.6	19.38	6.71	655	-147.2	0.43	"	5.63
1703	SAMPLE									

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCL

Comments: POOR RECHARGE, FLOW RATE SET TO MINIMUM

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Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	MW-4
Date	9/14/10	Sampled By	M. DAVIES		
Sampling Time	0930	Recorded By	"		
Weather		Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2 INCH	Screen Interval (ft bmp)	Top —	Bottom	—
Sounded Depth (ft bmp)	—	Pump Intake Depth (ft bmp)	—		—
Depth to Water (ft bmp)	5.14	Purge Time	Start 0906	Finish	0935

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
0906	START PURGE									5.14
0916	10	110	0.3	20.29	7.30	1219	75.9	6.29	LT. BROWN	6.44 *
0923	17	"	0.5	20.39	7.16	1249	78.3	5.91	LT. GRAY	6.73
0926	20	"	0.6	20.45	7.13	1253	79.6	5.79	"	6.81
0929	23	"	0.7	20.46	7.08	1256	79.5	5.35	CLEAR	6.88
0932	26	"	0.8	20.37	7.06	1254	79.9	5.36	"	6.88
0935	29	"	0.9	20.30	7.02	1249	80.3	5.35	"	6.89
0938	SAMPLE									

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40mL VOA	3	HCL

Comments: MEASURED DEPTH TO WATER FROM NORTHSIDE OF ORIGINAL MW-4 TOP OF CASING (NOT TOP OF SPACER FITTING).
* POOR RECHARGE. FLOW RATE SET TO MINIMUM.

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	NW-1I
Date	9/4/10	Sampled By	M. JONES		
Sampling Time	1606	Recorded By	M. JONES		
Weather	HAZY, CLEAR.	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—		
Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2 INCH	Screen Interval (ft bmp)	Top —	Bottom —	
Sounded Depth (ft bmp)	17.88	Pump Intake Depth (ft bmp)	—	—	
Depth to Water (ft bmp)	4.58	Purge Time	Start 1525	Finish	

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
1525	START PURGE									
1558	28	110	1.0	19.77	6.62	1023	39.3	0.51	CLEAR	4.90
1601	31	110	1.1	19.84	6.62	1024	38.4	0.53	"	4.90
1604	37	110	1.2	19.80	6.63	1030	37.0	0.52	"	4.90
1606	SAMPLE									

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40 mL VOA.		

Comments —

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Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	NW-1S
Date	9/14/10	Sampled By	—		
Sampling Time	—	Recorded By	M. JONES		
Weather	—	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2 INCH	Screen Interval (ft bmp)	Top —	Bottom	—
Sounded Depth (ft bmp)	~4.5 ft *	Pump Intake Depth (ft bmp)	—		—
Depth to Water (ft bmp)	—	Purge Time	Start —	Finish	—

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
WELL NOT SAMPLED, CASING DESTROYED										

Collected Sample Condition	Color —	Odor —	Appearance —

Parameter	Container	Quantity	Preservative
—	—	—	—

Comments * WELL CASING BROKEN AND OBSTRUCTED AT 1.5 ft BGS, UNABLE TO COLLECT SAMPLE.

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	NW-2D
Date	9/14/10	Sampled By	M. JONES		
Sampling Time		Recorded By	M. JONES		
Weather	CLEAR, WARM	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—
Casing Material	PVC	Purge Method	Low-flow
Casing Diameter	2 INCH	Screen Interval (ft bmp)	Top — Bottom —
Sounded Depth (ft bmp)	—	Pump Intake Depth (ft bmp)	—
Depth to Water (ft bmp)	6.11 *	Purge Time	Start 1113 Finish 1144

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
1113	START PURGE									
1123	10	240	0.5	20.11	6.52	631	98.7	5.42	CLEAR	6.14
1126	13	"	0.7	20.02	6.52	628	99.0	5.35	"	6.15
1129	16	"	0.9	20.02	6.52	626	97.9	5.22	"	6.15
1138	~~25~~	"	1.5	19.88	6.55	624	94.7	5.05	"	6.15
1141	28	"	1.7	19.89	6.55	623	94.6	5.06	"	6.15
1144	31	"	1.9	19.90	6.56	624	94.2	5.08	"	6.15
1148	SAMPLE									

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCL

Comments * MEASURED FROM TOP OF SPARGE FITTING.

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Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	NW-2I
Date	9/14/10	Sampled By	M. JONES		
Sampling Time	1025	Recorded By	" "		
Weather	CLEAR, WARM	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—
Casing Material	PVC	Purge Method	Low-flow
Casing Diameter	2 INCH	Screen Interval (ft bmp)	Top — Bottom —
Sounded Depth (ft bmp)		Pump Intake Depth (ft bmp)	— —
Depth to Water (ft bmp)	6.25 *	Purge Time	Start 0951 Finish 1023

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
0951	START	PURGE	~							
1001	10	120	0.3	21.41	7.66	856	84.2	7.45	LT. BROWN	7.37
1004	13	120	0.4	21.35	7.84	886	80.9	6.58	"	7.45
1007	16	110	0.6	21.32	7.89	899	81.8	5.64	"	7.43
1010	19	110	0.8	21.22	8.06	935	79.1	5.17	"	7.37
1014	23	110	0.9	21.08	8.04	941	77.3	4.44	"	7.35
1017	26	110	1.1	21.12	8.03	937	77.4	4.32	"	7.35
1020	29	110	1.2	21.09	7.98	931	77.6	4.26	"	7.35
1023	32	110	1.4	21.06	7.94	920	78.0	4.34	"	7.35
1025	SAMPLE	~								

Collected Sample Condition — Color LIGHT BROWN — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCl

Comments * MEASURED FROM TOP OF SPACER FITTING

I:\Techstaff\Admin*Forms\Field Work Forms\ARCADIS Field Forms\lowflowsampforms.xlsx - Sheet1

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Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	NW-2S
Date	9/14/10	Sampled By	M. Jones		
Sampling Time	1101	Recorded By	" "		
Weather	CLEAR, WARM	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2 INCH	Screen Interval (ft bmp)	Top —	Bottom	—
Sounded Depth (ft bmp)	—	Pump Intake Depth (ft bmp)	—		
Depth to Water (ft bmp)	3.92 *	Purge Time	Start 1036	Finish	1058

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
1036	START PURGE									
1046	10	100	0.3	22.86	7.62	952	48.2	4.59	LT. GRAY	4.51
1049	13	"	0.4	22.95	7.61	955	53.1	4.67	"	4.58
1052	16	"	0.5	22.97	7.59	957	58.1	4.77	"	4.67
1055	19	"	0.6	22.89	7.56	959	63.2	4.58	"	4.79
1058	22	"	0.7	22.95	7.53	959	66.7	4.62	LT. YELLOW	4.86
1101	SAMPLE									

Collected Sample Condition — Color LIGHT YELLOW — Odor NONE — Appearance VISIBLE SUSPENDED SOLIDS

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCl

Comments *MEASURED FROM TOP OF ORIGINAL WELL CASING.

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Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	NW-3D
Date	9/15/10	Sampled By	M. JONES		
Sampling Time	1124	Recorded By	M. JONES		
Weather	OVERCAST, COOL	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2 INCH	Screen Interval (ft bmp)	Top —	Bottom —	
Sounded Depth (ft bmp)	24.10	Pump Intake Depth (ft bmp)			
Depth to Water (ft bmp)	3.93	Purge Time	Start 1054	Finish	

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
1054	START	PURGE								
1102	8	220	0.4	17.86	7.39	809	-88.0	0.43	LT. BROWN	4.18
1105	11	" "	0.6	17.73	7.29	751	-71.1	0.39	" "	4.19
1108	14	" "	0.8	17.67	7.26	745	-64.6	0.39	" "	4.19
1111	17	" "	1.0	17.75	7.22	740	-54.9	0.39	" "	4.19
1114	20	" "	1.3	17.76	7.20	736	-46.5	0.44	CLEAR	4.19
1117	23	" "	1.5	17.72	7.19	734	-40.2	0.52	" "	4.19
1120	26	" "	1.7	17.71	7.18	732	-37.3	0.56	" "	4.19
1124	SAMPLE									

Collected Sample Condition — Color: CLEAR — Odor: NONE — Appearance: —

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCL

Comments: INNER BOX AND CAP DESTROYED, CASING DAMAGED.

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Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	NW-3I
Date	9/15/10	Sampled By	M. JONES		
Sampling Time	1206	Recorded By	M. JONES		
Weather	CLEAR, WARM	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2-INCH	Screen Interval (ft bmp)	Top —	Bottom	—
Sounded Depth (ft bmp)	14.18	Pump Intake Depth (ft bmp)	—		—
Depth to Water (ft bmp)	3.90	Purge Time	Start 1135	Finish	1203

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
1135	START	PURGE	—	—	—	—	—	—	—	—
1145	10	100	0.4	18.94	6.93	1267	19.6	1.17	CLEAR	4.44
1149	14	" "	0.5	18.97	6.91	1355	15.1	1.08	" "	4.49
1152	17	" "	0.6	18.99	6.89	1400	13.2	1.02	" "	4.52
1157	22	" "	0.8	19.11	6.88	1466	7.7	0.97	" "	4.56
1200	25	" "	0.9	19.25	6.88	1478	5.7	0.95	" "	4.57
1203	28	" "	1.0	19.38	6.89	1508	3.8	0.93	" "	4.57
1206	SAMPLE	—	—	—	—	—	—	—	—	—

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8760	40 mL VOA	3	HCL

Comments: WELL BOX AND CAP DESTROYED, CASING DAMAGED.

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Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project	Aspire Schools				
Project Number	EM009155.0010	Site Location	1009 66th Ave, Oakland, CA	Well ID	NW-3S
Date	9/15/10	Sampled By	M. JONES		
Sampling Time	1252	Recorded By	M. JONES		
Weather	WARM, CLEAR	Coded Replicate No.	—		

Instrument Identification

Water Quality Meter(s)	YSI model 556	Serial #	—

Casing Material	PVC	Purge Method	Low-flow		
Casing Diameter	2-INCH	Screen Interval (ft bmp)	Top —	Bottom —	
Sounded Depth (ft bmp)	5.28	Pump Intake Depth (ft bmp)	—	—	
Depth to Water (ft bmp)	3.47	Purge Time	Start 1218	Finish 1248	

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity ~~(NTU)~~ VISUAL	Depth to Water (ft bmp)
1218	START PURGE									
1227	9	100	0.2	20.17	6.82	704	-81.2	1.60	LT. GRAY	3.75
1230	12	100	0.3	20.13	6.80	659	-66.0	1.68	" "	3.80
1233	15	100	0.4	19.95	6.75	629	-48.4	1.49	" "	3.87
1236	18	100	0.5	19.93	6.71	616	-43.0	1.26	" "	3.94
1239	21	100	0.6	19.87	6.68	610	-39.4	1.07	" "	3.99
1242	24	100	0.7	19.79	6.66	596	-37.2	0.97	" "	4.05
1245	27	100	0.8	19.69	6.63	589	-35.9	0.92	" "	4.10
1248	30	100	0.9	19.67	6.61	590	-33.9	0.96	CLEAR	4.16
1252	SAMPLE									

Collected Sample Condition — Color CLEAR — Odor NONE — Appearance —

Parameter	Container	Quantity	Preservative
8260	40 mL VOA	3	HCl

Comments: CASING DAMAGED. BOX AND CAP DISCOVERED.

ARCADIS

Water-Level Log

Project Name and No. Aspire EM009155.0010.00002 Site Location Oakland, CA

Prepared By Miljan Draganic Date 7/27/10

Well (s)	Depth to Water (ft)	Time Reading taken	Comments Well opened at:	
NW-1S	Dry	1005	0849	Total well depth 2.35
NW-1I	Dry	1006	0849	Total well depth 2.26
NW-1D	4.39	1004	0849	
MW-1	4.59	1008	Found open	
NW-2S	5.09	1050	0856	
NW-2I	2.77	1051	0856	
NW-2D	4.75	1053	0856	
MW-4	4.89	1055	0901	
SVMW-3	3.91	1010	0903	
ASMW-3I	4.84	1012	0903	
ASMW-3D	4.95	1011	0903	
SVE-7	Not measured!		Could not open	
AS-7D	4.82	1025	0906	
AS-7I	4.73	1027	0906	
SVE-5	Dry	1020	0910	Total well depth 4.68
AS-5D	5.09	1021	0910	
AS-5I	6.54	1022	0910	
SVE-2	4.89	1015	0913	
AS-2D	5.18	1016	0913	
AS-2I	5.84	1017	0913	
SVE-3	2.70	1044	0915	Total well depth 2.71
AS-3D	4.91	1046	0915	
AS-3I	7.35	1047	0915	
SVE-1	5.07	1038	0918	
AS-1I	5.61	1040	0918	
AS-1D	4.80	1039	0918	
SV[redacted]MW-2	3.75	1032	0920	
ASMW-2I	5.21	1031	0920	
ASMW-2D	4.74	1030	0920	
SVE-8	Dry	1037	0925	Total well depth 1.81
AS-8I	4.50	1035	0925	
AS-8D	4.44	1036	0925	
SVE-6	4.78	1102	0929	
AS-6I	4.82	1103	0929	
AS-6D	4.57	1105	0929	
SVE-4	4.82	1059	0932	
AS-4I	6.92	1057	0932	
AS-4D	5.00	1058	0932	
EW-1	4.40	1101	0933	

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Water-Level Log

Project Name and No. Aspire EM009155.0010.00002 Site Location Oakland, CA

Prepared By Miljan Draganic Date 7/27/10

Well (s)	Depth to Water (ft)	Time reading taken	Comments well opened at:
SVMW-5	3.82	1106	0936
ASMW-5D	4.50	1107	0936
ASMW-5I	5.03	1108	0936
NW-3S	Dry	1116	wells open and top of casings destroyed.
NW-3I	3.13	1114	
NW-3D	3.63	1112	
MW-2	4.02	1110	Open; top of casing destroyed.
ASMW-4D	4.01	1118	0944
ASMW-4I	4.32	1119	0945
SVMW-4			Destroyed during excavation.
MW-3	4.37	1121	0950

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 27, 2010 Page 1 of 1

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: ASMW-4I ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☐ DUP

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump / low flow

Purge Water Storage Container Type: ~~Storage tank~~ drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

Well No. ASMW-4I Depth of Water 4.31

Well Diameter: 2" Well Depth

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
1228	4.31							Start purging.
1238	5.67	~1.3	0.74	19.36	6.90	1052	-23.9	
1241	5.80	~1.6	0.26	19.34	6.89	1046	-27.9	Decreased flow rate
1244	5.79	~1.7	0.17	19.35	6.87	1039	-33.2	
1247	5.78	~1.8	0.14	19.34	6.86	1031	-38.0	
1250	5.79	~1.9	0.12	19.34	6.85	1027	-43.2	
1253	5.79	~2.0	0.11	19.30	6.84	1022	-47.6	
1255								Sampling.

Continue remarks on reverse, if needed.

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 27, 2010 Page 1 of 1

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: ASMW-5I ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☐ DUP

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump / low flow

Purge Water Storage Container Type: [redacted] drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

Well No. ASMW-5I Depth of Water 4.95

Well Diameter: 2" Well Depth 13.05

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
1317	4.95	—						Start purging
1327	8.06	~1.1	5.12	20.36	7.23	825	-39.3	Reduced pump rate
1330	8.38	~1.2	5.16	20.48	7.22	820	-34.9	" " "
1333	8.67	~1.3	5.13	20.38	7.22	816	-28.1	" " "
1336	9.04	~1.4	5.14	20.41	7.22	808	-21.8	" " "
1339	9.25	—	5.11	20.47	7.22	807	-20.7	
1342	9.40	~1.5	5.09	20.45	7.23	804	-18.0	
1345	9.48	—	5.04	20.43	7.23	802	-16.9	
1348	9.50	~1.6	5.00	20.38	7.23	798	-15.7	
1351	9.50	—	4.97	20.37	7.24	795	-14.2	
1354	9.50	~1.7	4.95	20.34	7.24	790	-13.1	
1355	—							Sampling

Continue remarks on reverse, if needed.

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 27, 2010 Page 1 of 1

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: ASMW-5D ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☐ DUP

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump / low flow

Purge Water Storage Container Type: [redacted] Drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

Well No. ASMW-5D Depth of Water 4.49

Well Diameter: 2" Well Depth

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

* DO is unusually high and may be inaccurate for some reason, but nevertheless, it stabilized.

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
1404	4.49							Start purging
1414	4.61	~1.2	10.76	20.07	7.00	1874	37.4	
1417	4.61	~1.4	9.73	20.18	7.00	1877	44.3	
1420	4.61	~1.6	9.86	20.31	7.02	1871	42.9	
1423	4.61	~1.7	9.68	20.32	7.04	1866	40.9	
1426	4.61	~1.8	9.74	20.27	7.04	1864	41.7	
1429	4.61	~1.9	9.79	20.21	7.04	1863	42.6	
1432	4.61	~2.0	9.81	20.22	7.05	1860	41.3	
1435								Sampling

Continue remarks on reverse, if needed.

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 27, 2010 Page 1 of 2

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: ASMW-2I ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☐ DUP

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump / low flow

Purge Water Storage Container Type: ~~Storage Tank~~ drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

Well No. ASMW-2I Depth of Water 5.25

Well Diameter: 2" Well Depth

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

DO is unusually high compared to previous event... but it stabilized nevertheless.

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
1451	5.25							Start purging.
1501	7.49	~1.5	11.04	20.55	7.42	7590	22.7	decrease flowrate
1504	7.72	~1.7	10.77	20.50	7.39	7653	21.5	" " "
1507	8.17	~1.9	10.64	20.44	7.36	7502	19.8	" " "
1510	8.48	~2.1	10.50	20.42	7.34	7620	17.3	
1513	8.88	~2.4	10.11	20.47	7.33	7745	15.7	
1516	8.94	~2.6	9.91	20.40	7.32	7804	13.2	decreased flow rate
1519	8.80	~2.8	10.13	20.37	7.34	7841	9.6	
1522	8.72	~3.0	9.90	20.24	7.31	7709	8.9	water is cloudy
1525	8.78	~3.1	9.73	20.28	7.29	7664	7.8	
1528	8.81	~3.2	9.40	20.31	7.28	7758	7.6	
1531	8.94	~3.4	9.52	20.22	7.26	7487	7.0	
1534	9.13	~3.6	9.43	20.18	7.25	7514	6.3	decreased flow rate.
1537	9.21	~3.7	9.27	20.20	7.24	7653	4.9	
1540	9.35	~3.8	9.42	20.16	7.22	7749	3.3	

Continue remarks on reverse, if needed.

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 27, 2010 Page 2 of 2

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: ASMW-2I ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☐ DUP

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump/low flow

Purge Water Storage Container Type: ~~Storage tank~~ drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

Continued...

Well No. ASMW-2I [Continued] Depth of Water 5.25

Well Diameter: 2" Well Depth

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
1543	9.50	~4.0	9.36	20.10	7.20	7699	1.9	Water is cloudy
1546	9.59	~4.2	9.21	20.13	7.18	7659	-1.2	decreased flow rate.
1549	9.65	~4.3	9.01	20.11	7.16	7738	-3.8	
1552	9.66	~4.4	8.97	20.09	7.15	7775	-6.4	
1555	9.66	~4.5	8.94	20.07	7.13	7781	-9.1	
1600								Sampling

Continue remarks on reverse, if needed.

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 27, 2010 Page 1 of 1

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: AS-2I ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☐ DUP

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump / low flow

Purge Water Storage Container Type: ~~Storage tank~~ drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

Well No. AS-2I Depth of Water 5.82

Well Diameter: 2" Well Depth 14.35

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

* This well was purged dry last time as well.

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
1155	5.82							Start purging
1205	8.90	~1.0	8.22	20.88	7.07	8089	136.1	
1208	9.64	~1.3	8.09	20.97	7.12	8102	129.4	
1211	10.14	~1.6	8.04	21.11	7.11	8105	129.8	
1215								Well purged dry.
7/28/10 0802	5.70	~0.1	3.95	18.37	7.05	8195	276.6	[redacted]
7/28/10 0805								Sampling

Continue remarks on reverse, if needed.

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 28, 2010 Page 1 of 1

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: NW-2I ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☐ DUP

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump/low flow

Purge Water Storage Container Type: [redacted] drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

*water is turning dark gray/black. Presence of organics

Well No. NW-2I Depth of Water 2.84

Well Diameter: 2" Well Depth 5.57

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
0905	2.84	—						Start purging
0915	3.38	~1.0	1.68	21.04	7.10	1402	57.9	flow rate decreased
0918	3.48	—	1.40	21.38	7.08	1394	70.1	water cloudy but begining to clear
0921	3.59	~1.1	1.08	21.43	6.98	1394	81.1	
0924	3.71	~1.2	0.85	21.74	6.87	1394	117.5	
0927	3.82	~1.3	0.66	21.75	6.85	1393	100.4	
0930	3.91	—	0.59	21.78	6.83	1392	82.0	
0933	4.04	~1.4	0.55	21.79	6.82	1388	82.5	
0936	4.19	~1.5	0.58	21.77	6.81	1386	82.9	
0939	4.29	~1.6	0.51	21.84	6.80	1384	82.1	
0942	4.40	~1.7	0.47	21.99	6.78	1383	81.1	
0945	4.46	~1.8	0.44	21.93	6.78	1382	80.0	
0948	4.51	~1.9	0.41	21.86	6.77	1381	79.1	water is cloudy
0951	4.55	~2.0	0.39	21.81	6.77	1380	78.3	
0955	—							Sampling

Continue remarks on reverse, if needed.

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 28, 2010 Page 1 of 1

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: NW-2D ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☐ DUP

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump/low flow

Purge Water Storage Container Type: [redacted] drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

Well No. NW-2D Depth of Water 4.80

Well Diameter: 2" Well Depth

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
1005	4.80	—	—	—	—	—	—	Start purging
1015	4.84	~1.5	5.08	19.53	6.71	776	128.1	clear water
1018	4.84	~1.7	4.94	19.51	6.70	772	128.8	
1021	4.84	~1.9	4.64	19.53	6.69	772	129.8	
1024	4.84	~2.1	4.57	19.62	6.70	768	128.1	
1027	4.84	~2.3	4.51	19.61	6.70	771	127.4	
1030	4.84	~2.5	4.48	19.67	6.69	769	127.6	
1035	—	—	—	—	—	—	—	Sampling

Continue remarks on reverse, if needed.

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 28, 2010 Page 1 of 1

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: MW-4 ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☒ DUP MW-4-D

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump Flow Flow

Purge Water Storage Container Type: [redacted] drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

Water is cloudy.

Well No. MW-4 Depth of Water 4.90

Well Diameter: 2" Well Depth

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
1057	4.90	—	—	—	—	—	—	Start purging
1107	8.04	~1.2	4.37	20.60	7.10	1220	116.5	Decreased flow rate
1110	8.10	~1.3	4.32	20.58	7.08	1216	115.8	
1113	8.14	~1.4	4.12	20.55	7.06	1205	114.7	water is cloudy.
1116	8.15	~1.5	3.92	20.64	7.05	1201	114.2	
1119	8.16	~1.6	3.81	20.57	7.05	1196	113.1	
1122	8.17	~1.8	3.42	20.40	7.04	1188	111.9	
1125	8.17	~2.0	3.41	20.47	7.06	1185	107.2	
1128	8.16	~2.2	3.40	20.55	7.08	1182	103.2	
1131	8.16	~2.4	3.30	20.49	7.07	1186	102.8	
1134	8.17	~2.6	3.10	20.40	7.06	1182	102.6	
1137	8.17	~2.8	3.02	20.22	7.06	1177	101.4	
1140	8.17	~3.0	3.02	20.17	7.05	1176	100.2	
1145	—	—	—	—	—	—	—	Sampling
1150	—	—	—	—	—	—	—	DUP Sampling

Continue remarks on reverse, if needed.

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 28, 2010 Page 1 of 1

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: AS-6I ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☐ DUP

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump/low flow

Purge Water Storage Container Type: [redacted] drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

Well No. AS-6I Depth of Water 4.68

Well Diameter: 2" Well Depth

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
1200	4.68							Start purging
1210	5.00	~1.1	6.80	20.23	8.04	846	90.3	
1213	5.00	~1.3	6.33	20.24	8.02	861	86.7	
1216	5.00	~1.5	5.90	20.25	8.00	877	83.2	
1219	5.01	~1.7	5.70	20.23	7.99	884	79.9	
1222	5.01	~1.9	5.52	20.23	7.98	896	77.8	
1225	5.00	~2.1	5.43	20.25	7.96	898	77.0	
1228	5.00	~2.3	5.42	20.26	7.94	904	79.8	
1231	5.00	~2.5	5.36	20.29	7.93	908	83.5	
1235								Sampling

Continue remarks on reverse, if needed.

WATER-QUALITY SAMPLING LOG

Project No. EM009155.0010.00002 Date: July 28, 2010 Page 1 of 1

Project Name: Aspire Sampling Location: 1009 66th Avenue, Oakland, California

Sampler's Name: Miljan Draganic Sample No.: NW-2S ☐ FB

Sampling Plan By: Ron Goloubow Dated: ☐ DUP

Purge Method: ☐ Centrifugal Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☒ Other Geo-pump/low flow

Purge Water Storage Container Type: ~~Storage tank~~ drum Storage Location: On site

Date Purge Water Disposed: Where Disposed:

Analyses Requested	No. and Type of Bottles Used
TPHg, MTBE, BTEX, and TBA by 8260	VOA with HCl (x3)

Lab Name: Test America

Delivery By: Currier

Well No. NW-2S Depth of Water 5.19

Well Diameter: 2" Well Depth 11.91

☒ 2" (0.16 gal/feet) ☐ 5" (1.02 gal/feet) Water Column Height

☐ 4" (0.65 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

*water level droping significantly even with the lowest possible pump rate... well will be purged dry.

Time	Depth to Water (ft.)	Volume Purged (gal)	DO (mg/L)	Temp (F°)	PH (SU)	Cond (uS/cm C)	ORP (mV)	Remarks
0823	5.19							Start purging
0833	8.86	~1.0	2.07	19.95	7.63	1405	262.5	Water is silty
0836	9.40	~1.1	2.30	19.72	7.62	1267	259.3	Decreased flow rate
0839	9.85	~1.2	1.65	19.64	7.61	1275	257.9	" " "
0842	10.36	~1.3	1.57	19.56	7.61	1283	257.0	" " "
0845								Well purged dry
1320	5.05	~0.1	1.78	20.88	7.57	1206	110.8	water is silty
1325								Sampling

Continue remarks on reverse, if needed.

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

SAMPLE COLLECTOR:
LFR
1900 Powell Street, 12th Floor
Emeryville, California 94608
(510) 652-4500 Fax: (510) 652-2246

PROJECT NO.: EM009155.0010 | SECTION NO.: 00002 | DATE: 7/28/10 | SAMPLER'S INITIALS: HD | SERIAL No. 5476

PROJECT NAME: Aspire | SAMPLER (Signature): [signature]

SAMPLE						ANALYSES														REMARKS
					TYPE											TAT				
SAMPLE ID.	DATE	TIME	Lab Sample No.	No. of Containers	Soil	Water	TPHd (EPA 8015M)	TPHmo (EPA 8015M)	TPHg (EPA 8015M)	BTEX (EPA 8021/602)	VOCs (EPA 8260/624)	Metals (EPA 6010/7000)	MTBE	TBA	Standard	RUSH:	HOLD	*VOCs: 8260 List, 8240 List, 8010 List, 624 List; **Metals: CAM17, RCRA, LUFT	
ASMW-4I	7/27/10	1255		3		X			X	X			X	X		X				
ASMW-5I	↓	1355		3		↓			↓	↓			↓	↓		↓				
ASMW-5D		1435		3																
ASMW-2I		1600		3																
AS-2I	7/28/10	0805		3																
NW-2I		0955		3																
NW-2D		1035		3																
MW-4		1145		3																
AS-6I		1235		3																
MW-4-D		1150		3																
NW-2S		1325		3																
Trip blank	↓	—		2		↓			↓	↓			↓	↓		↓				

SAMPLE RECEIPT: ☐ Intact ☒ Cold ☒ On Ice ☐ Ambient | Cooler Temp: | Cooler No:

Preservative Correct? ☐ Yes ☐ No ☐ N/A

ANALYTICAL LABORATORY: Test America

METHOD OF SHIPMENT: Currier

LAB REPORT NO.:

FAX COC CONFIRMATION TO: Ron Goloubow

FAX RESULTS TO: Ron Goloubow

SEND HARDCOPY TO: Ron Goloubow

SEND EDD TO: EMV.LABEDDS.COM

RELINQUISHED BY: 1	RELINQUISHED BY: 2	RELINQUISHED BY: 3
(SIGNATURE) [signature] (DATE) 7/28/10	(SIGNATURE) (DATE)	(SIGNATURE) (DATE)
(PRINTED NAME) Milan Draganic (TIME) 1450	(PRINTED NAME) (TIME)	(PRINTED NAME) (TIME)
(COMPANY) ARCADIS	(COMPANY)	(COMPANY)
RECEIVED BY: [signature] (DATE) 7.28.10	**RECEIVED BY:** 2	**RECEIVED BY (LABORATORY):** 3
(SIGNATURE) Ed Trainor (DATE) 1450	(SIGNATURE) (DATE)	(SIGNATURE) (DATE)
(PRINTED NAME) TPSF (TIME)	(PRINTED NAME) (TIME)	(PRINTED NAME) (TIME)
(COMPANY)	(COMPANY)	(COMPANY)

Shipping Copy (White) File Copy (Yellow) Field Copy (Pink)

ARCADIS

Appendix C

Calculation of Site-Specific Benzene Groundwater Concentration Protective of the Indoor Air Pathway

Calculation of Groundwater Benzene Concentration Protective of the Indoor Air Pathway

The DTSC version of the Johnson & Ettinger model was used to estimate a benzene concentration in groundwater that would not pose as a vapor intrusion concern under a commercial exposure scenario. The model firsts estimates an indoor air concentration based on a target health risk of 1×10^{-6}. Then it subsequently back-calculates a groundwater concentration associated this vapor intrusion potential. The model itself generates a groundwater concentration that is not associated with a vapor intrusion health risk above the DTSC target level.

Default commercial exposure input parameters were used to calculate the benzene in groundwater concentration. These include a 25-year exposure duration, 250 days per years and eight hours per day. Building specific defaults were incorporated into the modeling effort such as slab thickness and ventilation exchange rates.

Based on the evaluation, a benzene concentration of 66 micrograms per liter (μg/l) in groundwater would not be associated with a vapor intrusion health concern under the commercial exposure scenario. The exposure assumptions used under a commercial scenario are conservative for a school setting, where exposures are expected to be significantly lower.

Details concerning the vapor transport modeling are provided below.

ASSUMPTIONS USED IN THE VAPOR TRANSPORT MODELING

The Johnson & Ettinger model is a deterministic model with single-point inputs and outputs. The model is based on the principles of subsurface gas flow and contaminant transport, contaminant partitioning between media, and the physical and chemical properties of the contaminants of interest. The model incorporates both diffusion and advection as mechanisms of gas transport of contaminants into the indoor air environment.

For this modeling effort, as recommended in the DTSC guidance (DTSC 2005), site specific soil physical parameters were incorporated into the model. Three soil samples for physical characterization were collected in September 2008. Based on the physical parameter evaluation, the soil at the site is classified as sandy clay, with an average dry bulk density of 2.72 grams per cubic centimeter (g/cm3), an average total porosity of 0.401, with an average water filled porosity of 0.28 cm3/cm3. In addition, Site specific groundwater temperature and depth were also used. The temperature selected, 19 degrees Celsius, represented the average temperature measured during the previous four quarterly monitoring events. Depth to groundwater was also the average depth as measured during four quarterly monitoring events, 125 centimeters.

Slab-on-grade building foundation type was used in the model based on current building construction at the site and because it is the usual construction type in California. Default building dimensions were also used. The building dimensions are included in the model spreadsheets. Model inputs include the DTSC default air exchange rate of 1 exchange per hour for the commercial/industrial scenario and the DTSC default Indoor-outdoor pressure differential of 40 gram per centimeter per square second (g/cm/s2).

The Johnson & Ettinger model is based on the following assumptions and were applied to the evaluation:

- Steady-state conditions
- An infinite (non-depleting) source of contamination over the exposure duration
- Air mixing in the building is uniform
- Preferential gas migration pathways do not exist
- Contaminant vapors do not biodegrade
- Contaminant vapors enter a building primarily through cracks and seams in the foundation
- Building ventilation rates and pressure differentials are assumed to remain constant throughout the exposure duration.

The model is included in the report.

REFERENCES

Department of Toxic Substances Control (DTSC). 1992, updated 1996. Supplemental Guidance for Human Health Multimedia Risk Assessment for Hazardous Waste Sites and Permitted Facilities. California EPA Department of Toxic Substances Control, Sacramento, California.

Department of Toxic Substances Control (DTSC 2005). Guidance for the Evaluation and Migration of Subsurface Vapor Intrusion into Indoor Air. February.

Johnson, P.C., and R.A. Ettinger. 1991. *Heuristic Model for Predicting the Intrusion Rate of Contaminant Vapors into Buildings*. Environ. Sci. Technol. Vol. 25, No. 8, pp. 1445-52.

U.S. Environmental Protection Agency (U.S. EPA). 1989. Risk Assessment Guidance for Superfund, Human Health Evaluation Manual, Part A. Interim Final. December 29.

———. 1997. User's Guide for the Johnson & Ettinger (1991) Model for Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response, Toxics Branch. September.

DATA ENTRY SHEET

GW-SCREEN
Version 3.0; 04/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

DTSC
Vapor Intrusion Guidance
Interim Final 12/04
(last modified 2/4/09)

ENTER Chemical CAS No. (numbers only, no dashes)	**ENTER** Initial groundwater conc., C_W (µg/L)	Chemical
71432	1.00E+00	Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	**ENTER** Depth below grade to water table, L_{WT} (cm)	**ENTER** SCS soil type directly above water table	**ENTER** Average soil/ groundwater temperature, T_S (°C)	**ENTER** Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
15	125	SC	19	

MORE ↓

ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	**ENTER** User-defined vandose zone soil vapor permeability, k_v (cm^2)	**ENTER** Vadose zone SCS soil type [Lookup Soil Parameters]	**ENTER** Vadose zone soil dry bulk density, ρ_b^V (g/cm^3)	**ENTER** Vadose zone soil total porosity, n^V (unitless)	**ENTER** Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)
SC			SC	2.72	0.401	0.28

MORE ↓

ENTER Target risk for carcinogens, TR (unitless)	**ENTER** Target hazard quotient for noncarcinogens, THQ (unitless)	**ENTER** Averaging time for carcinogens, AT_C (yrs)	**ENTER** Averaging time for noncarcinogens, AT_{NC} (yrs)	**ENTER** Exposure duration, ED (yrs)	**ENTER** Exposure frequency, EF (days/yr)
1.0E-06	1	70	25	25	250

Used to calculate risk-based groundwater concentration.

CHEMICAL PROPERTIES SHEET

ABC

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	5.89E+01	1.79E+03	2.9E-05	3.0E-02

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
110	0.121	0.574	1.77E-09	0.644	1.14E-09	30.00	0.385	0.030	0.355	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)
3.39E+04	1.00E+06	5.00E-03	15	8,030	4.19E-03	1.75E-01	1.78E-04	4.88E-04	1.71E-05	5.74E-05

Diffusion path length, L_d (cm)	Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
110	15	1.75E+02	1.25	2.02E+00	4.88E-04	5.00E+03	3.97E+03	1.22E-05	2.14E-03	2.9E-05	3.0E-02

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (μg/L)	Indoor exposure groundwater conc., noncarcinogen (μg/L)	Risk-based indoor exposure groundwater conc., (μg/L)	Pure component water solubility, S (μg/L)	Final indoor exposure groundwater conc., (μg/L)
6.58E+01	2.05E+04	6.58E+01	1.79E+06	6.58E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE SUMMARY BELOW:
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

END

]

ARCADIS

Appendix D

SVE/AS System Operational Logs

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 7/1/10 Name(s): DSmolko

Time: 1530 Page 1 of 1

System On Upon Arrival	(Yes) No (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temp. (°F)	Temp. (°F)	Temp. (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
1540	SVE Blower	230508	117	870	675	865	0.2	
	SVE Blower							
	SVE Blower							

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1611	SVE-1	25	1.0	
1615	SVE-2	110	19.0	
1620	SVE-3	20	3.4	
1625	SVE-4	114	76	
1628	SVE-5	43	9.5	
1631	SVE-6	56	4.5	

VAPOR ABATEMENT

Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1604	Pre-Cat Ox	10.0	
1602	Post-Cat Ox	0.7	
	Pre-Cat Ox		
	Post-Cat Ox		

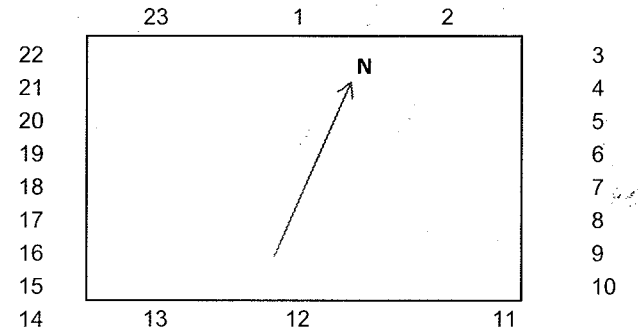
SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

1) Installed Threaded Caps on all well within well field & ox sparge field

2) Developed three wells 1I, 4O, & 6I. New TD = 16.62, 32.80, & 13.43 respectively.

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	82	0.0
	16	
East	9	0.4
	4	0.0
South	11	0.0
	13	0.0
West	20	0.1
	23	0.0



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 7/7/10 **Name(s):** O Smolko

Time: 1000 **Page** 1 of 1

System On Upon Arrival	(Yes) No (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temp. (°F)	Temp. (°F)	Temp. (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
1500	SVE Blower	23193.8	103	773	582	745	0.3	
	SVE Blower							
	SVE Blower							

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1121	SVE-1	26	21	
1125	SVE-2	104	107	
1130	SVE-3	21	25	
1138	SVE-4	94	69	
1141	SVE-5	46	7	
1145	SVE-6	36	13	

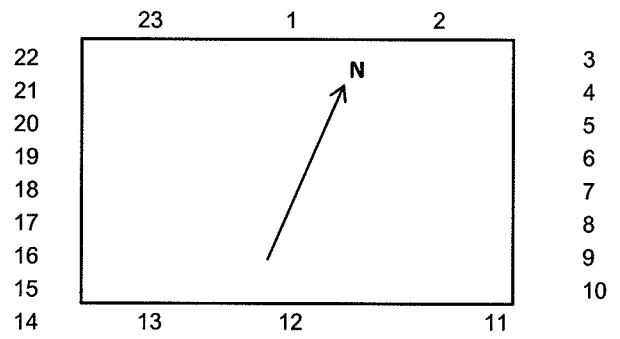
VAPOR ABATEMENT

Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1508	Pre-Cat Ox	61	
1505	Post-Cat Ox	0.8	
	Pre-Cat Ox		
	Post-Cat Ox		

SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	1	0
	2	12.8
East	6	0.5
	9	0
South	12	0
	14	0
West	21	0
	17	0



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 7/14/10 Name(s): D Smolko

Time: 1206 Page 1 of 2

System On Upon Arrival	Yes (No) (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temperature Controller Temp (°F)	High Limit Controller Temp (°F)	Dilution Controller Temp (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
1206	SVE Blower	23331.0	-	501	339	419	0.3	System Off
1250	SVE Blower	23,331.7	80	901	663	852	0.3	
	SVE Blower							Turned Up Flowrate to 150 cfm as read on Chart Recorder

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1245	SVE-1	17.5	2.0	Individual Readings Σ = 125 ?
1305	SVE-2	24.0	225.	SVE Chart Recorder Reads 121 Total CFM
1315	SVE-3	17.5	3.7	
1320	SVE-4	20.0	166	
1327	SVE-5	36.5	25.0	
1331	SVE-6	9.5	9.9	

VAPOR ABATEMENT

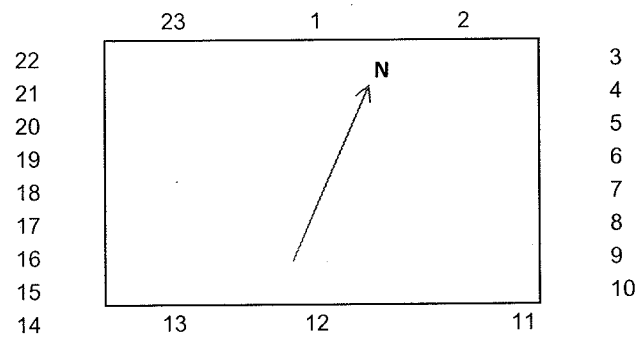
Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1329	Pre-Cat Ox	59.5	
1328	Post-Cat Ox	0.2	
	Pre-Cat Ox		
	Post-Cat Ox		

SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

- System Off upon Arrival. Ran (23331 - 23290) 41 hrs since last Visit (7/12 1700) ∴ Off @ approximately 1000 today
- Even though SVE Unit Temp was > 600 by 12:45 I had to Press green Start button on Compressor to initate compressor
- SVE Pipes 3 & 4 have water Flowing through them.

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	2	0.0
	4	0.8
East	8	0.0
	11	0.1
South	12	0.0
	15	0.0
West	21	0.0
	18	0.1



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

Date: 7/14/10 **Name(s):** DSmolko

Time: 1230 **Page** 2 of 2

(WEEKLY AND MONTHLY MONITORING VISITS)

AIR SPARGE COMPRESSOR OPERATION

Time	Location	Total Flow (ACFM)	Pressure (psi)	Open Solenoid	Operation (normal?)	Notes (any changes or adjustments, etc?)
1230	Sparge Blower	11	30	–	–	Had to Press 'Green' Start Button Initially to Compressor
	Solenoid 1			–		
	Solenoid 2			–		
1233	Solenoid 3	11	30	Yes	✓	Had to Reset Timers
	Solenoid 4			–		
	Solenoid 5					

SPARGE WELLS

Time	Location	Total Flow (ACFM)	Pressure (psi)	Total Flow	Which Solenoid? (1,2,3,4,5)	Notes (any samples collected or any changes, etc.?)
1310	AS-1I	1.5	16.0	10.5	1	Turned Up Flowrate w/ No Result
1325	AS-1D	2.0	15.5	10.5	2	
1310	AS-2I	2.0	15.5	10.5	1	
1325	AS-2D	2.0	13.0	10.5	2	
1310	AS-3I	2.0	15.0	10.5	1	Turned Up Flowrate w/ No Result
1325	AS-3D	2.0	15.0	10.5	2	
1235	AS-4I	2.5	10.0	11	3	
1337	AS-4D	<1.0	16.5	10.0	4	Did not respond to turning up flowrate
1310	AS-5I	1.5	15.0	10.5	1	
1325	AS-5D	2.0	14.0	10.5	2	
1235	AS-6I	2.5	8.0	11	3	
1337	AS-6D	2.5	12.0	10.0	4	
	AS-7I	Offline				
	AS-7D					
1235	ASMW-5I	2.5	11.0	11	3	
1337	ASMW-5D	2	12.5	10.0	4	
1235	AS-8I	2	10.0	11	3	
1337	AS-8D	2	16.0	10.0	4	

Equipment Calibration

Instrument	Standards Used	Parameter (Actual)	Calibration Achieved (Y/N)
MiniRae 2000	100ppm Iso	98.3	Yes

* Group 'Sparge Wells Table' as they are built' (1,2,3,5)I + D (4,6,8 54W) S + D

* Delete 7I + 7D For Now

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 7/22/10 Name(s): DSmolko

Time: 0930 Page 1 of 2

System On Upon Arrival	(Yes) No (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temperature Controller Temp (°F)	High Limit Controller Temp (°F)	Dilution Controller Temp (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
1000	SVE Blower	23476.3	91	1007	728	937	0.2	
	SVE Blower							
	SVE Blower							

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1123	SVE-1	23.5	1.3	
1126	SVE-2	33	226	
1130	SVE-3	19	6.2	
1132	SVE-4	22	202	
1134	SVE-5	42	9.1	
1137	SVE-6	11	2.9	

VAPOR ABATEMENT

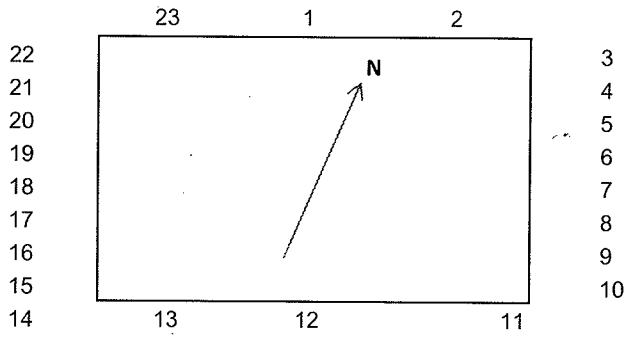
Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1015	Pre-Cat Ox	49	
1014	Post-Cat Ox	0.3	
1140	Pre-Cat Ox	45.5	
1141	Post-Cat Ox	0.6	

SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

- Solenoids 1 & 4 On Upon Arrival. Upon checking inside Timer Box the timers were not all set correctly. Inform Rob Larson to inspect timer every time he adjusts system.
- Chart Recorder is not reading CFM (Regulatory Issue?)

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	1	0.1
	2	0.1
East	7	0.1
	11	0.
South	12	0
	15	0
West	20	0
	22	0



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

Date: 7/22/10 **Name(s):** DSmolko

Time: 1030 **Page** 2 of 2

(WEEKLY AND MONTHLY MONITORING VISITS)

AIR SPARGE COMPRESSOR OPERATION

Time	Location	Total Flow (ACFM)	Pressure (psi)	Open Solenoid	Operation (normal?)	Notes (any changes or adjustments, etc?)
1030	Sparge Blower	11	25	2	Yes	
	Solenoid 1					
	Solenoid 2					
	Solenoid 3					
	Solenoid 4					
	Solenoid 5					

SPARGE WELLS

Time	Location	Flow (ACFM)	Pressure (psi)	Total Flow (ACFM)	Which Solenoid? (1,2,3,4,5)	Notes (any samples collected or any changes, etc.?)
	AS-1I					
	AS-2I					
	AS-3I					
	AS-5I					
1030	AS-1D	<1	14			Very little flowrate into
1030	AS-2D	<1	12	11	2	1D, 2D, 5D
1030	AS-3D	2	14			
1030	AS-5D	<1	13			
	AS-4I					
	AS-6I					
	ASMW-5I					
	AS-8I					
	AS-4D					
	AS-6D					
	ASMW-5D					
	AS-8D					

Equipment Calibration

Instrument	Standards Used	Parameter (Actual)	Calibration Achieved (Y/N)
MiniRae 2000	100 PPM Iso	99.4	Yes

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 7/29/10 Name(s): DSmolko

Time: 1000 Page 1 of 2

System On Upon Arrival	(Yes) No (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temperature Controller Temp (°F)	High Limit Controller Temp (°F)	Dilution Controller Temp (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
1000	SVE Blower	23597.3	152	773	574	734	0.5	Low Temp
1300	SVE Blower	23600.1	154	900	709	911	—	
	SVE Blower							

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1040	SVE-1	57	1.9	Valved to: ~~22 CFM~~ 13 CFM
1043	SVE-2	6.5	403	~~Valved to~~: Now ~~94 CFM~~ 59 CFM
1045	SVE-3	650	6.5	Turned down to: ~~18 CFM~~ 10 CFM
1048	SVE-4	9.5	208	Now: ~~44 CFM~~ 72 CFM
1050	SVE-5	45.5	8.8	Turned down to: ~~29 27~~ 15 CFM
1053	SVE-6	12.0	5.4	Valved to: ~~17~~ 7 CFM

VAPOR ABATEMENT

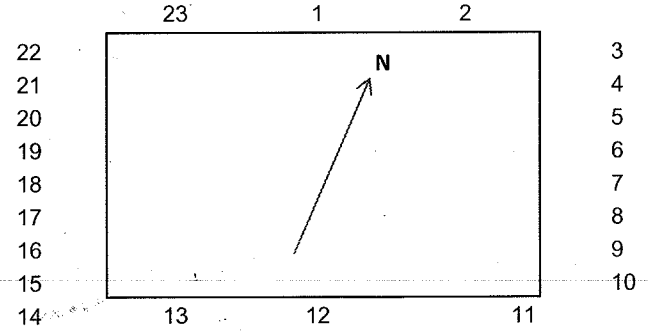
Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1012	Pre-Cat Ox	15.0	
1010	Post-Cat Ox	0.0	
1303	Pre-Cat Ox	51	
1301	Post-Cat Ox	0.0	

SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

Spoke to Rob Larson, he thinks it's a fuse problem. He will switch fuses from 50 Amps to 60 Amps sometime today or tomorrow.

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	1	0
	3	0
East	7	0
	10	0
South	12	0
	15	0
West	18	0
	22	0



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

Date: 7/29/10 **Name(s):** OSmolko

Time: 1015 **Page** 2 of 2

(WEEKLY AND MONTHLY MONITORING VISITS)

AIR SPARGE COMPRESSOR OPERATION

Time	Location	Total Flow (ACFM)	Pressure (psi)	Open Solenoid	Operation (normal?)	Notes (any changes or adjustments, etc?)
	Sparge Blower		~~40~~			
1000	Solenoid 1	14	30	1		~~Didn't get~~
1015	Solenoid 2	16	40	2		
1030	Solenoid 3	10	27	3		
1045	Solenoid 4	11	27	4		
	Solenoid 5					

SPARGE WELLS

Time	Location	Flow (ACFM)	Pressure (psi)	Total Flow (ACFM)	Which Solenoid? (1,2,3,4,5)	Notes (any samples collected or any changes, etc.?)
1000	AS-1I	5.0	12	~~40~~ 14	1	Turned Down to 3CFM
1000	AS-2I	<1	13.5			Flow would not increase
1000	AS-3I	<1	13.0			Turned up to 2 CFM
1000	AS-5I	<1	13.5			Flow would not increase
1015	AS-1D	4.0	23	16	2	
1015	AS-2D	3.0	17			
1015	AS-3D	2.5	17			
1015	AS-5D	3.0	19			
1030	AS-4I	<1	11	10	3	Turned up to 1 CFM
1030	AS-6I	1	8			Turned up to 3 CFM
1030	ASMW-5I	1	13			No Response
1030	AS-8I	<1	12			No Response.
1045	AS-4D	<1	15	11	4	Turned up to 1 CFM
1045	AS-6D	2	13			No Response
1045	ASMW-5D	2	13			No Response.
1045	AS-8D	1	15			No Response

Equipment Calibration

Instrument	Standards Used	Parameter (Actual)	Calibration Achieved (Y/N)

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 8/4/10 Name(s): D Smolko

Time: 1008 Page 1 of 2

System On Upon Arrival	(Yes) No (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temperature Controller Temp (°F)	High Limit Controller Temp (°F)	Dilution Controller Temp (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
1000	SVE Blower	23,741.3	121	929	681	876	1.0	
	SVE Blower							
	SVE Blower							

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1039	SVE-1	18	0.5	
1042	SVE-2	58	23	
1047	SVE-3	16	0.3	
1053	SVE-4	32	102	
1055	SVE-5	24	2.3	
1100	SVE-6	16	0.5	

VAPOR ABATEMENT

Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1006	Pre-Cat Ox	41.0	
1005	Post-Cat Ox	0.0	
	Pre-Cat Ox		
	Post-Cat Ox		

SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

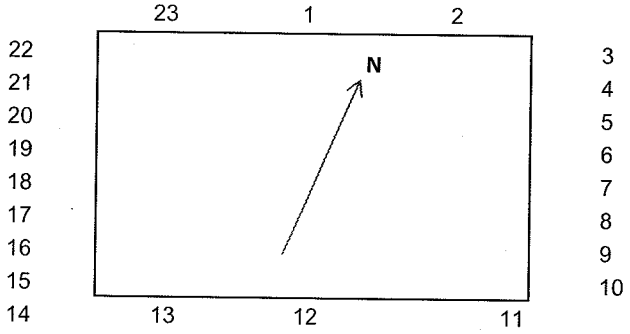
Solenoid Timers Not Set Correctly Again (I reset them)

Pumped 20+ gals out of SVE Pipes

SVE Pipes #s 2, 5, & 6 contained water

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	1	0
	3	0
East	7	0
	10	0
South	12	0
	14	0
West	21	0
	18	0



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

Date: 8/9/10 **Name(s):** D Smolko

Time: 1020 **Page** 2 of 2

(WEEKLY AND MONTHLY MONITORING VISITS)

AIR SPARGE COMPRESSOR OPERATION

Time	Location	Total Flow (ACFM)	Pressure (psi)	Open Solenoid	Operation (normal?)	Notes (any changes or adjustments, etc?)
	Sparge Blower					
	Solenoid 1					
	Solenoid 2					
1020	Solenoid 3	11	32	3	Yes	
	Solenoid 4					
	Solenoid 5					

SPARGE WELLS

Time	Location	Flow (ACFM)	Pressure (psi)	Total Flow (ACFM)	Which Solenoid? (1,2,3,4,5)	Notes (any samples collected or any changes, etc.?)
1055	AS-1I	4	3	11	1	Individual Flowrate meters very unreliable.
1055	AS-2I	<1	14			
1055	AS-3I	2	14			
1055	AS-5I	1	14			
1110	AS-1D	2	16	10.5	2	
1110	AS-2D	<1	12			
1110	AS-3D	1	13			
1110	AS-5D	1	14			
1020	AS-4I	<1	10	11	3	
1020	AS-6I	3	8			
1020	ASMW-5I	<1	9.5			
1020	AS-8I	4	9			
1040	AS-4D	2	16	11	4	
1040	AS-6D	1	13			
1040	ASMW-5D	1	13			
1040	AS-8D	1	15			

Equipment Calibration

Instrument	Standards Used	Parameter (Actual)	Calibration Achieved (Y/N)
Mini Rae 2000	100 ppm Iso	106	Yes

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 8/10/10 **Name(s):** D Smolko

Time: 900 **Page** 1 of 2

System On Upon Arrival	(Yes) No (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temperature Controller Temp (°F)	High Limit Controller Temp (°F)	Dilution Controller Temp (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
0915	SVE Blower	23884.3	125	900	661	850	0.3	
	SVE Blower							
	SVE Blower							

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
0930	SVE-1	16.5	0.2	
0934	SVE-2	73.0	22.1	
0937	SVE-3	16.0	0.4	
0940	SVE-4	31.5	43.9	
0943	SVE-5	20.0	0.9	
0946	SVE-6	19.0	4.5	

VAPOR ABATEMENT

Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
0921	Pre-Cat Ox	22.3	
0920	Post-Cat Ox	0.0	
	Pre-Cat Ox		
	Post-Cat Ox		

SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

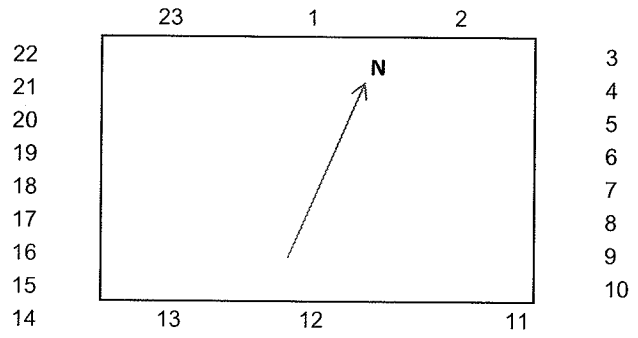
Audible water flowing in pipes 2 & 4

Repaired Broken AS II Well Cap / Top

Shut off air sparge to AS II

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	1	0
	4	2.0
East	7	0
	10	0
South	12	0
	14	0
West	17	0
	21	0



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

Date: **Name(s):**

Time: _____ **Page** _____ of _____

(WEEKLY AND MONTHLY MONITORING VISITS)

AIR SPARGE COMPRESSOR OPERATION

Time	Location	Total Flow (ACFM)	Pressure (psi)	Open Solenoid	Operation (normal?)	Notes (any changes or adjustments, etc?)
	Sparge Blower					
	Solenoid 1					
	Solenoid 2					
0945	Solenoid 3	12	25	3	Y	
	Solenoid 4					
	Solenoid 5					

SPARGE WELLS

Time	Location	Flow (ACFM)	Pressure (psi)	Total Flow (ACFM)	Which Solenoid? (1,2,3,4,5)	Notes (any samples collected or any changes, etc.?)
0935	AS-1I	4	3.0	11	1	
0935	AS-2I	2	14.0			
0935	AS-3I	2	14.0			
0935	AS-5I	<1	14.0			
0945	AS-1D	2	15.0	105	2	
0945	AS-2D	<1	11.5			
0945	AS-3D	<1	13.0			
0945	AS-5D	<1	13.5			
0915	AS-4I	1	7.0	12	3	
0915	AS-6I	1	6.0			Both Solenoids were
0915	ASMW-5I	1	6.5			on at this time.
0915	AS-8I	1	7.0			
0915	AS-4D	1	7.5	↓	4	
0915	AS-6D	1	7.0			Actual Individual flowrate
0915	ASMW-5D	1	6.5			hard to read but near
0915	AS-8D	1	8.0			or < 1 CFM.

Equipment Calibration

Instrument	Standards Used	Parameter (Actual)	Calibration Achieved (Y/N)

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 8/18/10 Name(s): DSmolko

Time: 0945 Page 1 of 2

System On Upon Arrival	(Yes) No (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temperature Controller Temp (°F)	High Limit Controller Temp (°F)	Dilution Controller Temp (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
0945	SVE Blower	24077.0	124	973	684	878	2.0	
	SVE Blower							
	SVE Blower							

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1000	SVE-1	8.5	0.6	
1010	SVE-2	95.0	38.5	
1015	SVE-3	7.5	0.3	
1018	SVE-4	16.5	81.0	
1021	SVE-5	13.0	0.8	
1025	SVE-6	18.0	6.0	

VAPOR ABATEMENT

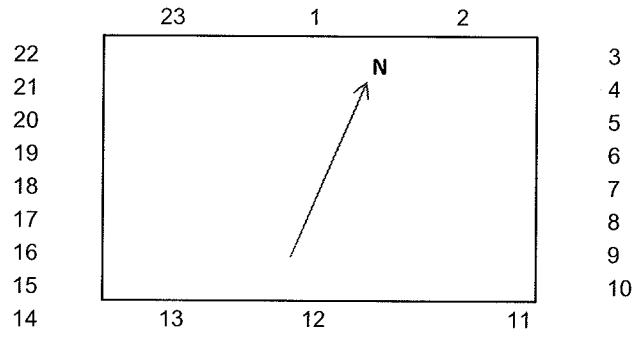
Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
958	Pre-Cat Ox	39.7	
1000	Post-Cat Ox	0.0	
	Pre-Cat Ox		
	Post-Cat Ox		

SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

Drained ~ 15 gals of water from knock-out tank & SVE pipes
SVE Pipe # 6 had ~ 10 gals
SVE Pipe # 5 had ~ 2 gals
No sounds of rocks or gravel came through during the pumping

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	23	0.0
	2	0.5
East	7	0.0
	10	0.0
South	12	0.0
	14	0.4
West	18	1.0
	21	0.0



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

Date: **Name(s):**

Time: _____ **Page** _____ of _____

(WEEKLY AND MONTHLY MONITORING VISITS)

AIR SPARGE COMPRESSOR OPERATION

Time	Location	Total Flow (ACFM)	Pressure (psi)	Open Solenoid	Operation (normal?)	Notes (any changes or adjustments, etc?)
	Sparge Blower					
1005	Solenoid 1	11	25	1	Yes	
1005	Solenoid 2	11	25	2	Yes	
0950	Solenoid 3	11	22	3	Yes	
1028	Solenoid 4	11	25	4	Yes	
	Solenoid 5					

SPARGE WELLS

Time	Location	Flow (ACFM)	Pressure (psi)	Total Flow (ACFM)	Which Solenoid? (1,2,3,4,5)	Notes (any samples collected or any changes, etc.?)
1005	AS-1I	<1	15	11	1	
1005	AS-2I	2	14			
1005	AS-3I	3	15			
1005	AS-5I	3	15			
1015	AS-1D	2	15.5		2	
1015	AS-2D	2	11.5			
1015	AS-3D	2	13.0			
1015	AS-5D	1	14.0			
950	AS-4I	1	10	11	3	
950	AS-6I	3	8			
950	ASMW-5I	1	10			
950	AS-8I	3	10			
1028	AS-4D	2	14.5	11	4	
1028	AS-6D	1	12			
1028	ASMW-5D	1	12			
1028	AS-8D	2	14.5			

Equipment Calibration

Instrument	Standards Used	Parameter (Actual)	Calibration Achieved (Y/N)

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 8/25/10 Name(s): D Smolko

Time: 0945 Page 1 of 2

System On Upon Arrival	Yes No (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temperature Controller Temp (°F)	High Limit Controller Temp (°F)	Dilution Controller Temp (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
1000	SVE Blower	24,243.2	32	610	469	592		Temp Low.
	SVE Blower							
	SVE Blower							

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1020	SVE-1	3.6	1.2	
1022	SVE-2	19.3	94.2	
1026	SVE-3	3.3	2.3	
1031	SVE-4	4.6	105	
1034	SVE-5	3.2	4.0	
1040	SVE-6	5.2	138	100 Fold Increase

VAPOR ABATEMENT

Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1000	Pre-Cat Ox	39.5	New Wells Online: NW-2I, NW-2D ASMW-2I, ASMW-2D
0959	Post-Cat Ox	0.1	
	Pre-Cat Ox		
	Post-Cat Ox		

SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

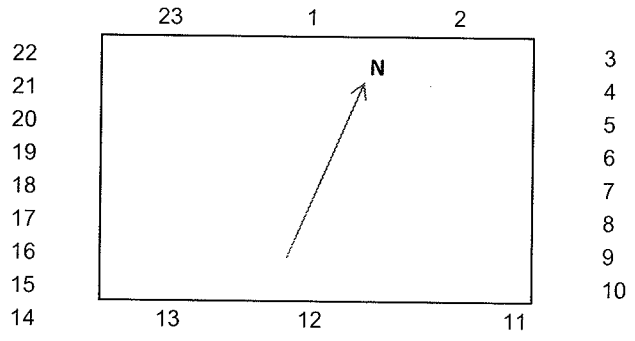
Called Rob Larson Regarding temp - Left Message -

Timer / Solenoid # 4 not set properly, again.
I reset it to the same time as the others

I drained water out of Air lines & Restarted System

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	1	0.1
	2	0.3
East	7	0.1
	10	0.0
South	12	0.1
	14	0.2
West	18	0.1
	21	0.1



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

Date: 8/25/10 **Name(s):** DSmolko

Time: 1000 **Page** 2 of 2

(WEEKLY AND MONTHLY MONITORING VISITS)

AIR SPARGE COMPRESSOR OPERATION

Time	Location	Total Flow (ACFM)	Pressure (psi)	Open Solenoid	Operation (normal?)	Notes (any changes or adjustments, etc?)
	Sparge Blower					
	Solenoid 1					
	Solenoid 2					
	Solenoid 3					
	Solenoid 4					
	Solenoid 5					

SPARGE WELLS

Time	Location	Flow (ACFM)	Pressure (psi)	Total Flow (ACFM)	Which Solenoid? (1,2,3,4,5)	Notes (any samples collected or any changes, etc.?)
1035	NW-2D	3	12.5		1	→ Turned Down, Caused
	AS-2I	1	12.5			Increase in flow @
	AS-3I	2	12.5			ASMW-2D
	ASMW-2D	1	13.0			
~~1005~~	AS-1D				2	
	AS-2D					
	AS-3D					
	AS-5D					
1005	AS-4I	2	12		3	
	AS-6I	<1	6			
	ASMW-5I	1	9.5			
	ASMW-2I	2	14			
1021	AS-4D	1	14.5	11	4	
	AS-6D	2	13			
	ASMW-5D	2.5	13			
	NW-2I	1	16			

Equipment Calibration

Instrument	Standards Used	Parameter (Actual)	Calibration Achieved (Y/N)

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 8/31/10 Name(s): JSmolko

Time: 1000 Page 1 of 2

System On Upon Arrival	(Yes) No (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temperature Controller Temp (°F)	High Limit Controller Temp (°F)	Dilution Controller Temp (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
1000	SVE Blower	24387.2	104	920	685	878	1.0	Temp SetPt = 950.
	SVE Blower							
	SVE Blower							

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1025	SVE-1	14.1	0.1	
1030	SVE-2	65.6	49.7	
1033	SVE-3	13.2	1.1	
1036	SVE-4	27.0	88.7	
1040	SVE-5	10.5	1.7	
1043	SVE-6	18.1	1.9	

VAPOR ABATEMENT

Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
1016	Pre-Cat Ox	45.5	
1015	Post-Cat Ox	0.0	
	Pre-Cat Ox		
	Post-Cat Ox		

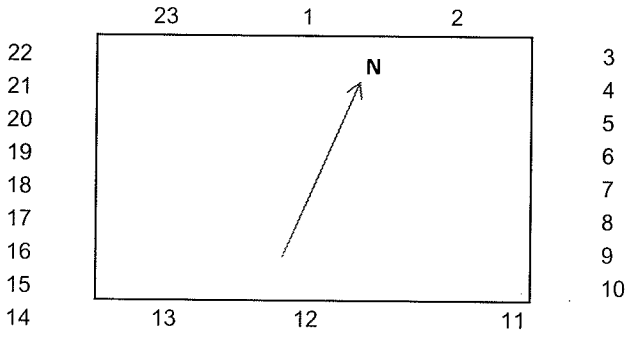
SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

SVE pipes 5, 6 & 4 contained plenty of water

Pumped ~ 15 gals out of Knock-out Tank into on site drum - needs labeled.

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	1	0.0
	2	
East	6	
	9	
South	12	
	13	
West	18	
	21	0.0



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

Date: **Name(s):**

Time: _____ **Page** _____ of _____

(WEEKLY AND MONTHLY MONITORING VISITS)

AIR SPARGE COMPRESSOR OPERATION

Time	Location	Total Flow (ACFM)	Pressure (psi)	Open Solenoid	Operation (normal?)	Notes (any changes or adjustments, etc?)
	Sparge Blower					
	Solenoid 1					
	Solenoid 2					
	Solenoid 3					
	Solenoid 4					
	Solenoid 5					

SPARGE WELLS

Time	Location	Flow (ACFM)	Pressure (psi)	Total Flow (ACFM)	Which Solenoid? (1,2,3,4,5)	Notes (any samples collected or any changes, etc.?)
1030	NW-2D	2	11	?	1	
	AS-2I	1	12			
	AS-3I	2	12			
	ASMW-2D	2	12			
1045	AS-1D	1	13	?	2	Nearly unreadable ~~@~~ Q in the individual meters
	AS-2D	1	12			
	AS-3D	1	14			
	AS-5D	1	13			
1052	AS-4I	2	14	11	3	
	AS-6I	1	6			
	ASMW-5I	3	10			
	ASMW-2I	1	15			
1010	AS-4D	1	13	11	4	
	AS-6D	1	12			
	ASMW-5D	1	12			
	NW-2I	4	12			Turned Down to increase flowrate to others.

Equipment Calibration

Instrument	Standards Used	Parameter (Actual)	Calibration Achieved (Y/N)

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

(COMPLETE EVERY SITE VISIT)

Date: 9/8/10 Name(s): DSmolko

Time: 0915 Page 1 of 2

System On Upon Arrival	(Yes) No (Circle One)

SVE BLOWER OPERATION

Time	Location	Hour Meter Reading (hrs)	Total Flow (ACFM)	Temperature Controller Temp (°F)	High Limit Controller Temp (°F)	Dilution Controller Temp (°F)	KO Tank level (ft below float switch)	Notes (any changes or adjustments, etc?)
0925	SVE Blower	24578.4	790	971	678	875	—	
	SVE Blower							
	SVE Blower							

SVE SYSTEM

Time	Collection Pipe	Flow (ACFM)	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
0930	SVE-1	16	0.2	
0935	SVE-2	26	61.5	
0940	SVE-3	12	8.5	
0943	SVE-4	32	28.0	
0946	SVE-5	15	24.0	
0950	SVE-6	29	2.3	

VAPOR ABATEMENT

Time	Location	PID (ppmv)	Notes (any samples collected or any changes, adjustments, etc.?)
0923	Pre-Cat Ox	31.5	
0922	Post-Cat Ox	0.0	
	Pre-Cat Ox		
	Post-Cat Ox		

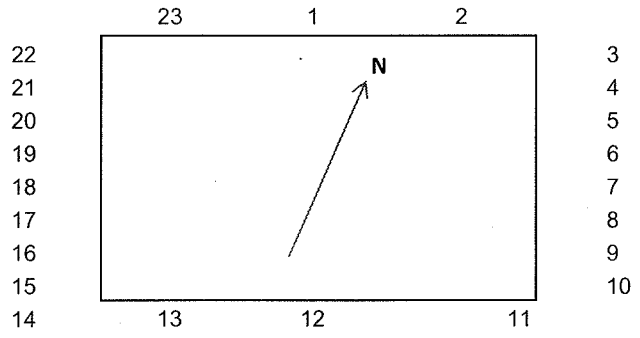
SYSTEMS MAINTENANCE (List Activities Conducted, Equipment Modified or Repaired, Sampling, ect.)

Pumped ~ 10 gallons from SVE Pipes

Could not Activate Transfer Pump - fuse blown - ?

PID MONITORING AROUND PERIMETER OF TARP

Edge	Location	(ppm)
North	23	0.0
	2	0.0
East	6	0.0
	9	0.0
South	12	0.0
	14	0.0
West	18	0.0
	21	0.0



Mark Sample Location On Schematic

ASPIRE SVE/SPARGE OPERATIONS AND MAINTENTANCE LOG

1009 66th Ave., Oakland, California

Date: **Name(s):**

Time: _____ **Page** _____ of _____

(WEEKLY AND MONTHLY MONITORING VISITS)

AIR SPARGE COMPRESSOR OPERATION

Time	Location	Total Flow (ACFM)	Pressure (psi)	Open Solenoid	Operation (normal?)	Notes (any changes or adjustments, etc?)
	Sparge Blower					
	Solenoid 1					
	Solenoid 2					
	Solenoid 3					
	Solenoid 4					
	Solenoid 5					

SPARGE WELLS

Time	Location	Flow (ACFM)	Pressure (psi)	Total Flow (ACFM)	Which Solenoid? (1,2,3,4,5)	Notes (any samples collected or any changes, etc.?)
0930	NW-2D	2	11	11	1	
	AS-2I	1	13			
	AS-3I	1	13			
	ASMW-2D	2	13			
0940	AS-1D	1	14	11	2	
	AS-2D	1	12			
	AS-3D	1	14			
	AS-5D	1	14			
0925	AS-4I	1	8	6	3	
	AS-6I	1	5			
	ASMW-5I	1	6			
	ASMW-2I	1	9			
0925	AS-4D	1	8	6	4	
	AS-6D	1	8			
	ASMW-5D	1	7			
	NW-2I	1	6			

Equipment Calibration

Instrument	Standards Used	Parameter (Actual)	Calibration Achieved (Y/N)