

August 6, 2009

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Holifield Park Groundwater Remedial System Expansion Summary Report
Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California
(SCP No. 0286A, Site No. 16638)

Dear Mr. Hu:

Parsons on behalf of the Defense Energy Support Center (DESC) is pleased to submit this groundwater remedial system expansion summary report to document the scope of work to install one groundwater extraction well, one groundwater piezometer along the eastern boundary at the Defense Fuel Support Point (DESP) Norwalk site, and one groundwater monitoring well in Holifield Park. The site location map is shown on Figure 1. This work was conducted in accordance with the supplemental design work plan¹ submitted for the DESP Norwalk site and Holifield Park. The remedial system design work plan was approved by the California Regional Water Quality Control Board (RWQCB), in a letter dated June 11, 2009.

1 Objectives and Scope of Work

The objective of the groundwater remedial system expansion are: 1) to contain the groundwater plume and to prevent further migration of the groundwater hydrocarbon

¹ Parsons, Addendum to *Revised Holifield Park Supplemental Investigation and Groundwater Remediation Work Plan, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California, June 26, 2008.*



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plume into the park; and 2) to reduce the dissolved hydrocarbon levels in the groundwater under the northern park area. Ideally, this entails the cleanup of groundwater to maximum contaminant levels (MCLs), where applicable. Cleanup goals for the park include the reduction of dissolved-phase concentrations in shallow groundwater to control migration and to reduce dissolved-phase concentrations below target cleanup levels. Groundwater cleanup goals for the park are based on previous approved goals for the DFSP site by RWQCB. The groundwater cleanup goals are listed in the revised Remedial Action Plan (RAP)² dated September 21, 2006, and are MCLs for benzene, toluene, ethylbenzene, and xylenes (BTEX) and 500 micrograms per liter ($\mu\text{g/L}$) for total petroleum hydrocarbons (TPH).

The scope of work includes the installation of a groundwater extraction well, a groundwater monitoring well, and a piezometer; extraction pump installation; piping and electrical installation to connect the extraction well to the remediation system; and perform system startup, testing, and monitoring.

2 Field Activities

Field work was conducted between June 15 and July 10, 2009. This effort included the installation of one groundwater monitoring well (GMW-65) located in Holifield Park, one groundwater extraction well and one piezometer located in the eastern area of the site. Well locations within the site and park are shown on Figure 2. Photographs showing various aspects of the field effort are included in Attachment A. The borings for each of the wells and development logs are included in Attachment B.

The project safety plan (PSP) developed for the DFSP Norwalk facility³, including work performed in Holifield Park, was followed during all site activities. The PSP includes protocols for safe work practices throughout the field portion of the project. All project

² Parsons, *Revised Remedial Action Plan Defense Fuel Support Point Norwalk*, September 21, 2006.

³ Parsons, *Site-Specific Health and Safety Plan, Defense Energy Support Center*, December 4, 2006.



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team members who performed field work were responsible for reading and conforming to the PSP and signed the Plan Acceptance Form from the PSP prior to fieldwork. At the beginning of each day of fieldwork, the scope of work was discussed and all personnel were advised of hazards, proper safety practices, and required personal protective equipment (PPE).

The sampling procedures are discussed in the following sections. Prior to the start of this field effort, boring and well permit applications were obtained from the Los Angeles County Environmental Health Division and the City of Norwalk.

2.1 Geophysical Clearance

Underground Service Alert (DigAlert) was notified of our subsurface activities at least 48 hours before beginning field work. The planned sampling locations were clearly marked with white paint. DigAlert contacted all utility owners within the site vicinity and notified them of the subsurface investigations planned.

In addition to notifying DigAlert, each well location and surrounding areas were surveyed using geophysical techniques to assess the possible presence of underground utilities. SubSurface Surveys & Associates, Inc. (SubSurface) conducted the geophysical survey immediately prior to the start of the field investigation. The utility lines were clearly marked at each planned well location by SubSurface. None of the planned well locations were moved significantly as a result of interference with underground utility lines.

2.2 Soil Sampling

Wells GMW-65, GW-16, and GW-16p were drilled, sampled, and installed on July 6 and 7, 2009. The locations of these borings are depicted on Figure 2. Each of these wells was drilled using a Mobile B-62 hollow stem auger drill rig provided and manned by Gregg Drilling.



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Each boring location was initially cleared to a depth of 5 feet with a hand auger and post hole digger in an attempt to avoid undetected/unknown underground utilities. Borings GMW-65 and GW-16 were then sampled (using 8-inch diameter augers) at five-foot intervals to their terminal depths (40 feet at GMW-65 and 60 feet at GW-16). GW-16p was not sampled due to its near proximity to GW-16 (5 feet).

Soil samples were driven into stainless steel drive samplers lined with three 2-inch diameter by 6-inch long stainless steel tubes. Upon removal from the subsurface, the lower stainless steel tube was capped on each end with Teflon tape and plastic caps. The capped sample was labeled, placed in a sealable plastic bag, and then immediately placed into an ice-cooled chest.

Soil collected from the upper soil-filled tubes was reviewed for classification and the possible presence of staining and/or odor. The soil descriptions included texture (grain size using the Unified Soil Classification System), color (Munsell soil color system), general moisture content, and possible presence of contamination. A portion of this sample was also placed in a sealable bag for headspace measurements. The headspace of each bag was measured (for volatile organic compounds [VOCs]) using a photoionization detector (PID). The PID used during this investigation was calibrated immediately prior to the start of each field day. Soil descriptions and headspace measurements were recorded on Parsons' standard boring log form. These boring logs are presented in Attachment B.

To minimize the potential for cross contamination, sampling equipment was decontaminated between borings and each sampling interval. The equipment was decontaminated by washing with a mild solution of phosphate-free detergent, and double rinsing with tap water between each sampling interval. The stainless steel tubes used to hold the samples were new and unused.

Preservatives were not introduced into the collected soil samples. The only preservative used for the soil samples was the ice on which they were placed. The sample coolers



were pre-cooled and maintained with ice (double bagged) until delivered to the analytical laboratory.

2.3 Well Installation

Prior to the start of this investigation, a groundwater well permit was obtained from the Los Angeles County Environmental Health Division. The groundwater well permit number was #9339. A copy of this permit is provided in Attachment C.

Following soil sampling of GMW-65 and GW-16, the 8-inch diameter augers were removed. These borings were then reamed to their terminal depths with 10-inch and 14-inch diameter augers, respectively. After completion of drilling, boring GMW-65 was converted to a groundwater monitoring well. This well was constructed with 4-inch diameter schedule 40 PVC screen and solid schedule 40 PVC casing. It was screened with 0.02-inch slots between approximately 21 and 41 feet below ground surface (bgs). Solid PVC casing was placed from the top of the screen up to 0.5 feet bgs. Number 2/16 Monterey sand was placed in the annulus of the screened interval, between approximately 18 and 41 feet bgs. A 3.2-foot thick seal of bentonite chips was placed above the filter pack, between 14.8 feet and 18 feet bgs. A grout consisting of Portland cement with approximately 5 percent bentonite was placed from 2 feet to 14.8 feet bgs. A 12-inch-diameter, flush-mounted, traffic-rated well box was set in concrete above the grout. A diagram of the well construction is provided in Attachment B.

GW-16 was constructed with 6-inch diameter schedule 40 PVC screen and solid schedule 40 PVC casing. It was screened with 0.02-inch slots between approximately 20.5 and 60.5 feet bgs. Solid PVC casing was placed from the top of the screen up to 0.5 feet bgs. A sediment trap (blank casing) was placed between 60.5 and 62.5 feet bgs. Number 2/16 Monterey sand was placed in the annulus of the screened interval, between approximately 14.8 and 63 feet bgs. A 3.8-foot thick seal of bentonite chips was placed above the filter pack, between 11 feet and 14.8 feet bgs. A grout consisting of Portland cement with approximately 5 percent bentonite was placed from 2 feet to 11 feet bgs. A 2-foot square



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traffic-rated well box was set in concrete above the grout. A diagram of the well construction is provided in Attachment B.

Well GW-16p was constructed within an 8-inch diameter boring using 1-inch diameter schedule 40 PVC screen and solid schedule 40 PVC casing. It was screened with 0.02-inch slots between approximately 21 and 61 feet bgs. Solid PVC casing was placed from the top of the screen up to 0.5 feet bgs. Number 2/16 Monterey sand was placed in the annulus of the screened interval, between approximately 17.5 and 60.5 feet bgs. A 3.5-foot thick seal of bentonite chips was placed above the filter pack, between 14 feet and 17.5 feet bgs. A grout consisting of Portland cement with approximately 5 percent bentonite was placed from 2 feet to 14 feet bgs. A 12-inch-diameter, flush-mount, traffic-rated well box was set in concrete above the grout. A diagram of the well construction is provided in Attachment B.

2.4 Well Development

GMW-65 and GW-16 were developed on July 10, 2009, three to four days after their installation. Prior to development, an electronic sounder was used to measure the depth to groundwater from the top of the well casings. The groundwater depths for GMW-65 and GW-16 were 28.90 and 29.04 feet, respectively (below the top of the casing), immediately before development.

Development of each well was initiated by bailing with a 3-inch diameter by 10-foot long stainless steel bailer to remove sediment that collected during well installation. After the removal of approximately 13 gallons, the wells were then surged with surge blocks in order to clean the PVC slots and adjoining sand pack. The wells were surged 11 and 18 minutes, respectively. The wells were then bailed again until only minor quantities of sediment were visible. The well development was completed using a cleaned 3-inch diameter electric pump (Grunfos Model 5SQE180). The pump inlet was placed approximately 2 feet above the bottom of the wells.



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During development, groundwater monitoring well GMW-65 was pumped at a flow rate of approximately 3 gallons a minute. Once this water began running clear, the water parameters were measured (pH, conductivity, turbidity, and temperature). Pumping ceased when these parameters stabilized. A summary of these measurements can be found in Attachment B. Approximately 105 gallons of water (13.5 well volumes) were removed from GMW-65 during development.

Groundwater extraction well GW-16 was pumped at a flow rate of approximately 7 gallons a minute during development. Once this water began running relatively clear, the water parameters were measured (pH, conductivity, turbidity, and temperature). A summary of these measurements can be found in Attachment B. Pumping continued until a total of approximately 221 gallons of water had been removed (4.5 well volumes). Note that the turbidity remained elevated at the end of this development effort. As such, the development of this well was not considered complete. The development of this well will be completed during the initiation of groundwater extraction activities.

GW-16p was not developed. This well is to be used for water depth measurements only, and not sample collection.

2.5 Analytical Methods

Calscience Environmental Laboratories, Inc. (Calscience) analyzed all the samples collected during the investigation. Calscience is certified by the California Department of Health Services Environmental Accreditation Laboratory Program.

Selected soil samples from GW-16 were analyzed for the following compounds:

- Total petroleum hydrocarbons as gasoline using USEPA Method 8015B (modified);
- Total petroleum hydrocarbons as jet propellant 5 (JP-5) using USEPA Method 8015B (modified); and
- VOCs using USEPA Method 8260B (via 5053).



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Groundwater will be sampled from GMW-65 during the third quarter sentry event and from GW-16 once groundwater extraction has commenced and development completed. Groundwater results will be reported in the third quarter sentry monitoring report.

2.6 Groundwater Extraction Equipment Installation

The extraction well (GW-16) was equipped with a Grundfos 30SQ07-90 (240V) ¾ HP pump. Depth to water at GW-16 prior to pump installation was measured at 28.86 feet bgs and the depth to the bottom of the well was measured at 61.95 feet bgs. The pump was set at approximately 45 feet from top of casing. The pump was wired electrically for automated control via the programmable logic controller (PLC) and wireless switch. Manual override is provided for emergency operation and maintenance.

Piping from GW-16 was routed to the existing well GMW-58. Pipeline from GW-16 to the existing well GMW-58 is aboveground UV resistant, 1-inch diameter hose manufactured by General Electric. Piping to the GWTS from GMW-58, and now GW-16, is accomplished via underground pipelines.

Groundwater flow monitoring and control instrumentation were installed as follow:

1. 1-inch brass check valve to prevent water from flowing back into the well when power to the pump is off;
2. 1-inch strainer with removable filter to prevent debris from entering and clogging the water meter located downstream;
3. gate valve to provide flow control;
4. brass water flow meter; and
5. laboratory valve for sample collection.

All system's components are located aboveground just outside of the well box with flow direction from well GW-16 to the GWTS.



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2.7 Field Variations from Work Plan

All field activities were conducted in general conformance with Parsons work plan and RWQCB approval. The sampling locations were consistent with those proposed. GMW-65 was adjusted a few feet in the field to accommodate subsurface obstructions.

2.8 Investigation-Derived Waste Disposal

Different types of investigation-derived waste (IDW) were generated during the field activities that included the following:

- Used PPE;
- Disposable sampling equipment;
- Decontamination and waste water fluids; and
- Soil cuttings from the soil borings.

IDW was managed and disposed of in accordance with current Federal, State, and local requirements. IDW was labeled and stored in accordance with the requirements of the Los Angeles County Health Department.

Soil cuttings and waste water generated during field investigation were collected in properly labeled and sealed U.S. DOT approved 55-gallon drums. At the end of each field day, the drums were moved to the DESC property. Profiling of soil cuttings was done to ensure appropriate disposal. Proper arrangements were made to haul and dispose of the IDW soil drums. Waste water was treated on-site through the groundwater treatment system.

Used PPE and disposable equipment was doubled bagged and placed in a municipal refuse dumpster at the site. These wastes are not considered hazardous and may be sent to a municipal landfill.



3 Investigation Results

This section discusses the results from the supplemental field activities.

3.1 *Geology and Hydrogeology*

Soil encountered during the investigation was comprised primarily of unconsolidated fine sand, silty fine sand, and silt, with lesser concentrations of clay to a depth of 60 feet. Boring logs are presented in Attachment B.

Fine sand and silty fine sand were relatively more abundant than silt and clay beneath the investigation area. Greater concentrations and thicker layers of fine sand and silty fine sand were encountered between the surface and approximately 20 feet bgs, and between approximately 30 feet and at least 54 feet bgs. Continuous or nearly continuous silt layers are interpreted to occur between approximately 20 and 30 feet bgs. Discontinuous and continuous sand layers are interpreted to occur between the silt layers within this depth interval. A few discontinuous clay layers were also interpreted to occur between these depths. The sand, silt, and clay layers encountered between the surface and 20 feet bgs were generally damp to moist. Saturated soils were encountered between approximately 29 and 60 feet bgs.

The depth to groundwater in wells GMW-65 and GW-16 installed during this effort were 28.90 feet bgs and 29.04 feet bgs, respectively on July 10, 2009. This is consistent with the water depth in near-vicinity well GMW-62 (located near the western side of Holifield Park), measured at 28.03 feet bgs on July 21, 2009.

3.2 *Analytical Data*

Laboratory soil samples were analyzed from GW-16 at 30, 35, 40, 45, and 55 feet bgs. The samples were analyzed for TPHg, TPH as JP-5, and VOCs. There were no soil detections for all compounds analyzed. Attachment D contains the laboratory report.



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4 Summary and Recommendations

Parsons has conducted groundwater extraction well installation, groundwater monitoring well installation, piezometer installation, pump and electrical installation, and piping installation to connect the extraction well to the remediation system. Once well and system installation was completed, system startup, testing, and monitoring was performed. Operation of GW-16 began on July 22, 2009. On-going system monitoring will be conducted quarterly to evaluate system performance and affirm maximum operating efficiency.

After three and again at six months of continuous operation, groundwater chemistry will be evaluated from existing onsite wells and GMW-62 through GMW-65 located in the park. Groundwater quality will be compared to historical to determine effectiveness of groundwater extraction in this area and to determine if additional onsite extraction wells are required in order to contain the plume within site boundaries. Additional extraction wells will be installed within the site if needed.

If you have any questions please call me at (602) 734-1083.

Sincerely,

Redwan Hassan, P.G.
Project Manager

Attachments:

- Figure 1 Site Location Map
- Figure 2 Expanded Groundwater Remediation System
- A Photo Log
- B Boring Logs and Development Logs
- C Los Angeles County Environmental Health Division Permit
- D Laboratory Report



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cc: File
Mr. Kola Olowu, DESC - Fort Belvoir, VA, Kola.Olowu@dla.mil
Mr. Tim Whyte, URS, Tim.Whyte@URSCorp.com
Ms. Minxia Dong, Norwalk Regional Library

FIGURES

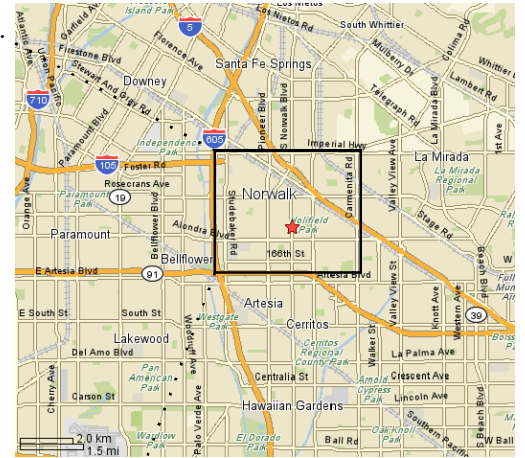


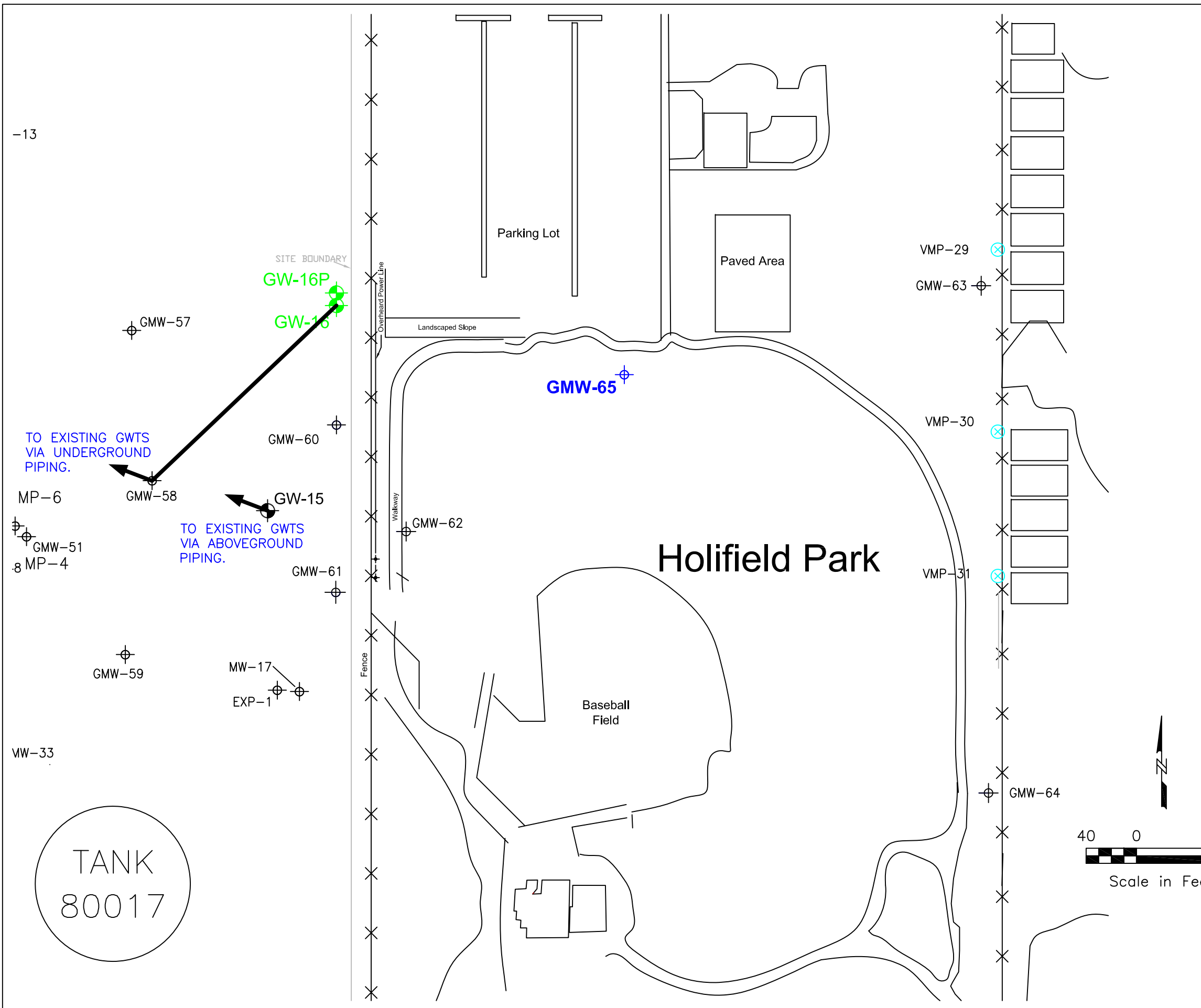
Figure 1
Site Location Map

DFSP NORWALK
15306 Norwalk Blvd.
Norwalk, California

PARSONS

Pasadena, California

k:\depts\dept48\DESC 07-2008 Contract\Norwalk\ACO-0007 Holifield Park\remedial design wp\Figure 2 - Prop Exp GW Remediation System.dwg



LEGEND

- GMW-60 Groundwater Monitoring Well Location
- GMW-65** New Groundwater Monitoring Well
- GW-15 Groundwater Extraction Well
- GW-16** New Groundwater Extraction Well
- GW-16P** New 1-inch Diameter Piezometer
- VMP-29 Permanent Vapor Monitoring Probe
- Pipeline To Treatment System

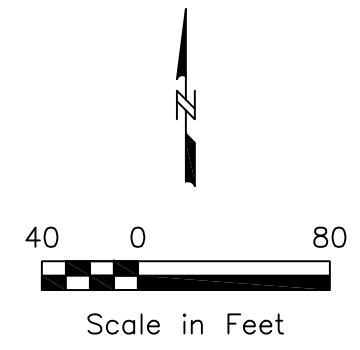
Note:
Base map for the Dolland Elementary School zone and Holifield Park was created from a image obtained from Google Earth.



DEFENSE FUEL SUPPORT POINT
15306 Norwalk Boulevard,
NORWALK, CALIFORNIA

FIGURE 2
EXPANDED GROUNDWATER
REMEDATION SYSTEM

Holifield Park Groundwater Remedial System Design
Supplemental Work Plan
Norwalk, California





ATTACHMENT A
PHOTO LOG



GMW-65 Setup



GMW-65 Well Installation



GMW-65 Well Completion



GW-16 Setup



GW-16 Soil Sampling



GW-16 Auger



GW-16 Well Installation



GW-16 Well Surging



GW-16 Asphalt Cutting



GW-16p Drilling



GW-16 Surface Preparation



GW-16 Surface Completion



GMW-65 Development



GW-16 Preparing for Development

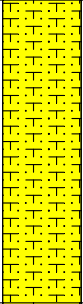

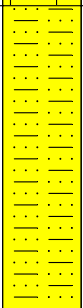
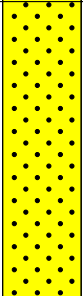




Pipe Connection and Valves from GW-16



ATTACHMENT B

BORING LOGS AND DEVELOPMENT LOGS

GEOLOGIC LOG		DATE STARTED: 06-Jul-09 DATE COMPLETED: 06-Jul-09	LOGGER: Quin Kinnebrew WEATHER: Clear & Warm	PAGE 1 OF 3 WELL NO. GMW-65				
COMPANY NAME: PARSONS Pasadena, CA		DRILLING SUBCONTRACTOR: Gregg Drilling		SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl				
PROJECT: DFSP, Hollifield Park Job Number: 746440 LOCATION: Hollifield Park, Norwalk, CA		DRILL RIG TYPE: Hollow Stem Auger AUGER TYPE & SIZE: Hollow Stem Auger BOREHOLE DIAMETER: 10 inches		NORTHING: ft EASTING: ft				
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
0	BLANK: [Soil not logged between surface and 2 feet.]		NSNR		NS			SURFACE COMPLETION: Flush Mount
	SILTY SAND: Dark yellowish brown to brown, silty fine sand, moist, no odor or visible staining.		SM		NS			WELL CASING: Material: SCH 40 PVC Diameter: 4 inches
5	SAND: Yellowish brown, fine sand, moist, friable, no odor or visible staining.		SP		NS			WELL SCREEN: Material: SCH 40 PVC Screen Opening: 0.02 inch
	SANDY SILT: Dark grayish brown, fine sandy silt, moist, micaceous, no odor or visible staining.		ML		7, 8, 10			CONSTRUCTION MATERIALS: Sand Pack: 2/16 Monterey Sand Bentonite Seal: Medium Bentonite Chip Grout Seal: Cement/Bentonite (95/5)
10	SAND: Light brownish gray, fine sand, damp, friable, no odor or visible staining.		SP		4, 5, 9			DEPTH INTERVALS: (feet bgs) Casing: 0' - 21' Screen: 21' - 41' Grout Seal: 2' - 14.8' Bentonite Seal: 14.8' - 18' Sand Pack: 18' - 41.5' End Cap: 41' - 41.3'
15	SAND: Light brownish gray, fine sand, damp, friable, no odor or visible staining.		SP		4, 5, 9			
	SILTY SAND: Grayish brown, silty fine sand, moist, no odor or visible staining.		SM		NS			
20	SAND: Light brownish gray, fine to medium sand,		SP		4, 9, 14			TD = 41.5 ft bgs



bgs - Below Ground Surface
ft - feet
HSA - Hollow Stem Auger
N/A - Not Applicable
NS - Not Sampled
PID - Photoionization Detector
ppmv - Parts per Million, Volume per Volume
SAA - Same as Above
Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet
Elevations: ASP-NAD83-Zone 4-US Feet

USCS CODE DESCRIPTIONS:

CL - Gravelly, sandy, or silty clays
GC - Gravel/sand/clay mixtures, poorly graded
GM - Gravel/sand/silt mixtures, poorly graded
GP - Gravel/sand mixtures, poorly graded
GW - Gravel/sand mixtures, well graded
ML - Silty or clayey fine sands
NACM - Not applicable/consolidated material
NSNR - No sample/no recovery
SC - Clayey sands, poorly graded
SM - Silty sands, poorly graded
SP - Gravelly sands, poorly graded
SW - Gravelly sands, well graded

GEOLOGIC LOG		DATE STARTED: 06-Jul-09 DATE COMPLETED: 06-Jul-09		LOGGER: Quin Kinnebrew WEATHER: Clear & Warm			PAGE 2 OF 3 WELL NO. GMW-65	
COMPANY NAME: PARSONS Pasadena, CA		DRILLING SUBCONTRACTOR: Gregg Drilling			SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl			
PROJECT: DFSP, Hollifield Park Job Number: 746440 LOCATION: Hollifield Park, Norwalk, CA		DRILL RIG TYPE: Hollow Stem Auger AUGER TYPE & SIZE: Hollow Stem Auger BOREHOLE DIAMETER: 10 inches			NORTHING: ft EASTING: ft			
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
20	damp, no odor or visible staining.							
25	SILT: Olive brown, silt, moist to wet, micaceous, no odor or visible staining.		ML		4, 5, 10			
30	SILT: Dark greenish gray, silt to clayey silt, wet, micaceous, no odor or visible staining.		ML		2, 3, 4			
35	SAND: Very dark gray, fine sand, saturated, no odor or visible staining.		SP		5, 14, 18			
40								

bgs - Below Ground Surface ft - feet HSA - Hollow Stem Auger N/A - Not Applicable NS - Not Sampled PID - Photoionization Detector ppmv - Parts per Million, Volume per Volume SAA - Same as Above Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet Elevations: ASP-NAD83-Zone 4-US Feet	USCS CODE DESCRIPTIONS: CL - Gravelly, sandy, or silty clays GC - Gravel/sand/clay mixtures, poorly graded GM - Gravel/sand/silt mixtures, poorly graded GP - Gravel/sand mixtures, poorly graded GW - Gravel/sand mixtures, well graded ML - Silty or clayey fine sands NACM - Not applicable/consolidated material NSNR - No sample/no recovery	SC - Clayey sands, poorly graded SM - Silty sands, poorly graded SP - Gravelly sands, poorly graded SW - Gravelly sands, well graded
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GEOLOGIC LOG		DATE STARTED: 06-Jul-09 DATE COMPLETED: 06-Jul-09		LOGGER: Quin Kinnebrew WEATHER: Clear & Warm			PAGE 3 OF 3 WELL NO. GMW-65	
COMPANY NAME: PARSONS Pasadena, CA		DRILLING SUBCONTRACTOR: Gregg Drilling			SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl			
PROJECT: DFSP, Hollifield Park Job Number: 746440		DRILL RIG TYPE: Hollow Stem Auger			NORTHING: ft			
LOCATION: Hollifield Park, Norwalk, CA		AUGER TYPE & SIZE: Hollow Stem Auger			EASTING: ft			
BOREHOLE DIAMETER: 10 inches								
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
40	SAND: Same as above (SAA).		SP		NS			
45								
50								
55								
60								

bgs - Below Ground Surface
 ft - feet
 HSA - Hollow Stem Auger
 N/A - Not Applicable
 NS - Not Sampled
 PID - Photoionization Detector
 ppmv - Parts per Million, Volume per Volume
 SAA - Same as Above
 Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet
 Elevations: ASP-NAD83-Zone 4-US Feet

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 ML - Silty or clayey fine sands
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 SC - Clayey sands, poorly graded
 SM - Silty sands, poorly graded
 SP - Gravelly sands, poorly graded
 SW - Gravelly sands, well graded

GEOLOGIC LOG		DATE STARTED: 06-Jul-09 DATE COMPLETED: 07-Jul-09	LOGGER: Quin Kinnebrew WEATHER: Clear & Warm	PAGE 1 OF 4 WELL NO. GW-16				
COMPANY NAME: PARSONS Pasadena, CA		DRILLING SUBCONTRACTOR: Gregg Drilling		SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl				
PROJECT: DFSP, Hollifield Park Job Number: 746440 LOCATION: Hollifield Park, Norwalk, CA		DRILL RIG TYPE: Hollow Stem Auger AUGER TYPE & SIZE: Hollow Stem Auger BOREHOLE DIAMETER: 14 inches		NORTHING: ft EASTING: ft				
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
0	ASPHALT: 4-inch thick asphalt over 8-inch thick base.		NSNR		NS		SURFACE COMPLETION: Flush Mount	
	SILTY SAND: Light yellowish brown, silty fine sand, damp, no odor or visible staining.		SM		NS		WELL CASING: Material: SCH 40 PVC Diameter: 6 inches	
5							WELL SCREEN: Material: SCH 40 PVC Screen Opening: 0.02 inch	
	SILTY SAND: Light olive brown, silty fine sand, damp to moist, no odor or visible staining.		SM		6, 8, 8		CONSTRUCTION MATERIALS: Sand Pack: 2/16 Monterey Sand Bentonite Seal: Medium Bentonite Chip Grout Seal: Cement/Bentonite (95/5)	DEPTH INTERVALS: (feet bgs) Casing: 0.5' - 20.5' Screen: 20.5' - 60.5' Grout Seal: 2' - 11' Bentonite Seal: 11' - 14.8' Sand Pack: 14.8' - 63' End Cap: 60.5' - 62.5'
10								
	SAND: Light brownish gray, fine sand, damp, friable, no odor or visible staining.		SP		9, 6, 12			
15								
	SAND: Light brownish gray, fine to coarse sand, damp, friable, no odor or visible staining.		SW		NS			
20			CL		10, 11,			TD = 63 ft bgs

bgs - Below Ground Surface
ft - feet
HSA - Hollow Stem Auger
N/A - Not Applicable
NS - Not Sampled
PID - Photoionization Detector
ppmv - Parts per Million, Volume per Volume
SAA - Same as Above
Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet
Elevations: ASP-NAD83-Zone 4-US Feet

USCS CODE DESCRIPTIONS:

CL - Gravelly, sandy, or silty clays	SC - Clayey sands, poorly graded
GC - Gravel/sand/clay mixtures, poorly graded	SM - Silty sands, poorly graded
GM - Gravel/sand/silt mixtures, poorly graded	SP - Gravelly sands, poorly graded
GP - Gravel/sand mixtures, poorly graded	SW - Gravelly sands, well graded
GW - Gravel/sand mixtures, well graded	
ML - Silty or clayey fine sands	
NACM - Not applicable/consolidated material	
NSNR - No sample/no recovery	

GEOLOGIC LOG		DATE STARTED: 06-Jul-09 DATE COMPLETED: 07-Jul-09		LOGGER: Quin Kinnebrew WEATHER: Clear & Warm			PAGE 2 OF 4 WELL NO. GW-16	
COMPANY NAME: PARSONS Pasadena, CA		DRILLING SUBCONTRACTOR: Gregg Drilling			SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl			
PROJECT: DFSP, Hollifield Park Job Number: 746440 LOCATION: Hollifield Park, Norwalk, CA		DRILL RIG TYPE: Hollow Stem Auger AUGER TYPE & SIZE: Hollow Stem Auger BOREHOLE DIAMETER: 14 inches			NORTHING: ft EASTING: ft			
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
20	SILTY CLAY: Olive brown, silty clay, moist to wet, micaceous, no odor or visible staining.				8			
25	SANDY SILT: Grayish brown to light olive brown, silt to fine sandy silt, wet, micaceous, no odor or visible staining.		ML		5, 6, 8			
30	SILTY CLAY: Dark gray, silty clay, moist, micaceous, no odor or visible staining.		CL		4, 4, 4			
35	SILTY SAND: Dark gray to dark greenish gray, silty fine sand, saturated, slight petroleum hydrocarbon odor, possible staining.		SM		4, 9, 15			
40	SAND: Dark gray, fine sand, saturated, no odor or visible staining.		SP		15, 21, 25			

bgs - Below Ground Surface
ft - feet
HSA - Hollow Stem Auger
N/A - Not Applicable
NS - Not Sampled
PID - Photoionization Detector
ppmv - Parts per Million, Volume per Volume
SAA - Same as Above
Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet
Elevations: ASP-NAD83-Zone 4-US Feet

USCS CODE DESCRIPTIONS:

CL - Gravely, sandy, or silty clays
GC - Gravel/sand/clay mixtures, poorly graded
GM - Gravel/sand/silt mixtures, poorly graded
GP - Gravel/sand mixtures, poorly graded
GW - Gravel/sand mixtures, well graded
ML - Silty or clayey fine sands
NACM - Not applicable/consolidated material
NSNR - No sample/no recovery

SC - Clayey sands, poorly graded
SM - Silty sands, poorly graded
SP - Gravely sands, poorly graded
SW - Gravely sands, well graded

GEOLOGIC LOG		DATE STARTED: 06-Jul-09 DATE COMPLETED: 07-Jul-09		LOGGER: Quin Kinnebrew WEATHER: Clear & Warm			PAGE 3 OF 4 WELL NO. GW-16	
COMPANY NAME: PARSONS Pasadena, CA		DRILLING SUBCONTRACTOR: Gregg Drilling			SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl			
PROJECT: DFSP, Hollifield Park Job Number: 746440		DRILL RIG TYPE: Hollow Stem Auger			NORTHING: ft EASTING: ft			
LOCATION: Hollifield Park, Norwalk, CA		AUGER TYPE & SIZE: Hollow Stem Auger			BOREHOLE DIAMETER: 14 inches			
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
40								
45	SAND: Same as above (SAA).		SP		15, 30, 36			
50	SAND: SAA, [sluff, sample lost]		SP		NS			
55	SAND: Dark gray, fine sand, saturated, no odor or apparent staining.		SP		NS			
	SILT: Dark greenish gray to dark grey, silt, moist, micaceous, no odor or apparent staining.		ML		16, 26, 40			
60	SILTY SAND: Dark gray, silty fine sand, saturated, micaceous, no odor or apparent staining.		SM		18, 19, 50			

bgs - Below Ground Surface
 ft - feet
 HSA - Hollow Stem Auger
 N/A - Not Applicable
 NS - Not Sampled
 PID - Photoionization Detector
 ppmv - Parts per Million, Volume per Volume
 SAA - Same as Above
 Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet
 Elevations: ASP-NAD83-Zone 4-US Feet

USCS CODE DESCRIPTIONS:
 CL - Gravelly, sandy, or silty clays
 GC - Gravel/sand/clay mixtures, poorly graded
 GM - Gravel/sand/silt mixtures, poorly graded
 GP - Gravel/sand mixtures, poorly graded
 GW - Gravel/sand mixtures, well graded
 ML - Silty or clayey fine sands
 NACM - Not applicable/consolidated material
 NSNR - No sample/no recovery
 SC - Clayey sands, poorly graded
 SM - Silty sands, poorly graded
 SP - Gravelly sands, poorly graded
 SW - Gravelly sands, well graded

GEOLOGIC LOG		DATE STARTED: 06-Jul-09 DATE COMPLETED: 07-Jul-09		LOGGER: Quin Kinnebrew WEATHER: Clear & Warm			PAGE 4 OF 4 WELL NO. GW-16	
COMPANY NAME: PARSONS Pasadena, CA		DRILLING SUBCONTRACTOR: Gregg Drilling			SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl			
PROJECT: DFSP, Hollifield Park Job Number: 746440 LOCATION: Hollifield Park, Norwalk, CA		DRILL RIG TYPE: Hollow Stem Auger AUGER TYPE & SIZE: Hollow Stem Auger BOREHOLE DIAMETER: 14 inches			NORTHING: ft EASTING: ft			
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
							60	
65								
70								
75								
80								

bgs - Below Ground Surface
 ft - feet
 HSA - Hollow Stem Auger
 N/A - Not Applicable
 NS - Not Sampled
 PID - Photoionization Detector
 ppmv - Parts per Million, Volume per Volume
 SAA - Same as Above
 Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet
 Elevations: ASP-NAD83-Zone 4-US Feet

USCS CODE DESCRIPTIONS:
 CL - Gravelly, sandy, or silty clays
 GC - Gravel/sand/clay mixtures, poorly graded
 GM - Gravel/sand/silt mixtures, poorly graded
 GP - Gravel/sand mixtures, poorly graded
 GW - Gravel/sand mixtures, well graded
 ML - Silty or clayey fine sands
 NACM - Not applicable/consolidated material
 NSNR - No sample/no recovery
 SC - Clayey sands, poorly graded
 SM - Silty sands, poorly graded
 SP - Gravelly sands, poorly graded
 SW - Gravelly sands, well graded

GEOLOGIC LOG		DATE STARTED: 07-Jul-09 DATE COMPLETED: 07-Jul-09		LOGGER: Quin Kinnebrew WEATHER: Clear & Warm			PAGE 1 OF 4 WELL NO. GW-16p	
COMPANY NAME: PARSONS Pasadena, CA		DRILLING SUBCONTRACTOR: Gregg Drilling			SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl			
PROJECT: DFSP, Hollifield Park Job Number: 746440 LOCATION: Hollifield Park, Norwalk, CA		DRILL RIG TYPE: Hollow Stem Auger AUGER TYPE & SIZE: Hollow Stem Auger BOREHOLE DIAMETER: 8 inches			NORTHING: ft EASTING: ft			
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
							0	BLANK: [Soil not logged; lithology and descriptions provided in geologic log for nearby well GW-16]
5								
10								
15								
20								
								TD = 61.3 ft bgs

bgs - Below Ground Surface

ft - feet

HSA - Hollow Stem Auger

N/A - Not Applicable

NS - Not Sampled

PID - Photoionization Detector

ppmv - Parts per Million, Volume per Volume

SAA - Same as Above

Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet

Elevations: ASP-NAD83-Zone 4-US Feet

USCS CODE DESCRIPTIONS:

CL - Gravelly, sandy, or silty clays

GC - Gravel/sand/clay mixtures, poorly graded

GM - Gravel/sand/silt mixtures, poorly graded

GP - Gravel/sand mixtures, poorly graded

GW - Gravel/sand mixtures, well graded

ML - Silty or clayey fine sands

NACM - Not applicable/consolidated material

NSNR - No sample/no recovery

SC - Clayey sands, poorly graded

SM - Silty sands, poorly graded

SP - Gravelly sands, poorly graded

SW - Gravelly sands, well graded

GEOLOGIC LOG		DATE STARTED: 07-Jul-09 DATE COMPLETED: 07-Jul-09		LOGGER: Quin Kinnebrew WEATHER: Clear & Warm			PAGE 2 OF 4 WELL NO. GW-16p	
COMPANY NAME: PARSONS Pasadena, CA			DRILLING SUBCONTRACTOR: Gregg Drilling			SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl		
PROJECT: DFSP, Hollifield Park Job Number: 746440 LOCATION: Hollifield Park, Norwalk, CA			DRILL RIG TYPE: Hollow Stem Auger AUGER TYPE & SIZE: Hollow Stem Auger BOREHOLE DIAMETER: 8 inches			NORTHING: ft EASTING: ft		
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
							20	
25								
30								
35								
40								

bgs - Below Ground Surface
 ft - feet
 HSA - Hollow Stem Auger
 N/A - Not Applicable
 NS - Not Sampled
 PID - Photoionization Detector
 ppmv - Parts per Million, Volume per Volume
 SAA - Same as Above
 Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet
 Elevations: ASP-NAD83-Zone 4-US Feet

USCS CODE DESCRIPTIONS:
 CL - Gravelly, sandy, or silty clays
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 GP - Gravel/sand mixtures, poorly graded
 GW - Gravel/sand mixtures, well graded
 ML - Silty or clayey fine sands
 NACM - Not applicable/consolidated material
 NSNR - No sample/no recovery
 SC - Clayey sands, poorly graded
 SM - Silty sands, poorly graded
 SP - Gravelly sands, poorly graded
 SW - Gravelly sands, well graded

GEOLOGIC LOG		DATE STARTED: 07-Jul-09 DATE COMPLETED: 07-Jul-09		LOGGER: Quin Kinnebrew WEATHER: Clear & Warm			PAGE 3 OF 4 WELL NO. GW-16p	
COMPANY NAME: PARSONS Pasadena, CA		DRILLING SUBCONTRACTOR: Gregg Drilling			SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl			
PROJECT: DFSP, Hollifield Park Job Number: 746440 LOCATION: Hollifield Park, Norwalk, CA		DRILL RIG TYPE: Hollow Stem Auger AUGER TYPE & SIZE: Hollow Stem Auger BOREHOLE DIAMETER: 8 inches			NORTHING: ft EASTING: ft			
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
							40	
45								
50								
55								
60								

bgs - Below Ground Surface
 ft - feet
 HSA - Hollow Stem Auger
 N/A - Not Applicable
 NS - Not Sampled
 PID - Photoionization Detector
 ppmv - Parts per Million, Volume per Volume
 SAA - Same as Above
 Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet
 Elevations: ASP-NAD83-Zone 4-US Feet

USCS CODE DESCRIPTIONS:
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 GP - Gravel/sand mixtures, poorly graded
 GW - Gravel/sand mixtures, well graded
 ML - Silty or clayey fine sands
 NACM - Not applicable/consolidated material
 NSNR - No sample/no recovery
 SC - Clayey sands, poorly graded
 SM - Silty sands, poorly graded
 SP - Gravelly sands, poorly graded
 SW - Gravelly sands, well graded

GEOLOGIC LOG		DATE STARTED: 07-Jul-09 DATE COMPLETED: 07-Jul-09		LOGGER: Quin Kinnebrew WEATHER: Clear & Warm			PAGE 4 OF 4 WELL NO. GW-16p	
COMPANY NAME: PARSONS Pasadena, CA		DRILLING SUBCONTRACTOR: Gregg Drilling			SURFACE ELEV. ft amsl TOP CASING ELEV. ft amsl			
PROJECT: DFSP, Hollifield Park Job Number: 746440		DRILL RIG TYPE: Hollow Stem Auger			NORTHING: ft			
LOCATION: Hollifield Park, Norwalk, CA		AUGER TYPE & SIZE: Hollow Stem Auger			EASTING: ft			
BOREHOLE DIAMETER: 8 inches								
DEPTH (ft bgs)	DESCRIPTION OF MATERIALS	GRAPHIC LOG	USCS CODE	PID HEADSPACE (ppmv)	BLOW COUNTS	WELL CONSTR.	WELL CONSTRUCTION INFORMATION	
60								
65								
70								
75								
80								

bgs - Below Ground Surface
 ft - feet
 HSA - Hollow Stem Auger
 N/A - Not Applicable
 NS - Not Sampled
 PID - Photoionization Detector
 ppmv - Parts per Million, Volume per Volume
 SAA - Same as Above
 Horizontal Survey System: NAD 1983 State Plane California V-FIPS-0405 Feet
 Elevations: ASP-NAD83-Zone 4-US Feet

USCS CODE DESCRIPTIONS:
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 GM - Gravel/sand/silt mixtures, poorly graded
 GP - Gravel/sand mixtures, poorly graded
 GW - Gravel/sand mixtures, well graded
 ML - Silty or clayey fine sands
 NACM - Not applicable/consolidated material
 NSNR - No sample/no recovery
 SC - Clayey sands, poorly graded
 SM - Silty sands, poorly graded
 SP - Gravelly sands, poorly graded
 SW - Gravelly sands, well graded



ATTACHMENT C

**LOS ANGELES COUNTY ENVIRONMENTAL HEALTH DIVISION
GROUNDWATER WELL PERMIT**

WELL PERMIT APPLICATION - NON PRODUCTION WELLS

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

DATE June 16, 2009

<input checked="" type="checkbox"/> NEW WELL CONSTRUCTION	<input type="checkbox"/> RECONSTRUCTION OR RENOVATION	<input type="checkbox"/> DECOMMISSIONING	<input type="checkbox"/> OTHER: _____
<input checked="" type="checkbox"/> MONITORING	<input type="checkbox"/> CATHODIC	<input type="checkbox"/> INJECTION	<input checked="" type="checkbox"/> EXTRACTION
<input type="checkbox"/> HYDROPUNCH	<input type="checkbox"/> C.P.T. (For Ground Water Sampling)	<input type="checkbox"/> OTHER:	<input type="checkbox"/> HEAT EXCHANGE

WELL LOCATION

Site Address <u>12500 Excelsior Drive</u>	City <u>Norwalk</u>	Zip Code <u>90650</u>
Nearest Intersection <u>Norwalk Blvd. & Excelsior Dr.</u>	Thomas Guide Map Book Page/Grid <u>Pg. 736 / Grid 4J</u>	Number of Wells in Each Parcel <u>site map attached</u>

WELL STRUCTURE

Total Depth of Well <u>40 to 65</u>	Depth of Well Casing <u>40 to 65</u>	Sanitary / Annular Sealing Material <u>see attached figure</u>
Depth of Sanitary / Annular Seal <u>see attached figure</u>	Conductor Casing Seal <u>see attached figure</u>	

OWNER INFORMATION

Owner's Name <u>Defense Energy Support Center</u>	Telephone Number <u>562.404.3178</u>
Address <u>15306 Norwalk Blvd.</u>	City <u>Norwalk</u> Zip Code <u>90650</u>

DRILLER INFORMATION

Driller's Name <u>Gregg Drilling</u>	Telephone Number <u>562.427.6899</u>	C-57 License Number <u>485185</u>
Address <u>2726 Walnut Ave.</u>	City <u>Signal Hill, CA</u>	Zip Code <u>90755</u>

WELL DECOMMISSIONING INFORMATION

Well Depth <input type="checkbox"/> log/records	Method of Well Assessment	Depth and Number of Perforations
Type and Amount of Sealant <u>bentonite grout</u>	Size of Perforations	Method of Upper Seal Pressure Application

CONSULTANT INFORMATION

Company <u>Parsons</u>	
Address <u>100 West Walnut Avenue</u>	City <u>Pasadena</u> State <u>CA</u> Zip Code <u>91124</u>
Project Manager <u>Redwan Hassan</u>	Telephone Number <u>602.734.1083</u> Fax Number <u>410-2993</u>

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: [Signature] Printed Name: Redwan Hassan

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) *****

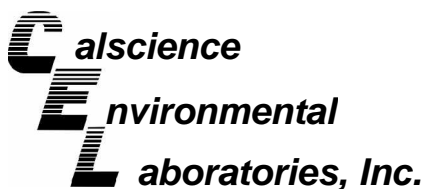
WORK PLAN APPROVAL This Approval is valid for 90 Days.	REHS <u>Michael Lim</u> DATE <u>6-18-09</u>
Conditions: <u>ON 6-17-09 #603 WAS PAID FOR PERMIT #9339 TO CONSTRUCT GMW-65, GW-16 AND GW-16P. SCHEDULED TO BEGIN ON JULY 6, 2009 TILL AUGUST 6, 2009, PLEASE, CALL (626) 430-5420 WITH THE ACTUAL TIME AND DATE OF DRILLING AT LEAST 48 HOURS PRIOR TO START.</u>	
FINAL INSPECTION Placement of the annular seal must be witnessed by Deputy Health Officer for 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.



ATTACHMENT D
LABORATORY REPORT



July 14, 2009

Mary Lucas
Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Subject: **Calscience Work Order No.: 09-07-0406**
Client Reference: DESC-Norwalk / 746440

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 7/7/2009 and analyzed in accordance with the attached chain-of-custody.

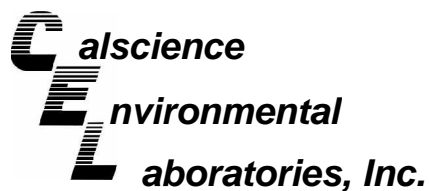
Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows 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,

A handwritten signature in black ink that reads "Ranjit K. F. Clarke".

Calscience Environmental
Laboratories, Inc.
Ranjit Clarke
Project Manager



Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: DESC-Norwalk / 746440

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-30	09-07-0406-1-A	07/06/09 12:47	Solid	GC 11	07/10/09	07/11/09 00:45	090710B01

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene - FID	73	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-35	09-07-0406-2-A	07/06/09 12:53	Solid	GC 11	07/10/09	07/11/09 01:19	090710B01

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene - FID	73	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-40	09-07-0406-3-A	07/06/09 13:00	Solid	GC 11	07/10/09	07/11/09 01:52	090710B01

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene - FID	74	42-126			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-45	09-07-0406-4-A	07/06/09 13:07	Solid	GC 11	07/10/09	07/11/09 02:25	090710B01

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene - FID	76	42-126			

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

Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: DESC-Norwalk / 746440

Page 2 of 2

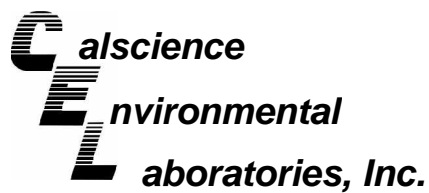
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-50	09-07-0406-5-A	07/06/09 13:28	Solid	GC 11	07/10/09	07/11/09 02:58	090710B01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
TPH as Gasoline	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene - FID	74	42-126			

Method Blank	099-12-279-2,991	N/A	Solid	GC 11	07/10/09	07/10/09 12:56	090710B01
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
TPH as Gasoline	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene - FID	73	42-126			

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



Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 3550B
Method: EPA 8015B (M)

Project: DESC-Norwalk / 746440

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-30	09-07-0406-1-A	07/06/09 12:47	Solid	GC 49	07/09/09	07/10/09 06:53	090709B02

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
Decachlorobiphenyl	100	61-145			

GW-16-35	09-07-0406-2-A	07/06/09 12:53	Solid	GC 49	07/09/09	07/10/09 07:08	090709B02
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Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
Decachlorobiphenyl	121	61-145			

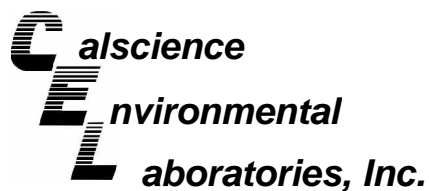
GW-16-40	09-07-0406-3-A	07/06/09 13:00	Solid	GC 49	07/09/09	07/10/09 07:24	090709B02
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Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
Decachlorobiphenyl	108	61-145			

GW-16-45	09-07-0406-4-A	07/06/09 13:07	Solid	GC 49	07/09/09	07/10/09 07:39	090709B02
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Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
Decachlorobiphenyl	108	61-145			

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



Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 3550B
Method: EPA 8015B (M)

Project: DESC-Norwalk / 746440

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-50	09-07-0406-5-A	07/06/09 13:28	Solid	GC 49	07/09/09	07/10/09 07:55	090709B02

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
Decachlorobiphenyl	107	61-145			

Method Blank	099-12-295-26	N/A	Solid	GC 49	07/09/09	07/10/09 05:35	090709B02
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Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
Decachlorobiphenyl	104	61-145			

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

Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/kg

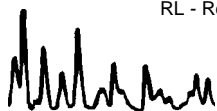
Project: DESC-Norwalk / 746440

Page 1 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-30	09-07-0406-1-A	07/06/09 12:47	Solid	GC/MS XX	07/09/09	07/09/09 18:00	090709L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	120	1		c-1,3-Dichloropropene	ND	5.0	1	
Benzene	ND	5.0	1		t-1,3-Dichloropropene	ND	5.0	1	
Bromobenzene	ND	5.0	1		Ethylbenzene	ND	5.0	1	
Bromochloromethane	ND	5.0	1		2-Hexanone	ND	50	1	
Bromodichloromethane	ND	5.0	1		Isopropylbenzene	ND	5.0	1	
Bromoform	ND	5.0	1		p-Isopropyltoluene	ND	5.0	1	
Bromomethane	ND	25	1		Methylene Chloride	ND	50	1	
2-Butanone	ND	50	1		4-Methyl-2-Pentanone	ND	50	1	
n-Butylbenzene	ND	5.0	1		Naphthalene	ND	50	1	
sec-Butylbenzene	ND	5.0	1		n-Propylbenzene	ND	5.0	1	
tert-Butylbenzene	ND	5.0	1		Styrene	ND	5.0	1	
Carbon Disulfide	ND	50	1		1,1,1,2-Tetrachloroethane	ND	5.0	1	
Carbon Tetrachloride	ND	5.0	1		1,1,2,2-Tetrachloroethane	ND	5.0	1	
Chlorobenzene	ND	5.0	1		Tetrachloroethene	ND	5.0	1	
Chloroethane	ND	5.0	1		Toluene	ND	5.0	1	
Chloroform	ND	5.0	1		1,2,3-Trichlorobenzene	ND	10	1	
Chloromethane	ND	25	1		1,2,4-Trichlorobenzene	ND	5.0	1	
2-Chlorotoluene	ND	5.0	1		1,1,1-Trichloroethane	ND	5.0	1	
4-Chlorotoluene	ND	5.0	1		1,1,2-Trichloroethane	ND	5.0	1	
Dibromochloromethane	ND	5.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1	
1,2-Dibromo-3-Chloropropane	ND	10	1		Trichloroethene	ND	5.0	1	
1,2-Dibromoethane	ND	5.0	1		1,2,3-Trichloropropane	ND	5.0	1	
Dibromomethane	ND	5.0	1		1,2,4-Trimethylbenzene	ND	5.0	1	
1,2-Dichlorobenzene	ND	5.0	1		Trichlorofluoromethane	ND	50	1	
1,3-Dichlorobenzene	ND	5.0	1		1,3,5-Trimethylbenzene	ND	5.0	1	
1,4-Dichlorobenzene	ND	5.0	1		Vinyl Acetate	ND	50	1	
Dichlorodifluoromethane	ND	5.0	1		Vinyl Chloride	ND	5.0	1	
1,1-Dichloroethane	ND	5.0	1		p/m-Xylene	ND	5.0	1	
1,2-Dichloroethane	ND	5.0	1		o-Xylene	ND	5.0	1	
1,1-Dichloroethene	ND	5.0	1		Methyl-t-Butyl Ether (MTBE)	ND	5.0	1	
c-1,2-Dichloroethene	ND	5.0	1		Tert-Butyl Alcohol (TBA)	ND	50	1	
t-1,2-Dichloroethene	ND	5.0	1		Diisopropyl Ether (DIPE)	ND	10	1	
1,2-Dichloropropane	ND	5.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	10	1	
1,3-Dichloropropane	ND	5.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	10	1	
2,2-Dichloropropane	ND	5.0	1		Ethanol	ND	250	1	
1,1-Dichloropropene	ND	5.0	1						
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	101	73-139			1,2-Dichloroethane-d4	97	73-145		
Toluene-d8	100	90-108			1,4-Bromofluorobenzene	98	71-113		

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



Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/kg

Project: DESC-Norwalk / 746440

Page 2 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-35	09-07-0406-2-A	07/06/09 12:53	Solid	GC/MS XX	07/09/09	07/09/09 18:24	090709L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	120	1		c-1,3-Dichloropropene	ND	5.0	1	
Benzene	ND	5.0	1		t-1,3-Dichloropropene	ND	5.0	1	
Bromobenzene	ND	5.0	1		Ethylbenzene	ND	5.0	1	
Bromochloromethane	ND	5.0	1		2-Hexanone	ND	50	1	
Bromodichloromethane	ND	5.0	1		Isopropylbenzene	ND	5.0	1	
Bromoform	ND	5.0	1		p-Isopropyltoluene	ND	5.0	1	
Bromomethane	ND	25	1		Methylene Chloride	ND	50	1	
2-Butanone	ND	50	1		4-Methyl-2-Pentanone	ND	50	1	
n-Butylbenzene	ND	5.0	1		Naphthalene	ND	50	1	
sec-Butylbenzene	ND	5.0	1		n-Propylbenzene	ND	5.0	1	
tert-Butylbenzene	ND	5.0	1		Styrene	ND	5.0	1	
Carbon Disulfide	ND	50	1		1,1,1,2-Tetrachloroethane	ND	5.0	1	
Carbon Tetrachloride	ND	5.0	1		1,1,2,2-Tetrachloroethane	ND	5.0	1	
Chlorobenzene	ND	5.0	1		Tetrachloroethene	ND	5.0	1	
Chloroethane	ND	5.0	1		Toluene	ND	5.0	1	
Chloroform	ND	5.0	1		1,2,3-Trichlorobenzene	ND	10	1	
Chloromethane	ND	25	1		1,2,4-Trichlorobenzene	ND	5.0	1	
2-Chlorotoluene	ND	5.0	1		1,1,1-Trichloroethane	ND	5.0	1	
4-Chlorotoluene	ND	5.0	1		1,1,2-Trichloroethane	ND	5.0	1	
Dibromochloromethane	ND	5.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1	
1,2-Dibromo-3-Chloropropane	ND	10	1		Trichloroethene	ND	5.0	1	
1,2-Dibromoethane	ND	5.0	1		1,2,3-Trichloropropane	ND	5.0	1	
Dibromomethane	ND	5.0	1		1,2,4-Trimethylbenzene	ND	5.0	1	
1,2-Dichlorobenzene	ND	5.0	1		Trichlorofluoromethane	ND	50	1	
1,3-Dichlorobenzene	ND	5.0	1		1,3,5-Trimethylbenzene	ND	5.0	1	
1,4-Dichlorobenzene	ND	5.0	1		Vinyl Acetate	ND	50	1	
Dichlorodifluoromethane	ND	5.0	1		Vinyl Chloride	ND	5.0	1	
1,1-Dichloroethane	ND	5.0	1		p/m-Xylene	ND	5.0	1	
1,2-Dichloroethane	ND	5.0	1		o-Xylene	ND	5.0	1	
1,1-Dichloroethene	ND	5.0	1		Methyl-t-Butyl Ether (MTBE)	ND	5.0	1	
c-1,2-Dichloroethene	ND	5.0	1		Tert-Butyl Alcohol (TBA)	ND	50	1	
t-1,2-Dichloroethene	ND	5.0	1		Diisopropyl Ether (DIPE)	ND	10	1	
1,2-Dichloropropane	ND	5.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	10	1	
1,3-Dichloropropane	ND	5.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	10	1	
2,2-Dichloropropane	ND	5.0	1		Ethanol	ND	250	1	
1,1-Dichloropropene	ND	5.0	1						
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	101	73-139			1,2-Dichloroethane-d4	96	73-145		
Toluene-d8	99	90-108			1,4-Bromofluorobenzene	97	71-113		

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



Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/kg


Project: DESC-Norwalk / 746440

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-40	09-07-0406-3-A	07/06/09 13:00	Solid	GC/MS XX	07/09/09	07/09/09 18:49	090709L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	120	1		c-1,3-Dichloropropene	ND	5.0	1	
Benzene	ND	5.0	1		t-1,3-Dichloropropene	ND	5.0	1	
Bromobenzene	ND	5.0	1		Ethylbenzene	ND	5.0	1	
Bromochloromethane	ND	5.0	1		2-Hexanone	ND	50	1	
Bromodichloromethane	ND	5.0	1		Isopropylbenzene	ND	5.0	1	
Bromoform	ND	5.0	1		p-Isopropyltoluene	ND	5.0	1	
Bromomethane	ND	25	1		Methylene Chloride	ND	50	1	
2-Butanone	ND	50	1		4-Methyl-2-Pentanone	ND	50	1	
n-Butylbenzene	ND	5.0	1		Naphthalene	ND	50	1	
sec-Butylbenzene	ND	5.0	1		n-Propylbenzene	ND	5.0	1	
tert-Butylbenzene	ND	5.0	1		Styrene	ND	5.0	1	
Carbon Disulfide	ND	50	1		1,1,1,2-Tetrachloroethane	ND	5.0	1	
Carbon Tetrachloride	ND	5.0	1		1,1,2,2-Tetrachloroethane	ND	5.0	1	
Chlorobenzene	ND	5.0	1		Tetrachloroethene	ND	5.0	1	
Chloroethane	ND	5.0	1		Toluene	ND	5.0	1	
Chloroform	ND	5.0	1		1,2,3-Trichlorobenzene	ND	10	1	
Chloromethane	ND	25	1		1,2,4-Trichlorobenzene	ND	5.0	1	
2-Chlorotoluene	ND	5.0	1		1,1,1-Trichloroethane	ND	5.0	1	
4-Chlorotoluene	ND	5.0	1		1,1,2-Trichloroethane	ND	5.0	1	
Dibromochloromethane	ND	5.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1	
1,2-Dibromo-3-Chloropropane	ND	10	1		Trichloroethene	ND	5.0	1	
1,2-Dibromoethane	ND	5.0	1		1,2,3-Trichloropropane	ND	5.0	1	
Dibromomethane	ND	5.0	1		1,2,4-Trimethylbenzene	ND	5.0	1	
1,2-Dichlorobenzene	ND	5.0	1		Trichlorofluoromethane	ND	50	1	
1,3-Dichlorobenzene	ND	5.0	1		1,3,5-Trimethylbenzene	ND	5.0	1	
1,4-Dichlorobenzene	ND	5.0	1		Vinyl Acetate	ND	50	1	
Dichlorodifluoromethane	ND	5.0	1		Vinyl Chloride	ND	5.0	1	
1,1-Dichloroethane	ND	5.0	1		p/m-Xylene	ND	5.0	1	
1,2-Dichloroethane	ND	5.0	1		o-Xylene	ND	5.0	1	
1,1-Dichloroethene	ND	5.0	1		Methyl-t-Butyl Ether (MTBE)	ND	5.0	1	
c-1,2-Dichloroethene	ND	5.0	1		Tert-Butyl Alcohol (TBA)	ND	50	1	
t-1,2-Dichloroethene	ND	5.0	1		Diisopropyl Ether (DIPE)	ND	10	1	
1,2-Dichloropropane	ND	5.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	10	1	
1,3-Dichloropropane	ND	5.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	10	1	
2,2-Dichloropropane	ND	5.0	1		Ethanol	ND	250	1	
1,1-Dichloropropene	ND	5.0	1						
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		
Dibromofluoromethane	100	73-139		1,2-Dichloroethane-d4	95	73-145			
Toluene-d8	100	90-108		1,4-Bromofluorobenzene	97	71-113			

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



Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/kg

Project: DESC-Norwalk / 746440

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-45	09-07-0406-4-A	07/06/09 13:07	Solid	GC/MS XX	07/09/09	07/09/09 19:14	090709L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	120	1		c-1,3-Dichloropropene	ND	5.0	1	
Benzene	ND	5.0	1		t-1,3-Dichloropropene	ND	5.0	1	
Bromobenzene	ND	5.0	1		Ethylbenzene	ND	5.0	1	
Bromochloromethane	ND	5.0	1		2-Hexanone	ND	50	1	
Bromodichloromethane	ND	5.0	1		Isopropylbenzene	ND	5.0	1	
Bromoform	ND	5.0	1		p-Isopropyltoluene	ND	5.0	1	
Bromomethane	ND	25	1		Methylene Chloride	ND	50	1	
2-Butanone	ND	50	1		4-Methyl-2-Pentanone	ND	50	1	
n-Butylbenzene	ND	5.0	1		Naphthalene	ND	50	1	
sec-Butylbenzene	ND	5.0	1		n-Propylbenzene	ND	5.0	1	
tert-Butylbenzene	ND	5.0	1		Styrene	ND	5.0	1	
Carbon Disulfide	ND	50	1		1,1,1,2-Tetrachloroethane	ND	5.0	1	
Carbon Tetrachloride	ND	5.0	1		1,1,2,2-Tetrachloroethane	ND	5.0	1	
Chlorobenzene	ND	5.0	1		Tetrachloroethene	ND	5.0	1	
Chloroethane	ND	5.0	1		Toluene	ND	5.0	1	
Chloroform	ND	5.0	1		1,2,3-Trichlorobenzene	ND	10	1	
Chloromethane	ND	25	1		1,2,4-Trichlorobenzene	ND	5.0	1	
2-Chlorotoluene	ND	5.0	1		1,1,1-Trichloroethane	ND	5.0	1	
4-Chlorotoluene	ND	5.0	1		1,1,2-Trichloroethane	ND	5.0	1	
Dibromochloromethane	ND	5.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1	
1,2-Dibromo-3-Chloropropane	ND	10	1		Trichloroethene	ND	5.0	1	
1,2-Dibromoethane	ND	5.0	1		1,2,3-Trichloropropane	ND	5.0	1	
Dibromomethane	ND	5.0	1		1,2,4-Trimethylbenzene	ND	5.0	1	
1,2-Dichlorobenzene	ND	5.0	1		Trichlorofluoromethane	ND	50	1	
1,3-Dichlorobenzene	ND	5.0	1		1,3,5-Trimethylbenzene	ND	5.0	1	
1,4-Dichlorobenzene	ND	5.0	1		Vinyl Acetate	ND	50	1	
Dichlorodifluoromethane	ND	5.0	1		Vinyl Chloride	ND	5.0	1	
1,1-Dichloroethane	ND	5.0	1		p/m-Xylene	ND	5.0	1	
1,2-Dichloroethane	ND	5.0	1		o-Xylene	ND	5.0	1	
1,1-Dichloroethene	ND	5.0	1		Methyl-t-Butyl Ether (MTBE)	ND	5.0	1	
c-1,2-Dichloroethene	ND	5.0	1		Tert-Butyl Alcohol (TBA)	ND	50	1	
t-1,2-Dichloroethene	ND	5.0	1		Diisopropyl Ether (DIPE)	ND	10	1	
1,2-Dichloropropane	ND	5.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	10	1	
1,3-Dichloropropane	ND	5.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	10	1	
2,2-Dichloropropane	ND	5.0	1		Ethanol	ND	250	1	
1,1-Dichloropropene	ND	5.0	1						
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	101	73-139			1,2-Dichloroethane-d4	96	73-145		
Toluene-d8	100	90-108			1,4-Bromofluorobenzene	97	71-113		

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



Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/kg

Project: DESC-Norwalk / 746440

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
GW-16-50	09-07-0406-5-A	07/06/09 13:28	Solid	GC/MS EE	07/10/09	07/11/09 03:48	090710L03

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	120	1		c-1,3-Dichloropropene	ND	5.0	1	
Benzene	ND	5.0	1		t-1,3-Dichloropropene	ND	5.0	1	
Bromobenzene	ND	5.0	1		Ethylbenzene	ND	5.0	1	
Bromochloromethane	ND	5.0	1		2-Hexanone	ND	50	1	
Bromodichloromethane	ND	5.0	1		Isopropylbenzene	ND	5.0	1	
Bromoform	ND	5.0	1		p-Isopropyltoluene	ND	5.0	1	
Bromomethane	ND	25	1		Methylene Chloride	ND	50	1	
2-Butanone	ND	50	1		4-Methyl-2-Pentanone	ND	50	1	
n-Butylbenzene	ND	5.0	1		Naphthalene	ND	50	1	
sec-Butylbenzene	ND	5.0	1		n-Propylbenzene	ND	5.0	1	
tert-Butylbenzene	ND	5.0	1		Styrene	ND	5.0	1	
Carbon Disulfide	ND	50	1		1,1,1,2-Tetrachloroethane	ND	5.0	1	
Carbon Tetrachloride	ND	5.0	1		1,1,2,2-Tetrachloroethane	ND	5.0	1	
Chlorobenzene	ND	5.0	1		Tetrachloroethene	ND	5.0	1	
Chloroethane	ND	5.0	1		Toluene	ND	5.0	1	
Chloroform	ND	5.0	1		1,2,3-Trichlorobenzene	ND	10	1	
Chloromethane	ND	25	1		1,2,4-Trichlorobenzene	ND	5.0	1	
2-Chlorotoluene	ND	5.0	1		1,1,1-Trichloroethane	ND	5.0	1	
4-Chlorotoluene	ND	5.0	1		1,1,2-Trichloroethane	ND	5.0	1	
Dibromochloromethane	ND	5.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1	
1,2-Dibromo-3-Chloropropane	ND	10	1		Trichloroethene	ND	5.0	1	
1,2-Dibromoethane	ND	5.0	1		1,2,3-Trichloropropane	ND	5.0	1	
Dibromomethane	ND	5.0	1		1,2,4-Trimethylbenzene	ND	5.0	1	
1,2-Dichlorobenzene	ND	5.0	1		Trichlorofluoromethane	ND	50	1	
1,3-Dichlorobenzene	ND	5.0	1		1,3,5-Trimethylbenzene	ND	5.0	1	
1,4-Dichlorobenzene	ND	5.0	1		Vinyl Acetate	ND	50	1	
Dichlorodifluoromethane	ND	5.0	1		Vinyl Chloride	ND	5.0	1	
1,1-Dichloroethane	ND	5.0	1		p/m-Xylene	ND	5.0	1	
1,2-Dichloroethane	ND	5.0	1		o-Xylene	ND	5.0	1	
1,1-Dichloroethene	ND	5.0	1		Methyl-t-Butyl Ether (MTBE)	ND	5.0	1	
c-1,2-Dichloroethene	ND	5.0	1		Tert-Butyl Alcohol (TBA)	ND	50	1	
t-1,2-Dichloroethene	ND	5.0	1		Diisopropyl Ether (DIPE)	ND	10	1	
1,2-Dichloropropane	ND	5.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	10	1	
1,3-Dichloropropane	ND	5.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	10	1	
2,2-Dichloropropane	ND	5.0	1		Ethanol	ND	250	1	
1,1-Dichloropropene	ND	5.0	1						
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	101	73-139			1,2-Dichloroethane-d4	105	73-145		
Toluene-d8	99	90-108			1,4-Bromofluorobenzene	96	71-113		

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



Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/kg

Project: DESC-Norwalk / 746440

Page 6 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-796-1,762	N/A	Solid	GC/MS XX	07/09/09	07/09/09 15:31	090709L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	120	1		c-1,3-Dichloropropene	ND	5.0	1	
Benzene	ND	5.0	1		t-1,3-Dichloropropene	ND	5.0	1	
Bromobenzene	ND	5.0	1		Ethylbenzene	ND	5.0	1	
Bromochloromethane	ND	5.0	1		2-Hexanone	ND	50	1	
Bromodichloromethane	ND	5.0	1		Isopropylbenzene	ND	5.0	1	
Bromoform	ND	5.0	1		p-Isopropyltoluene	ND	5.0	1	
Bromomethane	ND	25	1		Methylene Chloride	ND	50	1	
2-Butanone	ND	50	1		4-Methyl-2-Pentanone	ND	50	1	
n-Butylbenzene	ND	5.0	1		Naphthalene	ND	50	1	
sec-Butylbenzene	ND	5.0	1		n-Propylbenzene	ND	5.0	1	
tert-Butylbenzene	ND	5.0	1		Styrene	ND	5.0	1	
Carbon Disulfide	ND	50	1		1,1,1,2-Tetrachloroethane	ND	5.0	1	
Carbon Tetrachloride	ND	5.0	1		1,1,2,2-Tetrachloroethane	ND	5.0	1	
Chlorobenzene	ND	5.0	1		Tetrachloroethene	ND	5.0	1	
Chloroethane	ND	5.0	1		Toluene	ND	5.0	1	
Chloroform	ND	5.0	1		1,2,3-Trichlorobenzene	ND	10	1	
Chloromethane	ND	25	1		1,2,4-Trichlorobenzene	ND	5.0	1	
2-Chlorotoluene	ND	5.0	1		1,1,1-Trichloroethane	ND	5.0	1	
4-Chlorotoluene	ND	5.0	1		1,1,2-Trichloroethane	ND	5.0	1	
Dibromochloromethane	ND	5.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1	
1,2-Dibromo-3-Chloropropane	ND	10	1		Trichloroethene	ND	5.0	1	
1,2-Dibromoethane	ND	5.0	1		1,2,3-Trichloropropane	ND	5.0	1	
Dibromomethane	ND	5.0	1		1,2,4-Trimethylbenzene	ND	5.0	1	
1,2-Dichlorobenzene	ND	5.0	1		Trichlorofluoromethane	ND	50	1	
1,3-Dichlorobenzene	ND	5.0	1		1,3,5-Trimethylbenzene	ND	5.0	1	
1,4-Dichlorobenzene	ND	5.0	1		Vinyl Acetate	ND	50	1	
Dichlorodifluoromethane	ND	5.0	1		Vinyl Chloride	ND	5.0	1	
1,1-Dichloroethane	ND	5.0	1		p/m-Xylene	ND	5.0	1	
1,2-Dichloroethane	ND	5.0	1		o-Xylene	ND	5.0	1	
1,1-Dichloroethene	ND	5.0	1		Methyl-t-Butyl Ether (MTBE)	ND	5.0	1	
c-1,2-Dichloroethene	ND	5.0	1		Tert-Butyl Alcohol (TBA)	ND	50	1	
t-1,2-Dichloroethene	ND	5.0	1		Diisopropyl Ether (DIPE)	ND	10	1	
1,2-Dichloropropane	ND	5.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	10	1	
1,3-Dichloropropane	ND	5.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	10	1	
2,2-Dichloropropane	ND	5.0	1		Ethanol	ND	250	1	
1,1-Dichloropropene	ND	5.0	1						
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	101	73-139			1,2-Dichloroethane-d4	99	73-145		
Toluene-d8	100	90-108			1,4-Bromofluorobenzene	97	71-113		

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



Analytical Report



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/kg


Project: DESC-Norwalk / 746440

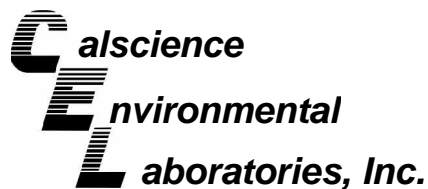
Page 7 of 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-796-1,774	N/A	Solid	GC/MS EE	07/10/09	07/11/09 03:18	090710L03

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	120	1		c-1,3-Dichloropropene	ND	5.0	1	
Benzene	ND	5.0	1		t-1,3-Dichloropropene	ND	5.0	1	
Bromobenzene	ND	5.0	1		Ethylbenzene	ND	5.0	1	
Bromochloromethane	ND	5.0	1		2-Hexanone	ND	50	1	
Bromodichloromethane	ND	5.0	1		Isopropylbenzene	ND	5.0	1	
Bromoform	ND	5.0	1		p-Isopropyltoluene	ND	5.0	1	
Bromomethane	ND	25	1		Methylene Chloride	ND	50	1	
2-Butanone	ND	50	1		4-Methyl-2-Pentanone	ND	50	1	
n-Butylbenzene	ND	5.0	1		Naphthalene	ND	50	1	
sec-Butylbenzene	ND	5.0	1		n-Propylbenzene	ND	5.0	1	
tert-Butylbenzene	ND	5.0	1		Styrene	ND	5.0	1	
Carbon Disulfide	ND	50	1		1,1,1,2-Tetrachloroethane	ND	5.0	1	
Carbon Tetrachloride	ND	5.0	1		1,1,2,2-Tetrachloroethane	ND	5.0	1	
Chlorobenzene	ND	5.0	1		Tetrachloroethene	ND	5.0	1	
Chloroethane	ND	5.0	1		Toluene	ND	5.0	1	
Chloroform	ND	5.0	1		1,2,3-Trichlorobenzene	ND	10	1	
Chloromethane	ND	25	1		1,2,4-Trichlorobenzene	ND	5.0	1	
2-Chlorotoluene	ND	5.0	1		1,1,1-Trichloroethane	ND	5.0	1	
4-Chlorotoluene	ND	5.0	1		1,1,2-Trichloroethane	ND	5.0	1	
Dibromochloromethane	ND	5.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1	
1,2-Dibromo-3-Chloropropane	ND	10	1		Trichloroethene	ND	5.0	1	
1,2-Dibromoethane	ND	5.0	1		1,2,3-Trichloropropane	ND	5.0	1	
Dibromomethane	ND	5.0	1		1,2,4-Trimethylbenzene	ND	5.0	1	
1,2-Dichlorobenzene	ND	5.0	1		Trichlorofluoromethane	ND	50	1	
1,3-Dichlorobenzene	ND	5.0	1		1,3,5-Trimethylbenzene	ND	5.0	1	
1,4-Dichlorobenzene	ND	5.0	1		Vinyl Acetate	ND	50	1	
Dichlorodifluoromethane	ND	5.0	1		Vinyl Chloride	ND	5.0	1	
1,1-Dichloroethane	ND	5.0	1		p/m-Xylene	ND	5.0	1	
1,2-Dichloroethane	ND	5.0	1		o-Xylene	ND	5.0	1	
1,1-Dichloroethene	ND	5.0	1		Methyl-t-Butyl Ether (MTBE)	ND	5.0	1	
c-1,2-Dichloroethene	ND	5.0	1		Tert-Butyl Alcohol (TBA)	ND	50	1	
t-1,2-Dichloroethene	ND	5.0	1		Diisopropyl Ether (DIPE)	ND	10	1	
1,2-Dichloropropane	ND	5.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	10	1	
1,3-Dichloropropane	ND	5.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	10	1	
2,2-Dichloropropane	ND	5.0	1		Ethanol	ND	250	1	
1,1-Dichloropropene	ND	5.0	1						
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Dibromofluoromethane	98	73-139			1,2-Dichloroethane-d4	100	73-145		
Toluene-d8	100	90-108			1,4-Bromofluorobenzene	95	71-113		

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





Quality Control - Spike/Spike Duplicate



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

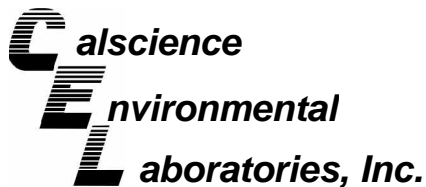
Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project DESC-Norwalk / 746440

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-07-0502-1	Solid	GC 11	07/10/09	07/10/09	090710S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	57	58	48-114	2	0-23	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - Spike/Spike Duplicate



Parsons, Inc.
 100 West Walnut Street
 Pasadena, CA 91124-0002

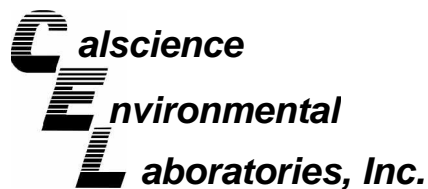
Date Received: 07/07/09
 Work Order No: 09-07-0406
 Preparation: EPA 3550B
 Method: EPA 8015B (M)

Project DESC-Norwalk / 746440

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
GW-16-30	Solid	GC 49	07/09/09	07/10/09	090709S02

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as JP5	100	100	64-130	0	0-15	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - Spike/Spike Duplicate



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

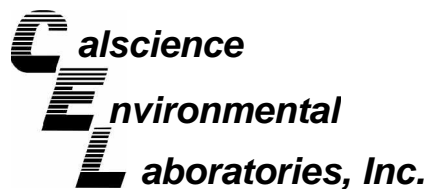
Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B

Project DESC-Norwalk / 746440

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-07-0056-2	Solid	GC/MS XX	07/09/09	07/09/09	090709S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	84	83	79-115	1	0-13	
Carbon Tetrachloride	65	66	55-139	1	0-15	
Chlorobenzene	86	86	79-115	0	0-17	
1,2-Dibromoethane	79	81	70-130	2	0-30	
1,2-Dichlorobenzene	89	89	63-123	0	0-23	
1,1-Dichloroethene	78	78	69-123	0	0-16	
Ethylbenzene	85	85	70-130	1	0-30	
Toluene	86	85	79-115	1	0-15	
Trichloroethene	83	83	66-144	1	0-14	
Vinyl Chloride	79	79	60-126	0	0-14	
Methyl-t-Butyl Ether (MTBE)	79	80	68-128	1	0-14	
Tert-Butyl Alcohol (TBA)	90	90	44-134	0	0-37	
Diisopropyl Ether (DIPE)	82	83	75-123	1	0-12	
Ethyl-t-Butyl Ether (ETBE)	76	77	75-117	2	0-12	
Tert-Amyl-Methyl Ether (TAME)	74	75	79-115	1	0-12	3
Ethanol	145	142	42-138	2	0-28	3

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - Spike/Spike Duplicate



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

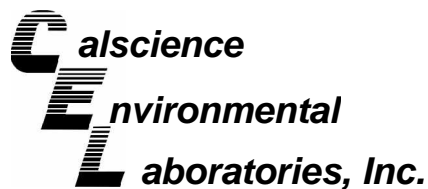
Date Received: 07/07/09
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B

Project DESC-Norwalk / 746440

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-07-0246-1	Solid	GC/MS EE	07/10/09	07/10/09	090710S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	84	86	79-115	2	0-13	
Toluene	90	92	79-115	2	0-15	
Ethylbenzene	88	91	70-130	3	0-30	
Methyl-t-Butyl Ether (MTBE)	88	87	68-128	1	0-14	
Tert-Butyl Alcohol (TBA)	91	96	44-134	5	0-37	
Diisopropyl Ether (DIPE)	91	93	75-123	3	0-12	
Ethyl-t-Butyl Ether (ETBE)	92	96	75-117	4	0-12	
Tert-Amyl-Methyl Ether (TAME)	90	91	79-115	1	0-12	
Ethanol	89	97	42-138	9	0-28	
1,1-Dichloroethene	91	95	69-123	4	0-16	
1,2-Dibromoethane	87	90	70-130	2	0-30	
1,2-Dichlorobenzene	85	90	63-123	5	0-23	
Carbon Tetrachloride	88	94	55-139	7	0-15	
Chlorobenzene	91	92	79-115	1	0-17	
Trichloroethene	94	95	66-144	1	0-14	
Vinyl Chloride	91	92	60-126	1	0-14	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

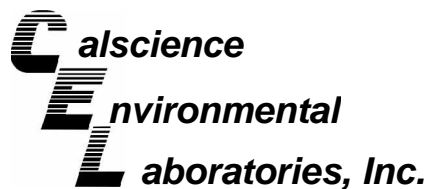
Date Received: N/A
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: DESC-Norwalk / 746440

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-279-2,991	Solid	GC 11	07/10/09	07/10/09	090710B01

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH as Gasoline	79	79	70-124	0	0-18	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

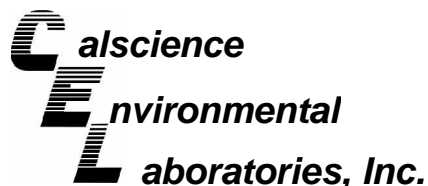
Date Received: N/A
Work Order No: 09-07-0406
Preparation: EPA 3550B
Method: EPA 8015B (M)

Project: DESC-Norwalk / 746440

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-295-26	Solid	GC 49	07/09/09	07/10/09	090709B02

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH as JP5	108	102	75-123	6	0-12	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: N/A
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B

Project: DESC-Norwalk / 746440

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-796-1,762	Solid	GC/MS XX	07/09/09	07/09/09	090709L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	88	86	84-114	79-119	3	0-7	
Carbon Tetrachloride	70	68	66-132	55-143	3	0-12	
Chlorobenzene	89	89	87-111	83-115	1	0-7	
1,2-Dibromoethane	84	87	80-120	73-127	2	0-20	
1,2-Dichlorobenzene	92	92	79-115	73-121	0	0-8	
1,1-Dichloroethene	87	80	73-121	65-129	9	0-12	
Ethylbenzene	88	86	80-120	73-127	2	0-20	
Toluene	89	87	78-114	72-120	2	0-7	
Trichloroethene	87	85	84-114	79-119	2	0-8	
Vinyl Chloride	89	82	63-129	52-140	9	0-15	
Methyl-t-Butyl Ether (MTBE)	86	90	77-125	69-133	4	0-11	
Tert-Butyl Alcohol (TBA)	81	83	47-137	32-152	3	0-27	
Diisopropyl Ether (DIPE)	86	86	76-130	67-139	0	0-8	
Ethyl-t-Butyl Ether (ETBE)	82	84	76-124	68-132	2	0-12	
Tert-Amyl-Methyl Ether (TAME)	80	82	82-118	76-124	2	0-11	ME
Ethanol	107	88	59-131	47-143	19	0-21	

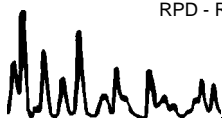
Total number of LCS compounds : 16

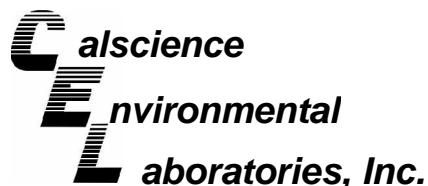
Total number of ME compounds : 1

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - LCS/LCS Duplicate



Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: N/A
Work Order No: 09-07-0406
Preparation: EPA 5030B
Method: EPA 8260B

Project: DESC-Norwalk / 746440

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-796-1,774	Solid	GC/MS EE	07/10/09	07/11/09	090710L03		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	87	91	84-114	79-119	4	0-7	
Carbon Tetrachloride	95	97	66-132	55-143	2	0-12	
Chlorobenzene	95	94	87-111	83-115	1	0-7	
1,2-Dibromoethane	100	100	80-120	73-127	0	0-20	
1,2-Dichlorobenzene	95	94	79-115	73-121	1	0-8	
1,1-Dichloroethene	96	99	73-121	65-129	3	0-12	
Ethylbenzene	94	94	80-120	73-127	0	0-20	
Toluene	92	97	78-114	72-120	4	0-7	
Trichloroethene	95	101	84-114	79-119	6	0-8	
Vinyl Chloride	96	98	63-129	52-140	3	0-15	
Methyl-t-Butyl Ether (MTBE)	90	92	77-125	69-133	2	0-11	
Tert-Butyl Alcohol (TBA)	94	98	47-137	32-152	4	0-27	
Diisopropyl Ether (DIPE)	94	96	76-130	67-139	3	0-8	
Ethyl-t-Butyl Ether (ETBE)	97	98	76-124	68-132	1	0-12	
Tert-Amyl-Methyl Ether (TAME)	92	97	82-118	76-124	4	0-11	
Ethanol	91	110	59-131	47-143	19	0-21	

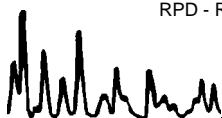
Total number of LCS compounds : 16

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

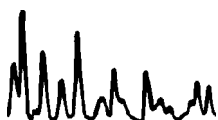
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit



Work Order Number: 09-07-0406

<u>Qualifier</u>	<u>Definition</u>
*	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.



SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: PARSONS

DATE: 07/07/09

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

Temperature 2.2 °C - 0.2 °C (CF) = 2.0 °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: YL

CUSTODY SEALS INTACT:

Cooler _____ No (Not Intact) Not Present N/A Initial: YL

Sample _____ No (Not Intact) Not Present Initial: YL

SAMPLE CONDITION:

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

CONTAINER TYPE:

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

Water: VOA VOA_h VOA_{na2} 125AGB 125AGB_h 125AGB_p 1AGB 1AGB_{na2} 1AGB_s

500AGB 500AGJ 500AGJ_s 250AGB 250CGB 250CGB_s 1PB 500PB 500PB_{na}

250PB 250PB_n 125PB 125PB_{znna} 100PJ 100PJ_{na2} _____ _____ _____

Air: Tedlar® Summa® _____ **Other:** _____ **Checked/Labeled by:** YL

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar (Wide-mouth) B: Bottle (Narrow-mouth)

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ Na: NaOH p: H₃PO₄ s: H₂SO₄ znna: ZnAc₂+NaOH f: Field-filtered **Reviewed by:** WJC

Scanned by: YL