

METROVATION

February 7, 2011

Mr. Jerry Wickham
Senior Hazardous Materials Specialist
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Re: Terradev Jefferson LLC Property
645 Fourth Street, Oakland, CA 94607
Fuel Leak Case No. RO0003001
Blue Rock Project No. ASE-1

Dear Mr. Wickham,

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Sincerely,



Sara May
Director of Operations
Metrovation, LLC, managing agent for
Terradev Jefferson, LLC

Attachment:

Blue Rock Environmental, Inc.'s
Groundwater Monitoring Report – First Quarter 2011 dated February 1, 2011

RECEIVED

2:28 pm, Feb 16, 2011

Alameda County
Environmental Health



Mr. Jerry Wickham
Senior Hazardous Materials Specialist
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

February 1, 2011

Re: Groundwater Monitoring Report – First Quarter 2011

Terradev Jefferson LLC Property
645 Fourth Street, Oakland, CA 94607
Fuel Leak Case No. RO0003001
Blue Rock Project No. ASE-1

Dear Mr. Wickham,

This report was prepared by Blue Rock Environmental, Inc. (Blue Rock), on behalf of Terradev Jefferson, LLC, for the site at 645 Fourth Street, Oakland, California (site) (Figure 1). This report presents the results of recent groundwater monitoring activities, which were approved by the Alameda County Health Care Services Agency – Environmental Health Services (ACHCSA) in a letter dated December 13, 2010.

Background

Site Description and UST History

The site is located southeast of the intersection of Fourth Street and Martin Luther King Jr. Way in Oakland, California (Figure 1). The site consists of a single story commercial building, bounded closely on the sides and back by other commercial buildings. One single-walled steel underground storage tank (UST) was discovered beneath the sidewalk immediately adjacent to the front of the building during renovation in 2006. The UST is located on the upgradient edge of a developed city block (which prohibits evaluation of subsurface conditions immediately downgradient of the UST – see section below).

In their *Tank Closure Report* dated September 21, 2006, Golden Gate Tank Removal, Inc. (GGT) reported that the UST contained gasoline with an approximate holding capacity of 1,000-gallons, measuring approximately 10 feet in length and 4 feet in diameter. The bottom of the UST was estimated to be located 7.5 to 8 feet below ground surface (ft bgs). The fill port was reported to be located at the west end of the tank (Figure 2).

GGT abandoned the UST in place by triple washing followed by filling to capacity with concrete slurry because of structural considerations due to the proximity of the UST to the building foundation. Abandonment was performed with the permission and under the oversight of the City of Oakland Fire Prevention Bureau.

Two soil samples were collected from below the UST at a depth of 9 ft bgs during abandonment activities. Both samples contained elevated concentrations of total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX); however, TPH as diesel (TPHd) and the five fuel oxygenates MTBE, TBA, ETBE, DIPE, and TAME were not detected (Table 2). No groundwater was encountered during abandonment activities, though the soil samples collected beneath the tank were reported as “wet”.

Summary of Investigation Activities

Subsurface investigation began in 2009. A total of two soil borings have been drilled (B-1 and B-2) and three extraction wells have been installed (DPE-1 through DPE-3) at the site. A summary of well construction details is included in Table 1, and summaries of soil and groundwater sample analytical data are included in Tables 2 and 3, respectively.

In 2009, Ninyo & Moore Geotechnical and Environmental Sciences Consultants (Ninyo & Moore) completed a limited subsurface investigation, the findings of which were presented in their *Limited Phase II Environmental Site Assessment* dated July 24, 2009. Two borings (B-1 and B-2) were advanced on each side of the UST by direct push drilling methods to a depth of 20 ft bgs. No soil samples were submitted for laboratory analysis; however, soil samples were screened in the field with a photo-ionization detector (PID) meter. In B-1, PID readings increased with depth to a maximum of 1,422 parts per million (ppm) at 9 ft bgs, and attenuated below that depth. Temporary wells were built in each boring, in which groundwater stabilized at a depth of approximately 9.6 ft bgs and was sampled. Concentrations of TPHd, TPHg, BTEX, and MTBE were present in groundwater samples collected from both borings (Table 3), although TPHg levels were an order of magnitude greater than TPHd levels suggesting the former is the primary hydrocarbon range of interest at the site.

In 2010, Blue Rock supervised the installation of three extraction wells (DPE-1 through DPE-3). Wells DPE-1 and DPE-2 were installed on either side of the UST proximal to former borings B-1 or B-2, respectively. Well DPE-3 was installed on the north side of the UST. All eight soil samples collected from these locations contained varying concentrations of gasoline range hydrocarbons, and diesel range hydrocarbons to a lesser degree. The maximum TPHg concentration (160,000 mg/kg) in soil was detected in the sample from DPE-2 at 11 ft bgs. Water samples collected from the wells contained elevated concentrations of dissolved-phase gasoline hydrocarbons. The maximum TPHg concentration (120,000 µg/L) in groundwater was detected in the sample from DPE-1.

Site Conceptual Model

The site conceptual model for the project was initially developed by Amicus in their September 13, 2009 correspondence. The following section presents a summary of the current site conceptual model, which will be modified as new information regarding site conditions is acquired.

The subject site is located in a commercial/industrial neighborhood along the San Francisco Bay-Margin. The site is underlain by sediments characterized as silty and clayey sand with some layers of sandy clay and sand to a depth of 20 ft bgs (the maximum depth previously explored) and groundwater is present in unconfined conditions at a depth of approximately 9-10 ft bgs. Groundwater flows generally to the southeast, towards the estuary, based on information from nearby sites.

Gasoline range hydrocarbons are present in soil and groundwater proximal to the abandoned UST. Interestingly, the contaminant signature also includes MTBE, a gasoline additive not used abundantly in California until the early/mid 1990s (MTBE became a mandated addition to California gasoline following passage of the Clean Air Act Amendments in 1990). Although it is uncertain when the subject UST was removed from service, it is expected that it was not in service during MTBE's lifespan as a gasoline additive.

The abandoned UST is located beneath the sidewalk along Fourth Street, at the upgradient edge of a city block. The location of densely packed, low ceiling (occupied) buildings prohibits implementation of a traditional environmental investigation (i.e. an array of downgradient borings and wells). The nearest location for the construction of downgradient monitoring wells is the street or sidewalk along Third Street, on the other side of the city block. Review of the results of UST studies at nearby sites (Allen property at 345 Martin Luther King Jr. Way and Markus Hardware at 632-638 Second Street) suggest that a Third Street location for downgradient monitoring points would simply be too far from the expected downgradient edge of the plume to serve any practical purpose. Yet, the results of corrective action at nearby sites can be used to predict aspects of the subject case.

The Allen property, located across Martin Luther King Jr. Way (formerly Grove Street), provides a useful example. Contamination originating from a 10,000-gallon UST at that property extended approximately 75 feet downgradient. According to Allen property reports, a 10,000-gallon UST was used at that property to fuel fleet vehicles prior to its in-place abandonment. Available reports do not describe the installation date, throughput, or contents of the tank; however, the analytes detected in proximal groundwater suggest the tank may have held gasoline. It is notable that the UST at the subject site is much smaller than the Allen UST, and not obviously associated with a business employing a fleet of delivery trucks (implying a possibly lower throughput). Consequently, a conservative approximation of Terradev migratory extent may be the extent of migration of the Allen release (i.e. approximately 75 feet downgradient of the UST). This approximation is clearly far from the Third Street edge of the developed block, which is approximately 235 feet downgradient of the UST. Groundwater beneath this area of Oakland is not presently used for beneficial purposes (consumption or

irrigation). Additionally, it is reasonable to assume that the shallowest water-bearing zone in the vicinity of the subject site will plausibly not be used for beneficial consumption for the indeterminate future, if ever (in terms of City habitation). The residual hydrocarbons in groundwater do not, therefore, pose a threat to groundwater quality in a human health context. Residual hydrocarbons in soil and groundwater do, however, likely represent an exposure risk to construction or utility workers, and serve as a source of hydrocarbon vapor in the vadose (water-unsaturated) zone beneath local buildings.

Blue Rock understands that an upgradient property at the corner of Fifth St. and Martin Luther King Jr. Way was formerly used as a gas station, the tanks for which were removed many years ago under Alameda County oversight. Additional data is not currently available to evaluate if the downgradient extent of any impact from that property has encroached onto the subject site.

Recommended Source Area Remediation

Amicus evaluated investigative and remedial options available at the site in the September 13, 2009 correspondence. It was noted that corrective actions would be necessarily constrained by the location of the abandoned UST relative to existing development - i.e. assessment proximally downgradient is prohibited, inadequate space to build a traditional fixed in-situ remediation system, and remedial excavation would undermine the existing building. Yet the persistence of elevated concentrations of gasoline range hydrocarbons in the subsurface merit remedial action. As a result, the use of mobile high-vacuum extraction equipment was recommended as an aggressive approach to reduce the remaining gasoline mass in the vicinity of the UST for which details were proposed in the *Removal Action Workplan* dated February 3, 2010, which was conditionally approved by the ACHCSA in a letter dated February 19, 2010. The plan called for the installation of three wells proximal to the former UST to serve as both extraction and source area monitoring points to be sampled before and after a five-day HVDPE event.

High-Vacuum Dual-Phase Extraction Event (September-October 2010)

A five-day mobile HVDPE remedial event was performed at the site from September 28 to October 3, 2010. The event was completed using a truck-mounted unit consisting of a 25-horsepower oil sealed liquid-ring pump capable of producing 29 "Hg vacuum, and a thermal oxidizer capable of treating an air flow of approximately 450 ACFM. Wells DPE-1, DPE-2, and DPE-3 were used as extraction wells. A stinger hose was lowered into each well through a vacuum tight cap and placed approximately one foot off the bottom of each well. Depth to water at the beginning of the event was approximately 9.5 ft bgs in all three wells. The following table summarizes influent concentrations recorded by laboratory analysis during the HVDPE event:

Well / Sample	TPHg (ppmv) in Vapor	
	Start HVDPE (9/28/10)	End HVDPE (10/3/10)
DPE-1	3,530	598
DPE-2	6,540	888
DPE-3	1,700	NA
Total Inlet	1,660	690

The total average hydrocarbon mass recovered was **174 lbs** (based on 122 lbs calculated from field PID data and 225 lbs calculated from lab data), which equates to an average extraction rate of nearly 35 lbs/day. A total of approximately 7,950 gallons of water were produced by the HVDPE remedial event, which were transported to the Seaport Environmental facility in Redwood City, California for disposal. The average water production rate was ~1.1 gpm.

Groundwater Monitoring Event

On January 20, 2011, Blue Rock staff measured depth to water in all three wells and sampled two wells. An electronic water level indicator accurate to within ± 0.01 -ft was used to gauge depth to water in all wells. All wells were also checked for the presence of light non-aqueous phase liquid (LNAPL) petroleum prior to sampling. Well DPE-3 was omitted from the sampling due to an LNAPL thickness of 1.5 inches (0.13 feet) observed in that well.

In preparation for sampling, wells DPE-1 and DPE-2 were purged of groundwater until such time that the parameters pH, temperature, and conductivity stabilized. An immeasurable petroleum “sheen” was observed on the purge water from these wells. Following recovery of the water column to approximately 80% of its static level, a groundwater sample was collected from each well using a new polyethylene sampling bailer. Samples were decanted into laboratory supplied containers, labeled, documented on a chain-of-custody form, and placed on ice in a cooler for transport to the project laboratory. The water samples were analyzed by Kiff for concentrations of: TPHd by EPA Method 8015 Modified, and TPHg, BTEX, MTBE, TBA, 1,2-DCA and EDB by EPA Method 8260B. The following table summarizes groundwater monitoring results for this event:

- LNAPL: sheen (DPE-1 and DPE-2) to 0.13-ft (DPE-3),
- TPHd concentration: <3,000 $\mu\text{g/L}$ (DPE-1) to <5,000 $\mu\text{g/L}$ (DPE-2)
- TPHg concentration: 83,000 $\mu\text{g/L}$ (DPE-1) to 94,000 $\mu\text{g/L}$ (DPE-2)
- Benzene concentration: 12,000 $\mu\text{g/L}$ (DPE-1 and DPE-2)
- MTBE Concentration: 64 $\mu\text{g/L}$ (DPE-2) to 270 $\mu\text{g/L}$ (DPE-1)
- 1,2-DCA Concentration: 220 $\mu\text{g/L}$ (DPE-1 and DPE-2)

Purging instruments were cleaned between use by an Alconox[®] wash followed by double rinse in clean tap water to prevent cross-contamination. The purge / rinse water from this event was transported to Seaport Environmental in Redwood City, California for disposal (see attached form).

Discussion of Current Site Conditions and Recommendations

The ACHSA letter of December 13, 2010 concurred with this recently completed groundwater monitoring event and also requested a workplan to collect sub-slab vapor samples to assess the potential for vapor intrusion. The results of the groundwater monitoring event and workplan for evaluation of vapor intrusion were requested to be submitted by March 2, 2011.

The results of this recent groundwater monitoring event indicate persistent elevated dissolved-phase gasoline impacts, and also the presence of LNAPL in DPE-3 at a thickness of 0.13 feet. Based on these conditions, Blue Rock recommends focusing the next phase of site activities on the mitigation of the LNAPL. Therefore, Blue Rock recommends completion of an additional HVDPE event. The first five-day event removed a total of approximately 174 lbs of gasoline range hydrocarbons, which equated to an average removal rate of nearly 35 lbs/day. Blue Rock recommends performing an additional mobile HVDPE remedial event for the duration of 15 to 30 days. The extended duration will allow for better dewatering and drying of the soil column at the extraction points, which, theoretically, will enhance volatilization and recovery of gasoline from the soil column. The remedial event may be terminated before 15 days if the influent vapor concentrations fall below 100 ppmv for several consecutive days, which would indicate that the remedial event had reached its effective limit. Blue Rock recommends collecting post-HVDPE groundwater samples again to track clean-up progress and evaluate LNAPL removal.

Although the ACHSA requested evaluation of the potential for vapor intrusion, Blue Rock recommends focusing near term project resources on removal of additional gasoline mass from the area of the decommissioned UST and LNAPL mitigation. Blue Rock recommends postponing the evaluation of vapor intrusion potential until it is believed that remedial action may be complete, or at least until it is believed that LNAPL has been removed to the extent practicable.

References

Amicus Strategic Environmental Consulting, 2009, letter regarding Terradev Jefferson, LLC Property, 645 Fourth Street, Oakland, September 13.

Blue Rock, 2010, *Removal Action Workplan*, 645 Fourth Street, Oakland, California, February 3.

Blue Rock, 2010, *Well Installation and Removal Action Report*, 645 Fourth Street, Oakland, California, October 29.

Ninyo & Moore, 2009, *Limited Phase II Environmental Site Assessment*, 645 Fourth Street, Oakland, California, July 24.

Golden Gate Tank Removal, Inc. 2006, *Tank Closure Report*, 645 Fourth Street, Oakland, California, September 21.

Certification

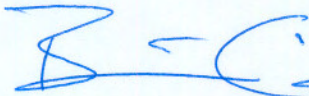
This report was prepared under the supervision of a California Professional Geologist at Blue Rock. All statements, conclusions, and recommendations are based upon published results from past consultants, field observations by Blue Rock, and analyses performed by a state-certified laboratory as they relate to the time, location, and depth of points sampled by Blue Rock. Interpretation of data, including spatial distribution and temporal trends, are based on commonly used geologic and scientific principles. It is possible that interpretations, conclusions, and recommendations presented in this report may change, as additional data become available and/or regulations change.

Information and interpretation presented herein are for the sole use of the client and regulating agency. The information and interpretation contained in this document should not be relied upon by a third party.

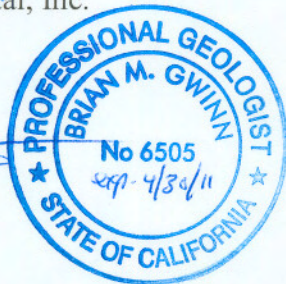
The service performed by Blue Rock has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

If you have any questions regarding this project, please contact us at (650) 522-9292.

Sincerely,
Blue Rock Environmental, Inc.



Brian Gwinn, PG
Principal Geologist



Attachments:

Figure 1: Site Location Map

Figure 2: Site Plan

Table 1: Well Construction Data

Table 2: Soil Sample Analytical Data

Table 3: Groundwater Analytical Data

Blue Rock's Well Gauging and Purging Data Field Sheets

Seaport Environmental Non-Hazardous Water Transport Forms (1/20/11))

Kiff Analytical LLC Laboratory Report and Chain-of-Custody Form

Distribution:

Ms. Sara May, Metrovation
580 Second St. Suite 260, Oakland, CA 94607

Mr. Markus Niebanck, Amicus Strategic Environmental Consulting
580 Second St. Suite 260, Oakland, CA 94607

BART Property

Sidewalk

PLANTER STRIP

OVERHEAD LINES

PARKING LANE (NON-METERED)

Fourth Street

OVERHEAD LINES

SINGLE LANE ←

SINGLE LANE →

PARKING LANE (NON-METERED)

RED CURB

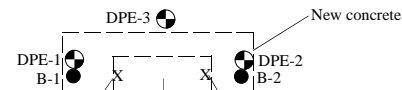
BLUE CURB

GREEN CURB

OVERHEAD LINES

CURBLINE

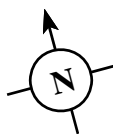
Sidewalk



PROPERTY LINE

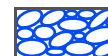
645 Fourth Street
(APN 001-123-009-00)

EXPLANATION



SITE PLAN

Terredev Jefferson LLC Property
645 Fourth St.
Oakland, CA



BLUE ROCK
ENVIRONMENTAL, INC.

Project No.
ASE-1

Figure Date
10/10

Figure
2

TABLE 1
Well Construction Data
 Terradev Jefferson, LLC Property
 645 Fourth Street
 Oakland, CA

Well ID	Date Installed	Total Boring Depth (ft bgs)	Casing Diameter (inches)	Screen Depth (ft bgs)	Sandpack Depth (ft bgs)	Bentonite Depth (ft bgs)	Cement Grout Depth (ft bgs)
DPE-1	9/20/10	15	2	8 - 15	7 - 15	5 - 7	0 - 5
DPE-2	9/20/10	15	2	8 - 15	7 - 15	5 - 7	0 - 5
DPE-3	9/20/10	10	2	6 - 10	5 - 10	3 - 5	0 - 3

Notes:

ft bgs Feet below ground surface.

TABLE 2
Soil Sample Analytical Data
Terradev Jefferson, LLC Property
645 Fourth Street
Oakland, CA

Sample ID	Depth (ft bgs)	Sample Date	TPHd (mg/kg)	TPHg (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE,		EDB (mg/kg)
											ETBE, (mg/kg)	TAME (mg/kg)	
<i>UST Removal Samples</i>													
8795-EX-W-9'	9	8/23/06	<120	10,000	130	1,000	230	1,200	<12	<100	all<12	---	---
8795-EX-E-9'	9	8/23/06	<25	920	6.8	55	18	110	<1.2	<10	all<1.2	---	---
<i>Investigation Samples</i>													
DPE-1-7.5	7.5	9/20/10	810^	6,500	14	320	180	980	<0.50	<2.5	---	<0.50	0.50
DPE-1-12	12	9/20/10	260^	2,300	26	160	45	240	0.71	<1.5	---	<0.30	<0.30
DPE-1-15	15	9/20/10	92^	770	10	53	15	80	0.39	<0.50	---	0.11	<0.090
DPE-2-6	6	9/20/10	15	1.2	<0.0050	0.0054	<0.0050	0.021	<0.0050	<0.0050	---	<0.0050	<0.0050
DPE-2-11	11	9/20/10	1,200^	160,000	1,400	10,000	3,300	19,000	<0.25	<1.5	---	<0.25	1.8
DPE-2-15	15	9/20/10	66^	430	3.8	25	8.3	47	<0.50	<2.5	---	<0.050	<0.50
DPE-3-7	7	9/20/10	260^	860	2.1	37	19	100	<0.10	<0.50	---	<0.10	<0.10
DPE-3-10	10	9/20/10	800^	8,900	78	580	180	980	<0.25	<1.5	---	<0.25	0.82

Notes:

ft bgs feet below ground surface
mg/kg milligrams per kilogram
TPHd total petroleum hydrocarbons as diesel by EPA Method 8015M or 8015B
TPHg total petroleum hydrocarbons as gasoline by EPA Method 8260B
BTEX benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260B
MTBE, TBA, ETBE, methyl tert-butyl ether, tert-butanol, ethyl tert-butyl ether, di-isopropyl ether, tert-amyl methyl ether by EPA Method 8260B,
DIPE, TAME
1,2-DCA, EDB 1,2-dichloroethane, 1,2-dibromoethane by EPA Method 8260B.
µg/L Micrograms per liter.
<### Not detected at or above the indicated reporting limit.
^ Laboratory Flag: Hydrocarbons are lower-boiling than typical Diesel Fuel
--- Data not available, not monitored, or not sampled

TABLE 3
Groundwater Analytical Data
Terradev Jefferson, LLC Property
645 Fourth Street
Oakland, CA

Sample ID	Sample Date	TOC (ft MSL)	DTW (ft)	LNAPL (ft)	GWE (ft MSL)	TPHd (µg/L)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)
Grab Groundwater Samples															
B-1-GW*	7/10/09	--	~10 - 20	--	--	5,300	78,000	15,000	13,000	1,700	10,500	570	--	--	--
B-2-GW*	7/10/09	--	~10 - 20	--	--	2,300	60,000	13,000	13,000	890	4,800	120	--	--	--
Monitoring Well Data															
DPE-1	9/22/10	15.81	9.21	0.00	6.60	<4,000^	120,000	25,000	18,000	3,300	17,000	320	320	620	<40
Screen	9/28-10/3/10	15.81	--	--	--	5-day HVDPE Remedial Event									
~8' - 15'	10/18/10	15.81	9.26	sheen	6.55	<4,000^	97,000	15,000	20,000	1,600	11,000	490	270	390	<40
	1/20/11	15.81	8.56	sheen	7.25	<3,000^	83,000	12,000	16,000	2,000	11,000	270	<200	220	<40
DPE-2	9/22/10	16.01	9.44	0.00	6.57	<4,000^	110,000	21,000	18,000	3,100	14,000	200	260	540	110
Screen	9/28-10/3/10	16.01	--	--	--	5-day HVDPE Remedial Event									
~8' - 15'	10/18/10	16.01	9.48	sheen	6.53	<5,000^	84,000	11,000	16,000	1,600	9,200	77	<200	220	77
	1/20/11	16.01	8.77	sheen	7.24	<5,000^	94,000	12,000	19,000	2,500	13,000	64	<200	220	88
DPE-3	9/22/10	15.87	9.43	0.00	6.44	insufficient water column for sampling (i.e. <0.5-ft)									
Screen	9/28-10/3/10	15.87	--	--	--	5-day HVDPE Remedial Event									
~6' - 10'	10/18/10	15.87	9.35	0.00	6.52	insufficient water column for sampling (i.e. <0.5-ft)									
	1/20/11	15.87	8.51	0.13	7.36	no groundwater sample collected, LNAPL present.									

Notes:

- Screen Well screen depth interval.
- TOC Top of casing relative to feet above mean sea level (ft MSL) (ref NAVD88).
- DTW Depth to water (for borings DTW shows "depth to water" and "depth to bottom of boring")
- LNAPL Light non-aqueous phase liquid petroleum, "sheen" is an immeasurable thickness (i.e. <0.01-ft)
- GWE Groundwater Elevation (TOC-DTW) in ft MSL. (This is not equal to potentiometric surface, and does not account for LNAPL thickness, if present).
- TPHd Total petroleum hydrocarbons as diesel by EPA Method 8015M, *8015B.
- TPHg Total petroleum hydrocarbons as gasoline by EPA Method 8260B, * 8015B.
- BTEX Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260B, * 8021B.
Note: total xylenes equal the sum of separate isomers reported for the 7/09 samples.
- MTBE Methyl tert-butyl ether by EPA Method 8260B, * 8021B.
- TBA Tert-butanol by EPA Method 8260B.
- 1,2-DCA, EDB 1,2-dichloroethane, 1,2-dibromoethane by EPA Method 8260B.
- µg/L Micrograms per liter.
- <### Not detected at or above the indicated reporting limit.
- ^ Method detection limit increased due to ineterference from gasoline range hydrocarbons
- Data not available, not monitored, or not sampled

WELL PURGING DATA

Job No.: ASE-1 Location: 645 4th St oakland Ca Date: 1/20/11 Tech: SR

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (µS/cm)	pH	Sample time: 0910
DPE-2	0841	0.75	61.8	861	5.67	Sample for: (circle) TPHg TPHd TPHmo
Calc. purge volume 2.90	0843	1.50	62.5	943	6.35	BTEX MTBE 8010
	0845	2.25	63.8	942	6.37	Other: TBA, 1,2-DCA, EDB
	0848	3.00	63.6	939	6.37	Sampling Method: Dedicated / Disposable bailer
COMMENTS: color, turbidity, recharge, etc. tan, moderate, fair, odor, slight sheen						Purging Method: PVC bailer / Pump

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (µS/cm)	pH	Sample time: 0917
DPE-1	0852	0.75	63.6	1054	6.43	Sample for: (circle) TPHg TPHd TPHmo
Calc. purge volume 2.99	0854	1.50	63.8	1060	6.43	BTEX MTBE 8010
	0856	2.25	63.8	1063	6.43	Other: TBA, 1,2-DCA, EDB
	0859	3.00	64.8	1049	6.44	Sampling Method: Dedicated / Disposable bailer
COMMENTS: color, turbidity, recharge, etc. tan, moderate, fair, odor, slight sheen						Purging Method: PVC bailer / Pump

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (µS/cm)	pH	Sample time:
DPE-3						Sample for: (circle) TPHg TPHd TPHmo
Calc. purge volume .62						BTEX MTBE 8010
						Other: TBA, 1,2-DCA, EDB
						Sampling Method: Dedicated / Disposable bailer
COMMENTS: color, turbidity, recharge, etc. Free product found no sample						Purging Method: PVC bailer / Pump

BLUE ROCK ENVIRONMENTAL, INC.

1169 Chess Drive, Foster City, CA 94404 Phone (650) 522-9292 Fax (650) 522-9259



Seaport Environmental
NON-HAZARDOUS WATER TRANSPORT FORM

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GENERATOR INFORMATION

Terradev Jefferson, LLC Property
645 Fourth Street
Oakland Ca

CUSTOMER INFORMATION

Blue Rock Environmental, Inc.
650-522-9292
PO# ASE-1

DESCRIPTION OF WATER: Monitoring well development
NON-HAZARDOUS WASTE WATER, MONITORING WELL PURGE WATER AND/OR AUGER RINSATE, TANK RINSATE OR ABOVE DESCRIBED WATER. THIS WATER MAY CONTAIN DISSOLVED HYDROCARBONS. I CERTIFY THAT THE ABOVE NAMED MATERIAL IS A LIQUID EXEMPT FROM RCRA PER 40 CFR 261.4 (b)(10) AND DOES NOT MEET THE CRITERIA OF HAZARDOUS WASTE AS DESCRIBED IN 22 CCR ARTICLE 11 OR ANY OTHER APPLICABLE STATE LAW, HAS BEEN PROPERLY DESCRIBED, CLASSIFIED AND PACKAGED AND IS IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO APPLICABLE REGULATIONS.

Scott Robertson / Blue Rock Environmental
Generator Authorized Agent

Scott Ball 1/20/11
Sign date

SITE INFORMATION

645 Fourth Street
Oakland
Ca

GROSS	
TARE	
NET	
TOTAL GALLONS	

Calculated at 8.34lbs per USG

1 55gal drum

TRANSPORTER INFORMATION

Blue Rock

Truck ID: 5WRC 481

Driver: Scott Robertson Scott Ball 1/20/11
Print full name & sign date

TIME OUT	
TIME IN	
TIME SPENT	

DISPOSAL FACILITY INFORMATION EPA ID: CAL 000032058

Seaport Environmental
675 Seaport Boulevard
Redwood City, Ca 94063
Phone: (650) 364 1024

Approval Number

500 - 1085

Solids %Wt

pH

Solids Surcharge
\$/USG

01-20-11

Received by: _____
Print full name & sign

[Signature]
date

JAN 22 10:25

* No charge on entry *



Laboratory Results

Brian Gwinn
Blue Rock Environmental, Inc.
1169 Chess Drive Suite C
Foster City, CA 94404

Subject : 2 Water Samples
Project Name : Terrader Jefferson LLC
Project Number : ASE-1

Dear Mr. Gwinn,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC standard. All soil samples are reported on a total weight (wet weight) basis unless noted otherwise in the case narrative. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,



Joel Kiff



Report Number : 76192

Date : 01/28/2011

Project Name : **Terrader Jefferson LLC**

Project Number : **ASE-1**

Sample : **DPE-1**

Matrix : Water

Lab Number : 76192-01

Sample Date :01/20/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	12000	40	ug/L	EPA 8260B	01/26/11 02:06
Toluene	16000	40	ug/L	EPA 8260B	01/26/11 02:06
Ethylbenzene	2000	40	ug/L	EPA 8260B	01/26/11 02:06
Total Xylenes	11000	40	ug/L	EPA 8260B	01/26/11 02:06
Methyl-t-butyl ether (MTBE)	270	40	ug/L	EPA 8260B	01/26/11 02:06
Tert-Butanol	< 200	200	ug/L	EPA 8260B	01/26/11 02:06
TPH as Gasoline	83000	4000	ug/L	EPA 8260B	01/26/11 02:06
1,2-Dichloroethane	220	40	ug/L	EPA 8260B	01/26/11 02:06
1,2-Dibromoethane	< 40	40	ug/L	EPA 8260B	01/26/11 02:06
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	01/26/11 02:06
Toluene - d8 (Surr)	99.6		% Recovery	EPA 8260B	01/26/11 02:06
TPH as Diesel (Note: MRL increased due to interference from Gasoline-range hydrocarbons.)	< 3000	3000	ug/L	M EPA 8015	01/28/11 11:18
Octacosane (Diesel Surrogate)	107		% Recovery	M EPA 8015	01/28/11 11:18



Report Number : 76192

Date : 01/28/2011

Project Name : **Terrader Jefferson LLC**

Project Number : **ASE-1**

Sample : **DPE-2**

Matrix : Water

Lab Number : 76192-02

Sample Date :01/20/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	12000	40	ug/L	EPA 8260B	01/26/11 01:27
Toluene	19000	40	ug/L	EPA 8260B	01/26/11 01:27
Ethylbenzene	2500	40	ug/L	EPA 8260B	01/26/11 01:27
Total Xylenes	13000	40	ug/L	EPA 8260B	01/26/11 01:27
Methyl-t-butyl ether (MTBE)	64	40	ug/L	EPA 8260B	01/26/11 01:27
Tert-Butanol	< 200	200	ug/L	EPA 8260B	01/26/11 01:27
TPH as Gasoline	94000	4000	ug/L	EPA 8260B	01/26/11 01:27
1,2-Dichloroethane	220	40	ug/L	EPA 8260B	01/26/11 01:27
1,2-Dibromoethane	88	40	ug/L	EPA 8260B	01/26/11 01:27
1,2-Dichloroethane-d4 (Surr)	103		% Recovery	EPA 8260B	01/26/11 01:27
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	01/26/11 01:27
TPH as Diesel (Note: MRL increased due to interference from Gasoline-range hydrocarbons.)	< 5000	5000	ug/L	M EPA 8015	01/28/11 12:16
Octacosane (Diesel Surrogate)	109		% Recovery	M EPA 8015	01/28/11 12:16

QC Report : Method Blank Data

Project Name : **Terrader Jefferson LLC**

Project Number : **ASE-1**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel	< 50	50	ug/L	M EPA 8015	01/26/2011
Octacosane (Diesel Surrogate)	103		%	M EPA 8015	01/26/2011
Benzene	< 0.50	0.50	ug/L	EPA 8260B	01/25/2011
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	01/25/2011
Toluene	< 0.50	0.50	ug/L	EPA 8260B	01/25/2011
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	01/25/2011
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	01/25/2011
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	01/25/2011
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	01/25/2011
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	01/25/2011
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	01/25/2011
1,2-Dichloroethane-d4 (Surr)	104		%	EPA 8260B	01/25/2011
Toluene - d8 (Surr)	96.4		%	EPA 8260B	01/25/2011

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
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QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **Terrader Jefferson LLC**Project Number : **ASE-1**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
TPH as Diesel	BLANK	<50	1000	1000	1030	1030	ug/L	M EPA 8015	1/26/11	103	103	0.402	70-130	25
1,2-Dibromoethane	76199-03	<0.50	39.8	39.9	40.4	40.2	ug/L	EPA 8260B	1/25/11	102	101	0.831	80-120	25
1,2-Dichloroethane	76199-03	<0.50	39.8	39.9	40.8	40.2	ug/L	EPA 8260B	1/25/11	103	101	2.09	75.7-122	25
Benzene	76199-03	<0.50	39.8	39.9	39.0	38.2	ug/L	EPA 8260B	1/25/11	98.2	95.8	2.53	80-120	25
Ethylbenzene	76199-03	0.72	39.8	39.9	43.8	43.1	ug/L	EPA 8260B	1/25/11	108	106	1.95	80-120	25
Methyl-t-butyl ether	76199-03	19	39.6	39.8	56.1	55.9	ug/L	EPA 8260B	1/25/11	94.5	93.6	0.934	69.7-121	25
P + M Xylene	76199-03	0.95	39.8	39.9	42.8	41.9	ug/L	EPA 8260B	1/25/11	105	103	2.46	76.8-120	25
Tert-Butanol	76199-03	120	199	200	313	313	ug/L	EPA 8260B	1/25/11	99.5	99.4	0.154	80-120	25
Toluene	76199-03	<0.50	39.8	39.9	38.6	37.8	ug/L	EPA 8260B	1/25/11	97.1	94.7	2.49	80-120	25

QC Report : Laboratory Control Sample (LCS)Project Name : **Terrader Jefferson LLC**Project Number : **ASE-1**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
1,2-Dibromoethane	40.0	ug/L	EPA 8260B	1/25/11	103	80-120
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	1/25/11	104	75.7-122
Benzene	40.0	ug/L	EPA 8260B	1/25/11	97.6	80-120
Ethylbenzene	40.0	ug/L	EPA 8260B	1/25/11	111	80-120
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	1/25/11	96.9	69.7-121
P + M Xylene	40.0	ug/L	EPA 8260B	1/25/11	108	76.8-120
Tert-Butanol	200	ug/L	EPA 8260B	1/25/11	97.7	80-120
Toluene	40.0	ug/L	EPA 8260B	1/25/11	99.1	80-120

