METROVATION

August 17, 2012

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
Second Removal Action and Groundwater Monitoring Report dated August 16, 2012

OAKLAND IRONWORKS BUILDING
580 SECOND STREET, SUITE 260, OAKLAND CA 94607 TELEPHONE (510) 839-4000 FAX (510) 465-4472

BLUE ROCK ENVIRONMENTAL, INC.

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

August 16, 2012

Re: Second Removal Action and Groundwater Monitoring Report
Terradev Jefferson LLC Property
645 4th Street, Oakland, CA 94607
Fuel Leak Case No. RO0003001
Blue Rock Project No. ASE-1

Dear Mr. Wickham,

This report, prepared by Blue Rock Environmental, Inc. (Blue Rock) on behalf of Terradev Jefferson, LLC, presents the results of additional removal action activities, by a 15-day mobile high-vacuum dual-phase extraction event, and subsequent groundwater monitoring. This work was approved by the Alameda County Health Care Services Agency – Environmental Health Services (ACHCSA) in a letter dated May 16, 2012.

Background

Site Description and UST History

The site is located southeast of the intersection of 4th 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 (Figure 2). The UST is located on the upgradient edge of a developed city block.

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 (DPE-1 through DPE-3) and three sub-slab soil vapor points (VP-1 through VP-3) have been installed at the site. A summary of well construction details is included in Table 1, and summaries of soil, groundwater, and sub-slab soil vapor sample analytical data are included in Tables 2, 3, and 4, respectively.

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 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 4th 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 3rd 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 3rd Street location for downgradient monitoring wells for 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 3rd 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 human health via consumption. Residual hydrocarbons in soil and groundwater may represent an exposure risk to construction or utility workers, and serve as a source for vapor intrusion of adjacent buildings.

Blue Rock understands that an upgradient property at the corner of 5th Street 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 merited remedial action. As a result, the use of mobile high-vacuum extraction (HVDPE) 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.

First 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. At the beginning of the event, influent TPHg levels at individual wells ranged from 1,700 ppmv to 3,530 ppmv; however, they dropped to less 1,000 ppmv by the end of the event.

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.

Vapor Intrusion Evaluation

In June 2012, Blue Rock installed and sampled three sub-slab soil vapor points (VP-1 through VP-3) inside the building adjacent to the closed UST (Figure 2). The points are located between approximately 6 and 38 feet south to southeast of the UST. The initial results did not indicate a vapor intrusion risk based on comparison to Shallow Soil Gas ESLs from Table E of *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim 2007 (Revised 2008)* and CHHSLs published in *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties (CALEPA 2005)* for commercial / industrial land use scenarios. Details of this work were presented in Blue Rock's *Sub-Slab Soil Vapor Sampling Report* dated July 7, 2012.

Second High-Vacuum Dual-Phase Extraction Remedial Event

Blue Rock oversaw CalClean, Inc. (CalClean) of Tustin, California perform a 15-day mobile HVDPE remedial event from July 9 to 24, 2012. HVDPE test equipment, methodology, and test results are summarized below and presented in the attached CalClean report.

The purpose of this mobile event was to maximize gasoline mass recovery at the source location of the abandoned UST. Wells DPE-1, DPE-2, and DPE-3 were used as extraction wells at the start of the event. These wells have screen intervals that extend across documented soil and groundwater impact at the source area.

The HVDPE event was performed in accordance with CalClean's Bay Area Air Quality Management District permit for various locations (Plant No. 12568).

A mobile HVDPE unit was mobilized to the site. The CalClean truck-mounted unit consisted 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. An onboard electric generator powered the equipment and onboard propane tanks provided supplemental fuel for the thermal oxidizer. A unit intake hose was connected to the test wells through a vacuum cap attached at the wellhead. Extracted water was treated and stored in temporary above-ground storage tanks mobilized to the site. A schematic of HVDPE equipment is presented in Figure 3.

Prior to the event, on July 6, 2012, all three wells were gauged for depth to water and evaluated for the presence of LNAPL. The depth to water ranged from approximately 8.5 to 9 ft bgs, and the no LNAPL was observed in any of the wells.

The remedial event occurred over the span of 15 continuous days from July 9 to 24, 2012. A stinger hose was lowered into each well through a vacuum tight cap and placed approximately one foot off the bottom of each well. Therefore, the stinger was set at a depth of approximately 14 ft bgs in wells DPE-1 and DPE-2, and approximately 9 ft bgs in DPE-3. Depth to water at the beginning of the test was approximately 9 ft bgs in all three wells. Wells DPE-1, DPE-2, and DPE-3 were individually tested at the beginning to evaluate which would be most productive. Wells DPE-1 and DPE-2 were used as the main extraction wells over the course of the event because they produced the highest levels of gasoline in extracted vapor relative to DPE-3. This observation was consistent with the first HVDPE event.

During the event, applied vacuum and field monitoring of hydrocarbon concentrations in process air was monitored at the unit manifold. A total of three air samples were collected from the total influent for laboratory analysis. Extracted water was separated by a water knockout, and temporarily stored in two 2,600-gallon capacity storage tanks prior to off-haul.

Field PID readings of the total inlet and operational parameters were collected periodically throughout the event. Total inlet after dilution (i.e. influent) air samples were also collected at the beginning, middle, and end of the event for laboratory analysis. The results of vapor sample analysis are summarized below, along with estimated mass recovery rates:

Total Inlet	TPHg (ppmv)	TPHg Removal Rate (lbs/day)
Start – 7/9/12	1,200	31
Middle – 7/16/12	750	19
End – 7/24/12	430	11

Blue Rock estimates the total average hydrocarbon mass recovered was approximately **249 lbs** (based on 199 lbs calculated from field PID data and 298 lbs calculated from lab data). CalClean estimates the total average hydrocarbon mass recovered was approximately **166 lbs** (based on 130 lbs calculated from field PID data and 191 lbs calculated from lab data). The difference between the mass removal estimates appears to be due to the fact that Blue Rock used flowrates from the manufacturer's blower curve based on the measured vacuum and Calclean used flowrates measured in the field with an inline flowmeter.

A total of approximately 21,200 gallons of water were produced by this HVDPE remedial event based on disposal manifests. The water was transported to Instrat, Inc.'s facility in Rio Vista, California for disposal/recycling (see attached disposal forms).

Discussion of Cumulative HVDPE Treatment Results

The total hydrocarbon mass of approximately **340 to 423 lbs** has been removed by both the 2010 and 2012 events. At the beginning of the 2010 event, total inlet concentrations were 1,660 ppmv resulting in an extraction rate of approximately 90 lbs/day. By the end of the 2012 event, total inlet concentrations had declined to 430 ppmv and the extraction was approximately 10 lbs/day. Based on these data, it appears the use mobile HVDPE may have reached its effective limit and the mass appears to have been removed to the extent practicable. Additional use of mobile HVDPE would likely not be cost effective.

Post-Remedial Event Groundwater Quality

On August 12, 2102, the wells were sampled to document groundwater conditions approximately two weeks following completion of the remedial event. During the monitoring effort an electronic water level indicator, accurate to within ±0.01-ft, was used to measure depth to water in each well. All wells were checked for measureable thicknesses, equal to greater than 0.01-ft, of light non-aqueous-phase liquid (LNAPL); however, none was observed. The wells were purged until pH, temperature, and conductivity parameters had stabilized, which occurred after approximately 3 wetted casing volumes. Following recovery of water levels to approximately 80% of their static levels, groundwater samples were collected using disposable polyethylene bailers and transferred to laboratory-supplied containers. Sample containers were labeled, documented on a chain-of-custody form, and placed on ice in a cooler for transport to the project laboratory.

Purging instruments were cleaned between use by an Alconox® wash followed by double rinse in clean tap water to prevent cross-contamination. The purge and rinse water will be transported to Seaport Environmental in Redwood City, California for disposal (the transport forms will be uploaded to GeoTracker after final copies are received).

The water samples were analyzed by Kiff Analytical LLC, a DHS-certified laboratory, for TPHg, BTEX, MTBE, TBA, 1,2-DCA, and EDB by EPA Method 8260B and TPHd by EPA Method 8015M. The results are summarized in Table 3.

Groundwater quality has improved in wells DPE-1 and DPE-2 since the 2010 and 2012 HVDPE event were performed, which is summarized below (please note that DPE-3 cannot be evaluated because a pre-remedial sample is not available):

Analytes	DPE-1		DPE-2	
	Before HVDPE events (9/22/10)	After HVDPE events (8/12/12)	Before HVDPE events (9/22/10)	After HVDPE events (8/12/12)
TPHd (µg/L)	<4,000	<2,000	<4,000	<2,000
TPHg (µg/L)	120,000	71,000	110,000	70,000
Benzene (µg/L)	25,000	7,500	21,000	9,900
MTBE (µg/L)	320	270	200	54

Project Status and Recommendations

- The second sub-slab soil vapor sampling event is tentatively scheduled for September 22, 2012.

- Blue Rock recommends performing a groundwater monitoring event in the First Quarter 2012 to confirm the post-HVDPE groundwater monitoring results presented here.

- If the second sub-slab soil vapor sampling event indicates no VI risk like the first event and the plume is stable, the site may be candidate for closure evaluation based on the recently adopted Low-Threat Underground Storage Tank Case Closure Policy.

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.

Blue Rock, 2011, *Groundwater Monitoring Report – First Quarter 2011*, 645 Fourth Street, Oakland, California, February 1.

Blue Rock, 2012, *Sub-Slab Soil Vapor Sampling Workplan and Project Schedule*, 645 Fourth Street, Oakland, California, April 23.

Blue Rock, 2012, *Sub-Slab Soil Vapor Sampling Report*, 645 Fourth Street, Oakland, California, July 7.

California EPA - DTSC. 2004. *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air.* December 15 (Revised February 7, 2005).

California EPA. 2005. *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties.* January.

California EPA - DTSC. 2010. *Advisory – Active Soil Gas Investigation.* March

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.

San Francisco Bay RWQCB. 2008. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater - Interim Final November 2007 (Revised May 2008).* May.

Certification

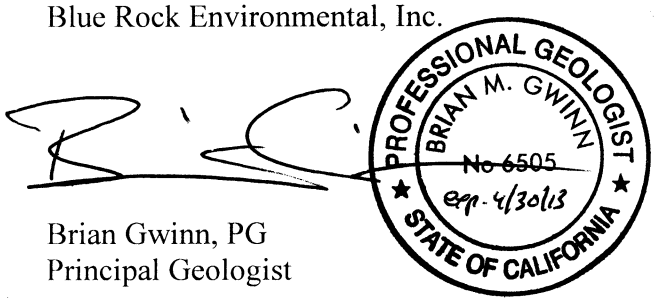
This report was prepared under the supervision of a California Professional Geologist at Blue Rock. All statements, conclusions, and recommendations are based upon published results from past consultants, field observations by Blue Rock, and analyses performed by a state-certified laboratory as they 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
Figure 3: High-Vacuum Dual-Phase Extraction Process Schematic

Table 1: Well Construction Data
Table 2: Soil Sample Analytical Data
Table 3: Groundwater Analytical Data
Table 4: Sub-Slab Vapor Sample Analytical Data

City of Oakland Obstruction Permit

CalClean's High Vacuum Dual Phase Extraction Report – August 6, 2012
(which contains laboratory reports and chain-of-custody forms for air samples)

Non-Hazardous Water Transport Forms (7/12/12, 7/15/12, 7/18/12, 7/22/12, 7/24/12)

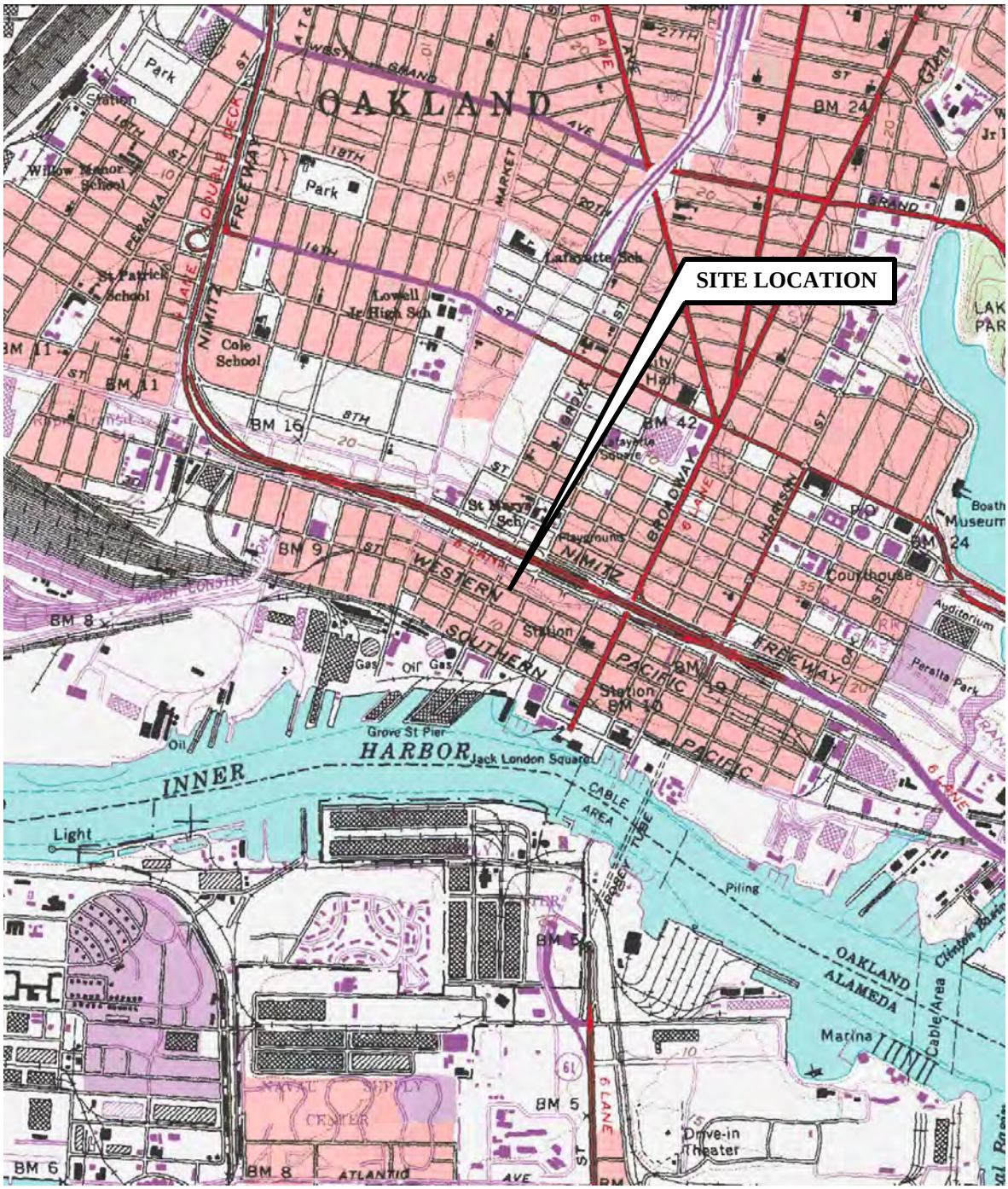
Blue Rock's Well Gauging and Purging Data Field Sheets

Laboratory Report and Chain-of-Custody Form (groundwater samples)

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



0 2,000

APPROX. SCALE IN FEET

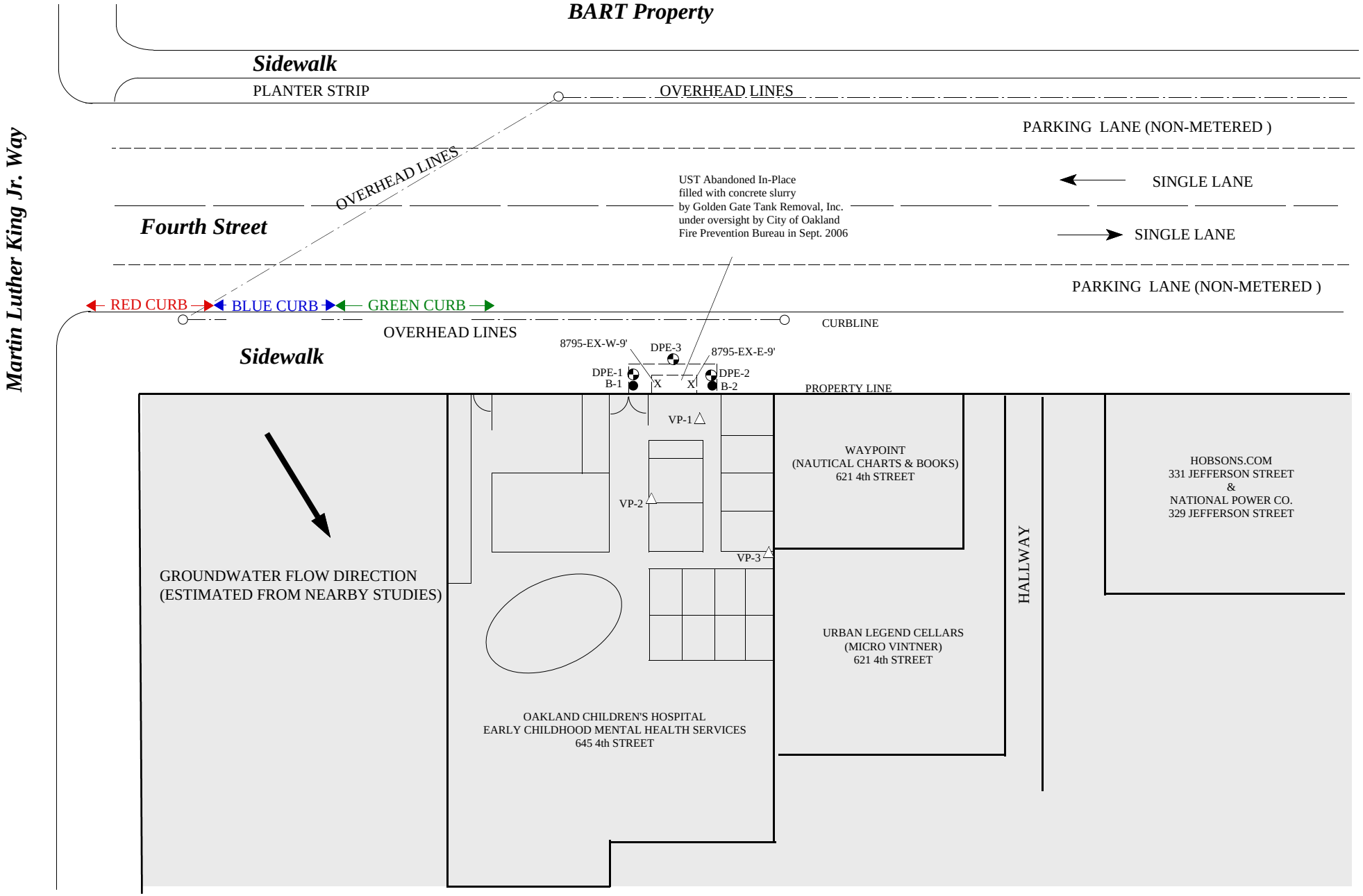
N

SOURCE: MyTopo.com

SITE LOCATION MAP
Terradev Jefferson LLC Property
645 Fourth St.
Oakland, CA

BLUE ROCK
ENVIRONMENTAL, INC.

Project No.	Figure Date	Figure
ASE-1	10/10	1



EXPLANATION

- 8795-EX-W-9' X — TANK CLOSURE SOIL SAMPLE
- B-1 ● — SOIL BORING
- DPE-1 ⊕ — EXTRACTION WELL
- VP-3 △ — SUB-SLAB SOIL VAPOR POINT

0 30

APPROXIMATE
SCALE IN FEET

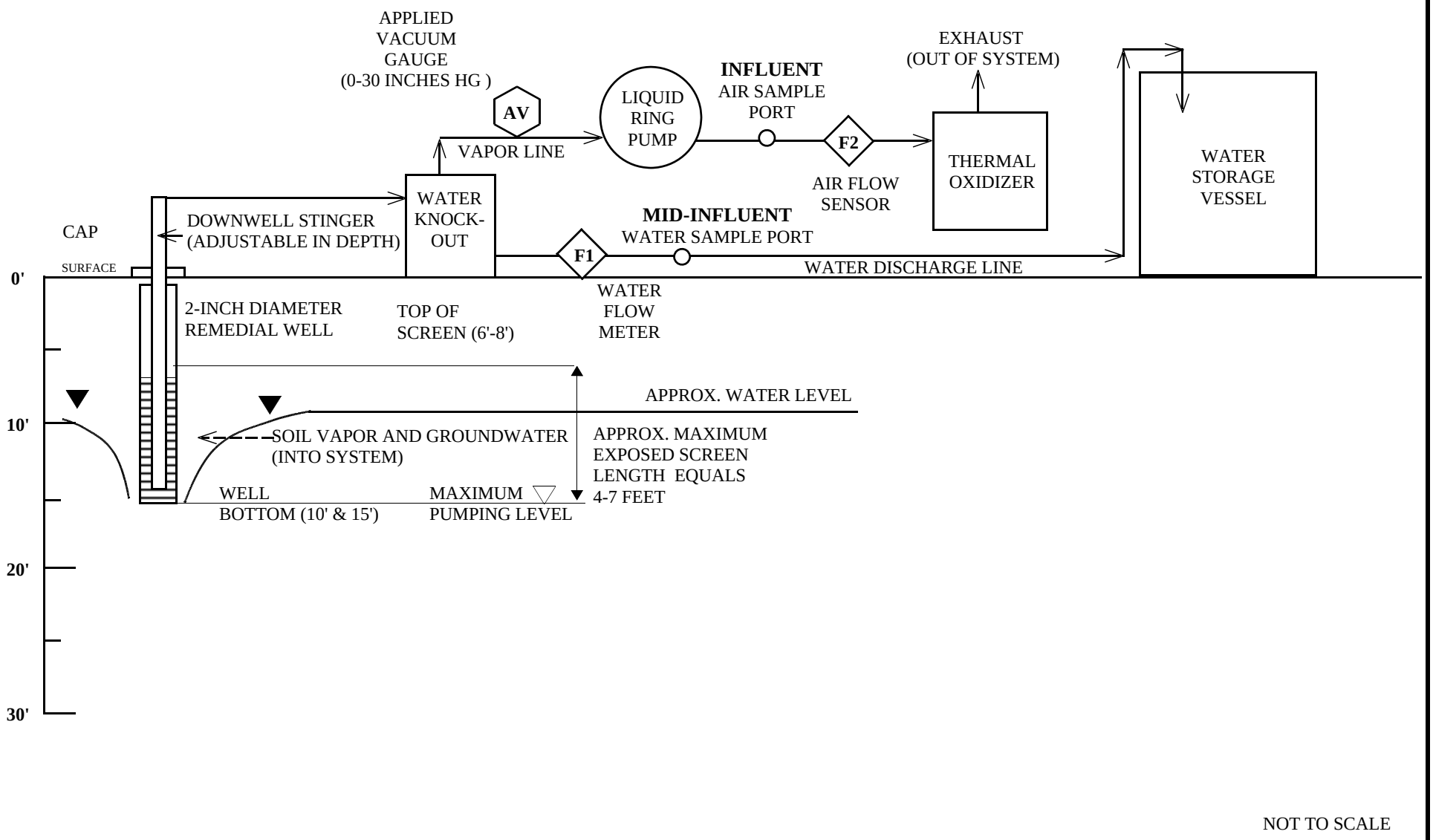
N

SITE PLAN

Terredev Jefferson LLC Property
645 Fourth St.
Oakland, CA

BLUE ROCK
ENVIRONMENTAL, INC.

Project No.	Figure Date	Figure
ASE-1	8/12	2



NOT TO SCALE

HIGH-VACUUM DUAL-PHASE EXTRACTION PROCESS SCHEMATIC

Terradev Jefferson LLC Property
645 Fourth Street
Oakland, California

BLUE ROCK ENVIRONMENTAL, INC.

Project No.	Report Date	Figure
ASE-1	8/12	3

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

Extraction Wells

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

Vapor Probes

Well ID	Date Installed	Total Probe Depth (in bgs)	Tubing Diameter (inches)	Slab Thickness (in bgs)	Screen Depth (in bgs)	Rubber Plug (in bgs)	Cement Depth (in bgs)
VP-1	6/16/12	9	0.25	6.0	~ 6 - 9	~5.0 - 6.0	0 - 5
VP-2	6/16/12	9	0.25	4.5	~ 6 - 9	~3.5 - 4.5	0 - 3.5
VP-3	6/16/12	9	0.25	4.0	~ 6 - 9	~3.0 - 4.0	0 - 3

Notes:
ft bgs Feet below ground surface.
in bgs Inches 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, ETBE, TAME (mg/kg)	1,2-DCA (mg/kg)	EDB (mg/kg)
UST Removal Samples													
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	---	---
Investigation Samples													
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, DIPE, TAME	methyl tert-butyl ether, tert-butanol, ethyl tert-butyl ether, di-isopropyl ether, tert-amyl methyl ether 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.
^	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
	7/6/12	15.81	8.85	0.00	--	--	--	--	--	--	--	--	--	--	--
	7/9-7/24/12	15.81	--	--	--	15-day HVDPE Remedial Event									
	8/12/12	15.81	9.03	0.00	6.78	<2,000^	**71,000**	**7,500**	**9,800**	**1,000**	**6,500**	**280**	**89**	**190**	<15
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**
	7/6/12	16.01	9.06	0.00	--	--	--	--	--	--	--	--	--	--	--
	7/9-7/24/12	16.01	--	--	--	15-day HVDPE Remedial Event									
	8/12/12	16.01	9.27	0.00	6.74	<2,000^	**70,000**	**9,900**	**16,000**	**1,700**	**9,600**	**54**	<200	**160**	**56**
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.									
	7/6/12	15.87	8.65	0.00	--										
	7/9-7/24/12	15.87	--	--	--	15-day HVDPE Remedial Event									
	8/12/12	15.87	9.02	sheen	6.85	<200,000^	**190,000**	**1,400**	**7,800**	**3,700**	**29,000**	**27**	**120**	**40**	**130**

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 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 sepearate 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

Table 4
SUB-SLAB VAPOR SAMPLE ANALYTICAL DATA
Terradev Jefferson LLC Property
645 Fourth St.
Oakland, CA

		air volume		Consituent Concentrations									Soil Gas Concentrations			Tracer Gas		Sample Can Vacuum	
Sample I.D.	Sample Date	dead space vols. purged	sample container	TPHg ($\mu g/m^3$)	B ($\mu g/m^3$)	T ($\mu g/m^3$)	E ($\mu g/m^3$)	X ($\mu g/m^3$)	MTBE ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	1,2-DCA ($\mu g/m^3$)	EDB ($\mu g/m^3$)	O_2 (%)	CO_2 (%)	CH_4 (%)	In Sample He (%)	In Shroud He - Avg (%)	End of Sampling ("Hg)	Arrival at Lab ("Hg)
VP-1	6/16/12	3.0	1-L	1,300	38	120	21	138	7.3	<0.09	<0.14	<0.05	15	0.096	<0.008	2.4	22.2	~8	~6
Data corrected for 10.8% of leak volume in sample				1,457	43	135	24	155	8.2	<0.10	<0.16	<0.06	---	---	---	---	---	---	---
VP-2	6/16/12	3.0	1-L	1,200	66	25	2.6	8.2	<6.3	<0.09	<0.14	<0.05	11	1.3	<0.009	<0.003	13.8	~8	~7
VP-3	6/16/12	3.0	1-L	960	16	19	2.9	20	<5.8	<0.08	<0.13	<0.05	16	0.029	<0.008	2.6	23.6	~5	~5
Data corrected for 11.0% of leak volume in sample				1,079	18	21	3.3	22	<6.5	<0.09	<0.15	<0.06	---	---	---	---	---	---	---

ESLs Comm/Indus Soil Gas	*29,000*	*280*	*180,000*	*3,300*	*58,000*	*31,000*	*240*	*310*	*14*
CHHSLs Comm /Indus Soil Gas	*NA*	*122*	*378,000*	*NA*	*879,000*	*13,400*	*106*	*167*	*NA*

Notes:

TPHg	Total Petroluem Hydrocarbons as gasoline by EPA Method TO-3(M) GC/FID
BTEX, MTBE	Benzene, Toluene, Ethylbenzene, and Total Xylenes, Methyl tert-Butyl Ether by EPA Method TO-15(M) GC/MS
Naphthalene	Naphthalene by EPA Method TO-15(M) GC/MS
1,2-DCA, EDB	1,2-dichloroethane, 1,2-dibromoethane by EPA Method TO-15(M) GC/MS
O_2, CO_2, CH_4, He	Oxygen, Carbon Dioxide, Methane, and Helium by modified ASTM D-1946
mg/m^3	Milligrams per cubic meter (equivalent to ug/L)
<#.##	Compound not detected at or above the reported laboratory detection limit
ESLs	Environmental Screening Levels for Soil Vapor in Commercial/Industrial or Residential setting (SFBRWQCB 2008).
CHHSLs	California Human Health Screening Levels for Soil Vapor in Commercial/Industrial or Residential setting (CalEPA/OEHHA2005)
Tracer Gas in Shroud	Concentration range of tracer gas in shroud recorded during sample collection. Average = (Max - Min) / 2

If helium was detected in the sample, the percentage measured in the sample divided by the average percentage in the shroud represents the proportion of the sample attributable to leakage.
The data were adjusted to account for that proportion by the following: Corrected value ($\mu g/m^3$) = Analyte ($\mu g/m^3$) * [100% / (100% - leak%)]

Table 5
HVDPE OPERATION DATA

Terradev Jefferson, LLC
645 Fourth Street
Oakland, CA

							Field Data	Lab Data			VOC Extraction		TPHg Extraction	
Date	Total Ops (hr)	Period Ops (hr)	Total Water (gal)	Period Water (gal)	Period Rate (gpm)	Operating Wells	Field PID Total VOCs (ppmv)	Influent TPHg (ppmv)	Applied Vac. (AV) (in. Hg)	Total Flow (scfm)	Recovery Rate (lbs/day)	Cumulative Recovery (lbs)	Recovery Rate (lbs/day)	Cumulative Recovery (lbs)
Start 7/9/12 at 9:00 AM														
7/9/12	0.01	0.01	0	0.00		DPE-1	2,120		25.0	63	45	0.02	25	0.01
7/9/12	0.50	0.49				DPE-2	1,967		26.0	49	33	0.8		0.59
7/9/12	0.75	0.25				DPE-3	380		22.0	104	13	1.1		0.88
7/9/12	1.25	0.50				DPE-1, 2, 3	371		22.0	104	13	1.3		1.5
7/9/12	1.75	0.50				DPE-1, 2	679	1,200	24.0	77	18	1.6	31	2.1
7/10/12	23	21.25	1,320	1,320	1.0	DPE-1, 2	650		24.0	77	17	17		24
7/11/12	47	24.00	2,920	1,600	1.1	DPE-1, 2	605		24.0	77	16	33		50
7/12/12	71	24.00	4,390	1,470	1.0	DPE-1, 2	620		24.0	77	16	49		75
7/13/12	95	24.00	5,800	1,410	1.0	DPE-1, 2	590		24.0	77	15	65		100
7/14/12	119	24.00	7,110	1,310	0.9	DPE-1, 2	578		24.0	77	15	80		125
7/15/12	143	24.00	8,390	1,280	0.9	DPE-1, 2	565		24.0	77	15	94		150
7/16/12	167	24.00	9,640	1,250	0.9	DPE-1, 2	549	750	24.0	77	14	109	19	176
7/17/12	191	24.00	10,880	1,240	0.9	DPE-1, 2	520		24.0	77	13	123		191
7/18/12	215	24.00	12,080	1,200	0.8	DPE-1, 2	480		24.0	77	12	136		206
7/19/12	239	24.00	13,260	1,180	0.8	DPE-1, 2	469		24.0	77	12	148		221
7/20/12	263	24.00	14,500	1,240	0.9	DPE-1, 2	445		24.0	77	12	160		237
7/21/12	287	24.00	15,590	1,090	0.8	DPE-1, 2	430		24.0	77	11	171		252
7/22/12	311	24.00	16,700	1,110	0.8	DPE-1, 2	335		24.0	77	8.7	181		267
7/23/12	335	24.00	17,820	1,120	0.8	DPE-1, 2	399		24.0	77	10	190		282
7/24/12	359	24.00	18,900	1,080	0.8	DPE-1, 2	280	430	24.0	77	7.2	199	11	298
End 7/24/12 at 8:30 AM														

Notes:

PID	Field mesurement of total VOC concentration collected with portable photo ionization detector
Influent TPHg	Total petroleum hydrocarbons as gasoline by EPA Method 5030/8260B in sample collected after dilution and before catox inlet, represents Total Process Flow.
ppmv	parts per million vapor
scfm	Standard cubic feet per minute
Total Ops	Total number of hours unit has operated
Period Ops	Number of hours unit since last sampling/monitoring event
Operating wells	Extraction wells operating after adjustment, if any, and during sampling.
Total Process Flow	Total process flow derived from blower curve of ACFM vs. "Hg using measured vacuum ("Hg) at pump. ACFM converted to SCFM using applicable conversion factor.
Recovery Rate:	= flow rate (ft^3/min) * influent concentration (ft3 / $1x10^6$ ft3) * MW (lb/lb-mole)/384.5 (ft^3/lb-mole) * 1440 min/day Except for initial start-up or restart: Operational period (hr) x Recovery Rate (lbs/day) x conversion facor (1 day / 24 hr), and on lab data calculations, the starting concentration is assumed to be the same as that for 7/9/12 at 1.75 hr.
Period Water	Approx. period volume of groundwater recovered and discharged for period (gal) (total system flow from all active extaction wells)
Period Rate	Approx. period groundwater recovery and discharge rate (gpm) (for total system flow from all active extaction wells) = Period Discharge (gal) / (Period Ops [hr] * 60 [min/hr])
Total Water	Approx. cumulative volume of groundwater recovered and discharged (gal) (total system flow from all active extaction wells)

omic Development Agency
...plaza, 2nd Floor, Oakland, CA 94612 • Phone (510) 238-3443 • Fax (510) 238-2263

Applications for which no permit is issued within 180 days shall expire by limitation. No refund more than 180 days after expiration or final.

Appl# OB120581 Job Site 645 4TH ST Parcel# 001 -0123-009-00

Reserve parking for construction vehicles. No impact on traffic lane. Sidewalk will have ramp over pipes.
Allow three monitoring wells in sidewalkwells in sidewalk

Permit Issued 07/02/12

Nbr of mths: 1
Effective: 07/09/12

Display on Dashboard

Linear feet: 125
Expiration: 08/08/12

LONG TERM NON-METERED

	Applcnt	Phone#	Lic#	--License Classes--
Owner TERRADEV JEFFERSON LLC		(510)839-4000		
Contractor BLUE ROCK ENVIRONMENTAL INC	X	(650)522-9292	888734 A	
Arch/Engr BRIAN GWINN/ BLUE ROCK		(650)522-9292		
Agent				

Applic Addr 1169 CHESS DRIVE SUITE C, FOSTER CITY, CA, 94404

$3,059.24 FEES TO BE PAID AT FILING $.00 FEES TO BE PAID AT ISSUANCE

$71.00	Applic	$2,595.00	Permit
$.00	Process	$253.27	Rec Mgmt
$.00	Gen Plan	$.00	Invstg
$.00	Other	$139.97	Tech Enh

Display on Dashboard

JOB SITE

To Have Illegally Parked Vehicle Ticketed Call 510-777-3333

For Towed Car Call 510-238-3021

TCP needs to be approved by Transportation Services every 30 days or whenever deviated from the previously approved plan.

Applicant: _____ _____

Issued by: _____ _____

DIST: _____ ADDRESS:

CITY OF OAKLAND

Date: 07/02/12 Amt Paid: $3,059.24
By: SYK Register R03 Receipt# 168333

August 6, 2012

Blue Rock Environmental Inc.
1169 Chess Dr. Suite C
Foster City, CA 94404

ATTN: MR. BRIAN GWINN

SITE: TERRADEV PROPERTY
645 4th STREET
OAKLAND, CALIFORNIA

RE: HIGH VACUUM DUAL PHASE EXTRACTION REPORT

Dear Mr. Gwinn:

CalClean Inc. is submitting this High Vacuum Dual Phase Extraction Report for the above referenced site. This report includes all activities performed during the dates of July 9-24, 2012.

From July 9-24, 2012, CalClean performed a 15-day high vacuum dual phase extraction (HVDPE) event on several onsite extraction wells using a low-noise, truck-mounted 450-CFM high-vacuum liquid ring blower along with a Bay Area Air Quality Management District (BAAQMD) various locations permitted propane-fired thermal oxidizer (Plant No. 12568). This technology allows hydrocarbons to be simultaneously removed from the vadose zone, capillary fringe, and saturated soil zone. A high vacuum was applied for vapor extraction and drawdown of the groundwater table around the extraction wells, while vacuum and vapor flow rates were modified to optimize recovery of vapor, free-product (if any) and dissolved-phase hydrocarbons.

During the event, the high vacuum dual phase extraction (HVDPE) system was connected to various wells individually or in combination. HVDPE was performed in extraction wells DPE-1, DPE-2, and DPE-3. HVDPE activities were conducted for a total of 15 days.

Total Inlet vapor samples were collected in Tedlar bags from the extraction wells during the event. The laboratory results, listed in Table 1 and laboratory reports included in Attachment 1, indicate the following:

- The starting (7/9/12), middle (7/16/12), and ending (7/24/12) Total Inlet Total Petroleum Hydrocarbons as Gasoline (TPH-G) vapor concentrations were 1,200 ppmv, 750 ppmv, and 430 ppmv, respectively.
- The starting (7/9/12), middle (7/16/12), and ending (7/24/12) Total Inlet Benzene vapor concentrations were 76 ppmv, 22 ppmv, and 14 ppmv, respectively.
- The starting (7/9/12), middle (7/16/12), and ending (7/24/12) Total Inlet Methyl tert-Butyl Ether (MtBE) vapor concentrations were 0.57 ppmv, 0.33 ppmv, and 0.29 ppmv, respectively.

The total equivalent amount of hydrocarbons recovered through vapor extraction during the 15-day HVDPE event was 191.34 pounds (based on laboratory data), and 129.54 pounds (based on the Horiba field organic vapor analyzer data) with an average of 160.44 pounds. The cumulative tabulation of recovered hydrocarbons (based on laboratory data) is provided in Table 2. The cumulative tabulation of recovered hydrocarbons (based on the field organic vapor analyzer data) is provided in Table 3.

The total volume of hydrocarbon-affected groundwater recovered from the extraction wells during the HVDPE event was approximately 18,900 gallons. The extracted groundwater was placed in tanks onsite for further handling.

The following attachments are included to document the HVDPE event at the site:

Table 1	Results of Laboratory Analysis of Influent Vapor Samples
Table 2	Hydrocarbon Mass Removal (using Lab Data)
Figure 1	Total Inlet HC Concentrations versus Time (15 Days, Using Lab Data)
Figure 2	Cumulative HC Recovered over 15 Days (using Lab Data)
Table 3	Hydrocarbon Mass Removal (using Horiba Data)
Figure 3	Total Inlet HC Concentrations versus Time (15 Days, Using Horiba Data)
Figure 4	Cumulative HC Recovered over 15 Days (using Horiba Data)
Attachment 1	Laboratory Reports
Attachment 2	High Vacuum Dual Phase Extraction Field Data Sheets

If you have any questions regarding this report, please contact us at (714) 734-9137 or via cell phone at (714) 936-2706.

Sincerely,

CALCLEAN INC.

Noel Shenoi
Principal Engineer

Attachments

CalClean Inc.

Table 1
RESULTS OF LABORATORY ANALYSIS OF VAPOR SAMPLES
Terradev Property
Oakland, CA

Sample ID	Date/Time Sampled	TPH-g (ppmv)	Benzene (ppmv)	Toluene (ppmv)	Ethylbenzene (ppmv)	Total Xylenes (ppmv)	MTBE (ppmv)
TOTAL INLET	7/9/12 1050	1,200	76	85	16	86	0.57
TOTAL INLET	7/16/2012 1530	750	22	43	6.3	43	0.33
TOTAL INLET	7/24/12 0800	430	14	25	3.3	25	0.29

Notes:

ppmv = parts per million by volume

TPH - g = total petroleum hydrocarbons - gasoline

TPH-G, BTEX and MtBE analyzed by EPA 8260B

MtBE = methyl tertiary butyl ether

CalClean Inc.

Table 2
HYDROCARBON MASS REMOVAL (Using Lab Data)
Terradev Property, Oakland, CA

TIME	SYSTEM PARAMETERS			Hydrocarbon Recovery		
	Average System Vacuum (in of Hg)	Average Total System Inlet Flow (scfm)	Influent Concentrations Post-dilution* (ppmv)	(lbs)	(gal)	(Cumul. lbs)
7/9/2012 10:50	24	50	1,200	0.00	0.00	0.00
7/16/2012 15:30	24	51	750	115.75	18.53	115.75
7/24/2012 8:00	24	51	430	75.59	12.10	191.34
	TOTAL HC RECOVERED* - LAB DATA			**191.34**	**30.63**	
	TOTAL HC RECOVERED - FIELD ANALYZER DATA**			**129.54**	**20.74**	
	Average HC Recovered* (Field Analyzer/Lab Data)**			**160.44**	**25.68**	

in of Hg = inches of mercury ppmv = parts per million by volume
scfm = standard cubic feet per minute gal = gallons lbs = pounds
* Concentration data based on laboratory data. ** Based on Horiba field analyzer data.
*** Average HC Recovered using Laboratory and Horiba data

Figure 1

Total Inlet HC Concentrations vs Time (15 Days)

Terradev Property, Oakland, CA - 7/9-24/12

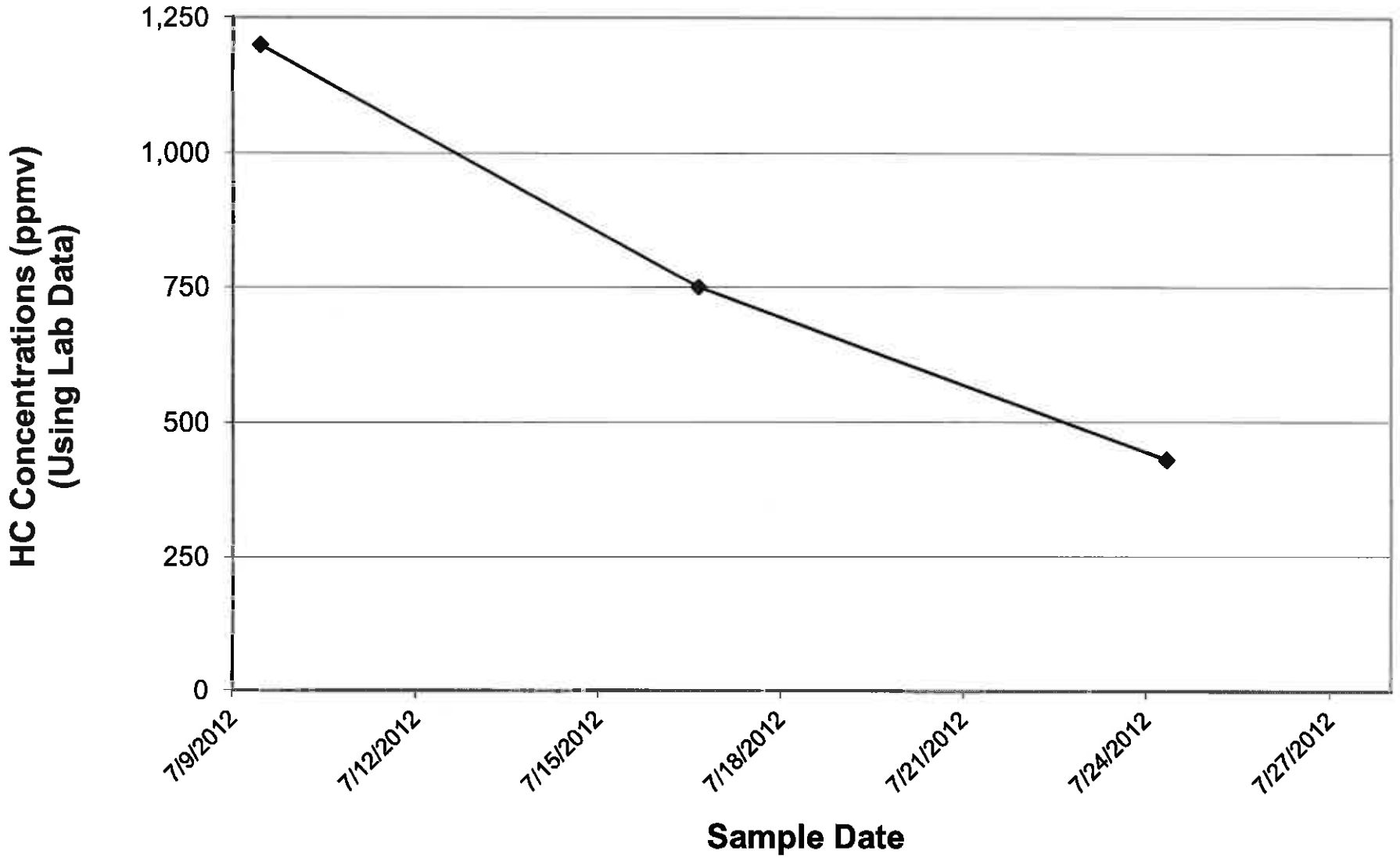
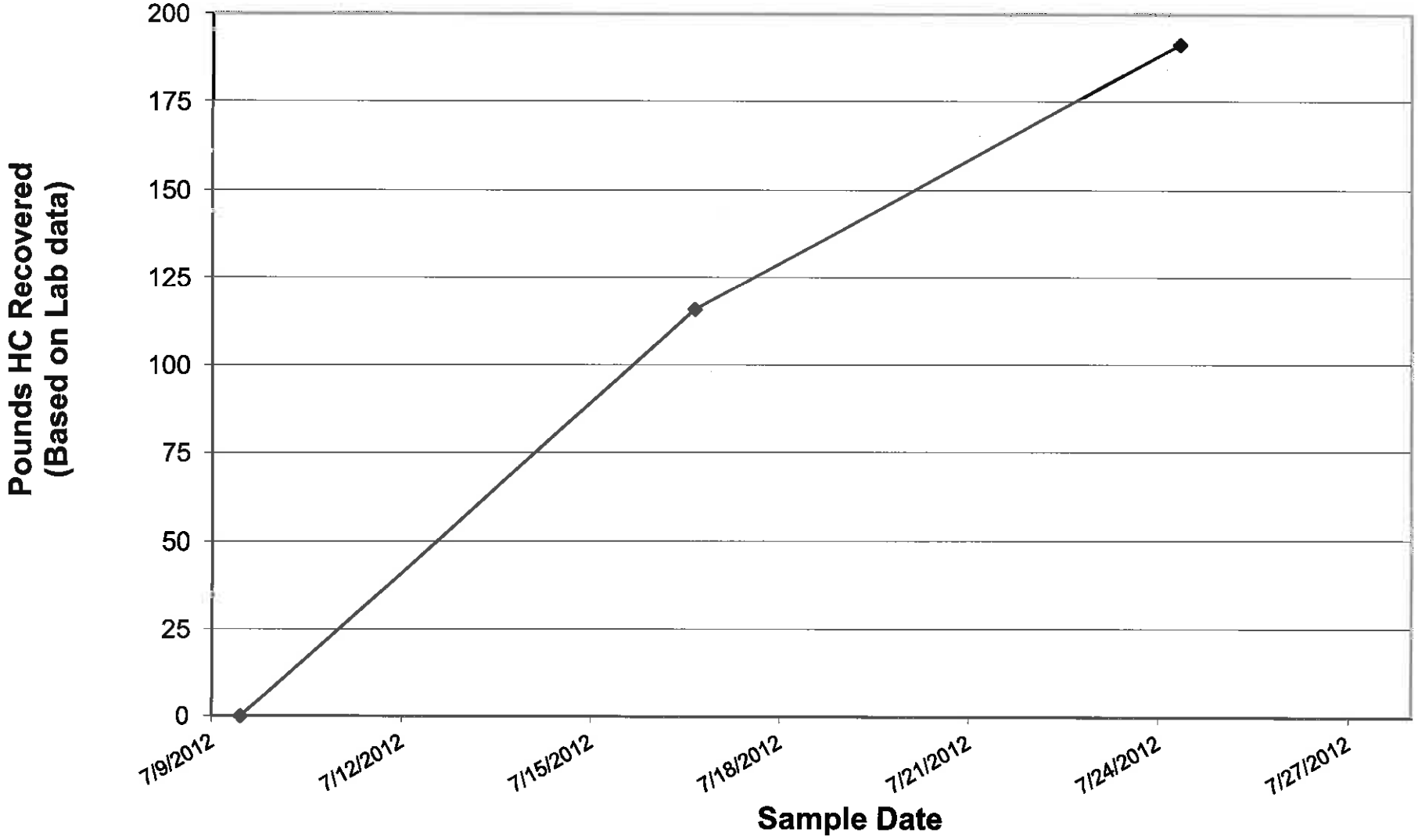


Figure 2

Cumulative HC Recovered Over 15 Days

Terradev Property, Oakland, CA - 7/9-24/12



CalClean Inc.

Table 3

HYDROCARBON MASS REMOVAL (Using Field Analyzer Data)

Terradev Property, Oakland, CA

TIME	Extraction Well # DPE-1 (Stinger Depth)	Extraction Well # DPE-2 (Stinger Depth)	Extraction Well # DPE-3 (Stinger Depth)	Extraction Well # (Stinger Depth)	Extraction Well # (Stinger Depth)	Extraction Well # (Stinger Depth)	SYSTEM PARAMETERS				Hydrocarbon Recovery (using Horiba Data)		
							System Vacuum (in of Hg)	Total System Inlet Flow (scfm)**	Influent Concentrations (ppmv)*	Effluent Concentrations (ppmv) *	(lbs)	(gal)	(Cumul. lbs)
7/9/2012 9:00							25	27	2,120		0.00	0.00	0.00
7/9/2012 9:30							26	29	1,967	3	0.39	0.06	0.39
7/9/2012 9:45							22	40	380		0.14	0.02	0.53
7/9/2012 10:15							22	150	371		0.24	0.04	0.77
7/9/2012 10:45							24	50	679		0.36	0.06	1.13
7/9/2012 12:00							24	50	587		0.54	0.09	1.67
7/9/2012 16:00							24	53	620		1.69	0.27	3.36
7/9/2012 20:00							24	52	720		1.92	0.31	5.27
7/10/2012 4:00							24	51	781		4.21	0.67	9.48
7/10/2012 8:00							24	51	638		1.97	0.32	11.45
7/10/2012 12:00							24	51	650		1.79	0.29	13.24
7/10/2012 16:00							24	51	703		1.88	0.30	15.12
7/10/2012 20:00							24	51	659		1.89	0.30	17.01
7/11/2012 8:00							24	51	620		5.33	0.85	22.34
7/11/2012 12:00							24	51	605		1.70	0.27	24.04
7/11/2012 16:00							24	51	645		1.74	0.28	25.78
7/11/2012 20:00							24	51	638		1.78	0.29	27.56
7/12/2012 8:00							24	51	620		5.24	0.84	32.80
7/12/2012 12:00							24	51	630		1.74	0.28	34.54
7/12/2012 16:00							24	51	617		1.73	0.28	36.27
7/12/2012 20:00							24	51	620		1.72	0.27	37.99
7/13/2012 8:00							24	51	590		5.04	0.81	43.03
7/13/2012 12:00							24	51	537		1.57	0.25	44.59
7/13/2012 16:00							24	51	545		1.50	0.24	46.10
7/13/2012 20:00							24	51	520		1.48	0.24	47.58
7/14/2012 8:00							24	51	578		4.57	0.73	52.15
7/14/2012 12:00							24	51	567		1.59	0.25	53.74
7/14/2012 16:00							24	51	575		1.59	0.25	55.33
7/14/2012 20:00							24	51	569		1.59	0.25	56.91
7/15/2012 8:00							24	51	565		4.72	0.76	61.64

CalClean Inc.

Table 3

HYDROCARBON MASS REMOVAL (Using Field Analyzer Data)

Terradev Property, Oakland, CA

TIME	Extraction Well # DPE-1 (Stinger Depth)	Extraction Well # DPE-2 (Stinger Depth)	Extraction Well # DPE-3 (Stinger Depth)	Extraction Well # (Stinger Depth)	Extraction Well # (Stinger Depth)	Extraction Well # (Stinger Depth)	SYSTEM PARAMETERS				Hydrocarbon Recovery (using Horiba Data)		
							System Vacuum (in of Hg)	Total System Inlet Flow (scfm)**	Influent Concentrations (ppmv)*	Effluent Concentrations (ppmv) *	(lbs)	(gal)	(Cumul lbs)
7/15/2012 12:00							24	51	572		1.58	0.25	63.22
7/15/2012 16:00							24	51	553		1.56	0.25	64.78
7/15/2012 20:00							24	51	557		1.54	0.25	66.32
7/16/2012 8:00							24	51	549		4.61	0.74	70.93
7/16/2012 12:00							24	51	523		1.49	0.24	72.42
7/16/2012 16:00							24	51	488		1.40	0.22	73.82
7/16/2012 20:00							24	51	457		1.31	0.21	75.14
7/17/2012 8:00							24	51	525		4.09	0.65	79.23
7/17/2012 12:00							24	51	515		1.44	0.23	80.67
7/17/2012 16:00							24	51	511		1.42	0.23	82.10
7/17/2012 20:00							24	51	505		1.41	0.23	83.51
7/18/2012 8:00							24	51	480		4.10	0.66	87.61
7/18/2012 12:00							24	51	505		1.37	0.22	88.98
7/18/2012 16:00							24	51	495		1.39	0.22	90.37
7/18/2012 20:00							24	51	487		1.36	0.22	91.73
7/19/2012 8:00							24	51	469		3.98	0.64	95.71
7/19/2012 12:00							24	51	440		1.26	0.20	96.98
7/19/2012 16:00							24	51	430		1.21	0.19	98.18
7/19/2012 20:00							24	51	425		1.19	0.19	99.37
7/20/2012 8:00							24	51	445		3.62	0.58	103.00
7/20/2012 12:00							24	51	449		1.24	0.20	104.24
7/20/2012 16:00							24	51	452		1.25	0.20	105.49
7/20/2012 20:00							24	51	437		1.23	0.20	106.72
7/21/2012 8:00							24	51	430		3.61	0.58	110.34
7/21/2012 12:00							24	51	423		1.18	0.19	111.52
7/21/2012 16:00							24	51	429		1.18	0.19	112.70
7/21/2012 20:00							24	51	427		1.19	0.19	113.89
7/22/2012 8:00							24	51	335		3.17	0.51	117.07
7/22/2012 12:00							24	51	365		0.97	0.16	118.04
7/22/2012 16:00							24	51	325		0.96	0.15	119.00

CalClean Inc.

Table 3

HYDROCARBON MASS REMOVAL (Using Field Analyzer Data)
Terradev Property, Oakland, CA

TIME	Extraction Well # DPE-1 (Stinger Depth)	Extraction Well # DPE-2 (Stinger Depth)	Extraction Well # DPE-3 (Stinger Depth)	Extraction Well # (Stinger Depth)	Extraction Well # (Stinger Depth)	Extraction Well # (Stinger Depth)	SYSTEM PARAMETERS				Hydrocarbon Recovery (using Horiba Data)		
							System Vacuum (in of Hg)	Total System Inlet Flow (scfm)**	Influent Concentrations (ppmv)*	Effluent Concentrations (ppmv) *	(lbs)	(gal)	(Cumul. lbs)
7/22/2012 20:00							24	51	413		1.02	0.16	120.02
7/23/2012 8:00							24	51	399		3.38	0.54	123.40
7/23/2012 12:00							24	51	409		1.12	0.18	124.53
7/23/2012 16:00							24	51	398		1.12	0.18	125.65
7/23/2012 20:00							24	51	392		1.10	0.18	126.74
7/24/2012 8:00							24	51	280		2.80	0.45	129.54
									TOTAL HC RECOVERED		**129.54**	**20.74**	
									TOTAL LIQUID RECOVERED			**18,900**	

Comments: Manual dilution was not opened during the event.

in of Hg = inches of mercury gal = gallons

scfm = standard cubic feet per minute lbs = pounds

* Concentrations based on Horiba MEXA 324-JU field organic vapor analyzer, calibrated as hexane

** Inlet flow measured through orifice tube and converted from acfm to reported scfm

Figure 3
Total Inlet HC Concentrations vs Time (15 Days)
Terradev Property, Oakland, CA - 7/9-24/12

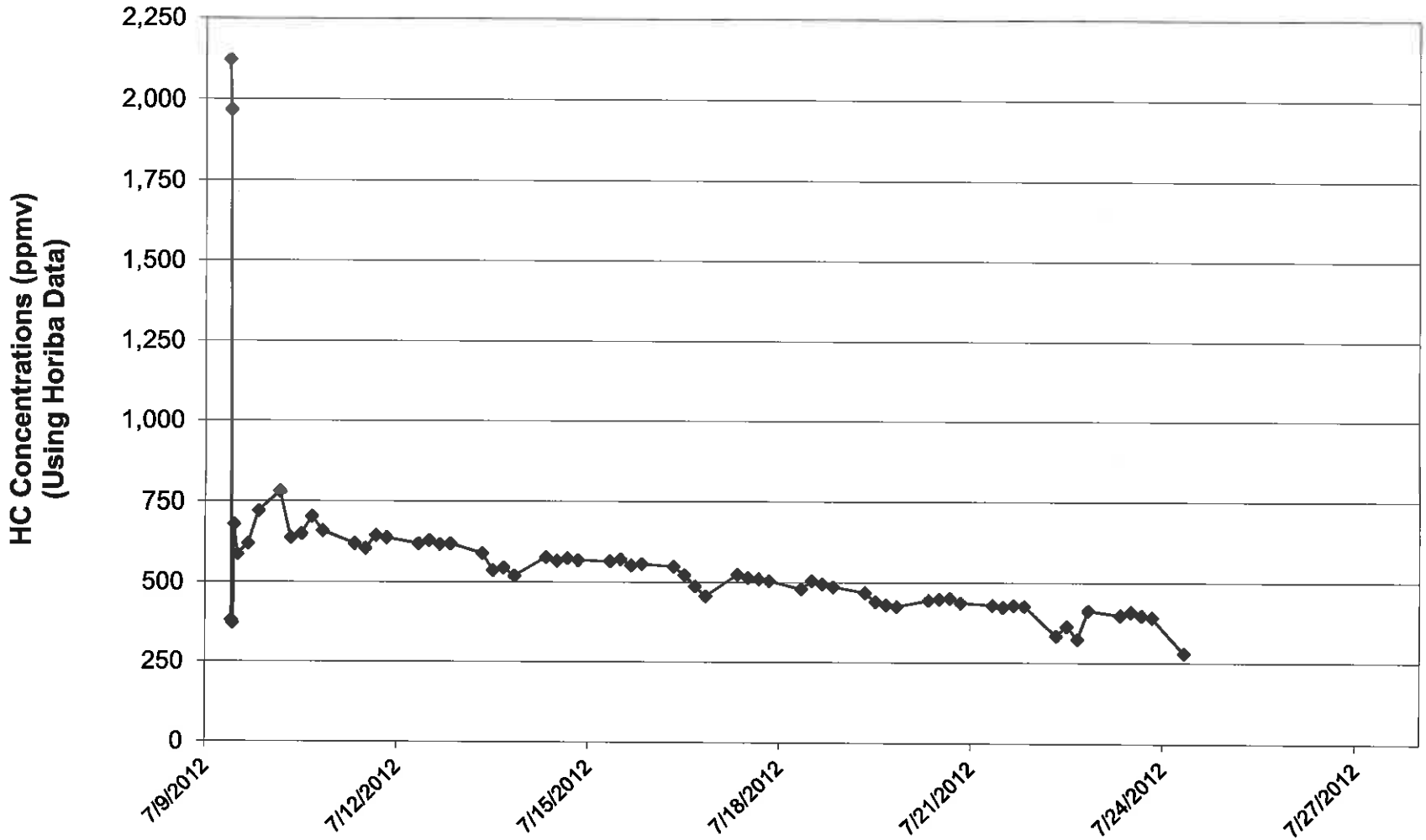
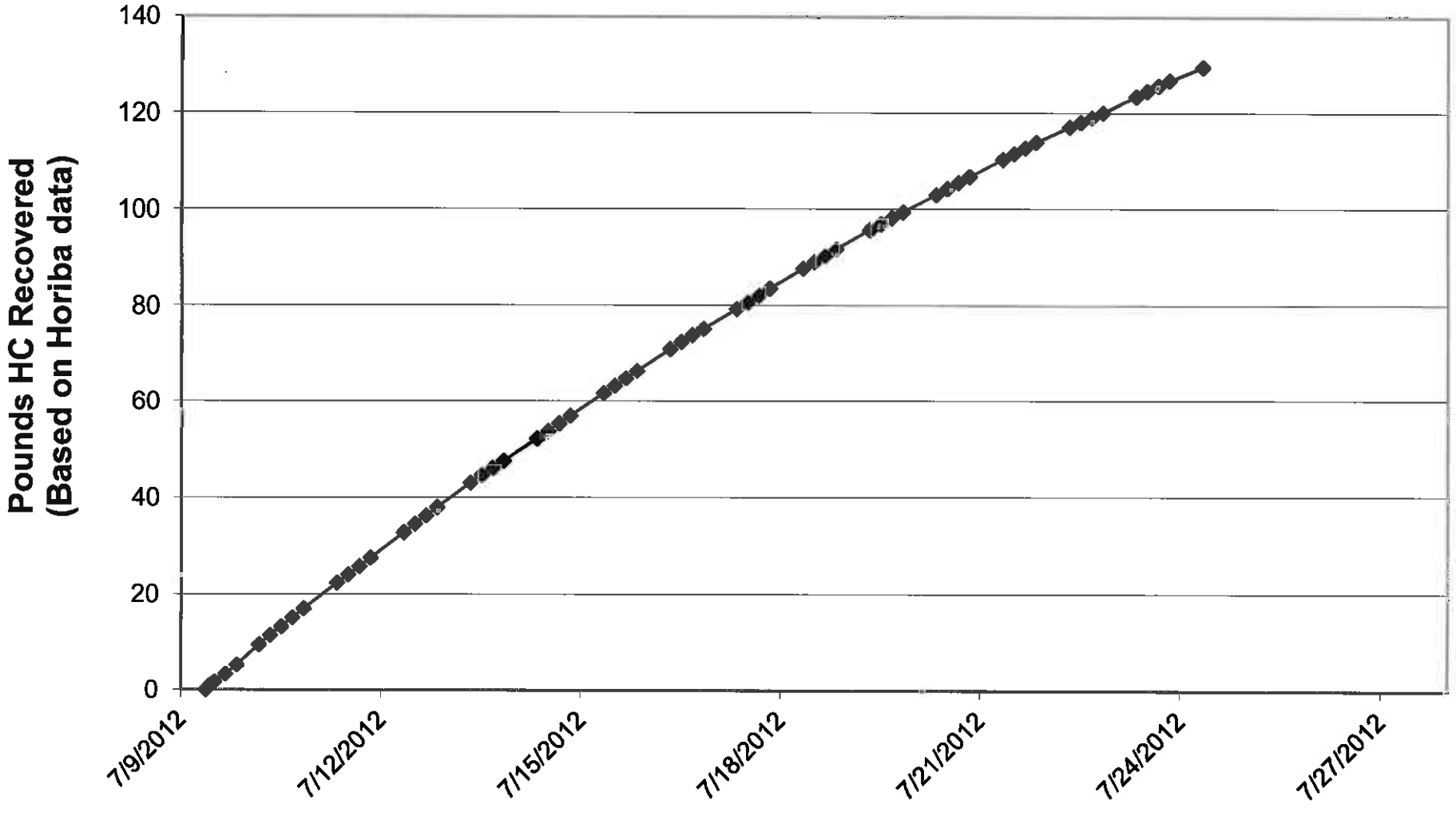


Figure 4
Cumulative HC Recovered Over 15 Days
Terradev Property, Oakland, CA - 7/9-24/12



ATTACHMENT 1

LABORATORY REPORTS

KIFF Analytical LLC

Report Number : 81864
Date : 07/11/2012

Laboratory Results

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

Subject : 1 Vapor Sample
Project Name : Terreder Jefferson LLC Property
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 and TNI 2009 standards. 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,

Troy G. Turpen

Troy Turpen

KIFF Analytical LLC

Report Number : 81864

Date : 07/11/2012

Project Name : **Terreder Jefferson LLC Property**

Project Number : **ASE-1**

Sample : **Total Inlet** Matrix : Air Lab Number : 81864-01

Sample Date :07/09/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene (ppmv)	**76**	0.30	ppmv	EPA 8260B	07/09/12 21:22
Toluene (ppmv)	**85**	0.25	ppmv	EPA 8260B	07/09/12 21:22
Ethylbenzene (ppmv)	**16**	0.20	ppmv	EPA 8260B	07/09/12 21:22
Total Xylenes (ppmv)	**86**	0.20	ppmv	EPA 8260B	07/09/12 21:22
Benzene	**250**	0.90	mg/m3	EPA 8260B	07/09/12 21:22
Toluene	**330**	0.90	mg/m3	EPA 8260B	07/09/12 21:22
Ethylbenzene	**71**	0.90	mg/m3	EPA 8260B	07/09/12 21:22
Total Xylenes	**380**	0.90	mg/m3	EPA 8260B	07/09/12 21:22
Methyl-t-butyl ether (ppmv)	**0.57**	0.25	ppmv	EPA 8260B	07/09/12 21:22
Methyl-t-butyl ether (MTBE)	**2.1**	0.90	mg/m3	EPA 8260B	07/09/12 21:22
TPH as Gasoline (ppmv)	**1200**	25	ppmv	EPA 8260B	07/09/12 21:22
TPH as Gasoline	**4800**	90	mg/m3	EPA 8260B	07/09/12 21:22
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	07/09/12 21:22
Toluene - d8 (Surr)	98.4		% Recovery	EPA 8260B	07/09/12 21:22

Report Number : 81864

QC Report : Method Blank Data

Date : 07/11/2012

Project Name : **Terreder Jefferson LLC Property**

Project Number : **ASE-1**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/09/2012
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/09/2012
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/09/2012
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/09/2012
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/09/2012
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/09/2012
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/09/2012
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/09/2012
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/09/2012
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/09/2012
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/09/2012
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/09/2012
1,2-Dichloroethane-d4 (Surr)	103		%	EPA 8260B	07/09/2012
Toluene - d8 (Surr)	98.9		%	EPA 8260B	07/09/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

KIFF Analytical LLC
2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 81864

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Brian Gwinn

California EDF Report? ☐ Yes ☒ No

Company / Address: Blue Rock Environmental 1169 Chess Drive ste C Foster City Ca

Sampling Company Log Code:

Phone Number: 650-522-9292

Global ID:

Fax Number: 650-522-9259

EDF Deliverable To (Email Address):

Project #: ASE-1 P.O. #:

Bill to: Blue Rock Env – Foster City

Project Name: Terradev Jefferson LLC Property

Sampler Print Name: Scott Robertson

Sampler Signature: [signature]

Project Address: 645 Fourth Street Oakland Ca 94607

Sample Designation	Date	Time	40 ml VOA	Sleeve	Poly	Glass	Tedlar	HCl	HNO_3	None	Water	Soil	Air	MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B)	7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7471)	Total Lead (EPA 200.7 / 6010)	W.E.T. Lead (STLC)	TAT	For Lab Use Only
Total Inlet	7/9/12	1050					1L			X			X	X	X	X														1wk	01
Total Inlet	7/9/12	1050					1L			X			X	X	X	X														1wk	~~02~~ 01

CIRCLE METHOD

TAT: ☐ 12 hr ☐ 24 hr ☐ 48hr ☐ 72hr ☒ 1 wk

Relinquished by:	Date	Time	Received by:
[signature]	7/9/12	1323	
	070912	1323	Received by Laboratory: [signature] Kiff Analytical

Remarks:

Distribution: White - Lab; Pink - Originator
Rev: 060409

KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

RECEIVER LJR Initials

SRG#: 81864 Date: 070912

Project ID: Terredev Jefferson LLC Property

Method of Receipt: ☐ Courier ☒ Over-the-counter ☐ Shipper

COC Inspection

Is COC present?	☒ Yes	☐ No	
Custody seals on shipping container?	☐ Intact	☐ Broken	☐ Not present ☒ N/A
Is COC Signed by Relinquisher? ☒ Yes ☐ No	Dated? ☒ Yes	☐ No	
Is sampler name legibly indicated on COC?	☒ Yes	☐ No	
Is analysis or hold requested for all samples?	☒ Yes	☐ No	
Is the turnaround time indicated on COC?	☒ Yes	☐ No	
Is COC free of whiteout and uninitialed cross-outs?	☒ Yes	☐ No, Whiteout	☐ No, Cross-outs

Sample Inspection

Coolant Present: ☐ Yes ☒ No (includes water)

Temperature °C_____ Therm. ID#_____ Initial_____ Date/Time_____ ☒ N/A

Are there custody seals on sample containers?	☐ Intact	☐ Broken	☒ Not present	
Do containers match COC? ☒ Yes ☐ No ☐ No, COC lists absent sample(s)		☐ No, Extra sample(s) present		
Are there samples matrices other than soil, water, air or carbon?	☐ Yes	☒ No		
Are any sample containers broken, leaking or damaged?	☐ Yes	☒ No		
Are preservatives indicated? ☐ Yes, on sample containers	☐ Yes, on COC	☐ Not indicated	☒ N/A	
Are preservatives correct for analyses requested?	☐ Yes	☐ No	☒ N/A	
Are samples within holding time for analyses requested?	☒ Yes	☐ No		
Are the correct sample containers used for the analyses requested?	☒ Yes	☐ No		
Is there sufficient sample to perform testing?	☒ Yes	☐ No		

Does any sample contain product, have strong odor or are otherwise suspected to be hot? ☐ Yes ☒ No

Receipt Details

Matrix AR Container type Tedlar # of containers received 2

Matrix_____ Container type_____ # of containers received_____

Matrix_____ Container type_____ # of containers received_____

Date and Time Sample Put into Temp Storage Date: 070912 Time: 1323

Quicklog

Are the Sample ID's indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If Sample ID's are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Is the Project ID indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If project ID is listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection dates indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection dates are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection times indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection times are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	

COMMENTS: Client confirmed that both tedlars are from the same sample. LJR070912-1354

KIFF Analytical LLC

Report Number : 81949
Date : 07/18/2012

Laboratory Results

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

Subject : 1 Vapor Sample
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 and TNI 2009 standards. 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,

Troy G. Turpen

Troy Turpen

KIFF Analytical LLC

Report Number : 81949

Date : 07/18/2012

Project Name : **Terrader Jefferson LLC**

Project Number : **ASE-1**

Sample : **Total Inlet** Matrix : Air Lab Number : 81949-01

Sample Date :07/16/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene (ppmv)	**22**	0.30	ppmv	EPA 8260B	07/17/12 18:43
Toluene (ppmv)	**43**	0.25	ppmv	EPA 8260B	07/17/12 18:43
Ethylbenzene (ppmv)	**6.3**	0.20	ppmv	EPA 8260B	07/17/12 18:43
Total Xylenes (ppmv)	**43**	0.20	ppmv	EPA 8260B	07/17/12 18:43
Benzene	**73**	0.90	mg/m3	EPA 8260B	07/17/12 18:43
Toluene	**160**	0.90	mg/m3	EPA 8260B	07/17/12 18:43
Ethylbenzene	**28**	0.90	mg/m3	EPA 8260B	07/17/12 18:43
Total Xylenes	**190**	0.90	mg/m3	EPA 8260B	07/17/12 18:43
Methyl-t-butyl ether (ppmv)	**0.33**	0.25	ppmv	EPA 8260B	07/17/12 18:43
Methyl-t-butyl ether (MTBE)	**1.2**	0.90	mg/m3	EPA 8260B	07/17/12 18:43
TPH as Gasoline (ppmv)	**750**	25	ppmv	EPA 8260B	07/17/12 18:43
TPH as Gasoline	**3000**	90	mg/m3	EPA 8260B	07/17/12 18:43
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	07/17/12 18:43
Toluene - d8 (Surr)	97.4		% Recovery	EPA 8260B	07/17/12 18:43

Report Number : 81949

QC Report : Method Blank Data

Date : 07/18/2012

Project Name : **Terrader Jefferson LLC**

Project Number : **ASE-1**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/17/2012
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/17/2012
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/17/2012
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/17/2012
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/17/2012
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/17/2012
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/17/2012
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/17/2012
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/17/2012
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/17/2012
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/17/2012
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/17/2012
1,2-Dichloroethane-d4 (Surr)	101		%	EPA 8260B	07/17/2012
Toluene - d8 (Surr)	98.8		%	EPA 8260B	07/17/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 81949

Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Brian Gwinn

California EDF Report? ☐ Yes ☒ No

Company / Address: Blue Rock Environmental 1164 Chess Drive #C Foster City Ca. 94404

Sampling Company Log Code:

Phone Number: 650-522-9292

Global ID:

Fax Number: 650-522-9259

EDF Deliverable To (Email Address):

Project #: ASE-1

P.O. #:

Bill to: Blue Rock

Project Name: Terrawest Jefferson LLC

Sampler Print Name: Scott Robertson

Sampler Signature: Scott Rob

Project Address: 645 Fourth Street Oakland Ca.

Sample Designation	Sampling: Date	Sampling: Time	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Container:	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative:	Preservative:	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix:	Analysis Request: MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B)	7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7471)	Total Lead (EPA 200.7 / 6010)	W.E.T. Lead (STLC)						TAT	For Lab Use Only
																		CIRCLE METHOD																								
Total Inlet	7/16/12	1530					x2									X		X	X	X																			1 wk	OK

Relinquished by: Scott Rob — Date: 7/16/12 — Time: 1713 — Received by:

Relinquished by: — Date: — Time: — Received by:

Relinquished by: — Date: 7/17/12 — Time: 1147 — Received by Laboratory: Cliff Analyst

Remarks:

Distribution: White - Lab; Pink - Originator
Rev: 060409

KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

RECEIVER Initials: Eng

SRG#: 31949 Date: 071712

Project ID: Terrader ~~Terra Sec~~ Eng 071712 Jefferson LLC

Method of Receipt: ☒ Courier ☐ Over-the-counter ☐ Shipper

COC Inspection

Is COC present?	☒ Yes	☐ No			
Custody seals on shipping container?	☐ Intact	☐ Broken	☐ Not present	☒ N/A	
Is COC Signed by Relinquisher? ☒ Yes ☐ No	Dated? ☒ Yes	☐ No			
Is sampler name legibly indicated on COC?	☒ Yes	☐ No			
Is analysis or hold requested for all samples?	☒ Yes	☐ No			
Is the turnaround time indicated on COC?	☒ Yes	☐ No			
Is COC free of whiteout and uninitialed cross-outs?	☒ Yes	☐ No, Whiteout	☐ No, Cross-outs		

Sample Inspection

Coolant Present: ☒ Yes ☐ No (includes water)

Temperature °C_____ Therm. ID#_____ Initial_____ Date/Time_____ ☐ N/A

Are there custody seals on sample containers?	☐ Intact	☐ Broken	☒ Not present	
Do containers match COC? ☒ Yes ☐ No ☐ No, COC lists absent sample(s)	☐ No, Extra sample(s) present			
Are there samples matrices other than soil, water, air or carbon?	☐ Yes	☒ No		
Are any sample containers broken, leaking or damaged?	☐ Yes	☒ No		
Are preservatives indicated? ☐ Yes, on sample containers	☐ Yes, on COC	☐ Not indicated	☒ N/A	
Are preservatives correct for analyses requested?	☐ Yes	☐ No	☒ N/A	
Are samples within holding time for analyses requested?	☒ Yes	☐ No		
Are the correct sample containers used for the analyses requested?	☒ Yes	☐ No		
Is there sufficient sample to perform testing?	☒ Yes	☐ No		

Does any sample contain product, have strong odor or are otherwise suspected to be hot? ☐ Yes ☒ No

Receipt Details

Matrix AR	Container type Tedlar	# of containers received 02
Matrix_____	Container type_____	# of containers received_____
Matrix_____	Container type_____	# of containers received_____

Date and Time Sample Put into Temp Storage Date: 071712 Time: 1425

Quicklog

Are the Sample ID's indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If Sample ID's are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Is the Project ID indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If project ID is listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection dates indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection dates are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection times indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection times are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	

COMMENTS:

KIFF Analytical LLC

Report Number : 82037
Date : 07/26/2012

Laboratory Results

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

Subject : 1 Vapor Sample
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 and TNI 2009 standards. 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,

Troy G. Turpen

Troy Turpen

KIFF Analytical LLC

Report Number : 82037

Date : 07/26/2012

Project Name : **Terrader Jefferson LLC**

Project Number : **ASE-1**

Sample : **Total Inlet** Matrix : Air Lab Number : 82037-01

Sample Date :07/24/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene (ppmv)	**14**	0.30	ppmv	EPA 8260B	07/25/12 17:03
Toluene (ppmv)	**25**	0.25	ppmv	EPA 8260B	07/25/12 17:03
Ethylbenzene (ppmv)	**3.3**	0.20	ppmv	EPA 8260B	07/25/12 17:03
Total Xylenes (ppmv)	**25**	0.20	ppmv	EPA 8260B	07/25/12 17:03
Benzene	**47**	0.90	mg/m3	EPA 8260B	07/25/12 17:03
Toluene	**94**	0.90	mg/m3	EPA 8260B	07/25/12 17:03
Ethylbenzene	**15**	0.90	mg/m3	EPA 8260B	07/25/12 17:03
Total Xylenes	**110**	0.90	mg/m3	EPA 8260B	07/25/12 17:03
Methyl-t-butyl ether (ppmv)	**0.29**	0.25	ppmv	EPA 8260B	07/25/12 17:03
Methyl-t-butyl ether (MTBE)	**1.1**	0.90	mg/m3	EPA 8260B	07/25/12 17:03
TPH as Gasoline (ppmv)	**430**	25	ppmv	EPA 8260B	07/25/12 17:03
TPH as Gasoline	**1700**	90	mg/m3	EPA 8260B	07/25/12 17:03
1,2-Dichloroethane-d4 (Surr)	106		% Recovery	EPA 8260B	07/25/12 17:03
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	07/25/12 17:03

Report Number : 82037

Date : 07/26/2012

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
Benzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/25/2012
Ethylbenzene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/25/2012
Toluene (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/25/2012
Total Xylenes (ppmv)	< 0.050	0.050	ppmv	EPA 8260B	07/25/2012
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	07/25/2012
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	07/25/2012
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	07/25/2012
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	07/25/2012
Methyl-t-butyl ether (ppmv)	< 0.10	0.10	ppmv	EPA 8260B	07/25/2012
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	07/25/2012
TPH as Gasoline (ppmv)	< 5.0	5.0	ppmv	EPA 8260B	07/25/2012
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	07/25/2012
1,2-Dichloroethane-d4 (Surr)	107		%	EPA 8260B	07/25/2012
Toluene - d8 (Surr)	101		%	EPA 8260B	07/25/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 82037

Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Bryan Gwinn

California EDF Report? ☐ Yes ☐ No

Company / Address: Blue Rock / 1169 Chess Dr. #C Foster City CA

Sampling Company Log Code:

Phone Number: 650-522-9292

Global ID:

Fax Number: 650-522-9259

EDF Deliverable To (Email Address):

Project #: ASE-1

P.O. #:

Bill to: Blue Rock Env. - Foster City

Project Name: Terra del Jefferson LLC

Sampler Print Name: Bryan Gwinn

Sampler Signature:

Project Address: 645 Fourth St Oakland CA 94607

Sample Designation	Sampling: Date	Sampling: Time	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Container:	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative:	Preservative:	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix:
Total Inlet	7/24/12	0800					2				X					X	

Analysis Request

MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B)	7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7471)	Total Lead (EPA 200.7 / 6010)	W.E.T. Lead (STLC)					
X	X	X																				

CIRCLE METHOD

TAT: ☐ 12 hr ☐ 24 hr ☐ 48hr ☐ 72hr ☒ 1 wk

For Lab Use Only: 01

Relinquished by:	Date	Time	Received by:
	7/24/12	1120	to FedEx
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	072512	1045	KFF Analytical LLC

Remarks:

Distribution: White - Lab; Pink - Originator
Rev: 060409

KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

RECEIVER: TJB (Initials)

SRG#: 82037 Date: 072512

Project ID: Terradev Jefferson LLC

Method of Receipt: ☐ Courier ☐ Over-the-counter ☒ Shipper

Shipping Only: ☒ FedEx * ☐ OnTrac * ☐ Greyhound ☐ Other *Service level if not Priority or Sunrise (M-F): _____

COC Inspection

Is COC present?	☒ Yes	☐ No		
Custody seals on shipping container?	☐ Intact	☐ Broken	☒ Not present	☐ N/A
Is COC Signed by Relinquisher? ☒ Yes ☐ No Dated?	☒ Yes	☐ No		
Is sampler name legibly indicated on COC?	☒ Yes	☐ No		
Is analysis or hold requested for all samples?	☒ Yes	☐ No		
Is the turnaround time indicated on COC?	☒ Yes	☐ No		
Is COC free of whiteout and uninitialed cross-outs?	☒ Yes	☐ No, Whiteout	☐ No, Cross-outs	

Sample Inspection

Coolant Present: ☐ Yes ☒ No (includes water)

Temperature °C_____ Therm. ID#_____ Initial_____ Date/Time_____ ☒ N/A

Are there custody seals on sample containers?	☐ Intact	☐ Broken	☒ Not present	
Do containers match COC? ☒ Yes ☐ No ☐ No, COC lists absent sample(s)	☐ No, Extra sample(s) present			
Are there samples matrices other than soil, water, air or carbon?	☐ Yes	☒ No		
Are any sample containers broken, leaking or damaged?	☐ Yes	☒ No		
Are preservatives indicated? ☐ Yes, on sample containers	☐ Yes, on COC	☐ Not indicated	☒ N/A	
Are preservatives correct for analyses requested?	☐ Yes	☐ No	☒ N/A	
Are samples within holding time for analyses requested?	☒ Yes	☐ No		
Are the correct sample containers used for the analyses requested?	☒ Yes	☐ No		
Is there sufficient sample to perform testing?	☒ Yes	☐ No		

Does any sample contain product, have strong odor or are otherwise suspected to be hot? ☐ Yes ☒ No

Receipt Details

Matrix AR	Container type Tedlar	# of containers received 2
Matrix_____	Container type_____	# of containers received_____
Matrix_____	Container type_____	# of containers received_____

Date and Time Sample Put into Temp Storage Date: 072512 Time: 1045

Quicklog

Are the Sample ID's indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If Sample ID's are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Is the Project ID indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If project ID is listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection dates indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection dates are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	
Are the sample collection times indicated:	☐ On COC	☐ On sample container(s)	☒ On Both	☐ Not indicated
If collection times are listed on both COC and containers, do they all match?	☒ Yes	☐ No	☐ N/A	

COMMENTS:

ATTACHMENT 2

HIGH VACUUM DUAL PHASE EXTRACTION SYSTEM
FIELD DATA SHEETS

HIGH VACUUM ☐ **SVE or** ☒ **DPE** **FIELD DATA SHEET**

CALCLEAN INC.
(714) 734-9137

Project Location: **645 FOURTH STREET** City: **OAKLAND** Site #: **TERRADEV PROPERTY** Date: 7 / 09 / 2012 Page 1 of 5

Client: **BLUE ROCK ENV** Operator (s): Paul / Tony

					EXTRACTION WELLS									OBSERVATION WELLS									
				Well I.D.	DPE-1			DPE-2			DPE-3											Water Meter Readings	Cumul. Water Extracted
				Screen Interval: From-To (ft)	TD / DTW			TD / DTW			TD / DTW												
				Initial Depth To Water DTW (ft)	14.80 / 8.85			14.81 / 9.06			9.80 / 8.65												
Time	Unit Vacuum ("Hg.)	Air Flowrate (cfm)	TOX Temp. (degF)	Vapor Inlet Conc. (ppmv)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	units 198540	gals #200
7/9							13'			13'			8'										
0900	25	27	1335		on 2120			off			off												
0930	26	29	1417		off			~~on 1967~~			off												
0945	22	40	1409		off			off			~~on 380~~												
1015	22	150	1385	371	on			on			on												
1045	24	50	1410	679	on			on			off												
1200	24	50	1415	587																			
1600	24	53	1430	620																			
2000	24	52	1449	720																		198940	400
2400	24	51	1438	781																			
7/10																							
0400	24	51	1444	630																			
0800	24	51	1447	650																		199710	1170
1200	24	51	1415	703																			
1600	24	51	1435	659																			
2000	24	51	619	620																		200480	2140
7/11																							
0800	24	51	628	605																		201260	2920
1200	24	51	631	645																			
1600	24	51	734	638																			
2000	24	51	657	605																		202000	3660

Comments: 7/9 Consultant didn't want all Vapor Samples at start. Just Individual readings
Took Total Inlet [illegible] Sample @ 1045 (PPMV) 679) (2) Took start sample @ 1050 (3 PPMV)
7/10 Switched to Catalytic @ 1700

HIGH VACUUM [ ] SVE or [X] DPE FIELD DATA SHEET

CALCLEAN INC.
(714) 734-9137

Project Location: **645 FOURTH STREET** City: **OAKLAND** Site #: **TERRADEV PROPERTY** Date: 7/12/2012 Page 2 of 3

Client: **BLUE ROCK ENV** Operator (s): Paul

					EXTRACTION WELLS									OBSERVATION WELLS									
	Well I.D.				DPE-1			DPE-2			DPE-3												
	Screen Interval: From-To (ft)				TD	/ DTW		TD	/ DTW		TD	/ DTW											
	Initial Depth To Water DTW (ft)				14.80	/ 8.18		14.81	/ 9.06		9.80	/ 8.65											
Time	Unit Vacuum ("Hg.)	Air Flowrate (cfm)	TOX Temp. (degF)	Vapor Inlet Conc. (ppmv)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Water Meter Readings units	Cumul. Water Extracted gals
																						198540	4700
7/12					on		13'	on		13'	off		8'										
0800	24	51	675	620																		202730	4390
1200	24	51	714	630																			
1600	24	51	715	617																			
2000	24	51	711	620																		203960	5170
7/13																							
0800	24	51	753	590																		204140	5800
1200	24	51	690	537																			
1600	24	51	698	545																			
2000	24	51	689	520																		204780	6440
7/14																							
0800	24	51	691	578																		205490	7110
1200	24	51	705	567																			
1600	24	51	710	575																			
2000	24	51	709	569																		206100	7760
7/15																							
0800	24	51	704	565																		206730	9340
1200	24	51	697	577																			
1600	24	51	704	553																			
2000	24	51	710	557																		207380	8840

Comments:

HIGH VACUUM ☐ SVE or ☒ DPE FIELD DATA SHEET

CALCLEAN INC.
(714) 734-9137

Project Location: **645 FOURTH STREET** City: **OAKLAND** Site #: **TERRADEV PROPERTY** Date: 7/12/2012

Client: **BLUE ROCK ENV** Operator (s): Paul

					EXTRACTION WELLS									OBSERVATION WELLS									
		Well I.D.			DPE-1			DPE-2			DPE-3												Cumul.
	Screen Interval: From-To (ft)				TD / DTW			TD / DTW			TD / DTW											Water Meter	Water
	Initial Depth To Water DTW (ft)				14.80 / 8.85			14.81 / 9.06			[illegible] / [illegible]											Readings	Extracted
Time	Unit Vacuum ("Hg.)	Air Flowrate (cfm)	TOX Temp. (degF)	Vapor Inlet Conc. (ppmv)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	units	gals
																						1988[illegible]	[illegible]
7/16					On		13'	On		13'	off		8'										
0900	24	51	698	549																		2070[illegible]	[illegible]
1200	24	51	709	523																			
1600	24	51	702	488																			
2000	24	51	[illegible]	457																		208[illegible]0	10060
7/17																							
0800	24	51	702	525																		209[illegible]	10[illegible]
1200	24	51	689	519																			
1600	24	51	697	51[illegible]																			
2000	24	51	699	505																		209[illegible]	11[illegible]
7/18																							
0800	24	51	704	480																		210420	120[illegible]
1200	24	51	710	505																			
1600	24	51	689	49[illegible]																			
2000	29	51	698	487																		211020	12680
7/19																							
0800	24	51	695	469																		211600	13060
1200	24	51	707	440																			
1600	24	51	719	430																			
2000	24	51	711	425																		212210	14070

Comments: 7/16 Took Vapor Samples Total inlet @ 1530 (PPMV 491) (2)

HIGH VACUUM [ ] SVE or [X] DPE FIELD DATA SHEET

CALCLEAN INC.
(714) 734-9137

Project Location: **645 FOURTH STREET** City: **OAKLAND** Site #: **TERRADEV PROPERTY** Date: 7 /20/ 2012 Page 4 of 5

Client: **BLUE ROCK ENV** Operator (s): Paul

					EXTRACTION WELLS									OBSERVATION WELLS									
	Well I.D.				DPE-1			DPE-2			DPE-3											Water Meter Readings	Cumul. Water Extracted
	Screen Interval: From-To (ft)				TD / DTW			TD / DTW			TD / DTW												
	Initial Depth To Water DTW (ft)																						
Time	Unit Vacuum ("Hg.)	Air Flowrate (cfm)	TOX Temp. (degF)	Vapor Inlet Conc. (ppmv)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	units	gals
																						198540	+2000
7/20					ON		8'	ON		13	OFF		8'										
0800	24	51	701	445		=																217840	145,00
1200	24	51	698	449																			
1600	24	51	701	452																			
2000	24	51	697	437																		233770	160300
7/21																							
0800	24	51	702	430																		213970	150150
1200	24	51	687	423																			
1600	24	51	705	429																			
2000	24	51	701	427																		214580	161800
7/22																							
0800	24	51	699	335																		215000	167000
1200	24	51	719	365																			
1600	24	51	705	325																			
2000	24	51	712	413																		215600	173300
7/24																							
0800	24	51	702	299																		216140	177820
1200	24	51	711	404																			
1600	24	51	689	398																			
2000	24	51	711	392																		216670	178325
*																							

Comments:

HIGH VACUUM [ ] SVE or [X] DPE FIELD DATA SHEET

CALCLEAN INC.
(714) 734-9137

Project Location: **645 FOURTH STREET** City: **OAKLAND** Site #: **TERRADEV PROPERTY** Date: 7/24/2012

Client: **BLUE ROCK ENV** Operator (s): Paul

		EXTRACTION WELLS												OBSERVATION WELLS									
	Well I.D.	DPE-1			DPE-2			DPE-3														Water Meter Readings	Cumul. Water Extracted
	Screen Interval: From-To (ft)	T.D. / DTW.			T.D. / DTW			T.D. / DTW.															
	Initial Depth To Water DTW (ft)	14.00 / 9.55			14.81 / 9.06			9.80 / 8.65															
Time	Unit Vacuum ("Hg.)	Air Flowrate (cfm)	TOX Temp. (degF)	Vapor Inlet Conc. (ppmv)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	units 198540	gals
7/24					on		13'	on		13'	off		8'										
1500	24	51	715	280		=																217242	18900

Comments: 7/25 TOOK Vapor Samples Total inlet @ 0800 (PPMV) 280 (2) Tedlars

HIGH VACUUM ☐ SVE or ☒ DPE FIELD DATA SHEET

CALCLEAN INC.
(714) 734-9137

Project Location: **645 FOURTH STREET** City: **OAKLAND** Site #: **TERRADEV PROPERTY** Date: 7 / 09 / 2012 Page 1 of 5

Client: **BLUE ROCK ENV** Operator (s): Paul / Tony

					EXTRACTION WELLS									OBSERVATION WELLS									
Well I.D.					DPE-1			DPE-2			DPE-3											Water Meter Readings	Cumul. Water Extracted
Screen Interval: From-To (ft)					TD / DTW			TD / DTW			TD / DTW												
Initial Depth To Water DTW (ft)					14.80 / 8.85			14.81 / 9.06			9.80 / 8.65												
Time	Unit Vacuum ("Hg.)	Air Flowrate (cfm)	TOX Temp. (degF)	Vapor Inlet Conc. (ppmv)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	units 198540	gals #200
7/9							13'			13'			8'										
0900	25	27	1335		~~on~~ 2120			off			off												
0930	26	29	1417		off			~~on~~ 1967			off												
0945	22	40	1409		off			off			~~on~~ 380												
1015	22	150	1386	371	on			on			on												
1045	24	50	1410	679	on			on			off												
1200	24	50	1415	587																			
1600	24	53	1430	620																			
2000	24	52	1449	720																		198940	400
2400	24	51	1430	781																			
7/10																							
0400	24	51	1444	630																			
0800	24	51	1447	650																		199710	1170
1200	24	51	1415	703																			
1600	24	51	1435	659																			
2000	24	51	614	620																		200480	2140
7/11																							
0800	24	51	628	605																		201260	2920
1200	24	51	631	645																			
1600	24	51	734	638																			
2000	24	51	657	605																		202000	3660

Comments: 7/9 Consultant didn't need any Vapor Samples at start. Just Individual readings
Took Total Inlet Vapor Sample @ 1045 (PPMV 679) (2) Took Start sample @ 1050 (3 PPMV)
7/10 Switched to Catalytic @ 1700

HIGH VACUUM [ ] SVE or [X] DPE FIELD DATA SHEET

CALCLEAN INC.
(714) 734-9137

Project Location: **645 FOURTH STREET** City: **OAKLAND** Site #: **TERRADEV PROPERTY** Date: 7/12/2013 Page 2 of 5

Client: **BLUE ROCK ENV** Operator (s): Paul

					EXTRACTION WELLS									OBSERVATION WELLS									
	Well I.D.				DPE-1			DPE-2			DPE-3											Water Meter Readings	Cumul. Water Extracted
	Screen Interval: From-To (ft)				TD	/ DTW		TD	/ DTW		TD	/ DTW											
	Initial Depth To Water DTW (ft)				14.80	/ 8.89		14.81	/ 9.06		9.80	/ 8.65											
Time	Unit Vacuum ("Hg.)	Air Flowrate (cfm)	TOX Temp. (degF)	Vapor Inlet Conc. (ppmv)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	units	gals
																						198540	4700
7/12					on		13'	on		13'	off		8'										
0800	24	51	675	620																		202730	4390
1200	24	51	714	630																			
1600	24	51	715	617																			
2000	24	51	711	620																		203960	5120
7/13																							
0800	24	51	703	590																		204140	5800
1200	24	51	690	537																			
1600	24	51	698	545																			
2000	24	51	689	520																		204780	6440
7/14																							
0800	24	51	691	578																		205950	7110
1200	24	51	705	567																			
1600	24	51	710	575																			
2000	24	51	709	569																		206400	7760
7/15																							
0800	24	51	704	565																		206730	8090
1200	24	51	697	577																			
1600	24	51	704	553																			
2000	24	51	710	557																		207360	8840

Comments:

HIGH VACUUM [ ] SVE or [X] DPE FIELD DATA SHEET

CALCLEAN INC.
(714) 734-9137

Project Location: **645 FOURTH STREET** City: **OAKLAND** Site #: **TERRADEV PROPERTY** Date: 7/12/2010 Page 3 of 3

Client: **BLUE ROCK ENV** Operator (s): Paul

					EXTRACTION WELLS									OBSERVATION WELLS									
	Well I.D.				DPE-1			DPE-2			DPE-3											Water Meter Readings	Cumul. Water Extracted
	Screen Interval: From-To (ft)				TD / DTW			TD / DTW			TD / DTW												
	Initial Depth To Water DTW (ft)				14.80 / 8.85			14.81 / 9.06			9.40 / 8.65												
Time	Unit Vacuum ("Hg.)	Air Flowrate (cfm)	TOX Temp. (degF)	Vapor Inlet Conc. (ppmv)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	units	gals
																						198510	0
7/16					On		13'	On		13'	Off		8'										
0800	24	51	698	549																		207980	9470
1200	24	51	709	523																			
1600	24	51	702	488																			
2000	24	51	699	457																		208060	10060
7/17																							
0800	24	51	702	525																		209220	10660
1200	24	51	689	515																			
1600	24	51	697	511																			
2000	24	51	699	505																		209810	11500
7/18																							
0800	24	51	704	480																		210420	12080
1200	24	51	710	505																			
1600	24	51	689	495																			
2000	24	51	698	487																		211020	12680
7/19																							
0800	24	51	695	469																		211600	13060
1200	24	51	707	440																			
1600	24	51	719	430																			
2000	24	51	711	425																		212210	14070

Comments: 7/16 Took Vapor Samples Total inlet @ 1930 (PEMU 491) (2)

HIGH VACUUM [ ] SVE or [X] DPE FIELD DATA SHEET

CALCLEAN INC.
(714) 734-9137

Project Location: **645 FOURTH STREET** City: **OAKLAND** Site #: **TERRADEV PROPERTY** Date: 7/20/2012 Page 4 of 5

Client: **BLUE ROCK ENV** Operator (s): Paul

					EXTRACTION WELLS									OBSERVATION WELLS									
	Well I.D.				DPE-1			DPE-2			DPE-3											Water Meter Readings	Cumul. Water Extracted
	Screen Interval: From-To (ft)				TD / DTW			TD / DTW			TD / DTW												
	Initial Depth To Water DTW (ft)				14.60 / 8.55			14.61 / 9.06			15.0 / 9.65												
Time	Unit Vacuum ("Hg.)	Air Flowrate (cfm)	TOX Temp. (degF)	Vapor Inlet Conc. (ppmv)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	units	gals
																						198540	2002
7/20					ON		17'	ON		18'	ON		8'										
0800	24	S1	704	445																		217840	19300
1200	24	S1	698	449																			
1600	24	S1	701	452																			
2000	24	S1	697	437																		233370	15030
7/21																							
0800	24	S1	702	430																		243930	10560
1200	24	S1	687	423																			
1600	24	S1	705	429																			
2000	24	S1	701	427																		254580	10650
7/22																							
0800	24	S1	699	335																		271080	16500
1200	24	S1	719	365																			
1600	24	S1	705	325																			
2000	24	S1	712	413																		287280	16200
7/23																							
0800	24	S1	702	399																		303100	15820
1200	24	S1	711	409																			
1600	24	S1	689	398																			
2000	24	S1	701	392																		318670	15570

Comments:

HIGH VACUUM [ ] SVE or [X] DPE FIELD DATA SHEET

CALCLEAN INC.
(714) 734-9137

Project Location: **645 FOURTH STREET** City: **OAKLAND** Site #: **TERRADEV PROPERTY** Date: 7/24/2012 Page 5 of 5

Client: **BLUE ROCK ENV** Operator (s): Paul

		EXTRACTION WELLS												OBSERVATION WELLS									
	Well I.D.	DPE-1			DPE-2			DPE-3														Water Meter Readings	Cumul. Water Extracted
	Screen Interval: From-To (ft)	T.D. 14.50			T.D. 14.81			T.D. 9.80															
	Initial Depth To Water DTW (ft)		DTW 8.55			DTW 9.06			DTW 8.65														
Time	Unit Vacuum ("Hg.)	Air Flowrate (cfm)	TOX Temp. (degF)	Vapor Inlet Conc. (ppmv)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Off/On (ppmv)	DTW (ft)	Stinger Depth (feet)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	Vacuum "H_2O	DTW (ft)	units 198540	gals
7/24					On		13'	On		13'	Off		8'										
0800	24	51	715	280																		217240	18900

Comments: 7/25 TOOK Vapor Samples Total inlet @ 0800 (PPMV 280) (2) Trailers

InStrat, Inc.

A liquid waste disposal company

P.O. Box 2279 (530) 753-1829
Davis, CA 95617

15664

CUSTOMER P.O.

DATE 7-12-12

DAY OF WEEK Thursday

CHARGE TO Blue Rock Environmental

ADDRESS

ORIGIN [illegible] Jefferson LLC-645

DESTINATION 4th St. Oakland, CA

DESCRIPTION		QTY / HRS	RATE	CHARGES
Monitoring well dewatering / pump test		470 Gal	.39	1833 -
Auger rinsate	Underground storage tank (UST)			
Spill/ release (not UST related)	Surface Impoundment			
Drums	Above ground storage tank			
Solids				
Washout				
Color: Gray	Sani-chlor [illegible]	1	22	22 -
Odor: "	Filters			
Solids: Fines %	Powersorb Sheet TRANSPORTATION	5	113	565 -
Other: ———	Powersorb Boom Bridge Toll	1	25	25 -
Transporter: Gomes	THIS TOTAL WILL STAND AS CORRECT UNLESS NOTIFIED OF CORRECTION WITHIN FIVE DAYS		SALES TAX	
	TERMS NET 30 DAYS. THE CUSTOMER AGREES TO PAY A FINANCE CHARGE OF 2% PER MONTH, WHICH IS AN ANNUAL RATE OF 24% ON PAST DUE ACCOUNTS. SIGNED BY X [signature]		TOTAL TO COLLECT	2445 -

InStrat, Inc.

A liquid waste disposal company

P.O. Box 2279 (530) 753-1829
Davis, CA 95617

15677

CUSTOMER P.O.

DATE 7-15-12

DAY OF WEEK Sunday

CHARGE TO Blue Rock Env

ADDRESS

ORIGIN Tenneder Jefferson 645 [illegible]

DESTINATION Oakland CA

DESCRIPTION		QTY / HRS	RATE	CHARGES
X Monitoring well dewatering / pump test		4500	.39	1755 -
Auger rinsate	Underground storage tank (UST)			
Spill/ release (not UST related)	Surface Impoundment			
Drums	Above ground storage tank			
Solids				
Washout				
Color: [illegible]	Sani-chlor [illegible]			
Odor: [illegible]	Filters	1	22	22 -
Solids: Fines %	Powersorb Sheet TRANSPORTATION	5	113	565 -
Other	Powersorb Boom Bridge Toll	1	25	25 -
Transporter: [illegible] Gomes	THIS TOTAL WILL STAND AS CORRECT UNLESS NOTIFIED OF CORRECTION WITHIN FIVE DAYS		SALES TAX	
[illegible]	TERMS NET 30 DAYS. THE CUSTOMER AGREES TO PAY A FINANCE CHARGE OF 2% PER MONTH, WHICH IS AN ANNUAL RATE OF 24% ON PAST DUE ACCOUNTS. SIGNED BY X [signature]		TOTAL TO	[illegible]

InStrat, Inc.

A liquid waste disposal company

P.O. Box 2279 (530) 753-1829
Davis, CA 95617

15708

CUSTOMER P.O.

DATE 7/12

DAY OF WEEK

CHARGE TO

ADDRESS

ORIGIN

DESTINATION

DESCRIPTION				QTY / HRS	RATE	CHARGES
X	Monitoring well dewatering / pump test					
	Auger rinsate	Underground storage tank (UST)				
	Spill/ release (not UST related)	Surface Impoundment				
	Drums	Above ground storage tank				
	Solids					
	Washout					
Color		Sani-chlor				
Odor		Filters				
Solids	%	Powersorb Sheet				
Other		Powersorb Boom				

Transporter

THIS TOTAL WILL STAND AS CORRECT UNLESS NOTIFIED OF CORRECTION WITHIN FIVE DAYS

TERMS NET 30 DAYS. THE CUSTOMER AGREES TO PAY A FINANCE CHARGE OF 2% PER MONTH, WHICH IS AN ANNUAL RATE OF 24% ON PAST DUE ACCOUNTS.

SIGNED BY X

SALES TAX

TOTAL TO COLLECT

InStrat, Inc.

A liquid waste disposal company

P.O. Box 2279 (530) 753-1829
Davis, CA 95617

15699

CUSTOMER P.O.

DATE 7-22-12

DAY OF WEEK

CHARGE TO Blue Rock Env

ADDRESS

ORIGIN

DESTINATION

DESCRIPTION				QTY / HRS	RATE	CHARGES
	Monitoring well dewatering / pump test					
	Auger rinsate	Underground storage tank (UST)				
	Spill/ release (not UST related)	Surface Impoundment				
	Drums	Above ground storage tank				
	Solids					
	Washout					
Color		Sani-chlor				
Odor		Filters				
Solids	%	Powersorb Sheet				
Other		Powersorb Boom				

Transporter

THIS TOTAL WILL STAND AS CORRECT UNLESS NOTIFIED OF CORRECTION WITHIN FIVE DAYS

TERMS NET 30 DAYS. THE CUSTOMER AGREES TO PAY A FINANCE CHARGE OF 2% PER MONTH, WHICH IS AN ANNUAL RATE OF 24% ON PAST DUE ACCOUNTS.

SIGNED BY X

SALES TAX

TOTAL TO COLLECT

InStrat, Inc.
A liquid waste disposal company

P.O. Box 2279 (530) 753-1829
Davis, CA 95617

15700

CUSTOMER P.O.	

DATE 7-24-12
DAY OF WEEK Tuesday

CHARGE TO Blue Rock Env

ADDRESS

ORIGIN [illegible]
DESTINATION [illegible]

	DESCRIPTION		QTY / HRS	RATE	CHARGES	
	Monitoring well dewatering / pump test		2300 Gal	.39	897	–
	Auger rinsate	Underground storage tank (UST)				
	Spill/ release (not UST related)	Surface Impoundment				
	Drums	Above ground storage tank				
	Solids					
X	Washout LAST LOAD - TANKER		1	41	41	–
Color [illegible]		Sani-chlor [illegible]	1	22	22	–
Odor /		Filters				
Solids [illegible] %		Powersorb Sheet TRANSPORTATION	4.5	113	508	50
Other —		Powersorb Boom BRIDGE TOLL	1	25	25	–

Transporter [illegible]	THIS TOTAL WILL STAND AS CORRECT UNLESS NOTIFIED OF CORRECTION WITHIN FIVE DAYS	SALES TAX	
	TERMS NET 30 DAYS. THE CUSTOMER AGREES TO PAY A FINANCE CHARGE OF 2% PER MONTH, WHICH IS AN ANNUAL RATE OF 24% ON PAST DUE ACCOUNTS. SIGNED BY X [signature]	TOTAL TO COLLECT	1492 –

NON-HAZARDOUS Waste Hauler Document

Daily Field Ticket No. [illegible] 82000

GENERATOR

Name: [illegible]

EPA #

Address: [illegible]

DESIGNATED TSD FACILITY

Name: [illegible]

EPA #

Address: [illegible]

ALTERNATE TDS FACILITY

Name:

EPA #

Address:

Order Placed: Order Date:

WASTE ☐ - DRILLING MUD ☐ - GASWELL WATER ☑ - OTHER [illegible]

Weight/Volume 4700 Units [illegible] Container: ☐ - Dump Truck ☑ - Tank Truck

This material is nonhazardous because:
1) it is a drilling mud containing only the additives listed by the Department in its exemption letter and contains no significant concentrations of toxic materials from natural sources, or 2) is a sulfur-dioxide scrubber solution from a sodium hydroxise or sodium carbonate oil field boiler scrubber system, and possesses no characteristics that would require its handling as a hazardous waste.

SIGNATURE OF AUTHORIZED AGENT DATE

TRANSPORTER

Warren E. Gomes Exc., Inc.
P. O. Box 369
Rio Vista, CA 94571
(707) 374-2881
EPA # CAD076557370

Job No. [illegible]

Unit No. [illegible]

Pick-Up Date [illegible]

SIGNATURE OF BUYER

TSD FACILITY

Name INSTATE INC

EPA #

QTY Measured 4700 GALLONS

☐ - BBL ☐ - TONS ☒ - OTHER

[illegible]
SIGNATURE OF AUTHORIZED AGENT

7-12-12
DATE

Method of Disposal:

☐ - Injection Well
☐ - Landfill
☐ - Land Treatment
☐ - Surface Impoundment
☒ - Other CAC

TSDF TO GENERATOR

NON-HAZARDOUS Waste Hauler Document

Daily Field Ticket No. [illegible] 81906

GENERATOR

Name: [illegible]

EPA #

Address: [illegible]

DESIGNATED TSD FACILITY

Name: [illegible]

EPA #

Address: [illegible]

ALTERNATE TDS FACILITY

Name:

EPA #

Address:

Order Placed: Order Date:

WASTE

☐ - DRILLING MUD ☐ - GASWELL WATER ☑ - OTHER [illegible]

Weight/Volume 4500 Units [illegible] Container: ☐ - Dump Truck ☑ - Tank Truck

This material is nonhazardous because
1) it is a drilling mud containing only the additives listed by the Department in its exemption letter and contains no significant concentrations of toxic materials from natural sources, or
2) is a sulfur-dioxide scrubber solution from a sodium hydroxise or sodium carbonate oil field boiler scrubber system, and possesses no characteristics that would require its handling as a hazardous waste

SIGNATURE OF AUTHORIZED AGENT DATE

TRANSPORTER

Warren E. Gomes Exc., Inc.
P. O. Box 369
Rio Vista, CA 94571
(707) 374-2881
EPA # CAD076557370

Job No. [illegible]

Unit No. [illegible]

Pick-Up Date [illegible]

SIGNATURE OF BUYER

TSD FACILITY

Name FSF

EPA #

QTY Measured 4500 gal

☐ - BBL ☐ - TONS ☑ - OTHER

SIGNATURE OF AUTHORIZED AGENT

DATE 2/15/12

Method of Disposal:

- ☐ - Injection Well
- ☐ - Landfill
- ☐ - Land Treatment
- ☐ - Surface Impoundment
- ☐ - Other [illegible]

TSDF TO GENERATOR

NON-HAZARDOUS Waste Hauler Document

Daily Field Ticket No. [illegible] 81913

GENERATOR

Name: [illegible]

EPA #

Address: [illegible]

DESIGNATED TSD FACILITY

Name: [illegible]

EPA #

Address: [illegible]

ALTERNATE TDS FACILITY

Name:

EPA #

Address:

Order Placed: Order Date:

WASTE

☐ - DRILLING MUD ☐ - GASWELL WATER ☒ - OTHER [illegible]

Weight/Volume [illegible] Units [illegible] Container: ☐ - Dump Truck ☐ - Tank Truck

This material is nonhazardous because
1) it is a drilling mud containing only the additives listed by the Department in its exemption letter and contains no significant concentrations of toxic materials from natural sources, or
2) is a sulfur-dioxide scrubber solution from a sodium hydroxise or sodium carbonate oil field boiler scrubber system, and possesses no characteristics that would require its handling as a hazardous waste

SIGNATURE OF AUTHORIZED AGENT DATE

TRANSPORTER

Warren E. Gomes Exc., Inc.
P. O. Box 369
Rio Vista, CA 94571
(707) 374-2881
EPA # CAD076557370

Job No. [illegible]

Unit No. [illegible]

Pick-Up Date [illegible]

SIGNATURE OF BUYER

TSD FACILITY

Name ISI

EPA #

☐ - BBL ☐ - TONS ☐ - OTHER

QTY Measured

SIGNATURE OF AUTHORIZED AGENT

7/12

DATE

Method of Disposal:

☐ - Injection Well
☐ - Landfill
☐ - Land Treatment
☐ - Surface Impoundment
☒ - Other [illegible]

TSDF TO GENERATOR

NON-HAZARDOUS Waste Hauler Document

Daily Field Ticket No. 80634

GENERATOR

Name:

EPA #

Address:

Order Placed: Order Date:

DESIGNATED TSD FACILITY

Name:

EPA #

Address:

ALTERNATE TDS FACILITY

Name:

EPA #

Address:

WASTE

☐ - DRILLING MUD ☐ - GASWELL WATER ☒ - OTHER

Weight/Volume Units Container: ☐ - Dump Truck ☐ - Tank Truck

This material is nonhazardous because
1) it is a drilling mud containing only the additives listed by the Department in its exemption letter and contains no significant concentrations of toxic materials from natural sources, or 2) is a sulfur-dioxide scrubber solution from a sodium hydroxise or sodium carbonate oil field boiler scrubber system, and possesses no characteristics that would require its handling as a hazardous waste

SIGNATURE OF AUTHORIZED AGENT DATE

TRANSPORTER

Warren E. Gomes Exc., Inc.
P. O. Box 369
Rio Vista, CA 94571
(707) 374-2881
EPA # CAD076557370

Job No.

Unit No.

Pick-Up Date

SIGNATURE OF BUYER

TSD FACILITY

Name INSTRAT INC

EPA #

QTY Measured 5000 GALLONS

☐ - BBL ☐ - TONS ☒ - OTHER

SIGNATURE OF AUTHORIZED AGENT

7-22-12
DATE

Method of Disposal:

☐ - Injection Well
☐ - Landfill
☐ - Land Treatment
☐ - Surface Impoundment
☒ - Other GAC

TSDF TO GENERATOR

NON-HAZARDOUS Waste Hauler Document

Daily Field Ticket No. [illegible] 80636

GENERATOR

Name: _____

EPA # _____

Address: _____

Order Placed: _____ Order Date: _____

DESIGNATED TSD FACILITY

Name: [illegible]

EPA # _____

Address: _____

ALTERNATE TDS FACILITY

Name: _____

EPA # _____

Address: _____

WASTE

☐ - DRILLING MUD ☐ - GASWELL WATER ☒ - OTHER _____

Weight/Volume 2300 Units _____ Container: ☐ - Dump Truck ☐ - Tank Truck

This material is nonhazardous because:
1) it is a drilling mud containing only the additives listed by the Department in its exemption letter and contains no significant concentrations of toxic materials from natural sources, or
2) is a sulfur-dioxide scrubber solution from a sodium hydroxise or sodium carbonate oil field boiler scrubber system, and possesses no characteristics that would require its handling as a hazardous waste.

SIGNATURE OF AUTHORIZED AGENT DATE

TRANSPORTER

Warren E. Gomes Exc., Inc.
P. O. Box 369
Rio Vista, CA 94571
(707) 374-2881
EPA # CAD076557370

Job No. [illegible]

Unit No. [illegible]

Pick-Up Date 7-24-12

SIGNATURE OF BUYER

TSD FACILITY

Name INSTRAT INC

EPA # _____

QTY Measured 2300 GALLONS

☐ - BBL ☐ - TONS ☒ - OTHER

[illegible]
SIGNATURE OF AUTHORIZED AGENT

7-24-12
DATE

Method of Disposal:

☐ - Injection Well
☐ - Landfill
☐ - Land Treatment
☐ - Surface Impoundment
☒ - Other CNC

TSDF TO GENERATOR

WELL GAUGING DATA/PURGE CALCULATIONS

Job No.: ASE-1 Location: 645 Fourth St. Oakland CA 94607 Date: 8/12/12 Tech(s): SR

WELL NO.	DIAM (in)	DTB (ft)	DTW (ft)	ST (ft)	CV (gal)	PV (gal)	SPL (ft)	NOTES
DPE-1	2	14.80	9.03	5.77	0.92	2.76		
DPE-2	2	14.83	9.27	5.56	0.88	2.66		
DPE-3	2	9.81	9.02	0.79	0.12	0.37		sheen

Explanation:
DIAM = Well Diameter
DTB = Depth to Bottom
DTW = Depth to Water
ST = Saturated Thickness (DTB-DTW)
CV = Casing Volume (ST x cf)
PV = Purge Volume (standard 3 x CV, well development 10 x CV)
SPL = Thickness of Separate Phase Liquid

Conversion Factors (cf)
1 inch diameter well cf = 0.04 gal/ft
2 inch diameter well cf = 0.16 gal/ft
4 inch diameter well cf = 0.65 gal/ft
6 inch diameter well cf = 1.44 gal/ft

BLUE ROCK ENVIRONMENTAL, INC.
1169 Chess Drive, Suite C, Foster City, CA 94404 Phone (650) 522-9292 Fax (650) 522-9259

WELL PURGING DATA

SHEET 1 OF 1

Job No.: ASE-1 Location: 645 Fourth Street Oakland Ca. 94404 Date: 8/12/12 Tech: SR

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (µS/cm)	pH
DPE-2	1355	—	70.6	788	6.64
Calc. purge	1357	.65	69.6	804	6.69
volume	1359	1.3	69.0	855	6.64
2.66	1400	1.95	68.8	850	6.67
	1406	2.70	69.8	842	6.71

Sample time:

Sample for: (circle)

(TPHg) (TPHd) TPHmo

(BTEX) (MTBE) 8010

Other: 1,2-DCA, EDB, TBA

Sampling Method:

Dedicated / (Disposable bailer)

Purging Method:

(PVC bailer) / Pump

COMMENTS: color, turbidity, recharge, etc.

gray, moderate, fair, odor

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (µS/cm)	pH
DPE-1	1409	—	69.2	971	6.70
Calc. purge	1410	0.70	69.8	989	6.66
volume	1411	1.40	69.8	996	6.69
2.76	1412	2.00	68.8	1021	6.67
	1413	3.00	69.6	1009	6.13

Sample time:

Sample for: (circle)

(TPHg) (TPHd) TPHmo

(BTEX) (MTBE) 8010

Other: 1,2-DCA, EDB, TBA

Sampling Method:

Dedicated / (Disposable bailer)

Purging Method:

(PVC bailer) / Pump

COMMENTS: color, turbidity, recharge, etc.

olive, moderate, poor, odor

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (µS/cm)	pH
DPE-3	1420	—	70.0	1102	6.59
Calc. purge	1422	.2	70.8	1135	6.65
volume	1424	.4	74.8	1137	6.72
0.37					

Sample time:

Sample for: (circle)

(TPHg) (TPHd) TPHmo

(BTEX) (MTBE) 8010

Other: 1,2-DCA, EDB, TBA

Sampling Method:

Dedicated / (Disposable bailer)

Purging Method:

PVC bailer / Pump (Disposable bailer)

COMMENTS: color, turbidity, recharge, etc.

tan, low, poor, odor, slight sheen

BLUE ROCK ENVIRONMENTAL, INC.

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

KIFF Analytical LLC

Report Number : 82283
Date : 08/16/2012

Laboratory Results

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

Subject : 3 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 and TNI 2009 standards. 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,

Troy G. Turpen

Troy Turpen

KIFF Analytical LLC

Report Number : 82283
Date : 08/16/2012

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

Sample : **DPE-1** Matrix : Water Lab Number : 82283-01
Sample Date :08/12/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**7500**	15	ug/L	EPA 8260B	08/16/12 04:41
Toluene	**9800**	15	ug/L	EPA 8260B	08/16/12 04:41
Ethylbenzene	**1000**	15	ug/L	EPA 8260B	08/16/12 04:41
Total Xylenes	**6500**	15	ug/L	EPA 8260B	08/16/12 04:41
Methyl-t-butyl ether (MTBE)	**280**	15	ug/L	EPA 8260B	08/16/12 04:41
Tert-Butanol	**89**	70	ug/L	EPA 8260B	08/16/12 04:41
TPH as Gasoline	**71000**	1500	ug/L	EPA 8260B	08/16/12 04:41
1,2-Dichloroethane	**190**	15	ug/L	EPA 8260B	08/16/12 04:41
1,2-Dibromoethane	< 15	15	ug/L	EPA 8260B	08/16/12 04:41
1,2-Dichloroethane-d4 (Surr)	99.7		% Recovery	EPA 8260B	08/16/12 04:41
Toluene - d8 (Surr)	98.3		% Recovery	EPA 8260B	08/16/12 04:41
TPH as Diesel	< 2000	2000	ug/L	M EPA 8015	08/16/12 14:13
(Note: MRL increased due to interference from Gasoline-range hydrocarbons.)					
Octacosane (Diesel Surrogate)	92.3		% Recovery	M EPA 8015	08/16/12 14:13

KIFF Analytical LLC

Report Number : 82283
Date : 08/16/2012

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

Sample : **DPE-2** Matrix : Water Lab Number : 82283-02
Sample Date :08/12/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**9900**	40	ug/L	EPA 8260B	08/15/12 03:31
Toluene	**16000**	40	ug/L	EPA 8260B	08/15/12 03:31
Ethylbenzene	**1700**	40	ug/L	EPA 8260B	08/15/12 03:31
Total Xylenes	**9600**	40	ug/L	EPA 8260B	08/15/12 03:31
Methyl-t-butyl ether (MTBE)	**54**	40	ug/L	EPA 8260B	08/15/12 03:31
Tert-Butanol	< 200	200	ug/L	EPA 8260B	08/15/12 03:31
TPH as Gasoline	**70000**	4000	ug/L	EPA 8260B	08/15/12 03:31
1,2-Dichloroethane	**160**	40	ug/L	EPA 8260B	08/15/12 03:31
1,2-Dibromoethane	**56**	40	ug/L	EPA 8260B	08/15/12 03:31
1,2-Dichloroethane-d4 (Surr)	99.4		% Recovery	EPA 8260B	08/15/12 03:31
Toluene - d8 (Surr)	97.8		% Recovery	EPA 8260B	08/15/12 03:31
TPH as Diesel	< 2000	2000	ug/L	M EPA 8015	08/16/12 13:43
(Note: MRL increased due to interference from Gasoline-range hydrocarbons.)					
Octacosane (Diesel Surrogate)	105		% Recovery	M EPA 8015	08/16/12 13:43

KIFF Analytical LLC

Report Number : 82283
Date : 08/16/2012

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

Sample : **DPE-3** Matrix : Water Lab Number : 82283-03
Sample Date :08/12/2012

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	**1400**	10	ug/L	EPA 8260B	08/15/12 04:07
Toluene	**7800**	70	ug/L	EPA 8260B	08/16/12 05:14
Ethylbenzene	**3700**	10	ug/L	EPA 8260B	08/15/12 04:07
Total Xylenes	**29000**	70	ug/L	EPA 8260B	08/16/12 05:14
Methyl-t-butyl ether (MTBE)	**27**	10	ug/L	EPA 8260B	08/15/12 04:07
Tert-Butanol	**120**	50	ug/L	EPA 8260B	08/15/12 04:07
TPH as Gasoline	**190000**	7000	ug/L	EPA 8260B	08/16/12 05:14
1,2-Dichloroethane	**40**	10	ug/L	EPA 8260B	08/15/12 04:07
1,2-Dibromoethane	**130**	10	ug/L	EPA 8260B	08/15/12 04:07
1,2-Dichloroethane-d4 (Surr)	95.7		% Recovery	EPA 8260B	08/15/12 04:07
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	08/15/12 04:07
TPH as Diesel	< 200000	200000	ug/L	M EPA 8015	08/16/12 13:14
(Note: MRL increased due to interference from Gasoline-range hydrocarbons.)					
Octacosane (Diesel Surrogate)	Diluted Out		% Recovery	M EPA 8015	08/16/12 13:14

Report Number : 82283

Date : 08/16/2012

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	08/15/2012
Octacosane (Diesel Surrogate)	98.2		%	M EPA 8015	08/15/2012
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/14/2012
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/14/2012
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/14/2012
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/14/2012
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	08/14/2012
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	08/14/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	08/14/2012
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	08/14/2012
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	08/14/2012
1,2-Dichloroethane-d4 (Surr)	103		%	EPA 8260B	08/14/2012
Toluene - d8 (Surr)	99.8		%	EPA 8260B	08/14/2012
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/15/2012
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/15/2012
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/15/2012
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/15/2012
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	08/15/2012
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	08/15/2012
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	08/15/2012
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	08/15/2012
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	08/15/2012
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	08/15/2012
Toluene - d8 (Surr)	98.6		%	EPA 8260B	08/15/2012

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

Report Number : 82283

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 08/16/2012

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
1,2-Dibromoethane														
	82249-02	<0.50	39.8	39.9	40.3	40.0	ug/L	EPA 8260B	8/14/12	101	100	0.872	80-120	25
1,2-Dichloroethane														
	82249-02	<0.50	39.9	40.0	41.6	41.4	ug/L	EPA 8260B	8/14/12	104	103	0.902	75.7-122	25
Benzene														
	82249-02	<0.50	39.9	40.0	42.7	42.7	ug/L	EPA 8260B	8/14/12	107	107	0.240	80-120	25
Ethylbenzene														
	82249-02	<0.50	39.9	40.0	46.0	46.1	ug/L	EPA 8260B	8/14/12	115	115	0.0602	80-120	25
Methyl-t-butyl ether														
	82249-02	<0.50	39.9	40.0	36.2	33.9	ug/L	EPA 8260B	8/14/12	90.8	84.7	6.93	69.7-121	25
P + M Xylene														
	82249-02	<0.50	39.9	40.0	44.9	45.0	ug/L	EPA 8260B	8/14/12	112	112	0.0197	76.8-120	25
Tert-Butanol														
	82249-02	88	201	202	307	304	ug/L	EPA 8260B	8/14/12	108	107	1.69	80-120	25
Toluene														
	82249-02	<0.50	39.9	40.0	44.0	43.7	ug/L	EPA 8260B	8/14/12	110	109	0.951	80-120	25
1,2-Dibromoethane														
	82255-07	<0.50	39.9	39.9	42.3	41.3	ug/L	EPA 8260B	8/15/12	106	104	2.38	80-120	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

Report Number : 82283

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 08/16/2012

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
1,2-Dichloroethane														
	82255-07	<0.50	40.0	40.0	41.5	40.5	ug/L	EPA 8260B	8/15/12	104	101	2.34	75.7-122	25
Benzene														
	82255-07	<0.50	40.0	40.0	40.3	38.8	ug/L	EPA 8260B	8/15/12	101	97.0	3.73	80-120	25
Ethylbenzene														
	82255-07	<0.50	40.0	40.0	43.3	41.4	ug/L	EPA 8260B	8/15/12	108	104	4.43	80-120	25
Methyl-t-butyl ether														
	82255-07	<0.50	40.0	40.0	37.6	37.4	ug/L	EPA 8260B	8/15/12	94.0	93.4	0.641	69.7-121	25
P + M Xylene														
	82255-07	<0.50	40.0	40.0	41.8	39.6	ug/L	EPA 8260B	8/15/12	105	99.1	5.43	76.8-120	25
Tert-Butanol														
	82255-07	<5.0	202	202	203	201	ug/L	EPA 8260B	8/15/12	101	99.8	0.887	80-120	25
Toluene														
	82255-07	<0.50	40.0	40.0	40.8	39.0	ug/L	EPA 8260B	8/15/12	102	97.6	4.45	80-120	25
TPH as Diesel														
	BLANK	<50	1000	1000	1140	1210	ug/L	M EPA 8015	8/15/12	114	121	5.80	70-130	25

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

Report Number : 82283

QC Report : Laboratory Control Sample (LCS)

Date : 08/16/2012

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	39.9	ug/L	EPA 8260B	8/14/12	102	80-120
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	8/14/12	105	75.7-122
Benzene	40.0	ug/L	EPA 8260B	8/14/12	107	80-120
Ethylbenzene	40.0	ug/L	EPA 8260B	8/14/12	116	80-120
Methyl-t-butyl ether	40.0	ug/L	EPA 8260B	8/14/12	100	69.7-121
P + M Xylene	40.0	ug/L	EPA 8260B	8/14/12	113	76.8-120
Tert-Butanol	202	ug/L	EPA 8260B	8/14/12	106	80-120
Toluene	40.0	ug/L	EPA 8260B	8/14/12	110	80-120
1,2-Dibromoethane	39.8	ug/L	EPA 8260B	8/15/12	107	80-120
1,2-Dichloroethane	39.9	ug/L	EPA 8260B	8/15/12	105	75.7-122
Benzene	39.9	ug/L	EPA 8260B	8/15/12	102	80-120
Ethylbenzene	39.9	ug/L	EPA 8260B	8/15/12	111	80-120
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	8/15/12	94.7	69.7-121
P + M Xylene	39.9	ug/L	EPA 8260B	8/15/12	106	76.8-120
TPH as Gasoline	497	ug/L	EPA 8260B	8/15/12	95.8	70.0-130
Tert-Butanol	201	ug/L	EPA 8260B	8/15/12	103	80-120
Toluene	39.9	ug/L	EPA 8260B	8/15/12	103	80-120

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 82283

Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Brian Gwinn	California EDF Report? ☒ Yes ☐ No
Company / Address: Blue Rock Environmental 1169 Chess Drive #C Foster City Ca. 94404	Sampling Company Log Code: BRSF
Phone Number: 650-522-9292	Global ID: T10000001072
Fax Number: 650-522-9259	EDF Deliverable To (Email Address): brian@bluerockenv.com
Project #: ASE-1 / P.O. #:	Bill to: Blue Rock / Foster City
Project Name: Terrader Jefferson LLC	Sampler Print Name: Scott Robertson
	Sampler Signature: Scott Robertson

Project Address: 645 Fourth Street Oakland Ca. 94607

Sample Designation	Sampling: Date	Sampling: Time	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Container:	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative:	Preservative:	Matrix: Water	Matrix: Soil	Matrix: Air
DPE-1	8/12/12	1437	x6						X					X		
DPE-2	8/12/12	1430	x6						X					X		
DPE-3	8/12/12	1445	x6						X					X		

Analysis Request — CIRCLE METHOD

Sample Designation	MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	TPH Gas (EPA 8260B)	5 Oxygenates (MTBE, DIPE, ETBE, TAME, TBA) (EPA 8260B)	7 Oxygenates (5 oxy + EtOH, MeOH) (EPA 8260B)	Lead Scav. (1,2 DCA & 1,2 EDB) (EPA 8260B)	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7471)	Total Lead (EPA 200.7 / 6010)	W.E.T. Lead (STLC)	TBA				
DPE-1	X	X	X			X				X							X				
DPE-2	X	X	X			X				X							X				
DPE-3	X	X	X			X				X							X				

TAT: ☐ 12 hr ☐ 24 hr ☒ ~~48hr~~ ☐ 72hr ☒ ~~1 wk~~ BG

For Lab Use Only: 01 / 02 / 03

Relinquished by:	Date	Time	Received by:
Scott Robertson	8/12/12	2000	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	081412	1239	KIFF Analytical LLC

Remarks: If TPHd is detected, perform silica-gel cleanup on sample and reanalyze and report both results

Page 9 of 10

Distribution: White - Lab; Pink - Originator
Rev: 060409

KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

RECEIVER: TJB (Initials)

SRG#: 82283 Date: 081412

Project ID: Terradev Jefferson LLC

Method of Receipt: [X] Courier [ ] Over-the-counter [ ] Shipper

Shipping Only: [ ] FedEx * [ ] OnTrac * [ ] Greyhound [ ] Other *Service level if not Priority or Sunrise (M-F): _____

COC Inspection

Is COC present?	[X] Yes	[ ] No		
Custody seals on shipping container?	[ ] Intact	[ ] Broken	[ ] Not present	[X] N/A
Is COC Signed by Relinquisher? [X] Yes [ ] No Dated?	[X] Yes	[ ] No		
Is sampler name legibly indicated on COC?	[X] Yes	[ ] No		
Is analysis or hold requested for all samples?	[X] Yes	[ ] No		
Is the turnaround time indicated on COC?	[X] Yes	[ ] No		
Is COC free of whiteout and uninitialed cross-outs?	[X] Yes	[ ] No, Whiteout	[ ] No, Cross-outs	

Sample Inspection

Coolant Present: [X] Yes [ ] No (includes water)

Temperature °C 2.0 Therm. ID# IR-3 Initial TJB Date/Time 081412/1717 [ ] N/A

Are there custody seals on sample containers?	[ ] Intact	[ ] Broken	[X] Not present	
Do containers match COC? [X] Yes [ ] No [ ] No, COC lists absent sample(s)	[ ] No, Extra sample(s) present			
Are there samples matrices other than soil, water, air or carbon?	[ ] Yes	[X] No		
Are any sample containers broken, leaking or damaged?	[ ] Yes	[X] No		
Are preservatives indicated? [ ] Yes, on sample containers	[X] Yes, on COC	[ ] Not indicated	[ ] N/A	
Are preservatives correct for analyses requested?	[X] Yes	[ ] No	[ ] N/A	
Are samples within holding time for analyses requested?	[X] Yes	[ ] No		
Are the correct sample containers used for the analyses requested?	[X] Yes	[ ] No		
Is there sufficient sample to perform testing?	[X] Yes	[ ] No		
Does any sample contain product, have strong odor or are otherwise suspected to be hot?	[ ] Yes	[X] No		

Receipt Details

Matrix WA	Container type VOA	# of containers received 18
Matrix	Container type	# of containers received
Matrix	Container type	# of containers received

Date and Time Sample Put into Temp Storage Date: 081412 Time: 1723

Quicklog

Are the Sample ID's indicated:	[ ] On COC	[ ] On sample container(s)	[X] On Both	[ ] Not indicated
If Sample ID's are listed on both COC and containers, do they all match?	[X] Yes	[ ] No	[ ] N/A	
Is the Project ID indicated:	[ ] On COC	[ ] On sample container(s)	[X] On Both	[ ] Not indicated
If project ID is listed on both COC and containers, do they all match?	[X] Yes	[ ] No	[ ] N/A	
Are the sample collection dates indicated:	[ ] On COC	[ ] On sample container(s)	[X] On Both	[ ] Not indicated
If collection dates are listed on both COC and containers, do they all match?	[X] Yes	[ ] No	[ ] N/A	
Are the sample collection times indicated:	[ ] On COC	[ ] On sample container(s)	[X] On Both	[ ] Not indicated
If collection times are listed on both COC and containers, do they all match?	[X] Yes	[ ] No	[ ] N/A	

COMMENTS: