SUPPLEMENTAL VERTICAL DELINEATION IN OFF-SITE 24-INCH BLOCK VALVE AREA

Defense Fuel Support Point

Norwalk, California

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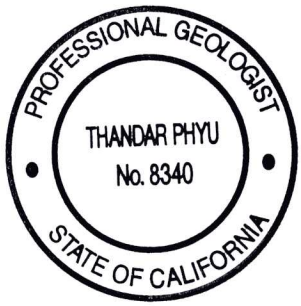

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SUPPLEMENTAL VERTICAL DELINEATION IN OFF-SITE 24-INCH BLOCK VALVE AREA

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1.0 INTRODUCTION

AMEC Geomatrix, Inc. (AMEC), is submitting this report on behalf of SFPP, L.P. (SFPP), an operating partnership of Kinder Morgan Energy Partners, L.P. (KMEP), to describe the supplemental vertical delineation assessment in the vicinity of the off-site 24-inch block valve area east of the Defense Fuel Support Point, Norwalk located at 15306 Norwalk Boulevard, Norwalk, California (DFSP, the site; Figure 1). The assessment was conducted in accordance with the Work Plan for Supplemental Vertical Delineation (work plan; AMEC, 2009a). The work plan was approved by the California Regional Water Quality Control Board – Los Angeles Region (RWQCB) in its letter dated July 23, 2009 (RWQCB, 2009). The following sections describe the background, objectives, approach and methods, findings, and conclusions of this supplemental vertical delineation assessment.

2.0 BACKGROUND

The assessment described in this report was conducted to supplement the additional subsurface assessment activities conducted in July 2008 in the off-site 24-inch block valve area (AMEC, 2008) and to address the RWQCB's comments on that additional assessment (RWQCB, 2008)., The following Section 2.1 provides an overview of the 2008 assessment activities and results and the RWQCB's comments. Sections 2.2 and 2.3 provide additional background information on the hydrogeologic setting and groundwater quality conditions in the area as characterized through previous phases of assessment.

2.1 OVERVIEW

Several phases of hydrogeologic and groundwater quality assessment have been conducted in the off-site 24-inch block valve area since 1994 and remediation of soil and groundwater in this area is in progress. The vertical extent of dissolved fuel constituents in groundwater in the area was delineated to the base of the uppermost groundwater zone during an assessment conducted in 2008 (AMEC, 2008). That assessment included lithologic profiling using cone penetrometer testing (CPT) equipment and groundwater sampling using HydroPunch methods. In a letter dated November 26, 2008, the RWQCB commented on that phase of assessment and requested a supplemental assessment to obtain information on:

- the physical character of the Bellflower aquitard, which underlies the uppermost groundwater zone in the area, and

- the potential that site-related chemicals detected in the uppermost groundwater zone at previous sampling location CPT-2 have impacted groundwater in the Exposition aquifer beneath the Bellflower aquitard in the area.

The supplemental delineation described in this report was designed and conducted to address the RWQCB's comments and requests noted above. .

2.2 HYDROGEOLOGIC SETTING

The site is located within the central portion of the Los Angeles Basin on the Downey Plain. Geologic materials to a depth of approximately 50 feet below ground surface (bgs) within this portion of the Downey Plain are Recent alluvium consisting predominantly of sand and silt, with some clay lenses. The Lakewood Formation, consisting predominantly of Upper Pleistocene alluvial sediments, extends from the base of the Recent alluvium to a depth of approximately 250 feet beneath the Downey Plain. The Lakewood Formation is underlain by the San Pedro Formation, which consists of more than 800 feet of Pleistocene sediments of marine and non-marine origin (Bulletin 104; CDWR, 1961).

The uppermost groundwater zone in the site vicinity is a semi-perched unit between depths of approximately 25 and 50 feet bgs. Groundwater flow within this uppermost zone, as interpreted during previous assessments and monitoring at DFSP, is generally northwestward under a horizontal gradient of approximately 0.001 feet/feet (ft/ft) (AMEC, 2009b). The uppermost groundwater zone overlies the Bellflower aquitard of the Lakewood Formation. Based on lithologic logs from previous assessments at and near DFSP, the Bellflower aquitard lies between depths of approximately 50 and 80 feet bgs beneath the site and consists of predominantly clay, silty clay, and sandy clay with some interbedded sand with silt.

The CPT lithologic profiling conducted during the July 2008 assessment in the vicinity of the off-site 24-inch block valve generally indicated the CPT soil behavior types of coarse-grained sediments from approximately 5 feet bgs to 25 feet bgs and from 35 to 48 feet bgs, with finer-grained soils in between these intervals of predominantly coarser grained sediments. The top of the Bellflower aquitard was interpreted from the CPT profiles at a depth of approximately 48 feet bgs. The CPT lithologic profiles indicated that the Bellflower aquitard in this area is a minimum of approximately 34 feet thick and is composed primarily of fine-grained soils interbedded with intervals of relatively coarser-grained sediments.

The Exposition aquifer underlies the Bellflower aquitard between depths of approximately 80 and 220 feet bgs. The potentiometric surface in the Exposition aquifer is approximately 20 feet lower than that in the semi-perched uppermost groundwater zone throughout the DFSP area. This relatively consistent difference in hydraulic heads between the semi-perched upper groundwater zone and the Exposition aquifer indicates that the Bellflower aquitard is a laterally-extensive unit that inhibits the vertical movement of groundwater in the site area. Historically, the horizontal hydraulic gradient in the Exposition aquifer beneath the site area has had a magnitude of approximately 0.001 ft/ft and a generally southeastward direction (AMEC, 2009b). The generally southeastward direction of horizontal hydraulic gradient (and interpreted direction of horizontal groundwater flow) in the Exposition aquifer is roughly opposite the general direction of interpreted groundwater flow in the uppermost groundwater zone. These distinctly different hydraulic conditions consistently interpreted over time above and below the Bellflower aquitard further support the interpretation that the Bellflower aquitard in this area comprises a unit that is laterally continuous, has a relatively low bulk vertical hydraulic conductivity, and is appreciably thick.

2.3 GROUNDWATER QUALITY

Groundwater quality has been assessed and monitored for the potential presence of site-related chemicals for many years. Groundwater quality conditions in the uppermost groundwater zone (above the Bellflower aquitard) and the Exposition aquifer (below the Bellflower aquitard) in the vicinity of the off-site 24-inch block valve area are summarized in this section.

2.3.1 Uppermost Groundwater Zone

Assessment and monitoring of groundwater conditions in the uppermost groundwater zone in the vicinity of the off-site 24-inch block valve area began in 1994. Based on the groundwater monitoring results, additional assessment for methyl tert-butyl ether (MTBE) in groundwater in the uppermost groundwater zone was conducted in 2002 in the hydraulically downgradient vicinity of the off-site 24-inch block valve. The results of the 2002 assessment indicated a northwest trending area of elevated MTBE concentrations in groundwater at depths of approximately 43 to 46 feet bgs. In 2003, the groundwater remediation system was expanded to address MTBE detected in groundwater downgradient of the off-site 24-inch block valve. In 2007, as part of an investigation on behalf of the Defense Energy Support Center (DESC) and KMEP, Parsons collected groundwater samples from three discrete depth intervals between 25 and 42 feet bgs at one location (B-122) in the vicinity of the off-site 24-inch block valve. Analytical results indicated elevated concentrations of benzene, toluene, ethylbenzene, and xylenes (collectively, BTEX), total petroleum hydrocarbons (TPH) quantified as gasoline

(TPHg) and site fuel product (TPHfp), and MTBE in all groundwater samples collected from B-122.

In July 2008, Geomatrix (now AMEC) conducted additional groundwater assessment near Parsons' previous sampling location B-122 to delineate the lateral and vertical extents of elevated concentrations of fuel constituents in the uppermost groundwater zone near B-122 (AMEC, 2008). The presence and depth of the Bellflower aquitard in the off-site area near the 24-inch block valve were also evaluated using CPT profiling at two locations, CPT-1 and CPT-2 (Figure 2). The results of the 2008 assessment, indicated concentrations of fuel oxygenates near the base of the uppermost groundwater zone, and prompted the RWQCB request for additional assessment for further vertical delineation (e.g., sampling of groundwater in the Exposition aquifer) in the vicinity of the southeast 24-inch block valve area.

2.3.2 Exposition Aquifer

Monitoring of groundwater in the Exposition aquifer at the DFSP began in 1996. In 1998, groundwater monitoring well EXP-5 was constructed at a location approximately 840 feet southeast of the southeastern portion of the DFSP. The location of EXP-5 is hydraulically downgradient from the DFSP with respect to the predominant direction of groundwater flow in the Exposition aquifer. Well EXP-3, located approximately 350 west of the 24-inch block valve, is the nearest Exposition aquifer monitoring well to the block valve. Groundwater monitoring results from Exposition wells, including EXP-3 and EXP-5, have indicated no impacts to the Exposition aquifer.

3.0 OBJECTIVES

The objectives of this supplemental vertical delineation assessment were to:

1. verify the character (depth, composition, and thickness) of the Bellflower aquitard in the off-site 24-inch block valve area; and

2. assess groundwater quality in the Exposition aquifer at a location selected to evaluate whether dissolved fuel constituents have moved downward into the Exposition aquifer from the area of previous uppermost groundwater zone sample location CPT-2.

4.0 APPROACH AND METHODS

The following sections describe the approach followed to meet the objectives and the methods used to implement the assessment.

4.1 APPROACH

The approach proposed and implemented for this assessment was designed to address the objectives identified above. It included the use of sonic drilling methods to provide continuous core of geologic materials to allow observation and sampling of the materials comprising the Bellflower aquitard, and to enable efficient groundwater sampling of the Exposition aquifer using methods that reduced the potential for cross-contamination from shallower groundwater. The location was selected to be within the area of interest in terms of aquitard composition and to be hydraulically downgradient (generally southeastward) from the area of CPT-2 in relation to interpreted groundwater elevations in the Exposition aquifer. This location, shown on Figure 2, was approximately 170 feet southeast and approximately 20 feet east of previous sampling locations CPT-2 and CPT-1, respectively. The methods and location of assessment were proposed in the work plan, which was approved by the RWQCB. The boring drilled and sampled at this location was designated GB18.

4.2 PRE-FIELD ACTIVITIES

Prior to commencing field assessment work, AMEC:

- obtained a well permit for drilling and groundwater sampling from County of Los Angeles Public Health - Environmental Health Division (Appendix A);
- obtained a temporary access license agreement from City of Norwalk (Appendix B);
- updated the existing site-specific Health and Safety Plan to incorporate the planned field work;
- notified the RWQCB of the planned field activities;
- notified Underground Service Alert of the planned field activities; and
- retained Subsurface Survey & Associates, Inc. of Carlsbad, California, a private utility locator, and performed a geophysical survey to screen the planned drilling location for potential underground utilities or buried objects.

4.3 DRILLING, LITHOLOGIC LOGGING, AND SAMPLING

AMEC retained Boart Longyear of Upland, California, to conduct drilling, coring, and groundwater sampling of boring GB18 using resonant sonic drilling equipment and methods. Prior to drilling, the boring location was cleared to a depth of approximately 7 feet bgs by Gregg Drilling and Testing, Inc. using air vacuum extraction methods to check for the presence of subsurface obstructions. Downhole drilling equipment and non-disposable sampling equipment were steam-cleaned or cleaned with Alconox-water solution and rinsed twice with potable water prior to each use.

Boring GB18 was continuously cored using the sonic coring system. Drilling and coring began using a 7-inch outside diameter (OD) drill casing and a 6-inch OD core barrel. As coring advanced, the drill casing was lowered into the borehole to prevent the borehole from collapsing. Lithology encountered during drilling was described by an AMEC field geologist under the direction of a State of California Licensed Professional Geologist. Soil characteristics were described using visual-manual procedures of ASTM D2488 for guidance, which are based on the Unified Soil Classification System (USCS). Soil was screened in the field using a photoionization detector (PID) for potential presence of volatile organic compounds (VOCs). Color, moisture content, grain size, PID readings, and other pertinent soil characteristics were recorded on the boring log (Appendix C).

Fine-grained sediments comprising the Bellflower aquitard were encountered between depths of approximately 47 and 81 feet bgs. To provide material for laboratory testing of physical and hydraulic testing of aquitard sediments, relatively undisturbed soil samples were collected at approximately 57, 62, 65, and 80 feet bgs using California Modified Split Spoon Sampler.

The sediments observed in the core from depths of approximately 77 to 80 feet bgs were logged as sandy lean clay and appeared to be appropriate in terms of depth and composition as a target for seating the 7-inch OD drill casing as a temporary conductor casing. The 7-inch OD casing was pushed into these sediments to a depth of approximately 80 feet bgs. Groundwater that had accumulated in the 7-inch OD drill casing during drilling was removed by bailing and bentonite chips were placed in the bottom of the casing to absorb residual water. The inside the drill casing was then monitored with a water level sounder for approximately 45 minutes to document that water was not entering the drill casing and thus confirming that the drill casing was properly seated to provide and adequate seal in the fine-grained unit. Once sealing of the temporary conductor casing was confirmed, the boring was advanced through the temporary conductor casing using 6-inch OD drill casing and cored with a 4-inch OD core barrel. Coarser-grained sediments interpreted as the upper part of the Exposition aquifer were encountered at a depth of approximately 81 feet bgs and coring continued to a depth of approximately 85 feet bgs.

A discrete-depth groundwater sample was collected from the upper part of the Exposition aquifer using a HydroPunch-type sampler, driven to approximately 90 feet bgs and then retracted to expose the screen in the interval of approximately 86 to 90 feet bgs. In addition, a duplicate groundwater sample, an equipment blank sample, and a trip blank were collected for quality assurance and quality control (QA/QC) purposes.

After sampling was completed, the boring was advanced by coring and lowering the drill casing to its total depth of 90 feet bgs, then was backfilled with cement grout through a tremie pipe from the total depth to ground surface. The surface was repaired to match surface conditions prior to drilling.

Soil samples and groundwater samples were placed in separate ice-chilled coolers and submitted under chain-of-custody procedures to the laboratories.

4.4 LABORATORY ANALYSES

The following subsections describe laboratory analyses for soil and groundwater samples collected during this assessment.

4.4.1 Physical and Hydraulic Property Testing of Aquitard Sediment Samples

The soil samples were submitted to PTS Laboratories, Inc. of Santa Fe Springs, California. The soil samples collected from depths of 57, 62, and 80 feet bgs were selected for laboratory testing of physical and hydraulic properties because they represented predominant sediment types encountered within the aquitard zone (logged in the field as silty sand, lean clay, and sandy lean clay). The sample from a depth of 65 feet bgs was similar in lithology (logged as silty sand) to the sample from 57 feet bgs and was therefore not selected for laboratory testing. The selected samples were tested for:

- vertical and horizontal hydraulic conductivities and permeabilities using EPA Method 9100/API RP40;
- drainage or effective porosity using Modified ASTM D425API RP40;
- total and fraction organic carbon using the Walkley Black Method;
- grain and bulk density, moisture content, and total pore fluid saturation using API RP40; and
- grain size distribution using ASTM D422/D4464M.

4.4.2 Chemical Analyses of Exposition Aquifer Groundwater Sample

The groundwater sample and QA/QC samples were submitted to Calscience Environmental Laboratories, Inc. (Calscience) of Garden Grove, California, a laboratory certified under the California Environmental Laboratory Accreditation Program (CELAP). Calscience analyzed the primary and duplicate groundwater samples and the equipment blank for:

- TPHg and TPHfp using EPA Method 8015M; and

- BTEX and fuel oxygenates MTBE, TBA, DIPE, ETBE, and TAME using EPA Method 8260B.

In addition, the trip blank was analyzed for BTEX and fuel oxygenates using EPA Method 8260B.

4.5 INVESTIGATION-DERIVED WASTE MANAGEMENT

Investigation-derived waste including soil cuttings and equipment rinse water were separately contained in Department of Transportation (DOT)-approved 55-gallon steel drums. The drums were labeled and stored on-site for subsequent characterization and disposal. Waste water was subsequently transferred to the holding tank and treated at the on-site groundwater remediation and treatment system. A composite soil sample was collected from the soil drums and analyzed by Calscience for waste characterization. Soil was characterized as non-hazardous and the soil drums were removed by a licensed waste transporter for recycling at an off-site facility. The waste manifest documenting transport and recycling of the soil drums is included in Appendix D.

5.0 FINDINGS

The following sections describe the findings of this supplemental assessment including lithology encountered during drilling, physical and hydraulic property test results of the aquitard soil samples, and analytical results for the discrete-depth groundwater sample collected from the upper part of the Exposition aquifer.

5.1 LITHOLOGY

Lithologic materials encountered within the uppermost zone overlying the Bellflower aquitard at boring GB18 consisted of sandy silt, silty sand, and poorly graded sand. Groundwater within the uppermost zone was encountered at approximately 23 feet bgs; this depth to groundwater was similar to the depths to groundwater measured in monitoring wells in this area during the October 2009 monitoring event (Parsons, 2010). The top to the Bellflower aquitard was encountered at a depth of approximately 47 feet bgs. The Bellflower aquitard at GB18 is approximately 34 feet thick, extending from approximately 47 to 81 feet bgs, and consists of fine-grained materials (lean clay, lean clay with sand, and sandy lean clay) interbedded with relatively coarser-grained materials (silty sand and clayey sand). Sediments corresponding to the Exposition aquifer were encountered at a depth of approximately 81 feet bgs. These sediments consisted of silty sand and continued to the bottom of the boring at a depth of approximately 90 feet bgs. Lithologic descriptions are presented in the boring log provided in Appendix C.

5.2 PHYSICAL PROPERTY TEST RESULTS FOR BELLFLOWER AQUITARD SOIL SAMPLES

Physical and hydraulic property tests were performed on three soil samples representing a range of lithologic materials within the Bellflower aquitard. The laboratory report provided by PTS is included as Appendix E. The physical and hydraulic property test results are summarized below and in Table 1.

- Grain size distribution analyses indicates the soil samples were composed of predominantly fine-grained sediment, with combined percentages of silt and clay ranging from 59.40 to 95.79 percent by weight.

- Vertical effective permeability to water and hydraulic conductivity ranged from 0.29 to 5.61 millidarcies (mD) and from 2.83×10^{-7} to 5.52×10^{-6} centimeters per second (cm/s), respectively.

- Horizontal effective permeability to water and hydraulic conductivity ranged from 0.29 to 10.0 mD and 2.88×10^{-7} to 9.84×10^{-6} cm/s, respectively.

- Total and effective porosities ranged from 33.3 to 48.5 percent (%) bulk volume (Vb) and from 10.5 to 29.2 %Vb, respectively.

- Total and fraction organic carbon contents ranged from 320 to 11,900 milligrams per kilogram (mg/kg) and from 0.00032 to 0.0119 grams per gram (g/g), respectively.

- Bulk and grain densities ranged from 1.18 to 1.71 grams per cubic centimeters (g/cc) and from 2.63 to 2.70 g/cc, respectively.

- Moisture content and total pore fluid saturations ranged from 15.6 to 38.6 % weight to from 73.0 to 82.3 % pore volume (Pv).

5.3 ANALYTICAL RESULTS FOR EXPOSITION AQUIFER GROUNDWATER SAMPLE

A discrete-depth groundwater sample and a duplicate groundwater sample were collected from the depth interval of approximately 86 to 90 feet bgs. The groundwater sample and duplicate were analyzed for TPHg, TPHfp, BTEX, and fuel oxygenates. None of the analytes were detected at or above their respective laboratory reporting limits; all laboratory reporting limits were below their corresponding CDPH MCLs or drinking water notification levels (CDPH, 2008; CDPH, 2007). The laboratory analytical report is provided in Appendix F and the results are summarized in Table 2.

5.4 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) RESULTS

AMEC and the analytical laboratory followed specific QA/QC procedures during this assessment. AMEC collected and analyzed a trip blank, an equipment blank, and a field duplicate groundwater sample. All samples were extracted and analyzed within the holding

times specified by each laboratory method. No analytes were detected at concentrations at or above laboratory reporting limits in the laboratory method blanks.

The analytical data were reviewed in general accordance with the USEPA National Functional Guidelines for Organic Data Review (USEPA, 1999). Based on the results of the review, the groundwater sample results are considered acceptable for their intended use. The results of the data quality review are included in Appendix F along with the laboratory report.

6.0 SUMMARY AND CONCLUSIONS

The findings of the supplemental vertical delineation in the vicinity of off-site 24-inch block valve area are summarized below.

- The lithology encountered in boring GB18 was generally consistent with the CPT lithologic profiles from borings CPT-1 and CPT-2 conducted in July 2008 and confirmed the presence, depth, thickness, and composition of the Bellflower aquitard in the off-site 24-inch block valve area. The top of the Bellflower aquitard was encountered at approximately 47 feet bgs in GB18 (very similar to the depth of 48 feet bgs interpreted from the CPT lithologic profiles from previous CPT borings CPT-1 and CPT-2). The Bellflower aquitard at this location extends vertically from approximately 47 to 81 feet and consists of predominantly fine-grained materials interbedded with some relatively coarser-grained materials. The depth, thickness, and composition of the Bellflower aquitard encountered at GB18 were very similar to those interpreted from the CPT lithologic profiles from previous borings CPT-1 and CPT-2.

- Physical and hydraulic property testing was conducted using soil samples collected from a range of sediment types within the Bellflower aquitard. The results of these tests indicate the sediment samples were composed primarily of silt and clay, with vertical hydraulic conductivity values ranging from 2.83×10^{-7} to 5.52×10^{-6} cm/s.

- Analytical results for a discrete-depth groundwater sample collected from the upper part of the Exposition aquifer, hydraulically downgradient of the area in which fuel oxygenates have been detected in the uppermost groundwater zone, show no groundwater impact to the Exposition aquifer by site-related chemicals.

Based on the findings described in this report, we conclude that the Bellflower aquitard in the area of this assessment consists of sediments that impede the vertical flow of groundwater and dissolved chemicals, and that groundwater in the Exposition aquifer at the location of GB18 has not been impacted by fuel constituents detected in water bearing sediments above the Bellflower aquitard. These findings and conclusions are consistent with, and provide further support for, the previously-developed hydrogeologic conceptual model of the area. Specifically, the Bellflower aquitard is laterally extensive, contains an appreciable thickness of low-permeability fine-grained sediments, and impedes the vertical movement of groundwater and dissolved chemicals in the vicinity of the DFSP. The objectives of this supplemental

assessment have been addressed and the findings and conclusions presented herein indicate that no further assessment of conditions in the Bellflower aquitard or Exposition aquifer in this area is needed.

7.0 REFERENCES

AMEC Geomatrix, Inc., 2008, Additional Off-Site Assessment Report, Off-Site 24-Inch Block Valve Area, Defense Fuel Support Point, Norwalk, August 28.

AMEC Geomatrix, Inc., 2009a, Work Plan for Supplemental Vertical Delineation in Off-Site 24-Inch Block Valve Area, Defense Fuel Support Point, 15306 Norwalk Boulevard, Norwalk, California, January 26.

AMEC Geomatrix, Inc., 2009b, Defense Fuel Support Point, Norwalk, First Semi-Annual 2009 Groundwater Monitoring Report, July 27.

California Department of Public Health, 2007, Drinking Water Program, Drinking Water Notification Levels, Drinking Water Notification Levels and Response Levels - An Overview, December 14 (http://www.cdph.ca.gov/certlic/drinkingwater/Pages/NotificationLevels.aspx.)

California Department of Public Health, 2008, Drinking Water Program, Title 22 California Code of Regulations, California Regulations Related to Drinking Water, Table 64444-A, Maximum Contaminant Levels, Organic Chemicals, March 9.

California Department of Water Resources (CDWR), 1961, Bulletin No. 104 – Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County (Ground Water Geology), June (reprinted May 1991).

California Regional Water Quality Control Board, Los Angeles Region, 2008, Directive and Comments – Additional Off-Site Assessment Report for the Off-Site 24-Inch Block Valve Area, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California (SCP No. 0286B, Site No. 204DM00), November 26.

California Regional Water Quality Control Board, Los Angeles Region, 2009, letter regarding Work Plan for Vertical Delineation in Off-Site 24-Inch Block Valve Area, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California (SCP No. 0286B, Site No. 204DM00), July 23.

Parsons, 2010, Defense Fuel Support Point, Norwalk, Second Semiannual 2009 Groundwater Monitoring Report, January 21.

U.S. EPA, 1999, U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA-540/R-99-008 (PB99-963506), October.

TABLES

TABLE 1

SUMMARY OF PHYSICAL PROPERTY TEST RESULTS FOR BELLFLOWER AQUITARD SOIL SAMPLES
SUPPLEMENTAL VERTICAL DELINEATION IN OFF-SITE 24-INCH BLOCK VALVE AREA
Defense Fuel Support Point
Norwalk, California

Sample Location	Sample ID	Sample Date	Sample Depth Interval (feet bgs)	API RP 40; EPA 9100				Mod. ASTM D425		Walkley-Black		API RP40/ASTM D2216				ASTM D422/D4464M				
				Effective Permeability to Water[1,2] (millidarcy)		Hydraulic Conductivity[1,2] (cm/s)		Porosity (%Vb)		Organic Carbon		Density (g/cc)		Moisture Content (% weight)	Total Pore Fluid Saturation (%Pv)	Particle Size Distribution (% weight)				
																	Sand Size			Silt & Clay
				Vertical	Horizontal	Vertical	Horizontal	Total Porosity	Effective Porosity	TOC (mg/kg)	FOC (g/g)	Bulk	Grain			Gravel	Coarse	Medium	Fine	
GB18	GB-18-57	11/19/09	56.5 - 57.0	5.61	10.0	5.52×10^{-6}	9.84×10^{-6}	39.8	29.2	1750	0.00175	1.39	2.70	28.5	81.8	0.00	0.00	1.63	30.70	67.67
	GB-18-62	11/19/09	61.5 - 62.0	0.29	0.29	2.83×10^{-7}	2.88×10^{-7}	48.5	10.5	11,900	0.0119	1.18	2.63	38.6	82.3	0.00	0.00	0.00	4.21	95.79
	GB-18-80	11/19/09	79.5 - 80.0	2.47	2.14	2.44×10^{-6}	2.12×10^{-6}	33.3	12.1	320	0.00032	1.71	2.69	15.6	73.0	0.00	0.00	12.51	28.09	59.40

Notes:
1. Native State or Effective = with as-received pore fluid in place.
2. Permeability to water and hydraulic conductivity measured at saturated conditions.

Abbreviations:
g/cc = grams per cubic centimeters.
%Pv = percent pore volume.
cm/s = centimeters per second.
%Vb = percent bulk volume in cubic centimeter (cc).
mg/kg = milligrams per kilograms.
g/g = grams per gram.
mm = millimeters.
TOC = total organic carbon.
FOC = fraction organic carbon.

TABLE 2

SUMMARY OF ANALYTICAL RESULTS FOR DISCRETE-DEPTH EXPOSITION AQUIFER GROUNDWATER SAMPLES
SUPPLEMENTAL VERTICAL DELINEATION IN OFF-SITE 24-INCH BLOCK VALVE AREA
Defense Fuel Support Point
Norwalk, California

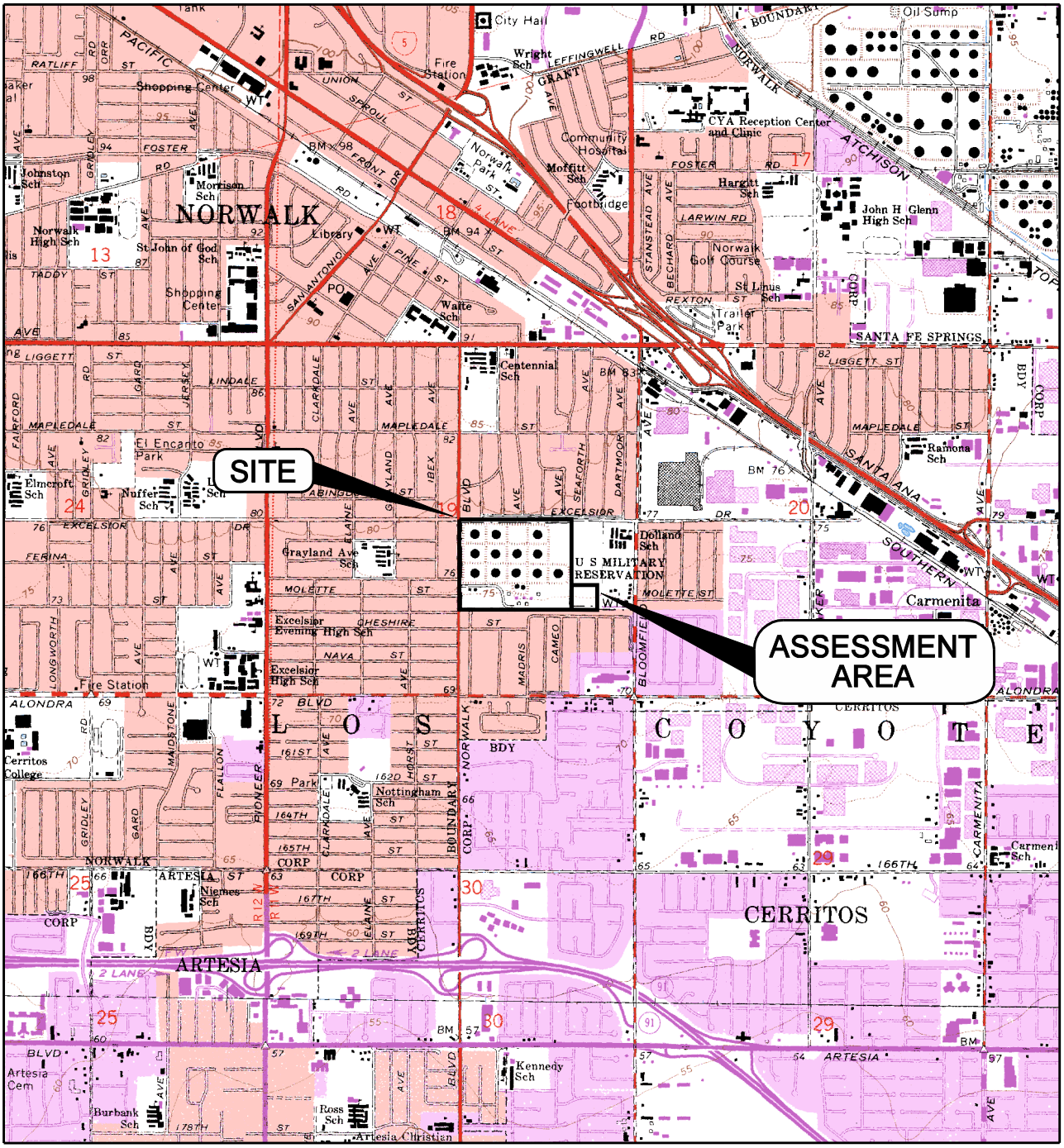
Results reported in micrograms per liter (µg/L).

Sample Location	Sample Date	Sample ID	Sample Depth Interval (feet bgs)	EPA 8015B (M)		EPA 8260B									
				TPHg	TPHfp	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	DIPE	ETBE	TAME	Ethanol
GB18	11/19/09	GB-18-90W	86-90	<100	<500	<0.50	<1.0	<1.0	<1.0	<1.0	<10	<2.0	<2.0	<2.0	<100
	11/19/09	GB-18-90W(D)	86-90	<100	<500	<0.50	<1.0	<1.0	<1.0	<1.0	<10	<2.0	<2.0	<2.0	<100
Equipment Blank	11/19/09	11192009-EB	--	<100	<500	<0.50	<1.0	<1.0	<1.0	<1.0	<10	<2.0	<2.0	<2.0	<100
Trip Blank	11/19/09	11192009-TB	--	--	--	<0.50	<1.0	<1.0	<1.0	<1.0	<10	<2.0	<2.0	<2.0	<100
CDPH MCL or NL[1,2]				--	--	1.0	150	300	1750	13	12 [2]	--	--	--	--

Notes:
1. California Department of Public Health, Drinking Water Program, Title 22 California Code of Regulations, California Regulations Related to Drinking Water, March 9, 2008, Table 64444-A, Maximum Contaminant Levels, Organic Chemicals.
2. California Department of Public Health, Drinking Water Program, Drinking Water Notification Levels, Drinking Water Notification Levels and Response Levels - An Overview, last updated December 14, 2007; http://www.cdph.ca.gov/certlic/drinkingwater/Pages/NotificationLevels.aspx.

Abbreviations:
CDPH = California Department of Public Health.
MCL = maximum contaminant level.
NL = notification level.
feet bgs = feet below ground surface.
TPHg = total petroleum hydrocarbons quantified using a gasoline standard.
TPHfp = total petroleum hydrocarbons quantified using a site fuel product standard.
MTBE = Methyl tert-butyl ether.
TBA = Tert-butyl alcohol.
<100 = not detected at or above the laboratory reporting limit shown.
DUP = field duplicate sample.
-- = not applicable or established.

FIGURES



Base map modified from U.S.G.S. 7.5 minute quadrangle maps Los Alamitos 1964, California; photo-revised 1981; and Whittier 1965, California; photorevised 1981.

Approximate Scale in Feet

0 1200 2400

0 0 0

Approximate Scale in Meters

SITE LOCATION AND ASSESSMENT AREA MAP
OFF-SITE 24-INCH BLOCK VALVE AREA
DFSP NORWALK
Norwalk, California

By: BRP	Date: 12/08/09	Project No: 1603.046
AMEC Geomatrix		Figure 1

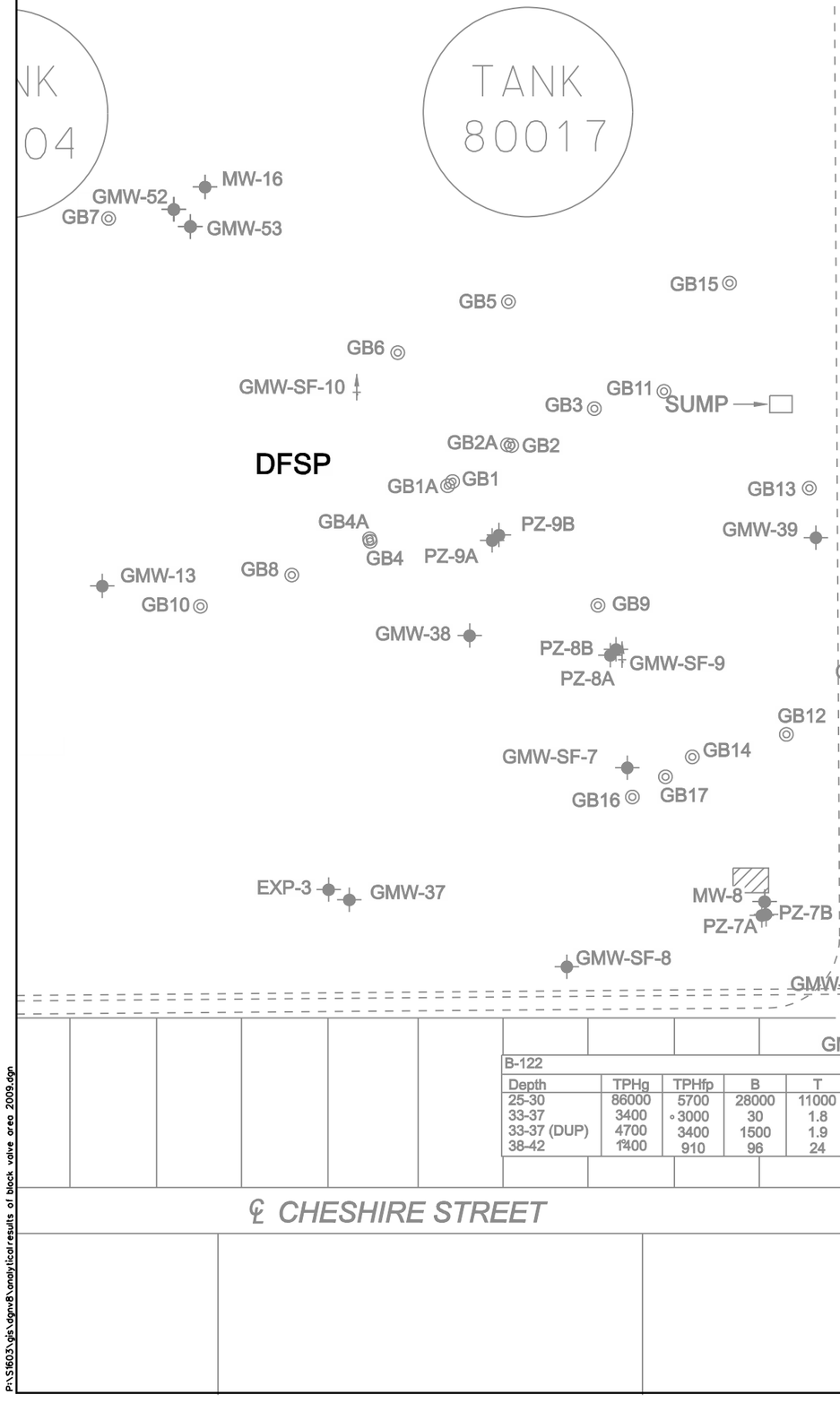
P:\S1603\gis\dgnv8\site_location_assesment_area_tb.dgn

Notes:

1. Analytical results are reported in micrograms per liter (µg/L).
2. Groundwater samples from boring B-122 were collected by Parsons, Investigation Report for Holifield Park and Dolland Elementary School, October 11, 2007.
3. Groundwater samples from borings CPT-1 and CPT-2 were collected by AMEC Geomatrix in 2008, Additional Off-Site Assessment Report, Off-Site 24-Inch Block Valve Area, August 28, 2009 (AMEC Geomatrix, 2008).
4. Basemap prepared from data provided by Fluor Daniel GTI, Dulin & Boynton, and Geomatrix. Sampling location GB-18 was measured from surveyed well lcoations PZ-5 and GMW-O-18.
5. Except for GB-18 and EXP-3, all groundwater sampling points, monitoring wells, and remediation wells shown are in the uppermost groundwater zone.

Explanation

GB18 ◎	Exposition aquifer groundwater sampling location (AMEC Geomatrix, 2009)
CPT-2 ▲	CPT and groundwater sampling location (AMEC Geomatrix, 2008)
B-122 ◉	Groundwater sampling location (Parsons, 2007)
GB17 ◎	Groundwater screening sample location (Geomatrix, 2002)
GMW-39 ⊕	Existing groundwater monitoring well
GMX-O-15 ⊕	Existing remediation well
⋈	Approximate location of 24" block valve
- - - - - -	Approximate locations of SFPP pipelines
Depth	Sample depth or well screen interval in feet below ground surface
TPHg	Total petroleum hydrocarbons quantified using a gasoline standard
TPHfp	Total petroleum hydrocarbons quantified using a site fuel product standard
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
MTBE	Methyl tert-butyl ether
TBA	Tert-butyl alcohol
<100	Not detected at or above laboratory reporting limit (RL) shown
DUP	Duplicate sample
NA	Not analyzed



CPT-2					7/9/08
Depth	TPHg	TPHfp	MTBE	TBA	
25-29	1100	<500	5300	<100	
32-36	120	<500	610	<100	
32-36 (DUP)	<100	<500	550	<100	
43-47	140	<500	<10	5600	

CPT-1					7/9/08
Depth	TPHg	TPHfp	MTBE	TBA	
25-29	<100	<500	<1.0	<10	
37-41	<100	<500	<1.0	<10	
43-47	<100	<500	<1.0	<10	

GB-18									11/19/09
Depth	TPHg	TPHfp	B	T	E	X	MTBE	TBA	
86-90	<100	<500	<0.50	<1.0	<1.0	<1.0	<1.0	<10	
86-90 (DUP)	<100	<500	<0.50	<1.0	<1.0	<1.0	<1.0	<10	

B-122									6/29/07
Depth	TPHg	TPHfp	B	T	E	X	MTBE	TBA	
25-30	86000	5700	28000	11000	2200	9900	38000	1700	
33-37	3400	3000	30	1.8	3.2	3.3	5800	12,000	
33-37 (DUP)	4700	3400	1500	1.9	16	2.39	18000	12,000	
38-42	1400	910	96	24	6.2	19.7	190	15,000	

N

0 40 80
Approximate Scale in Feet

GROUNDWATER ANALYTICAL RESULTS
OFF-SITE 24-INCH BLOCK VALVE AREA
NOVEMBER 19, 2009
DFSP Norwalk
Norwalk, California

By: BRP	Date: 04/23/10	Project No: 1603.046
AMEC Geomatrix	Figure 2	

P:\1603\gis\dgnv8\analytical results of block valve area 2009.dgn

APPENDIX A

Well Permit

WELL PERMIT APPLICATION - NON PRODUCTION WELLS

WATER QUALITY PROGRAM - ENVIRONMENTAL HEALTH DIVISION
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 TELE (626) 430-5420 FAX (626) 813-3016

DATE 09/03/2009

☐ NEW WELL CONSTRUCTION ☐ RECONSTRUCTION OR RENOVATION ☐ DECOMMISSIONING ☐ OTHER: _____
☐ MONITORING ☐ CATHODIC ☐ INJECTION ☐ EXTRACTION ☐ HEAT EXCHANGE
☒ HYDROPUNCH ☐ C.P.T. (For Ground Water Sampling) ☐ OTHER: _____

WELL LOCATION

Site Address: Holifield Park, 12500 Excelsior Drive | City: Norwalk | Zip Code: CA 90650
Nearest Intersection: Cheshire Street and Bloomfield Avenue | Thomas Guide Map Book Page/Grid: 736 / J4 | Number of Wells in Each Parcel: 1

WELL STRUCTURE

Total Depth of Well: ~90 feet | Depth of Well Casing: NA | Sanitary / Annular Sealing Material: cement - bentonite grout
Depth of Sanitary / Annular Seal: 0 - 90 feet | Conductor Casing Seal: NA

OWNER INFORMATION

Owner's Name: Kinder Morgan Energy Partners, L.P. | Telephone Number: (714) 560-4802
Address: 1100 Town and Country Road | City: Orange | Zip Code: CA 92868

DRILLER INFORMATION

Driller's Name: Boart Longyear | Telephone Number: (909) 946-1605 | C-57 License Number: 694686
Address: 1333 West 9th Street | City: Upland | Zip Code: CA 91786

WELL DECOMMISSIONING INFORMATION

Well Depth ☐ log/records | Method of Well Assessment | Depth and Number of Perforations
Type and Amount of Sealant | Type of Perforator | Size of Perforations | Method of Upper Seal Pressure Application

CONSULTANT INFORMATION

Company: AMEC Geomatrix, Inc.
Address: 510 Superior Avenue, Suite 200 | City: Newport Beach | State: CA | Zip Code: 92663
Project Manager: Ms. Shiow-Lohei Chou | Telephone Number: (949) 642-0245 | Fax Number: (949) 642-4474

ATTENTION: WORK PLAN MODIFICATIONS MAY BE REQUIRED IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED AT THE SITE INSPECTION ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS DEPARTMENT.

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction, and decommissioning data deemed necessary by the County Environmental Health Division Of Los Angeles County.

Signature of Applicant: _____ Printed Name: THANDAR PHYU

THIS PERMIT IS NOT COMPLETE UNTIL ALL OF THE FOLLOWING REQUIREMENTS ARE SIGNED OFF BY THE DEPUTY HEALTH OFFICER. WELL CONSTRUCTION OR DECOMMISSIONING CANNOT BE INITIATED WITHOUT A WORK PLAN APPROVAL FROM THIS DEPARTMENT.

**********(DEPARTMENT USE ONLY)**********

WORK PLAN APPROVAL (This Approval is Valid for 180 Days)	REHS	DATE
Conditions: ON 9/8/09 #201 WAS PAID FOR PERMIT #0573 TO DRILL GB-18 ON 10/7/09 TILL 10/8/09 TENTATIVELY.	Michael Lui	9-14-09
FINAL INSPECTION (Inspection of the annular seal must be witnessed by a Deputy Health Officer for this permit to be valid. Contact this Department to arrange for an appointment)	REHS	DATE

NOTICE

This well permit approval is limited to compliance with the California Well Standards and the Los Angeles County Code and does not grant any rights to construct, reconstruct, or decommission any well. The applicant is responsible for securing all other necessary permits.

Print Form

LOS ANGELES COUNTY ♦ DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH
Bureau of Environmental Protection
Drinking Water Program
5050 Commerce Drive, Baldwin Park, CA 91706
(626) 430-5420 Fax (626) 813-3016

COUNTY OF LOS ANGELES
Public Health

SERVICE REQUEST APPLICATION

1. Attach the required **non-refundable fee** to the application. Make the money order or check payable to ***LOS ANGELES COUNTY PUBLIC*** , DO NOT SEND CASH. This application is nontransferable.

TYPE OF SERVICE REQUESTED

	Qty.		Fee		Total $
MONITORING WELL CONSTRUCTION OR DESTRUCTION (Includes cone pentrometer or hydropunch for ground water sampling)	1	X	$201	=	$201
WELL CONSTRUCTION, RENOVATION OR DESTRUCTION PERMIT (Include municipal, irrigation, industrial, cathodic, and ground water injection)		X	$327	=	
WATER SUPPLY TEST AND CERTIFICATION Required by U.S. Department of Agriculture for food processing facilities		X	$201	=	
WELL YIELD TEST PERMIT		X	$337	=	
WATER TREATMENT DEVICE REVIEW		X	$142	=	

Refer to Schedule of Fees for the current fiscal year, Field personnel cannot accept fees

2. Check with Contact Office stamped below for requirements or information
3. Complete the required information below and deliver the completed application and fee to:
4. Proper planning is needed as expected time for work plan approval is 7 to 10 Business Day

County of Los Angeles
Drinking Water Program
5050 Commerce Drive, Baldwin Park, CA 91706

Holifield Park, 12500 Excelsior Drive (Site Address) | Norwalk (City) | CA 90650 (Zip) | 09/03/09 (Date) | 736 - J4 (Thomas Guide - Page-Grid)

Kinder Morgan Energy Partner (Owner / Applicant Name) | 1100 Town and Country Rd. Orange, CA 92868 (Address / Zip) | (714)560-4802 (Phone No.) | steve_Defibaugh@kindermorgan.com (E-Mail)

AMEC Geomatrix, Inc. (Contractor's Name) | 510 Superior Ave., Suite 200 Newport Beach, CA 92663 (Address / Zip) | (949) 642-0245 (Phone No.) | thandar.phyu@AMEC.com (E-Mail)

CONTACT OFFICE	DEPARTMENT STAMP
	REC DATE: 9-8-09 RECEIPT # 573 CHECK # 17093 AMT: $ 201

*As of July 1, 1995 no permit will be required for Soil Borings inadvertently going to ground water as long as they are not intended to sample ground water. No Permit will be required for Vapor Extraction or Biio Vent Wells not extending into ground water. Since a permit is not required, there will not be any fees due for these porjects. Permits are now required from the Health Department for groundwater injection wells.

09/08/09 #MV 3:51PM CHECK $201.00

Ver. 0809

APPENDIX B

Temporary Access Agreement

AMENDMENT NO. 1 TO TEMPORARY ACCESS AGREEMENT FOR HOLIFIELD PARK

This Amendment is entered into as of October 6, 2009, by and between the CITY OF NORWALK, a municipal corporation, hereinafter designated as the "NORWALK," and KINDER MORGAN ENERGY PARTNERS, L.P., a Delaware limited partnership hereinafter designated as KMEP.

RECITALS

A. On June 17, 2008, the Norwalk City Council approved a Temporary Site Access License Agreement ("Agreement") for Holifield Park;

B. Results from groundwater testing prompted the California Regional Water Quality Control to require that KMEP conduct additional testing at Holifield Park, including testing to determine further vertical delineation of the plume of contaminants in and around the 24-inch Block Valve area;

C. AMEC/Geomatrix, Inc., ("AMEC") is employed by KMEP to undertake additional testing at Holifield Park. AMEC is requesting access to Holifield Park to perform soil, soil vapor, and groundwater investigations as required by the California Regional Water Quality Control Board. AMEC has provided to NORWALK a work plan dated January 26, 2009, and an approval letter of that work plan dated July 23, 2009 from the California Regional Water Quality Control Board which are attached hereto as Exhibits "A" and "B" respectively.

NOW THEREFORE, it is mutually agreed by and between the undersigned parties as follows:

Section 1. Section 1 of the Agreement is amended to read as follows:

This Amended Agreement shall be effective 10 business days after the date of the last signature of the on the Amendment and shall continue in effect for the later of: (a) 180 business days thereafter; or (b) the completion of all field sampling work as described in Exhibit "A" to the amended Agreement.

Section 2. Exhibit "A" is added to the Agreement. It is understood that AMEC shall have such additional access to the Park as is required to complete the work described in Exhibit "A", and such additional soil and groundwater sampling as may be required by the Regional Water Quality Control Board in its review and approval of the vertical delineation summary report to be submitted by AMEC on behalf of KMEP to the Regional Board.

Section 3. Immediately upon completion of laboratory analysis KMEP will provide in tabular form to the City all results, with any QA/QC qualifiers and appropriate laboratory documentation. Such results shall be provided to the City without regard to the schedule for a final report to the Regional Water Quality Control Board.

Section 4. KMEP will provide to the City a current certification of liability coverage showing limits of at least $1 million per occurrence for its automobile liability and commercial general liability. KMEP or AMEC will further provide to the City a current certification of pollution liability insurance with limits of at least $1 million per occurrence prior to the commencement of any further work or investigation in Holifield Park. KMEP will maintain all required insurance policies in full force and effect throughout the duration of this Agreement (including any extension thereof), and shall furnish the City with updated certificates of insurance confirming that the required insurance continues in place without interruption.

Section 5. KMEP shall indemnify, defend and hold harmless the City, its mayor, councilpersons, staff, employees, contractors, subcontractors, agents, and affiliates from any and all claims, demands, suits or actions of every name, kind and description, arising out of a claim for injuries to or the death of any person, damage to Holifield Park or its structures, or damage or impairment to the environment (including the groundwater lying underneath Holifield Park) arising from or connected with the willful misconduct or negligence of KMEP, its employees, officers, agents, contractors (including AMEC and any of its subcontractors), designees, licensees or invitees who enter the Holifield Park in connection with this Temporary Access Agreement.

It is understood that the duty of KMEP to indemnify and hold harmless includes the costs of defense against such claims, demands, or liability incurred in good faith by the City. It is further understood that KMEP shall have the duty to defend the City against such claims as set forth in Section 2778(4) of the California Civil Code, providing that the City shall have the right to select counsel to defend it subject to KMEP's approval, which shall not be unreasonably withheld.

Acceptance of insurance certificates and endorsements required under this Temporary Access Agreement does not relieve KMEP from liability under this indemnification and hold harmless clause. This indemnification duty to defend and hold harmless clause shall apply whether or not such insurance policies shall have been determined to be applicable to any of such damages or claims for damages.

Section 6 KMEP and AMEC will notify NORWALK at least two business days before the commencement of entry upon Holifield Park pursuant to the notice provisions set for in Section 6 of the Agreement.

Section 7. KMEP will pay to NORWALK a one-time access fee of $2,000.00. Said fee shall be paid prior to the commencement of work as described in Exhibit A hereto.

Section 8. KMEP or AMEC will provide to NORWALK a final copy of the vertical delineation report at the same day that said report is transmitted to the Regional Water Quality Control Board.

Section 9. All other provisions of the Agreement, as previously amended, shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have executed this agreement as of the dates stated below:

CITY OF NORWALK

BY: _____
Cheri Kelley, Mayor

DATED: 11/03/2009

ATTEST:

BY: _____
Theresa Devoy
City Clerk

Approved as to form:

BY: _____
Steven L. Dorsey
City Attorney

KINDER MORGAN ENERGY PARTNERS, L.P.

BY: _____
Print Name: Stephen DeFibaugh

DATED: 10-21-09

January 26, 2009

Project 1603.046.0

Mr. Jeffrey Hu
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013

Re: Work Plan for Supplemental Vertical Delineation in Off-Site 24-Inch Block Valve Area, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California (SCP No. 0286B)

Dear Mr. Hu:

On behalf of SFPP, L.P. (SFPP), an operating partner of Kinder Morgan Energy Partners, L.P. (KMEP), AMEC Geomatrix, Inc. (AMEC), has prepared this Work Plan for Supplemental Vertical Delineation (work plan) to further evaluate the presence and character of the Bellflower aquitard in the vicinity of the off-site 24-inch block valve east of the Defense Fuel Support Point Norwalk Facility (DFSP; the site). DFSP is located at 15306 Norwalk Boulevard in Norwalk, California (Figure 1). This work plan is being submitted in response to comments received from the California Regional Water Quality Control Board, Los Angeles Region (RWQCB) in a letter dated November 26, 2008.[1] In that letter, the RWQCB commented on the August 2008 report titled "Additional Off-Site Assessment Report, Off-Site 24-Inch Block Valve Area."[2] Specifically, the RWQCB:

1. questioned the presence or the continuity of an aquitard based on cone penetrometer testing (CPT) soil behavior interpretations that may not reflect the actual clay content in some of the aquitard materials;

2. indicated that laboratory reporting limits (LRLs) for benzene in samples collected from CPT-2 were above the Maximum Contaminant Level (MCL) of 1 micrograms per liter (µg/L) for benzene as established by the California Department of Public Health, Drinking Water Program, and that the LRLs for chemicals of concern should be below their corresponding MCLs; and

3. requested that a work plan for further vertical delineation of contaminants in the vicinity of CPT-2 be submitted to the RWQCB for review by January 26, 2009.

1 California Regional Water Quality Control Board, Los Angeles Region, 2008, Directive and Comments – Additional Off-Site Assessment Report for the Off-Site 24-Inch Block Valve Area, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California (SCP No. 0286B, Site No. 204DM00), November 26.

2 AMEC Geomatrix, Inc., 2008, Additional Off-Site Assessment Report, Off-Site 24-Inch Block Valve Area, Defense Fuel Support Point Norwalk, Norwalk, California, August 28.

P:\S1603\1603.046.0\Docs\Work Plan\Supplemental Assessment\work plan for supplemental assessment.doc

AMEC Geomatrix, Inc.
510 Superior Avenue, Suite 200
Newport Beach, CA
USA 92663-3627
Tel (949) 642-0245
Fax (949) 642-4474
www.amecgeomatrixinc.com

In the November 26, 2008 letter, the RWQCB also requested that KMEP prepare a conceptual site model for the site. The conceptual site model (CSM) will be addressed under a separate cover.

The assessment proposed in this work plan is intended to supplement the additional subsurface assessment activities conducted in July 2008 in the off-site 24-inch block valve area and to address the RWQCB's above-noted comments on that additional assessment. The proposed work includes: 1) drilling, continuous coring of sediment, lithologic logging of recovered sediment core, and collection and laboratory testing of sediment samples to verify the lithology of the Bellflower aquitard, and 2) collecting and analyzing groundwater samples from below the aquitard to assess the aquitard's impedence of vertical groundwater flow and solute transport. Further assessment of soil impacts or groundwater quality in the uppermost water-bearing zone is not included as part of this scope of work as they have been addressed during previous assessments. The following sections of this work plan summarize relevant background information, state the proposed objectives, describe the proposed scope of work and methods for the supplemental assessment, and present a general schedule for implementation of this work plan.

BACKGROUND

The DFSP facility is located at 15306 Norwalk Boulevard in Norwalk, California (Figure 1). SFPP leases two acres along the southern and eastern boundaries of the DFSP facility. Previously, SFPP operated a pump station at the DFSP facility. The pump station has been decommissioned but three pipelines remain in service. One of the pipelines is a 24-inch diameter pipeline that lies along the southern boundary of the DFSP facility and extends off-site to the east. The off-site 24-inch block valve is located along this pipeline east of and near the southeastern corner of the site. Locations of the 24-inch pipeline and the off-site 24-inch block valve are shown on Figure 2.

The uppermost groundwater zone in the site vicinity is a semi-perched unit between depths of approximately 25 and 50 feet below ground surface (bgs). Groundwater flow within this uppermost zone, as interpreted during previous assessments and monitoring at DFSP, is generally northwestward under a horizontal gradient of approximately 0.001 feet/feet (ft/ft). The uppermost groundwater zone overlies the Bellflower aquitard of the Lakewood Formation. Based on lithologic logs from previous assessments at and near DFSP, the Bellflower aquitard lies between depths of approximately 50 and 80 feet bgs beneath the site and consists of predominantly clay, silty clay, and sandy clay with some interbedded sand with silt.

The Exposition aquifer underlies the Bellflower aquitard between depths of approximately 80 and 220 feet bgs. The potentiometric surface in the Exposition aquifer is approximately 20 feet lower than that in the semi-perched uppermost groundwater zone. This relatively consistent difference in hydraulic heads between the semi-perched upper groundwater zone and the Exposition aquifer indicates that the Bellflower aquitard inhibits the vertical movement of

groundwater in the site area. The horizontal hydraulic gradient in the Exposition aquifer beneath the site area is approximately 0.001 ft/ft to the east or east-southeast. The generally southeastward direction of horizontal hydraulic gradient (and interpreted direction of horizontal groundwater flow) in the Exposition aquifer is roughly opposite the general direction of interpreted groundwater flow in the uppermost groundwater zone. These distinctly different hydraulic conditions consistently interpreted over time above and below the Bellflower aquitard support the interpretation that the Bellflower aquitard in this area comprises a unit that is laterally continuous and has a relatively low bulk vertical hydraulic conductivity.

Previous subsurface assessments conducted in the vicinity of the off-site 24-inch block valve since 1994 have evaluated and defined the extents of liquid-phase, adsorbed-phase, and dissolved phase petroleum hydrocarbons in soil and groundwater in this area.[3,4,5,6] In the most recent assessment conducted during July 2008, the presence and depth of the Bellflower aquitard in the off-site area near the 24-inch block valve was evaluated using CPT profiling at two locations, CPT-1 and CPT-2 (Figure 2). In addition, the vertical extent of dissolved fuel constituents was delineated to the top of the interpreted aquitard at these two locations. Soil gas sampling was also performed in this area and indicated that no volatile organic compounds (VOCs) were reported above their respective California Human Health Screening Levels (CHHSLs) in any of the soil gas samples.[6]

The CPT lithologic profiles for CPT-1 and CPT-2 show generally similar soil behavior types. Generally, soil behavior types indicating coarse grained soils (sand, silty sand, and sand mix) were encountered from approximately 5 feet bgs to 22 to 25 feet bgs and from 35 to 37 feet to 48 feet bgs, with finer grained soils (sandy silt, silt, silt mix, silty clay, and clay) in between these two coarser grained units. The top of the Bellflower aquitard was encountered at depths of approximately 48.5 feet at CPT-1 and 48 feet at CPT-2. The lithologic profiles show that the Bellflower aquitard is a minimum of approximately 34 feet thick and composed primarily of soil behavior types indicating fine grained soils (sandy silt and silt mix) interbedded with soil behavior types indicating coarser grained soils (sand, silty sand, and sand mix). Lithologic profiles at CPT-1 and CPT-2 are generally consistent with the lithology encountered at Exposition well EXP-3 located approximately 450 feet west of CPT-1, although a comparison of the log for EXP-3 with the two CPT lithologic profiles suggests that the CPT soil behavior interpretations likely underestimate the silt or clay content in some of the aquitard materials in comparison to field classifications of recovered soil samples. The well log for EXP-3 shows that the Bellflower aquitard at EXP-3 is approximately 32 feet thick (from 49 to 81 feet bgs) and

[3] Geomatrix, 1994, Site Assessment of Fuel Hydrocarbons in Soil and Groundwater Associated with a Leak in a 24-Inch Block Valve, Norwalk, California, September 30.
[4] Geomatrix, 2002, Supplemental Groundwater Assessment Northwest of the 24-inch Block Valve Area, DFSP, Norwalk, California, September 19.
[5] Parsons, 2007, Investigation Report for Holifield Park and Dolland Elementary School, Defense Fuel Support Point Norwalk, October 11.
[6] AMEC Geomatrix, Inc., 2008, Additional Off-Site Assessment Report, Off-Site 24-Inch Block Valve Area, Defense Fuel Support Point Norwalk, Norwalk, California, August 28.

composed primarily of clay, silty clay, and sandy clay with an interbedded zone of sands and silts.

Lithologic logs from several existing wells encompassing the general vicinity of the off-site 24-inch block valve show the presence of the Bellflower aquitard at relatively consistent depths of between approximately 49 and 59 feet. As noted above, the distinctly different hydraulic conditions consistently interpreted above and below the Bellflower aquitard indicate the aquitard behavior of this unit. However, to address the RWQCB's request, collection, logging, and laboratory testing of sediment samples to further assess the lithologic composition of this aquitard in the 24-inch block valve area is an objective of the work proposed herein.

Discrete-depth groundwater samples were collected from additional borings drilled at the general locations of CPT-1 and CPT-2 during July 2008. Samples were collected from three discrete intervals between 25 and 47 feet bgs at each location. CPT-1, located approximately 150 northeast of the block valve, was selected to delineate the eastern extent of dissolved fuel constituents in the off-site 24-inch block valve area. Target analytes including total petroleum hydrocarbons (TPH) quantified using a gasoline standard (TPHg), TPH quantified using a site fuel product (TPHfp), benzene, toluene, ethylbenzene, total xylenes (collectively, BTEX), methyl tert-butyl ether (MTBE), and other fuel oxygenates including tert-butyl alcohol (TBA), diisopropyl either (DIPE), ethyl tert-butyl either (ETBE), and tert-amyl methyl ether (TAME) were not detected in any of the three discrete depth groundwater samples collected at CPT-1. Thus, the eastern extent of dissolved fuel constituents in the off-site 24-inch block valve area was adequately delineated.

CPT-2, located approximately 185 north-northwest (hydraulically downgradient) of the block valve and within an area of known impact to groundwater, was selected to delineate the vertical extent of dissolved fuel constituents by the confirmed presence of low or non-detected concentrations of target analytes or the top of the Bellflower aquitard in the immediate vicinity of the off-site 24-inch block valve. Elevated concentrations of TPHg, MTBE, and/or TBA were reported in one or more of the three groundwater samples collected at CPT-2 to a depth of approximately 47 feet near the base of the uppermost groundwater zone. (Benzene was not detected in any of the groundwater samples collected at CPT-2. However, the LRL for benzene was elevated [to 5 µg/L or 25 µg/L] due to elevated concentrations of MTBE and/or TBA in these samples.) The analytical results from CPT-2 show a similar distribution of fuel constituents in groundwater as indicated by the groundwater samples collected during the 2002 and 2006/2007 investigations. Further, groundwater monitoring results from Exposition wells indicate no impacts to the Exposition aquifer in the site area.

The cumulative results of historical groundwater monitoring and groundwater assessments, in combination with the confirmed presence of the Bellflower aquitard, have adequately delineated the vertical distribution of fuel constituents in groundwater near the off-site 24-inch valve. However, groundwater quality below the aquitard in the vicinity of the off-site 24-inch block valve has not been assessed. To address the RWQCB's question regarding the potential that

elevated concentrations of MTBE and/or TBA have moved downward into the Exposition aquifer in this area, assessment of groundwater quality in the Exposition aquifer downgradient of the deeper impacts observed at CPT-2 is another objective of the work proposed herein.

SUMMARY OF OBJECTIVES

In summary, the objectives of this supplemental assessment are to:

1. verify the composition of sediments comprising the Bellflower aquitard in the 24-inch block valve area; and

2. assess groundwater quality in the Exposition aquifer in the hydraulically downgradient vicinity of previous sample location CPT-2.

PROPOSED ASSESSMENT

KMEP and AMEC are proposing to conduct a supplemental assessment in the vicinity of the 24-inch block valve to address the two objectives identified and described in the preceding section. The proposed approach for addressing these objectives consists of drilling, sediment coring and sampling, and lithologic logging; laboratory testing of sediment samples from the interpreted Bellflower aquitard; and collecting and analyzing groundwater samples from below the aquitard to assess groundwater quality in the Exposition aquifer at a location hydraulically downgradient of CPT-2.

The location tentatively selected for lithologic logging and groundwater sampling is shown as GB-18 on Figure 2. The proposed location is approximately 160 feet southeast of CPT-2, where elevated concentrations of MTBE and/or TBA were detected near the base of the uppermost groundwater zone. With respect to the Exposition aquifer, the proposed location is hydraulically downgradient of impacted areas associated with the off-site 24-inch block release based on historical groundwater flow directions in the Exposition aquifer. In addition, to minimize the potential for cross contamination with the impacted areas of the uppermost groundwater zone, the proposed location is outside of the interpreted lateral extent of elevated concentrations of dissolved fuel constituents in the uppermost groundwater zone.

The scope and methods of the proposed work are organized into tasks and described in the sections below.

Pre-Field Activities

Prior to commencement of drilling and groundwater sampling, the following activities will be conducted:

1. renewing or obtaining a new access agreement with the City of Norwalk;

2. updating the existing site-specific Health and Safety Plan, if necessary, to incorporate the planned field work;
3. obtaining necessary permits from the Los Angeles County Department of Health Services for drilling and groundwater sampling;
4. notifying the RWQCB a minimum of one week in advance of the planned field activities;
5. marking the planned sampling location and notifying Underground Service Alert a minimum of three business days in advance of the planned drilling activities;
6. conducting a geophysical survey using a private utility locator to further assess that the planned sampling location is clear of underground utilities; and
7. coordinating with subcontractors for drilling, sampling, and laboratory analysis of groundwater samples.

The proposed drilling and sampling location will be finalized in the field based on the results of the geophysical survey.

Drilling and Lithologic Logging

Figure 2 shows the proposed sampling location GB-18. This location will be drilled using sonic drilling methods to collect soil samples for lithologic logging purposes and to facilitate groundwater sampling. Sonic drilling methods typically provide good core recovery in unconsolidated sediments such as those present beneath the site. Sonic drive casing also provides a temporary seal to minimize potential for cross-contamination between two water-bearing zones, and can facilitate the use of a variety of sediment and groundwater sampling tools and methods.

Prior to drilling, the boring location will be hand-augered to approximately 5 feet bgs to check for the presence of underground utilities or other obstructions. The boring will be advanced through the interpreted Bellflower aquitard and into the interpreted upper part of the Exposition aquifer, which is expected to be encountered at a depth of approximately 80 feet bgs in the study area. Soil will be continuously cored for lithologic logging purposes. Lithology encountered will be described by an AMEC field geologist under the direction of a State of California Licensed Professional Geologist. Soil characteristics will be described using visual-manual procedures of ASTM D2488 for guidance, which are based on the Unified Soil Classification System (USCS). Color, moisture content, grain size, and other pertinent soil characteristics will be recorded on boring logs. Soil will be screened in the field using a photoionization detector for potential presence of VOCs. In addition, relatively undisturbed drive samples will be collected at one or more depths within the interpreted Bellflower aquitard to provide samples for laboratory testing of physical and hydraulic properties. Soil samples will be analyzed for the following properties:

1) hydraulic conductivity using EPA Method 9100;

2) total porosity using API RP40;

3) grain and bulk density using API RP40;

4) grain size distribution using ASTM D422/D4664M; and

5) fraction of organic carbon using the Walkley Black Method.

Groundwater Sampling and Laboratory Analysis

A grab groundwater sample will be collected from the upper part of the interpreted Exposition aquifer. The groundwater sample will be collected using Hydropunch, Isoflow, or temporary well equipment and methods, as appropriate based on formation and drilling conditions and logistics.

For quality assurance and quality control (QA/QC) purpose, a field duplicate groundwater sample, an equipment blank sample (for non-dedicated sampling equipment), and a trip blank will be collected.

Samples including QA/QC samples will be placed in an ice-chilled cooler and submitted under chain-of-custody procedures to an analytical laboratory certified under the California Environmental Laboratory Accreditation Program. The groundwater samples including the field duplicate sample will be analyzed for:

1) TPHg using EPA Method 8015M,

2) TPHfp using EPA Method 8015M, and

3) BTEX, MTBE, and other fuel oxygenates using EPA Method 8260B.

The trip blank will be analyzed for VOCs only.

Analytes will be reported relative to the LRLs at or below their corresponding MCLs, if feasible based on concentrations detected and reasonable laboratory dilutions.

At completion of groundwater sampling, the boring will be destroyed by backfilling with cement-bentonite grout placed through a tremie pipe. Ground surface at the boring location will be repaired to reasonably match surrounding conditions.

Equipment Decontamination and Investigation-Derived Waste Management

Drilling equipment will be steam-cleaned using potable water prior to use. Sampling equipment will be cleaned before each use by washing with Alconox-water solution and double-rinsing with

potable water. Waste generated during the investigation including decontamination water and soil cuttings will be separately contained in DOT-approved 55-gallon steel drums. The drums will be transported to the site at the end of each day. Decontamination water will be transferred to a holding tank at SFPP's onsite groundwater treatment system for treatment and discharge. Soil cuttings will be profiled and disposed of at an appropriate off-site disposal facility.

SCHEDULE

We anticipate implementing this work plan upon receiving approval from the RWQCB. AMEC will prepare and submit a report summarizing the results of additional assessment within 60 days of receiving final laboratory analytical data.

If you have any questions, please contact Shiow-Whei Chou at (949) 642-0245 or Shiow-Whei.Chou@amec.com.

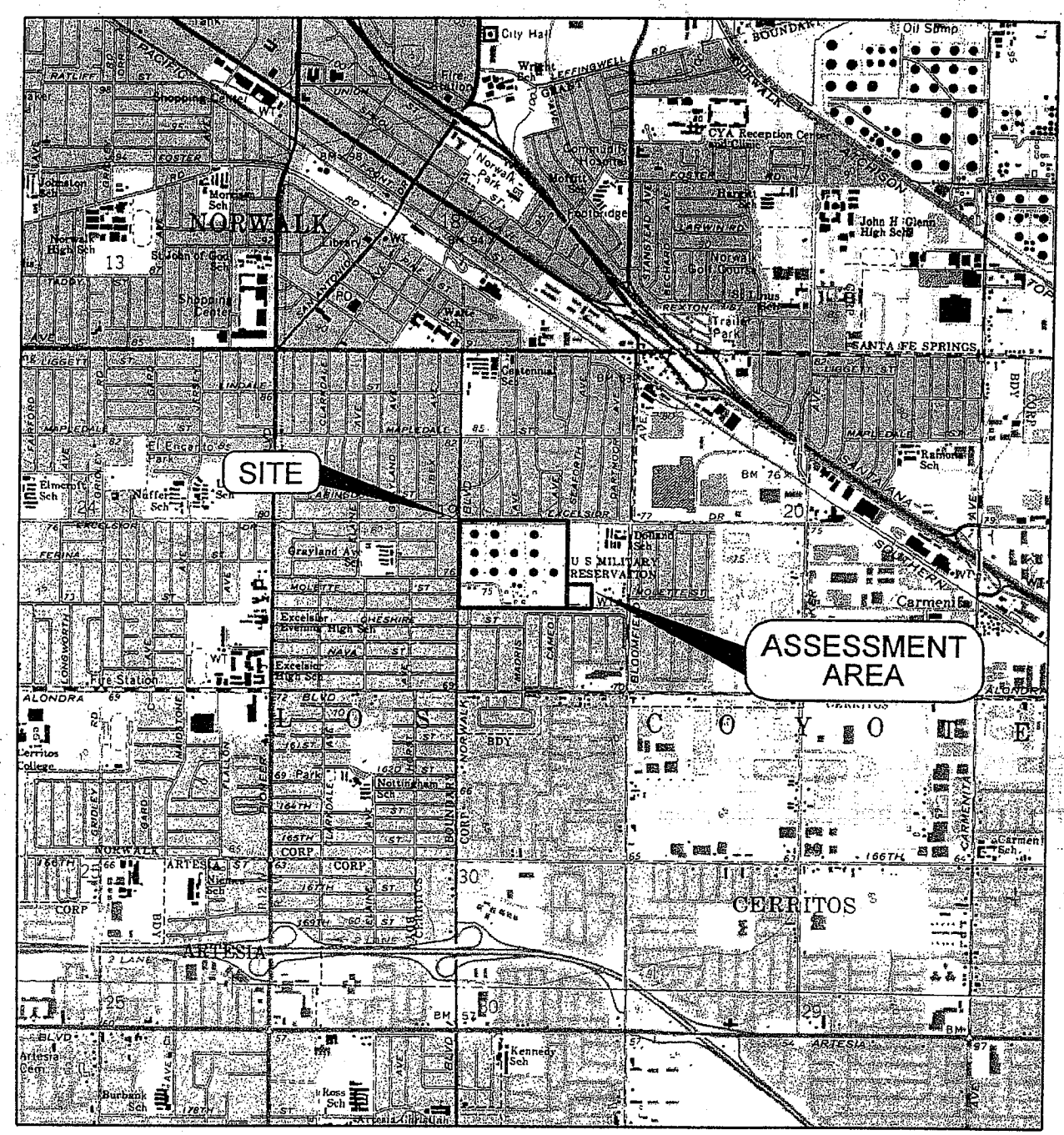
Sincerely yours,
AMEC Geomatrix, Inc.

Thandar Phyu, PG
Project Geologist

Shiow-Whei Chou, PE
Senior Engineer

Attachments: Figure 1 Site Location and Assessment Area Map
Figure 2 Previous and Proposed Sampling Locations

cc: Mr. Steven J. Osborn – Kinder Morgan Energy Partners, L.P.



P:\51603\gis\dgnv8\site_location_assesment_area_tb.dgn

Base map modified from U.S.G.S. 7.5 minute quadrangle maps Los Alamitos 1964, California; photo-revised 1981; and Whittier 1965, California; photorevised 1981.

Approximate Scale in Feet

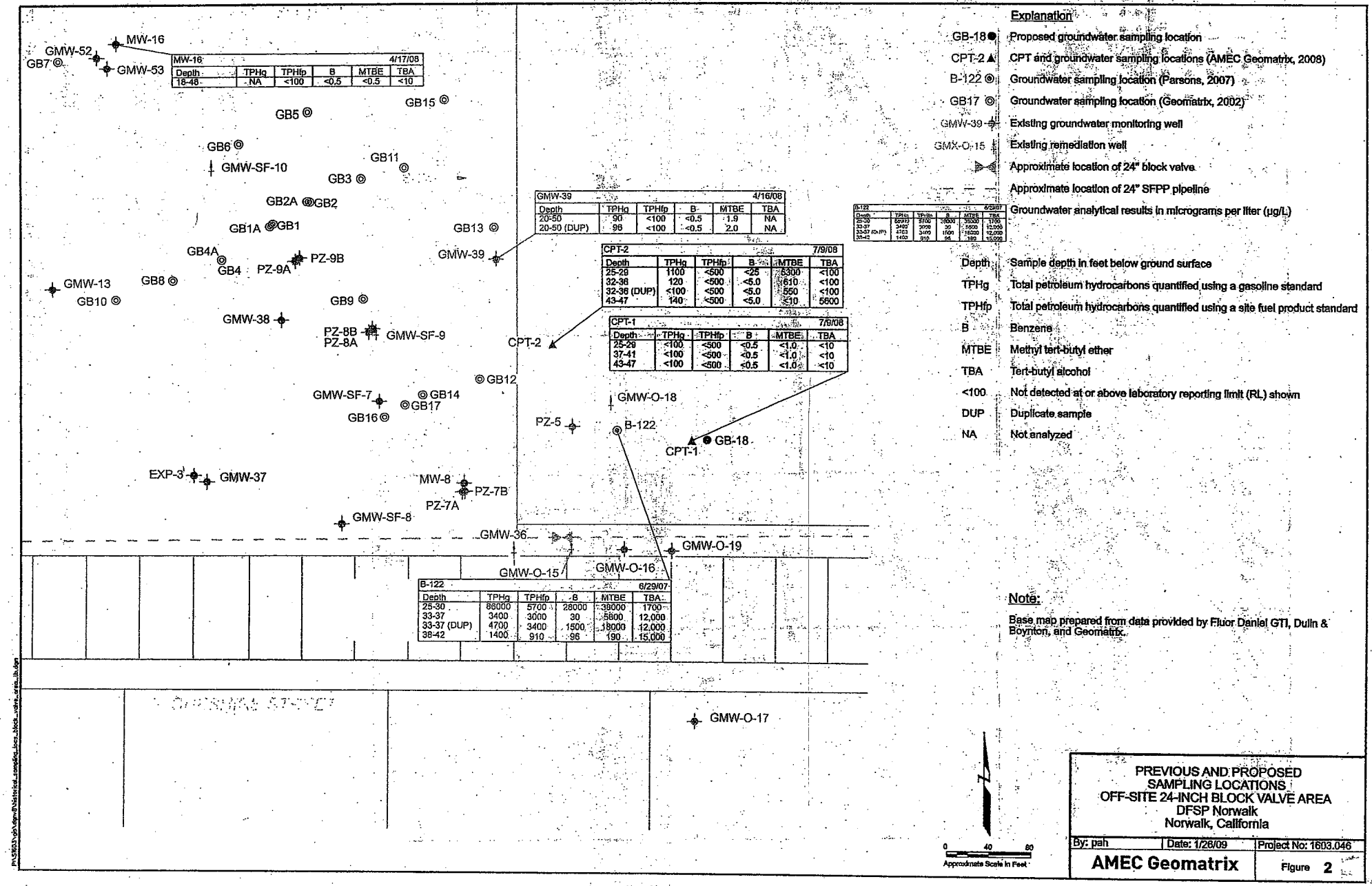
0 1200 2400

0 0 0

Approximate Scale in Meters

SITE LOCATION AND ASSESSMENT AREA MAP OFF-SITE 24-INCH BLOCK VALVE AREA DFSP NORWALK Norwalk, California

By: KLE	Date: 8/21/08	Project No: 1603.046
AMEC Geomatrix		Figure 1



PREVIOUS AND PROPOSED SAMPLING LOCATIONS
OFF-SITE 24-INCH BLOCK VALVE AREA
DFSP Norwalk
Norwalk, California

By: pah	Date: 1/26/09	Project No: 1603.046
AMEC Geomatrix		Figure 2

California Regional Water Quality Control Board
Los Angeles Region

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Linda S. Adams
Cal/EPA Secretary

Arnold Schwarzenegger
Governor

July 23, 2009

Steve Osborn
Remediation Project Manager
Kinder Morgan Energy Partners
P.O. Box 1318, Rocklin, CA 95677
OsbornS@kindermorgan.com

WORK PLAN FOR SUPPLEMENTAL VERTICAL DELINEATION IN OFF-SITE 24-INCH BLOCK VALVE AREA, DEFENSE FUEL SUPPORT POINT NORWALK, 15306 NORWALK BOULEVARD, NORWALK, CALIFORNIA (SCP NO. 0286B, SITE NO. 204DM00)

Dear Mr. Osborn:

The California Regional Water Quality Control Board Los Angeles Region (Regional Board) have received and reviewed the subject Work Plan (Work Plan), prepared by AMEC. The Work Plan proposes scope of work for Supplemental Vertical Delineation (work plan) to further evaluate the presence and character of the Bellflower aquitard in the vicinity of the off-site 24-inch block valve east of the Defense Fuel Support Point Norwalk Facility.

Based on our review of the submitted information, we concur with you on the proposed work and approaches. Please complete and submit a vertical delineation summary report for our review by **September 28, 2009.**

If you have any questions concerning this letter, please contact me via telephone at (213) 576-6736 or via electronic mail at ghu@waterboards.ca.gov.

Sincerely,

G. Jeffrey Hu, P.E.
Water Resources Control Engineer
Site Cleanup IV Unit

cc. Congresswoman Grace Napolitano, 1609 Longworth Building, Washington, D.C. 20515
Ms. Shiow Whei Chou, Geomatrix, SWChou@geomatrix.com
Mr. Edward Garcia, City Manager, City of Norwalk, 12700 Norwalk Blvd., Norwalk CA 90651
Mr. Steve Harari, Department of Toxic Substances Control shariri@dtsc.ca.gov
Mr. Redwan Hassan, Parsons, Redwan.hassan@parsons.com
Ms. Conesa Lee, Air Force Real Property, Northrop Grumman, 1700 N Moore, Suite 2300, Arlington, VA 22209-2809
Ms. Mary Jane McIntosh MARYJANEMC13@aol.com
Mr. Kola Olowu, Defense Energy Support Center (DESC), (Kola.Olowu@dla.mil)

City of NORWALK

12700 NORWALK BLVD., P.O. BOX 1030, NORWALK, CA 90651-1030 * PHONE: 562/929-5700 * FACSIMILE: 562/929-5773 * WWW.CI.NORWALK.CA.US

November 5, 2009

Stephen T. Defibaugh, PG, CHG
Senior Specialist, EHS
Kinder Morgan Energy Partners
1100 Town and Country Road
Orange, CA 92868

Re: Amendment No. 1 to Temporary Access Agreement for Holifield Park

Dear Mr. Defibaugh:

At its regular meeting held October 6, 2009, the Norwalk City Council approved the above referenced amendment. Enclosed for your records is one fully executed original.

Contact me at (562) 929-5720 or Adriana Figueroa, Administrative Services Manager, at (562) 929-5915 if you have any questions regarding this matter.

Very truly yours,

Theresa Devoy

Theresa Devoy
City Clerk

TD:cm

Enclosure

c: Adriana Figueroa, Administrative Services Manager

S:\AGREEMENTS\TRANSMIT\2009\KMEP-Access-A1 fe.doc

APPENDIX C

Boring Log

EXPLANATION OF BORING LOGS

DFSP Norwalk; 15306 Norwalk Blvd.
Norwalk, California

MAJOR DIVISIONS		LTR	DESCRIPTION	MAJOR DIVISIONS		LTR	DESCRIPTION
COARSE GRAINED SOILS	GRAVEL	GW	Well-graded gravels or gravel-sand mixtures, little or no fines	FINE GRAINED SOILS	SILTS AND CLAYS LL<50	ML	Inorganic silts and very fine sand, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity
		GP	Poorly-graded gravels or gravel-sand mixture, little or no fines			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		GM	Silty gravels, gravel-sand-silt mixtures			OL	Organic silts and organic silt-clays of low plasticity
		GC	Clayey gravels, gravel-sand-clay mixtures				
	SAND	SW	Well-graded sands or sand with gravel, little or no fines		SILTS AND CLAYS LL>50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		SP	Poorly-graded sands or sand with gravel, little or no fines			CH	Inorganic clays of high plasticity, fat clays
		SM	Silty sands, sand-silt mixtures			OH	Organic clays of medium to high plasticity
		SC	Clayey sands, sand-clay mixtures	HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

SAMPLE COLUMN SYMBOLS

Sample recovery

No recovery

Sample Interval

Piston Sample

Continuous soil or rock core

DESCRIPTION COLUMN SYMBOLS

– – – Dashed lines separating soil strata represent inferred boundaries between sampled intervals or no recovery intervals and may be distinct or gradual transitions

——— Solid lines represent distinct or gradual boundaries observed within sampled intervals

Description right of bracket symbol represents soil conditions within the depth interval defined by the bracket length

Description right of arrow symbol represents soil conditions to the next deeper boundary line unless otherwise noted

Water level at time of drilling

Water level after at least 12 hours from time of drilling

NOTES

1. Soil descriptions are in accordance with the USCS as set forth by ASTM D2488-90 "Standard Practice for Description and Identification of Soil (Visual-Manual Procedure)."
2. Soil color described according to Munsell Soil Color Chart. Rock color described according to Munsell Rock-Color Chart.
3. Soil descriptions in these borings are generalized representations and based upon visual classification of cuttings and/or samples during drilling. Descriptions and related information in these borings depict subsurface conditions at the specific location and at the time of drilling only. Soil conditions at other locations may differ from conditions observed at the boring locations. Also, soil and groundwater conditions may change with time at these locations.

P:\S1603\1603.046.0\GINTLOGS.GPJ

PROJECT: DFSP Norwalk; 15306 Norwalk Blvd. Norwalk, California	**Log of Boring No. GB18**
BORING LOCATION: SW portion of Holifield Park, ~20' E of CPT-1	ELEVATION AND DATUM: not surveyed; datum is ground surface
DRILLING CONTRACTOR: Boart Longyear	DATE STARTED: 11/19/09 / DATE FINISHED: 11/19/09
DRILLING METHOD: Sonic	TOTAL DEPTH (ft.): 90.0 / MEASURING POINT: ground surface
DRILLING EQUIPMENT: PTO deck mounted	DEPTH TO WATER: FIRST 23' / COMPL. 68.3' / 24 HRS. NA
SAMPLING METHOD: sonic cont. core system split spoon sampler [18" x 2"]	LOGGED BY: T. Naing
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: G. Richard Rees / REG. NO. C. HG. #704

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ 6 inches	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	PID READING (ppm)	REMARKS
				Surface Elevation: not surveyed; datum is ground surface		
1				SILTY SAND (SM): light olive brown (2.5Y 5/3), moist, ~80% fine sand, ~20% nonplastic fines		PID = MiniRAE 2000 photoionization detector calibrated with 100 ppm isobutylene standard PID readings are headspace from soil in resealable plastic bags Air knifed to 7 ft bgs Boring diameter: 0-80' = 7" 80-90' = 6"
2						
3						
4						
5						
6				olive (5Y 5/3), ~85% sand, ~15% fines light olive brown (2.5Y 5/3), ~80% sand, ~20% fines	0.4	
7						
8				very dark grayish brown (2.5Y 3/2), ~75% sand, ~25% low plasticity fines		
9						
10				light olive brown (2.5Y 5/3) 60% sand, ~40% fines	0.6	
11						
12				~75% sand, ~25% fines		
13						
14						

RMRK3

PROJECT: DFSP Norwalk; 15306 Norwalk Blvd.
Norwalk, California

Log of Boring No. GB18 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ 6 inches	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	PID READING (ppm)	REMARKS
15				SILTY SAND (SM): continued SANDY SILT (ML): dark grayish brown (2.5Y 4/2), moist, ~60% fines, ~40% fine sand, low plasticity, rapid dilatancy, low toughness, soft	0.6	
16						
17						
18						
19				olive (5Y 5/3), ~85% fine sand, ~15% low plasticity fines		
20					2.4	
21				POORLY GRADED SAND (SP): olive gray (5Y 5/2), moist, ~95% fine to medium sand, ~5% fines, trace coarse sand		
22						
23				SILTY SAND (SM): olive (5Y 4/3), wet, ~70% fine sand, ~30% nonplastic fines		
24						
25					2.1	
26				SANDY SILT (ML): dark grayish brown (2.5Y 4/2), moist, ~70% fines, ~30% fine sand, low plasticity, rapid dilatancy, low toughness, soft		
27				dark greenish gray (10Y 4/1), ~75% sand, ~25% fines		
28				SANDY SILT (ML): dark greenish gray (10Y 4/1), wet, ~70% fines, ~30% fine sand, low plasticity, rapid dilatancy, low toughness		
29						
30				SILTY SAND (SM): dark greenish gray (10Y 4/1), wet, ~65% fine sand, ~35% nonplastic fines	0.3	
31						

RMRK3

PROJECT: DFSP Norwalk; 15306 Norwalk Blvd.
Norwalk, California

Log of Boring No. GB18 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ 6 inches	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	PID READING (ppm)	REMARKS
32				SILTY SAND (SM): continued		
33				~70% fine sand, ~30% fines		
34						
35					2.6	
36						
37				olive brown (2.5Y 4/3), fine to medium sand		
38						
39						
40					4.0	
41				dark greenish gray (10Y 4/1)		
42						
43						
44						
45					3.5	
46						
47				LEAN CLAY with SAND (CL): very dark greenish gray (10Y 3/1), moist, ~80% fines, ~20% fine sand, abundant shell fragments, medium plasticity, slow dilatancy, low to medium toughness,		
48						

RMRK3

PROJECT: DFSP Norwalk; 15306 Norwalk Blvd.
Norwalk, California

Log of Boring No. GB18 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ 6 inches	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	PID READING (ppm)	REMARKS
				medium dry strength, soft		
49				SILTY SAND (SM): dark greenish gray (10Y 4/1), wet, ~60% fine sand, ~40% nonplastic fines, trace coarse sand		
				~70% sand, ~30% fines		
50					2.6	
51						
52				LEAN CLAY with SAND (CL): dark greenish gray (10Y 3/1), moist, ~80% fines, ~20% fine sand, low to medium plasticity, slow dilatancy, low to medium toughness, medium dry strength, soft		
53						
54				LEAN CLAY (CL): very dark greenish gray (10Y 3/1), moist, ~90% fines, ~10% fine sand, medium plasticity, slow dilatancy, low to medium toughness, high dry strength, soft		
55					8.8	
				LEAN CLAY with SAND (CL): dark greenish gray (10Y 4/1), moist, ~80% fines, ~20% fine sand, medium plasticity, slow dilatancy, low to medium toughness, medium dry strength, soft		
56				SILTY SAND (SM): dark greenish gray (10Y 3/1), wet, ~60% fine sand, ~40% low plasticity fines		
	GB-18 -57					
57						
58						
59						
60					4.9	
				LEAN CLAY (CL): black (2.5Y 2.5/1), moist, ~90% fines, ~10% fine sand, abundant shell fragments, medium plasticity, slow dilatancy, low to medium toughness, high dry strength, tough		
61						
	GB-18 -62					
62				LEAN CLAY with SAND (CL): dark greenish gray (5GY 4/1), moist, ~80% fines, ~20% fine sand, medium plasticity, slow dilatancy, low to medium toughness, medium dry strength, soft		
63						
				SILTY SAND (SM): dark greenish gray (10Y 3/1), wet, ~65% fine sand, ~35% nonplastic fines		
64						
	GB-18 -65					
65					5.2	

RMRK3

PROJECT: DFSP Norwalk; 15306 Norwalk Blvd.
Norwalk, California

Log of Boring No. GB18 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ 6 inches	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	PID READING (ppm)	REMARKS
				SILTY SAND (SM): continued		
66				SANDY LEAN CLAY (CL): olive brown (2.5Y 4/4), moist, ~60% fines, ~40% fine sand, low to medium plasticity, slow dilatancy, low to medium toughness, medium dry strength, firm		
67						
68				SANDY LEAN CLAY (CL)/CLAYEY SAND (SC): olive brown (2.5Y 4/4), moist, ~50% fine sand, ~50% medium plasticity fines		
69						
70				CLAYEY SAND (SC): olive brown (2.5Y 4/4), moist, ~65% fine to medium sand, ~35% medium plasticity fines	1.4	
71				SANDY LEAN CLAY (CL)/CLAYEY SAND (SC): olive brown (2.5Y 4/4), moist, ~50% fine sand, ~50% medium plasticity fines		
72						
73						
74						
75					1.1	
76						
77				SANDY LEAN CLAY (CL): olive brown (2.5Y 4/4), moist, ~60% fines, ~40% fine sand, low to medium plasticity, slow dilatancy, low to medium toughness, medium dry strength, firm		
78						
79						
80	GB-18 -80				0.8	Install 6" diameter drill casing as temporary conductor to 80'
81				SILTY SAND (SM): light olive brown (2.5Y 5/3), moist, ~65% fine sand, ~35% nonplastic fines		
82						

RMRK3

PROJECT: DFSP Norwalk; 15306 Norwalk Blvd.
Norwalk, California

Log of Boring No. GB18 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ 6 inches	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	PID READING (ppm)	REMARKS
83				SILTY SAND (SM): continued		
84				~85% fine sand, ~15% fines		
85					0.0	
86						Groundwater sample GB-18-90W and duplicate groundwater sample GB-18-90W(D) collected using disposable bailer with HydroPunch screened from 86 to 90 ft bgs
87						
88						
89						
90				Bottom of boring at 90 ft bgs		Boring destroyed by backfilling with cement grout placed through a tremie from total depth to ground surface
91						
92						
93						
94						
95						
96						
97						
98						
99						

RMRK3

APPENDIX D

Waste Manifest

Manifest

TPST Soil Recyclers of CA
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPST:	Load #
1 1		394/732	A07	34697	001

Generator and/or Consultant

Generator's Name and Billing Address: KINDER MORGAN ENERGY PARTNERS, L.P. 1100 TOWN & COUNTRY RD. ORANGE, CA 92868	Generator's Phone #: 714-560-4887 Person to Contact: FAX#:	Generator's US EPA ID No. Customer Account Number with TPST:
Consultant's Name and Billing Address:	Consultant's Phone #: Person to Contact: FAX#:	 Customer Account Number with TPST:
Generation Site (Transport from): *(name & address)* KINDER MORGAN ENERGY PARTNERS 15306 NORWALK BLVD. NORWALK, CA 90650	Site Phone #: Person to Contact: FAX#:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF CALIFORNIA 12328 HIBISCUS AVENUE ADELANTO, CA 92301	Facility Phone #: (800) 862-8001 Person to Contact: DELLENA JEFFREY FAX#: (760) 246-8004	Facility Permit Numbers
Transporter Name and Mailing Address: BELSHIRE 26971 TOWNE CENTRE DRIVE FOOTHILL RANCH, CA 92610 BESI: 176302	Transporter's Phone #: 949-460-5200 Person to Contact: LARRY MOOTHART FAX#: 949-460-5210	Transporter's US EPA ID No.: CAR000163913 Transporter's DOT No.: 450647 Customer Account Number with TPST:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐	7	Soil	8100	40660	41440
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐					2.20

List any exception to items listed above: Scale Ticket# 77215

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☒ Consultant ☐ — James Dyle

Signature and date: Month 01 Day 12 Year 10

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Darnell Parks

Signature and date: DParks — Month 1 Day 12 Year 10

Recycling Facility

Discrepancies: 153060NO
560317

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: D. JEFFREY/J. PROVANSAL

Signature and date: 1.18.10

Please print or type.

TRANSPORTER COPY

APPENDIX E

Physical Property Laboratory Report – Soil Samples

PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

December 15, 2009

Thandar Phyu
AMEC Geomatrix
510 Superior Avenue, Suite 200
Newport Beach CA 92663

Re: PTS File No: 39993
Physical Properties Data
DFSP Norwalk; 1603.046

Dear Mr. Phyu:

Please find enclosed report for Physical Properties analyses conducted upon cores received from your DFSP Norwalk; 1603.046 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 347-2504.

Sincerely,
PTS Laboratories

Rachel Spitz
Project Manager

Encl.

PTS Laboratories

Project Name: DFSP Norwalk
Project Number: 1603.046

PTS File No: 39993
Client: AMEC Geomatrix

TEST PROGRAM

CORE ID	Depth ft.	Core Recovery ft.	Grain Size Analysis	TOC/foc Walkley-Black	Effective Porosity Pkg. ASTM D425	Hydraulic Conductivity Pkg.	Hydraulic Conductivity Hor. Orient.			Notes
		Plugs:	Grab	Grab	Vert. 1.5"	Vert. 1"	Hor. 1"			
Rcvd. 11/19/09										
GB-18-57	N/A	1.0	X	X	X	X	X			
GB-18-62	N/A	1.0	X	X	X	X	X			
GB-18-65	N/A	1.0								HOLD SAMPLE
GB-18-80	N/A	1.0	X	X	X	X	X			
TOTALS:	8 Cores	4.0	3	3	3	3	3			1

Laboratory Test Program Notes

Effective Porosity includes Total Porosity.

Extra sample (core) provided per each location - do not use unless necessary per client instructions.

PTS File No: 39993
Client: AMEC Geomatrix

PTS Laboratories

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY PACKAGE

PROJECT NAME: DFSP Norwalk
PROJECT NO: 1603.046

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	API RP 40; EPA 9100	
									25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv	EFFECTIVE (4,5) PERMEABILITY TO WATER, millidarcy	HYDRAULIC CONDUCTIVITY (4,5), cm/s
				BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED			
GB-18-57	N/A	V	28.5	1.39	2.70	48.5	8.8	81.8	5.61	5.52E-06
GB-18-62	N/A	V	38.6	1.18	2.63	55.2	9.7	82.3	0.29	2.83E-07
GB-18-80	N/A	V	15.6	1.71	2.69	36.4	9.8	73.0	2.47	2.44E-06

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids (3) Water = 0.9996 g/cc (4) Native State or Effective = With as-received pore fluids in place (5) Permeability to water and hydraulic conductivity measured at saturated conditions; Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 39993
Client: AMEC Geomatrix

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

PROJECT NAME: DFSP Norwalk
PROJECT NO: 1603.046

		METHODS:	API RP 40; EPA 9100	
			25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE (2,3) PERMEABILITY TO WATER, millidarcy	HYDRAULIC CONDUCTIVITY (2,3), cm/s
GB-18-57	N/A	H	10.0	9.84E-06
GB-18-62	N/A	H	0.29	2.88E-07
GB-18-80	N/A	H	2.14	2.12E-06

(1) Sample Orientation: H = horizontal; V = vertical
(2) Native State or Effective = With as-received pore fluids in place
(3) Permeability to water and hydraulic conductivity measured at saturated conditions

PTS File No: 39993
Client: AMEC Geomatrix

PHYSICAL PROPERTIES DATA - DRAINAGE (EFFECTIVE) POROSITY

PROJECT NAME: DFSP Norwalk
PROJECT NO: 1603.046

		METHODS:	Mod. ASTM D425	Mod. ASTM D425
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	TOTAL POROSITY, %Vb	EFFECTIVE POROSITY, %Vb
GB-18-57	N/A	V	39.8	29.2
GB-18-62	N/A	V	48.5	10.5
GB-18-80	N/A	V	33.3	12.1

(1) Sample Orientation: H = horizontal; V = vertical; Vb = Bulk Volume

PTS File No: 39993
Client: AMEC Geomatrix

ORGANIC CARBON DATA - TOC (foc)

(METHODOLOGY: WALKLEY-BLACK)

PROJECT NAME: DFSP Norwalk
PROJECT NO: 1603.046

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	FRACTION ORGANIC CARBON, g/g	TOTAL ORGANIC CARBON, mg/kg
GB-18-57	N/A	12/2/09	1230	SOIL	1.75E-03	1750
GB-18-62	N/A	12/2/09	1230	SOIL	1.19E-02	11900
GB-18-80	N/A	12/2/09	1230	SOIL	3.20E-04	320
Blank	N/A	12/2/09	1230	BLANK	ND	ND
SRM D061-542	N/A	12/2/09	1230	SOIL	2.95E-03	2950

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Value, mg/kg	QC Performance Acceptance Limits, mg/kg
SRM D061-542	91	8-41	3240	249-7130

ND = Not Detected

PTS Laboratories, Inc.

AMEC Geomatrix
PTS File No: 39993

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: DFSP Norwalk
PROJECT NO: 1603.046

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
GB-18-57	N/A	Silt	0.045	0.00	0.00	1.63	30.70	60.71	6.96	67.67
GB-18-62	N/A	Silt	0.017	0.00	0.00	0.00	4.21	75.23	20.56	95.79
GB-18-80	N/A	Fine sand	0.042	0.00	0.00	12.51	28.09	47.30	12.10	59.40

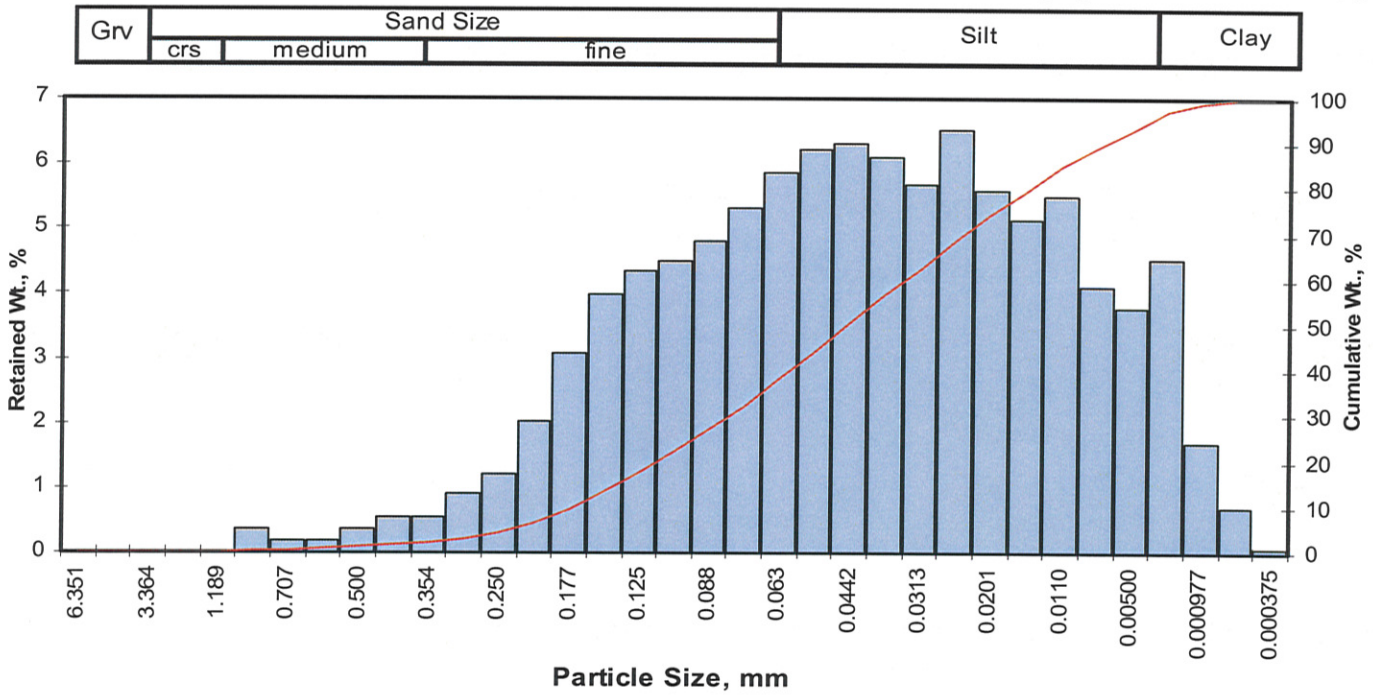
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: AMEC Geomatrix
Project: DFSP Norwalk
Project No: 1603.046

PTS File No: 39993
Sample ID: GB-18-57
Depth, ft: N/A



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.01	0.01	0.01
0.0331	0.841	0.25	20	0.35	0.35	0.36
0.0278	0.707	0.50	25	0.17	0.17	0.53
0.0234	0.595	0.75	30	0.18	0.18	0.71
0.0197	0.500	1.00	35	0.37	0.37	1.08
0.0166	0.420	1.25	40	0.55	0.55	1.63
0.0139	0.354	1.50	45	0.54	0.54	2.17
0.0117	0.297	1.75	50	0.91	0.91	3.08
0.0098	0.250	2.00	60	1.21	1.21	4.29
0.0083	0.210	2.25	70	2.03	2.03	6.32
0.0070	0.177	2.50	80	3.08	3.08	9.40
0.0059	0.149	2.75	100	3.97	3.97	13.37
0.0049	0.125	3.00	120	4.35	4.35	17.72
0.0041	0.105	3.25	140	4.50	4.50	22.22
0.0035	0.088	3.50	170	4.80	4.80	27.02
0.0029	0.074	3.75	200	5.31	5.31	32.33
0.0025	0.063	4.00	230	5.86	5.86	38.19
0.0021	0.053	4.25	270	6.21	6.21	44.40
0.00174	0.0442	4.50	325	6.31	6.31	50.71
0.00146	0.0372	4.75	400	6.08	6.08	56.79
0.00123	0.0313	5.00	450	5.68	5.68	62.47
0.000986	0.0250	5.32	500	6.51	6.51	68.98
0.000790	0.0201	5.64	635	5.57	5.57	74.55
0.000615	0.0156	6.00		5.12	5.12	79.67
0.000435	0.0110	6.50		5.50	5.50	85.17
0.000308	0.00781	7.00		4.10	4.10	89.27
0.000197	0.00500	7.65		3.77	3.77	93.04
0.000077	0.00195	9.00		4.52	4.52	97.56
0.000038	0.000977	10.00		1.69	1.69	99.25
0.000019	0.000488	11.00		0.69	0.69	99.94
0.000015	0.000375	11.38		0.06	0.06	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	2.09	0.0093	0.235
10	2.54	0.0068	0.172
16	2.90	0.0053	0.134
25	3.39	0.0037	0.095
40	4.07	0.0023	0.059
50	4.47	0.0018	0.045
60	4.89	0.0013	0.034
75	5.67	0.0008	0.020
84	6.39	0.0005	0.012
90	7.13	0.0003	0.007
95	8.23	0.0001	0.003

Measure	Trask	Inman	Folk-Ward
Median, phi	4.47	4.47	4.47
Median, in.	0.0018	0.0018	0.0018
Median, mm	0.045	0.045	0.045
Mean, phi	4.12	4.65	4.59
Mean, in.	0.0023	0.0016	0.0016
Mean, mm	0.057	0.040	0.042
Sorting	2.201	1.746	1.804
Skewness	0.958	0.101	0.162
Kurtosis	0.229	0.760	1.106
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	1.63
Fine Sand	200	30.70
Silt	>0.005 mm	60.71
Clay	<0.005 mm	6.96
	Total	**100**

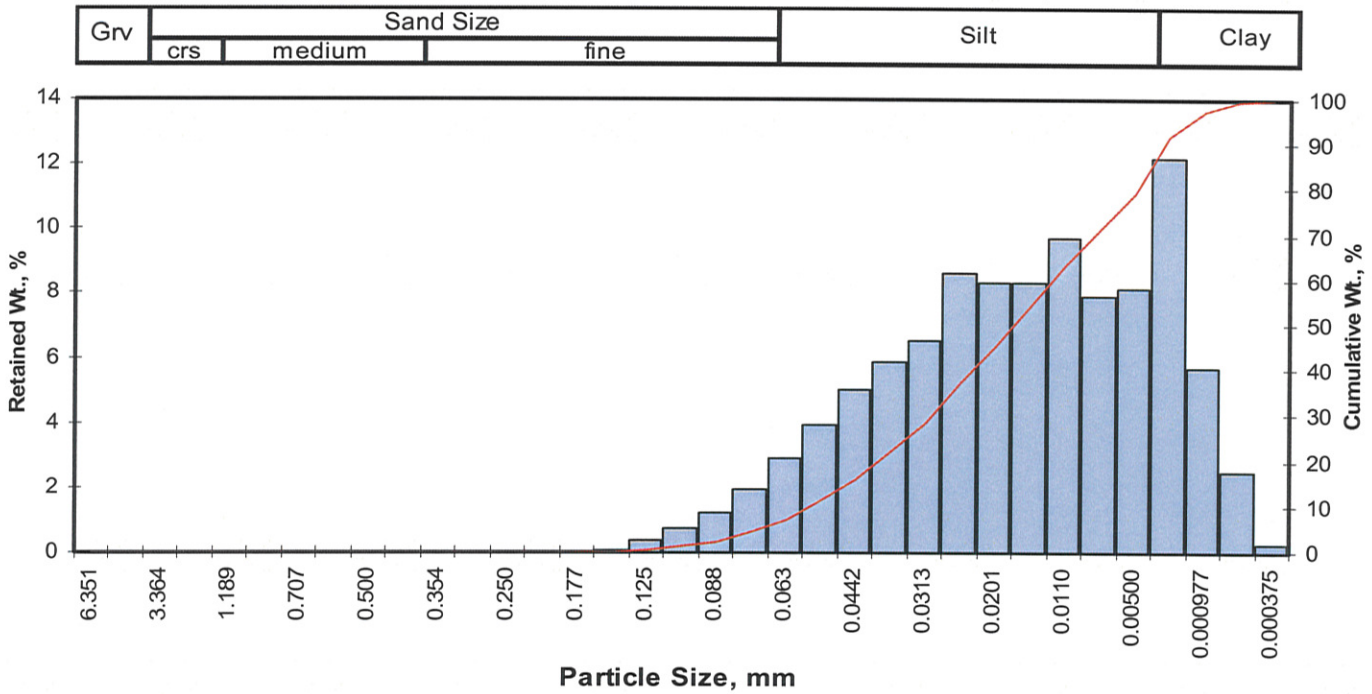
Phone: (562) 907-3607
Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: AMEC Geomatrix
Project: DFSP Norwalk
Project No: 1603.046

PTS File No: 39993
Sample ID: GB-18-62
Depth, ft: N/A



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.07	0.07	0.07
0.0049	0.125	3.00	120	0.34	0.34	0.41
0.0041	0.105	3.25	140	0.71	0.71	1.12
0.0035	0.088	3.50	170	1.18	1.18	2.30
0.0029	0.074	3.75	200	1.91	1.91	4.21
0.0025	0.063	4.00	230	2.89	2.89	7.10
0.0021	0.053	4.25	270	3.92	3.92	11.02
0.00174	0.0442	4.50	325	4.99	4.99	16.01
0.00146	0.0372	4.75	400	5.88	5.88	21.89
0.00123	0.0313	5.00	450	6.51	6.51	28.40
0.000986	0.0250	5.32	500	8.63	8.63	37.04
0.000790	0.0201	5.64	635	8.32	8.32	45.36
0.000615	0.0156	6.00		8.31	8.31	53.67
0.000435	0.0110	6.50		9.71	9.71	63.38
0.000308	0.00781	7.00		7.93	7.93	71.31
0.000197	0.00500	7.65		8.13	8.13	79.44
0.000077	0.00195	9.00		12.20	12.20	91.64
0.000038	0.000977	10.00		5.66	5.66	97.30
0.000019	0.000488	11.00		2.48	2.48	99.78
0.000015	0.000375	11.38		0.22	0.22	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	3.82	0.0028	0.071
10	4.18	0.0022	0.055
16	4.50	0.0017	0.044
25	4.87	0.0013	0.034
40	5.43	0.0009	0.023
50	5.84	0.0007	0.017
60	6.33	0.0005	0.012
75	7.29	0.0003	0.006
84	8.15	0.0001	0.004
90	8.82	0.0001	0.002
95	9.59	0.0001	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	5.84	5.84	5.84
Median, in.	0.0007	0.0007	0.0007
Median, mm	0.017	0.017	0.017
Mean, phi	5.62	6.33	6.16
Mean, in.	0.0008	0.0005	0.0005
Mean, mm	0.020	0.012	0.014
Sorting	2.316	1.826	1.788
Skewness	0.847	0.265	0.282
Kurtosis	0.264	0.581	0.977
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

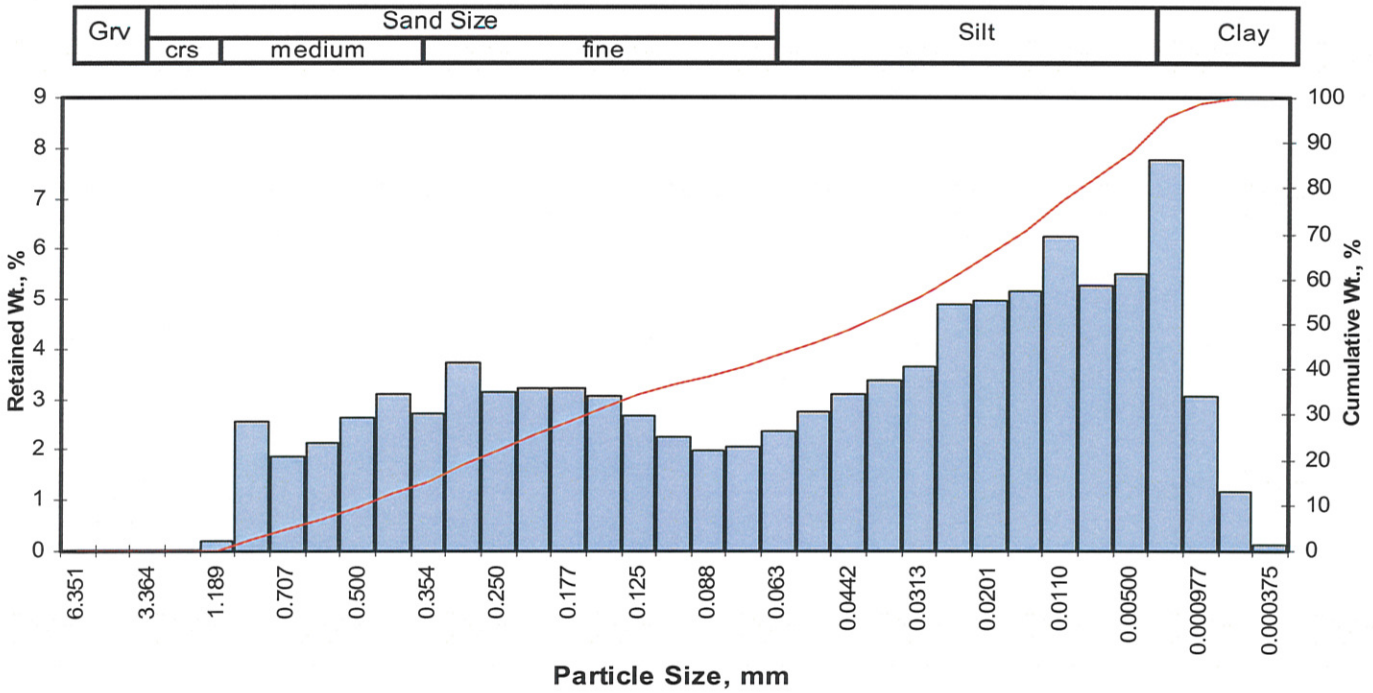
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	4.21
Silt	>0.005 mm	75.23
Clay	<0.005 mm	20.56
	Total	**100**

Phone: (562) 907-3607
Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	AMEC Geomatrix	**PTS File No:**	39993
Project:	DFSP Norwalk	**Sample ID:**	GB-18-80
Project No:	1603.046	**Depth, ft:**	N/A



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.20	0.20	0.20
0.0331	0.841	0.25	20	2.56	2.56	2.76
0.0278	0.707	0.50	25	1.86	1.86	4.62
0.0234	0.595	0.75	30	2.14	2.14	6.76
0.0197	0.500	1.00	35	2.65	2.65	9.41
0.0166	0.420	1.25	40	3.10	3.10	12.51
0.0139	0.354	1.50	45	2.72	2.72	15.23
0.0117	0.297	1.75	50	3.73	3.73	18.96
0.0098	0.250	2.00	60	3.16	3.16	22.12
0.0083	0.210	2.25	70	3.21	3.21	25.34
0.0070	0.177	2.50	80	3.23	3.23	28.57
0.0059	0.149	2.75	100	3.07	3.07	31.64
0.0049	0.125	3.00	120	2.68	2.68	34.32
0.0041	0.105	3.25	140	2.24	2.24	36.56
0.0035	0.088	3.50	170	1.99	1.99	38.55
0.0029	0.074	3.75	200	2.05	2.05	40.60
0.0025	0.063	4.00	230	2.37	2.37	42.97
0.0021	0.053	4.25	270	2.75	2.75	45.72
0.00174	0.0442	4.50	325	3.10	3.10	48.82
0.00146	0.0372	4.75	400	3.38	3.38	52.20
0.00123	0.0313	5.00	450	3.64	3.64	55.84
0.000986	0.0250	5.32	500	4.90	4.90	60.74
0.000790	0.0201	5.64	635	4.96	4.96	65.70
0.000615	0.0156	6.00		5.15	5.15	70.86
0.000435	0.0110	6.50		6.26	6.26	77.12
0.000308	0.00781	7.00		5.29	5.29	82.41
0.000197	0.00500	7.65		5.49	5.49	87.90
0.000077	0.00195	9.00		7.76	7.76	95.66
0.000038	0.000977	10.00		3.07	3.07	98.73
0.000019	0.000488	11.00		1.17	1.17	99.90
0.000015	0.000375	11.38		0.10	0.10	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	0.54	0.0270	0.686
10	1.05	0.0190	0.484
16	1.55	0.0134	0.341
25	2.22	0.0084	0.214
40	3.68	0.0031	0.078
50	4.59	0.0016	0.042
60	5.27	0.0010	0.026
75	6.33	0.0005	0.012
84	7.19	0.0003	0.007
90	8.01	0.0002	0.004
95	8.88	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	4.59	4.59	4.59
Median, in.	0.0016	0.0016	0.0016
Median, mm	0.042	0.042	0.042
Mean, phi	3.14	4.37	4.44
Mean, in.	0.0045	0.0019	0.0018
Mean, mm	0.113	0.048	0.046
Sorting	4.151	2.818	2.673
Skewness	1.240	-0.077	-0.023
Kurtosis	0.210	0.480	0.832
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	12.51
Fine Sand	200	28.09
Silt	>0.005 mm	47.30
Clay	<0.005 mm	12.10
	Total	**100**

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CHAIN-OF-CUSTODY RECORD

#39993

NB 15116

PROJECT NAME: DFSP Norwalk			DATE: 11-19-2009 PAGE 1 OF 1
PROJECT NUMBER: 1603,046	LABORATORY NAME: PTS	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: ThandarPhyu	LABORATORY ADDRESS: 8100 Secura Way		PTS Quote 09-194
TURNAROUND TIME: Standard	Santa Fe Springs, CA		
SAMPLE SHIPMENT METHOD: Drop off	LABORATORY CONTACT: Rachel Spitz		GEOTRACKER REQUIRED (YES) NO
	LABORATORY PHONE NUMBER: 562-347-2500		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE):

DATE	TIME	SAMPLE NUMBER	Hydraulic Conductivity *	Package	Effective Porosity **	Grain Size Analysis	FOC	HOLD	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
11/19/09	1140	GB-18-57	X		X	X	X		2"x6" SS Sleeve	S			✓		2	***
	1150	GB-18-62	X		X	X	X			S			✓		2	***
	1220	GB-18-65						X		S			✓		2	***
	1315	GB-18-80	X		X	X	X			S			✓		2	***

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE:	11/19/09	14:45	SIGNATURE:	11/19/09	14:45
PRINTED NAME: Thet Naing			PRINTED NAME: Jeff Peyer		
COMPANY: AMEC Geomatrix			COMPANY: PTS Labs Inc		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 8

SAMPLING COMMENTS:

* Include horizontal Orientation

** Include Total porosity

*** Extra sample volume provided, to be used only if needed, See Sample Label.

2 x ice 35°F

510 Superior Avenue, Suite 200
Newport Beach, California 92663-3627
Tel 949.642.0245 Fax 949.642.4474

amec

APPENDIX F

Data Quality Review for Groundwater Samples – Supplemental Vertical Delineation in Off-Site 24-Inch Block Valve

APPENDIX F1

DATA QUALITY REVIEW FOR GROUNDWATER SAMPLES SUPPLEMENTAL VERTICAL DELINEATION IN OFF-SITE 24-INCH BLOCK VALVE AREA

Defense Fuel Support Point
Norwalk, California

AMEC Geomatrix, Inc. (AMEC Geomatrix) and the analytical laboratory followed specific quality assurance/quality control (QA/QC) procedures to evaluate analytical data generated during the supplemental vertical delineation in the off-site 24-inch block valve area east of the Defense Fuel Support Point, Norwalk located at 15306 Norwalk Boulevard, Norwalk, California. These procedures included the collection and analysis of laboratory blank samples, a field duplicate sample, an equipment blank sample, and laboratory spike samples.

Temperature blanks accompanied samples to the analytical laboratory. The QA/QC samples included a trip blank, an equipment blank sample, a field duplicate sample, laboratory method blanks, laboratory control samples/laboratory control sample duplicates (LCS/LCSD), and matrix spike/matrix spike duplicate (MS/MSD) samples that were collected/prepared and analyzed to assess the potential effects of field sampling conditions, storage and transportation of samples, and laboratory conditions and analysis. Data accuracy was assessed based on percent recoveries (%R) from spiked samples, expressed as a percent of the true or known concentration of the assessed constituent. Data precision was estimated by comparing analytical results from duplicate samples and calculating the relative percent difference (RPD) of the two results.

Data from the QA/QC samples were evaluated to assess precision, accuracy, completeness, and data usability. The QA/QC review was performed in general accordance with U.S. EPA National Functional Guidelines[1] and a summary of the results is presented below. The laboratory reported that the sample shipments were received at temperatures within the acceptable range. Analyses of groundwater and QA/QC samples were conducted within the method holding times and the requested analyses were performed by the analytical laboratory.

[1] U.S. EPA, 1999, U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA-540/R-99-008 (PB99-963506), October.

ACCURACY

Accuracy was assessed through blank samples and spike and surrogate recoveries. The QA/QC program included the analysis of a trip blank, an equipment blank, and laboratory method blanks.

Trip Blank

The trip blank sample was prepared by the laboratory, and accompanied the sample containers from the laboratory to the field, and back to the laboratory. The trip blank was analyzed for volatile organic compounds (VOCs) to assess the potential effects of the sample container, preservatives, laboratory, and/or environmental conditions on samples and sample containers. No VOCs were detected in the trip blank sample analyzed during this assessment.

Equipment Blank

The equipment blank sample was collected in sample containers in the field by pouring laboratory-supplied deionized water over or through non-dedicated field sampling equipment (e.g., HydroPunch screen) after the equipment had been steam cleaned. The equipment blank sample was collected to assess the effectiveness of decontamination procedures, and was analyzed for the groundwater assessment target compounds. None of the analytes were detected in the equipment blank sample collected during this assessment.

Laboratory Method Blanks

No analytes were detected in any of the laboratory method blanks.

Spike Recoveries in LCS/LCSD Samples

Spike recoveries were within laboratory control limits in LCS/LCSD samples analyzed by the laboratory.

Spike Recoveries in MS/MSD Samples

Spike recoveries were within laboratory control limits in the MS/MSD samples analyzed by the laboratory.

Surrogate Recoveries

The surrogate recoveries associated with all project samples and QC batches were within the laboratory control limits.

PRECISION

Precision was quantitatively assessed through comparison of replicate results for field and laboratory duplicate samples.

Field Duplicate

RPDs are calculated for the analytes that are detected in the primary and duplicate samples collected using the following equation:

$$RPD = 2 \times \left(\frac{S_1 - S_2}{S_1 + S_2} \right) \times 100$$

where :

S_1 = primary sample result, and

S_2 = duplicate sample result

However, calculated RPDs are only applicable when the sample values are greater than or equal to two times (organics) or five times (inorganics) the respective laboratory reporting limits (RL), and the precision goal is a calculated RPD of less than 30%. For the primary and duplicate sample results that are less than two or five times the respective laboratory RL, the precision goal is met when the absolute difference between the results is less than the RL. RPDs or absolute difference between the results were not calculated for the duplicate sample pairs collected during this assessment because no analytes were detected at or above in the RLs.

Laboratory Duplicates

The RPDs for the LCS/LCSD and MS/MSD pairs associated with groundwater samples collected during this assessment were within laboratory control limits.

COMPLETENESS

A discrete-depth groundwater sample and a field duplicate sample were successfully obtained from boring GB18 during this assessment. The laboratory reported the requested analyses, and the deliverable data reports were complete. The analytical data for groundwater samples were considered valid and useable. Completeness is the ratio of the number of valid sample results to the total number of samples analyzed within a specific matrix and/or analysis. The percent complete is calculated by the following equation:

$$\% \text{ Complete} = \frac{\text{(number of valid measurements)}}{\text{(number of measurements planned)}} \times 100$$

The percent complete for the results presented in this report is 100 percent.

DATA QUALITY SUMMARY

The field and laboratory quality control results indicate that the sampling and analyses performed in generating the data for this assessment were generally consistent with the analytical methods, and provided data suitable for project objectives. Overall, the data generated during this project are acceptable, are suitable for use in assessing groundwater conditions in the assessment area and can be used for decision-making purposes.

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

December 03, 2009

Thandar Phyu
AMEC Geomatrix, Inc.
510 Superior Avenue
Suite 200
Newport Beach, CA 92663-3627

Subject: **Calscience Work Order No.: 09-11-1696**
Client Reference: DFSP Norwalk / 1603.046

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/20/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Geomatrix, Inc.
510 Superior Avenue
Suite 200
Newport Beach, CA 92663-3627

Date Received: 11/20/09
Work Order No: 09-11-1696
Preparation: EPA 3510C
Method: EPA 8015B (M)

Project: DFSP Norwalk / 1603.046

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11192009-EB	**09-11-1696-2-G**	**11/19/09 15:30**	**Aqueous**	**GC 27**	**11/21/09**	**11/24/09 07:20**	**091121B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Fuel Product	ND	500	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	83	68-140	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GB-18-90W	**09-11-1696-3-G**	**11/19/09 16:10**	**Aqueous**	**GC 27**	**11/21/09**	**11/24/09 07:38**	**091121B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Fuel Product	ND	500	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	83	68-140	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GB-18-90W(D)	**09-11-1696-4-G**	**11/19/09 16:10**	**Aqueous**	**GC 27**	**11/21/09**	**11/24/09 07:57**	**091121B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Fuel Product	ND	500	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	82	68-140	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-384-21**	**N/A**	**Aqueous**	**GC 27**	**11/21/09**	**11/24/09 06:25**	**091121B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Fuel Product	ND	500	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	109	68-140	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Geomatrix, Inc.
510 Superior Avenue
Suite 200
Newport Beach, CA 92663-3627

Date Received: 11/20/09
Work Order No: 09-11-1696
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: DFSP Norwalk / 1603.046

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11192009-EB	**09-11-1696-2-D**	**11/19/09 15:30**	**Aqueous**	**GC 18**	**11/24/09**	**11/25/09 09:58**	**091124B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	100	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	87	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GB-18-90W	**09-11-1696-3-D**	**11/19/09 16:10**	**Aqueous**	**GC 18**	**11/24/09**	**11/25/09 11:22**	**091124B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	100	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	85	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GB-18-90W(D)	**09-11-1696-4-D**	**11/19/09 16:10**	**Aqueous**	**GC 18**	**11/24/09**	**11/25/09 11:57**	**091124B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	100	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	84	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-247-3,731**	**N/A**	**Aqueous**	**GC 18**	**11/24/09**	**11/25/09 02:52**	**091124B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	100	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	80	38-134	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Geomatrix, Inc.		Date Received:	11/20/09
510 Superior Avenue		Work Order No:	09-11-1696
Suite 200		Preparation:	EPA 5030B
Newport Beach, CA 92663-3627		Method:	EPA 8260B
		Units:	ug/L

Project: DFSP Norwalk / 1603.046

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11192009-TB	**09-11-1696-1-A**	**11/19/09 11:20**	**Aqueous**	**GC/MS VV**	**11/23/09**	**11/23/09 12:37**	**091123L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	50	1		c-1,3-Dichloropropene	ND	0.50	1	
Benzene	ND	0.50	1		t-1,3-Dichloropropene	ND	0.50	1	
Bromobenzene	ND	1.0	1		Ethylbenzene	ND	1.0	1	
Bromochloromethane	ND	1.0	1		2-Hexanone	ND	10	1	
Bromodichloromethane	ND	1.0	1		Isopropylbenzene	ND	1.0	1	
Bromoform	ND	1.0	1		p-Isopropyltoluene	ND	1.0	1	
Bromomethane	ND	10	1		Methylene Chloride	ND	10	1	
2-Butanone	ND	10	1		4-Methyl-2-Pentanone	ND	10	1	
n-Butylbenzene	ND	1.0	1		Naphthalene	ND	10	1	
sec-Butylbenzene	ND	1.0	1		n-Propylbenzene	ND	1.0	1	
tert-Butylbenzene	ND	1.0	1		Styrene	ND	1.0	1	
Carbon Disulfide	ND	10	1		1,1,1,2-Tetrachloroethane	ND	1.0	1	
Carbon Tetrachloride	ND	0.50	1		1,1,2,2-Tetrachloroethane	ND	1.0	1	
Chlorobenzene	ND	1.0	1		Tetrachloroethene	ND	1.0	1	
Chloroethane	ND	5.0	1		Toluene	ND	1.0	1	
Chloroform	ND	1.0	1		1,2,3-Trichlorobenzene	ND	1.0	1	
Chloromethane	ND	10	1		1,2,4-Trichlorobenzene	ND	1.0	1	
2-Chlorotoluene	ND	1.0	1		1,1,1-Trichloroethane	ND	1.0	1	
4-Chlorotoluene	ND	1.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1	
Dibromochloromethane	ND	1.0	1		1,1,2-Trichloroethane	ND	1.0	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1		Trichloroethene	ND	1.0	1	
1,2-Dibromoethane	ND	1.0	1		Trichlorofluoromethane	ND	10	1	
Dibromomethane	ND	1.0	1		1,2,3-Trichloropropane	ND	5.0	1	
1,2-Dichlorobenzene	ND	1.0	1		1,2,4-Trimethylbenzene	ND	1.0	1	
1,3-Dichlorobenzene	ND	1.0	1		1,3,5-Trimethylbenzene	ND	1.0	1	
1,4-Dichlorobenzene	ND	1.0	1		Vinyl Acetate	ND	10	1	
Dichlorodifluoromethane	ND	1.0	1		Vinyl Chloride	ND	0.50	1	
1,1-Dichloroethane	ND	1.0	1		p/m-Xylene	ND	1.0	1	
1,2-Dichloroethane	ND	0.50	1		o-Xylene	ND	1.0	1	
1,1-Dichloroethene	ND	1.0	1		Methyl-t-Butyl Ether (MTBE)	ND	1.0	1	
c-1,2-Dichloroethene	ND	1.0	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
t-1,2-Dichloroethene	ND	1.0	1		Diisopropyl Ether (DIPE)	ND	2.0	1	
1,2-Dichloropropane	ND	1.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
1,3-Dichloropropane	ND	1.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
2,2-Dichloropropane	ND	1.0	1		Ethanol	ND	100	1	
1,1-Dichloropropene	ND	1.0	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Dibromofluoromethane	102	80-132		1,2-Dichloroethane-d4	102	80-141	
Toluene-d8	101	80-120		1,4-Bromofluorobenzene	96	76-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Geomatrix, Inc.		Date Received:	11/20/09
510 Superior Avenue		Work Order No:	09-11-1696
Suite 200		Preparation:	EPA 5030B
Newport Beach, CA 92663-3627		Method:	EPA 8260B
		Units:	ug/L
Project: DFSP Norwalk / 1603.046			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-10-006-31,432**	**N/A**	**Aqueous**	**GC/MS VV**	**11/23/09**	**11/23/09 11:48**	**091123L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	50	1		c-1,3-Dichloropropene	ND	0.50	1	
Benzene	ND	0.50	1		t-1,3-Dichloropropene	ND	0.50	1	
Bromobenzene	ND	1.0	1		Ethylbenzene	ND	1.0	1	
Bromochloromethane	ND	1.0	1		2-Hexanone	ND	10	1	
Bromodichloromethane	ND	1.0	1		Isopropylbenzene	ND	1.0	1	
Bromoform	ND	1.0	1		p-Isopropyltoluene	ND	1.0	1	
Bromomethane	ND	10	1		Methylene Chloride	ND	10	1	
2-Butanone	ND	10	1		4-Methyl-2-Pentanone	ND	10	1	
n-Butylbenzene	ND	1.0	1		Naphthalene	ND	10	1	
sec-Butylbenzene	ND	1.0	1		n-Propylbenzene	ND	1.0	1	
tert-Butylbenzene	ND	1.0	1		Styrene	ND	1.0	1	
Carbon Disulfide	ND	10	1		1,1,1,2-Tetrachloroethane	ND	1.0	1	
Carbon Tetrachloride	ND	0.50	1		1,1,2,2-Tetrachloroethane	ND	1.0	1	
Chlorobenzene	ND	1.0	1		Tetrachloroethene	ND	1.0	1	
Chloroethane	ND	5.0	1		Toluene	ND	1.0	1	
Chloroform	ND	1.0	1		1,2,3-Trichlorobenzene	ND	1.0	1	
Chloromethane	ND	10	1		1,2,4-Trichlorobenzene	ND	1.0	1	
2-Chlorotoluene	ND	1.0	1		1,1,1-Trichloroethane	ND	1.0	1	
4-Chlorotoluene	ND	1.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1	
Dibromochloromethane	ND	1.0	1		1,1,2-Trichloroethane	ND	1.0	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1		Trichloroethene	ND	1.0	1	
1,2-Dibromoethane	ND	1.0	1		Trichlorofluoromethane	ND	10	1	
Dibromomethane	ND	1.0	1		1,2,3-Trichloropropane	ND	5.0	1	
1,2-Dichlorobenzene	ND	1.0	1		1,2,4-Trimethylbenzene	ND	1.0	1	
1,3-Dichlorobenzene	ND	1.0	1		1,3,5-Trimethylbenzene	ND	1.0	1	
1,4-Dichlorobenzene	ND	1.0	1		Vinyl Acetate	ND	10	1	
Dichlorodifluoromethane	ND	1.0	1		Vinyl Chloride	ND	0.50	1	
1,1-Dichloroethane	ND	1.0	1		p/m-Xylene	ND	1.0	1	
1,2-Dichloroethane	ND	0.50	1		o-Xylene	ND	1.0	1	
1,1-Dichloroethene	ND	1.0	1		Methyl-t-Butyl Ether (MTBE)	ND	1.0	1	
c-1,2-Dichloroethene	ND	1.0	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
t-1,2-Dichloroethene	ND	1.0	1		Diisopropyl Ether (DIPE)	ND	2.0	1	
1,2-Dichloropropane	ND	1.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
1,3-Dichloropropane	ND	1.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
2,2-Dichloropropane	ND	1.0	1		Ethanol	ND	100	1	
1,1-Dichloropropene	ND	1.0	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Dibromofluoromethane	102	80-132		1,2-Dichloroethane-d4	100	80-141	
Toluene-d8	100	80-120		1,4-Bromofluorobenzene	95	76-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Geomatrix, Inc.		Date Received:	11/20/09
510 Superior Avenue		Work Order No:	09-11-1696
Suite 200		Preparation:	EPA 5030B
Newport Beach, CA 92663-3627		Method:	EPA 8260B
		Units:	ug/L
Project: DFSP Norwalk / 1603.046			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
11192009-EB	**09-11-1696-2-A**	**11/19/09 15:30**	**Aqueous**	**GC/MS VV**	**11/21/09**	**11/21/09 23:51**	**091121L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
Ethylbenzene	ND	1.0	1		Diisopropyl Ether (DIPE)	ND	2.0	1	
Toluene	ND	1.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
p/m-Xylene	ND	1.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
o-Xylene	ND	1.0	1		Ethanol	ND	100	1	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Dibromofluoromethane	102	80-132		1,2-Dichloroethane-d4	101	80-141	
Toluene-d8	100	80-120		1,4-Bromofluorobenzene	96	76-120	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GB-18-90W	**09-11-1696-3-A**	**11/19/09 16:10**	**Aqueous**	**GC/MS VV**	**11/21/09**	**11/22/09 04:27**	**091121L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
Ethylbenzene	ND	1.0	1		Diisopropyl Ether (DIPE)	ND	2.0	1	
Toluene	ND	1.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
p/m-Xylene	ND	1.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
o-Xylene	ND	1.0	1		Ethanol	ND	100	1	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Dibromofluoromethane	103	80-132		1,2-Dichloroethane-d4	102	80-141	
Toluene-d8	100	80-120		1,4-Bromofluorobenzene	96	76-120	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GB-18-90W(D)	**09-11-1696-4-A**	**11/19/09 16:10**	**Aqueous**	**GC/MS VV**	**11/21/09**	**11/22/09 04:54**	**091121L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
Ethylbenzene	ND	1.0	1		Diisopropyl Ether (DIPE)	ND	2.0	1	
Toluene	ND	1.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
p/m-Xylene	ND	1.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
o-Xylene	ND	1.0	1		Ethanol	ND	100	1	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Dibromofluoromethane	102	80-132		1,2-Dichloroethane-d4	102	80-141	
Toluene-d8	100	80-120		1,4-Bromofluorobenzene	94	76-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Geomatrix, Inc.		Date Received:	11/20/09
510 Superior Avenue		Work Order No:	09-11-1696
Suite 200		Preparation:	EPA 5030B
Newport Beach, CA 92663-3627		Method:	EPA 8260B
		Units:	ug/L
Project: DFSP Norwalk / 1603.046			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-10-006-31,430**	**N/A**	**Aqueous**	**GC/MS VV**	**11/21/09**	**11/21/09 23:24**	**091121L02**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
Ethylbenzene	ND	1.0	1		Diisopropyl Ether (DIPE)	ND	2.0	1	
Toluene	ND	1.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	1	
p/m-Xylene	ND	1.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	1	
o-Xylene	ND	1.0	1		Ethanol	ND	100	1	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Dibromofluoromethane	103	80-132		1,2-Dichloroethane-d4	101	80-141	
Toluene-d8	100	80-120		1,4-Bromofluorobenzene	96	76-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Geomatrix, Inc.		Date Received:	11/20/09
510 Superior Avenue		Work Order No:	09-11-1696
Suite 200		Preparation:	EPA 5030B
Newport Beach, CA 92663-3627		Method:	EPA 8015B (M)

Project DFSP Norwalk / 1603.046

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-11-1831-4	**Aqueous**	**GC 18**	**11/24/09**	**11/25/09**	**091124S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	96	96	68-122	1	0-18	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Geomatrix, Inc.
510 Superior Avenue
Suite 200
Newport Beach, CA 92663-3627

Date Received: 11/20/09
Work Order No: 09-11-1696
Preparation: EPA 5030B
Method: EPA 8260B

Project DFSP Norwalk / 1603.046

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-11-1657-1	**Aqueous**	**GC/MS VV**	**11/23/09**	**11/23/09**	**091123S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	98	98	72-120	0	0-20	
Carbon Tetrachloride	99	99	63-135	0	0-20	
Chlorobenzene	98	98	80-120	1	0-20	
1,2-Dibromoethane	97	97	80-120	0	0-20	
1,2-Dichlorobenzene	95	95	80-120	1	0-20	
1,1-Dichloroethene	90	90	60-132	0	0-24	
Ethylbenzene	98	98	78-120	0	0-20	
Toluene	96	95	74-122	1	0-20	
Trichloroethene	98	97	69-120	1	0-20	
Vinyl Chloride	96	96	58-130	0	0-20	
Methyl-t-Butyl Ether (MTBE)	85	87	72-126	3	0-21	
Tert-Butyl Alcohol (TBA)	99	95	72-126	5	0-20	
Diisopropyl Ether (DIPE)	100	101	71-137	1	0-23	
Ethyl-t-Butyl Ether (ETBE)	95	96	74-128	1	0-20	
Tert-Amyl-Methyl Ether (TAME)	95	96	76-124	1	0-20	
Ethanol	86	83	35-167	3	0-48	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Geomatrix, Inc.		Date Received:	11/20/09
510 Superior Avenue		Work Order No:	09-11-1696
Suite 200		Preparation:	EPA 5030B
Newport Beach, CA 92663-3627		Method:	EPA 8260B

Project DFSP Norwalk / 1603.046

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-11-1789-1	**Aqueous**	**GC/MS VV**	**11/21/09**	**11/22/09**	**091121S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	95	97	72-120	3	0-20	
Toluene	92	95	74-122	3	0-20	
Ethylbenzene	94	98	78-120	4	0-20	
Methyl-t-Butyl Ether (MTBE)	96	93	72-126	3	0-21	
Tert-Butyl Alcohol (TBA)	102	97	72-126	4	0-20	
Diisopropyl Ether (DIPE)	99	101	71-137	2	0-23	
Ethyl-t-Butyl Ether (ETBE)	93	95	74-128	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	91	92	76-124	1	0-20	
Ethanol	94	97	35-167	3	0-48	
1,1-Dichloroethene	87	92	60-132	5	0-24	
1,2-Dibromoethane	96	97	80-120	2	0-20	
1,2-Dichlorobenzene	92	93	80-120	1	0-20	
Carbon Tetrachloride	94	100	63-135	5	0-20	
Chlorobenzene	94	97	80-120	4	0-20	
Trichloroethene	93	95	69-120	2	0-20	
Vinyl Chloride	94	99	58-130	5	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Geomatrix, Inc.		Date Received:	N/A
510 Superior Avenue		Work Order No:	09-11-1696
Suite 200		Preparation:	EPA 3510C
Newport Beach, CA 92663-3627		Method:	EPA 8015B (M)

Project: DFSP Norwalk / 1603.046

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-384-21	**Aqueous**	**GC 27**	**11/21/09**	**11/24/09**	**091121B02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Fuel Product	93	94	75-117	1	0-13	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Geomatrix, Inc.		Date Received:	N/A
510 Superior Avenue		Work Order No:	09-11-1696
Suite 200		Preparation:	EPA 5030B
Newport Beach, CA 92663-3627		Method:	EPA 8015B (M)

Project: DFSP Norwalk / 1603.046

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-247-3,731	**Aqueous**	**GC 18**	**11/24/09**	**11/25/09**	**091124B02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	97	96	78-120	1	0-10	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Geomatrix, Inc.
510 Superior Avenue
Suite 200
Newport Beach, CA 92663-3627

Date Received: N/A
Work Order No: 09-11-1696
Preparation: EPA 5030B
Method: EPA 8260B

Project: DFSP Norwalk / 1603.046

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-10-006-31,432	**Aqueous**	**GC/MS VV**	**11/23/09**	**11/23/09**	**091123L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	99	98	80-122	73-129	1	0-20	
Carbon Tetrachloride	102	99	68-140	56-152	3	0-20	
Chlorobenzene	100	99	80-120	73-127	1	0-20	
1,2-Dibromoethane	98	97	80-121	73-128	1	0-20	
1,2-Dichlorobenzene	98	95	80-120	73-127	3	0-20	
1,1-Dichloroethene	92	90	72-132	62-142	3	0-25	
Ethylbenzene	100	99	80-126	72-134	1	0-20	
Toluene	98	96	80-121	73-128	1	0-20	
Trichloroethene	99	98	80-123	73-130	1	0-20	
Vinyl Chloride	100	99	67-133	56-144	1	0-20	
Methyl-t-Butyl Ether (MTBE)	86	85	75-123	67-131	1	0-20	
Tert-Butyl Alcohol (TBA)	96	95	75-123	67-131	1	0-20	
Diisopropyl Ether (DIPE)	100	98	71-131	61-141	2	0-20	
Ethyl-t-Butyl Ether (ETBE)	97	96	76-124	68-132	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	98	97	80-123	73-130	1	0-20	
Ethanol	82	79	61-139	48-152	3	0-27	

Total number of LCS compounds : 16
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Geomatrix, Inc.
510 Superior Avenue
Suite 200
Newport Beach, CA 92663-3627

Date Received: N/A
Work Order No: 09-11-1696
Preparation: EPA 5030B
Method: EPA 8260B

Project: DFSP Norwalk / 1603.046

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-10-006-31,430	**Aqueous**	**GC/MS VV**	**11/21/09**	**11/21/09**	**091121L02**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	100	96	80-122	73-129	4	0-20	
Carbon Tetrachloride	101	96	68-140	56-152	5	0-20	
Chlorobenzene	99	95	80-120	73-127	5	0-20	
1,2-Dibromoethane	102	98	80-121	73-128	4	0-20	
1,2-Dichlorobenzene	97	93	80-120	73-127	5	0-20	
1,1-Dichloroethene	93	89	72-132	62-142	5	0-25	
Ethylbenzene	100	96	80-126	72-134	5	0-20	
Toluene	97	93	80-121	73-128	4	0-20	
Trichloroethene	101	95	80-123	73-130	6	0-20	
Vinyl Chloride	102	96	67-133	56-144	6	0-20	
Methyl-t-Butyl Ether (MTBE)	90	99	75-123	67-131	9	0-20	
Tert-Butyl Alcohol (TBA)	107	92	75-123	67-131	15	0-20	
Diisopropyl Ether (DIPE)	102	100	71-131	61-141	2	0-20	
Ethyl-t-Butyl Ether (ETBE)	98	97	76-124	68-132	1	0-20	
Tert-Amyl-Methyl Ether (TAME)	97	95	80-123	73-130	3	0-20	
Ethanol	97	78	61-139	48-152	22	0-27	

Total number of LCS compounds : 16
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-11-1696

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture.

CHAIN-OF-CUSTODY RECORD

1696

NB 15109

PROJECT NAME: DFSP Norwalk		DATE: ~~11-19~~-2009	PAGE 1 OF 1
PROJECT NUMBER: 1603.046	LABORATORY NAME: Calscience	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Thandar Phyu	LABORATORY ADDRESS:		
TURNAROUND TIME: Normal			
SAMPLE SHIPMENT METHOD: Drop off	LABORATORY CONTACT: Steve Nowak		GEOTRACKER REQUIRED (YES) NO
	LABORATORY PHONE NUMBER: (714) 895-5494		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE):

	DATE	TIME	SAMPLE NUMBER	*ANALYSES: VOCs (8260B)	BTEX+Oxy.* (8260B)	TPHg (8015M)**	TPHfp (8015M)***	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
	11/19/09	—	Temp. Blank						W			X		1	← Do not analyze.
1		1120	11192009-TB	X				40ml VOAs	W			X		2	
2		1530	11192009-EB		X	X	X	40ml VOAs, 500-ml amber	W			X		7	
3		1610	GB-18-90W		X	X	X	↓	W			X		7	
4	↓	1610	GB-18-90W(D)		X	X	X	↓	W			X		7	

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE:	11/20/09	0826	SIGNATURE:	11/20/09	0826
PRINTED NAME: Thet Naing			PRINTED NAME: William Batin		
COMPANY: AMEC GEOMATRIX			COMPANY: CEL		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 24

SAMPLING COMMENTS:

* Benzene, toluene, ethylbenzene, total xylenes and fuel oxygenates including MTBE, TBA, DIPE, ETBE, and TAME.

** TPH as gasoline

*** TPH as site specific fuel product

Do not analyze temperature blank.

510 Superior Avenue, Suite 200
Newport Beach, California 92663-3627
Tel 949.642.0245 Fax 949.642.4474

amec

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-11-1696

SAMPLE RECEIPT FORM

Cooler 1 **of** 1

CLIENT: AMEC **DATE:** 11/20/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 3.2 °C - 0.8 °C (CF) = 2.4 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** WB

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** WB

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** WB

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ COC not relinquished. ☐ No date relinquished. ☐ No time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Correct containers and volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☑6VOA**h** ☐VOA**na_2** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na_2** ☐1AGB**s**

☐500AGB ☑500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na_2** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:** 091116C **Checked by:** WB

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelop **Reviewed by:** JS

Preservative: **h:** HCL **n:** HNO3 **na_2:**$Na_2S_2O_3$ **Na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** WB