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Soil & Groundwater Investigation Report

Former Atlantic Richfield Company Station #6041
7249 Village Parkway
Dublin, California
ACEH Case #RO0000452

ENVIRONMENT

"I declare that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct."

Date:
January 12, 2011

Submitted by:

Contact:
Hollis E. Phillips

ARCADIS U.S., Inc

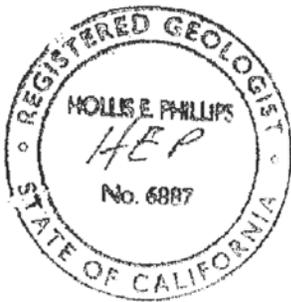
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Hollis E. Phillips, PG
Project Manager

Our ref:
GP09BPNA.C039



Mr. Paresh Khatri
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject:

Soil and Groundwater Investigation Report
Former Atlantic Richfield Company Station # 6041
7249 Village Parkway
Dublin, California
ACEH Case # RO0000452

Dear Mr. Khatri:

ARCADIS U.S. (ARCADIS) has prepared this *Soil and Groundwater Investigation Report* (Report) for the ARCO Service Station No. 6041 (site) located at 7249 Village Parkway in Dublin, California (**Figure 1**). This Report has been prepared to document site assessment activities conducted as proposed in ARCADIS' *Revised Soil and Groundwater Investigation Work Plan* dated June 25, 2010. This work was conducted as requested in the Alameda County Environmental Health (ACEH) letter dated October 14, 2010.

Site Background

The site is an active ARCO-branded gasoline station. There are two underground storage tanks (USTs) believed to be installed between 2001 and 2003. Site features include eight dispenser islands and a station building. The majority of the Site surface is paved with concrete and asphalt. A Site Location Map is provided as **Figure 1**. A Site Map showing historical sampling locations is provided as **Figure 2**.

The site is bound by Village Parkway to the west-southwest and Amador Valley Boulevard to the east-southeast. Three other former or currently active retail stations are located south, southwest, and west of the site across Village Parkway and Amador Valley Boulevard.

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ENVIRONMENT

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Previous Site Investigations

On June 6 and 7, 1990, one 550-gallon waste-oil tank of single wall steel construction was excavated and removed from its location adjacent to the northern wall of the station building at the site. The location of the former station building is shown in **Figure 2**. Applied Geosystems observed no signs of leakage on the tank at the time of excavation. Analysis of soil samples collected from the waste-oil tank pit reported concentrations of Halogenated Volatile Organic Compounds (HVOCs), Total Oil and Grease (TOG), Total Petroleum Hydrocarbons as Gasoline (TPHg), Total Petroleum Hydrocarbons as Diesel (TPHd), and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) were not detected above the method detection limits. Results of laboratory analysis of the composite sample collected from the stockpiled soil indicated TOG at 110 parts per million (ppm), TPHd at 180 ppm, TPHg at 10 ppm, total xylenes at 0.25 ppm, and non-detectable concentrations of organic lead, benzene, toluene, and ethylbenzene. Based on the results of these samples, Applied Geosystems concluded no further excavation around the tank pit was necessary. On July 6, 1990 the tank pit was backfilled with 25 tons of ¾ inch aggregate base, and the area was repaved. (Applied Geosystems, 1990).

On September 25, 1990, an unauthorized fuel spill reportedly occurred near the southeastern service island. On September 12 and 13, 1991, RESNA observed the advancement of three soil borings (B-1 through B-3). Gasoline hydrocarbon concentrations over 100 ppm were not reported in the soil samples collected from these borings with the exception of one sample from a depth of 9.5 feet below ground surface (bgs) in B-1(150 ppm TPHg) located near the northwestern service islands. (RESNA, 1992) TPHg was also detected above the detection limit at 4.5 and 9.5 feet bgs in B-2 and 9.5 feet in B-3 at concentrations of 2.5, 6.3, and 52 ppm, respectively. The soil in the vicinity of the southeastern service islands, where the fuel spill reportedly occurred, appears to be impacted by low levels of TPHg (less than 10 ppm) as evidenced by analytical results from soil samples collected from boring B-2. (RESNA, 1992) Boring B-3 was located downgradient of the four underground storage tanks. Borings B-1 through B-3 were converted to monitoring wells MW-1 through MW-3, respectively. The wells were completed with four-inch-diameter schedule 40 polyvinyl chloride (PVC) casing. Well casings were set in the wells to the depths of approximately 14 to 17.5 feet bgs. The screened casings for the monitoring wells consisted of 4-inch-diameter, 0.020 machine-slotted PVC set from the total depth of the wells to approximately 10.5 to 14 feet bgs. Blank PVC casing was set from the top of the screened casing to within a few inches below the ground surface. (RESNA, 1992) RESNA concluded that the fuel spill which

occurred on September 25, 1990, did not appear to be the sole source of gasoline hydrocarbons detected beneath the site.

On October 26 and 27, 1992, RESNA performed a subsurface investigation to further delineate the extent of gasoline hydrocarbon impacts in the soil and groundwater at the site. Additionally, the work was completed to prepare for a vapor extraction test (VET) to be performed on November 10, 1992. During this investigation, RESNA observed the advancement of seven soil borings (B-4 through B-10). RESNA concluded the presence of gasoline-impacted soil appeared to be limited to the southern portion of the site, particularly in the southeastern vicinity of the existing underground storage tanks, and in the southern vicinity of the northwestern service islands, directly above the water table within the capillary fringe (approximately 7 to 12 feet bgs). The soil at shallower depths (approximately 3 to 7 feet bgs) appeared to contain low levels of gasoline hydrocarbons (1.6 milligrams per kilogram [mg/kg] to 16 mg/kg). (RESNA, 1993a)

Soil borings B-4 through B-10 were converted to three monitoring wells (MW-4 through MW-6) and four vapor extraction wells (VW-1 through VW-4), respectively. Both the monitoring wells and vapor extraction wells were completed with 4-inch diameter, Schedule 40, PVC casing. Well casings were set in the groundwater monitoring wells (MW-4 through MW-6) to depths of approximately 15-18 feet bgs, and in the vapor extraction wells (VW-1 through VW-4) to depths of approximately 9.5 feet bgs. The screened casings for the groundwater monitoring wells (MW-4 through MW-6) consisted of 4-inch diameter, 0.020 inch-wide machine-slotted PVC set from the total depths of the wells to approximately 8.5 to 11 feet bgs. The screened casings for the vapor extraction wells (VW-1 through VW-4) consist of 4-inch diameter 0.10 inch-wide machine-slotted PVC set from the total depths of the wells to approximately 4 feet bgs. (RESNA, 1993a) Using results from the vapor extraction test performed on the site, RESNA indicated vapor extraction could be a viable soil remediation alternative for the site.

As a result of this investigation, RESNA concluded that the lateral extent of the TPHg impacts in the soil at the site had been delineated to non-detectable levels (less than 1 ppm), with the exception of the southeastern portion of the site. The vertical extent of TPHg impacts in the soil at the site had been delineated to non-detectable levels at depths of approximately 10 to 19.5 feet bgs. Additionally, RESNA concluded that the lateral extent of TPHg in groundwater had been delineated to less than 50 parts per billion (ppb) with the exception of the southern and southwestern portions of the site. (RESNA, 1993a) On August 11, 1993, six soil test holes (B-11 through B-16)

were cored at the site to depths between 16 and 22 feet to evaluate potential onsite sources of gasoline hydrocarbons to aid in the design of an air sparge test and an interim air sparge and vapor extraction remediation system. B-11 through B-13 were located in the central portion of the site at the northern end of the gasoline USTs, B-14 and B-15 were in the vicinity of the western service islands, and B-16 was located in the vicinity of the southeastern service islands. (RESNA, 1993b)

On October 12, 1993, RESNA performed an Air Sparge Pilot Test (AST) and a combination Air Sparge/Vapor Extraction Test (ASVET). Work for this investigation included the drilling of three soil borings (B-17 through B-19) and the installation of two air sparge wells (AS-1 and AS-2) and one vapor extraction well (VW-5). Vapor extraction well VW-5 was constructed using 4-inch diameter, Schedule 40 PVC with 0.10-inch machine slots, and was screened from 5 to 15 feet. Air sparge wells AS-1 and AS-2 were constructed in the bottom of the borings using 2-inch-diameter, Schedule 40 PVC pipe, with 2 feet of 2-inch-diameter, 0.020-inch machine slots at the bottom of the borings. As a result of this test, RESNA concluded air sparging was not a feasible method for remediating groundwater beneath the site. (RESNA, 1994)

On June 13, 2000, ARCO was notified by the ACEH that groundwater sampled in March 2000 contained higher concentrations of methyl tertiary butyl ether (MTBE) than in any other previous sampling even since August 1995, when analysis for MTBE was initiated. These results indicated a more recent fuel release may have occurred. ARCO was required to evaluate all monitoring records to determine if the UST system was tight. Monthly statistical analyses of the manual inventory records provided by the station owner/operator showed the UST system was tight. (Cambria, 2000) In addition, ACEH also required a workplan be developed for off-site groundwater monitoring installation to fully delineate the contaminant plume. (Alameda County, 2000a)

On August 25, 2000, Cambria proposed incorporating monitoring wells MW-6 and MW-7 from the former Shell service station located on the opposite corner from the Site, into the groundwater monitoring program. In addition, Cambria also proposed implementing dual-phase vacuum extraction (DVE) from source area wells to remove dissolved phase hydrocarbons. Alameda County approved these proposed monitoring and remedial actions on September 13, 2000. (Alameda County, 2000b)

On July 27, 2001, three USTs were removed from the site. A total of 4,150 tons (approximately 3,192 cubic yards) of soil was removed during the over-excavation

activities and approximately 25,600 gallons of impacted groundwater were removed from the site. **Figure 2** shows the limits of excavation for these activities. Soil samples were obtained on the sidewalls of the former UST cavity. Maximum detected concentrations of TPHg and benzene were reported at 8,300 mg/kg and 64 mg/kg in SW-6 at 8 feet bgs, respectively. (Cambria, 2001) Additionally the retail station at the Site was relocated and rebuilt. Two USTs and eight dispenser islands replaced the existing three USTs and four dispenser islands at the Site. In the fourth quarter of 2001, groundwater monitoring wells MW-7 and MW-8 were constructed. Vapor Well VW-2 was abandoned prior to December 21, 2001. Shell monitoring wells MW-6 and MW-7 were abandoned on September 27, 2002.

Regional Geology and Hydrogeology

The Site is located in the northwestern end of the Livermore Valley, within the Coast Ranges Geomorphic Province of Northern California. The Livermore Valley is approximately 13 miles long oriented in an east-west direction, approximately 4 miles wide, and is surrounded by hills of the Diablo Range. In the vicinity of the site, the valley floor slopes gently to the south-southeast. Soil in the vicinity of the subject site is mapped as Holocene alluvium that consists of unconsolidated, moderately to poorly sorted silt and clay rich in organic material interfingering with and graded into coarser grained stream deposits towards higher elevations. (EJ Helly, KR Lajoie, W.E Spange and M.L. Blair, 1979) Holocene alluvium (10-50 feet thick) overlies Pleistocene alluvium consisting of weakly consolidated poorly sorted, irregular interbedded clay, silt, sand and gravel, and older sedimentary deposits. The Calaveras Fault is approximately ½-mile west of the Site. (RESNA, 1992)

The Livermore Valley groundwater basin is divided into subbasins on the basis of fault traces or other hydrogeologic discontinuities (California Department of Water Resources, 1974). The groundwater system in Livermore Valley is a multi-layered system with an unconfined aquifer overlying a sequence of leaky or semiconfined aquifers. The subject site is located within the Dublin groundwater subbasin. The groundwater in the subbasin has been reported to be at depths ranging from 10 to 60 feet bgs. (Alameda County Flood Control and Water Conservation District, Zone 7 [ACFCWCD], 1991) The groundwater gradient is generally toward the south-southeast (ACFCWCD, Zone 7. 1991). The principal streams in the vicinity of the site are Alamo Canal which flows 0.6 miles southeast of the Site, and Dublin Creek which connects with Alamo Canal 0.6 miles south of the site. (RESNA, 1992)

Based on geologic cross sections and soil boring logs from previous consultants, the site consists primarily of sandy to silty clay interbedded with clayey to silty sand. A layer of sandy clay lies immediately below the baserock to depths of approximately 3 to 6 feet below ground surface (vadose zone). Below this sandy clay a layer of dry silty to medium grained sand is present to depths of approximately 6.5 to 9.5 feet. This silty to medium grained sand is underlain by silty clay, which extends to depths of approximately 9.5 to 12.5 feet (capillary fringe zone). Groundwater is usually encountered at depths of approximately 10 to 18 feet in the clayey sand layer. Groundwater encountered in this clayey sand stratum appears to be present in a relatively thin (2 to 5.5 feet thick) layer and confined by the overlying silty clay layer, as evidenced by water levels stabilizing at approximately 9.5 to 11.5 feet below ground surface (bgs). A stratum of sandy clay with some gravel, which may be a perching or confining layer, is located beneath the water-bearing clayey sand between depths of approximately 18.5 to 20 feet bgs. (RESNA, 1992; RESNA, 1993a; RESNA, 1993b; RESNA, 1994)

Groundwater flow direction at the site has been observed in the east-northeast direction and in the east-southeast direction with a hydraulic gradient which has ranged from 0.001 ft/ft to 0.024 ft/ft. Predominant groundwater flow direction in recent monitoring events has been in the northeast direction.

Recent Site Activities

On November 22 and 23, 2010, ARCADIS supervised Middle Earth Geo Testing, Inc. a subcontractor for WDC Exploration & Wells (WDC) in the advancement of three Cone Penetrometer Tests (CPTs) to obtain lithologic data and collect grab groundwater samples. Three additional soil borings were advanced in the vicinity of the former UST cavity. Site assessment activities were conducted to gather additional data to further delineate the nature and extent of impacts in soil on site as well as assess the extent of soil impacts in the former source area. The locations of the soil borings are shown in **Figure 2**.

Site Health and Safety Plan

As required by the Occupational Health and Safety Administration (OSHA) "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120), ARCADIS prepared a site specific Health and Safety Plan (HASP). The field staff and contractors reviewed the HASP prior to beginning field operations at the site.

Permitting

Soil Boring Permits were obtained from the Zone 7 Agency and are included in **Appendix A**.

Underground Utility Clearance

Underground Service Alert (USA) was notified at least 48 hours before proposed drilling activities to identify public utilities in the vicinity of the proposed borings. In conjunction with USA, a private utility locating company was utilized to further evaluate the potential presence of underground utilities in the vicinity of the proposed boring locations. Prior to installation, the proposed CPT boring locations, hydropunch sampling locations and soil sampling locations were cleared by hand augering to 5 feet bgs to identify potential underground utility conflicts.

Cone Penetrometer Testing

Three CPT borings (CPT-1 through CPT-3) were advanced to approximately 25 ft bgs on-site between monitoring wells MW-4 and MW-5. These borings were completed to collect additional soil and groundwater data to further assess the vertical and lateral delineation of the petroleum hydrocarbons at the site. The locations are shown in **Figure 2**.

CPT technology provides detailed lithologic data that can be used to identify permeable zones. The CPT borings were conducted using a piezocone attached by stainless steel rods to a hydraulic system that pushes the piezocone through the soil. The piezocone continuously measured the friction, tip resistance and pore pressure which are used to evaluate soil types on a geologic log. The resulting CPT logs were consistent with historical boring logs for nearby monitoring wells MW-4 and MW-5 with alternating layers of clay, silty clay, sandy silt and sandy clay. The CPT boring logs are presented in **Appendix B**.

Upon completion of the CPT the borehole was brought to grade with neat cement grout and finished to match the existing grade.

Hydropunch Groundwater Sampling

A second boring was advanced adjacent to each CPT location to collect a grab groundwater sample using Hydropunch™ technology. The CPT rig was used to

advance the hollow push rods to the bottom of the boring. The push rods were then retracted, exposing an encased filter screen and allowing groundwater to infiltrate hydrostatically from the formation into the inlet screen. A small diameter bailer was lowered through the push rods into the screen section for sample collection. Once the bailer was filled, the bailer was retrieved and the groundwater was transferred into the appropriate laboratory-supplied sample containers.

Upon completion of the sample collection, all down-hole equipment was retrieved and decontaminated.

During the grab groundwater sampling activities field crews were unable to collect samples from all 3 CPTs due to insufficient water in the rods. The rods were retracted and temporary monitoring wells were set at each boring. A grab groundwater sample was collected the following day from all three temporary wells. After sample collection the temporary well material was removed from the borehole and it was brought to grade with neat cement grout.

The grab groundwater samples were analyzed for the following constituents by a California-certified laboratory:

- TPH-GRO (C6-C10) by USEPA Method 8260B
- Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX), MTBE, 1,2-dichloroethane (1,2-DCA), ethanol, diisopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), t-butyl alcohol (TBA) and 1,2-dibromoethane (EDB) by USEPA Method 8260B

Confirmation Soil Sampling

Three soil borings (SB-1 through SB-3) were advanced around the perimeter of the former UST cavity by hand auger. **Figure 2** presents the locations of the soil borings. Each boring was advanced to a total depth of 8 feet bgs. The depth was selected in effort to provide a confirmation of the historical soil samples referenced by the ACEH in their letter dated May 6, 2010 that contained historical highs for TPH-GRO and benzene.

Soil samples were examined for odors, visible signs of petroleum hydrocarbons, and screened for organic vapors using a photo-ionization detector (PID). One soil sample was collected at the 8 foot interval from each boring for laboratory analysis.

The soil samples were analyzed for the following constituents by a California-certified laboratory:

- TPH-GRO (C6-C10) by USEPA Method 8260B
- Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX), MTBE, 1,2-dichloroethane (1,2-DCA), ethanol, diisopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), t-butyl alcohol (TBA) and 1,2-dibromoethane (EDB) by USEPA Method 8260B

Upon completion of the sample collection, the equipment was decontaminated. The borehole was brought to grade with neat cement grout. Field Documentation is included in **Appendix C**.

Site Investigation Results

Groundwater Data:

There were no detected concentrations of any chemicals of concern (COCs) above the laboratory detection limit for all three grab groundwater samples with the exception of CPT-1. The grab groundwater sample collected from CPT-1 had a detected concentration of MTBE at 0.91 micrograms per Liter ($\mu\text{g/L}$) which is below the environmental screening level (ESL) (Table F-1a Groundwater is a Current or Potential Source of Drinking Water). Groundwater analytical data is presented in **Table 1**. A copy of the laboratory analytical report and chain-of-custody documentation is included in **Appendix D**.

Soil Analytical Data:

Concentrations of TPHg were detected in two of the three soil boring locations. SB-2-8 reported a concentration of 0.240 mg/kg and SB-3-8 reported a concentration of 40 mg/kg. Benzene was detected in one sample (SB-3-8) at a concentration of 0.170 mg/kg. Ethylbenzene was detected at SB-3-8 at a concentration of 0.270 mg/kg. Total xylenes were detected in SB-3-8 at a concentration of 0.048 mg/kg. TBA was detected at two of the three locations; SB-2-8 reported a concentration of 0.190 mg/kg and SB-3-8 reported a concentration of 3.4 mg/kg. MTBE was detected in SB-3-8 at a concentration of 0.093 mg/kg. Toluene, DIPE, EtBE, TAME, EDB, Ethanol, and 1,2 DCA were not detected above the laboratory detection limit in any of the soil

samples. Soil analytical results are presented in **Table 2**. A copy of the laboratory analytical report and chain-of-custody documentation is included in **Appendix D**.

Conclusion and Recommendations

Results of the CPT grab groundwater samples indicate that only MTBE was detected below the ESL along the northeast portion of the site. The results also indicate that COCs are not migrating off-site.

In an effort to delineate former source areas on site, soil borings SB-1-8 through SB-3-8 were advanced in the vicinity of the former UST cavity. While soil samples from SB-2-8 and SB-3-8 had reported concentrations above the laboratory detection limits, the majority of the concentrations were reported below the commercial ESLs for shallow soil (Table A-2 for Direct Exposure) for all the COCs. TBA exceeded the commercial ESL for soil at SB-2-8 and SB-3-8. Benzene, Ethylbenzene, and MTBE exceeded the commercial ESL for soil at SB-3-8. Soil analytical results in comparison with the ESLs are presented in **Table 2**.

In the regulatory letter dated October 14, 2010 ACEH requested that grab groundwater samples be collected from the soil borings in the vicinity of the former UST cavity. ARCADIS failed to collect the grab groundwater samples during field work and apologizes for this oversight. However, the soil samples collected from SB-1 through SB-3 were collected immediately above the groundwater table and field staff reported soil conditions as moist. ARCADIS is confident that based on the non-detectable concentrations or very low concentrations detected in soil it is not likely that the groundwater is impacted.

Results of the current investigation indicate that low levels of hydrocarbon remain in the soil at the former source area. However, there are little to no hydrocarbons remaining in the groundwater between MW-4 and MW-5 indicating that there is nothing migrating off site. Based on the most recent groundwater monitoring data low levels of hydrocarbons remain near the former source area and low levels of MTBE are present in a few of the monitoring wells. ARCADIS recommends that the site be considered for low-risk closure and will submit a closure request report in the first quarter of 2011.

If you have any questions or comments, please contact Ben McKenna by telephone at 925.296.7857 or by e-mail at Benino.McKenna@arcadis-us.com or Hollis Phillips by telephone at 415.374.2744 ext. 13 or by e-mail at Hollis.Phillips@arcadis-us.com.

Sincerely,

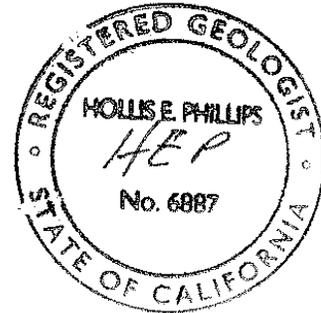
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Ben McKenna
Project Geologist



Hollis E. Phillips, P.G.
Project Manager



Enclosures:

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|------------|---|
| Table 1 | Groundwater Analytical Data |
| Table 2 | Soil Analytical Data |
| Figure 1 | Site Location Map |
| Figure 2 | Site Map |
| Appendix A | Zone 7 Agency Soil Boring Permit |
| Appendix B | CPT Logs |
| Appendix C | Field Documentation |
| Appendix D | Laboratory Analytical Report and Chain-of-Custody Documentation |

References

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Tables

Table 1
Groundwater Analytical Results
Site Investigation Report
Atlantic Richfield Company Station #6041
7249 Village Parkway, Dublin, California

Sample Name	Total Depth (ft bgs)	Sample Date	EPA 8260B												
			TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	EtBE (µg/L)	TAME (µg/L)	EDB (µg/L)	Ethanol (µg/L)	1,2 DCA (µg/L)
Comercial ESLs for Groundwater (µg/L) ¹			100	1.0	40	30	20	12	5.0	--	--	--	--	--	0.5
CPT-1	12	11/23/10	<50	<0.50	<0.50	<0.50	<1.0	<4.0	0.91	<0.50	<0.50	<0.50	<0.50	<250	<0.50
CPT-2	12	11/23/10	<50	<0.50	<0.50	<0.50	<1.0	<4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<250	<0.50
CPT-3	12	11/23/10	<50	<0.50	<0.50	<0.50	<1.0	<4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<250	<0.50

Legend:
<0.50 Not detected at concentration threshold as shown
Bold Exceeds ESL
¹ ESLs reference Table F-1a in California Regional Water Quality Control Board's *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, May 2008*.

Acronyms:
1,2 DCA 1,2 dichloroethane
DIPE di-isopropyl ether
EDB ethylene dibromide
EPA environmental protection agency
ESL ecological screening Levels
EtBE ethyl tert-butyl ether
ft bgs feet below ground surface
µg/L micrograms per liter
MTBE methyl tert-butyl ether
TAME tert-amyl methyl ether
TBA tert-butyl alcohol
TPHg Total petroleum hydrocarbons as gasoline (i.e. purgeable hydrocarbons), C-6 to C-12 range

Table 2
Soil Analytical Data
Site Investigation Report
Atlantic Richfield Company Station #6041
7249 Village Parkway, Dublin, California

Sample Name	Total Depth (ft bgs)	Sample Date	EPA 8260B												
			TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TBA (mg/kg)	MTBE (mg/kg)	DIPE (mg/kg)	EtBE (mg/kg)	TAME (mg/kg)	EDB (mg/kg)	Ethanol (mg/kg)	1,2 DCA (mg/kg)
Comercial ESLs for Soil (mg/Kg) ¹			450	0.27	210	5	100	320,000	65	--	--	--	--	--	0.48
SB-1-8	8	11/22/10	<.250	<.005	<.005	<.005	<.01	<.01	<.005	<.005	<.005	<.005	<.005	<.005	<.005
SB-2-8	8	11/22/10	0.24	<.0048	<.0048	<.0048	<9.6	0.190	<.0048	<.0048	<.0048	<.0048	<.0048	<.0048	<.480
SB-3-8	8	11/22/10	40	0.170	<.024	0.270	.048	3.4	0.093	<.024	<.024	<.024	<.024	<.024	<.024

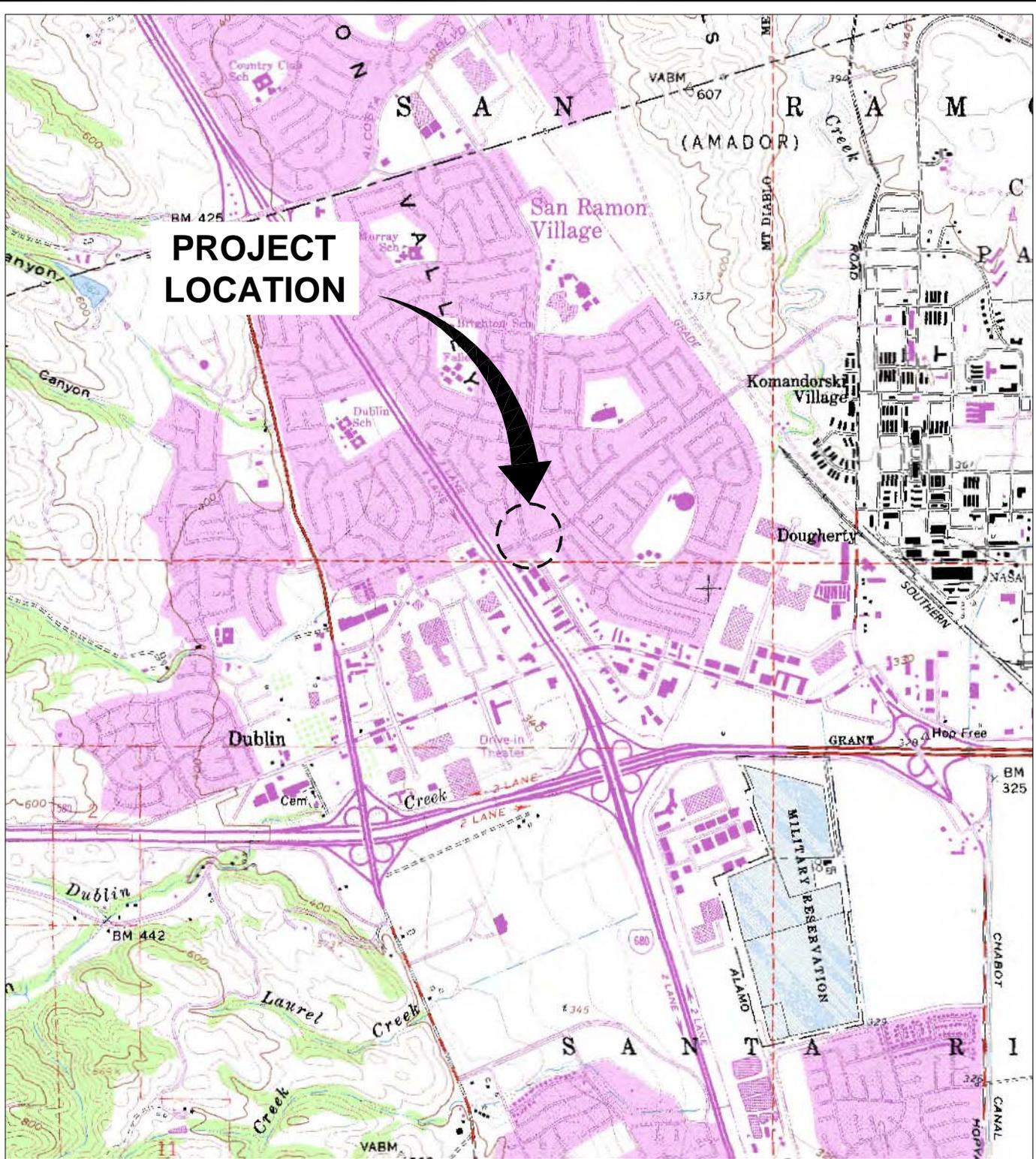
Legend:
<5.0 Not detected at concentration threshold as shown
Bold Exceeds ESL
¹ ESLs reference Table A-2 in California Regional Water Quality Control Board's *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, May 2008*.
-- Not Available

Acronyms:
1,2 DCA 1,2 dichloroethane
DIPE di-isopropyl ether
EDB ethylene dibromide
EPA environmental protection agency
ESL Ecological Screening Levels (Table A-2)
EtBE ethyl tert-butyl ether
ft bgs feet below ground surface
mg/kg milligrams per kilogram
MTBE methyl tert-butyl ether
TAME tert-amyl methyl ether
TBA tert-butyl alcohol
TPHg Total petroleum hydrocarbons as gasoline (i.e. purgeable hydrocarbons), C-6 to C-12 range

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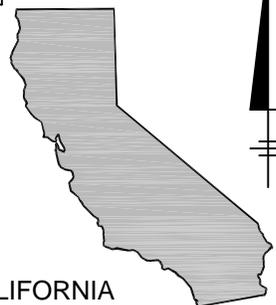
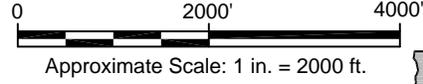
Figures

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS LD: PIC: PM: H. PHILLIPS TM: L. NEARY LYN: ON: OFF: REF: C:\Documents and Settings\jpharris\Desktop\ENV\CAD\GP\98PNA\C003\C0000\DWG\GP\98PNA\C03C0001.dwg LAYOUT: ISAVED: 7/19/2010 11:18 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 12/29/2010 1:27 PM BY: HARRIS, JESSICA



PROJECT LOCATION

REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., DUBLIN, CALIFORNIA, 1961, PHOTOREVISED 1980.



CALIFORNIA



STATION #6041 7249 VILLAGE PARKWAY DUBLIN, CALIFORNIA SOIL AND GROUNDWATER INVESTIGATION REPORT	
SITE LOCATION MAP	
	FIGURE 1

ARCADIS

Appendix A

Zone 7 Agency Permit Soil
Boring Permit



ZONE 7 WATER AGENCY

100 NORTH CANYONS PARKWAY, LIVERMORE, CALIFORNIA 94551 VOICE (925) 454-5000 FAX (925) 245-9306
E-MAIL whong@zone7water.com

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 7249 Village Parkway
Dublin, CA

PERMIT NUMBER 2010116
WELL NUMBER _____
APN 941-0197-079-04

Coordinates Source _____ ft. Accuracy ft.
LAT: _____ ft. LONG: _____ ft.
APN _____

PERMIT CONDITIONS
(Circled Permit Requirements Apply)

CLIENT
Name British Petroleum
Address P.O. Box 1257 Phone 925-275-3801
City San Ramon, CA Zip 94583

- A. GENERAL**
 1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to your proposed starting date.
 2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report (DWR Form 188), signed by the driller.
 3. Permit is void if project not begun within 90 days of approval date.
 4. **Notify Zone 7 at least 24 hours before the start of work.**

APPLICANT
Name AKCADIS-U.S. us.com
Email carmin.vidal@akcadis.com Fax 415-374-2745
Address 100 Montgomery St. Suite 300 Phone 415-374-2744
City San Francisco Zip 94104

- B. WATER SUPPLY WELLS**
 1. Minimum surface seal diameter is four inches greater than the well casing diameter.
 2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.
 3. Grout placed by tremie.
 4. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
 5. A sample port is required on the discharge pipe near the wellhead.

TYPE OF PROJECT:
Well Construction _____ Geotechnical Investigation _____
Well Destruction _____ Contamination Investigation
Cathodic Protection _____ Other _____

- C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS**
 1. Minimum surface seal diameter is four inches greater than the well or piezometer casing diameter.
 2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.
 3. Grout placed by tremie.

PROPOSED WELL USE:
Domestic _____ Irrigation _____
Municipal _____ Remediation _____
Industrial _____ Groundwater Monitoring _____
Dewatering _____ Other _____

DRILLING METHOD:
Mud Rotary _____ Air Rotary _____ Hollow Stem Auger _____
Cable Tool _____ Direct Push Other CPT + Hand Auger

DRILLING COMPANY WPC Exploration + Wells
DRILLER'S LICENSE NO. 283326

- D. GEOTECHNICAL.** Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

WELL SPECIFICATIONS:
Drill Hole Diameter _____ in. Maximum _____ ft.
Casing Diameter _____ in. Depth _____ ft.
Surface Seal Depth _____ ft. Number _____

- E. CATHODIC.** Fill hole above anode zone with concrete placed by tremie.
- F. WELL DESTRUCTION.** See attached.

SOIL BORINGS:
Number of Borings 0 Maximum 25
Hole Diameter 4 in. Depth 25 ft.

ESTIMATED STARTING DATE 11-22-10
ESTIMATED COMPLETION DATE 11-23-10

- G. SPECIAL CONDITIONS.** Submit to Zone 7 within 60 days after completion of permitted work the well installation report including all soil and water laboratory analysis results.

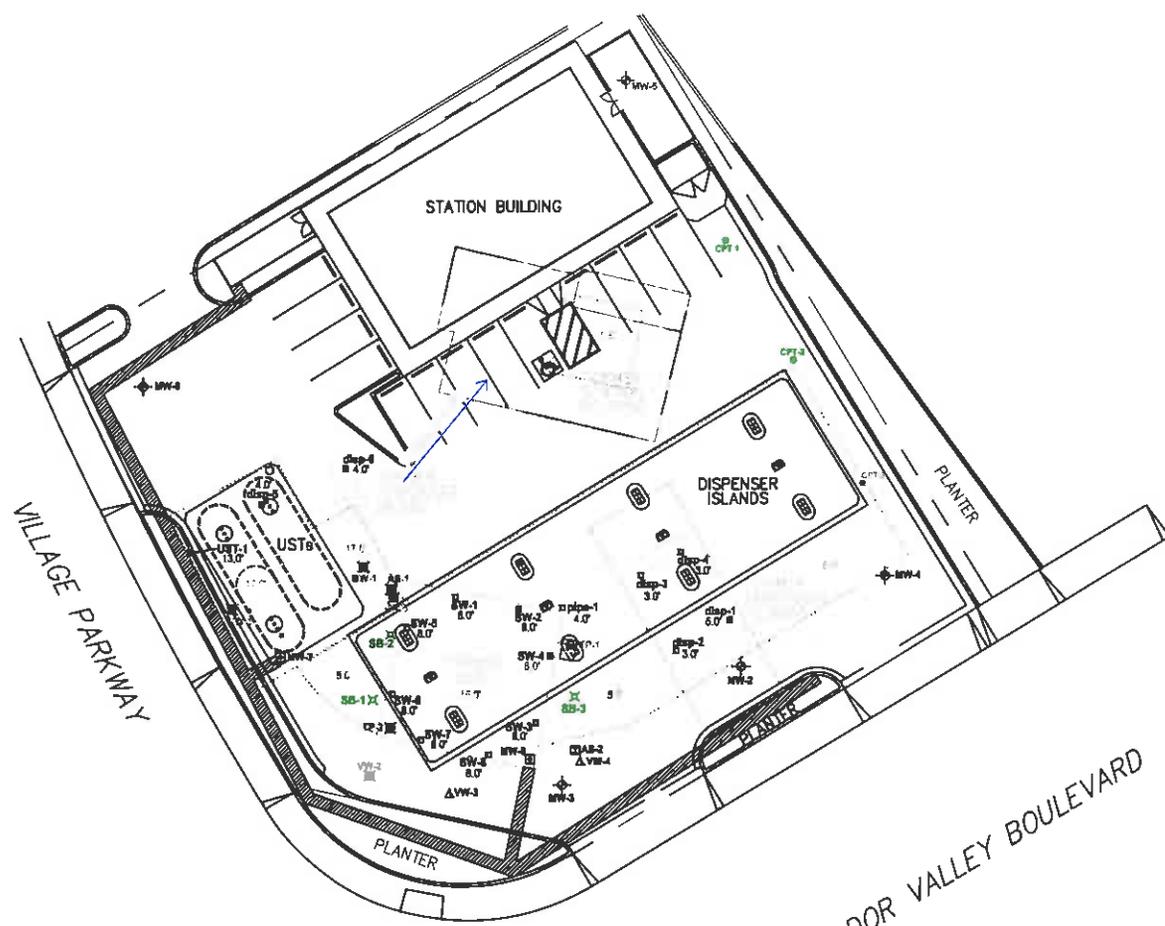
I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Carmin Vidal Date 11/12/10

Approved Wyman Hong Date 11/17/10
Wyman Hong

ATTACH SITE PLAN OR SKETCH

CITY OF PITTALUMA, CA. DRAWN BY: H. PHILLIPS, D.E.S. 10/21/09. PROJECT NO.: 09-001. PROJECT NAME: STATION #8041. PROJECT LOCATION: 7248 VILLAGE PARKWAY, DUBLIN, CALIFORNIA. PROJECT DESCRIPTION: SOIL AND GROUNDWATER INVESTIGATION WORK PLAN. DATE: 10/21/09. SCALE: 1"=40'. DRAWN BY: H. PHILLIPS. CHECKED BY: J. HARRIS. APPROVED BY: J. HARRIS. DATE: 10/21/09.

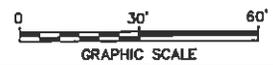


LEGEND

- ⊕ MONITORING WELL
- Δ VAPOR EXTRACTION WELL
- ⊞ AIR SPARGE WELL
- ⊞ TANK PIT OBSERVATION WELL
- ⊞ ABANDONED WELL
- SW-4 8.0' HISTORICAL SOIL SAMPLE AND DEPTH (FT BGS) [CAMBRIA, 2001]
- EXCAVATION AND DEPTH (FT BGS)
- REMEDIATION PIPING TRENCH
- CPT-1 ● PROPOSED CPT BORING
- SB-2 X PROPOSED SOIL BORING
- APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT (FT/FT) BASED ON JUNE 2, 2009 GROUNDWATER MONITORING REPORT
- CPT CONE PENETROMETER TEST
- FT BGS FEET BELOW GROUND SURFACE

NOTE:

BASE MAP PROVIDED BY BROADBENT & ASSOCIATES, INC., DATED 10/21/09, AT A SCALE OF 1"=40'. HISTORICAL SOIL SAMPLE AND EXCAVATION AREA DATA PROVIDED BY CAMBRIA, TITLED "SOIL SAMPLING, OVER EXCAVATION AND REMEDIATION PIPING SITE PLAN" AT A SCALE OF 1"=20'.



STATION #8041 7248 VILLAGE PARKWAY DUBLIN, CALIFORNIA SOIL AND GROUNDWATER INVESTIGATION WORK PLAN	
SITE MAP WITH PROPOSED BORING LOCATIONS	
	FIGURE 2



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Appendix B

CPT Logs



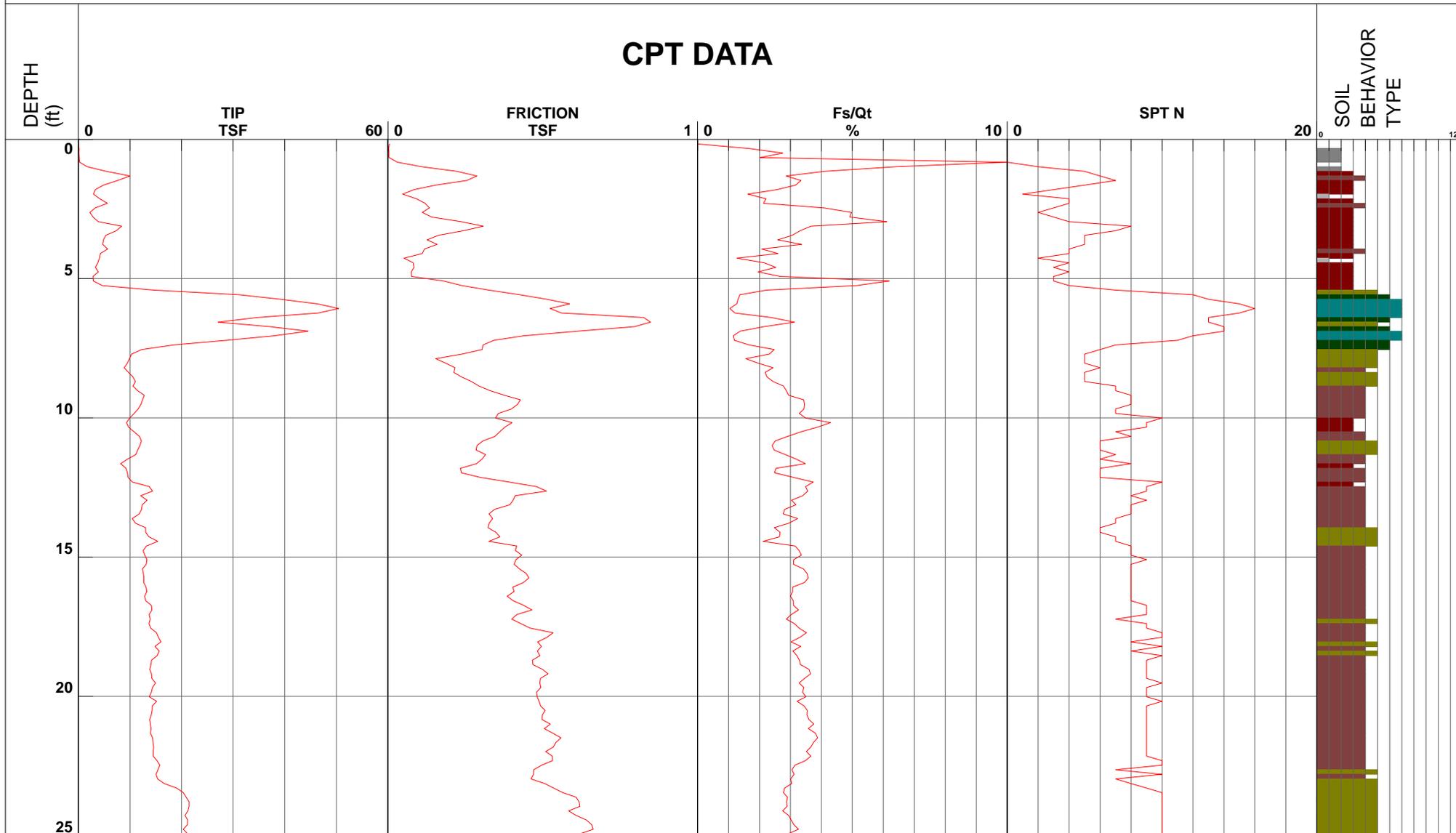
Arcadis

Location BP 6041 Dublin
 Job Number GP09BPNA.C039.Q0000
 Hole Number CPT-01
 Water Table Depth _____

Operator BH-TF
 Cone Number DSG1023
 Date and Time 11/22/2010 12:49:41 PM

Filename SDF(009).cpt
 GPS _____
 Maximum Depth 25.43 ft

CPT DATA



- | | | | |
|------------------------------|---------------------------------|--------------------------------|------------------------------------|
| ■ 1 - sensitive fine grained | ■ 4 - silty clay to clay | ■ 7 - silty sand to sandy silt | ■ 10 - gravelly sand to sand |
| ■ 2 - organic material | ■ 5 - clayey silt to silty clay | ■ 8 - sand to silty sand | ■ 11 - very stiff fine grained (*) |
| ■ 3 - clay | ■ 6 - sandy silt to clayey silt | ■ 9 - sand | ■ 12 - sand to clayey sand (*) |

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983



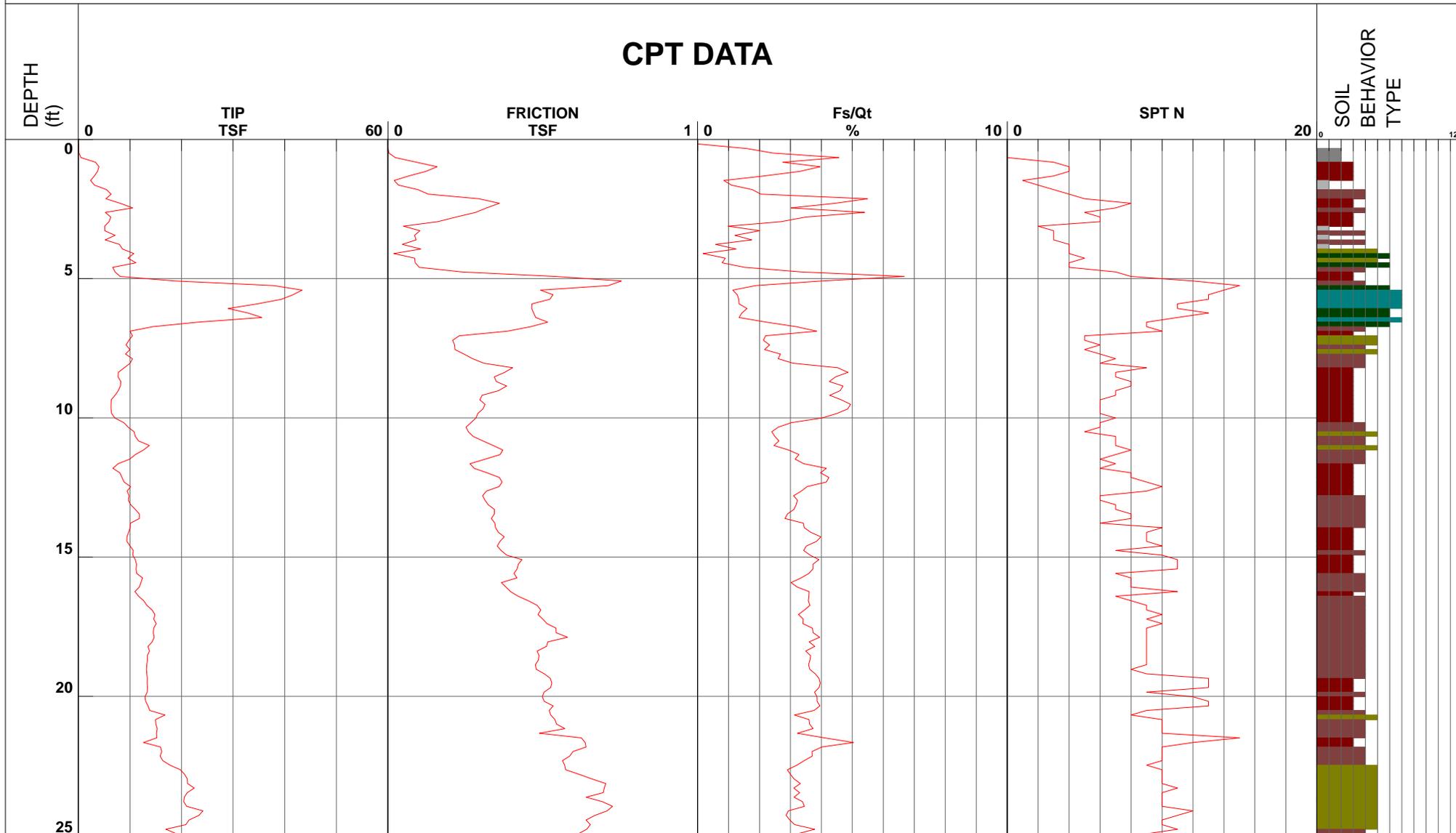
Arcadis

Location BP 6041 Dublin
 Job Number GP09BPNA.C039.Q0000
 Hole Number CPT-02
 Water Table Depth _____

Operator BH-TF
 Cone Number DSG1023
 Date and Time 11/22/2010 1:53:01 PM

Filename SDF(011).cpt
 GPS _____
 Maximum Depth 25.59 ft

CPT DATA



- | | | | |
|------------------------------|---------------------------------|--------------------------------|------------------------------------|
| ■ 1 - sensitive fine grained | ■ 4 - silty clay to clay | ■ 7 - silty sand to sandy silt | ■ 10 - gravelly sand to sand |
| ■ 2 - organic material | ■ 5 - clayey silt to silty clay | ■ 8 - sand to silty sand | ■ 11 - very stiff fine grained (*) |
| ■ 3 - clay | ■ 6 - sandy silt to clayey silt | ■ 9 - sand | ■ 12 - sand to clayey sand (*) |

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983



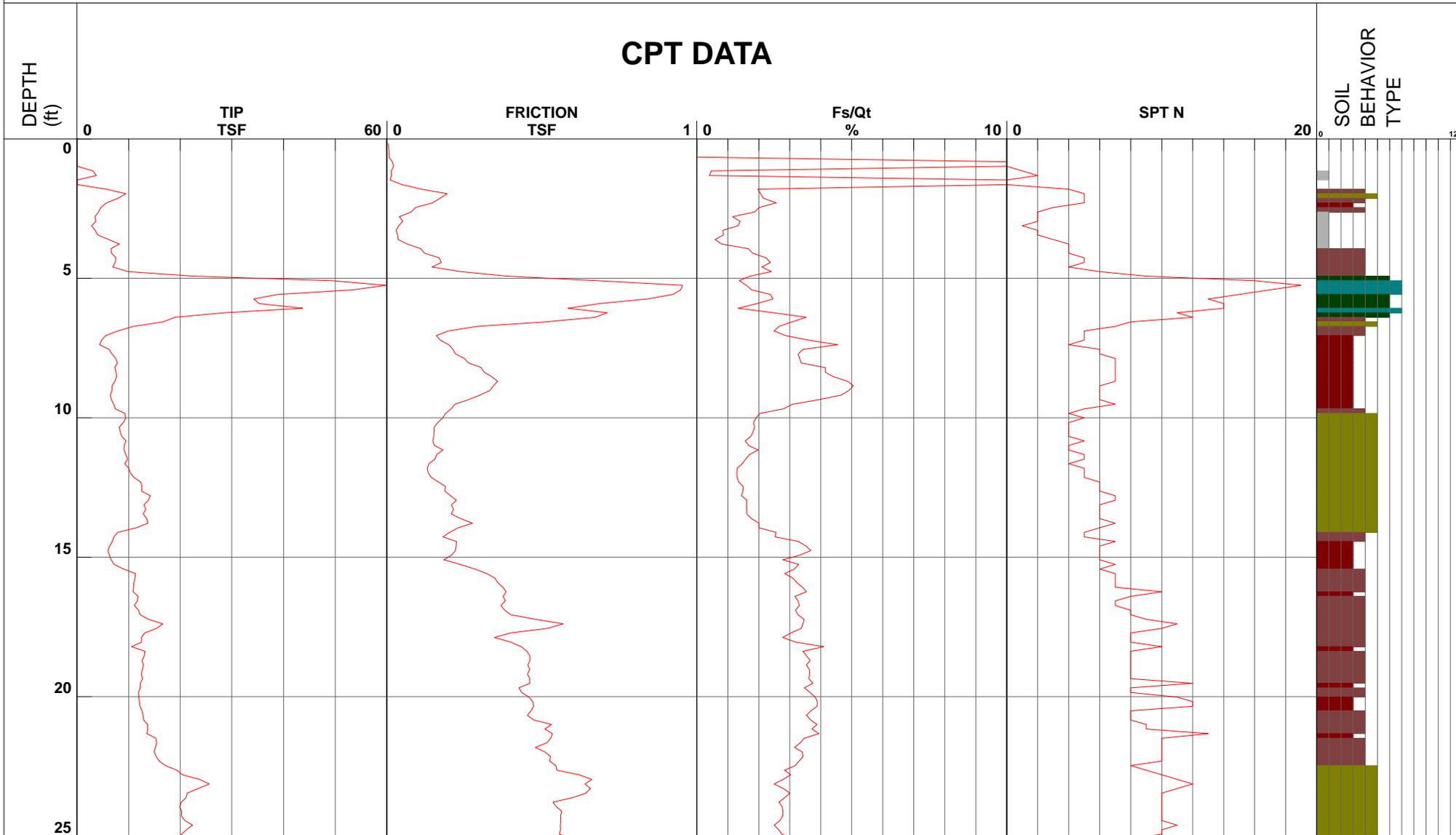
Arcadis

Location BP 6041 Dublin
 Job Number GP09BPNA.C039.Q0000
 Hole Number CPT-03
 Water Table Depth _____

Operator BH-TF
 Cone Number DSG1023
 Date and Time 11/22/2010 2:26:16 PM

Filename SDF(012).cpt
 GPS _____
 Maximum Depth 25.75 ft

CPT DATA



- | | | | |
|------------------------------|---------------------------------|--------------------------------|------------------------------------|
| ■ 1 - sensitive fine grained | ■ 4 - silty clay to clay | ■ 7 - silty sand to sandy silt | ■ 10 - gravelly sand to sand |
| ■ 2 - organic material | ■ 5 - clayey silt to silty clay | ■ 8 - sand to silty sand | ■ 11 - very stiff fine grained (*) |
| ■ 3 - clay | ■ 6 - sandy silt to clayey silt | ■ 9 - sand | ■ 12 - sand to clayey sand (*) |

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Appendix C

Field Documentation



ARCADIS

Infrastructure, environment, facilities

Smith System® Five Keys

- 1. Aim High in Steering®** - Avoid Collisions by seeing, evaluating, and acting upon all information available.
- 2. Get the Big Picture®** - Fewer mistakes are made when you have the complete traffic picture.
- 3. Keep Your Eyes Moving®** - Proper scanning techniques separate safe drivers from people who make costly errors.
- 4. Leave Yourself an Out®** - All that separates drivers from a collision is space. Use it to your advantage. This also applies to parking—to ensure safe and easy exit in case of emergency, choose pull through spaces or back into parking spaces when possible.
- 5. Make Sure They See You®** - Seek eye contact and use your warning devices at the same time

VEHICLE PRE-TRIP CHECK

Date: 11/22/2010

Unit: _____

Operator: Ines SM

CHECK BEFORE OPERATING	OK	NR	COMMENTS
Driver's License on Hand	X		
Insurance Card in Car	X		
Back-up Alarm Operational			
Tires (tread, pressure, cracking)	X		
Taillights Operational	X		
Turn Signals Operational	X		
Brake Lights Operational	X		
Back-Up Lights Operational	X		
Headlights Operational	X		
Parking Lights Operational	X		
Mirrors Adjusted to Minimize Blind Spots	X		
Under the Vehicle (nothing hanging or leaking)	X		
Windshield Wipers and Fluid all Functional	X		
Heavy Items Secured Down Low or in Trunk	X		
Make Sure All Doors are Fully Closed and Locked	X		
Adjust Your Seat if Needed	X		
Adjust Your Head Restraint to Match Height of Head	X		
Driver and All Passengers Must Fasten Safety Belt	X		
Scan the Gauges to Make Sure Everything is Normal	X		
Adjust the Vents, Windows, and Heater or Air Conditioner for Comfort	X		
Make Sure You are Mentally and Physically Ready to Drive	X		
Perform a Driving-Related Safety Moment (record safety moment topic in 'COMMENTS' column)	X		<i>night traffic -> look for pedestrians and cyclists.</i>

This checklist should be completed before operating a vehicle on ARCADIS business.

Imagine the result

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: <u>BP 06041</u>		Project Location: <u>Dublin, CA</u>	
Date: <u>22/11/10</u>	Time:	Conducted by: <u>Ines de SaintMarie</u>	Signature/Title: <u>EGM</u>
Client:		Client Contact:	Subcontractor companies:

TRACKING the Tailgate Meeting

I think through the Tasks (list the tasks for the day):

- | | | |
|--|------------------------|----------------|
| 1 <u>hand auger + core the CRTs</u> | 3 <u>soil samples</u> | 5 <u>grout</u> |
| 2 <u>hand auger + sample 3 borings</u> | 4 <u>water samples</u> | 6 _____ |

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations If there are none, write "None" here: _____
 If yes, describe them here: _____

How will they be controlled? _____

Permit Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #	Doc #
<input type="checkbox"/> Not applicable	Doc #	<input type="checkbox"/> Working at Height
<input type="checkbox"/> Energy Isolation (LOTO)	_____	<input type="checkbox"/> Confined Space
<input type="checkbox"/> Mechanical Lifting Ops	_____	<input type="checkbox"/> Hot Work
		<input checked="" type="checkbox"/> Overhead & Buried Utilities
		<input type="checkbox"/> Other permit

Discuss following questions (for some review previous day's post activities). Check if yes :

- | | | |
|---|---|---|
| <input type="checkbox"/> Incidents from day before to review? | <input type="checkbox"/> Lessons learned from the day before? | <input type="checkbox"/> Topics from Corp H&S to cover? |
| <input type="checkbox"/> Any corrective actions from yesterday? | <input type="checkbox"/> Will any work deviate from plan? | <input type="checkbox"/> Any Stop Work Interventions yesterday? |
| <input checked="" type="checkbox"/> All procedures are available? | <input type="checkbox"/> Field teams to "dirty" JLAs, as needed? | <input checked="" type="checkbox"/> All equipment checked & OK? |
| <input checked="" type="checkbox"/> Staff has appropriate PPE? | <input checked="" type="checkbox"/> Staff knows Emergency Plan (EAP)? | <input checked="" type="checkbox"/> Staff knows gathering points? |

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **Assess** the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category

<input type="checkbox"/> Gravity (i.e., ladder, scaffold, trips) (L <u>M</u> H)	<input type="checkbox"/> Motion (i.e., traffic, moving water) (L M <u>H</u>)	<input type="checkbox"/> Mechanical (i.e., augers, motors) (L <u>M</u> H)
<input type="checkbox"/> Electrical (i.e., utilities, lightning) (L <u>M</u> H)	<input type="checkbox"/> Pressure (i.e., gas cylinders, wells) (L M H)	<input type="checkbox"/> Environment (i.e., heat, cold, ice) (L <u>M</u> H)
<input type="checkbox"/> Chemical (i.e., fuel, acid, paint) (L <u>M</u> H)	<input type="checkbox"/> Biological (i.e., ticks, poison ivy) (L M H)	<input type="checkbox"/> Radiation (i.e., alpha, sun, laser) (<u>L</u> M H)
<input type="checkbox"/> Sound (i.e., machinery, generators) (<u>L</u> M H)	<input type="checkbox"/> Personal (i.e., alone, night, not fit) (L <u>M</u> H)	<input type="checkbox"/> Driving (i.e., car, ATV, boat, dozer) (<u>L</u> M H)

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the H/ASP, applicable JLAs, and other control processes. Discuss and document any additional control processes.

STOP WORK AUTHORITY (Must be addressed in every Tailgate meeting - (See statements below))

<input checked="" type="checkbox"/> Elimination	<input type="checkbox"/> Substitution	<input type="checkbox"/> Isolation
<input checked="" type="checkbox"/> Engineering controls	<input type="checkbox"/> Administrative controls	<input type="checkbox"/> Monitoring
<input checked="" type="checkbox"/> Personal PPE Usage	<input checked="" type="checkbox"/> Hearing Conservation	<input type="checkbox"/> Respiratory Protection
<input checked="" type="checkbox"/> Personal Hygiene	<input type="checkbox"/> Exposure Guidelines	<input checked="" type="checkbox"/> Decon Procedures
<input checked="" type="checkbox"/> Emergency Action Plan (EAP)	<input type="checkbox"/> Fall Protection	<input checked="" type="checkbox"/> Work Zones/Site Control
<input checked="" type="checkbox"/> JLA to be developed/used (<i>specify</i>)	<input type="checkbox"/> LPO conducted (<i>specify job/JLA</i>)	<input checked="" type="checkbox"/> Traffic Control
		<input type="checkbox"/> Other (<i>specify</i>)

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the H/ASP
Robert Hancock MEGT R <i>[Signature]</i>			
Tony Flores Jr MEGT Tony <i>[Signature]</i>			
Ines de Sainte Marie ARCADIS Bern <i>[Signature]</i>			
JEFF JONES - CODE 7 <i>[Signature]</i>			

Important Information and Numbers

Employees must arrive fit for work. If not, they should notify their supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify Corp H&S at 1.720.344.3844.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify Corp H&S at 1.720.344.3844 and then Corp Legal at 1.720.344.3756

In the event of a utility strike or other damage to property, employees will immediately notify Corp H&S at 1.800.455.6155 and Corp H&S at 1.720.344.3844.

Visitor Name/Co - not involved in work

In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to STOP THE JOB, I will perform TRACK, and then amend the hazard assessments or H/ASP as needed.

I will not assist a subcontractor or other party with the work unless it is absolutely necessary and the work is I have done TRACK and I have thoroughly controlled the hazard.

Post-Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain)

Lessons learned and best practices learned today: _____

Incidents that occurred today: _____

Any Stop Work interventions today? _____

Corrective/Preventive Actions needed for future work: _____

Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155
Near Loss Hotline - 1.866.242.4304

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control Hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the LOTO, Job Safety Analysis (JSA), Job Hazard Analysis (JHA), and other control processes. Discuss and document any additional control processes.

WORK AUTHORITY (Must be addressed in every Tailgate meeting - (See statements below))

<input type="checkbox"/> Substitution	<input type="checkbox"/> Isolation
<input checked="" type="checkbox"/> Engineering controls	<input type="checkbox"/> Monitoring
<input checked="" type="checkbox"/> Personal PPE Usage	<input type="checkbox"/> Respiratory Protection
<input checked="" type="checkbox"/> Personal Hygiene	<input checked="" type="checkbox"/> Decon Procedures
<input checked="" type="checkbox"/> Emergency Action Plan (EAP)	<input checked="" type="checkbox"/> Work Zones/Site Control
<input checked="" type="checkbox"/> JLA to be developed/used (<u>specify</u>)	<input checked="" type="checkbox"/> Traffic Control
<u>and Water Sampling</u>	<input type="checkbox"/> Other (<u>specify</u>)
<input type="checkbox"/> Administrative controls	
<input type="checkbox"/> Hearing Conservation	
<input type="checkbox"/> Exposure Guidelines	
<input type="checkbox"/> Fall Protection	
<input type="checkbox"/> LPO conducted (<u>specify job/JLA</u>)	

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the H&S
<u>Ines de Sainte Marie / ARCADIS / IBM</u>	<u>1345 IBM</u>	<u>1630 IBM</u>	<u>IBM</u>
<u>Ernesto Jasso / WDC / eg</u>	<u>1345 eg</u>	<u>1630 eg</u>	<u>eg</u>

<p>Emergency Information and Numbers</p> <p>Employees must be fit for work. If not, they should notify supervisor of any restrictions or concerns</p> <p>In an emergency, employees will call WorkCare at 1-800-455-6155. Employees should notify the field supervisor who will then notify Corp H&S at 1-720-344-3844</p> <p>In the event of a vehicle accident, employees will notify the field supervisor who will then notify Corp H&S at 1-720-344-3756</p> <p>In the event of an injury or other damage to property, employees will immediately notify the field supervisor who will then immediately notify Corp H&S and Corp Legal at 1-720-344-3756</p>	<p>Visitor Name/Co - not involved in work</p> <p>In _____ Out _____</p> <p>In _____ Out _____</p> <p>In _____ Out _____</p> <p>In _____ Out _____</p>	<p>I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the project, job or task hazard assessment</p> <p>I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the current hazard assessments.</p> <p>If it is necessary to STOP THE JOB, I will perform TRACK; and then amend the hazard assessment and HASP as needed</p> <p>I will not assist a subcontractor or other party with work unless it is absolutely necessary and the only way I have done TRACK and I have thoroughly understood the hazard.</p>
---	--	--

End of Day Activities Review - Review at end of day or before next day's work (Check those applicable and explain)

1. Lessons learned and best practices learned today: _____

2. Incidents that occurred today: _____

3. Safety interventions today? _____

4. Preventive Actions needed for future work: _____

5. Other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155
Near Loss Hotline - 1.866.242.4204

10

Soil and GW investigation 11/22/2010 (1/2)

7:15 Personnel onsite:

Ines de Sainte Maiee - ARCADIS

Tony - Middle E.

Robert - Middle East

7:20 H&S tailgate meeting

7:30 Set up at CPT-1, wire 2 holes

7:50 Hand auger 2 holes at CPT-1 location

8:40 hard to remove rock in one hole → wire one more hole, hand auger

9:00 two holes cleared to 5', demob CPT-1 and mob @ CPT-2 location

9:20 start wiring CPT-2

9:30 Inspector from Water Board onsite (Jeff Jones)

9:40 Inspector offsite. Hand auger.

10:30 Set up at CPT-3 location.

11:30 Demob CPT-3 location. Start setting up for CPT rig.

12:10 CPT ready, break for lunch

12:45 Start CPT @ CPT-1 location

13:10 End CPT @ CPT-1. Grout. CPT-1 dry @ 23'

13:40 Start CPT @ CPT-2 location. CPT-2 dry @ 25'

14:20 Grout CPT-2. Need to see if can recharge.

14:30 Start CPT @ CPT-3 location

11

1440 end CPT @ CPT-3 location 11/22/2010 (1/2)

1520 start well @ CPT-1 location. No water
→ use a PVC screen @ 12 ft bgs.1535 start well @ CPT-2 location. No water
→ use a PVC screen @ 12 ft bgs.1600 start well @ CPT-3 location. No water
→ use a PVC screen @ 12 ft bgs

1625 mob to SB-3

1640 core @ SB-3. Hand auger.

1700 17 ppm @ SB-3

1710 Sampled SB-3-8 @ 8' bgs

1715 Demob @ SB-3, Mob at SB-1 & SB-2.

1740 Core @ SB-1

1850 Sample SB-1-8 - 0.3 ppm

1950 Sample @ CPT-3 (3.5 VOAS)

2010 Sample @ CPT-2 (4 VOAS)*

2045 Demob site. *A

2145 Leave site.

*2000 Sample SB-2-8

** Temporarily, PVC screen are put in place @ CPT-1, CPT-2 and CPT-3 to get water tomorrow. (closed with plastic around, and asphalt on top (not compacted)).

Soil & GW investigation 11/23/2010 (VI)

- 1340 Arrive onsite. Put proper PPE on.
- 1345 H&S tailgate meeting. Insist on communication.
- 1358 Mob to CPT-1 location
- 1415 Sampled CPT-1 (3 VOAS)
- 1425 Pull screen out. Screen was 11.5 ft; $3/4"$ diameter.
- 1433 Pour ~~concrete~~ cement in CPT-1
- 1438 Demob @ CPT-1 / mob @ CPT-2
JRM 11/23/10
- 1440 Sampled CPT-2 location (3 VOAS)
- 1450 Pull Screen out. Screen was 12 ft; $3/4"$ diameter
- 1455 Pour ~~concrete~~ cement in CPT-2
- 1500 Mob @ CPT-3 location
JRM 11/23/10
- 1503 Prepare for sampling.
- 1505 Sample into 6 VOAS.
- 1515 Pull Screen out. Screen was 12 ft; $3/4"$ diameter
- 1517 Pour Cement
- 1523 Ernesto (WDC) leaves site to get asphalt
- 1605 Ernesto (WDC) back onsite with asphalt.
Mob @ CPT-3; asphalt in hole.
- 1615 Mob @ CPT-2; asphalt in hole.
- 1622 Mob @ CPT-1; asphalt in hole.
- 1630 Demob site. leave.
- Note: Might have rained during night 11/22 to 11/23

Appendix D

Laboratory Analytical Report and
Chain-of-Custody
Documentation

ANALYTICAL REPORT

Job Number: 720-31945-1
Job Description: BP #6041, Dublin

For:
ARCADIS U.S., Inc.
155 Montgomery Street
Suite 1500
San Francisco, CA 94104
Attention: Hollis Phillips



Approved for release.
Dimple Sharma
Project Manager I
11/30/2010 5:28 PM

Dimple Sharma
Project Manager I
dimple.sharma@testamericainc.com
11/30/2010

cc: Mr. Jason Duda
Mr. Ben McKenna

CA ELAP Certification # 2496

The Chain(s) of Custody are included and are an integral part of this report.

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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.

TestAmerica Laboratories, Inc.

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Job Narrative
720-31945-1

Comments

No additional comments.

Receipt

Sample SPT-3-112310: Received 6 vials but no MS/MSD requested on COC.

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

GC/MS VOA

Method 8260B: The following sample submitted for volatiles analysis was received with insufficient preservation (pH >2): CPT-1-112310 (720-31945-5).

No other analytical or quality issues were noted.

GC VOA

No analytical or quality issues were noted.

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Lab Sample ID	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-31945-1	SB-3-8				
Methyl tert-butyl ether		93	24	ug/Kg	8260B/CA_LUFTMS
Benzene		170	24	ug/Kg	8260B/CA_LUFTMS
Ethylbenzene		270	24	ug/Kg	8260B/CA_LUFTMS
Xylenes, Total		48	48	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		40000	25000	ug/Kg	8260B/CA_LUFTMS
TBA		3400	48	ug/Kg	8260B/CA_LUFTMS
720-31945-3	SB-2-8				
Gasoline Range Organics (GRO)-C6-C12		240	240	ug/Kg	8260B/CA_LUFTMS
TBA		190	9.6	ug/Kg	8260B/CA_LUFTMS
720-31945-4	CPT-2-112210				
MTBE		0.71	0.50	ug/L	8260B/CA_LUFTMS
720-31945-5	CPT-1-112310				
MTBE		0.91	0.50	ug/L	8260B/CA_LUFTMS

METHOD SUMMARY

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

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

SAMPLE SUMMARY

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-31945-1	SB-3-8	Solid	11/22/2010 1710	11/23/2010 1726
720-31945-2	SB-1-8	Solid	11/22/2010 1850	11/23/2010 1726
720-31945-3	SB-2-8	Solid	11/22/2010 2000	11/23/2010 1726
720-31945-4	CPT-2-112210	Water	11/22/2010 2009	11/23/2010 1726
720-31945-5	CPT-1-112310	Water	11/23/2010 1415	11/23/2010 1726
720-31945-6	CPT-2-112310	Water	11/23/2010 1440	11/23/2010 1726
720-31945-7	CPT-3-112310	Water	11/23/2010 1505	11/23/2010 1726

Analytical Data

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Client Sample ID: SB-3-8

Lab Sample ID: 720-31945-1

Date Sampled: 11/22/2010 1710

Client Matrix: Solid

Date Received: 11/23/2010 1726

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-82251	Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-82275	Lab File ID:	11291013.D
Dilution:	1.0		Initial Weight/Volume:	1.04 g
Date Analyzed:	11/29/2010 1525		Final Weight/Volume:	10 mL
Date Prepared:	11/29/2010 0900			

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		93		24
Benzene		170		24
EDB		ND		24
1,2-DCA		ND		24
Ethylbenzene		270		24
Toluene		ND		24
Xylenes, Total		48		48
TBA		3400		48
Ethanol		ND		2400
DIPE		ND		24
TAME		ND		24
Ethyl t-butyl ether		ND		24

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	117		45 - 131
1,2-Dichloroethane-d4 (Surr)	104		60 - 140
Toluene-d8 (Surr)	117		58 - 140

Analytical Data

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Client Sample ID: SB-3-8

Lab Sample ID: 720-31945-1

Date Sampled: 11/22/2010 1710

Client Matrix: Solid

Date Received: 11/23/2010 1726

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-82320	Instrument ID:	HP5
Preparation:	5030B	Prep Batch: 720-82386	Lab File ID:	112910038.D
Dilution:	100		Initial Weight/Volume:	10.16 g
Date Analyzed:	11/30/2010 0308		Final Weight/Volume:	10 mL
Date Prepared:	11/29/2010 2300			

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C12		40000		25000

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	111		66 - 148
1,2-Dichloroethane-d4 (Surr)	99		62 - 137
Toluene-d8 (Surr)	102		65 - 141

Analytical Data

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Client Sample ID: SB-1-8

Lab Sample ID: 720-31945-2

Date Sampled: 11/22/2010 1850

Client Matrix: Solid

Date Received: 11/23/2010 1726

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-82251 Instrument ID: HP9
Preparation: 5030B Prep Batch: 720-82275 Lab File ID: 11291010.D
Dilution: 1.0 Initial Weight/Volume: 5.01 g
Date Analyzed: 11/29/2010 1347 Final Weight/Volume: 10 mL
Date Prepared: 11/29/2010 0900

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		5.0
Benzene		ND		5.0
EDB		ND		5.0
1,2-DCA		ND		5.0
Ethylbenzene		ND		5.0
Toluene		ND		5.0
Xylenes, Total		ND		10
Gasoline Range Organics (GRO)-C6-C12		ND		250
TBA		ND		10
Ethanol		ND		500
DIPE		ND		5.0
TAME		ND		5.0
Ethyl t-butyl ether		ND		5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	89		45 - 131
1,2-Dichloroethane-d4 (Surr)	104		60 - 140
Toluene-d8 (Surr)	103		58 - 140

Analytical Data

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Client Sample ID: SB-2-8

Lab Sample ID: 720-31945-3

Date Sampled: 11/22/2010 2000

Client Matrix: Solid

Date Received: 11/23/2010 1726

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-82251	Instrument ID: HP9
Preparation:	5030B	Prep Batch: 720-82275	Lab File ID: 11291011.D
Dilution:	1.0		Initial Weight/Volume: 5.19 g
Date Analyzed:	11/29/2010 1420		Final Weight/Volume: 10 mL
Date Prepared:	11/29/2010 0900		

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.8
Benzene		ND		4.8
EDB		ND		4.8
1,2-DCA		ND		4.8
Ethylbenzene		ND		4.8
Toluene		ND		4.8
Xylenes, Total		ND		9.6
Gasoline Range Organics (GRO)-C6-C12		240		240
TBA		190		9.6
Ethanol		ND		480
DIPE		ND		4.8
TAME		ND		4.8
Ethyl t-butyl ether		ND		4.8

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	96		45 - 131
1,2-Dichloroethane-d4 (Surr)	104		60 - 140
Toluene-d8 (Surr)	110		58 - 140

Analytical Data

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Client Sample ID: CPT-2-112210

Lab Sample ID: 720-31945-4

Date Sampled: 11/22/2010 2009

Client Matrix: Water

Date Received: 11/23/2010 1726

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method: 8260B/CA_LUFTMS Analysis Batch: 720-82247 Instrument ID: CHMSV2
Preparation: 5030B Lab File ID: 11291013.D
Dilution: 1.0 Initial Weight/Volume: 10 mL
Date Analyzed: 11/29/2010 1506 Final Weight/Volume: 10 mL
Date Prepared: 11/29/2010 1506

Analyte	Result (ug/L)	Qualifier	RL
MTBE	0.71		0.50
Benzene	ND		0.50
EDB	ND		0.50
1,2-DCA	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C6-C12	ND		50
TBA	ND		4.0
Ethanol	ND		250
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)	106		67 - 130
Toluene-d8 (Surr)	99		70 - 130

Analytical Data

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Client Sample ID: CPT-1-112310

Lab Sample ID: 720-31945-5

Date Sampled: 11/23/2010 1415

Client Matrix: Water

Date Received: 11/23/2010 1726

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-82247	Instrument ID:	CHMSV2
Preparation:	5030B		Lab File ID:	11291014.D
Dilution:	1.0		Initial Weight/Volume:	10 mL
Date Analyzed:	11/29/2010 1536		Final Weight/Volume:	10 mL
Date Prepared:	11/29/2010 1536			

Analyte	Result (ug/L)	Qualifier	RL
MTBE	0.91		0.50
Benzene	ND		0.50
EDB	ND		0.50
1,2-DCA	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C6-C12	ND		50
TBA	ND		4.0
Ethanol	ND		250
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)	108		67 - 130
Toluene-d8 (Surr)	100		70 - 130

Analytical Data

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Client Sample ID: CPT-2-112310

Lab Sample ID: 720-31945-6

Date Sampled: 11/23/2010 1440

Client Matrix: Water

Date Received: 11/23/2010 1726

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-82247	Instrument ID:	CHMSV2
Preparation:	5030B		Lab File ID:	11291015.D
Dilution:	1.0		Initial Weight/Volume:	10 mL
Date Analyzed:	11/29/2010 1607		Final Weight/Volume:	10 mL
Date Prepared:	11/29/2010 1607			

Analyte	Result (ug/L)	Qualifier	RL
MTBE	ND		0.50
Benzene	ND		0.50
EDB	ND		0.50
1,2-DCA	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C6-C12	ND		50
TBA	ND		4.0
Ethanol	ND		250
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)	108		67 - 130
Toluene-d8 (Surr)	100		70 - 130

Analytical Data

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Client Sample ID: CPT-3-112310

Lab Sample ID: 720-31945-7

Date Sampled: 11/23/2010 1505

Client Matrix: Water

Date Received: 11/23/2010 1726

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-82247	Instrument ID:	CHMSV2
Preparation:	5030B		Lab File ID:	11291016.D
Dilution:	1.0		Initial Weight/Volume:	10 mL
Date Analyzed:	11/29/2010 1637		Final Weight/Volume:	10 mL
Date Prepared:	11/29/2010 1637			

Analyte	Result (ug/L)	Qualifier	RL
MTBE	ND		0.50
Benzene	ND		0.50
EDB	ND		0.50
1,2-DCA	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C6-C12	ND		50
TBA	ND		4.0
Ethanol	ND		250
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)	110		67 - 130
Toluene-d8 (Surr)	100		70 - 130

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description
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Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-82247					
LCS 720-82247/5	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCS 720-82247/7	Lab Control Sample	T	Water	8260B/CA_LUFT	
LCSD 720-82247/6	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
LCSD 720-82247/8	Lab Control Sample Duplicate	T	Water	8260B/CA_LUFT	
MB 720-82247/4	Method Blank	T	Water	8260B/CA_LUFT	
720-31945-4	CPT-2-112210	T	Water	8260B/CA_LUFT	
720-31945-5	CPT-1-112310	T	Water	8260B/CA_LUFT	
720-31945-6	CPT-2-112310	T	Water	8260B/CA_LUFT	
720-31945-7	CPT-3-112310	T	Water	8260B/CA_LUFT	
720-31945-7MS	Matrix Spike	T	Water	8260B/CA_LUFT	
720-31945-7MSD	Matrix Spike Duplicate	T	Water	8260B/CA_LUFT	
Analysis Batch:720-82251					
LCS 720-82275/2-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-82275
LCS 720-82275/4-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-82275
LCSD 720-82275/3-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-82275
LCSD 720-82275/5-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-82275
MB 720-82275/1-A	Method Blank	T	Solid	8260B/CA_LUFT	720-82275
720-31945-1	SB-3-8	T	Solid	8260B/CA_LUFT	720-82275
720-31945-2	SB-1-8	T	Solid	8260B/CA_LUFT	720-82275
720-31945-2MS	Matrix Spike	T	Solid	8260B/CA_LUFT	720-82275
720-31945-2MSD	Matrix Spike Duplicate	T	Solid	8260B/CA_LUFT	720-82275
720-31945-3	SB-2-8	T	Solid	8260B/CA_LUFT	720-82275
Prep Batch: 720-82275					
LCS 720-82275/2-A	Lab Control Sample	T	Solid	5030B	
LCS 720-82275/4-A	Lab Control Sample	T	Solid	5030B	
LCSD 720-82275/3-A	Lab Control Sample Duplicate	T	Solid	5030B	
LCSD 720-82275/5-A	Lab Control Sample Duplicate	T	Solid	5030B	
MB 720-82275/1-A	Method Blank	T	Solid	5030B	
720-31945-1	SB-3-8	T	Solid	5030B	
720-31945-2	SB-1-8	T	Solid	5030B	
720-31945-2MS	Matrix Spike	T	Solid	5030B	
720-31945-2MSD	Matrix Spike Duplicate	T	Solid	5030B	
720-31945-3	SB-2-8	T	Solid	5030B	
Analysis Batch:720-82320					
LCSD 720-82386/3-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-82386
720-31945-1	SB-3-8	T	Solid	8260B/CA_LUFT	720-82386
Prep Batch: 720-82386					
LCSD 720-82386/3-A	Lab Control Sample Duplicate	T	Solid	5030B	
720-31945-1	SB-3-8	T	Solid	5030B	

Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
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Report Basis

T = Total

Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Method Blank - Batch: 720-82247

**Method: 8260B/CA_LUFTMS
Preparation: 5030B**

Lab Sample ID: MB 720-82247/4
 Client Matrix: Water
 Dilution: 1.0
 Date Analyzed: 11/29/2010 1049
 Date Prepared: 11/29/2010 1049

Analysis Batch: 720-82247
 Prep Batch: N/A
 Units: ug/L

Instrument ID: CHMSV2
 Lab File ID: 11291005.D
 Initial Weight/Volume: 10 mL
 Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
MTBE	ND		0.50
Benzene	ND		0.50
EDB	ND		0.50
1,2-DCA	ND		0.50
Ethylbenzene	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Gasoline Range Organics (GRO)-C6-C12	ND		50
TBA	ND		4.0
Ethanol	ND		250
DIPE	ND		0.50
TAME	ND		0.50
Ethyl t-butyl ether	ND		0.50

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	101	67 - 130
1,2-Dichloroethane-d4 (Surr)	111	67 - 130
Toluene-d8 (Surr)	106	70 - 130

Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-82247**

**Method: 8260B/CA_LUFTMS
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-82247/5
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/29/2010 1120
Date Prepared: 11/29/2010 1120

Analysis Batch: 720-82247
Prep Batch: N/A
Units: ug/L

Instrument ID: CHMSV2
Lab File ID: 11291006.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-82247/6
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/29/2010 1151
Date Prepared: 11/29/2010 1151

Analysis Batch: 720-82247
Prep Batch: N/A
Units: ug/L

Instrument ID: CHMSV2
Lab File ID: 11291007.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
MTBE	92	88	62 - 130	4	20		
Benzene	104	103	82 - 127	1	20		
EDB	101	97	70 - 130	5	20		
1,2-DCA	100	96	70 - 126	4	20		
Ethylbenzene	102	102	86 - 135	0	20		
Toluene	102	100	83 - 129	2	20		
TBA	100	102	82 - 116	2	20		
Ethanol	128	130	31 - 216	1	30		
DIPE	101	99	74 - 155	2	20		
TAME	96	92	79 - 129	5	20		
Ethyl t-butyl ether	96	93	70 - 130	3	20		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
4-Bromofluorobenzene	99		97		67 - 130		
1,2-Dichloroethane-d4 (Surr)	99		95		67 - 130		
Toluene-d8 (Surr)	104		103		70 - 130		

Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-82247**

**Method: 8260B/CA_LUFTMS
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-82247/7
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/29/2010 1221
Date Prepared: 11/29/2010 1221

Analysis Batch: 720-82247
Prep Batch: N/A
Units: ug/L

Instrument ID: CHMSV2
Lab File ID: 11291008.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-82247/8
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/29/2010 1251
Date Prepared: 11/29/2010 1251

Analysis Batch: 720-82247
Prep Batch: N/A
Units: ug/L

Instrument ID: CHMSV2
Lab File ID: 11291009.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Gasoline Range Organics (GRO)-C6-C12	83	82	58 - 106	1	20		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
4-Bromofluorobenzene	99		99			67 - 130	
1,2-Dichloroethane-d4 (Surr)	99		99			67 - 130	
Toluene-d8 (Surr)	103		102			70 - 130	

Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-82247**

**Method: 8260B/CA_LUFTMS
Preparation: 5030B**

MS Lab Sample ID: 720-31945-7
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/29/2010 1708
Date Prepared: 11/29/2010 1708

Analysis Batch: 720-82247
Prep Batch: N/A

Instrument ID: CHMSV2
Lab File ID: 11291017.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

MSD Lab Sample ID: 720-31945-7
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/29/2010 1738
Date Prepared: 11/29/2010 1738

Analysis Batch: 720-82247
Prep Batch: N/A

Instrument ID: CHMSV2
Lab File ID: 11291018.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
MTBE	97	106	60 - 138	8	20		
Benzene	102	105	60 - 140	3	20		
EDB	108	114	60 - 140	5	20		
1,2-DCA	106	108	60 - 140	2	20		
Ethylbenzene	99	99	60 - 140	1	20		
Toluene	96	97	60 - 140	2	20		
TBA	98	100	60 - 140	1	20		
Ethanol	136	133	60 - 140	3	20		
DIPE	103	109	60 - 140	5	20		
TAME	101	109	60 - 140	8	20		
Ethyl t-butyl ether	100	107	60 - 140	6	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	100	100	67 - 130
1,2-Dichloroethane-d4 (Surr)	105	106	67 - 130
Toluene-d8 (Surr)	104	103	70 - 130

Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Method Blank - Batch: 720-82275

**Method: 8260B/CA_LUFTMS
Preparation: 5030B**

Lab Sample ID: MB 720-82275/1-A
 Client Matrix: Solid
 Dilution: 1.0
 Date Analyzed: 11/29/2010 1050
 Date Prepared: 11/29/2010 0900

Analysis Batch: 720-82251
 Prep Batch: 720-82275
 Units: ug/Kg

Instrument ID: HP9
 Lab File ID: 11291005.D
 Initial Weight/Volume: 5 g
 Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		5.0
Benzene	ND		5.0
EDB	ND		5.0
1,2-DCA	ND		5.0
Ethylbenzene	ND		5.0
Toluene	ND		5.0
m-Xylene & p-Xylene	ND		5.0
o-Xylene	ND		5.0
Xylenes, Total	ND		10
Gasoline Range Organics (GRO)-C6-C12	ND		250
TBA	ND		10
Ethanol	ND		500
DIPE	ND		5.0
TAME	ND		5.0
Ethyl t-butyl ether	ND		5.0
Surrogate	% Rec	Acceptance Limits	
4-Bromofluorobenzene	88	45 - 131	
1,2-Dichloroethane-d4 (Surr)	111	60 - 140	
Toluene-d8 (Surr)	102	58 - 140	

Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-82275**

**Method: 8260B/CA_LUFTMS
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-82275/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/29/2010 1122
Date Prepared: 11/29/2010 0900

Analysis Batch: 720-82251
Prep Batch: 720-82275
Units: ug/Kg

Instrument ID: HP9
Lab File ID: 11291006.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-82275/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/29/2010 1154
Date Prepared: 11/29/2010 0900

Analysis Batch: 720-82251
Prep Batch: 720-82275
Units: ug/Kg

Instrument ID: HP9
Lab File ID: 11291007.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Methyl tert-butyl ether	111	110	71 - 144	1	20		
Benzene	103	103	82 - 124	0	20		
EDB	106	105	79 - 140	1	20		
1,2-DCA	98	98	74 - 125	0	20		
Ethylbenzene	109	109	80 - 137	1	20		
Toluene	102	104	83 - 128	2	20		
m-Xylene & p-Xylene	113	114	79 - 146	1	20		
o-Xylene	108	109	84 - 140	1	20		
TBA	99	99	76 - 119	0	20		
Ethanol	98	95	49 - 162	3	20		
DIPE	107	107	83 - 131	0	20		
TAME	99	93	74 - 140	6	20		
Ethyl t-butyl ether	98	98	76 - 129	0	20		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
4-Bromofluorobenzene	108		109		45 - 131		
1,2-Dichloroethane-d4 (Surr)	101		101		60 - 140		
Toluene-d8 (Surr)	109		109		58 - 140		

Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-82275**

**Method: 8260B/CA_LUFTMS
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-82275/4-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/29/2010 1227
Date Prepared: 11/29/2010 0900

Analysis Batch: 720-82251
Prep Batch: 720-82275
Units: ug/Kg

Instrument ID: HP9
Lab File ID: 11291008.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-82275/5-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/29/2010 1259
Date Prepared: 11/29/2010 0900

Analysis Batch: 720-82251
Prep Batch: 720-82275
Units: ug/Kg

Instrument ID: HP9
Lab File ID: 11291009.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Gasoline Range Organics (GRO)-C6-C12	80	84	64 - 107	5	20		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
4-Bromofluorobenzene	105		104			45 - 131	
1,2-Dichloroethane-d4 (Surr)	107		108			60 - 140	
Toluene-d8 (Surr)	112		112			58 - 140	

Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-82275**

**Method: 8260B/CA_LUFTMS
Preparation: 5030B**

MS Lab Sample ID: 720-31945-2
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/29/2010 1453
Date Prepared: 11/29/2010 0900

Analysis Batch: 720-82251
Prep Batch: 720-82275

Instrument ID: HP9
Lab File ID: 11291012.D
Initial Weight/Volume: 5.16 g
Final Weight/Volume: 10 mL

MSD Lab Sample ID: 720-31945-2
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/29/2010 1558
Date Prepared: 11/29/2010 0900

Analysis Batch: 720-82251
Prep Batch: 720-82275

Instrument ID: HP9
Lab File ID: 11291014.D
Initial Weight/Volume: 5.17 g
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Methyl tert-butyl ether	110	108	69 - 130	2	20		
Benzene	101	103	70 - 130	2	20		
EDB	101	96	66 - 135	5	20		
1,2-DCA	95	93	70 - 130	2	20		
Ethylbenzene	110	108	65 - 130	2	20		
Toluene	106	106	70 - 130	0	20		
m-Xylene & p-Xylene	113	111	70 - 130	2	20		
o-Xylene	105	104	68 - 130	1	20		
TBA	95	95	70 - 130	0	20		
Ethanol	90	86	70 - 130	6	20		
DIPE	104	105	70 - 130	1	20		
TAME	97	99	70 - 130	2	20		
Ethyl t-butyl ether	95	98	70 - 130	3	20		
Surrogate		MS % Rec	MSD % Rec			Acceptance Limits	
4-Bromofluorobenzene		104	98			45 - 131	
1,2-Dichloroethane-d4 (Surr)		102	100			60 - 140	
Toluene-d8 (Surr)		107	111			58 - 140	

Quality Control Results

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

San Francisco
1220 Quarry Lane

Pleasanton, CA 94566
phone 925.484.1919 fax 925.600.3002

720-31945

Chain of Custody Record

128285
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Hollis Phillips		Site Contact: Ben McKenna		Date:		COC No:	
ARCADIS U.S.		Tel/Fax: 415-374-2744		Lab Contact:		Carrier:		1 of 1 COCs	
2033 North Main Street, Suite 340		Analysis Turnaround Time		Filtered Sample 8015m - TPHd Extractable 8260B - TPHg/BTEX/MBE 8260B - TPHg / BTEX / 8 Oxygenates 8260B - TPHg / BTEX / 8 oxygenates + methanol (8015M) 8260B - Full Scan VOCs (does not include oxygenates) 8270C - Semi-Volatiles 8015M / 8021B - TPHg/BTEX/MBE Lead <input type="checkbox"/> Total <input type="checkbox"/> STLC <input type="checkbox"/> TCLP		Calendar (C) or Work Days (W)		Job No.	
Walnut Creek, CA 94596		TAT if different from Below _____				SDG No.			
(925) 274-1100 Phone		<input checked="" type="checkbox"/> 2 weeks				Sample Specific Notes:			
(925) 274-1103 FAX		<input type="checkbox"/> 1 week							
Project Name: Former BP Service Station No. 6041		<input type="checkbox"/> 2 days							
Site: #6041-Dublin		<input type="checkbox"/> 1 day							
P O # GP09BPNA.C039									
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.			
SB-3-8		112210	1710	Soil	S	1			
SB-1-8		112210	1850	Soil	S	1			
SB-2-8		112210	200	Soil	S	1			
CPT-2-112210		112210	2009 to 2011	Water	W	3			
CPT-1-112310		112310	1415	Water	W	3			
CPT-2-112310		112310	1440	Water	W	3			
CPT-3-112310		112310	1505	Water	W	6			
ISM 112310									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____		Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/>		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Special Instructions/QC Requirements & Comments:									
Relinquished by: <u>Jules de Sainte Marie</u>		Company: <u>ARCADIS</u>		Date/Time: <u>11-23-10 1726</u>		Received by: <u>Joan Mullen</u>		Company: <u>TestAmerica</u>	
Relinquished by:		Company:		Date/Time:		Received by:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received by:		Date/Time:	

4.9c

Login Sample Receipt Check List

Client: ARCADIS U.S., Inc.

Job Number: 720-31945-1

Login Number: 31945

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.	False	SEE NCM
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	N/A	
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	