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Environmental Health

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March 10, 2008 Project No. 2007-0057-01

Mr. Barney Chan Alameda County Health Care Services Agency 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502-6577

Re: Dual Phase Extraction and Air Sparge Event Report

Former USA Service Station No. 57

10700 MacArthur Boulevard

Oakland, California

Dear Mr. Chan:

Stratus Environmental, Inc. (Stratus), on behalf of Moller Investment Group, Inc. (Moller), has prepared this report to present the results of a dual phase extraction (DPE) and air sparge (AS) remediation event completed at former USA Service Station No. 57 (the site), located at 10700 MacArthur Boulevard, Oakland, California (see Figure 1). This DPE-AS event was conducted between September 4 and November 14, 2007, in order to reduce subsurface petroleum hydrocarbon mass beneath the subject property. This report presents the DPE and AS procedures adopted, tabulated summaries of field measurements, analytical results for soil vapor and groundwater samples collected during the event, and a discussion of the findings associated with completion of work.

#### SITE BACKGROUND

The site is currently an undeveloped, partially paved parcel situated on the western corner of the intersection of 108<sup>th</sup> Avenue and Foothills Boulevard in Oakland, California, approximately 400 feet west of Interstate 580. This parcel comprises the southeastern corner of the Foothills Square Shopping Center. It is our understanding that the property owner intends to re-develop the portion of the Foothills Square Shopping Center formerly occupied by the site.

Former USA Station 57 was closed and the gasoline underground storage tanks (UST's) were removed in July 1994. Approximately 775 cubic yards of impacted soil was excavated from the vicinity of the UST pit and product lines between August and October 1994. The approximate former locations of the UST's and dispenser islands are shown on Figure 2.

Eight groundwater monitoring wells (S-1, S-2, and MW-3 through MW-8) were installed, and 12 exploratory soil borings (A through D and B-1 through B-8) were advanced, in order to assess the extent of subsurface petroleum hydrocarbon impact beneath the site. The well network has been monitored and sampled on a quarterly basis since 1995. Depth to groundwater has been reported in the monitoring wells at depths ranging from approximately 7 to 21 feet below ground surface (bgs) since groundwater monitoring was initiated.

Petroleum hydrocarbon impact to soil extends to the saturated zone in the vicinity of the former UST complex and fuel dispenser islands. Gasoline range organics (GRO), benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds), methyl tertiary butyl ether (MTBE), and tertiary butyl alcohol (TBA) have historically been reported in groundwater samples collected beneath the site.

Petroleum hydrocarbon mass reduction events using DPE technology have been periodically conducted at the site since July 2004. Three DPE events to reduce the subsurface petroleum hydrocarbon mass were conducted between July 2004 and September 2004. The first DPE event was conducted between July 6 and 25, 2004, using a 400 cubic feet per minute (cfm) DPE system. During the first DPE event, individual well DPE tests using wells S-1, S-2, and MW-3 and a combined DPE test using all three wells, were conducted to evaluate the technical viability of using DPE to mitigate the subsurface petroleum hydrocarbon impact. During the combined DPE test, an average applied vacuum of 22.66 inches mercury ("Hg) (or 308.18 inches water column ["WC]) resulted in an average soil vapor extraction rate of 86 cfm and an average groundwater extraction rate of 0.55 gallons per minute (gpm). Approximately 13.35 pounds of GRO were extracted in vapor and aqueous phases during this DPE event. Based on the findings of this test and analytical results of subsequent quarterly monitoring, Stratus proposed (letter dated October 15, 2004) to conduct quarterly DPE events as an interim remedial measure to reduce the subsurface petroleum hydrocarbon mass. In a letter dated May 9, 2005, Alameda County Health Care Services Agency (ACHCSA) approved the proposal for conducting intermittent DPE events.

A second DPE petroleum hydrocarbon mass removal event was conducted at the site between June 6 and July 1, 2005, using a 400 cfm DPE system and wells S-1, S-2, and MW-3. During this DPE event, an applied vacuum in the range of 23 to 25 "Hg produced soil vapor flow rates in the range of 23 to 39.4 cfm and an average groundwater extraction rate of 1.12 gpm. A total of 34,340 gallons of extracted groundwater were treated using the carbon vessels and discharged to the sanitary sewer. Approximately 6.449 pounds and 0.082 pounds of GRO were extracted in vapor and aqueous phases, respectively, during this DPE event.

A third DPE petroleum hydrocarbon mass removal event was conducted at the site between August 29 and September 16, 2005, using a 200 cfm DPE system and wells S-1, S-2, MW-3, and MW-7. During this DPE event, an applied vacuum in the range of 16 to 18 "Hg produced soil vapor flow rates in the range of 37.3 to 62.5 cfm and an average groundwater extraction rate of 2.45 gpm. A total of 54,730 gallons of extracted groundwater were treated using the carbon vessels and discharged to the sanitary sewer. GRO was not reported in any of the influent soil vapor samples collected during this DPE event. Approximately 0.014 pounds of GRO was extracted in aqueous phase during this DPE event.

Based on the findings of the first two DPE events, Stratus, in a work plan (*Work Plan for Well Installation and In-Situ Groundwater Remediation*) dated August 31, 2005, proposed installation of four shallow-screened (5 to 25 feet bgs) extraction wells to maximize the petroleum hydrocarbon mass removal rates. In addition, this work plan also proposed installation of an oxygen injection system to supplement the DPE events in reducing the dissolved petroleum hydrocarbon mass. This work plan was subsequently approved by ACHCSA in a letter dated September 9, 2005.

Stratus oversaw the installation of four extraction wells (EX-1 through EX-4) on October 6 and 7, 2005. Stratus submitted a *Well Installation Report*, documenting the findings during the installation of wells EX-1 through EX-4 to ACHCSA on December 30, 2005.

The construction and installation of an oxygen injection system (using iSOC<sup>TM</sup>) was completed during December 2005 and upon approval by the City of Oakland Fire Department, operation of the oxygen injection system was initiated on January 18, 2006.

A fourth DPE petroleum hydrocarbon mass removal event was conducted at the site between February 20 and March 24, 2006, using the newly installed extraction wells EX-1 through EX-4. During this DPE event, an applied vacuum in the range of 18.5 to 23 "Hg produced influent soil vapor flow rates in the range of 22.4 to 50.6 cfm and an average groundwater extraction rate of 0.40 gpm. A total of 13,340 gallons of extracted groundwater were treated using the carbon vessels and discharged to the sanitary sewer. Approximately 25.83 pounds and 0.157 pounds of GRO were extracted in vapor and aqueous phases, respectively, during this DPE event.

A fifth DPE petroleum hydrocarbon mass removal event was conducted at the site between May 1 and May 25, 2006, using extraction wells EX-1 through EX-4. An applied vacuum in the range of 20 to 24.5 "Hg produced influent soil vapor flow rates in the range of 21.9 to 56.2 cfm and an average groundwater extraction rate of 0.30 gpm. A total of 7,400 gallons of extracted groundwater were treated using the carbon vessels and discharged to the sanitary sewer. Based on influent soil vapor flow rates and

concentrations, approximately 5.43 pounds of GRO were extracted in vapor phase and 0.027 pounds of GRO were removed from the subsurface in aqueous phase during this DPE event.

A sixth DPE petroleum hydrocarbon mass removal event was conducted at the site between July 17 and August 10, 2006, using extraction wells EX-1 through EX-4. An applied vacuum in the range of 16.5 to 18 "Hg produced influent soil vapor flow rates in the range of 70.7 to 114.8 cfm and an average groundwater extraction rate of 0.06 gpm. A total of 1,990 gallons of extracted groundwater were treated using the carbon vessels and discharged to the sanitary sewer. Based on influent soil vapor flow rates and concentrations, approximately 47.628 pounds of GRO were extracted in vapor phase and 0.0072 pounds of GRO were removed from the subsurface in aqueous phase during this DPE event. Tabulated summaries of the previous six DPE events completed at the site are included in Appendix A.

In order to more aggressively manage the environmental case at this site towards closure, Stratus proposed conducting an additional DPE event at the site in a work plan (*Work Plan for Dual Phase Extraction and Air Sparge Hydrocarbon Mass Removal Event*) dated June 13, 2007. This work plan also proposed installation of two AS wells (screened from 18 to 20 feet bgs) to maximize the petroleum hydrocarbon mass removal rates. This work plan was subsequently approved by ACHCSA in a letter dated July 25, 2007.

Stratus oversaw the installation of two air sparge wells (AS-1 and AS-2) on August 23, 2007 and destruction of obstructed monitoring well MW-6 on October 6, 2007. A document titled *Well Installation and Destruction Report*, documenting this work was submitted to ACHCSA on October 24, 2007.

The operation of the oxygen injection system at the site was discontinued on September 4, 2007, prior to initiation of the DPE-AS event.

#### **DUAL PHASE EXTRACTION AND AIR SPARGE EVENT**

The DPE-AS event was conducted between September 4 and November 14, 2007. Wells EX-1 through EX-4 were used to extract hydrocarbon-laden soil vapors and groundwater and wells AS-1 and AS-2 were used for air sparging. Additionally, wells S-1, S-2, MW-3, MW-7, and MW-8 were used as observation wells during the DPE-AS event. Construction details for the remediation and monitoring wells are summarized in Table 1.

Prior to the commencement of the DPE-AS event, in accordance with the Bay Area Air Quality Management District (BAAQMD) various locations permit (Application Number 12773 and Plant Number 17101), Stratus notified BAAQMD in letters dated August 28, 2007 and November 12, 2007, regarding use of the DPE system. Stratus also

notified East Bay Municipal Utility District (EBMUD) regarding the schedule and duration of the DPE-AS event. Groundwater was discharged to the sanitary sewer under EBMUD Permit Number 50546352. A site-specific health and safety plan was developed and discussed prior to conducting field activities.

#### **Dual Phase Extraction and Air Sparging Equipment**

#### **DPE** Equipment

A trailer mounted 200 cfm thermal oxidizer (Serial Number: M1294) with a 15-horsepower (hp) liquid-ring pump was used to apply vacuum and extract soil vapors and groundwater from wells EX-1 through EX-4. The system also housed a 100-gallon water/condensate knockout tank and a 2-hp liquid discharge pump to drain the knockout tank. A 25-kilowatt (30-hp) propane generator was used to energize the control panel of the DPE system. Liquid propane was used as supplemental fuel to maintain combustion temperatures in the thermal oxidizer.

The wellheads of the extraction wells were temporarily modified to provide a seal for vacuum conditions and to facilitate insertion of a drop-tube (1-inch diameter) to extract soil vapors and groundwater. The liquid ring pump was used to extract soil vapors and groundwater from the extraction wells and the extracted soil vapors and groundwater (dual phase flow) were directed to the knockout tank. Following separation from the groundwater in the knockout tank, the soil vapors were directed to the thermal oxidizer for abatement before discharge to the atmosphere. The groundwater in the knockout tank of the DPE unit was treated using two USFilter Westates 500-pound granular activated carbon vessels, connected in series, prior to discharge to the sanitary sewer.

#### Air Sparging Equipment

A 2-hp Quincy blower (Serial Number: 5146084) rated at 9.6 cfm was used to inject air into the subsurface through wells AS-1 and AS-2. The blower was powered by the same propane generator as the DPE system. The wellheads of the air sparge wells were temporarily modified to facilitate air injection.

A temporary fence was erected around the DPE system, blower, generator, the carbon vessels, and the sewer discharge point.

#### **Dual Phase Extraction and Air Sparging Procedure**

The DPE-AS event was conducted by lowering a 1-inch diameter drop tube into each extraction well. The drop tube (stinger) was installed near the base of each extraction well casing. The liquid ring pump was used to apply high vacuum to the stinger to extract soil vapors and groundwater from the wells. Additionally, air was injected into

the subsurface at approximately 150 to 200 percent of the static head pressure observed at wells AS-1 and AS-2 at the beginning of the test. A flow rate of approximately 2.8 to 4 cfm was maintained at each air sparge well.

Wells S-1, S-2, MW-3, MW-7, and MW-8 were used as observation wells to monitor for changes in groundwater elevation and/or induced vacuums during the DPE-AS event. Magnahelic gauges were used to measure induced vacuum. Hand-operated electric water-level sounders were used to measure depth-to-groundwater in the observation wells. The DPE system was equipped to measure the groundwater extraction rate (discharge from the centrifugal pump after the knockout tank) and the soil vapor flow rate. A flow totalizer was installed between the carbon vessels and the sewer discharge point to record the volume of treated groundwater discharged during the DPE-AS event. Stratus visited the site on a periodic basis (approximately bi-weekly) to monitor performance of the DPE and AS systems. Influent soil vapor concentrations were monitored using a photoionization detector (PID) during each site visit. Field data sheets documenting measurements recorded during the DPE-AS event are presented in Appendix B. Table 2 summarizes observations recorded on the field data sheets.

Soil vapor and groundwater samples were collected during the DPE-AS event to evaluate performance of the DPE and AS systems and to verify compliance with the air and water discharge permits. Soil vapor samples were retained in laboratory supplied tedlar bags and stored at ambient air temperature in a protective container. Groundwater samples were collected in preserved glass containers (VOAs) and stored in an ice-chilled cooler. All samples collected were forwarded to the laboratory for chemical analysis under strict chain-of-custody procedures.

#### **Laboratory Analytical Methods**

Soil vapor and groundwater samples collected during the DPE-AS event were forwarded to Alpha Analytical, Inc. (Alpha), a California state-certified laboratory (ELAP #2019), for chemical analysis. Groundwater samples were analyzed for GRO using EPA Method SW8015B/DHS LUFT Manual, and for benzene, toluene, ethylbenzene, and total xylenes (BTEX), MTBE, TBA, ethyl tertiary butyl ether (ETBE), di-isopropyl ether (DIPE), and tertiary amyl methyl ether (TAME) using EPA Method SW8260B. Soil vapor samples were analyzed for GRO (using SW8015B/DHS LUFT Manual), BTEX, MTBE, and TBA (using SW8260B). Soil vapor analytical results are presented in Table 3 and groundwater analytical results are presented in Table 4. Certified analytical reports with chain-of-custody documentation are included in Appendix C.

#### **DPE-AS Event Results**

The DPE-AS event was conducted between September 4 and November 14, 2007, for 779.50 hours (approximately 32.48 days). The DPE-AS system was unable to operate continuously due to frequent malfunctions of the propane generator used to power the control panel of the DPE system. The field and analytical data collected during the DPE-AS event are summarized below:

- An applied vacuum in the range of 8.0 to 15.0 "Hg produced influent soil vapor flow rates in the range of 93.3 to 132.6 cfm and an average groundwater extraction rate of 0.08 gpm. A total of 690 gallons of extracted groundwater were treated using the carbon vessels and discharged to the sanitary sewer.
- The greatest drawdown (1.02 feet) in the observation well network was observed at well MW-3, located approximately 14 feet from extraction well EX-2. Drawdown of 4.14 feet observed at well MW-8 was considered anomalous and hence was not used in determining greatest drawdown (Table 2).
- Groundwater elevation contour maps for depth to water measurements taken at the start-up of the DPE event (September 4, 2007) and during the event (October 15, 2007) are presented in Figures 3 and 4, respectively.
- GRO and benzene concentrations in the influent air samples ranged from 540 milligrams per cubic meter (mg/m³) to 1,800 mg/m³ and 0.75 mg/m³ to 3.4 mg/m³, respectively. MTBE was not reported above laboratory detection limits in any of the four influent air samples collected during this event.
- GRO, benzene, and MTBE concentrations in the influent water samples ranged from 51 micrograms per liter ( $\mu$ g/L) to 470  $\mu$ g/L, 9.2  $\mu$ g/L to 140  $\mu$ g/L, and 3.8  $\mu$ g/L to 230  $\mu$ g/L, respectively.
- Based on influent soil vapor flow rates, operational uptime, and concentrations, approximately 698.8 pounds of GRO were extracted in vapor phase during this DPE-AS event. A total of approximately 797.3 pounds of GRO in vapor phase has been removed from the subsurface in the vapor phase as a result of this and historical DPE events (Table 5).
- Based on groundwater extraction rates and influent concentrations, approximately 0.002 pounds of GRO was removed from the subsurface in aqueous phase during this DPE-AS event. A total of approximately 0.31 pounds of GRO has been removed in aqueous phase from the subsurface as a result of this and historical DPE events (Table 5).

• Concentrations of GRO, benzene, and MTBE in observation wells S-1, S-2, and MW-3 appear to be declining due to DPE and AS. Graphs illustrating concentrations of GRO, benzene, and MTBE variations with time at wells S-1, S-2, MW-3, EX-1 through EX-4 are presented in Figures 5 through 11.

#### DISCUSSION

Petroleum hydrocarbon concentrations and hydrocarbon mass extraction rates in extracted soil vapors during the DPE-AS event were significantly higher than the concentrations observed during the previous DPE remediation events. The combination of seasonally low groundwater levels and air sparging appears to have improved subsurface soil vapor flow rates, resulting in higher hydrocarbon mass extraction rates in soil vapor.

In order to further reduce petroleum hydrocarbon mass beneath the property and manage the site towards closure, Stratus intends to initiate continuous DPE and AS at the site. Prior to initiating further remediation, Stratus will obtain appropriate electrical service needed to operate DPE and AS equipment from Pacific Gas and Electric Company (PG&E). Natural gas service for the DPE system may also be obtained.

#### LIMITATIONS

This report was prepared in general accordance with accepted standards of care that existed at the time this work was performed. No other warranty, expressed or implied, is made. Conclusions and recommendations are based on field observations and data obtained from this work and previous investigations. It should be recognized that definition and evaluation of geologic conditions is a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with an incomplete knowledge of the subsurface conditions present. More extensive studies may be performed to reduce uncertainties. This report is solely for the use and information of our client unless otherwise noted.

Scott G. Bittinger

No. 7477

If you have any questions or comments concerning this report, please contact Scott Bittinger at (530) 676-2062.

Sincerely,

STRATUS ENVIRONMENTAL, INC.

Sonia Nandi Staff Engineer

Sonia Nardi

Scott Bittinger, P.G. Project Manager

Attachments: Table 1 Drilling and Well Construction Summary

Table 2 DPE-AS Event Field Observation Summary
Table 3 Soil Vapor Analytical Results

Table 4 Groundwater Analytical Results

Table 5 Petroleum Hydrocarbon and Groundwater Mass Extraction

Summary

Figure 1 Site Location Map

Figure 2 Site Plan

Figure 3 Groundwater Elevation Contour Map for 9/4/07
Figure 4 Groundwater Elevation Contour Map for 10/15/07
Figure 5 GRO Benzene and MTRE Variation with Time at

Figure 5 GRO, Benzene, and MTBE Variation with Time at S-1
Figure 6 GRO, Benzene, and MTBE Variation with Time at S-2
Figure 7 GRO, Benzene, and MTBE Variation with Time at MW-3
Figure 8 GRO, Benzene, and MTBE Variation with Time at EX-1
Figure 9 GRO, Benzene, and MTBE Variation with Time at EX-2
Figure 10 GRO, Benzene, and MTBE Variation with Time at EX-3

Figure 11 GRO, Benzene, and MTBE Variation with Time at EX-4 Appendix A Summaries of Previous DPE Events

Appendix A Summaries of Previous DPE EV
Appendix B Field Data Sheets

Appendix C Certified Analytical Reports and Chain-of-Custody

Documentation

cc: Mr. Charles Miller, Moller Investment Group, Inc.

Mr. Ken Phares, Jay-Phares Corporation Mr. Peter McIntyre, AEI Consultants

Mr. Robert Cave, Bay Area Air Quality Management District

# TABLE 1 DRILLING AND WELL CONSTRUCTION SUMMARY

Former USA Station #57 10700 MacArthur Boulevard Oakland, California

ID	Date	Boring Dia.		Casing Diameter		Slot Size	Screen Interval
		(inches)	(feet bgs)	(inches)	(feet bgs)	(inches)	(feet bgs)
Monitoring	<u> Wells</u>						
S-1	2/12/87	8	40	3	40	0.02	20 to 40
S-2	2/12/87	8	40	3	40	0.02	20 to 40
MW-3	2/28/95	10	44	4	44	0.02	24 to 44
MW-4	11/20/95	10	40.5	4	40.5	0.02	10 to 40.5
MW-5	11/20/95	10	41	4	40	0.02	10 to 40
MW-6	11/20/95	10	40.5	4	40.5	0.02	10 to 40.5
MW-7	11/21/95	10	41	4	40	0.02	10 to 40
MW-8	11/21/95	10	35.5	4	35	0.02	10 to 35
Extraction	Wells						
EX-1	10/6/05	10	25	4	25	0.02	5 to 25
EX-2	10/7/05	10	25	4	25	0.02	5 to 25
EX-3	10/6/05	10	25	4	25	0.02	5 to 25
EX-4	10/6/05	10	25	4	25	0.02	5 to 25
Air Sparge	Wells						
AS-1	8/23/07	8	20	1	20	0.02	17.5 to 20
AS-2	8/23/07	8	25	1	20	0.02	17.5 to 20
Soil Boring	S						
Α	2/12/87	8	20				
В	2/12/87	6	20				
С	2/12/87	6	20				
D	2/12/87	6	20				
B-1	2/28/95	8	46				
B-2	3/1/95	8	31				
B-3	3/1/95	8	21				
B-4	3/2/95	8	12				
B-5	3/2/95	8	12				
B-6	3/2/95	8	12				
B-7	3/2/95	8	12				
B-8	3/2/95	8	12				

bgs - Below ground surface

# TABLE 2 DPE-AS EVENT FIELD OBSERVATION SUMMARY

	Hour		Appl	Air	Totalizer	GW	Inf	Oper		Depth	to Wate	er, feet	bgs ar	nd Indu	uced V	acuun		
Date	Meter	TE	Vac	Flow 1	Reading	Ext Rate	PID	Temp	S-		S-	*******	T	V-3	T	N-7	T	W-8
	Reading	(days)	("Hg)	(cfm)	(gallons)	(gpm)	(ppmv)	(deg F)	(DTW)	(DD)	(DTW)	(DD)	(DTW)	(DD)	(DTW)	(DD)	(DTW)	(DD)
9/4/07 5:45	NM	NM	NM	NM	NM	NM	NM	NM	18.57		20.69		15.43		17.60		19.55	
9/4/07 9:40	Begin DPE	-AS eve	ent using	g wells EX	-1 through	ı EX-4 and	d AS-1 thr	ough AS-	2. Hour	Meter	Reading	= 11,48	39.50. T	otalizeı	r Readi	ng = 19	)9,300 g	gallons
9/4/07 9:40	11,489.50	0.00	15.00	93.3	199,307		NM	NM	NM		NM		NM		NM		NM	
9/4/07 10:15	11,490.50	0.04	15.00	98.2	199,320	0.22	230	1,490	NM		NM		NM		NM		NM	
9/4/06 11:15	11,491.40	0.08	14.00	103.1	199,340	0.37	140	1,450	NM		NM		NM		NM		NM	
9/11/07 10:15	11,524.00	1.44	12.00	122.8	199,410	0.04	160	1,450	NM		NM		NM		NM		NM	
9/17/07 5:45	11,592.60	4.30	10.00	122.8	199,550	0.03	139	1,483	NM		NM		NM		NM		NM	
9/18/07 4:15	11,616.70	5.30	NM	NM	199,550	0.00	NM	NM	18.80	0.23	20.94	0.25	16.10	0.67	17.78	0.18	23.69	4.14
9/20/07 5:00	11,640.00	6.27	NM	98.2	199,550	0.00	418	1,538	NM		NM		NM		NM		NM	
9/25/07 9:00	11,668.10	7.44	14.00	103.1	199,630	0.05	400	1,527	NM		NM		NM		NM		NM	
10/2/07 5:00	11,730.00	10.02	NM	NM	NM		NM	NM	19.12	0.55	21.33	0.64	16.40	0.97	18.11	0.51	20.24	0.69
10/3/07 5:30	11,762.20	11.36	8.00	132.6	199,690	0.01	1,060	1,480	NM		NM		NM	***	NM		NM	
10/5/07 5:00	11,808.80	13.30	NM	NM	199,690		NM	NM	NM		NM		NM		NM		NM	
10/11/07 7:00	11,862.00	15.52	11.00	122.8	199,770	0.03	90	1,460	NM		NM		NM		NM		NM	
10/15/07 4:50	11,960.30	19.62	NM	NM	199,830	0.01	NM	NM	19.22	0.65	21.32	0.63	16.45	1.02	18.29	0.69	20.36	0.81
10/17/07 8:00	11,972.00	20.10	11.00	103.1	199,830		300	1,497	NM		NM		NM		NM		NM	
10/30/07 8:50	12,101.00	25.48	14.50	117.9	199,920	0.01	69	1,450	NM		NM		NM		NM		NM	
11/6/07 7:00	12,108.00	25.77	12.00	117.9	199,990	0.17	347	1,485	NM		NM		NM		NM		NM	
11/14/07 6:00	12,269.00	32.48	NM	NM	NM		NM	NM	NM		NM		NM		NM		NM	
11/14/07 20:00					ATTOMATO		Disco	ntinue DP	E-AS ev	ent.	**************************************				1	k		
Average			12.41	111.31		0.08	304.82	1,483										
Distance to Near	est Extractio	n Well,	feet						20	)	27	7	1:	5	3.	3	6	52
Screening Interv	al : EX-1=E>	K-2=EX-	-3=EX-4	1= 5 to 25 t	feet bgs				20 -	40	20 -	40	24 -	- 44	10	- 40	10	- 35

# TABLE 2 DPE-AS EVENT FIELD OBSERVATION SUMMARY

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

	Hour		Appl	Air	Totalizer	GW	Inf	Oper		Depth	to Wate	r, feet	bgs an	ıd Indu	ıced Va	cuum	, "WC	
Date	Meter	TE	Vac	Flow 1	Reading	Ext Rate	PID	Temp	s-	1	S-	2	MV	V-3	MV	<b>I-7</b>	M۷	N-8
	Reading	(days)	("Hg)	(cfm)	(gallons)	(gpm)	(ppmv)	(deg F)	(DTW)	(DD)	(DTW)	(DD)	(DTW)	(DD)	(DTW)	(DD)	(DTW)	(DD)

Notes:

Appl - Applied

cfm - Cubic feet per minute

DD - Drawdown

deg F - Degree Fahrenheit

DTW - Depth to groundwater

gpm - Gallons per minute

GW Ext Rate = Difference of Totalizer Readings, gallons

"Hg - Inches mercury

Inf - Influent

NM - Not measured

Oper - Operating

PID - Photo ionization detector

ppmv - Parts per million by volume

TE - Time elapsed calculated as difference of hour meter readings, days

Temp - Temperature

Vac - Vacuum

flow rate = velocity x area of pipe (e.g. flow rate = 600 feet per minute x 0.05 square feet)

<sup>&</sup>lt;sup>1</sup> Flow rate measured using a digital anemometer at 3" diameter steel pipe;

# TABLE 3 SOIL VAPOR ANALYTICAL RESULTS

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	<b>GRO</b> (mg/m³)	Benzene (mg/m³)	<b>Toluene</b> (mg/m³)	Ethyl- benzene (mg/m³)	Total Xylenes (mg/m³)	MTBE (mg/m³)	TBA (mg/m³)
09/04/07	11:15	Sys Inf Air 57	540	0.75	<0.75	0.97	<0.75	<0.75	<38
09/04/07	11:20	EFF Air	<15	<0.15	<0.15	<0.15	<0.15	<0.15	<7.5
10/03/07	05:30	0057ASYSINF	1,800	3.4	0.96	1.2	7.5	<0.75	NA
10/11/07	07:11	USA57 A SYSINF	730	1.2	0.45	<0.30	1.1	<0.30	NA
10/11/07	07:00	USA57 A EFF	<15	<0.15	<0.15	<0.15	<0.15	<0.15	NA
11/06/07	07:22	0057 A SYS INF	1,600	2.6	1.2	0.81	2.3	<0.75	NA
11/06/07	07:20	0057 A SYS EFF	73	<0.15	<0.15	<0.15	<0.15	<0.15	NA
11/15/2007 <sup>1</sup>	09:10	0057 A INF	77	<0.15	0.15	<0.15	1.16	<0.15	NA
11/15/2007 1	09:05	0057 A EFF	<15	<0.15	<0.15	<0.15	<0.15	<0.15	NA

#### Notes

Samples analyzed per Bay Area Air Quality Management District (BAAQMD) permit limits

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

GRO = Gasoline Range Organics C4-C13

MTBE = Methyl tertiary butyl ether

NA = Not analyzed

TBA = Tertiary butyl alcohol

#### Analytical Laboratory

Alpha Analytical, Inc. (Alpha [ELAP #2019])

#### Analytical Methods

GRO analyzed by EPA Method SW8015B/DHS LUFT Manual

BTEX, MTBE, and TBAanalyzed by EPA Method SW8260B

# TABLE 4 GROUNDWATER ANALYTICAL RESULTS

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	GRO (μg/L)	<b>Benzene</b> (μg/L)	<b>Toluene</b> (μg/L)	Ethyl- benzene (µg/L)	Total Xylenes (μg/L)	<b>MTBE</b> (μg/L)	<b>ΤΒΑ</b> (μg/L)	DIPE (μg/L)	ETBE (μg/L)	TAME (μg/L)
09/04/07	10:15	INF	470	25	2.9	10	19	230	120	<1.0	<1.0	<1.0
10/03/07	5:30	0057WINF	51	9.2	0.63	<0.50	1.82	5.4	19	<1.0	<1.0	<1.0
10/11/07	6:35	USA57 W INF	120	25	1.6	3.3	8.7	3.8	18	<1.0	<1.0	<1.0
10/11/07	6:30	USA57 W EFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
11/06/07	7:35	00057 W INF	430	140	33	9.6	61	9.0	41	<2.0[1]	<2.0[1]	<2.0[1]
11/06/07	7:30	00057 W EFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0

#### Notes:

μg/L - Micrograms per liter

BTEX - Benzene, toluene, ethylbenzene, and total xylenes

DIPE - Di-isopropyl ether

ETBE - Ethyl tertiary butyl ether

GRO - Gasoline range organics C4-C13

MTBE - Methyl tertiary butyl ether

TBA - Tertiary butyl alcohol

TAME - Tertiary amyl methyl ether

#### **Analytical Laboratory**

Alpha Analytical, Inc. (ELAP #2019)

#### **Analytical Methods**

GRO analyzed by EPA Method SW8015B/DHS LUFT Manual

BTEX, MTBE, TBA, DIPE, ETBE, and TAME analyzed by

EPA Method SW8260B

[1] = Reporting limits were increased due to high concentrations of target analytes

#### **TABLE 5** PETROLEUM HYDROCARBON AND GROUNDWATER MASS EXTRACTION SUMMARY

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

			Influe	ent Concenti	ation	Soil Va	ipor Extract	ion Rate	l .	ive Mass Removed
Date	Time Elapsed	Flowrate		(mg/m <sup>3</sup> )			(lbs/day)		Period <sup>1</sup>	Total
	(days)	(cfm)	GRO	Benzene	MTBE	GRO	Benzene	MTBE	lbs	lbs
Petroleum hydro	carbon mass rem	oved during the	previous I	OPE events					98.527	98.527
09/04/07	0.08	103.1	540	0.75	< 0.75	4.95	0.01	<0.0069	4.950	103.477
10/03/07	11.36	132.6	1,800	3.40	< 0.75	21.22	0.04	<0.0088	148.618	252.095
10/11/07	15.52	122.8	730	1.2	< 0.30	7.97	0.013	< 0.0033	226.474	478.569
11/06/07	25.77	117.9	1,600	2.6	< 0.75	16.77	0.027	< 0.0079	318.733	797.302
11/15/07	NA	NM	77	<0.15	<0.15					
		Volume of							Cumulat	
<b>.</b>		Groundwater	Influe	nt Concentr	ation		s Extracted		Rem	
Date	Time Elapsed	Extracted <sup>2</sup>		(µg/L)			oundwater (		GRO	MTBE
	(days)	(gallons)	GRO	Benzene	MTBE	GRO	Benzene	MTBE	lbs	lbs
Petroleum hydro	carbon mass rem	oved during the	previous [	PE events					0.30279	0.01351
09/04/07	0.04	20.0	470	25	230	0.00008	0.000004	0.000038	0.30287	0.01355
10/03/07	11.36	390.0	51	9.2	5.4	0.00017	0.00003	0.000018	0.30303	0.01357
10/11/07	15.52	470	120	25	3.8	0.00034	0.0001	0.00002	0.30337	0.01358
11/06/07	25.77	690	430	140	9	0.00158	0.0005	0.00004	0.30495	0.01362

۱	Groundwater	extracted to date	187,490	gallons
ı	Groundwater	extracted to date	10/.490	gamons

Sample Calculations

Ext. Rate from = 40.3 cu ft x 690 mg lb x 1,440 min x cu meter Wells (vapor) cu meter 453,593 mg day min

35.314 cu ft

2.47 lbs/day

Mass removed from groundwater = concentration ( $\mu$ g/L) x gallons extracted x (2.2046 x 10<sup>-9</sup>)(lb/mg) / 0.26418 (gal/L)

#### Notes:

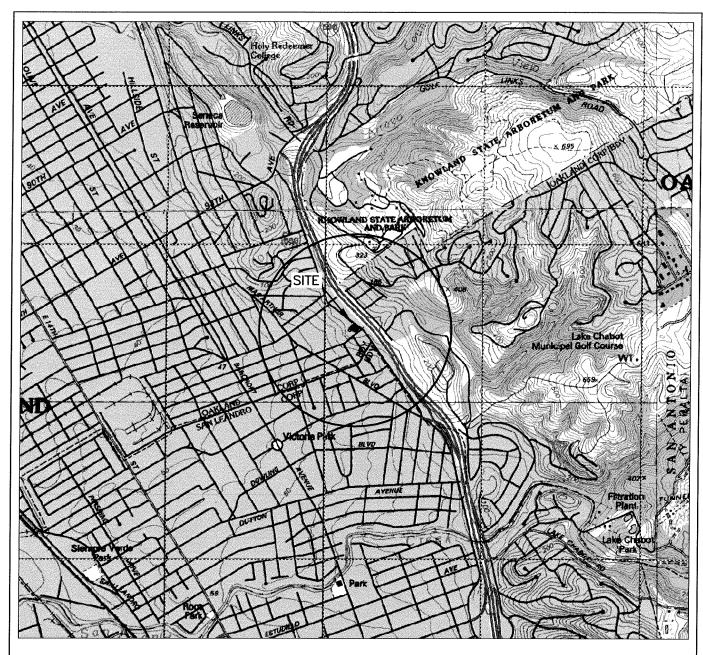
For mass estimates between the sampling dates, average mass extraction rate and time elapsed (operational uptime) between the sampling events were used.

μg/L - Micrograms per liter lbs - Pounds TPHG - Total petroleum hydrocarbons

mg/m<sup>3</sup> - Milligrams per cubic cfm - Cubic feet per meter MTBE - Methuyl tertiary butyl ether DPE - Dual phase extraction

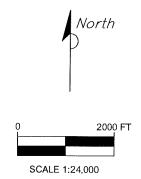
gal - Gallons NA - Not analyzed GRO - Gasoline range organics NM - Not monitored

Volume estimated based on flow totalizer measurements taken on the sampling days.



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
OAKLAND, CA
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980





STRATUS ENVIRONMENTAL, INC.

FORMER USA SERVICE STATION NO. 57 10700 MACARTHUR BOULEVARD OAKLAND, CALIFORNIA SITE LOCATION MAP

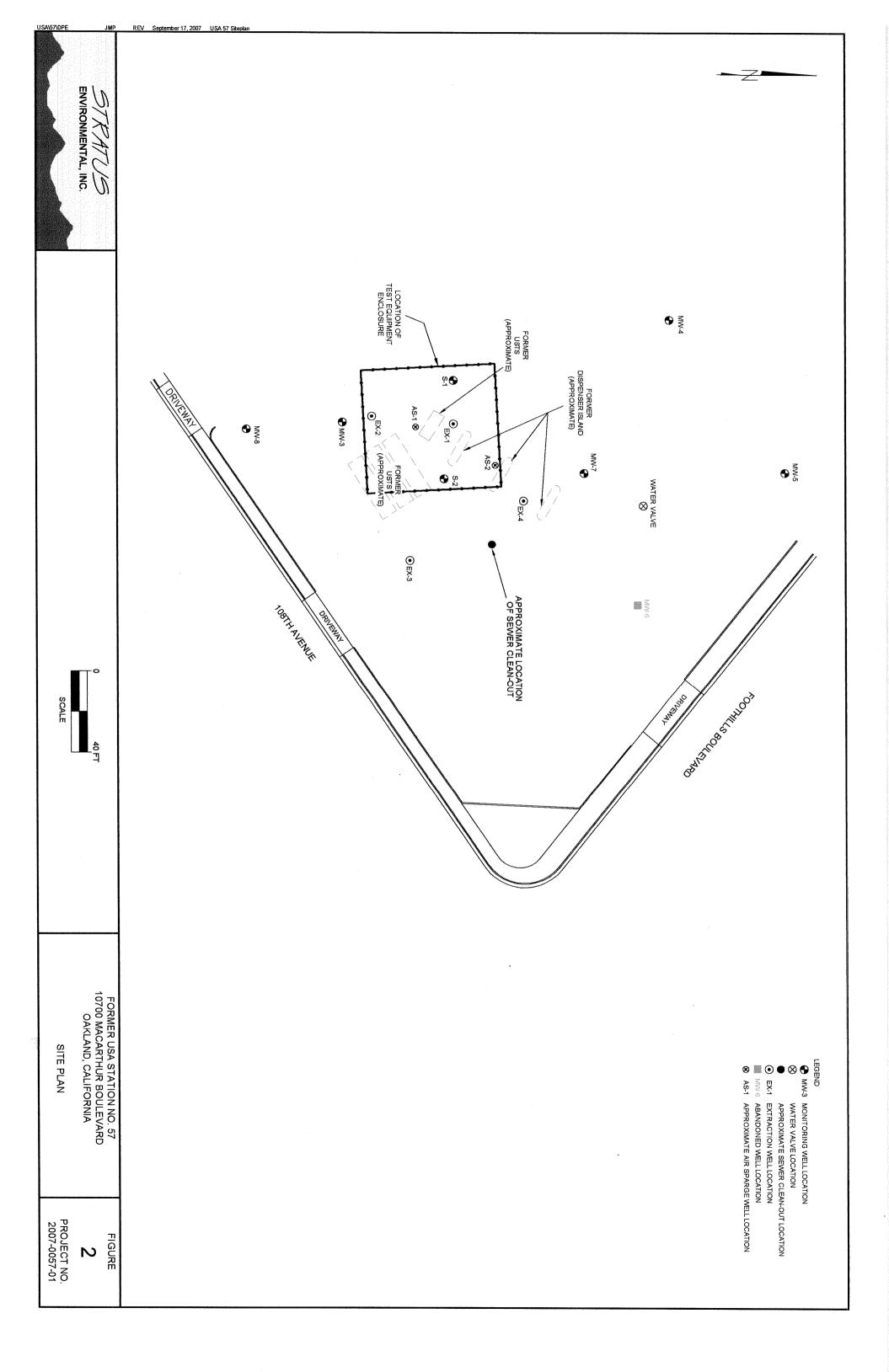
**1** PROJECT NO. 2007-0057-01

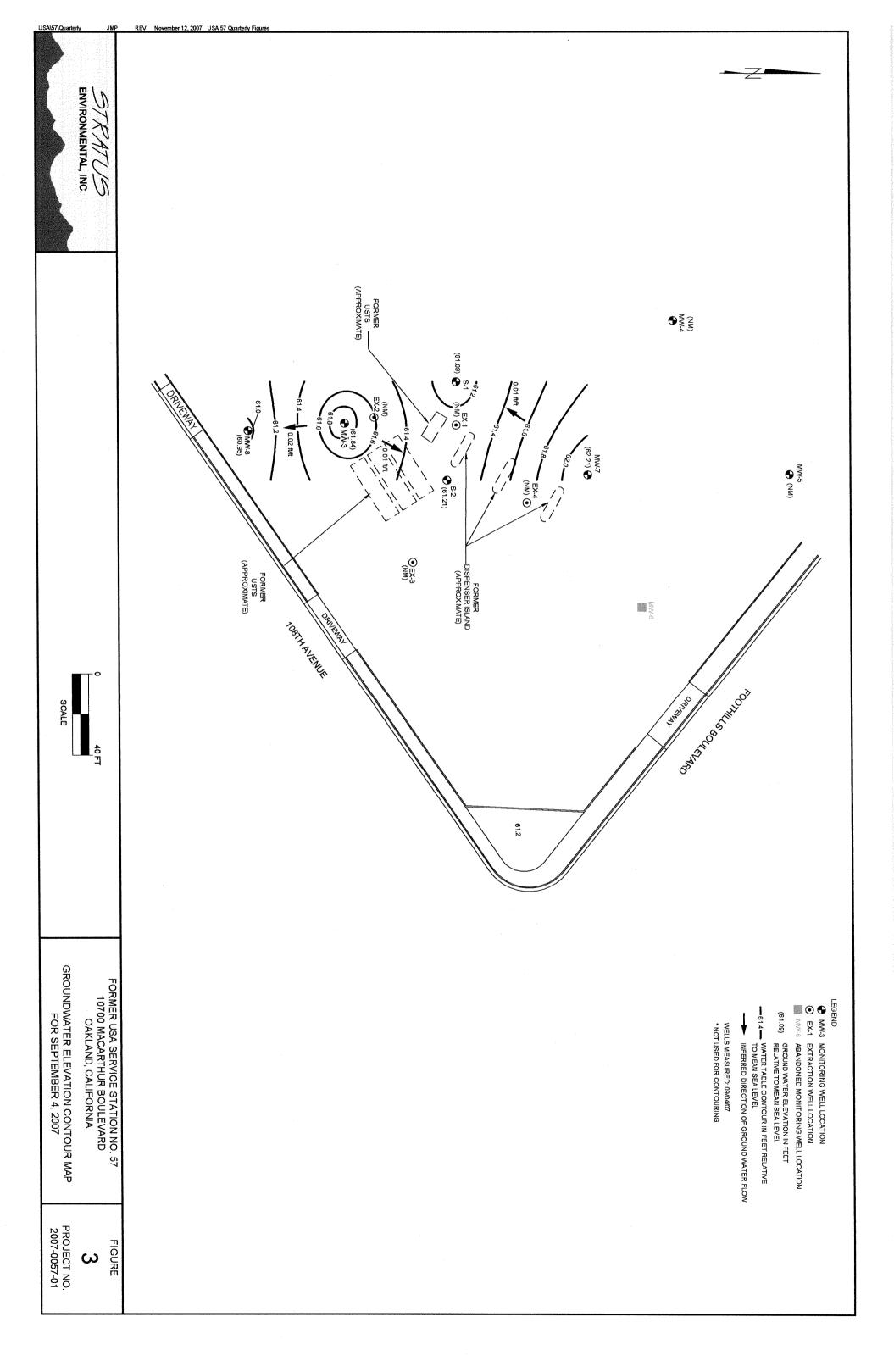
**FIGURE** 

August 13, 2007 USA 57 Site | position

JMP REV

USA\57\Quanenv





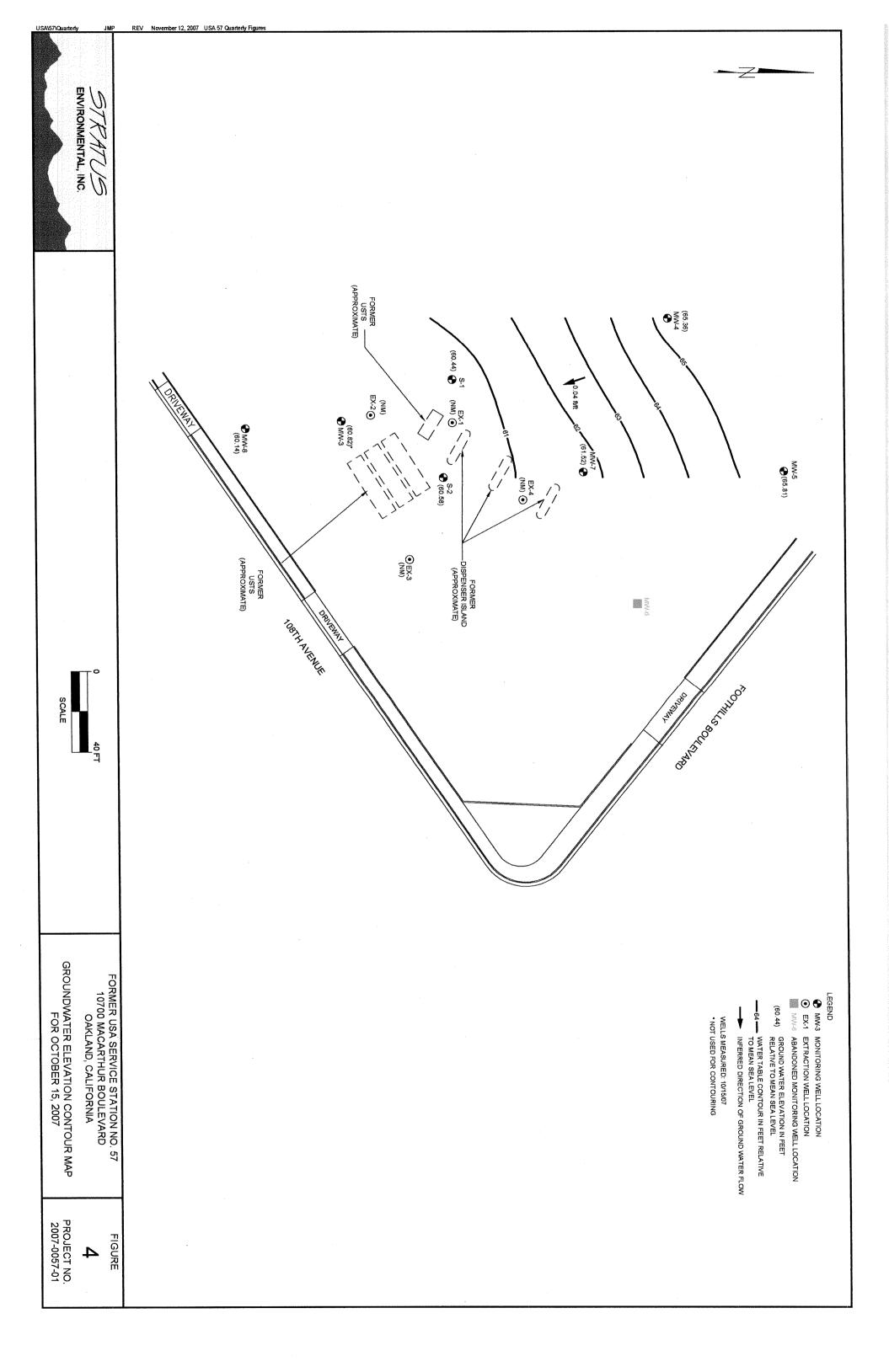


Figure 5
GRO, Benzene, and MTBE Variation with Time at S-1
Former USA Service Station No. 57
10700 MacArthur Boulevard
Oakland, California

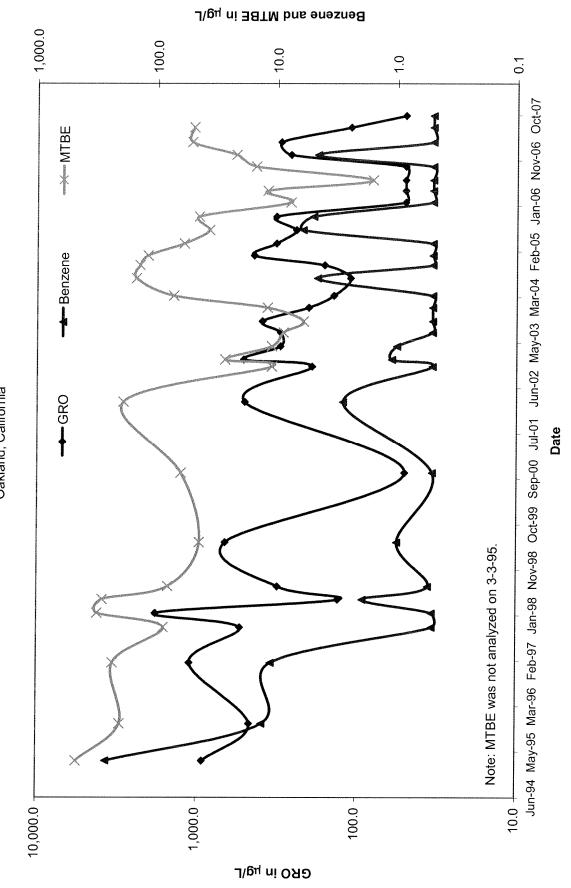


Figure 6
GRO, Benzene, and MTBE Variation with Time at S-2

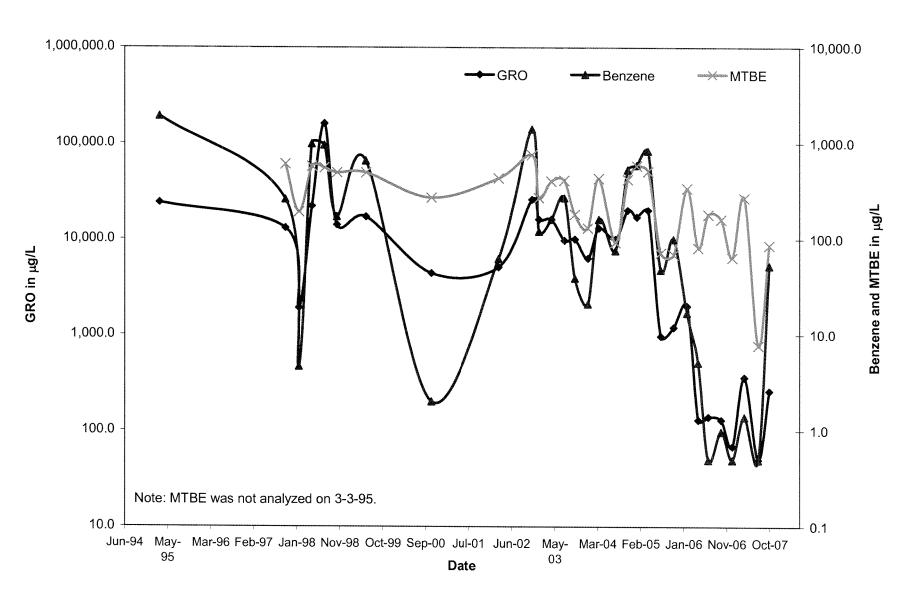


Figure 7 GRO, Benzene, and MTBE Variation with Time at MW-3

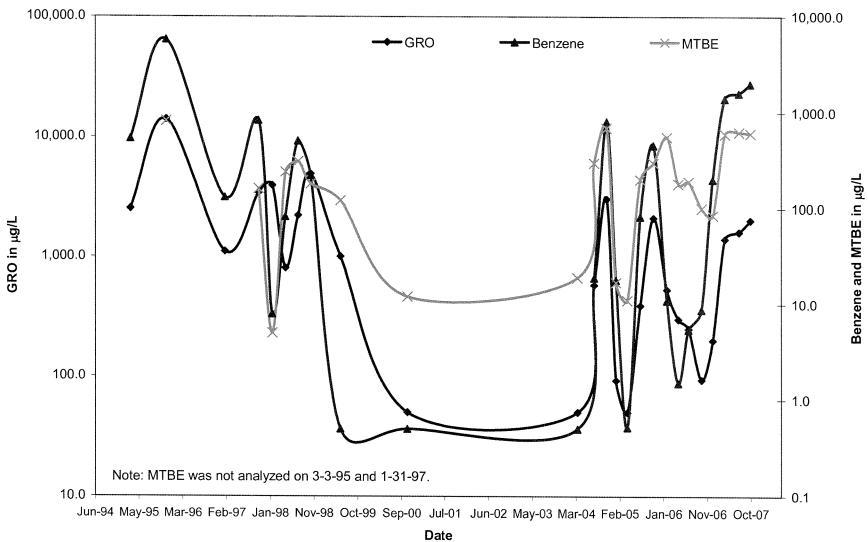


Figure 8
GRO, Benzene, and MTBE Variation with Time at EX-1

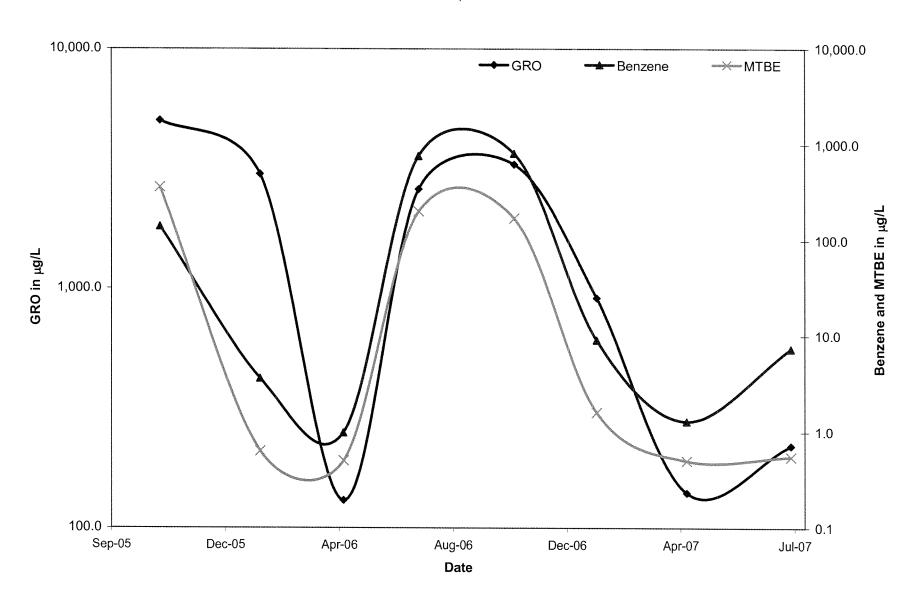


Figure 9
GRO, Benzene, and MTBE Variation with Time at EX-2

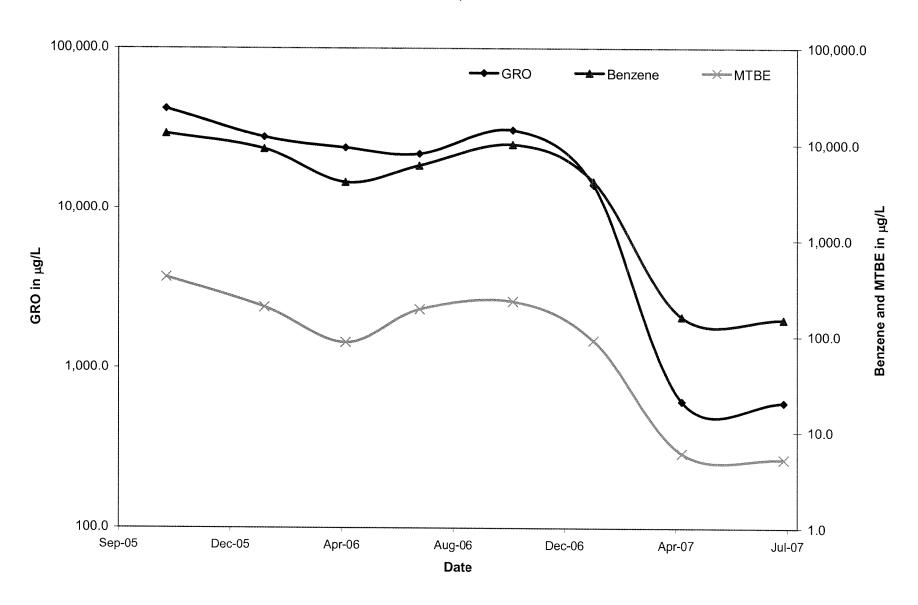


Figure 10 GRO, Benzene, and MTBE Variation with Time at EX-3

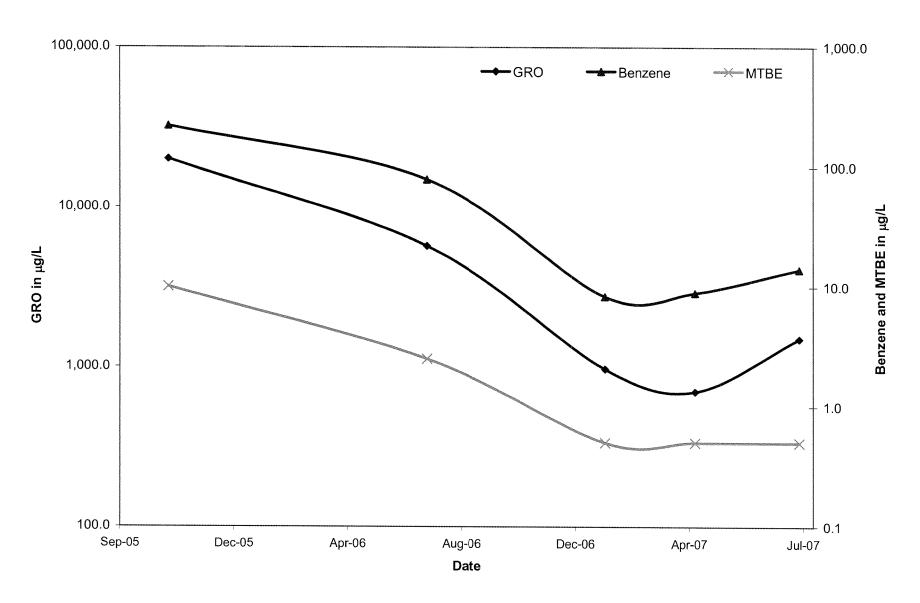
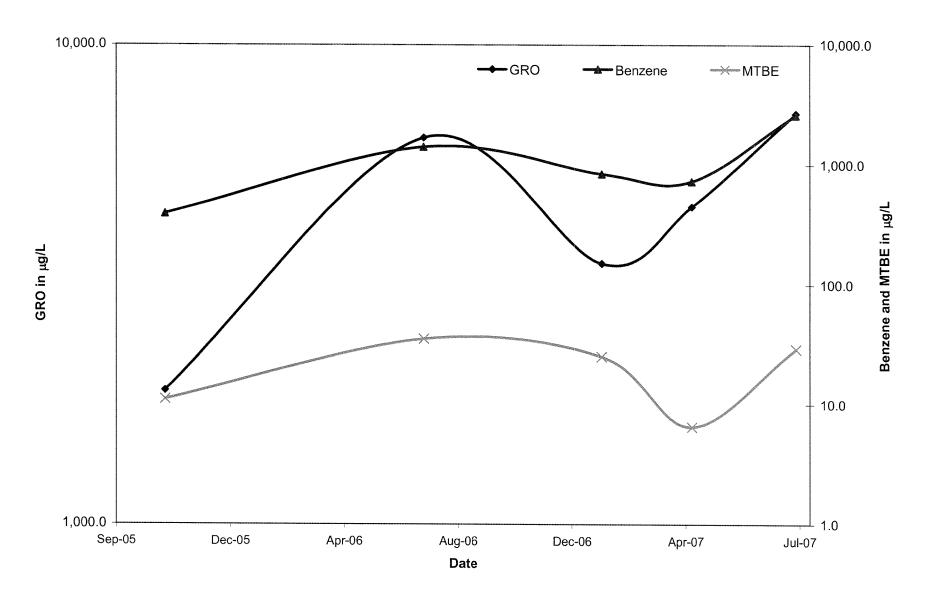


Figure 11
GRO, Benzene, and MTBE Variation with Time at EX-4



# APPENDIX A SUMMARIES OF PREVIOUS DPE EVENTS

# TABLE 1 DPE TEST USING WELL S-2

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

	TE	Appl	Air	Totalizer	GW	Inf	Oper			In	duced	Vacuum	า ("WC)	&/or DT\	N (feet	bgs) Data	a in Obs	ervatio	n Wells			
Date & Time		Vac	Flow	Reading	Ext Rate	PID	Temp		S-1			MW-3		MW		MV			MW-7		MW	V-8
	hh:mm	"Hg	cfm	gallons	gpm	ppmv	deg F	Vac	DTW	DD	Vac	DTW	DD	DTW	DD	DTW	DD	Vac	DTW	DD	DTW	DD
7/6/2004 7:00				42,120					18.13			15.70		12.26		18.07		7.00	18.19		19.55	<del> </del>
7/6/2004 8:30						Start I	Jp Test u	ısing we	ll S-2, DT	W =20.	26 feet	bgs and	l DPE u	L	meter r		839.6		10.10		10.00	<u> </u>
7/6/2004 9:00	00:30	25.50	87	42,120		2.9	1,450	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	I NM
7/6/2004 10:00	01:30	NM	NM	42,120		23.0	NM	0.35	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
7/6/2004 11:00	02:30	26.25	88	42,130	0.07	29.0	1,466	1.30	18.38	0.25	0.0	15.70		12.27	0.01	18.08	0.01	0.0	18.30	0.11	19.58	<del> </del>
7/6/2004 12:00	03:30	26.50	87	42,200	0,33	24.0	1,444	0.50	18.58	0.45	0.0	15.69		12.25	-0.01	18.05	-0.02	0.0	18.35		19.51	
7/7/2004 6:30	22:00	23.50	86	42,820	0.47	7.1	1,456	0.20	18.65	0.52	0.0	15.70		12.26	0.00	18.04	-0.03	0.0			19.55	<del> </del>
7/7/2004 6:50	22:20									Disco	ntinue	Test on			0,00	10.01	0.00	0.0	10.00	0.13	13.33	0.00
Distance to Extrac	tion Well	S-2							50			60		13	5	17	0		70	<del></del>	10	)0
Screening Interva		20 - 40	0 (S-2)						20 - 40			24 - 44		10 - 4	10.5	10 -	40		10 - 40.5		10 -	35

N.	١	tes:
1	$\cap$	IDC.

TE - Time Elapsed, hours: minutes

cfm - cubic feet per minute

Appl - Applied

Inf - Influent

Oper - Operating

DD - Drawdown

Vac - Vacuum

GW Ext - Groundwater Extraction

DTW - depth to groundwater
" WC - Inches water column

PID - Photo Ionization Detector
All induced vacuum measured in observation wells were in "WC

ppmv - parts per million by volume

gpm - gallons per minute

Temp - Temperature

"Hg - Inches Mercury

deg F - degree Farenheit

bgs - below ground surface

Ext. - Extraction

#### TABLE 2 **DPE TEST USING WELL S-1**

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

	TE	Appl	Air	Totalizer	GW	Inf	Oper			lr	nduced	Vacuun	n ("WC)	&/or DT	W (feet	bgs) Da	ata in Ol	servat	ion Well	s		
Date & Time		Vac	Flow	Reading	Ext Rate	PID	Temp.		S-2			MW-3		ΜV	V-4	MV	<b>V</b> -5	***************************************	MW-7		MV	V-8
	hh:mm	"Hg	cfm	gallons	gpm	ppmν	deg F	Vac	DTW	DD	Vac	DTW	DD	DTW	DD	DTW	DD	Vac	DTW	DD	DTW	DD
7/7/2004 7:05									Star	t Up Te	st usin	g Well S	-1	<u> </u>		L						
7/7/2004 7:05	0.00	NM	NM	42,820	NM	NM	NM	NM	ИМ		NM	15.70		12.26		18.07			18.38		19.55	
7/7/2004 7:30	00:25	24.00	86	42,890	2.80	1.5	1,459	+7.4	30.08		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
7/7/2004 8:00	00:55	24.00	87	42,890		0.6	1,456	+4.4	25.35	-4.73	0.0	15.70	0.00	12.25	-0.01	18.06	-0.01	0.0	18.38		19.55	
7/7/2004 9:00	01:55	24.00	87	42,960	0.61	0.0	1,457	+0.2	22.16	-7.92	0.0	15.70	0.00	12.25				0.0	18.38			- /
7/7/2004 9:05	02:00			***************************************					L	Disc	ontinue	Test or		LJ						0.00	10.00	
Distance to Extra	ction Wel	l S-1							50			60		11	0	17	70		80		1(	 )5
Screening Interva	ıl	20 - 40	(S-1)	1					20 - 40			24 - 44		10 -	40.5	10 -	- 40		10 - 40.5	 ō	10 -	 - 35

#### Notes:

TE - Time Elapsed, hours: minutes

cfm - cubic feet per minute

Appl - Applied

Inf - Influent

Oper - Operating

DD - Drawdown

Vac - Vacuum

GW Ext - Groundwater Extraction

DTW - depth to groundwater " WC - Inches water column

PID - Photo Ionization Detector

All induced vacuum measured in observation wells were in "WC

ppmv - parts per million by volume Temp - Temperature

gpm - gallons per minute "Hg - Inches Mercury

deg F - degree Farenheit

bgs - below ground surface

Ext. - Extraction

# TABLE 3 DPE TEST USING WELL MW-3

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

	TE	Appl	Air	Totalizer		Inf	Oper				Indu	ced Vacu	ıum ("W	(C) &/or D	TW (fee	et bgs) D	ata in O	bservat	ion Wells	;	*****	
Date & Time		Vac	Flow	Reading	Ext Rate	PID	Temp		S-1	···		S-2		MW	-4	MΜ	V-5		MW-7		MV	N-8
	hh:mm	"Hg	cfm	gallons	gpm	ppmv	deg F	Vac	DTW	DD	Vac	DTW	DD	DTW	DD	DTW	DD	Vac	DTW	DD	DTW	DD
7/7/2004 9:25									(	Start Up	Test us	ing Well	MW-3			I	L				<i>D.</i> (1)	
7/7/2004 9:25	0.00	NM	NM	42,960		NM	NM	NM	NM		NM	22.16		12.26		18.07		NM	18.38		19.55	NM
<i>7/7/</i> 2004 10:00	00:35	24.50	87	42,960	~~	0.0	1,450	0.0	NM		NM	NM		NM		NM		NM	NM		NM	NM
7 <i>l</i> 7/2004 10:30	01:05	25.50	87	42,960		0.0	1,447	0.0	19.38		+0.6	21.00	-1.16	12.25	0.00	18.06	-0.01	0.0	18.36	-0.02	19.53	-0.02
7 <i>[7]</i> 2004 11:30	02:05	26.00	87	42,960		0.0	1,456	0.0	19.11	-0.27	+0.2	20.91	-1.25	12.25	0.00	18.06		0.0	18.35	-0.03	19.53	-0.02
7 <i>[</i> 7/2004 11:35	02:10				<u> </u>	Discont	inue test	t on M\	V-3	1	I	<u> </u>				, , , , , ,	0,01	0.0	10.00	0.00	10.00	-0.02
Distance to Extrac	tion Well	MW-3							60		1	60		17	0	22	20		120		5	<u>I</u> 50
Screening Interval		24-44 (	MW-3)						20 - 40			20 - 40		10 - 4	0.5	10 -	40		10 - 40.5			- 35

#### Notes:

TE - Time Elapsed, hours: minutes

cfm - cubic feet per minute

Appl - Applied

Inf - Influent

Oper - Operating

DD - Drawdown

Vac - Vacuum

GW Ext - Groundwater Extraction

DTW - depth to groundwater

PID - Photo Ionization Detector

" WC - Inches water column

All induced vacuum measured in observation wells were in "WC

ppmv - parts per million by volume

gpm - gallons per minute

Temp - Temperature

"Hg - Inches Mercury

deg F - degree Farenheit

bgs - below ground surface

Ext. - Extraction

# TABLE 4 COMBINED DPE TEST USING WELLS S-1, S-2, AND MW-3

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

	TE	Appl	Air	Totalizer	GW	Inf	Oper												
Date & Time		Vac	Flow	Reading	Ext Rate	PID	Temp	MV	V-4	МУ	V-5	MV	V-6		MW-7			MW-8	
	hh:mm	"Hg	cfm	gallons	gpm	ppmv	deg F	DTW	DD	DTW	DD	Vac	DTW	Vac	DTW	DD	Vac	DTW	DD
7/7/2004 11:35								tart Test	on S-1,	S-2 and I	MW-3					- 00	Vac	DIW	טט
7/7/2004 11:35	0.00	NM	NM	42,960	NM	NM	NM	12.25		18.06		NM	DRY	NM	18.35		NM	19.53	
7/8/2004 6:15	18:40	22.25	87	44,610	1.47	4.0	1,460	12.25	0.00	18.11	0.05	0.0	DRY	0.0	18.63	0.28	0.0	19.70	0.17
7/9/2004 6:00	42:25	23.00	86	46,960	0.92	2.3	1,440	12.33	0.08	18.18	0.12	0.0	DRY	0.0	18.72	0.37	0.0	20.02	0.49
7/10/2004 6:00	66:25	23.00	86	48,690	0.43	3.5	1,460	12.41	0.16	18.26	0.2	0.0	DRY	0.0	18.78	0.43	0.0	20.32	0.79
7/11/2004 6:00	90:25	21.00	86	50,760	0.38	3.2	1,456	12.41	0.16	18.27	0.21	0.0	DRY	0.0	18.81	0.46	0.0	20.58	1.05
7/12/2004 6:30	114:55	22.50	86	52,780	0.29	3.0	1,453	12.42	0.17	18.32	0.26	0.0	DRY	0.0	18.84	0.49	0.0	20.75	1.22
7/15/2004 6:00	186:25	22.50	86	58,760	0.53	4.0	1,446	12.27	0.02	18.36	0.3	0.0	DRY	0.0	18.90	0.55	0.0	21.17	1.64
7/19/2004 5:45	282:10	23.25	86	66,320	0.45	3.2	1,459	11.67	-0.58	18.23	0.17	0.0	DRY	0.0	18.98	0.63	0.0	21.50	1.97
7/22/2004 5:45	354:10	23.25	86	71,870	0.26	3.0	1,458	12.05	-0.20	18.33	0.27	0.0	DRY	0.0	19.03	0.68	0.0	21.65	
7/25/2004 10:36	431:01			77,720	0.23			Dis	continu	ie DPE	Test. D	PE uni	t hour	meter ı	reading	- 1			
Distance to Nearest I	Extraction	Well							10	T	70		10		70	-		50	
Screening Interval	· · · · · · · · · · · · · · · · · · ·							10 -	40.5	10 -	- 40	10 -	40.5		10 - 40.5			10 - 35	

#### Notes:

TE - Time Elapsed, hours: minutes

Appl - Applied

Oper - Operating

Vac - Vacuum

DTW - depth to groundwater

" WC - Inches water column

ppmv - parts per million by volume

Temp - Temperature

deg F - degree Farenheit

Ext. - Extraction

cfm - cubic feet per minute

Inf - Influent

DD - Drawdown

GW Ext - Groundwater Extraction

PID - Photo Ionization Detector

All induced vacuum measured in observation wells were in "WC

gpm - gallons per minute

"Hg - Inches Mercury

bgs - below ground surface

# TABLE 5 SOIL VAPOR ANALYTICAL RESULTS

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	Sample Type	ТРНС	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ
07/06/04	1030	Eff Air	Air	<12	<0.12	<0.12	<0.12	<0.12	<0.12
07/06/04	1032	Inf Cat Air	Air	660	2.1	0.38	1.2	1.1	1.0
07/07/04	0904	Inf Cat Air S-1	Air	<12	<0.12	<0.12	<0.12	<0.12	0.29
07/07/04	1126	Inf Cat Air MW-3	Air	<12	<0.12	<0.12	<0.12	<0.12	0.13
07/19/04	0641	Eff Air	Air	<12	<0.12	<0.12	<0.12	<0.12	<0.12
07/19/04	0644	Inf Cat Air	Air	88	0.26	<0.12	<0.12	0.19	0.25

All air sample values reported in milligrams per cubic meter (mg/m³)

TPHG = Total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

Analytical Laboratory

Alpha Analytical, Inc. (ELAP #2019)

Analytical Methods

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual

BTEX and MTBE analyzed by EPA Method SW8260B

### TABLE 6 GROUNDWATER ANALYTICAL RESULTS

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	Sample Type	TPHG	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	ТВА	DIPE	ЕТВЕ	TAME	Methanol	Ethanol
07/06/04	1050	S-2	Water	2200	13	1.8	10	26.9	66	170	<1.0	<1.0	<1.0	<5,000	<5,000
07/08/04	0854	Influent	Water	<100[1]	<0.50	<0.50	0.66	4.4	16	NA	NA	NA	NA	NA	NA
07/08/04	0905	GAC Influent	Water	110	<0.50	<0.50	<0.50	1.89	17	NA	NA	NA	NA	NA	NA
07/08/04	1030	Effluent	Water	<50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA NA
07/19/04	0623	Effluent	Water	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0	NA	NA NA
07/19/04	0630	Influent	Water	<50	<0.50	<0.50	<0.50	0.52	3.7	56	<1.0	<1.0	<1.0	NA	NA NA
07/27/04	1118	Effluent	Water	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0	NA	NA NA
										775			1.0	7.01	NA.

All water sample values reported in micrograms per liter (µg/L)

TPHG = Total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

DIPE = Di-isopropyl ether

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

NA = Not analyzed

[1] Reporting limits were increased due to sample foaming

Analytical Laboratory

Alpha Analytical, Inc. (ELAP #2019)

Analytical Methods

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual

BTEX, MTBE, TBA, DIPE, ETBE, & TAME analyzed by EPA Method SW8260B

Methanol & Ethanol analyzed by EPA Method SW8260B-DI

# TABLE 7 PETROLEUM HYDROCARBON MASS EXTRACTION RATES SUMMARY Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Date	Test Well	Flowrate	Influe	Influent Concentration (mg/m³)	itration	Extra W	Soil Vapor Extraction Rate from Wells (lbs/day)	from (y)	Cumula (TPHG) Period <sup>1</sup>	Cumulative Mass (TPHG) Removed Period <sup>1</sup> Total
		(cfim)	ТРНС	Benzene	MTBE	TPHG	Benzene	MTBE	lbs	lbs
	2			)	>		2	2	`` `	
07/06/04	S-2	87.0	660	2.1	1.0	5.16	0.01	0.01	5.16	5.16
07/07/04	\$-1 S-1	87.0	<12	<0.12	0.29	< 0.09	<0.001	0.002	0.01	5.17
07/07/04	MW-3	87.0	<12	<0.12	0.13	< 0.09	<0.001	0.001	0.01	5.18
07/19/04	S-1, S-2, MW-3	86.0	88	0.26	0.25	0.68	0.002	0.002	8.16	13.34
	Test Well	Volume of groundwater	Influe	Influent Concentration	tration	Mass	Mass Extracted from	from	Cumula (TPHG)	Cumulative Mass (TPHG) Removed
Date	Ш	extracted <sup>2</sup> ,		(μg/L)		grou	groundwater (lbs)	bs)	Period	Total
		gallons	TPHG	Benzene	MTBE	TPHG	Benzene	MTBE	lbs	lbs
07/06/04	S-2	80	2,200	<u> </u>	66	0.001	0.00001	0.00004	0.001	0.001
07/08/04	S-1, S-2, MW-3	2,490	<100	<0.50	16	<0.002	<0.00001	0.0003	0.012	0.014
07/19/04	S-1, S-2, MW-3	21,710	<50	<0.50	4	<0.01	<0.0001	0.001	0.008	0.015
Sample Calculations							,			
Ext. Rate from Wells (vapor)	11 11	40 cu ft x 8 min 30.21 lbs/day	8,400 mg 1b cu meter 153593 mį		<u>x 1,440 min</u> day		<u>x cu meter</u> 35.314 cu ft	<del>;</del>		
Mass removed from groundwater	ıter =	concentration ( $\mu g/L$ ) x gallons extracted x (2.2046 x 10- $^9$ )(lb/mg) / 0.26418 (gal/L)	x gallons	extracted x	(2.2046 >	( 10-²)(1b/	ng)/0.264	.18 (gal/L)		
between 1  Volume es	For mass estimates between the sampling dates, average mass extraction rate and time elapsed (operational uptime) between the sampling events were used Volume estimated based on flow totalizer measurements taken on the sampling days	the sampling outs were used flow totalizer r	lates, aver neasureme	age mass e: nts taken c	xtraction range in the samp	nte and tin oling days	ъ elapsed i	(operation:	al uptime)	
Based on av	Based on average groundwater extraction rate of 0.63 gpm and the average concentrations, the mass extraction rate for	r extraction rate	e of 0.63 g	pm and the	average co	oncentratio	ons, the ma	ss extracti	on rate for	
Mass removed from groundwater (lbs/day) TPHG Benzene	ved from  r (lbs/day)  TPHG  Benzene	= concentration (μg/L) x average flowrate (gpm) x (2.2046 x 10-9)(lb/mg) / 0.26418 (gal/L) * 60 (mins/hr)*24 (hr/day) 0.017 lbs/day 0.0001 lbs/day	on (µg/L): /hr)*24 (hr lbs/day lbs/day	x average f 'day)	lowrate (g	)m) x (2.2	046 x 10- <sup>5</sup>	)(lb/mg)/	0.26418 (į	3a1/L)

# TABLE 2 DPE EVENT FIELD OBSERVATION SUMMARY 2nd DPE Event - June/July 2005

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

	Hour	TE	Appl	Air	Totalizer	GW	Inf	Oper													
Date	Meter		Vac	Flow	Reading	Ext Rate	PID	Temp	MV	V-4	M۷	V-5		MW-6			MW-7			MW-8	
	Reading	days	"Hg	cfm	gallons	gpm	ppmv	deg F	DTW	DD	DTW	DD	Vac	DTW	DD	Vac	DTW	DD	Vac	DTW	DD
06/06/05	***************************************		Begi	n June/July	y 2005 DP	E Event,	Using W	Vells S-1,	S-2, an	d MW-3	3 for Ex	traction	ı; Hour	Meter I	Reading	Prior to	o Test S	tart up	= 3361.	2	
06/06/05	3361.20		24.00	26.6	23,710		125.0	1,471	6.65		10.91		0.00	15.67		0.00	14.79		0.00	14.08	
06/07/05	3383.60	0.93	24.00	NM	25,480	1.32	NM	1,443	NM	NM	NM	NM	0.02	NM	NM	0.00	NM	NM	0.00	NM	NM
06/09/05	3416.60	2.31	23.00	27.7	27,160	0.85	6.0	1,473	6.10	-0.55	10.62	-0.29	0.00	14.58	-1.09	0.00	13.58	-1.21	0.00	14.90	0.82
06/14/05	3468.10	4.45	24.00	28.4	31,000	1.24	6.0	1,450	6.35	-0.30	10.80	-0.11	0.00	15.60	-0.07	0.00	13.56	-1.23	0.00	14.81	0.73
06/16/05	3515.00	6.41	25.00	23.0	34,450	1.23	5.0	1,472	6.33	-0.32	10.98	0.07	0.00	15.85	0.18	0.00	13.97	-0.82	0.00	14.98	0.90
06/21/05	3638.20	11.54	25.00	39.4	43,130	1.17	0.0	1,470	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
06/28/05	3804.80	18.48	24.00	39.3	53,540	1.04	NM	1,456	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
07/01/05	3877.30	21.50	24.00	31.9	57,950	1.01	5.0	1,473	6.46	-0.19	11.09	0.18	0.00	15.65	-0.02	0.00	14.18	-0.61	0.00	16.35	2.27
07/01/05	3878.10	21.54	Event End	l Hr. Meter	58,050							I	Discontinue DPE Event						·		
Distance to	o Nearest	Extractio	n Well						110 170		70	110			70		50		-		
Screening	Interval								10 -	40.5	10	- 40	10 -	40.5		10 - 40.5			10 - 35		

Notes:

TE - Time Elapsed, days

Appl - Applied

Oper - Operating

Vac - Vacuum

DTW - depth to groundwater

" WC - Inches water column

\* = time elapsed based on hour meter readings

ppmv - parts per million by volume

Temp - Temperature

deg F - degree Farenheit
Ext. - Extraction

cfm - cubic feet per minute

Inf - Influent

DD - Drawdown

GW Ext - Groundwater Extraction

PID - Photo Ionization Detector

All induced vacuum measured in observation wells were in "WC

gpm - gallons per minute

"Hg - Inches Mercury

bgs - below ground surface

#### TABLE 3 SOIL VAPOR ANALYTICAL RESULTS 2nd DPE Event - June/July 2005

#### Former USA Station No. 57 10700 MacArthur Boulevard

Oakland, California

Sample Date	Sample Time	Sample ID	ТРНС	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	ТВА
06/06/05	11:18	SYS INF Air	160	4.4	0.72	0.55	1.35	3.6	<7.5
06/06/05	11:15	Eff Air	<15	<0.30	< 0.30	<0.30	<0.30	<0.30	<7.5
06/28/05	06:16	Inf Air	<15	<0.15	<0.15	<0.15	<0.15	<0.15	NA
07/01/05	05:41	SYS INF AIR*	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<5.0
07/01/05	05:39	EFF AIR*	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<5.0

Notes

All air sample values reported in milligrams per cubic meter (mg/m<sup>3</sup>)

TPHG = Total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

**Analytical Methods** 

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual (Alpha) & by 8260B (STL)

**Analytical Laboratory** 

Alpha Analytical, Inc. (Alpha [ELAP #2019])

\* = Analyzed by Severn Trent Laboratories (STL [ELAP #2496])

BTEX, MTBE, TBA, DIPE, TAME, and ETBE analyzed by EPA Method SW8260B

DIPE = Di-isopropyl ether

DIPE, ETBE, and TAME were reported below laboratory reporting limits in all samples.

NA = Not Analyzed

# TABLE 4 GROUNDWATER ANALYTICAL RESULTS

### 2nd DPE Event - June/July 2005

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	TPHG	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	ТВА	DIPE	ЕТВЕ	TAME
06/06/05	11:34	Influent	590	11	3.8	6.1	33	62	140	<1.0	<1.0	<1.0
06/07/05	09:41	MID (Fluent)	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
06/07/05	09:39	EFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
0010010#												
06/28/05	06:08	Influent	<50	<0.50	<0.50	<0.50	<0.50	2.6	52	<1.0	<1.0	<1.0
06/28/05	06:04	Mid GAC	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
06/28/05	06:00	Effluent	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
07/01/05	05:46	INF	<50	<0.50	<0.50	<0.50	<0.50	2.2	64	<1.0	<1.0	<1.0
07/01/05	05:54	GAC-1	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
07/01/05	05:58	EFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0

All water sample values reported in micrograms per liter (µg/L)

TPHG = Total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

DIPE = Di-isopropyl ether

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

**Analytical Laboratory** 

Alpha Analytical, Inc. (ELAP #2019)

**Analytical Methods** 

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual

BTEX, MTBE, TBA, DIPE, ETBE, & TAME analyzed by

EPA Method SW8260B

# TABLE 5 PETROLEUM HYDROCARBON MASS EXTRACTION SUMMARY 2nd DPE Event June/July 2005

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

			Influe	ent Concenti	ration		Soil Vapor action Rate	from	(ТРНС)	ive Mass Removed
Date	Time Elapsed	Flowrate		(mg/m <sup>3</sup> )	I	\	Vells (lbs/da	y)	Period <sup>1</sup>	Total
	(days)	(cfm)	TPHG	Benzene	MTBE	TPHG	Benzene	MTBE	lbs	lbs
Petroleum hydro	carbon mass remo	oved during first	DPE event	conducted of	luring July	2004			13.34	13.34
06/06/05	-	26.6	160	4.4	3.6	0.378	0.010	0.009	0.378	13.718
06/28/05	18.48	39.3	<15	< 0.15	< 0.15	< 0.052	< 0.001	< 0.001	3.980	17.698
07/01/05	21.54	31.9	<50	< 0.50	< 0.50	< 0.142	<0.001	< 0.001	<2.091	19.789
		Volume of groundwater	Influe	nt Concentr	ration	Mas	s Extracted	from	Cumulat Rem	
				(µg/L)		ore	oundwater (l	bs)	TPHG	MTBE
Date		extracted <sup>2</sup> ,		(µg/L)		510	Junu Witter (1	~0)	IIIIG	118 8 8782
Date		extracted <sup>2</sup> , gallons	ТРНС	Benzene	МТВЕ	TPHG	Benzene	MTBE	lbs	lbs
	carbon mass remo	gallons		Benzene		TPHG	Ì			
	carbon mass remo	gallons		Benzene		TPHG	Ì		lbs	lbs
Petroleum hydro	carbon mass remo - 18.48	gallons  oved during first	DPE event	Benzene conducted d	luring July	<b>TPHG</b> 2004	Benzene	MTBE	<b>lbs</b> 0.015	<b>lbs</b> 0.00149
Petroleum hydro 06/06/05	-	gallons  oved during first  56 3	DPE event 590	Benzene conducted d	uring July 62	<b>TPHG</b> 2004 0.00028	<b>Benzene</b> 0.00001	<b>MTBE</b> 0.00003	1bs 0.015 0.01528	lbs 0.00149 0.00152

### Sample Calculations

Ext. Rate from =  $\frac{40 \text{ cu ft x}}{\text{min}}$   $\frac{8,400 \text{ mg}}{\text{cu meter}}$   $\frac{\text{lb}}{\text{s}}$   $\frac{\text{x 1,440 min}}{\text{day}}$   $\frac{\text{x cu meter}}{35.314 \text{ cu ft}}$   $\frac{\text{x 2 cu meter}}{30.21 \text{ lbs/day}}$ 

Mass removed = concentration ( $\mu$ g/L) x gallons extracted x (2.2046 x 10- $^9$ )(lb/mg) / 0.26418 (gal/L) from groundwater

The mass extraction rate is calculated by multiplying the mass extracted per day by the operational uptime for the period.

For mass estimates between the sampling dates, average mass extraction rate and time elapsed (operational uptime) between the sampling events were used

Volume estimated based on flow totalizer measurements taken on the sampling days

Volume estimated based on average groundwater extraction rate and the time elapsed between the sample collection and start-up

# TABLE 1 DPE EVENT FIELD OBSERVATION SUMMARY

# 3rd DPE Event - August/September 2005

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

	Hour	TE	Appl	Air	Totalizer	GW	Inf	Oper		Dept	h to Wa	ater, fe	et bgs	and Ind	uced V	/acuun	ı, "WC	
Date	Meter		Vac	Flow	Reading	Ext Rate	PID	Temp	M۷	V-4	MV	V-5		MW-6			MW-8	
	Reading	days	"Hg	cfm	gallons	gpm	ppmv	deg F	DTW	DD	DTW	DD	Vac	DTW	DD	Vac	DTW	DD
8/29/05 5:30	F	Baseline ı	measuren	nents prio	or to start o	of third D	PE event		8.71		12.90		0.00	DRY		0.00	16.75	
8/29/05 7:00	Be	gin Thir	d DPE E	ent, Us	sing Wells	S-1, S-2,		and MW otalizer				r Meter	Readir	g Prior	to Test	Start u	p = 435.0	6.
8/29/05 8:30	437.00	0.06	18.00	48.8	22,740	1.90	5.5	1,458	NM	NM	NM	NM	NM	NM		NM	NM	
8/31/05 5:00	480.70	1.88	18.00	37.3	29,840	2.71	5.5	1,456	8.73	0.02	13.18	0.28	0.00	DRY	***	0.00	17.21	0.46
9/6/05 6:00	619.10	7.65	NM	NM	51,690	2.63			S	ystem ob	served r	on-fund	ctional d	ue to lov	v propai	ne	I	<u> </u>
9/6/05 9:15	System re	e-started :	after prop	ane deli	very. Base	d on hour	meter re		or 8/31/5 5 at 23:1		hrs & 9.	/6/5 at 0	600 hrs	the DP	E systen	ı was lik	cely shut	lown or
9/6/05 10:15	620.10	7.69	18.00	62.5	51,850	2.67	16.1	1,447	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
9/9/05 5:00	685.70	10.42	16.00	45.0	61,390	2.42	8.1	1,450	8.99	0.28	13.61	0.71	0.00	DRY		0.00	18.68	1.93
9/13/05 5:30	780.20	14.36	16.00	40.4	75,020	2.40	2.0	1,457	9.14	0.43	13.78	0.88	0.00	18.67	-0.33	0.00	19.08	2.33
9/16/05 5:00	796.10	15.02	NM	NM	77,310	2.40	readings	observed s betweer hrs. Sin	n 9/13/0:	5 5:30 aı	nd 9/16/0	05 5:00,	the DPI	E system	was lik	ely shut	down on	9/13/05
Distance to Ne	arest Ext	raction \	Well			-			8	6	9	9		70			48	
Screening Inte	rval, feet	bgs: S-1	=20-40,	S-2=20-	40, MW-3	=24-44, 8	& MW-7	=10-40	10 -	40.5	10 -	40		10 - 40.5	;		10 - 35	
Notes:													<u> </u>		·			

TE - Time Elapsed calculated as difference of hour meter readings, days

Appl - Applied

Oper - Operating

Vac - Vacuum

DTW - depth to groundwater

" WC - Inches water column

Ext. - Extraction

GW Ext - Groundwater Extraction

GW Ext Rate = Difference of Totalizer Readings, gallons

cfm - cubic feet per minute Temp - Temperature

Inf - Influent deg F - degree Farenheit

DD - Drawdown PID - Photo Ionization Detector

bgs - below ground surface ppmv - parts per million by volume

gpm - gallons per minute NM - Not measured "Hg - Inches Mercury --= Not applicable

<sup>1</sup> Flow rate measured using a digital anemometer at 3" diameter steel pipe;

flow rate = velocity X area of pipe (e.g.: flow rate = 994 feet per minute X 0.05 sq.ft)

# TABLE 2 SOIL VAPOR ANALYTICAL RESULTS 3rd DPE Event - August/September 2005

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	ТРНС	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	ТВА
08/29/05	09:01	USA57ASYSINF	<15	0.59	<0.15	0.23	0.44	0.41	<1.5
08/29/05	09:05	USA57ASYSEFF	<15	<0.15	<0.15	<0.15	<0.15	<0.15	<1.5
09/06/05	10:30	Sys Inf Air	<15	<0.15	<0.15	<0.15	<0.15	<0.15	<7.5
09/13/05	05:45	USA57ASYSINF	<15	0.19	<0.15	<0.15	<0.15	<0.15	<7.5

## Notes

All air sample values reported in milligrams per cubic meter (mg/m<sup>3</sup>)

TPHG = Total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

DIPE = Di-isopropyl ether

## **Analytical Laboratory**

Alpha Analytical, Inc. (Alpha [ELAP #2019])

# **Analytical Methods**

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual BTEX, MTBE, TBA, DIPE, TAME, and ETBE analyzed by EPA Method SW8260B

DIPE, ETBE, and TAME were reported below laboratory reporting limits in all samples (<0.30 mg/m<sup>3</sup>).

# TABLE 3 GROUNDWATER ANALYTICAL RESULTS 3rd DPE Event - August/September 2005

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	ТРНС	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	ТВА	DIPE	ЕТВЕ	TAME
08/29/05	09:30	USA57WINF	55	3.3	<0.50	0.68	3.3	17	160	<1.0	<1.0	<1.0
08/29/05	09:35	USA57WEFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
09/06/05	10:36	Inf Water	<50	<0.50	<0.50	<0.50	<0.50	4.7	61	<1.0	<1.0	<1.0
09/13/05	06:20	USA57WINF	<50	<0.50	<0.50	<0.50	<0.50	2.6	29	<1.0	<1.0	<1.0
09/13/05	06:22	USA57WGAC1	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
09/13/05	06:25	USA57WEFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
09/16/05	5:32	USA57WINF	67	<0.50	<0.50	<0.50	3.8	2.3	25	<1.0	<1.0	<1.0

All water sample values reported in micrograms per liter (µg/L)

TPHG = Total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

DIPE = Di-isopropyl ether

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

**Analytical Laboratory** 

Alpha Analytical, Inc. (ELAP #2019)

**Analytical Methods** 

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual

BTEX, MTBE, TBA, DIPE, ETBE, & TAME analyzed by

EPA Method SW8260B

### TABLE 4 PETROLEUM HYDROCARBON MASS EXTRACTION SUMMARY 3rd DPE Event August/September 2005

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

			Influe	ent Concenti	ration	Soil Va	por Extract	ion Rate	1	ive Mass Removed	
Date	Time Elapsed	Flowrate		$(mg/m^3)$			(lbs/day)		Period <sup>1</sup>	Total	
	(days)	(cfm)	TPHG	Benzene	MTBE	TPHG	Benzene	MTBE	lbs	lbs	
Petroleum hydro	carbon mass remo	oved during the p	revious D	PE events					19.789	19.789	
08/29/05	-	48.8	<15	0.59	0.41	< 0.065	0.003	0.002			
09/06/05	7.69	62.5	<15	< 0.15	< 0.15	<0.083	< 0.001	< 0.001	< 0.570	19.789	
09/13/05	6.67	40.4	<15	0.19	< 0.15	< 0.054	0.001	< 0.001	<0.458	19.789	
		Volume of groundwater	Influe	nt Concentr	ation	Mas	s Extracted	from	Cumulative Mas Removed		
Date	Time Elapsed	extracted <sup>2</sup> ,		(µg/L)		gro	oundwater (l	lbs)	TPHG	MTBE	
	(days)	gallons	TPHG	Benzene	MTBE	TPHG	Benzene	MTBE	lbs	lbs	
Petroleum hydro	carbon mass remo	oved during the p	revious DI	PE events					0.09682	0.00965	
08/29/05	-	160	55	3.3	17	0.00007	0.000004	0.00002	0.09689	0.00967	
09/06/05	7.69	29,110	<50	< 0.50	4.7	0.01275	0.00046	0.00264	0.10965	0.01231	
09/13/05	6.67	23,170	<50	< 0.50	2.6	<0.00967	<0.00010	0.00071	0.10965	0.01231	
09/16/05	0.66	2,290	67	< 0.50	2.3	0.00112	<0.00001	0.00005	0.11076	0.01231	
Sample Calculat	ions										

Ext. Rate from 40 cu ft x 8,400 mg lb x 1,440 min x cu meter min cu meter 453,593 mg 35.314 cu ft day Wells (vapor) 30.21 lbs/day

= concentration ( $\mu$ g/L) x gallons extracted x (2.2046 x 10<sup>-9</sup>)(lb/mg) / 0.26418 (gal/L) Mass removed from groundwater

The mass extraction rate is calculated by multiplying the mass extracted per day by the operational uptime for the period.

For mass estimates between the sampling dates, average mass extraction rate and time elapsed (operational uptime) between the sampling events were used

Volume estimated based on flow totalizer measurements taken on the sampling days

# TABLE 1 DPE EVENT FIELD OBSERVATION SUMMARY 4th DPE Event - February/March 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

	Hour	TE	Appi	Air	Totalizer	GW	Inf	Oper				Dep	th to W	ater, f	eet bo	s and	Induc	ed Vac	uum,	'WC			
Date	Meter		Vac	Flow	Reading	Ext Rate	PID	Temp	S	-1	S	-2	MV	V-3		MW-6			MW-7			MW-8	
	Reading	days	"Hg	cfm	gallons	gpm	ppmv	deg F	DTW	DD	DTW	DD	DTW	DD	Vac	DTW	DD	Vac	DTW	DD	Vac	DTW	DD
2/20/06 5:30			Begin	n fourth	DPE even	nt using v	vells EX	K-1, EX-2	2, EX-3	, and E	EX-4. H	our Me	ter Rea	ding =	3,086.3	3. Total	izer re:	ading =	= 94,450	) galloi	ns		
2/20/06 5:30	3,086.30	0.00	20.00	40.3	94,450		360	1,460	14.47		16.61		10.79		NM	15.70		NM	13.74		NM	13.82	
2/24/06 5:15	3,161.30	3.13	System	observe	ed non-fun	ctional an	d re-stai	ted by re	setting	power:	supply.	Based 0830		meter r	eading	s, the Di	PE syst	em was	likely	shutdov	wn on 2	2/23/06	around
2/24/06 5:15	3,161.30	3.13	18.50	50.6	98,740	0.95	150	1,462	14.45	-0.02	16.53	-0.08	11.82	1.03	0.00	15.64	-0.06	0.00	13.65	-0.09	0.00	14.29	0.47
3/3/06 7:00	3,262.40	7.34	23.00	29.0	100,540	0.30	212	1,451	14.20	-0.27	16.30	-0.31	11.55	0.76	0.00	15.10	-0.60	0.10	13.26	-0.48	0.00	14.38	0.56
3/9/06 6:30	3,403.10	13.20	23.00	22.4	103,490	0.35	150	1,470	13.97	-0.50	16.00	-0.61	11.47	0.68	0.00	14.49	-1.21	3.03	13.11	-0.63	3.05	13.69	-0.13
3/16/06 5:30	3,566.70	20.02	23.00	25.5	105,780	0.23	68	1,457	13.61	-0.86	15.60	-1.01	11.15	0.36	0.00	14.15	-1.55	0.00	12.55	-1.19	3.15	13.03	-0.79
3/24/06 5:00	3,752.80	27.77	23.00	30.5	107,790	0.18	35	1,459	13.10	-1.37	14.68	-1.93	10.73	-0.06	0.03	13.82	-1.88	0.05	11.99	-1.75	0.00	12.83	-0.99
3/24/06 5:30									Di	scontin	ue fourt	h DPE	event.	74.1.		******		I	1,	I			
Average			21.75	33.04		0.40	162.5	1,460	13.97	-0.60	15.95	-0.79	11.25	0.55	0.01	14.82	-1.06	0.64	13.05	-0.83	1.24	13.67	-0.18
Distance to No	earest Ext	raction	Well, fe	et					2	:0	2	7	1	5		75			33	l		62	
Screening Inte	erval : EX	-1=EX-	2=EX-3=	=EX-4=	5 to 25 fee	et bgs			20	- 40	20	- 40	24 -	. 44		10 - 40.	5		10 - 40	)		10 - 35	;
Notes:											***************************************												

#### Notes:

TE - Time Elapsed calculated as difference of hour meter readings, days

cfm - cubic feet per minute

Temp - Temperature

Appl - Applied

Inf - Influent

deg F - degree Farenheit

Oper - Operating

DD - Drawdown

PID - Photo Ionization Detector

Vac - Vacuum

bgs - below ground surface

ppmv - parts per million by volume

DTW - depth to groundwater

gpm - gallons per minute

NM - Not measured

" WC - Inches water column

"Hg - Inches Mercury

-- = Not applicable

Ext. - Extraction

GW Ext - Groundwater Extraction

<sup>1</sup> Flow rate measured using a digital anemometer at 3" diameter steel pipe;

GW Ext Rate = Difference of Totalizer Readings, gallons

flow rate = velocity X area of pipe (e.g.: flow rate = 994 feet per minute X 0.05 sq.ft)

# TABLE 2 SOIL VAPOR ANALYTICAL RESULTS 4th DPE Event - February/March 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	TPHG	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	ТВА
02/20/06	07:18	USA57ASysEff	<15	<0.15	<0.15	<0.15	<0.15	<0.15	<7.5
02/20/06	07:20	USA57ASysInf	690	8.3	20	17	107	<0.60	<30
03/03/06	07:25	USA57ASYSINF	480	8.6	7.0	8.8	19.9	0.29	<7.5
03/09/06	06:46	USA57ASysInf	320	2.0	10	11	40.5	<0.30	<15
03/24/06	05:30	USA57ASYSINF	98	0.39	0.50	1.6	7.2	<0.15	<7.5

### Notes

All air sample values reported in milligrams per cubic meter (mg/m<sup>3</sup>)

TPHG = Total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

DIPE = Di-isopropyl ether

# **Analytical Laboratory**

Alpha Analytical, Inc. (Alpha [ELAP #2019])

# **Analytical Methods**

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual BTEX, MTBE, TBA, DIPE, TAME, and ETBE analyzed by EPA Method SW8260B

DIPE, ETBE, and TAME were below laboratory reporting limits in all samples.

# TABLE 3 GROUNDWATER ANALYTICAL RESULTS 4th DPE Event - February/March 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	ТРНС	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	ТВА	DIPE	ЕТВЕ	TAME
02/20/06	07:28	USA57WINF	3,800	65	300	71	740	2.7	160	<5.0[1]	<5.0[1]	<5.0[1]
02/20/06	07:42	USA57WGAC1	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
02/20/06	07:39	USA57WEFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
03/03/06	07:25	USA57WSYSINF	1,100	96	20	30	120	10	47	<1.0	<1.0	<1.0
03/09/06	07:24	USA57WINF	510	3.1	3.3	10	65	1.1	23	<1.0	<1.0	<1.0
03/09/06	07:26	USA57WEFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
03/09/06	07:28	USA57GAC1	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
03/24/06	05:15	USA57WINF	130	2.7	1.9	2.8	27	<0.50	28	<1.0	<1.0	<1.0
03/24/06	05:20	USA57WEFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0

All water sample values reported in micrograms per liter (µg/L)

TPHG = Total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

DIPE = Di-isopropyl ether

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

FIRME Tetrary array metray errer

[1] = Reporting limits were increased due to high concentrations of target analytes

# **Analytical Laboratory**

Alpha Analytical, Inc. (ELAP #2019)

### Analytical Methods

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual

BTEX, MTBE, TBA, DIPE, ETBE, & TAME analyzed by

EPA Method SW8260B

# TABLE 4 PETROLEUM HYDROCARBON MASS EXTRACTION SUMMARY 4th DPE Event February/March 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

			Influe	ent Concent	ration	Soil Va	npor Extract	tion Rate	Ī	tive Mass Removed
Date	Time Elapsed	Flowrate		(mg/m <sup>3</sup> )			(lbs/day)		Period <sup>1</sup>	Total
	(days)	(cfm)	TPHG	Benzene	MTBE	TPHG	Benzene	MTBE	lbs	lbs
Petroleum hydro	carbon mass remo	oved during the p	revious D	PE events					19.789	19.789
02/20/06		40.3	690	8.3	< 0.60	2.47	0.03	<0.002		
03/03/06	7.34	29.0	480	8.6	0.29	1.24	0.02	0.001	13.608	33.397
03/09/06	5.86	22.4	320	2.0	< 0.30	0.64	0.004	< 0.001	5.495	38.892
03/24/06	14.57	30.5	98	0.39	< 0.15	0.27	0.001	< 0.0004	6.578	45.469
		Volume of groundwater	Influe	ent Concent	ration	Mas	ss Extracted	from	Cumulat Rem	ive Mass oved
Date	Time Elapsed	extracted <sup>2</sup> ,		(μg/L)		gr	oundwater (	lbs)	TPHG	MTBE
	(days)	gallons	TPHG	Benzene	MTBE	TPHG	Benzene	MTBE	lbs	lbs
Petroleum hydro	carbon mass remo	oved during the p	revious Dl	PE events					0.11076	0.01231
02/20/06	-	48	3,800	65	2.7	0.00152	0.000026	0.000001	0.11228	0.01231
03/03/06	7.34	6,090	1,100	96	10.0	0.12451	0.00409	0.00032	0.23679	0.01263
03/09/06	5.86	2,950	510	3.1	1.1	0.01982	0.00122	0.00014	0.25661	0.01277
03/24/06	14.57	4,300	130	2.7	<0.50	0.01148	0.00010	0.00003	0.26809	0.01280
Sample Calculat Ext. Rate from		40.3 cu ft x	690 mg	†h	x 1 440 m	in	x cu meter			

Ext. Rate from =  $\frac{40.3 \text{ cu ft x}}{\text{min}}$   $\frac{690 \text{ mg}}{\text{cu meter}}$   $\frac{\text{lb}}{453,593 \text{ mg}}$   $\frac{\text{x 1,440 min}}{\text{day}}$   $\frac{\text{x cu meter}}{35.314 \text{ cu ft}}$  =  $\frac{2.47 \text{ lbs/day}}{\text{cu meter}}$ 

Mass removed = concentration ( $\mu$ g/L) x gallons extracted x (2.2046 x 10<sup>-9</sup>)(lb/mg) / 0.26418 (gal/L) from groundwater

For mass estimates between the sampling dates, average mass extraction rate and time elapsed (operational uptime) between the sampling events were used

Volume estimated based on flow totalizer measurements taken on the sampling days. For February 20, 2006, the volume of groundwater extracted was estimated based on the average groundwater extraction rate (0.40 gpm) and time elapsed between the start-up and sample collection

# TABLE 1 **DPE EVENT FIELD OBSERVATION SUMMARY**

### 5th DPE Event - May 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

	Hour	TE	Appl	Air	Totalizer	GW	Inf	Oper				Dep	th to W	/ater, 1	eet bo	is and	Induc	ed Vac	uum.	"WC			
Date	Meter		Vac	Flow 1	Reading	Ext Rate	PID	Temp	S	-1	S	-2	MV			MW-6			MW-7			MW-8	
	Reading	days	"Hg	cfm	gallons	gpm	ppmv	deg F	DTW	DD	DTW	DD	DTW	DD	Vac	DTW	DD	Vac	DTW	DD	Vac	DTW	DD
5/1/06 9:30			Beg	gin fifth	DPE ever	nt using w	vells EX	-1, EX-2	, EX-3	, and E	Х-4. Но	ur Me	ter Read	ling =	3,758.	Totalize	er read	ing = 1	07,790	gallon	s		
5/1/06 9:30	3,758.00	0.00	24.50	29.5	107,790		12	1,451	9.43		11.37		7.84		0.00	11.00		0.00	8.41		0.00	11.16	
5/3/06 5:30	3,826.80	2.87	24.00	21.9	110,790	0.73	15	1,479	9.55	0.12	11.04	-0.33	8.85	1.01	0.00	11.05	0.05	0.00	8.37	-0.04	0.01	11.04	-0.12
5/8/06 6:00	3,923.20	6.88	22.00	26.1	112,920	0.37	17	1,450	9.58	0.15	11.42	0.05	9.51	1.67	0.00	11.08	0.08	0.00	8.35	-0.06	0.00	11.46	0.30
5/16/06 5:30	4,006.80	10.37	Upo	n arrival the DPE system was observed to be non-operating due to generator malfunction. Based on the hour meter readings, the DPE system was likely shutdown at 17:36 hrs on 5/11/06. The DPE system was re-started at 5:30 hrs on 5/16/06 after troubleshooting the generator malfunction.																			
5/16/06 5:30	4,006.80	10.37	21.00	56.2	113,780	0.17	50	1,460	9.63	0.20			9.95	2.11	0.00		0.28	0.00	8.43	0.02	0.00	11.86	0.70
5/22/06 5:30	4,150.40	16.35	21.00	38.8	114,830	0.12	43	1,460	9.54	0.11	11.39	0.02	9.85	2.01	0.00	11.10	0.10	0.00	8.39	-0.02	0.00	11.88	0.72
5/25/06 5:30	4,190.20	18.01	Upo	n arriva shutdo	l the DPE : wn at 21:1	system wa 8 hrs on 5	s observ /23/06.	ved to be The DPI	non-op	erating n syster	due to	generato e-starteo	or malfu l at 5:30	nction. ) hrs or	Based 5/25/0	on the	hour m trouble	eter rea	dings, t	he DPI enerato	E syster r malfu	n was li nction.	kely
5/25/06 5:30	4,190.20	18.01	20.00	48.4	115,090	0.11	20	1,452	NM		NM		NM		NM	NM		NM	NM		NM	NM	
5/25/06 6:40	4,191.10	18.05						Dis	continu	e fifth l	DPE eve	ent. Tot	alizer re	ading =	115,19	90 gallo	ns	I	<u> </u>				
Average			22.08	36.79		0.30	26.2	1459	9.55	0.15	11.34	-0.04	9.20	1.70	0.00	11.10	0.13	0.00	8.39	-0.03	0.00	11.48	0.40
Distance to N	learest Ex	tractio	n Well, 1	feet					2	0	2	7	1	5		75			33			62	
Screening Int	terval : EX	ζ-1=EX	-2=EX-	3=EX-4	= 5 to 25 f	eet bgs			20	- 40	20	- 40	24 -	44		10 - 40.:	5		10 - 40			10 - 35	
Notes:							MIII.				*		L.,					<u> </u>			<u> </u>		

TE - Time Elapsed calculated as difference of hour meter readings, days

Appl - Applied

Oper - Operating

Vac - Vacuum

DTW - depth to groundwater

" WC - Inches water column

Ext. - Extraction

GW Ext - Groundwater Extraction

GW Ext Rate = Difference of Totalizer Readings, gallons

cfm - cubic feet per minute

Inf - Influent

DD - Drawdown

bgs - below ground surface

gpm - gallons per minute

"Hg - Inches Mercury

Temp - Temperature

deg F - degree Farenheit

PID - Photo Ionization Detector

ppmv - parts per million by volume

NM - Not measured

-- = Not applicable

<sup>1</sup> Flow rate measured using a digital anemometer at 3" diameter steel pipe;

flow rate = velocity X area of pipe (e.g.: flow rate = 600 feet per minute X 0.05 sq.ft)

# TABLE 2 SOIL VAPOR ANALYTICAL RESULTS 5th DPE Event - May 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	ТРНС	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	ТВА
05/01/06	10:40	USA57ASysEff	<15	<0.15	<0.15	<0.15	<0.15	<0.15	<7.5
05/01/06	10:45	USA57ASysInf	37	5.4	2.3	0.58	2.25	<0.15	<7.5
05/08/06	06:10	USA57ASYSINF	37	0.31	0.25	0.49	2.73	<0.15	<7.5
05/25/06	06:20	USA57ASysInf	180	1.1	0.22	0.32	0.58	<0.15	<7.5

#### Notes

All air sample values reported in milligrams per cubic meter (mg/m<sup>3</sup>)

TPHG = Total petroleum hydrocarbons as gasoline (Gasoline Range Organics [GRO] C4-C13)

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

DIPE = Di-isopropyl ether

### **Analytical Laboratory**

Alpha Analytical, Inc. (Alpha [ELAP #2019])

# **Analytical Methods**

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual

BTEX, MTBE, TBA, DIPE, TAME, and ETBE analyzed by EPA Method SW8260B

# TABLE 3 GROUNDWATER ANALYTICAL RESULTS 5th DPE Event - May 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	ТРНС	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	ТВА	DIPE	ЕТВЕ	TAME
05/01/06	10:28	USA57WINF	990	170	96	15	205	12	66	<2.0[1]	<2.0[1]	<2.0[1]
05/04/06	06:28	USA57WEFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
05/04/06	06:32	USA57WGAC1	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
05/08/06	06:45	USA57WINF	110	0.61	<0.50	0.66	11.1	0.61	29	<1.0	<1.0	<1.0
05/25/06	06:35	USA57WInf	290	19	2.7	3.5	22.3	20	42	<1.0	<1.0	<1.0
05/25/06	06:39	USA57WMid	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0

#### Notes:

All water sample values reported in micrograms per liter (µg/L)

TPHG = Total petroleum hydrocarbons as gasoline (Gasoline Range Organics [GRO] C4-C13)

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

DIPE = Di-isopropyl ether

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

### **Analytical Laboratory**

Alpha Analytical, Inc. (ELAP #2019)

### **Analytical Methods**

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual BTEX, MTBE, TBA, DIPE, ETBE, & TAME analyzed by

EPA Method SW8260B

[1] = Reporting limits were increased due to high concentrations of target analytes

# TABLE 4 PETROLEUM HYDROCARBON MASS EXTRACTION SUMMARY 5th DPE Event - May 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

			Influe	ent Concenti	ration	Soil Va	por Extract	ion Rate	1	tive Mass Removed	
Date	Time Elapsed	Flowrate		(mg/m <sup>3</sup> )			(lbs/day)		Period <sup>1</sup>	Total	
	(days)	(cfm)	TPHG	Benzene	MTBE	TPHG	Benzene	МТВЕ	lbs	lbs	
Petroleum hydro	carbon mass rem	oved during the	previous I	OPE events					45.469	45.469	
05/01/06		29.5	37	5.4	<0.15	0.10	0.01	<0.0004			
05/08/06	6.88	26.1	37	0.31	<0.15	0.09	0.00	< 0.0003	0.629	46.098	
05/25/06	11.16	48.4	180	1.1	<0.15	0.77	0.005	<0.001	4.801	50.900	
		Volume of groundwater	Influe	Influent Concentration Mass Extracted from Rem							
Date	Time Elapsed	extracted <sup>2</sup> ,		(µg/L)		gro	oundwater (	lbs)	TPHG	MTBE	
	(days)	gallons	TPHG	Benzene	MTBE	TPHG	Benzene	MTBE	lbs	lbs	
Petroleum hydro	carbon mass rem	oved during the	previous I	OPE events					0.26809	0.01280	
05/01/06	-	18	990	170	12	0.00015	0.000026	0.000002	0.26824	0.01280	
05/08/06	6.88	5,130	110	0.61	0.61	0.02355	0.00365	0.00027	0.29178	0.01307	
05/25/06	11.16	2,270	290	19	20	0.00379	0.00019	0.00020	0.29557	0.01327	
Sample Calculat	lons			· · · · · · · · · · · · · · · · · · ·							

Sample Calculations

Ext. Rate from =  $\frac{40.3 \text{ cu ft x}}{\text{min}}$   $\frac{690 \text{ mg}}{\text{cu meter}}$   $\frac{\text{lb}}{\text{x 1,440 min}}$   $\frac{\text{x cu meter}}{\text{35.314 cu ft}}$  =  $\frac{2.47 \text{ lbs/day}}{\text{cu meter}}$ 

Mass removed = concentration ( $\mu$ g/L) x gallons extracted x (2.2046 x 10<sup>-9</sup>)(lb/mg) / 0.26418 (gal/L) from groundwater

For mass estimates between the sampling dates, average mass extraction rate and time elapsed (operational uptime) between the sampling events were used

Volume estimated based on flow totalizer measurements taken on the sampling days. For May 1, 2006, the volume of groundwater extracted was estimated based on the average groundwater extraction rate (0.30 gpm) and time elapsed between the start-up and sample collection

# TABLE 1 DPE EVENT FIELD OBSERVATION SUMMARY

### 6th DPE Event - July/August 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

	Hour	TE	Appl	Air	Totalizer	GW	Inf	Oper				Dep	th to W	ater, f	eet bo	ıs and	Induc	ed Vac	cuum,	'WC			
Date	Meter		Vac	Flow <sup>1</sup>	Reading	Ext Rate	PID	Temp	S	-1	S	-2	MV	V-3		MW-6			MW-7			MW-8	
	Reading	days	"Hg	cfm	gallons	gpm	ppmv	deg F	DTW	DD	DTW	DD	DTW	DD	Vac	DTW	DD	Vac	DTW	DD	Vac	DTW	DD
7/17/06 7:00			Begi	in sixth	DPE even	t using w	ells EX-	-1, EX-2,	EX-3,	and E	K-4. Ho	ır Mete	er Read	ing = 4	,410.7.	Totaliz	zer rea	ding =	121,580	) gallo	ns		
7/17/06 7:00	4,410.70	0.00	18.00	113.1	121,580		106	1,479	11.00		12.98		10.08		0.00	12.75		0.00	9.94		0.00	13.08	
7/17/06 8:30	4,412.10	0.06	18.00	113.4	121,690	1.31	105	1,470	NM		NM		NM		NM	NM		NM	NM		NM	NM	
7/21/06 5:00	4,505.10	3.93	18.00	111.5	122,200	0.09	100	1,450	NM		NM		NM		NM	NM		NM	NM		NM	NM	
7/25/06 9:45	4,605.60	8.12	16.50	70.7	122,518	0.05	98	1,450	11.53	0.53	13.47	0.49	11.05	0.97	NM	13.13	0.38	NM	10.35	0.41	NM	13.51	0.43
7/27/06 6:00	4,651.40	10.03	17.00	59.9	122,633	0.04	77	1,457	NM		NM		NM		NM	NM		NM	NM		NM	NM	
8/3/06 5:00	4,818.10	16.98	16.50	114.8	123,070	0.04	23	1,450	11.95	0.95	13.90	0.92	11.66	1.58	0.00	13.56	0.81	0.00	10.83	0.89	0.00	14.10	1.02
8/10/06 6:45	4,988.00	24.05	17.50	88.9	123,570	0.05	20	1,460	12.25	1.25	14.22	1.24	11.93	1.85	0.00	13.85	1.10	0.00	11.15	1.21	0.00	14.35	1.27
8/10/06 7:00																					<b></b>		
Average			17.36	96.05		0.06	75.6	1,459									,,		•				
Distance to N	learest Ex	tractio	n Well,	feet					2	0	2	7	1	5		75			33			62	
Screening In	terval : EX	K-1=EX	-2=EX-	3=EX-4	= 5 to 25 f	eet bgs			20	- 40	20 -	- 40	24 -	44		10 - 40.5	5		10 - 40			10 - 35	;
Notes:																					<u> </u>		

TE - Time Elapsed calculated as difference of hour meter readings, days

cfm - cubic feet per minute

Temp - Temperature

Appl - Applied

Inf - Influent

deg F - degree Farenheit

Oper - Operating

DD - Drawdown

PID - Photo Ionization Detector

Vac - Vacuum

bgs - below ground surface

ppmv - parts per million by volume

DTW - depth to groundwater

gpm - gallons per minute

NM - Not measured

" WC - Inches water column

gpm - gallons per minute
"Hg - Inches Mercury

-- = Not applicable

Ext. - Extraction

GW Ext - Groundwater Extraction

<sup>1</sup> Flow rate measured using a digital anemometer at 3" diameter steel pipe;

GW Ext Rate = Difference of Totalizer Readings, gallons

flow rate = velocity X area of pipe (e.g.: flow rate = 600 feet per minute X 0.05 sq.ft)

# TABLE 2 SOIL VAPOR ANALYTICAL RESULTS 6th DPE Event - July/August 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	ТРНС	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	ТВА
07/17/06	8:25	USA57ASysEff	<15	<0.15	<0.15	<0.15	<0.15	<0.15	<7.5
07/17/06	8:28	USA57ASysInf	370	3.8	0.96	1.8	3.72	<0.30	<15
08/03/06	5:42	USA57ASysInf	80	<0.15	<0.15	0.20	2.33	<0.15	<7.5
08/10/06	07:00	USA57ASysInf	220	2.6	17	5.5	27.6	<0.15	<7.5

#### Notes

All air sample values reported in milligrams per cubic meter (mg/m<sup>3</sup>)

TPHG = Total petroleum hydrocarbons as gasoline (Gasoline Range Organics [GRO] C4-C13)

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

DIPE = Di-isopropyl ether

# Analytical Laboratory

Alpha Analytical, Inc. (Alpha [ELAP #2019])

# Analytical Methods

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual

BTEX, MTBE, TBA, DIPE, TAME, and ETBE analyzed by EPA Method SW8260B

# TABLE 3 GROUNDWATER ANALYTICAL RESULTS 6th DPE Event - July/August 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

Sample Date	Sample Time	Sample ID	TPHG	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	ТВА	DIPE	ЕТВЕ	TAME
07/17/06	8:10	USA57WINF	900	170	56	13	130	34	130	<5.0[1]	<5.0[1]	<5.0[1]
08/03/06	5:55	USA57WEFF	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
08/03/06	5:57	USA57WGAC1	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0	<1.0	<1.0
08/03/06	5:59	USA57WINF	150	<0.50	<0.50	<0.50	17.9	0.79	18	<1.0	<1.0	<1.0

#### Notes:

All water sample values reported in micrograms per liter (µg/L)

TPHG = Total petroleum hydrocarbons as gasoline (Gasoline Range Organics [GRO] C4-C13)

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

DIPE = Di-isopropyl ether

ETBE = Ethyl tertiary butyl ether

TAME = Tertiary amyl methyl ether

### **Analytical Laboratory**

Alpha Analytical, Inc. (ELAP #2019)

# **Analytical Methods**

TPHG analyzed by EPA Method SW8015B/DHS LUFT Manual BTEX, MTBE, TBA, DIPE, ETBE, & TAME analyzed by

EPA Method SW8260B

[1] = Reporting limits were increased due to high concentrations of target analytes

### TABLE 4 PETROLEUM HYDROCARBON AND GROUNDWATER MASS EXTRACTION SUMMARY 6th DPE Event - July/August 2006

Former USA Station No. 57 10700 MacArthur Boulevard Oakland, California

			Influe	ent Concenti	ation	Soil Va	por Extract	ion Rate		tive Mass Removed	
Date	Time Elapsed	Flowrate		$(mg/m^3)$			(lbs/day)		Period <sup>1</sup>	Total	
	(days)	(cfm)	TPHG	Benzene	lbs	lbs					
Petroleum hydro	ocarbon mass rem	oved during the	previous I	OPE events					50.900	50.900	
07/17/06		113.4	370	3.8	< 0.30	3.73	0.04	< 0.0030			
08/03/06	16.98	114.8	80	< 0.15	< 0.15	0.82	< 0.002	< 0.0015	38.596	89.496	
08/10/06	7.07	88.9	220	2.6	< 0.15	1.74	0.021	<0.0012	9.032	98.527	
		Volume of groundwater	Total Course of the Date of the Course of th								
Date	Time Elapsed	extracted <sup>2</sup> ,		(µg/L)		gro	oundwater (	lbs)	TPHG	MTBE	
	(days)	gallons	TPHG	Benzene	MTBE	TPHG	Benzene	MTBE	lbs	lbs	
Petroleum hydro	ocarbon mass rem	oved during the	previous I	OPE events					0.29557	0.01327	
07/17/06	_	91.7	900	170	34	0.00069	0.000130	0.000026	0.29626	0.01330	
08/03/06	16.98	1,490	150	< 0.50	0.79	0.00653	<0.00106	0.00022	0.30279	0.01351	
	xtracted to date	186,800	gallons								

Groundwater extract	ted to date	186,800	gallons
Or ound where our de	iou to unite	200,000	

Sample Calculations

Ext. Rate from 40.3 cu ft x 690 mg lb x 1,440 min x cu meter Wells (vapor) cu meter 453,593 mg day 35.314 cu ft min

2.47 lbs/day

= concentration ( $\mu$ g/L) x gallons extracted x (2.2046 x 10<sup>-9</sup>)(lb/mg) / 0.26418 (gal/L) Mass removed from groundwater

For mass estimates between the sampling dates, average mass extraction rate and time elapsed (operational uptime) between the sampling events were used.

Volume estimated based on flow totalizer measurements taken on the sampling days. For July 17, 2006, the volume of groundwater extracted was estimated based on the groundwater extraction rate (1.31 gpm) and time elapsed between the start-up and sample collection.

# APPENDIX B FIELD DATA SHEETS

Site Name & Former USA Station 57

Address

10700 MacArthur Boulevard, Oakland

Test Well ID Extracting from EX-1 through EX-4

Date

Q-4.07

Equipment Mode and Serial No.

**Equipment Model** 

Min. RAE

							DPE Sy	stem Param	neters			
Date & Time	Hour Meter Reading	System Applied Vacuum	System Inf Air Flow Rate <sup>I</sup>	System Inf Air Temp	Dilution Air Flow Rate <sup>2</sup>	Dilution Air Temp	Control Temp	Effluent Air Temp	System Influent PID	Effluent PID	Totalizer Reading	199300 Stay Totali Comments/Notes
	hrs	"Hg	fpm/efm	deg F	fpm/cfm	deg F	deg F	deg F	ppmv	ppmv	gallons	•
•	11489.3		q						2.2			
09:40		15	1900	139	ь	0					199307	1.8 CFM TO AS-1 GUAGE PRES. = 34 PSE
10:00	SHUT	HIR	SPARG	E OF	F							
10:15	11490.5		2000	134	×	X	1490	1370	230	<i>s</i> 2	199320	199320
1115	11491.4	14"	2100	140	62	8	1450	1337	140	D	199340	SYSTUFAL 1115
												EFF Air 1120
7-11-07 090B	ohsike	Sys	ten De	WN	Orner	intor e	» L.L					
1015	11524.0	12"	2500	130	<i>S</i> D-		1450	1374	160	ĊX.	199410	
7 3560	<b>BHE</b>	Unit	Down	AN P	essive	Alhu	n Z	And				
0 545	115926			130	0			1359	139	P	199550	

Diameter o	of the system	influent air	flow	pipe	is	inches

Diameter of the dilution air flow pipe is\_ inches



Site Name & Former USA Station 57
Address
10700 MacArthur Boulevard, Oakland
Test Well ID
Extracting from EX-1 through EX-4

Date
9-19-10-7
Equipment Model and Serial Nos.
PID Model

							DPE Sy	stem Paran	neters				
Date & Time	Hour Meter Reading	System Applied Vacuum	System Inf Air Flow Rate <sup>1</sup>	System Inf Air Temp	Dilution Air Flow Rate <sup>2</sup>	Dilution Air Temp	Control Temp	Effluent Air Temp	System Influent PID	Effluent PID	Totalizer Reading		Comments/Notes
0.10.07	hrs	"Hg	fpm/cfm	deg F	fpm/cfm	deg F	deg F	deg F	ppmv	ppmv	gallons		
9-19-107	out o	A Pro	pane	will	Come	- b40	4 9	2009	725	Luc Y	,		
0500	11640.0		2000	125		1	1538	1404	418	77	199550		Restart
	A/5 H	0 PSI	2.85	Fun Te	nells	145.	2 38 P	51 A	S-1 3	0 PS(	A well H	cul	
N-7-64												X	
92507	11668.1	14	2100	134	Ø	B	1527	1414	400	8	199630		
	4/5	32751	45.	efm T	o Both	udls	AS-Z	2875		1 18	PS1		
10/3/07													
0530	11762.2	8	2700	128	\$	Ø	1480	1396	1060	Ø	199690		Air Sm7189
112 5-17		read											water Sandes
10-5-07	Install	Wen	com	pries	w -	SUE	Systa	in D	un A	Re	Propose		
	11808.8	A/5	UP	3.4	Scfm	TO BOX	h hel	15	AS-23	1	ATuell		
								1	1-5-1 3		Atacl/		
											199690		
Diameter of the	system influent air flow pipe is inches												

Diameter of the dilution air flow pipe is \_\_\_\_\_ inches



10-11-07 Site Name & Former USA Station 57 Date Equipment Model Address and Serial Nos. Test Operators CHILL 10700 MacArthur Boulevard, Oakland Mini RUE Test Well ID Extracting from EX-1 through EX-4 PID Model **DPE System Parameters** System Hour System Dilution System Effluent System Inf Air Meter Dilution Control Effluent Date & Time Applied Air Flow Inf Air Air Influent Flow Air Temp Temp PID Totalizer Rate<sup>2</sup> Comments/Notes Vacuum Temp Temp PID Reading Rate1 Reading "Hg hrs fpm/cfm deg F fpm/cfm deg F deg F deg F ppmv ppmv gallons 10-11-07 Systems A RO Als -Douch BPK Cour UP 0 430 1460 199770 11862 2500 120 1339 0700 42 30 131 A5 2 28 131 26 151 2.8 Scran 45-1 101707 OFF System Douse Ornevator Turn compressor on But may High Temp 10-16-07 0800 11972 2,00 1349 300 AS-L 18 15/ 45-Z 16751 High Temp Compuser Diameter of the system influent air flow pipe is  $_{-}$   $_{-}$ Diameter of the dilution air flow pipe is inches

Site Name & Former USA Station 57

Address

10700 MacArthur Boulevard, Oakland .

<sup>2</sup> Diameter of the dilution air flow pipe is \_\_\_\_\_ inches

Test Well ID Extracting from EX-1 through EX-4

Date 103007
Test Operators CHILL
S. Nandi

**Equipment Model** and Serial Nos.

PID Model

<u> </u>												
							DPE Sy	stem Paran	neters			
Date & Time	Hour Meter Reading	System Applied Vacuum	System Inf Air Flow Rate <sup>1</sup>	System Inf Air Temp	Dilution Air Flow Rate <sup>2</sup>	Dilution Air Temp	Control Temp	Effluent Air Temp	System Influent PID	Effluent PID	Totalizer Reading	Comments/Notes
	hrs	"Hg	fpm/cfm	deg F	fpm/cfm	deg F	deg F	deg F	ppmv	ppmv	gallons	
0800	Resta		13km	DPE					1,1,,,,,	bb.w.	Ganons	
0850	12101	14.5	2400	120	42	ستخ	1450	1311	69	*	199920	
System	was SI	but o	PH 103	007	weed	Inspec	tion					
5454em 0700 11-07	12108	12	2400	125	82	B	1485	1379	347	70	199990	00067 A 343 THE 0722 00057 A S43 EFF 0720
11177				-		_		4.	,			0057 W TWF 0797 00057 W ZFE 0790
111407	12269	Gu	exter	Stop-	- Te54	2X	No	Reules	, , S			01/0
	·		•									
11407	Shul	dow	L DF	'E								
2000												
				7								
	/////								-13-14			
								······································				
					,							
		<u> </u>								<u> </u>		
Diameter of th	e system infl	uent air flo	w pipe is	3 incl	ıes							

STRATUS
017(7/03

10700 McArthur Boulevard Oakland, CA

# Oxygen Injection System Using iSOC

Date: Onsite Time: \$545 Offsite Time:

Technician: Project Engineer: Weather Conditions: Vince Z

Ambient Temperature:

iSOC<sup>™</sup> Panel: No. of iSOC Panels:

Three 3-Injection Well Panels

No. of Oxygen Cylinders

On Site:

No. of Cylinders

Connected to Panels:

No. of Empty Cylinders:

1 VVEII FallelS	
· · · · · · · · · · · · · · · · · · ·	

		Field Measurments (Monthly)						WEAK	
	Well ID	Time	DTW	pН	DO	TEMP	CONT	ORP	<del></del>
	S-1	0707	18.57	7.14	.72	20.0	1084		10 E -1
	S-2	0724	20.69	7.28		19,0		136	F3 .
	MW-3	0617	15.43	6.79	,44	19.9	2.94		7:0
	EX-1	0717	12.42		<del></del>	19.8		113	24.10
	EX-2	0728	10.98	7.19	1.04	20.3	1558		24,87
	EX-3	0637	13.73	7.06	.52	19.6			24,60
	MW-7	0657	17.60	7.91	5.69		809	23	7,50
	MW-8	0626	19.55	6.97	5.46		7.94	_	
, ( .	FXAY.					7-0-7	<u></u>		
Added	Ext				Ď.	L.			
Extura	1Ex-3		14.35				-	new	725,22
Extended Extended	Ex-4		14.30	7.05	.40	20.0	1030	9	24.55
									pr / 4/ )

Lab Parameters	Sampling Frequency	Sample Locations	Analytical Method
Bio-chemcal oxygen demand	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 405.1
Total Iron & Ferrous Iron	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	SM3500
Heterotrophic Plate Counts	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	SM 9215B
Total Organic Carbon	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 415.1
Total Dissolved Solids	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 160.1
Nitrates, nitrites and ammonia	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 350.3
Sulfide and Sulfates	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 376.2 & EPA 300.0
Total Phosphorus & orthophosphates	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 365.2

DPE TEST and TANKS OF Connected Cylinders O<sub>2</sub> Cylinder Pressure 2 3 4

> 5 6

OPIGIA

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Page 1 of 1

10700 McArthur Boulevard Oakland, CA

# Oxygen Injection System Using iSOC

Date:	9-18-07
Onsite Time:	0415
Offsite Time:	

Technician:
Project Engineer:
Weather Conditions:
Ambient Temperature:

Vince Z Gowri Clear

iSOC <sup>™</sup> Panel:		
No. of iSOC Panels:	Three 3-Injection Well Panels	
No. of Oxygen Cylinders On Site:	4	
No. of Cylinders Connected to Panels:	B	OFF Line
No. of Empty Cylinders:	Φ	

	Field Measurments (Monthly)							I"KPA"
Well ID	Time	DTW	рН	DO	Temp	Cons	ORP	VAC
S-1	0507	18.8	7.2.3	1.18	19.7	1096		DALLA
S-2	0516	20.94	-	-	18-9			N/A
MW-3	0451	16.10	6.88	.90	19.4	2.95 M		8
EX-1	on		tem	-1-		W. (3)	133	4
EX-2	1	~						~~~
EX-3	01	C SY5	tem	n				Norma
MW-7	0427	17-78	7.68	4.22	20.0	843	130	1
MW-8	0440	23.69	7.04	5.74	18.7	7.63m	179	82
TEMP	1478		, 01		70.7	1.6 JM	179	
EFF	(374	( P	90/5	- 01	99	سع س	8	
HRS	11616.7		9-13	0/	17	2)		
INS. 450	.40		in. Ha	(-9.5		<del>-  </del>	4 1	18
TEMP	132 F		7	۲.5	/	-(	H <sub>2</sub> O Psi	23

$\mathcal{N}$	A
Connected	Cylinders
O₂ CWinder	Pressure
1\	
2	
3 \	<b>Y</b>
4	
5/	
/6	
	V

Lab Parameters	Sampling Frequency	Sample Locations	Analytical Method
	, J	Oumple Locations	Analytical Method
Bio-chemcal oxygen demand	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 405.1
Total Iron & Ferrous Iron	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	SM3500
Heterotrophic Plate Counts	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	SM 9215B
Total Organic Carbon	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 415.1
Total Dissolved Solids	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 160.1
Nitrates, nitrites and ammonia	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 350.3
Sulfide and Sulfates	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 376.2 & EPA 300.0
Total Phosphorus & orthophosphates	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 365.2

10700 McArthur Boulevard Oakland, CA

# Oxygen Injection System Using iSOC

 Date:
 10-02-07

 Onsite Time:
 0500

 Offsite Time:
 0645

Technician: Project Engineer: Weather Conditions:

Ambient Temperature:

ORIGINAL

Connected Cylinders

Pressure

O<sub>2</sub> Cylinder

iSOC™ Panel:			
No. of iSOC Panels:	Three 3-Injection Well Panels		
No. of Oxygen Cylinders On Site:		).	
No. of Cylinders	D	& OFF	Line

Connected to Panels:

No. of Empty Cylinders:

L		Fi	eld Measu	rments (M	onthis)		·	
Well ID	Time	DTW				, ,		(KPA
S-1			pH	DO	Temp	Cond	ORP	VAC
	0556	19.12	7.34	.54	19.3	1/43	11	2
S-2	0605	21.33	7.35	.89	18.5		35	<del> </del>
MW-3	0533	16.40		<del>                                     </del>	<del> </del>	+	<del> </del>	X
EX-1	on	<del></del>	<del>  '                                   </del>		19.3	2.78	73	X
EX-2	-	3/	3/6	710			<del> </del>	
EX-3								
MW-7	0525	10 11	7111					
MW-8		18.11	7.46	,30	20.1	992	29.	Ø
Control	0541	20.24	7.28	5.52	18.5	7.68	109	X
Toma	50		Stack	1600	.0.3	-		
EFF	48		Temp	1400				
HRS								
	11 730.0		/			1		
GAL		l						
1715- H.D			in Ha					<u> </u>
7			··· /19					

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1	

Lab Parameters	Sampling Frequency	Sample Locations	A1-2: 111 0
Diaghan			Analytical Method
Bio-chemcal oxygen demand	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 405.1
Total Iron & Ferrous Iron	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	SM3500
Heterotrophic Plate Counts	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	SM 9215B
Total Organic Carbon	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 415.1
Total Dissolved Solids	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 160.1
Nitrates, nitrites and ammonia	Quarterly ‡	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 350.3
Sulfide and Sulfates	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 376.2 & EPA 300.0
Total Phosphorus & orthophosphates	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 365.2

System

10700 McArthur Boulevard Oakland, CA

# Oxygen Injection System Using iSOC

Date: 10-15-67
Onsite Time: 0450
Offsite Time: 1030

Technician:
Project Engineer:
Weather Conditions:
Ambient Temperature:

Vince Z Gowri clouds high

iSOC <sup>™</sup> Panel:		
No. of iSOC Panels:	Three 3-Injection Well Panels	
No. of Oxygen Cylinders On Site:	6	
No. of Cylinders Connected to Panels:	×	S OFF LINE *
No. of Empty Cylinders:	<u> </u>	

	19.22 Field Measurments (Monthly) KPA													
Well ID	Time	DTW	рН	DO	Temp	Cand.	088	VAC						
S-1	0815	19.22	7.60	1.62	20.9	980	158	\$						
S-2	0650	21.32	7.49	2.19	20.0	1111	135	8						
MW-3	0954	16.45		2.87	19.3	3.2/m	***************************************	\$						
EX-1			ON		TEM									
EX-2								2011						
EX-3								v Baras						
MW-7	0811	18.29	7.95	.61	19-3	843	85	.03						
MW-8	0915	20.36	7.29	5.49	20.2			a.						
Control Temp EFF	1446		Gals.	<b>→</b>	199830									
EFF' Temp	1346					-								
11	. 30 N. 2200 FPM		1N. Hg	(- 9.0)			H,0	16						
Temp	130°F		9				PSi	15						
HRŠ.	11960.3													

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Connected	Cylinders
O <sub>2</sub> Cylinder	Pressure
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Lab Parameters	Sampling Frequency	Sample Locations	Analytical Method
Bio-chemcal oxygen demand	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 405.1
Total Iron & Ferrous Iron	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	SM3500
Heterotrophic Plate Counts	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	SM 9215B
Total Organic Carbon	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 415.1
Total Dissolved Solids	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 160.1
Nitrates, nitrites and ammonia	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 350.3
Sulfide and Sulfates	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 376.2 & EPA 300.0
Total Phosphorus & orthophosphates	Quarterly	S-1, MW-3, EX-3, MW-7, & MW-8	EPA 365.2

ORIGINAL

# **APPENDIX C**

# CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

### **ANALYTICAL REPORT**

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861

Attn: Scott Bittinger Phone: (530) 676-2062 Fax: (530) 676-6005 Date Received 09/05/07

Job#: USA 57

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting	Date	Date
			Limit	Sampled	Analyzed
Client ID:	TPH-P (GRO)	540	75 mg/m³	09/04/07	09/06/07
Sys Inf Air 57	Tertiary Butyl Alcohol (TBA)	ND	38 mg/m³	09/04/07	09/06/07
Lab ID:	Methyl tert-butyl ether (MTBE)	ND	$0.75 \text{ mg/m}^3$	09/04/07	09/06/07
STR07090504-01A	Di-isopropyl Ether (DIPE)	ND	1.5 mg/m <sup>3</sup>	09/04/07	09/06/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.5 mg/m <sup>3</sup>	09/04/07	09/06/07
	Benzene	0.75	0.75 mg/m <sup>3</sup>	09/04/07	09/06/07
	Tertiary Amyl Methyl Ether (TAME)	ND	1.5 mg/m <sup>3</sup>	09/04/07	09/06/07
	Toluene	ND	0.75 mg/m <sup>3</sup>	09/04/07	09/06/07
	Ethylbenzene	0.97	0.75 mg/m <sup>3</sup>	09/04/07	09/06/07
	m,p-Xylene	ND	0.75 mg/m <sup>3</sup>	09/04/07	09/06/07
	o-Xylene	ND	0.75 mg/m <sup>3</sup>	09/04/07	09/06/07

Gasoline Range Organics (GRO) C4-C13

Note: Concentrations of air in a Tedlar Bag are at 21 degrees Celsius and 25.76 inches of mercury.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

9/12/07

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

<b>Date:</b> 10-Sep-07	QC Summary Report											
Method Blank		Type I	MBLK T	est Code: EPA Met	hod SW8	015B		**************************************				
File ID: <b>07090607.D</b>		09/06/2007 10:12										
Sample ID: MBLK MS08A0906B	MS08A0906B Units: mg/m³ Run ID: MSD_08_070906B Prep Date: 09											
Analyte	Result	PQL	SpkVal	SpkRefVal %REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual				
TPH-P (GRO)	ND	10	)									
Surr: 1,2-Dichloroethane-d4	1.81		2	91	75	128						
Surr: Toluene-d8	2.04		2	102	80	120						
Surr: 4-Bromofluorobenzene	1.88		2	94	80	120						
Laboratory Control Spike		Type L	.CS Te	est Code: EPA Met	hod SW8	015B						
File ID: 07090604.D			Ва	atch ID: MS08A090	6B	Analysis Date:	09/06/2007 09:03					
Sample ID: GLCS MS08A0906B	Units: mg/r	n³	Run ID: MS	SD_08_070906B		Prep Date:	09/06/2007					
Analyte	Result	PQL	SpkVal	SpkRefVal %REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual				
TPH-P (GRO)	394	10	400	99	70	130						
Surr: 1,2-Dichloroethane-d4	9.76		10	98	75	128						
Surr: Toluene-d8	9.74		10	97	80	120						
Surr: 4-Bromofluorobenzene	9.7		10	97	80	120						

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



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<b>Date:</b> 10-Sep-07		<b>Work Orde</b> 07090504						
Method Blank File ID: 07090607.D Sample ID: MBLK MS08A0906A	Units : <b>mg</b> /r	Type <b>M</b> i	Ba Run ID: <b>M\$</b>	st Code: <b>EPA M</b> etch ID: <b>MS08A09</b> <b>D_08_070906B</b>	06A	Analysis Date: Prep Date:	09/06/2007 10:12 09/06/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %RE	C LCL(ME	) UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Tertiary Butyl Alcohol (TBA) Methyl tert-butyl ether (MTBE) Di-isopropyl Ether (DIPE) Ethyl Tertiary Butyl Ether (ETBE) Benzene Tertiary Amyl Methyl Ether (TAME) Toluene Ethylbenzene m,p-Xylene o-Xylene o-Xylene Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	ND ND ND ND ND ND ND ND ND ND 1.81 2.04 1.88	5 0.1 0.2 0.2 0.1 0.2 0.1 0.1 0.1	2 2 2	91 102 94	75 80 80	128 120 120		
Laboratory Control Spike		Type LC		st Code: EPA Me				
File ID: 07090606.D		.,,,,		tch ID: MS08A09			09/06/2007 09:50	
Sample ID: LCS MS08A0906A	Units : mg/n	n <sup>a</sup> F	Run ID: MS	D 08 070906B		Prep Date:	09/06/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %RE0	C LCL(ME	) UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	11.1 9.55 9.15 9.09 8.92 8.89 9.79 9.63 9.3	0.1 0.1 0.1 0.1 0.1 0.1	10 10 10 10 10 10 10 10 10	96 92 91 89 89 98 98	70 70 80 80 70 70 75 80 80	130 130 120 120 130 130 128 120 120		

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Billing Information:

# CHAIN-OF-CUSTODY RECORD

Page: 1 of 1

Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

WorkOrder: STR07090504

Report Due By: 5:00 PM On: 13-Sep-07

Client:

Stratus Environmental 3330 Cameron Park Drive

Suite 550

Cameron Park, CA 95682-8861

Scott Bittinger TEL: (530) 676-2062

FAX: (530) 676-6005 EMail sbittinger@stratusinc.net EDD Required: Yes

Sampled by : C. Hill

Report Attention: Scott Bittinger

Job: USA 57

PO:

Client's COC #: 10040

Cooler Temp 20 °C

Samples Received 05-Sep-07

**Date Printed** 05-Sep-07

CC Report: QC Level: S3

= Final Rpt, MBLK, LCS, MS/MSD With Surrogates

									Request	ed Tests			
Alpha	Client	Collection	No. of	Bottles	5		TPH/P_A	VOC_A					
Sample ID	Sample ID	Matrix Date	ORG	SUB	TAT	PWS#						-	Sample Remarks
STR07090504-01	A Sys Inf Air 57	AR 09/04/07 11:15	1	0	6		GAS-N/C	BTEX/OXY					TEDLAR

Comments:

Security seals intact. Ice n/a. Chain split into two separate work orders due to different TATs. Send copy of receipt checklist with final report.:

Date/Time Signature **Print Name** Company auvallan uvageau Alpha Analytical, Inc. Logged in by:

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other)

Billing	illing Information:					Alpha Analytical, Inc.				I. Inc.		Samples Collected From Which State?  AZ CA NV WA   ID OR OTHER Page # of							1		
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Phone	Number	5704	ou vary	un. Phr 2 Mr. (Fax 53067	Las			5) 355-04			ر ل	<u> </u>		Analy	yses	Req	uired			100	140
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Time	Date	Matrix* See Key	Office Use Only	Sampled by	fik_	Report Attention Sc	olf			Total and type of containers	7~	0,/5	/	/ /	/				Global ID #		
	Sampled	Below		D Number		Sample Description			Field Filtered	** See below		(4)	[						RI	EMARKS	
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NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

### **ANALYTICAL REPORT**

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861

Attn: Scott Bittinger Phone: (530) 676-2062 Fax: (530) 676-6005 Date Received: 09/05/07

Job#: USA 57

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting	Date	Date
			Limit	Sampled	Analyzed
Client ID:	TPH-P (GRO)	ND	15 mg/m³	09/04/07	09/05/07
EFF Air	Tertiary Butyl Alcohol (TBA)	ND	$7.5 \text{ mg/m}^3$	09/04/07	09/05/07
Lab ID:	Methyl tert-butyl ether (MTBE)	ND	$0.15 \text{ mg/m}^3$	09/04/07	09/05/07
STR07090502-01A	Di-isopropyl Ether (DIPE)	ND	$0.30 \text{ mg/m}^3$	09/04/07	09/05/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND	0.30 mg/m <sup>3</sup>	09/04/07	09/05/07
	Benzene	ND	$0.15 \text{ mg/m}^3$	09/04/07	09/05/07
	Tertiary Amyl Methyl Ether (TAME)	ND	0.30 mg/m <sup>3</sup>	09/04/07	09/05/07
	Toluene	ND	$0.15 \text{ mg/m}^3$	09/04/07	09/05/07
	Ethylbenzene	ND	$0.15 \text{ mg/m}^3$	09/04/07	09/05/07
	m,p-Xylene	ND	$0.15 \text{ mg/m}^3$	09/04/07	09/05/07
	o-Xylene	ND	$0.15 \text{ mg/m}^3$	09/04/07	09/05/07

Gasoline Range Organics (GRO) C4-C13

Note: Concentrations of air in a Tedlar Bag are at 21 degrees Celsius and 25.76 inches of mercury.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 07-Sep-07	QC Summary Report											
Method Blank		Type I	MBLK Te	est Code: EPA M	ethod SW8	015B						
File ID: 07090507.D			Ва	atch ID: MS08A09	05B	Analysis Date:	09/05/2007 10:49					
Sample ID: MBLK MS08A0905B	BA0905B Units: mg/m³ Run ID: MSD_08_070905B Prep Date: 09											
Analyte	Result PQL SpkVal SpkRefVal %REC LCL(ME) UCL(ME) RPDRefVal											
TPH-P (GRO)	ND	1	0									
Surr: 1,2-Dichloroethane-d4	8.65		10	87	75	128						
Surr: Toluene-d8	10.4		10	104	. 80	120						
Surr: 4-Bromofluorobenzene	9.23		10	92	80	120						
Laboratory Control Spike		Type I	LCS Te	est Code: EPA M	ethod SW8	015 <b>B</b>						
File ID: 07090505.D			Ва	atch ID: MS08A09	05B	Analysis Date:	09/05/2007 09:41					
Sample ID: GLCS MS08A0905B	Units : mg/	m³	Run ID: MS	SD_08_070905B		Prep Date:	09/05/2007					
Analyte	Result	PQL	SpkVal	SpkRefVal %RE	C LCL(ME	) UCL(ME) RPDRef	Val %RPD(Limit)	Qual				
TPH-P (GRO)	418	1	0 400	105	70	130						
Surr: 1,2-Dichloroethane-d4	8.96		10	90	75	128						
Surr: Toluene-d8	9.86		10	99	80	120						
Surr: 4-Bromofluorobenzene	9.82		10	98	80	120						

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 07-Sep-07		Work Ord 07090502							
Method Blank		Type Mi	BLK T	est Code: EPA	Method SV	W8260B	***************************************		
File ID: 07090507.D		,,		atch ID: MS08A	0905A	Analy	sis Date:	09/05/2007 10:49	
Sample ID: MBLK MS08A0905A	Units : mg	lm³ F		SD_08_070905		Prep		09/05/2007	
Analyte	•					•			Qual
	Result	PQL	Spkvai	Spkkeivai %F	CEC LCL(II	ME) UCL(ME)	KPUKEI	Val %RPD(Limit)	
Tertiary Butyl Alcohol (TBA)	ND	5							
Methyl tert-butyl ether (MTBE)	ND	0.1							
Di-isopropyl Ether (DIPE)	ND	0.2							
Ethyl Tertiary Butyl Ether (ETBE)	ND	0.2							
Benzene	ND	0.1							
Tertiary Amyl Methyl Ether (TAME)	ND	0.2							
Toluene	ND	0.1							
Ethylbenzene	ND	0.1							
m,p-Xylene	ND	0.1							
o-Xylene	ND	0.1							
Surr: 1,2-Dichloroethane-d4	8.65		10	8	75	128			
Surr: Toluene-d8	10.4		10	10	04 80	120			
Surr: 4-Bromofluorobenzene	9.23		10	9	2 80	120			
Laboratory Control Spike		Type LC	S To	est Code: EPA	Method SV	V8260B			
File ID: <b>07090506.D</b>			Ва	atch ID: MS08A	0905A	Analy	sis Date:	09/05/2007 10:02	
Sample ID: LCS MS08A0905A	Units: mg	m³ F	Run ID: M	SD_08_070905	В	Prep I	Date:	09/05/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %F	REC LCL(N	ME) UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	10.9	0.1	10	11	09 70	130			
Benzene	9.67	0.1	10	g	70	130			
Toluene	9.2	0.1	10	g	2 80	120			
Ethylbenzene	9.06	0.1	10	9	1 80	120			
m,p-Xylene	8.99	0.1	10	9	0 70	130			
o-Xylene	9.09	0.1	10	9	1 70	130			
Surr: 1,2-Dichloroethane-d4	9.17		10	9	2 75	128			
Surr: Toluene-d8	9.7		10	9	7 80	120			
Surr: 4-Bromofluorobenzene	9.1		10	9	1 80	120			

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Billing Information:

#### **CHAIN-OF-CUSTODY RECORD**

CA

RUSHI

#### Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406 Report Due By: 5:00 PM On: 05-Sep-07

WorkOrder: STR07090502

Client:

Stratus Environmental 3330 Cameron Park Drive Suite 550

Outle 550

Cameron Park, CA 95682-8861

Report Attention: Scott Bittinger

CC Report :

Job: USA 57

PO:

Scott Bittinger
TEL: (530) 676-2062 ×
FAX: (530) 676-6005

sbittinger@stratusinc.net

EDD Required : Yes

Sampled by : C. Hill

Cooler Temp
20 °C

Samples Received 05-Sep-07 Date Printed 05-Sep-07

QC Level: S3

= Final Rpt, MBLK, LCS, MS/MSD With Surrogates

										Request	ed Tests		
Alpha	Client	(	Collection	No. of	f Bottles	3		TPH/P_A	VOC_A				
Sample ID	Sample ID	Matrix	Date	ORG	SUB	TAT	PWS#						Sample Remarks
STR07090502-01	EFF Air	AR	09/04/07 11:20	1	0	1		GAS-N/C	BTEX/OXY				TEDLAR

Client's COC #: 10040

Comments:

Security seals intact. Ice n/a. Chain split into two separate work orders due to different TATs. Send copy of receipt checklist with final report. ASAP TAT:

Signature Print Name Company Date/Time

Logged in by: Chyabeth Sauvagau Alpha Analytical, Inc. 9-5-07 9:26

Billing Information:  Name 5 mil 7  Address 3330 Camera Pt X  City, State, Zip Camera Ptc  Phone Number 5 2624 6234 Fax 530676 6225				Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 Phone (775) 355-1044						Sam AZ _ ID _	ples	Collect CA	ted F NV OT	rom   /_ HER	Which State? WA Page # of					
City, Sta Phone I	ate, Zip Number Iame	500	or bay	1 162 (Fax 53067	Llass	P.O. #	Phone (775						<i></i> ,	Analys	es Re	quired	j		1004	40
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Key: A	upA - C	eous	SO - Soil	WA - Waste	e OT - Oth	ner	**: L-	Liter	V-V	oa S-Soi	l Jar	0-0	rbo	T-Tedla	ar	B-Bras	s	P-Plastic	OT-Othe	l er

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.



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# FILE COPY

#### **ANALYTICAL REPORT**

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861 Attn: Scott Bittinger Phone: (530) 676-2062 Fax: (530) 676-6005 Date Received: 09/05/07



Job#: USA 57

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting	Date	Date
			Limit	Sampled	Analyzed
Client ID:	TPH-P (GRO)	470	50 μg/L	09/04/07	09/07/07
INF	Tertiary Butyl Alcohol (TBA)	120	10 μg/L	09/04/07	09/07/07
Lab ID:	Methyl tert-butyl ether (MTBE)	230	0.50 μg/L	09/04/07	09/07/07
STR07090555-01A	Di-isopropyl Ether (DIPE)	ND	1.0 μg/L	09/04/07	09/07/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 μg/L	09/04/07	09/07/07
	Benzene	25	0.50 μg/L	09/04/07	09/07/07
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 μg/L	09/04/07	09/07/07
	Toluene	2.9	$0.50~\mu g/L$	09/04/07	09/07/07
	Ethylbenzene	10	$0.50~\mu g/L$	09/04/07	09/07/07
	m,p-Xylene	14	0.50 μg/L	09/04/07	09/07/07
	o-Xylene	5.0	$0.50~\mu g/L$	09/04/07	09/07/07

Gasoline Range Organics (GRO) C4-C13

ND = Not Detected

Reported in micrograms per Liter, per client request.

Roger Scholl

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

9/12/07 Report Date



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## **VOC Sample Preservation Report**

Work Order: STR07090555	Project: USA 57			
Alpha's Sample ID	Client's Sample ID	Matrix	pН	
07090555-01A	INF	Aqueous	2	

9/12/07

**Report Date** 



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<b>Date:</b> 11-Sep-07	(	OC S	ummar	y Report	<u>-</u>			<b>Work Ord</b> 0709055:	
Method Blank		Type N	IBLK T	est Code: <b>EP</b>	A Met	hod SW80	15B		
File ID: C:\HPCHEM\MS07\DATA\070907\07090	707.D		Ва	atch ID: MS0	7W090	7B	Analysis Dat	e: 09/07/2007 11:13	
Sample ID: MBLK MS07W0907A U	nits : μg/L		Run ID: M	SD 07 0709	07A		Prep Date:	09/07/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal 9	%REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
TPH-P (GRO)	ND	50				······································		· · · · · · · · · · · · · · · · · · ·	
Surr: 1,2-Dichloroethane-d4	9.5		10		95	75	128		
Surr: Toluene-d8	10.1		10		101	80	120		
Surr: 4-Bromofluorobenzene	9.81		10		98	80	120		
Laboratory Control Spike		Type L	CS Te	est Code: <b>EP</b>	A Meti	nod SW80	15B		
File ID: C:\HPCHEM\MS07\DATA\070907\07090	703.D		Ba	atch ID: MS0	7 <b>W</b> 090	7B	Analysis Dat	e: 09/07/2007 09:44	
Sample ID: GLCS MS07W0907B U	nits : µg/L		Run ID: MS	SD_07_07090	07A		Prep Date:	09/07/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal 9	%REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual
TPH-P (GRO)	369	50	400		92	70	130		
Surr: 1,2-Dichloroethane-d4	9.6		10		96	75	128		
Surr: Toluene-d8	10.1		10		101	80	120		
Surr: 4-Bromofluorobenzene	10		10		100	80	120		
Sample Matrix Spike		Type M	S Te	est Code: EP	A Meth	od SW80	15B		
File ID: C:\HPCHEM\MS07\DATA\070907\070907	712.D		Ва	tch ID: MS07	W090	7B	Analysis Date	e: 09/07/2007 13:05	
Sample ID: 07090451-06AGS Ur	nits : µg/L		Run ID: MS	SD_07_07090	)7A		Prep Date:	09/07/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %	6REC	LCL(ME)	UCL(ME) RPDRe	efVal %RPD(Limit)	Qual
TPH-P (GRO)	1580	250	2000	0	79	60	131		
Surr: 1,2-Dichloroethane-d4	46.7		50		93	75	128		
Surr: Toluene-d8	50.1		50		100	80	120		
Surr: 4-Bromofluorobenzene	51.1		50		102	80	120		
Sample Matrix Spike Duplicate		Type M	SD Te	st Code: <b>EP</b>	A Meth	od SW80	15B		
File ID: C:\HPCHEM\MS07\DATA\070907\070907	713.D		Ва	tch ID: MS07	W090	7B	Analysis Date	9: 09/07/2007 13:27	
Sample ID: 07090451-06AGSD Ur	nits : μg/L		Run ID: MS	D_07_07090	7A		Prep Date:	09/07/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %	6REC	LCL(ME)	UCL(ME) RPDRe	efVal %RPD(Limit)	Qual
TPH-P (GRO)	1740	250	2000	0	87	60	131 158	33 9.7(20)	_
Surr: 1,2-Dichloroethane-d4	47.3		50		95	75	128		
Surr: Toluene-d8	50.3		50		101	80	120		
Surr: 4-Bromofluorobenzene	49.5		50		99	80	120		

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Reported in micrograms per Liter, per client request.



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<b>Date:</b>			QC S1	ummar	y Repoi	:t				<b>Work Ord</b> 0709055	
Method Bla	nk		Type N	IBLK T	est Code: E	PA Met	thod SW8	3260B			
File ID: C:\HF	CHEM\MS07\DATA\070907\0	7090707.D		В	atch ID: MS	07W09	07A	Anal	ysis Date:	09/07/2007 11:13	3
Sample ID:	MBLK MS07W0907A	Units : µg/L		Run ID: M	SD_07_070	907A			Date:	09/07/2007	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME	) UCL(ME	) RPDRef	Val %RPD(Limit)	Qual
	Alcohol (TBA)	ND	10								
	tyl ether (MTBE)	ND	0.5								
Di-isopropyl E	tner (DIPE) Butyl Ether (ETBE)	ND ND	1								
Benzene	Daty Ether (ETBE)	ND	0.5								
Tertiary Amyl	Methyl Ether (TAME)	ND	1								
Toluene		ND	0.5								
Ethylbenzene m,p-Xylene		ND ND	0.5 0.5								
o-Xylene		ND ND	0.5								
Surr: 1,2-Dich	oroethane-d4	9.5	0.0	10		95	75	128			
Surr: Toluene-		10.1		10		101	80	120			
Surr: 4-Bromo	fluorobenzene	9.81		10		98	80	120			
	Control Spike		Type LO	CS Te	est Code: <b>EF</b>	A Met	hod SW8.	260B			
File ID: C:\HP	CHEM\MS07\DATA\070907\0	7090704.D		Ba	atch ID: MS0	7 <b>W</b> 090	)7A	Analy	sis Date:	09/07/2007 10:06	
Sample ID:	LCS MS07W0907A	Units : µg/L		Run ID: MS	SD_07_0709	07A		Prep	Date:	09/07/2007	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
	yl ether (MTBE)	9.59	0.5	10		96	70	130	,		
Benzene		9.27	0.5	10		93	70	130			
Toluene Ethylbenzene		9.38 9.12	0.5 0.5	10 10		94 91	80	120			
m,p-Xylene		9.18	0.5	10		92	80 70	120 130			
o-Xylene		9.38	0.5	10		94	70	130			
Surr: 1,2-Dichl		9.44		10		94	75	128			
Surr: Toluene- Surr: 4-Bromot		10.2 9.96		10 10		102 99.6	80	120 120			
			Tuno Mi		at Cada, ED						<del></del>
Sample Mat	rix Spike CHEM\MS07\DATA\070907\07		Type MS		st Code: <b>EP</b> tch ID: <b>MS0</b>				oia Data.	00/07/0007 10 00	
Sample ID:	07090451-06AMS	Units : µg/L	r				/A	=		09/07/2007 12:20	
Analyte	07 03043 1-00ANIS	Result	PQL		SD_07_0709		I CL (ME)	Prep [		<b>09/07/2007</b> (al %RPD(Limit)	0 1
	d other (NATOE)								RPDReiv	ai %RPD(Limit)	Qual
Benzene	/I ether (MTBE)	48.5 45.5	1.3 1.3	50 50	0	97 91	62 70	139 130			
Toluene		45.2	1.3	50	0	90	67	130			
Ethylbenzene		42.8	1.3	50	0	86	70	130			
m,p-Xylene		43.3	1.3	50	0	87	69	130			
o-Xylene Surr: 1,2-Dichlo	proethane-d4	45.8 46	1.3	50 50	0	92	70 75	130			
Surr: Toluene-d		50.9		50 50		92 102	75 80	128 120			
Surr: 4-Bromof	uorobenzene	50.3		50		101	80	120			
Sample Mat	rix Spike Duplicate	-	Гуре <b>М</b> Ѕ	D Tes	st Code: EP	A Meth	od SW82	60B			<del></del>
-	HEM\MS07\DATA\070907\07				ch ID: MS07	W0907	7A	Analys	is Date:	09/07/2007 12:43	
Sample ID:	07090451-06AMSD	Units : µg/L	F		D_07_07090			Prep D		09/07/2007	
Analyte			PQL				LCL(ME)	-		al %RPD(Limit)	Qual
Methyl tert-buty	l ether (MTBE)	50.1	1.3	50	0	100	62	139	48.51	3.2(20)	
Benzene	· · · · · /	45.6	1.3	50	0	91	70	130	45.54	0.2(20)	
Toluene		45.5	1.3	50	0	91	67	130	45.22	0.6(20)	
Ethylbenzene m,p-Xylene		43.8	1.3	50 50	0	88	70	130	42.76	2.5(20)	
o-Xylene		43.9 46.1	1.3 1.3	50 50	0	88 92	69 70	130 130	43.28 45.82	1.3(20)	
Surr: 1,2-Dichlo		47.1	1.0	50	U	94	75	128	40.02	0.6(20)	
Surr: Toluene-d		50.5		50		101	80	120			
Surr: 4-Bromofl	uorobenzene	50.1		50		100	80	120			



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

**Date:** 11-Sep-07

**QC Summary Report** 

Work Order: 07090555

Comments:

# **Alpha Analytical, Inc.**Phone: (775) 355-1044 FAX: (775) 355-0406

#### Sample Receipt Checklist

Date Report is due to Client: 9/13/2007

Date of Notice: 9/5/2007 10:47:03 A

Please take note of any NO check marks. If we receive no response concerning these items within 24 hours of the date of this notice, all of the samples will be analyzed as requested.

Client Name: Stratus Environmental	Project ID: USA	57		
Project Manager: Scott Bittinger	Client's EMail: sbitting Client's Phone: (530)	_		H- EAV. (500) 070 000
Work Order Number: STR07090555	Date Received: 9/5/2			it's FAX: <b>(530) 676-6005</b> eived by: Tara Dickinson
Cha	nin of Custody (COC) In	formation		
Carrier name <u>FedEx</u>				
Chain of custody present ?	Yes 🗹	☐ No		
Custody seals intact on shippping container/cooler?	Yes 🗹	☐ No	Not Present	
Custody seals intact on sample bottles?	Yes	☐ No	Not Present	<b>✓</b>
Chain of custody signed when relinquished and received?	Yes 🗹	☐ No		
Chain of custody agrees with sample labels?	Yes 🗸	☐ No		
Sample ID noted by Client on COC ?	Yes 🗹	☐ No		
Date and time of collection noted by Client on COC ?	Yes 🗹	☐ No		
Samplers's name noted on COC ?	Yes 🗸	☐ No		
Internal Chain of Custody (COC) requested ?	Yes	✓ No		
Sub Contract Lab Used :	None 🗹	See C	Comments	
<u> </u>	Sample Receipt Inform	<u>ation</u>		
Shipping container/cooler in good condition?	Yes 🗹	☐ No	Not Present	
Samples in proper container/bottle?	Yes 🗸	☐ No		
Sample containers intact?	Yes 🔽	☐ No		
Sufficient sample volume for indicated test?	Yes 🗹	☐ No		
Sample Prese	ervation and Hold Time	(HT) Informa	ıtion	
All samples received within holding time?	Yes 🗸	☐ No		Cooler Temperature
Container/Temp Blank temperature in compliance (0-6°C)?	Yes 🗹	☐ No		<b>4</b> °C
Water - VOA vials have zero headspace / no bubbles?	Yes 🗸	☐ No	No V	OA vials submitted
Sample labels checked for correct preservation?	Yes 🗹	□ No		
TOC Water - pH acceptable upon receipt (H2SO4 pH<2)?	Yes	☐ No	N/A	
Analy	vtical Requirement Info	rmation		
Are non-Standard or Modified methods requested?	Yes 🗌	<b>✓</b> No		
Are there client specific Project requirements?	Yes	✓ No	If YES : see t	he Chain of Custody (COC)
Comments :	10000000		, , , , , , , , , , , , , , , , , , , ,	

Billing	Information	
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#### **CHAIN-OF-CUSTODY RECORD**

Page: 1 of 1

Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

WorkOrder: STR07090555

TEL: (775) 355-1044 FAX: (775) 355-0406

Report Due By: 5:00 PM On: 13-Sep-07

Client:

Stratus Environmental 3330 Cameron Park Drive

Suite 550 Cameron Park, CA 95682-8861

Report Attention: Scott Bittinger

Job: USA 57

TEL: (530) 676-2062

FAX: (530) 676-6005

PO:

Scott Bittinger

sbittinger@stratusinc.net

Client's COC #: 10041

EDD Required: Yes

Sampled by: C. Hill

Cooler Temp 4 °C

Samples Received 05-Sep-07

Date Printed 05-Sep-07

QC Level: S3

CC Report :

= Final Rpt, MBLK, LCS, MS/MSD With Surrogates

A los los										Requeste	d Tests		The second secon
Alpha	Client		Collection	No. of	Bottle	5		TPH/P_W	VOC_W			 	
Sample ID	Sample ID	Matr	ix Date	ORG	SUB	TAT	PWS#						Sample Domestre
STR07090555-01/	A INF	140	00/04/07	· -			T	<u> </u>				 	Sample Remarks
011(01000000-01)	-). II.AI	AQ	09/04/07	5	U	6	i	GAS-C	BTEX/OXY_				Annual or second or an extension following and the second of the second
	and the second s		10:15			1			C	4			1
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Comments:

Security seals intact. Frozen ice. Send copy of receipt checklist with final report. :

Logged in by:

Signature

Print Name 1au

Company

Date/Time

Alpha Analytical, Inc.

Billin Name Address City, St	g Info 57- s 336 ate, Zipo	rmatio 30 C Can	energy Semeral	Ple DI Ple CIA Fax 53067		C.	255 Gle Sparks	<b>a Åna</b> endale A , Nevada (775) 3	venue, a 8943	<b>al, Inc.</b> Suite 21 1-5778		Sai AZ ID	mple 	s Co CA OR	llect	ed Fi NV OTI	rom HER	Whic WA	h State?  Pag	ge# of_	*
Phone	Number	530G	57	Fax 5 30 67	6665	P.O. #		75) 355- Job #			<u> </u>	Ĺ.,		Ana	alyse:	s Rec	quire	d 		1004	T T T
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NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report



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## FILE COPY

#### **ANALYTICAL REPORT**

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861

Attn: Scott Bittinger
Phone: (530) 676-2062
Fax: (530) 676-6005

Date Received 10/04/07

OCT 22 2007

Job#:

2007-0057-01/USA 57

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting	Date	Date
			Limit	Sampled	Analyzed
Client ID:	TPH-P (GRO)	51	50 μg/L	10/03/07	10/05/07
0057WINF	Tertiary Butyl Alcohol (TBA)	19	10 μg/L	10/03/07	10/05/07
Lab ID:	Methyl tert-butyl ether (MTBE)	5.4	0.50 μg/L	10/03/07	10/05/07
STR07100432-01A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	10/03/07	10/05/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 μg/L	10/03/07	10/05/07
	Benzene	9.2	0.50 μg/L	10/03/07	10/05/07
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	10/03/07	10/05/07
	Toluene	0.63	0.50 μg/L	10/03/07	10/05/07
	Ethylbenzene	ND	0.50 μg/L	10/03/07	10/05/07
	m,p-Xylene	1.1	0.50 μg/L	10/03/07	10/05/07
	o-Xylene	0.72	0.50 μg/L	10/03/07	10/05/07

Gasoline Range Organics (GRO) C4-C13

ND = Not Detected

Reported in micrograms per Liter, per client request.

toger Scholl Kandy Soulur Walte

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

10/10/07 Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## **VOC Sample Preservation Report**

Work Order: STR07100432	<b>Project:</b> 2007-0057-01/U	SA 57		
Alpha's Sample ID	Client's Sample ID	Matrix	Ы-I	
07100432-01A	0057WINF	Aqueous	2	. =



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 10-Oct-07	QC S	ummar	y Report			Work Ord 0710043	
Method Blank File ID: D:\hPCHEM\MS09\DATA\071005\07100504.D	Type N		est Code: EPA I atch ID: MS09W			: 10/05/2007 13:04	
Sample ID: MBLK MS09W1005B Units: µg,			SD_09_071005		Prep Date:	10/05/2007	
Analyte Result	PQL	SpkVal	SpkRefVal %R	REC LCL(ME	) UCL(ME) RPDRe	fVal %RPD(Limit)	Qual
TPH-P (GRO) ND	50	10	0	0 75	400		
Surr: 1,2-Dichloroethane-d4 8.87 Surr: Toluene-d8 10.5		10	8 10	9 75 05 80	128 120		
Surr: 4-Bromofluorobenzene 10.6		10	10		120		
Laboratory Control Spike	Type L	CS Te	est Code: EPA N	Method SW8	015B		
File ID: D:\HPCHEM\MS09\DATA\071005\07100503.D		Ва	atch ID: MS09W	1005B	Analysis Date	: 10/05/2007 12:41	
Sample ID: GLCS MS09W1005B Units: µg/	L	Run ID: MS	SD_09_071005A	4	Prep Date:	10/05/2007	
Analyte Result	PQL	SpkVal	SpkRefVal %R	EC LCL(ME	) UCL(ME) RPDRe	Val %RPD(Limit)	Qual
TPH-P (GRO) 379	50		9:		130		
Surr: 1,2-Dichloroethane-d4 8.7		10	8.		128		
Surr: Toluene-d8 10.6 Surr: 4-Bromofluorobenzene 10.3		10 10	10 10		120 120		
Sample Matrix Spike	Type M	S Te	est Code: EPA N	Method SW8	015B		
File ID: D:\HPCHEM\MS09\DATA\071005\07100508.D	. , , ,		tch ID: MS09W			10/05/2007 14:40	
Sample ID: 07100426-01AGS Units : μg/	L	Run ID: MS	SD_09_071005A	4	Prep Date:	10/05/2007	
Analyte Result	PQL				UCL(ME) RPDRef	Val %RPD(Limit)	Qual
TPH-P (GRO) 1610	250		0 8		131		
Surr: 1,2-Dichloroethane-d4 42.6		50	88		128		
Surr: Toluene-d8 54.1 Surr: 4-Bromofluorobenzene 50.8		50 50	10 10		120 120		
	Type M		st Code: EPA N			THE STATE OF THE S	
Sample Matrix Spike Duplicate File ID: D:\HPCHEM\MS09\DATA\071005\07100509.D	Type IV		tch ID: MS09W			10/05/2007 15:04	
Sample ID: 07100426-01AGSD Units : µg/l			D_09_071005A		Prep Date:	10/05/2007	
Analyte Result	- PQL				UCL(ME) RPDRef		Qual
TPH-P (GRO) 1820	250	2000	0 91	<del></del>	131 161:		
Surr: 1,2-Dichloroethane-d4 42.4	_,,	50	85	75	128		
Surr: Toluene-d8 53.5		50	10		120		
Surr: 4-Bromofluorobenzene 50.7		50	10	1 80	120		

#### Comments

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Reported in micrograms per Liter, per client request.



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: _10-Oct-07		QC S	umma	ry Repo	rt				Work Or 071004	
Method Blank		Type N	IBLK	Test Code: E	PA Me	thod SW8	260B			
File ID: D:\HPCHEM\MS09\DATA\0710	05\07100504.D		Ε	Batch ID: MS	09W10	005A	Ana	lvsis Date	: 10/05/2007 13:04	4
Sample ID: MBLK MS09W1005A	Units : µg/L			ISD_09_071		, , , , ,		Date:		₩
Analyte	Result	PQL				2 1 01 445	•		10/05/2007	
——————————————————————————————————————				opkreiva	70KE	J LUL(IME	) UCL(ME	) RPDRe	Mal %RPD(Limit)	Qua
Tertiary Butyl Alcohol (TBA)	ND	10								
Methyl tert-butyl ether (MTBE) Di-isopropyl Ether (DIPE)	ND	0.5								
Ethyl Tertiary Butyl Ether (ETBE)	ND	1								
Benzene	ND ND	1 0.5								
Tertiary Amyl Methyl Ether (TAME)	ND ND	0.5								
Toluene	ND	0.5								
Ethylbenzene	ND	0.5								
m,p-Xylene	ND	0.5								
o-Xylene	ND	0.5								
Surr: 1,2-Dichloroethane-d4	8.87		10		89	75	128			
Surr: Toluene-d8	10.5		10		105	80	120			
Surr: 4-Bromofluorobenzene	10.6		10		106	80	120			
Laboratory Control Spike		Type LC	s T	est Code: E	PA Met	hod SW82	260B			
File ID: D:\HPCHEM\MS09\DATA\07100	05\07100502.D	••	В	atch ID: MS	19W10	05Δ	Anak	rsie Date	10/05/2007 12:18	
Sample ID: LCS MS09W1005A	Units : µg/L			SD_09_071		30,1				
Analyte		PQL				1.01./845	•	Date:	10/05/2007	
	Result			Spkkervar			UCL(ME)	RPDRef	/al %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	8.48	0.5	10		85	70	130			
Benzene Toluene	9.32	0.5	10		93	70	130			
Ethylbenzene	10.1 10.9	0.5 0.5	10		101	80	120			
m,p-Xylene	10.3	0.5	10 10		109 103	80 70	120 130			
o-Xylene	10.3	0.5	10		103	70 70	130			
Surr: 1,2-Dichloroethane-d4	8.77	0.0	10		88	75	128			
Surr: Toluene-d8	10.4		10		104	80	120			
Surr: 4-Bromofluorobenzene	9.51		10		95	80	120			
Sample Matrix Spike		Туре М	3 Te	est Code: EF	A Meti	hod SW82	60B			
File ID: D:\HPCHEM\MS09\DATA\07100	5\07100506.D		Ba	tch ID: MS0	9W100	5A	Analy	sis Date:	10/05/2007 13:53	
Sample ID: 07100426-01AMS	Units : µg/L	E		SD_09_0710			Prep		10/05/2007	
Analyte	Result	PQL				LOLOMEN	•		al %RPD(Limit)	
				·				KPDReiv	ai %RPU(Limit)	Qual
Methyl tert-butyl ether (MTBE) Benzene	41.5	1.3	50	0	83	62	139			
Toluene	42.6 46.5	1.3 1.3	50	0	85	70	130			
Ethylbenzene	49.7	1.3	50 50	0	93 99	67 70	130 130			
m,p-Xylene	48	1.3	50	0	96	69	130			
o-Xylene	48.1	1.3	50	0	96	70	130			
Surr: 1,2-Dichloroethane-d4	41.8		50	•	84	75	128			
Surr: Toluene-d8	52.7		50		105	80	120			
Surr: 4-Bromofluorobenzene	47.1		50		94	80	120			
Sample Matrix Spike Duplicate		Type MS	D Te	st Code: EP	A Meth	od SW826	0B			
File ID: D:\HPCHEM\MS09\DATA\07100		,		tch ID: MS0				is Date:	10/05/2007 14:16	
Sample ID: 07100426-01AMSD	Units : µg/L	D		D_09_0710			Prep D			
Analyte	• -					LOLANEN			10/05/2007	
	Result	PQL				*			af %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE) Benzene	46.6	1.3	50	0	93	62	139	41.53	11.5(20)	
Poluene	43.4 46.3	1.3	50	0	87	70 67	130	42.56	1.9(20)	
Ethylbenzene	46.3 48.1	1.3 1.3	50 50	0	93 96	67 70	130	46.45	0.4(20)	
n,p-Xylene	47.3	1.3	50 50	0	96 95	70 69	130 130	49.72 48.01	3.3(20)	
-Xylene	49.7	1.3	50 50	0	99	70	130	48.01	1.4(20) 3.3(20)	
Surr: 1,2-Dichloroethane-d4	42.1	.,0	50	v	84	75	128	70,05	0.0(20)	
Surr: Toluene-d8	52.5		50		105	80	120			
Surr: 4-Bromofluorobenzene	46.8		50		94	80	120			



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Date:	
10-Oct-07	

**QC Summary Report** 

Work Order: 07100432

#### Comments:

## **Alpha Analytical, Inc.**Phone: (775) 355-1044 FAX: (775) 355-0406

#### Sample Receipt Checklist

Date Report is due to Client: 10/12/2007

Date of Notice: 10/4/2007 2:13:50 P

Please take note of any NO check marks. If we receive no response concerning these items within 24 hours of the date of this notice, all of the samples will be analyzed as requested.

Client Name: Stratus Environmental	Project ID: 2007-	0057-01/USA	<b>\</b> 57								
Project Manager: Scott Bittinger	Client's EMail: sbittin Client's Phone: (530)			t's FAX: <b>(530) 676-6</b> 005							
Work Order Number: STR07100432	Date Received: 10/4/2			eived by: Kathryn Murray							
Cha	in of Custody (COC) In	formation									
Carrier name FedEx											
Chain of custody present ?	Yes 🗹	☐ No									
Custody seals intact on shippping container/cooler?	Yes 🗹	☐ No	Not Present								
Custody seals intact on sample bottles ?	Yes	☐ No	Not Present								
Chain of custody signed when relinquished and received?	Yes 🗹	☐ No									
Chain of custody agrees with sample labels ?	Yes 🗹	☐ No									
Sample ID noted by Client on COC ?	Yes 🔽	□ No									
Date and time of collection noted by Client on COC ?	Yes 🔽	☐ No									
Samplers's name noted on COC?	Yes 🗹	☐ No									
Internal Chain of Custody (COC) requested ?	Yes	✓ No									
Sub Contract Lab Used :	None 🗹	See C	Comments								
Sample Receipt Information											
Shipping container/cooler in good condition?	Yes 🗹	☐ No	Not Present								
Samples in proper container/bottle?	Yes 🗹	☐ No									
Sample containers intact?	Yes 🗹	☐ No									
Sufficient sample volume for indicated test?	Yes 🗹	☐ No									
Sample Prese	ervation and Hold Time	(HT) Informa	ıtion								
All samples received within holding time?	Yes 🗹	☐ No		Cooler Temperature							
Container/Temp Blank temperature in compliance (0-6°C)?	Yes 🗹	☐ No		<b>4</b> °C							
Water - VOA vials have zero headspace / no bubbles?	Yes 🗹	☐ No	No V	OA vials submitted							
Sample labels checked for correct preservation?	Yes 🗹	☐ No									
TOC Water - pH acceptable upon receipt (H2SO4 pH<2)?	Yes 🗌	☐ No	N/A								
Analy	rtical Requirement Info	mation									
Are non-Standard or Modified methods requested?	Yes	<b>✓</b> No									
Are there client specific Project requirements?	Yes 🗌	<b>✓</b> No	If YES : see t	he Chain of Custody (COC)							
Comments :											

Billing	Information
---------	-------------

## CHAIN-OF-CUSTODY RECORD

Alpha Analytical, Inc.

Page: 1 of 1

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Report Attention **Phone Number** 

**EMail Address** 

Scott Bittinger

(530) 676-2062

sbittinger@stratusinc.net

EDD Required: Yes

Sampled by: CHILL

WorkOrder: STR07100432

Report Due By: 5:00 PM On: 12-Oct-07

PO:

Alpha

Sample ID

Client:

Client's COC #: 18505

Stratus Environmental

3330 Cameron Park Drive

Cameron Park, CA 95682-8861

2007-0057-01/USA 57

Cooler Temp 4°C

Samples Received 04-Oct-07

Date Printed 04-Oct-07

QC Level: S3

STR07100432-01A

Suite 550

AQ

Client

Sample ID

0057WINF

= Final Rpt, MBLK, LCS, MS/MSD With Surrogates

05:30

Collection No. of Bottles Matrix Date Alpha Sub TAT 10/03/07 5 0

6

TPH/P W GAS-C BTEX/OXY

С

**Requested Tests** VOC\_W

Sample Remarks

Comments:

Security seals intact. Frozen ice. Send copy of receipt checklist with final report, :

Kellenay

Print Name Knuran

Company

Date/Time

Logged in by:

Alpha Analytical, Inc.

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Information: 10505 Samples Collected From Which State? Name Stratus Environmental, Inc. Alpha Analytical, Inc. AZ \_\_\_ CA \_ NV \_\_ WA \_\_\_ ID \_\_\_ OR \_\_\_ OTHER \_\_\_\_ Address 3330 Cameron Park Dr. \$550 255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 Page # \_ \_ of \_ \_ \_ City, State, Zip Chreven Park, CA 95682 Phone (775) 355-1044 Phone Number 5306766004 Fax 5306766005 Fax (775) 355-0406 Analyses Required Client Name P.O. # USA 57 Job# 2007-0057-01 BREX Required QC Level? Address **EMail Address** City, State, Zip Dakland Phone # Fax # Sampled by CHILL EDD / EDF? YES 🔀 NO \_\_\_ Date Total and type of See Key Sampled Sampled containers Lab ID Number Global ID #\_\_ Below Sample Description Field Filtered TAT \*\* See below 93/4 AQ STR07100432-01 REMARKS 0057WINF 5-W **ADDITIONAL INSTRUCTIONS:** Print Name Company Date Time Relinquished by Received by Relinquished by Muray Received by K Murray 10/4/07 Relinquished by 1410 Received by \*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air \*\*: L-Liter V-Voa S-Soil Jar O-Orbo

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.



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#### **ANALYTICAL REPORT**

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861

Attn: Scott Bittinger Phone: (530) 676-2062 (530) 676-6005 Date Received 10/04/07

Job#:

2007-0057-01/USA 57

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting	Date	Date
			Limit	Sampled	Analyzed
Client ID:	TPH-P (GRO)	1,800	75 mg/m³	10/03/07	10/05/07
0057ASYSINF	Methyl tert-butyl ether (MTBE)	ND	0.75 mg/m <sup>3</sup>	10/03/07	10/05/07
Lab ID :	Benzene	3.4	0.75 mg/m <sup>3</sup>	10/03/07	10/05/07
STR07100422-01A	Toluene	0.96	$0.75 \text{ mg/m}^3$	10/03/07	10/05/07
	Ethylbenzene	1.2	$0.75 \text{ mg/m}^3$	10/03/07	10/05/07
	m,p-Xylene	5.9	0.75 mg/m <sup>3</sup>	10/03/07	10/05/07
	o-Xylene	1.6	$0.75 \text{ mg/m}^3$	10/03/07	10/05/07

Gasoline Range Organics (GRO) C4-C13

Note: Concentrations of air in a Tedlar Bag are at 21 degrees Celsius and 25.06 inches of mercury.

Roger Scholl

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director · · Randy Gardner, Laboratory Manager · · Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 10-Oct-07	QC Summary Report								Work Order: 07100422	
Method Blank		Type N	IBLK T	est Code: EPA	Meth	od SW8	)15B			
File ID: C:\HPCHEM\MS07\DATA\071005\07	100506.D		Ва	atch ID: MS07A	<b>A1005</b>	В	Analysis Date	10/05/2007 10:13		
Sample ID: MBLK MS07A1005B	Units : mg/	m³	Run ID: M	SD_07_071005	5A		Prep Date:	10/05/2007		
Analyte	Result	PQL	SpkVal	SpkRefVal %	REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual	
TPH-P (GRO)	ND	10	)							
Surr: 1,2-Dichloroethane-d4	2.07		2	1	04	75	128			
Surr: Toluene-d8	1.99		2	1	00	80	120			
Surr: 4-Bromofluorobenzene	2.11		2	1	06	80	120			
Laboratory Control Spike		Type L	.CS Te	est Code: EPA	Meth	od SW80	15B			
File ID: C:\HPCHEM\MS07\DATA\071005\07	100503.D		Ва	tch ID: MS07A	1005	В	Analysis Date:	10/05/2007 09:06		
Sample ID: GLCS MS07A1005B	Units: mg/	m³	Run ID: MS	SD_07_071005	iΑ		Prep Date:	10/05/2007		
Analyte	Result	PQL	SpkVal	SpkRefVal %F	REC	LCL(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual	
TPH-P (GRO)	395	10	400	(	99	70	130			
Surr: 1,2-Dichloroethane-d4	11.1		10	1	11	75	128			
Surr: Toluene-d8	9.73		10	Ş	97	80	120			
Surr: 4-Bromofluorobenzene	10.6		10	1	06	80	120			

#### Comments:



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Date: 10-Oct-07		QC Su	ımmar	y Report				<b>Work Orde</b> 07100422	
Method Blank		Type M	BLK T	est Code: EPA	Method	SW82	260B		
File ID: C:\HPCHEM\MS07\DATA\071005\07	100506.D	• ,	Ва	atch ID: MS07A	1005A		Analysis Date:	10/05/2007 10:13	
Sample ID: MBLK MS07A1005A	Units : mg/	m³ l	Run ID: M:	SD_07_071005	A		Prep Date:	10/05/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %F	REC LC	L(ME)	UCL(ME) RPDRef	/al %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	ND	0.1							
Benzene	ND	0.1							
Toluene	ND	0.1							
Ethylbenzene	ND	0.1							
m,p-Xylene	ND	0.1							
o-Xylene	ND	0.1							
Surr: 1,2-Dichloroethane-d4	2.07		2			75	128		
Surr: Toluene-d8	1.99		2			80	120		
Surr: 4-Bromofluorobenzene	2.11		2	1	06	80	120		
Laboratory Control Spike		Type LC	CS Te	est Code: <b>EPA</b>	Method	SW82	260B		
File ID: C:\HPCHEM\MS07\DATA\071005\07	100504.D		Ва	atch ID: MS07A	1005A		Analysis Date:	10/05/2007 09:28	
Sample ID: LCS MS07A1005A	Units : mg/	m³ i	Run ID: M	SD_07_071005	A		Prep Date:	10/05/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %F	REC LC	L(ME)	UCL(ME) RPDRef	/al %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	9.89	0.1	10	g	99	70	130		
Benzene	9.91	0.1	10	9	99	70	130		
Toluene	10.2	0.1	10	11	02	80	120		
Ethylbenzene	10.2	0.1	10	1		80	120		
m,p-Xylene	10.3	0.1	10			70	130		
o-Xylene	10.2	0.1	10			70	130		
Surr: 1,2-Dichloroethane-d4	10.4		10			75	128		
Surr: Toluene-d8	9.96		10			80	120		
Surr: 4-Bromofluorobenzene	10.6		10	11	06	80	120		

#### Comments:

Billing Information :
CHAIN-OF-CUSTODY RECO
CORD

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 TEL: (775) 355-1044 FAX: (775) 355-0406

Scott Bittinger (530) 676-2062

Client:

Stratus Environmental

3330 Cameron Park Drive

Report Attention:

Scott Bittinger

Job :

2007-0057-01/USA 57

Cameron Park, CA 95682-8861

Suite 550

sbittinger@stratusinc.net

Report Due By: 5:00 PM On: 12-Oct-07

WorkOrder: STR07100422

Page: 1 of 1

EDD Required: Yes

Sampled by: CHILL

Cooler Temp

20 °C

Samples Received 04-Oct-07 Date Printed 04-Oct-07

Sample Remarks 2 Tedlars

Alpha QC Level: S3 CC Report : Sample ID = Final Rpt, MBLK, LCS, MS/MSD With Surrogates Collection No. of Bottles SUB TAT PWS# TPH/P\_A Client's COC #: 10042 VOC\_A Requested Tests

STR07100422-01A 0057ASYSINF AR 10/03/07 05:30

N

0

6

GAS-N/C BTEX/MTB

Comments: Security seals intact. Ice N/A. Send copy of receipt checklist with final report.:

Logged in by:	
Kumay	Signature
Kmuray	Print Name
Alpha Analytical, Inc. 10/4/07 (	Company
10/4/07 1995U	Date/Time

The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Information: Name Stratus Environmental, Inc.	Alph 255 G	na Analytical, Blendale Avenue, Su		Samples AZ ID	Collecte CA	NV	hich State? WA	# of
Billing Information: Name Stratus Environmental Inc. Address 3330 (uneron Park Dr. #550) City, State, Zip Caneron Park, CA 95682 Phone Number 5306766004 Fax 5306766005	Sparks Phone Fax (7	s, Nevada 89431-5 e (775) 355-1044 775) 355-0406				Required		10042
Client Name USA 57 Address	P.O. # EMail Address	Job# 2007-0	057-01		7/		Requ	ired QC Level?
City, State, Zip Oakland, CA  Time Date Matrix* Office Use Sampled Sampled See Key Only	Phone #  Report Attention S. B. 4k	Fax #	al and type of		/ /	/ /	/ /	YES 🔀 NO
Sampled Sampled See Key Below Lab ID Number	Sample Description		containers See below	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			Giobal ID # REM	MARKS
0550 10/5/0 OT STR07100422-01 0057	ASYSINF	5 6	JT ×	<del>/</del>				
								,
ADDITIONAL INSTRUCTIONS:								
Signature	Print Name			Company			Date	Time
Received by MA	115 topper Hi	`//		Stratus	· · · · · · · · · · · · · · · · · · ·		10/3/07	1345
Relinquished by	ela: 18 Son ci		<i>F</i>	pla			10307	1349
Received by Kluway K Relinquished by	Mirray		AAI	/			10/4/07	0945
Received by								
*Key: AQ - Aqueous SO - Soil WA - Waste OT - C NOTE: Samples are discarded 60 days after results are reported unle of the above samples is applicable only to those samples received by	ess other arrangements are r		amples will be r					OT-Other ort for the analys



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#### ANALYTICAL REPORT

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861 Attn: Scott Bittinger Phone: (530) 676-2062 Fax: (530) 676-6005

Date Received: 10/12/07

Job#: **USA 57** 

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
CII . ID	TDU D (CD C)	<b>73.0</b>			-
Client ID:	TPH-P (GRO)	730	30 mg/m <sup>3</sup>	10/11/07	10/18/07
USA57 A SYSINF	Methyl tert-butyl ether (MTBE)	ND	0.30 mg/m <sup>3</sup>	10/11/07	10/18/07
Lab ID :	Benzene	1.2	0.30 mg/m <sup>3</sup>	10/11/07	10/18/07
STR07101203-01A	Toluene	0.45	0.30 mg/m <sup>3</sup>	10/11/07	10/18/07
	Ethylbenzene	ND	$0.30 \text{ mg/m}^3$	10/11/07	10/18/07
	m,p-Xylene	1.1	0.30 mg/m <sup>3</sup>	10/11/07	10/18/07
	o-Xylene	ND	0.30 mg/m <sup>3</sup>	10/11/07	10/18/07
Client ID:	TPH-P (GRO)	ND	15 mg/m³	10/11/07	10/18/07
USA57 A EFF	Methyl tert-butyl ether (MTBE)	ND	$0.15 \text{ mg/m}^3$	10/11/07	10/18/07
Lab ID:	Benzene	ND	$0.15 \text{ mg/m}^3$	10/11/07	10/18/07
STR07101203-02A	Toluene	ND	$0.15 \text{ mg/m}^3$	10/11/07	10/18/07
	Ethylbenzene	ND	$0.15 \text{ mg/m}^3$	10/11/07	10/18/07
	m,p-Xylene	ND	$0.15 \text{ mg/m}^3$	10/11/07	10/18/07
	o-Xylene	ND	0.15 mg/m <sup>3</sup>	10/11/07	10/18/07

Gasoline Range Organics (GRO) C4-C13

Note: Concentrations of air in Tedlar Bags are at 21 degrees Celsius and 25.07 inches of mercury.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 23-Oct-07		<b>Work Order:</b> 07101203							
Method Blank File ID: 07101831.D Sample ID: MBLK MS08A1018B	Units: <b>mg/</b> i	Type !	В	est Code: <b>EPA</b> atch ID: <b>MS</b> 08 <i>A</i> <b>SD_</b> 08_071018	1018B			10/18/2007 19:52 10/18/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %F	REC LCL(I	ME) UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	ND 1.59 2.25 1.83	1(	) 2 2 2	1	30 75 13 80 92 80	120			<del></del>
Laboratory Control Spike File ID: 07101805.D Sample ID: GLCS MS08A1018B	Units : mg/r	Type L	Ва	est Code: EPA atch ID: MS08A SD 08 071018	1018B			10/18/2007 09:55 10/18/2007	
Analyte	Result	PQL				ИЕ) UCL(ME) I	RPDRef	Val %RPD(Limit)	Qual
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	390 9.46 10.1 9.04	10	0 400 10 10 10	9	98 70 95 75 01 80 90 80	128 120			

#### Comments:



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Date: 23-Oct-07	C	C Sı	ummar	y Report			<b>Work Ord</b> e 07101203	
Method Blank		Type N	BLK Te	est Code: EPA M	ethod S	W8260B		
File ID: 07101831.D			Ва	atch ID: MS08A10	018A	Analysis Da	ate: 10/18/2007 19:52	
Sample ID: MBLK MS08A1018A	Units : mg/m	3	Run ID: M	SD_08_071018B		Prep Date:	10/18/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %RE	C LCL(	ME) UCL(ME) RPD	RefVal %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	ND	0.1						
Benzene	ND	0.1						
Toluene	ND	0.1						
Ethylbenzene	ND	0.1						
m,p-Xylene	ND	0.1						
o-Xylene	ND	0.1						
Surr: 1,2-Dichloroethane-d4	1.59		2	80				
Surr: Toluene-d8	2.25		2	113				
Surr: 4-Bromofluorobenzene	1.83		2	92	80	120		
Laboratory Control Spike		Type L	CS Te	est Code: EPA M	ethod S\	W8260B		
File ID: 07101804.D			Ва	atch ID: MS08A10	)18A	Analysis Da	ate: 10/18/2007 09:33	
Sample ID: LCS MS08A1018A	Units : mg/m	3	Run ID: MS	SD_08_071018B		Prep Date:	10/18/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %RE	C LCL(N	ME) UCL(ME) RPD	RefVal %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	9.85	0.1	10	99	70	130		
Benzene	10	0.1	10	100	70	130		
Toluene	10.1	0.1	10	101	80	120		
Ethylbenzene	9.67	0.1	10	97	80	120		
m,p-Xylene	9.51	0.1	10	95	70	130		
o-Xylene	9.49	0.1	10	95	70	130		
Surr: 1,2-Dichloroethane-d4	10.1		10	101	75	128		
Surr: Toluene-d8	10.1		10	101				
Surr: 4-Bromofluorobenzene	9.31		10	93	80	120		

#### Comments:

#### Billing Information:

Client:

#### CHAIN-OF-CUSTODY RECORD

#### Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Report Attention Phone Number **EMail Address** Scott Bittinger (530) 676-2062 x

sbittinger@stratusinc.net

EDD Required: Yes

Sampled by : C. Hill

WorkOrder: STR07101203

Report Due By: 5:00 PM On: 22-Oct-07

Cameron Park, CA 95682-8861

Stratus Environmental

3330 Cameron Park Drive

PO: Client's COC #: 18504

Suite 550

Job: USA 57

Cooler Temp 20 °C

Samples Received 12-Oct-07

**Date Printed** 12-Oct-07

Page: 1 of 1

QC Level: S3 = Final Rpt, MBLK, LCS, MS/MSD With Surrogates

							Requested Tests	
Alpha	Client	Collection	No. of	Bottles	i	TPH/P_A	VOC_A	
Sample ID	Sample ID	Matrix Date	Alpha	Sub	TAT			Sample Remarks
STR07101203-01A	USA57 A SYSINF	AR 10/11/07 07:11	1	0	6	GAS-N/C	BTEX/MTBE	TEDLAR
STR07101203-02A	USA57 A EFF	AR 10/11/07 07:00	1	0	6	GAS-N/C	BTEX/MTBE	TEDLAR

Comments:

Security seals intact. Ice n/a. Send copy of receipt checklist with final report.

Signature Print Name Elizabeth Logged in by: auvagian

Alpha Analytical, Inc.

Company

Date/Time

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Name _ Address City, Sta Phone t	Infer	mation of the control	n: ENV LINEWA Ph DR WERN Ph CH 1764004 Fax 5300		255 G Spark Phone	ilendale s, Neva	<b>alytica</b> Avenue, da 89431 355-1044 5-0406	Suite 2 -5778	2:1	•	Sam AZ _ ID _	ples		nalys				? Page	# <u>l</u> of	<u>ſ</u>
Client N	lame//	54	57	P.O.#		Job	#				7	7	7	$\overline{7}$	7			Requ	ired QC Le	vel?
Addres	s			EMail Address		······································					7,	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	" \						<i>      </i>	IV
City, St	ate, Zip	Tate	Incl	Phone #		Fax	#				7 ×							EDO / EDF	YES NO	<b>ɔ</b>
Time	Date	Matrix*	Sampled by CHILC	Report Attention Sc	off				Total and type containers	of /	62/	RY S	.]	/				Global ID #_		-
Sampled		I REKOM	Lab ID Number ( Office )		nple Description		TAT	Field Filtered	** See below	<u> </u>	2	3	igsqcup					RE	MARKS	
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#### ANALYTICAL REPORT

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861 Attn: Scott Bittinger Phone: (530) 676-2062 Fax: (530) 676-6005 Date Received 10/12/07

Job#: USA 57

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting	Date	Date
			Limit	Sampled	Analyzed
Client ID:	TPH-P (GRO)	120	50 μg/L	10/11/07	10/15/07
USA57 W INF	Tertiary Butyl Alcohol (TBA)	18	10 μg/L	10/11/07	10/15/07
Lab ID :	Methyl tert-butyl ether (MTBE)	3.8	$0.50~\mu g/L$	10/11/07	10/15/07
STR07101220-01A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	10/11/07	10/15/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 μg/L	10/11/07	10/15/07
	Benzene	25	$0.50~\mu g/L$	10/11/07	10/15/07
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	10/11/07	10/15/07
	Toluene	1.6	$0.50~\mu g/L$	10/11/07	10/15/07
	Ethylbenzene	3.3	$0.50~\mu g/L$	10/11/07	10/15/07
	m,p-Xylene	6.5	$0.50~\mu g/L$	10/11/07	10/15/07
	o-Xylene	2.2	$0.50~\mu g/L$	10/11/07	10/15/07
Client ID:	TPH-P (GRO)	ND	50 μg/L	10/11/07	10/15/07
USA57 W EFF	Tertiary Butyl Alcohol (TBA)	ND	10 μg/L	10/11/07	10/15/07
Lab ID:	Methyl tert-butyl ether (MTBE)	ND	$0.50~\mu g/L$	10/11/07	10/15/07
STR07101220-02A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	10/11/07	10/15/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 μg/L	10/11/07	10/15/07
	Benzene	ND	$0.50~\mu g/L$	10/11/07	10/15/07
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 μg/L	10/11/07	10/15/07
	Toluene	ND	$0.50~\mu\text{g/L}$	10/11/07	10/15/07
	Ethylbenzene	ND	$0.50~\mu g/L$	10/11/07	10/15/07
	m,p-Xylene	ND	$0.50~\mu g/L$	10/11/07	10/15/07
	o-Xylene	ND	$0.50~\mu g/L$	10/11/07	10/15/07

Gasoline Range Organics (GRO) C4-C13

ND = Not Detected

Reported in micrograms per Liter, per client request.

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

10/19/07 Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## **VOC Sample Preservation Report**

Work Order: STR07101220

Project: USA 57

Alpha's Sample ID	Client's Sample ID	Matrix	рН	
07101220-01A	USA57 W INF	Aqueous	2	
07101220-02A	USA57 W EFF	Aqueous	2	

10/19/07 Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 17-Oct-07		(	OC S	ummary	Report					<b>Work Orde</b> 07101220	
	CHEM\MS09\DATA\071015\0		Type N	Bat	st Code: EP	9W10		Analysis		10/15/2007 10:44 10/15/2007	
Sample ID:	MBLK MS09W1015B	Units : µg/L Result	PQL	Run ID: MS			LOL(ME)	Prep Da		/al %RPD(Limit)	Qual
Analyte					Spknervar	/onLO	COL(IVIL)	OOL(IVIL) III	D1107	70131 D(Lii1111)	
TPH-P (GRO) Surr: 1,2-Dichl	oroethane-d4	ND 8.74	50	10		87	75	128			
Surr: Toluene-		10.4		10		104	80	120			
Surr: 4-Bromo		11		10		110	80	120			
Laboratory	Control Spike		Type L	.CS Tes	st Code: EP	A Met	hod SW80	15B			
	CHEM\MS09\DATA\071015\0	7101503.D		Bat	tch ID: MS0	9W10	15B	Analysis	Date:	10/15/2007 10:20	
Sample ID:	GLCS MS09W1015B	Units : µg/L		Run ID: MS				Prep Da		10/15/2007	
Analyte		Result	PQL	SpkVal S	SpkRefVal	%REC	LCL(ME)	UCL(ME) RI	PDRef\	/al %RPD(Limit)	Qual
TPH-P (GRO)		424	50	400		106	70	130			
Surr: 1,2-Dichl	oroethane-d4	8.68		10		87	75	128			
Surr: Toluene-		10.7		10		107	80	120			
Surr: 4-Bromo	fluorobenzene	10.5		10		105	80	120			
Sample Mat	rix Spike		Type N		st Code: EP				_		
File ID: D:\HP	CHEM\MS09\DATA\071015\0	7101515.D		Bat	tch ID: MS0	9W10	15B	-		10/15/2007 15:09	
Sample ID:	07101220-02AGS	Units : µg/L		Run ID: MS				Prep Da		10/15/2007	
Analyte		Result	PQL	SpkVal S	SpkRefVal	%REC	LCL(ME)	UCL(ME) RI	PDRef\	/al %RPD(Limit)	Qual
TPH-P (GRO)		2130	250		0	107	60	131			
Surr: 1,2-Dichl		44.5		50		89	75	128			
Surr: Toluene-		52.7		50		105	80 80	120 120			
Surr: 4-Bromo	fluorobenzene	54.8		50		110					
•	rix Spike Duplicate		Type N		st Code: EP				D-4	40/45/0007 45:00	
File ID: D:\HP	CHEM\MS09\DATA\071015\0	7101516.D			tch ID: MS0		15B	,		10/15/2007 15:32	
Sample ID:	07101220-02AGSD	Units : µg/L		Run ID: MS				Prep Da		10/15/2007	0
Analyte		Result	PQL	SpkVal S	SpkRefVal	%REC	LCL(ME)	UCL(ME) R		/al %RPD(Limit)	Qual
TPH-P (GRO)		2130	250		0	107	60	131	2132	0.1(20)	
Surr: 1,2-Dichl		45.1		50		90	75	128			
Surr: Toluene-		51.3		50		103	80	120			
Surr: 4-Bromo	fluorobenzene	52.9		50		106	80	120			

#### Comments

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Reported in micrograms per Liter, per client request.



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

<b>Date:</b> 17-Oct-07		(	OC Su	mmary	Repor	t				<b>Work Ord</b> 0710122	
Method Bla			Туре МЕ	BLK Te	est Code: EF	A Met	hod SW8	260B			
File ID: <b>D:\HP</b>	CHEM\MS09\DATA\071015\07	101504.D		Ba	itch ID: MS0	9W10	15A	Anal	ysis Date:	10/15/2007 10:44	ļ
Sample ID:	MBLK MS09W1015A	Units : µg/L	F	Run ID: MS	SD_09_0710	15A		Prep	Date:	10/15/2007	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME	) RPDRef	Val %RPD(Limit)	Qual
Tertiary Butyl	Alcohol (TBA)	ND	10	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·					<del> </del>	<del></del>
Methyl tert-but	yl ether (MTBE)	ND	0.5								
Di-isopropyl Et		ND	1								
	3utyl Ether (ETBE)	ND	1								
Benzene	Acabout Cabout (TAASE)	ND	0.5								
Toluene	Methyl Ether (TAME)	ND ND	1								
Ethylbenzene		ND ND	0.5 0.5								
m,p-Xylene		ND	0.5								
o-Xylene		ND	0.5								
Surr: 1,2-Dichl		8.74		10		87	75	128			
Surr: Toluene-		10.4		10		104	80	120			
Surr: 4-Bromof	luorobenzene	11		10		110	80	120			
	Control Spike		Type LC	S Te	st Code: EP	A Met	hod SW8	260B			
File ID: D:\HP	CHEM\MS09\DATA\071015\07	101502.D		Bat	tch ID: MS0	9W101	15A	Analy	/sis Date:	10/15/2007 09:55	
Sample ID:	LCS MS09W1015A	Units : µg/L	F	Run ID: MS	D_09_0710	15A		Prep	Date:	10/15/2007	
Analyte		Result	PQL	SpkVal :	SpkRefVal <sup>4</sup>	%REC	LCL(ME)	UCL(ME)	RPDRef'	Val %RPD(Limit)	Qual
Methyl tert-buty	yl ether (MTBE)	9.14	0.5	10		91	70	130			
Benzene		10.4	0.5	10		104	70	130			
Toluene		11.1	0.5	10		111	80	120			
Ethylbenzene		11.9	0.5	10		119	80	120			
m,p-Xylene o-Xylene		11.2	0.5	10		112	70	130			
Surr: 1,2-Dichle	proethane-d4	11.3 9.28	0.5	10 10		113 93	70 75	130 128			
Surr: Toluene-		10.4		10		104	80	128			
Surr: 4-Bromof	luorobenzene	9.54		10		95	80	120			
Sample Mat	rix Spike		Type MS	Tes	st Code: EP	A Meti	nod SW82	260B			
	CHEM\MS09\DATA\071015\071	101513.D	<b>71</b>		ch ID: MS0				sis Date:	10/15/2007 14:20	
Sample ID:	07101220-02AMS	Units : µg/L	R		D_09_0710			Prep		10/15/2007	
Analyte		Result	PQL				LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Quai
Methyl tert-buty	/l ether (MTBE)	49.3	1.3	50	0	99	62	139	,		
Benzene		53.2	1.3	50	0	106	70	130			
Toluene		53.2	1.3	50	0	106	67	130			
Ethylbenzene		59.3	1.3	50	0	119	70	130			
m,p-Xylene o-Xvlene		53.4	1.3	50	0	107	69	130			
Surr: 1,2-Dichlo	proethane-d4	54.8 50.9	1.3	50 50	0	110 102	70 75	130 128			
Surr: Toluene-c		49.9		50 50		99.9	80	120			
Surr: 4-Bromoff		48.3		50		97	80	120			
Sample Mate	rix Spike Duplicate		Type MS		t Code: EP						
	CHEM\MS09\DATA\071015\071		. , , , , , , , , , , , , , , , , , , ,		ch ID: <b>MS0</b> 9				sis Date:	10/15/2007 14:45	
Sample ID:	07101220-02AMSD	Units : µg/L	R		D_09_07101			Prep I		10/15/2007	
Analyte		Result	PQL				LCL(ME)	- 1		/al %RPD(Limit)	Qual
Methyl tert-buty	l ether (MTRE)	48.2	<del></del>		· · · · · · · · · · · · · · · · · · ·						
Benzene	, oaror (include)	48.2 52.8	1.3 1.3	50 50	0 0	96 106	62 70	139 130	49.25 53.21		
Toluene		54.4	1.3	50	0	109	67	130	53.19		
Ethylbenzene		59.3	1.3	50	ő	119	70	130	59.25		
m,p-Xylene		54.3	1.3	50	0	109	69	130	53.39	1.7(20)	
o-Xylene		55.5	1.3	50	0	111	70	130	54.81	1.3(20)	
	roethane-d4	49.1		50		98	75	128			
Surr: Toluene-d Surr: 4-Bromofl	8	51.1 48.4		50 50		102 97	80 80	120 120			



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
17-Oct-07

#### OC Summary Report

Work Order: 07101220

#### Comments:

#### Billing Information:

#### CHAIN-OF-CUSTODY RECORD

#### Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Client: Stratus Environmental

Suite 550

Client's COC #: 18503

Cameron Park, CA 95682-8861

3330 Cameron Park Drive

Report Attention **Phone Number** EMail Address Scott Bittinger (530) 676-2062 x sbittinger@stratusinc.net

EDD Required: Yes

Sampled by: CHILL

WorkOrder: STR07101220

Report Due By: 5:00 PM On: 22-Oct-07

Job: USA 57 Cooler Temp 4°C

Samples Received **Date Printed** 12-Oct-07

Page: 1 of 1

12-Oct-07

QC Level: S3

PO:

= Final Rpt, MBLK, LCS, MS/MSD With Surrogates

Almba	01.	lient Callastian t							
Alpha	Client	Collection	No. of	Bottles		TPH/P_W	VOC_W		
Sample ID	Sample ID	Matrix Date	Alpha	Sub	TAT				Sample Remarks
STR07101220-01A	USA57 W INF	AQ 10/11/07 06:35	5	0	6	GAS-C	BTEX/OXY_ C		
STR07101220-02A	USA57 W EFF	AQ 10/11/07 06:30	5	0	6	GAS-C	BTEX/OXY_		

Comments:

Security seals intact. Frozen ice. Send copy of receipt checklist with final report. :

Signature

Munay Logged in by:

**Print Name** Munay Company

Date/Time

Alpha Analytical, Inc.

10/12/07 0940

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Information: Name 5 Truft 3 Address 3330 Cumum Ph DR City, State, Zip Cumum Pft Phone Number 530016(444 Fax 5306)		255 Glendale Avenue Sparks, Nevada 8943 Phone (775) 355-104	Alpha Analytical, Inc. 255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778 Phone (775) 355-1044 Fax (775) 355-0406						From NV_ OTH	Which	State WA_	? Page	L or (
Phone Number <u>570676</u> Fax <u>5706</u>	766005	Fax (775) 355-0406				/	A	naly	ses F	Requi	red	/	
Client Name U54 57	P.O. #	Job#			$\neg$	. V/				7	/ /	Req	uired QC Level?
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City, State, Zip Vankul	Phone #	Fax#			$\supset \mathfrak{c}$		太					EDD / EDF	7 YES NO
Time Date Matrix Sampled by HICK	Report AttentionS & Off		Field	Total and type of containers	GRANI	1	3					Global ID # _	
Below Lab to Nutriber (Use Only	Sample Description	TAT	Field Filtered			1	<u>/</u>	_		_	_	/ RE	MARKS
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Signature	Print Name				Co	mpany	<i>'</i>					Date	Time
Relinquished by	CHILC		54	de							10	1107	1505
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Received by													
*Kev: AQ - Aqueous SQ - Soil WA - Wa	ste OT - Other AR - Air	**·   -  iter	/-Vna	S-Soil Jar	(	-Orbo	1	-Tedla		R-Rra		P-Plastic	OT-Other

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

#### **ANALYTICAL REPORT**

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861 Attn: Scott Bittinger Phone: (530) 676-2062 Fax: (530) 676-6005 Date Received 11/07/07

Job#: **USA 57** 

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID:	TPH-P (GRO)	1,600	75 mg/m³	11/06/07	11/08/07
00057 A SYS INF	Methyl tert-butyl ether (MTBE)	ND	0.75 mg/m <sup>3</sup>	11/06/07	11/08/07
Lab ID :	Benzene	2.6	0.75 mg/m <sup>3</sup>	11/06/07	11/08/07
STR07110724-01A	Toluene	1.2	$0.75 \text{ mg/m}^3$	11/06/07	11/08/07
	Ethylbenzene	0.81	$0.75 \text{ mg/m}^3$	11/06/07	11/08/07
	m,p-Xylene	2.3	0.75 mg/m <sup>3</sup>	11/06/07	11/08/07
	o-Xylene	ND	0.75 mg/m <sup>3</sup>	11/06/07	11/08/07
Client ID:	TPH-P (GRO)	73	15 mg/m³	11/06/07	11/08/07
00057 A SYS EFF	Methyl tert-butyl ether (MTBE)	ND	$0.15 \text{ mg/m}^3$	11/06/07	11/08/07
Lab ID :	Benzene	ND	0.15 mg/m <sup>3</sup>	11/06/07	11/08/07
STR07110724-02A	Toluene	ND	$0.15 \text{ mg/m}^3$	11/06/07	11/08/07
	Ethylbenzene	ND	$0.15 \text{ mg/m}^3$	11/06/07	11/08/07
	m,p-Xylene	ND	$0.15 \text{ mg/m}^3$	11/06/07	11/08/07
	o-Xylene	ND	$0.15 \text{ mg/m}^3$	11/06/07	11/08/07

Gasoline Range Organics (GRO) C4-C13

Note: Concentrations of air in Tedlar Bags are at 21 degrees Celsius and 25.77 inches of mercury.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 12-Nov-07	OC Summary Report										
Method Blank File ID: 07110806.D Sample ID: MBLK MS08A1108B Analyte	Units : <b>mg/n</b> Result	Type M  13  PQL	Ba Run ID: <b>MS</b>	est Code: <b>EPA Met</b> i tch ID: <b>MS08A110</b> : <b>BD_08_071108A</b> SpkRefVal %REC	8B		: 11/08/2007 11:34 11/08/2007 fVal %RPD(Limit)	Qual			
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	ND 1.87 2.2 1.84	10	2 2 2	94 110 92	75 80 80	128 120 120					
Laboratory Control Spike File ID: 07110805.D Sample ID: GLCS MS08A1108B Analyte	Units : <b>mg/n</b> Result	Type <b>L</b> 1 <sup>3</sup> PQL	Ba Run ID: <b>M</b> \$	est Code: EPA Met atch ID: MS08A110 SD_08_071108A SpkRefVal %REC	8B		: 11/08/2007 11:02 11/08/2007 fVal %RPD(Limit)	Qual			
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	396 9.9 10.2 9.47	10		99 99 102 95	70 75 80 80	130 128 120 120					

### Comments:



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

<b>Date:</b> 12-Nov-07	(	OC Sı	ımmar	y Report			<b>Work Orde</b> 07110724	
Method Blank File ID: 07110806.D		Туре М		est Code: EPA Met atch ID: MS08A110			11/08/2007 11:34	
Sample ID: MBLK MS08A1108A	Units : mg/n	n³		SD_08_071108A		Prep Date:	11/08/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %REC	LCL(ME)	) UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	ND ND ND ND ND ND 1.87 2.2 1.84	0.1 0.1 0.1 0.1 0.1	2 2 2	94 110 92	75 80 80	128 120 120		
Laboratory Control Spike		Type L		est Code: EPA Met			11/08/2007 10:41	
File ID: <b>07110804.D</b> Sample ID: <b>LCS MS08A1108A</b>	Units : mg/r	n³		SD 08_071108A	04	Prep Date:	11/08/2007	
Analyte	Result	PQL			LCL(ME	) UCL(ME) RPDRet	Val %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	9.92 10.4 10.4 10.1 9.89 9.77 10.7 10 8.93	0.1 0.1 0.1 0.1 0.1	10 10 10 10 10 10 10 10	99 104 104 101 99 98 107 100 89	70 70 80 80 70 70 75 80 80	130 130 120 120 130 130 128 120		

#### Comments:

### Billing Information:

## **CHAIN-OF-CUSTODY RECORD**

### Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Client: Stratus Environmental

3330 Cameron Park Drive Suite 550

Cameron Park, CA 95682-8861

Report Attention Phone Number EMail Address

Scott Bittinger (530) 676-2062 x sbittinger@stratusinc.net

EDD Required: Yes

Sampled by: CHILL

WorkOrder: STR07110724

Report Due By: 5:00 PM On: 15-Nov-07

PO: Client's COC #: 18499

Job: USA 57

Cooler Temp
20 °C

Samples Received 07-Nov-07 Date Printed 07-Nov-07

Page: 1 of 1

QC Level: S3 = Final Rpt, MBLK, LCS, MS/MSD With Surrogates

									Requeste	d Tests	
Alpha	Client		Collection	No. of	<b>Bottles</b>	;	TPH/P_A	VOC_A			
Sample ID	Sample ID	Matri	x Date	Alpha	Sub	TAT		N. Company			Sample Remarks
STR07110724-01A	00057 A SYS INF	AR	11/06/07 07:22	1	0	6	GAS-N/C	BTEX/MTB E			Tedlar
STR07110724-02A	00057 A SYS EFF	AR	11/06/07 07:20	1	0	6	GAS-N/C	BTEX/MTB E			Tedlar

Comments:

Security seals intact. Ice N/A. Send copy of receipt checklist with final report. :

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report.

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other)

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Name Address City, St Phone	g Info 3 s 32 ate, Zip Numbe	rmation 12 av	on: Cameron Ph D neach Ph bill book Fax 5301	T #990	Ca.	255 Gler Sparks, I Phone (	Analytica dale Avenue, Nevada 89431 775) 355-1046 5) 355-0406	Suite -5778	21	Sai AZ ID	mples			From V -NV _ OTH 			? 	4 9 e# <u>l</u> of l	
Client I	Name L s	15 K	757	P.O. #  EMail Address			Job#				W/						- 1	uired QC Level	
City, St	ate, Zip	Oal	eluil	· Phone #			Fax#	****		—/ <b>'</b>		4/					/	F? YES NO	
Time Sampled	Date	Matrix* See Key	Sampled by CHICC	Report Attention				Field	Total and type containers	of \	MYS' CEN						Global ID #		
	1	Below	Lab ID Number ( Office of 1) STR0711 0724 -	5nl) 22557 /	Sample Descrip		STD	Filtered	" See below				<u> </u>	_	-		RE	MARKS	
0720	1167	BR	31R0/110/29 -	02 00057 K	1 347 1 545	TIVE EEE	STD		1-4	ᄉ	K								
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*Key: A	Q - Aq	ueous	SO - Soil WA -	Waste OT - Oth	ier AR	- Air **:	L-Liter V	-Voa	S-Soil Ja	er C	)-Orbo	7	Tedla	r	B-Bra	ss	P-Plastic	OT-Other	

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.



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### **ANALYTICAL REPORT**

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861 Attn: Scott Bittinger Phone: (530) 676-2062 Fax: (530) 676-6005 Date Received 11/07/07

Job#: **USA 57** 

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting	Date Date
			Limit	Sampled Analyzed
Client ID:	TPH-P (GRO)	430	200 μg/L	11/06/07 11/08/07
00057 W INF	Tertiary Butyl Alcohol (TBA)	41	20 μg/L	11/06/07 11/08/07
Lab ID:	Methyl tert-butyl ether (MTBE)	9.0	1.0 µg/L	11/06/07 11/08/07
STR07110726-01A	Di-isopropyl Ether (DIPE)	ND V	$2.0~\mu g/L$	11/06/07 11/08/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND V	2.0 μg/L	11/06/07 11/08/07
	Benzene	140	1.0 μg/L	11/06/07 11/08/07
	Tertiary Amyl Methyl Ether (TAME)	ND V	2.0 μg/L	11/06/07 11/08/07
	Toluene	33	1.0 µg/L	11/06/07 11/08/07
	Ethylbenzene	9.6	1.0 µg/L	11/06/07 11/08/07
	m,p-Xylene	41	1.0 µg/L	11/06/07 11/08/07
	o-Xylene	20	1.0 μg/L	11/06/07 11/08/07
Client ID:	TPH-P (GRO)	ND	50 μg/L	11/06/07 11/08/07
00057 W EFF	Tertiary Butyl Alcohol (TBA)	ND	10 μg/L	11/06/07 11/08/07
Lab ID:	Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	11/06/07 11/08/07
STR07110726-02A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	11/06/07 11/08/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 µg/L	11/06/07 11/08/07
	Benzene	ND	0.50 μg/L	11/06/07 11/08/07
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	11/06/07 11/08/07
	Toluene	ND	0.50 μg/L	11/06/07 11/08/07
	Ethylbenzene	ND	0.50 μg/L	11/06/07 11/08/07
	m,p-Xylene	ND	0.50 μg/L	11/06/07 11/08/07
	o-Xylene	ND	0.50 μg/L	11/06/07 11/08/07

Gasoline Range Organics (GRO) C4-C13

V = Reporting Limits were increased due to high concentrations of target analytes.

ND = Not Detected

Reported in micrograms per Liter, per client request.

Roger Scholl Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

11/14/07

Report Date



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## **VOC Sample Preservation Report**

Work Order: STR07110726

Project: USA 57

Alpha's Sample ID	Client's Sample ID	Matrix	pH
07110726-01A	00057 W INF	Aqueous	2
07110726-02A	00057 W EFF	Aqueous	2

11/14/07

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

<b>Date:</b> 12-Nov-07		(	OC S	ummarv	Report				OC Summary Report								
Method Bla	nk		Type N	IBLK Te	est Code: EPA	Meth	nod SW80	15B									
	CHEM\MS09\DATA\071108\	07110804.D	,,	Ba	tch ID: MS09V	V110	8B	Analysis	Date:	11/08/2007 12:24							
Sample ID:	MBLK MS09W1108B	Units : µg/L			SD 09 071108			Prep Da	ite:	11/08/2007							
Analyte		Result	PQL				LCL(ME)	•		Val %RPD(Limit)	Qual						
TPH-P (GRO)		ND	50														
Surr: 1.2-Dich		9.64	00	10	9	96	75	128									
Surr: Toluene-		10.8		10		08	80	120									
Surr: 4-Bromo	fluorobenzene	9.24		10		92	80	120									
Laboratory	Control Spike		Type LCS Test Code: EPA Method SW8015B														
File ID: D:\HP	CHEM\MS09\DATA\071108\	07110803.D		Ва	tch ID: MS09V	V110	8B	Analysis	Date:	11/08/2007 12:01							
Sample ID:	GLCS MS09W1108B	Units : µg/L		Run ID: MS	SD_09_071108	3A		Prep Da	ite:	11/08/2007							
Analyte		Result	PQL	SpkVal	SpkRefVal %F	REC	LCL(ME)	UCL(ME) R	PDRef	Val %RPD(Limit)	Qual						
TPH-P (GRO)		373	50	400	9	93	70	130									
Surr: 1,2-Dich	loroethane-d4	9.39		10	9	94	75	128									
Surr: Toluene-	-d8	10.8		10	1	80	80	120									
Surr: 4-Bromo	fluorobenzene	9.06		10	9	91	80	120									
Sample Mat	trix Spike		Type N	IS Te	st Code: EPA	Meth	od SW80	15B									
File ID: D:\HP	CHEM\MS09\DATA\071108\	07110810.D		Ва	tch ID: MS09V	V110	8B	Analysis	Date:	11/08/2007 14:40							
Sample ID:	07110726-02AGS	Units : µg/L		Run ID: MS	SD_09_071108	A		Prep Da	ite:	11/08/2007							
Analyte		Result	PQL	SpkVal	SpkRefVal %F	REC	LCL(ME)	UCL(ME) R	PDRef\	Val %RPD(Limit)	Qual						
TPH-P (GRO)		1420	250	2000	0 7	71	60	131									
Surr: 1,2-Dichl		47.6		50	-	95	75	128									
Surr: Toluene-		53.5		50	-	07	80	120									
Surr: 4-Bromo	fluorobenzene	45.3		50	(	91	80	120									
	trix Spike Duplicate		Type M	ISD Te	st Code: EPA	Meth	od SW80	15B									
File ID: D:\HP	CHEM\MS09\DATA\071108\	07110811.D		Ва	tch ID: MS09V	V110	8B	Analysis	Date:	11/08/2007 15:03							
Sample ID:	07110726-02AGSD	Units : µg/L			D_09_071108			Prep Da		11/08/2007							
Analyte		Result	PQL	SpkVal	SpkRefVal %F	REC	LCL(ME)	UCL(ME) RI	PDRef\	/al %RPD(Limit)	Qual						
TPH-P (GRO)		1490	250	2000	0 7	74	60	131	1424	4.4(20)							
Surr: 1,2-Dichl	loroethane-d4	45.7		50	9	91	75	128									
Surr: Toluene-	-d8	54.5		50	1	09	80	120									
Surr: 4-Bromo	fluorobenzene	44.2		50	8	88	80	120									

#### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Reported in micrograms per Liter, per client request.



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<b>Date:</b> 12-Nov-07		(	C Sı	ımmar	y Report					<b>Work Ord</b> 0711072	
Method Bla File ID: D:\HP Sample ID:	nk CHEM\MS09\DATA\071108\ MBLK MS09W1108A	07110804.D Units : μg/L	Type M	Ва	est Code: EP atch ID: MS0 SD_09_0711	9W110				11/08/2007 12:24 11/08/2007	
Analyte	MIDER MISUSAA I 100M	Result	PQL				LCL(ME)			Val %RPD(Limit)	Qual
Tertiary Butyl		ND	10								
Methyl tert-but Di-isopropyl E	tyl ether (MTBE)	ND ND	0.5 1								
. ,	Butyl Ether (ETBE)	ND ND	1								
Benzene	2007/2010/ (2722)	ND	0.5								
	Methyl Ether (TAME)	ND	1								
Toluene Ethylbenzene		ND ND	0.5 0.5								
m,p-Xylene		ND ND	0.5								
o-Xylene		ND	0.5								
Surr: 1,2-Dichi		9.64		10		96	75	128			
Surr: Toluene-		10.8		10		108	80	120			
Surr: 4-Bromo	fluorobenzene	9.24		10		92	80	120			
	Control Spike		Type Lo		est Code: EP						
File ID: D:\HP	CHEM\MS09\DATA\071108\	07110802.D		Ba	atch ID: MS0	9W110	8A			11/08/2007 11:39	
Sample ID:	LCS MS09W1108A	Units : µg/L			SD_09_0711			Prep [		11/08/2007	_
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
Methyl tert-but	tyl ether (MTBE)	8.81	0.5	10		88	70	130			
Benzene		8.88	0.5			89	70	130			
Toluene		9.91	0.5	10		99	80	120 120			
Ethylbenzene		10.5	0.5			105 105	80 70	130			
m,p-Xylene o-Xylene		10.5 10.8	0.5 0.5			103	70	130			
Surr: 1,2-Dichl	loroethane-d4	9.41	0.5	10		94	75	128			
Surr: Toluene-		11		10		110	80	120			
Surr: 4-Bromo	fluorobenzene	8.71		10		87	80	120			
Sample Mat	trix Spike		Туре М	S Te	est Code: EP	A Meti	nod SW82				
File ID: D:\HP	CHEM\MS09\DATA\071108\	07110808.D		Ва	atch ID: MS0	9W110	8A	Analys	sis Date:	11/08/2007 13:55	
Sample ID:	07110726-02AMS	Units : µg/L			SD_09_0711			Prep [		11/08/2007	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
Methyl tert-but	tyl ether (MTBE)	51.8	1.3	50	0	104	62	139			
Benzene		44.8	1.3	50	0	90	70	130			
Toluene		48.8	1.3		0	98 101	67 70	130 130			
Ethylbenzene m,p-Xylene		50.7 51.1	1.3 1.3	50 50	0	101	69	130			
o-Xylene		54	1.3	50	ő	108	70	130			
Surr: 1,2-Dichl	loroethane-d4	47.1		50	•	94	75	128			
Surr: Toluene-	-d8	54.3		50		109	80	120			
Surr: 4-Bromo	fluorobenzene	43.2		50		86	80	120			
Sample Mat	trix Spike Duplicate		Type M	SD Te	est Code: EP	A Meti	nod SW82	260B			
File ID: D:\HP	CHEM\MS09\DATA\071108\	07110809.D		Ba	atch ID: MS0	9W110	8A	Analys	sis Date:	11/08/2007 14:18	
Sample ID:	07110726-02AMSD	Units : µg/L			SD_09_0711			Prep D		11/08/2007	
Analyte		Result	PQL	SpkVal	SpkRefVal <sup>c</sup>	%REC	LCL(ME)	UCL(ME)	RPDRef	Val %RPD(Limit)	Qual
Methyl tert-but	yl ether (MTBE)	51	1.3	50	0	102	62	139	51.8		
Benzene		44.3	1.3		0	89	70	130	44.7		
Toluene		48.6	1.3	50	0	97 404	67 70	130	48.7 50.6		
Ethylbenzene m,p-Xylene		50.5 50.8	1.3 1.3	50 50	0	101 102	70 69	130 130	51.1		
o-Xylene		50.8 53.3	1.3	50 50	0	102	70	130	54.0		
Surr: 1,2-Dichl	oroethane-d4	46.4	1.5	50	•	93	75	128		-,,	
Surr: Toluene-		54.4		50		109	80	120			
Curry 4 Promo	fluorobenzene	43.3		50		87	80	120			



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

	I	Date:	
ı	2_	Nov-07	

**OC Summary Report** 

Work Order: 07110726

### Comments:

### Billing Information:

## **CHAIN-OF-CUSTODY RECORD**

### Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Client:

Stratus Environmental 3330 Cameron Park Drive Suite 550

Cameron Park, CA 95682-8861

Report Attention

Scott Bittinger

Phone Number (530) 676-2062 x

EMail Address

sbittinger@stratusinc.net

EDD Required: Yes

Sampled by: CHILL

WorkOrder: STR07110726

Report Due By: 5:00 PM On: 15-Nov-07

PO:

Client's COC #: 18500

Job: USA 57

Cooler Temp
4 °C

Samples Received 07-Nov-07 Date Printed 07-Nov-07

Page: 1 of 1

QC Level: S3

= Final Rpt, MBLK, LCS, MS/MSD With Surrogates

Almha	Client							Requested Tests	
Alpha		Collection	No. of	Bottles	;	TPH/P_W	VOC_W		
Sample ID	Sample ID	Matrix Date	Alpha	Sub	TAT				Sample Remarks
STR07110726-01A	00057 W INF	AQ 11/06/07 07:35	5	0	6	GAS-C	BTEX/OXY_ C		
STR07110726-02A	00057 W EFF	AQ 11/06/07 07:30	5	0	6	GAS-C	BTEX/OXY_ C		

Comments:

Security seals intact. Frozen ice. Send copy of receipt checklist with final report. :

Signature

Logged in by: Kullunay

Print Name

K Murray

Company

Alpha Analytical, Inc.

11/7/07 1120

Date/Time

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report.

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Information:  Name Strutus ENV  Address 3330 Cumum Ph Db  City, State, Zip Cumerum Ph  Phone Number 5386766004 Fax 5306	76 6005	Alpha Analytica 255 Glendale Avenue, S Sparks, Nevada 89431- Phone (775) 355-1044 Fax (775) 355-0406	Suite 21 5778	Sample AZ ID		ed From V NV_ OTH		o? Page	
Client Name 15457 Address City, State, Zip Ouk (will	P.O. #  EMail Address  Phone #	Job#			/y/	//			uired QC Level? II III IV
Time Date Sampled Sampled Sampled Sampled Sampled Sampled Sampled See Key Below Lab ID Number (Use Only	Report Attention Scott  Sample Description	TAT	Field roll and type of containers Filed ** See below	6×0.6×0				Global ID #	F? YES NO EMARKS
0770 ) AR STRO7110726-0	200057 W INF 200057 W EFF	5+0 5+0	5.0	7/					
	AVI								
									•
ADDITIONAL INSTRUCTIONS:									
Signature	Print Name			Compa	пу			Date	Time
Received by Received by Relinquished by	CHICAL Liss de Silv		Huder	HA				607	1430
Received by Kuluuay Relinquished by	K-Murray		441				11/	7/07	1/15
Received by *Key: AQ - Aqueous SO - Soil WA - W	aste OT - Other AR - Air	r **: L-Liter V-\	Voa S-Soil Jar	O-Orb		- Fedlar	B-Brass	P-Plastic	OT-Other

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.



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### **ANALYTICAL REPORT**

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861

Attn: Gowri Kowtha Phone: (530) 676-6001 Fax: (530) 676-6005 Date Received: 11/16/07

Job#:

2007-0057-01/ USA 57

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting	Date	Date
			Limit	Sampled	Analyzed
Client ID:	TPH-P (GRO)	77	15 mg/m <sup>3</sup>	11/15/07	11/16/07
0057 A INF	Methyl tert-butyl ether (MTBE)	ND	$0.15 \text{ mg/m}^3$	11/15/07	11/16/07
Lab ID:	Benzene	ND	$0.15 \text{ mg/m}^3$	11/15/07	11/16/07
STR07111602-01A	Toluene	0.15	$0.15 \text{ mg/m}^3$	11/15/07	11/16/07
	Ethylbenzene	ND	$0.15 \text{ mg/m}^3$	11/15/07	11/16/07
	m,p-Xylene	0.93	$0.15 \text{ mg/m}^3$	11/15/07	11/16/07
	o-Xylene	0.23	$0.15 \text{ mg/m}^3$	11/15/07	11/16/07

Gasoline Range Organics (GRO) C4-C13

Note: Concentrations of air in a Tedlar Bag are at 21 degrees Celsius and 25.65 inches of mercury.

ND = Not Detected

Roger Deholl

Nandy Sauliun

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer

Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

11/26/07

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

<b>Date:</b> 21-Nov-07	QC Summary Report											
Method Blank File ID: C:\HPCHEM\MS07\DATA\071116\07	111610 D	Туре І		est Code: EPA				444404000				
Sample ID: MBLK MS07A1116B	Units : mg/	m³		atch ID: <b>MS07</b> S <b>D_07_07111</b>		68	Prep Date:	2: 11/16/2007 12:20 11/16/2007				
Analyte	Result	PQL	SpkVal	SpkRefVal %	REC	LCL(ME)	UCL(ME) RPDRe	fVal %RPD(Limit)	Qual			
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	ND 1.71 2.01 2.12	1(	0 2 2 2		86 101 106	75 80 80	128 120 120					
Laboratory Control Spike		Type L	LCS Te									
File ID: C:\HPCHEM\MS07\DATA\071116\07	111607.D		Ва	atch ID: MS07.	A1116	6 <b>B</b>	Analysis Date	: 11/16/2007 11:12				
Sample ID: GLCS MS07B1116B	Units : mg/ı	m³	Run ID: MS	SD_07_07111	6A		Prep Date:	11/16/2007				
Analyte	Result	PQL	SpkVal	SpkRefVal %	REC	LCL(ME)	UCL(ME) RPDRe	fVal %RPD(Limit)	Qual			
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	411 9.14 9.95 10.5	10	0 400 10 10 10		103 91 100 105	70 75 80 80	130 128 120 120					

### Comments:



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Date: _21-Nov-07		QC Su	ımmar	y Report				<b>Work Orde</b> 07111602			
Method Blank		Type Mi	BLK T	est Code: EPA	Method	d SW82	260B				
File ID: C:\HPCHEM\MS07\DATA\071116\07	111610.D	• •	В	atch ID: MS07A	Analysis Date	11/16/2007 12:20					
Sample ID: MBLK MS07A1116A	Units : mg	/m³	Run ID: M	SD_07_071116	A		Prep Date:	11/16/2007			
Analyte	Result	PQL				CL(ME)	UCL(ME) RPDRef		Qual		
Methyl tert-butyl ether (MTBE)	ND	0.1	· · · · · · · · · · · · · · · · · · ·		····						
Benzene	ND	0.1									
Toluene	ND	0.1									
Ethylbenzene	ND	0.1									
m,p-Xylene	ND	0.1									
o-Xylene	ND	0.1									
Surr: 1,2-Dichloroethane-d4	1.71		2	8	36	75	128				
Surr: Toluene-d8	2.01		2	10	01	80	120				
Surr: 4-Bromofluorobenzene	2.12		2	10	06	80	120				
Laboratory Control Spike		Type LC	S Te	est Code: EPA I	Method	1 SW82	60B				
File ID: C:\HPCHEM\MS07\DATA\071116\07	111608.D		Ва	atch ID: MS07A	1116A		Analysis Date: 11/16/2007 11:35				
Sample ID: LCS MS07A1116A	Units : mg/	/m³ F	Run ID: M	SD_07_071116	Α		Prep Date:	11/16/2007			
Analyte	Result	PQL				L(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual		
Methyl tert-butyl ether (MTBE)	8.51	0.1	10	8	35	70	130				
Benzene	10	0.1	10	10	00	70	130				
Toluene	10.6	0.1	10	10	06	80	120				
Ethylbenzene	10.4	0.1	10	10	04	80	120				
m,p-Xylene	10.5	0.1	10	10	05	70	130				
o-Xylene	10.2	0.1	10	10	02	70	130				
Surr: 1,2-Dichloroethane-d4	9.44		10	9.	4	75	128				
Surr: Toluene-d8	10.1		10	10		80	120				
Surr: 4-Bromofluorobenzene	10.3		10	10	03	80	120				

### Comments:

### Billing Information:

Stratus Environmental

3330 Cameron Park Drive

Cameron Park, CA 95682-8861

## CHAIN-OF-CUSTODY RECORD

WorkOrder: STR07111602

Report Due By: 5:00 PM On: 27-Nov-07

Page: 1 of 1

Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Report Attention Phone Number

**EMail Address** 

Gowri Kowtha (530) 676-6001 x

gkowtha@stratusinc.net

EDD Required: Yes

Sampled by : M. Morgan

2007-0057-01/ USA 57

Cooler Temp 20 °C

Samples Received 16-Nov-07

**Date Printed** 16-Nov-07

QC Level: S3

Client's COC #: 14926

Suite 550

Client:

PO:

= Final Rpt, MBLK, LCS, MS/MSD With Surrogates

**Requested Tests** Alpha Client Collection No. of Bottles TPH/P A VOC\_A Sample ID Sample ID Alpha Sub TAT Matrix Date Sample Remarks STR07111602-01A 0057 A INF AR 11/15/07 GAS-N/C BTEX/MTBE 1 0 6 **TEDLAR** 09:10

Comments:

Security seals intact. Ice n/a. Send copy of receipt checklist with final report. :

Logged in by:

Signature

**Print Name** 

Company Alpha Analytical, Inc. Date/Time

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report.

Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other)

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Information:  Name Stratus Environment Inc.  Address 3330 Cameron Park Dr. #550  City, State, Zip Cameron Park, CA 95682  Phone Number 5306766004 Fax 5306766005			en: ( ( ( ( (		Alpha A	nalytica	al. In	$\overline{C}$	Samples Collected From Which State?  AZ CA _X NV WA , , ,										
Name .	5/1/2	TVS (	Environmental the		255 Glenda	le Avenue,	Suite	21	A2 ID		CA	\ <u>~</u>	NV OTI	JED	WA		e#		
Addres	s _ <b>5</b> 5	30 Cb	meron Yark br. #		Sparks, Nev	/ada 89431	1-5778							TEN .		raye	= # _ <u>t</u> 01 _ 1		
Phone	ate, Zip Numbe	530	06766004 Fax 5306766	5055	Phone (775) Fax (775) 3		4			/	,	Analy	ses F	Requi	red	/	14926		
Client	Vlamo		57	P.O. #	Jo	b#				/	7	7	7 7	, ,	/ /	<del></del>			
Addres		ر . ر <u>ن</u>		EMail Address		200	1-00	57-0		/	' /	' /	' /	/		Hequ	uired QC Level?		
City. S	ate, Zip	0 1	14 1 610	Phone #	15.										/_	[0]	'II III IV		
,	· · · · · · ·	()ax	Land, CA		1	ıx #				$\sim$ / .	ر /بد	W/		/	/	EDD / EDF	7 YES NO		
Time	Date	Matrix*	Sampled by MN Morgan	Report Attention Gowri KowH				Total and type	of 7 c		文学	9/	/			Clabalina			
Sampled	Sampled	See Key Below	Lab ID Number (Office Use Only)	Sample Description	<u> </u>	TAT	Field Filtered	containers ** See below	. / Y	Νά	义之	-/	/	/	/	Global ID #_	MARKS		
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				0057AEFF		24hr	ļ	1-1	人	X	X					24hr	TAT		
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			Signature	Print Name					C	ompan	v				T	Date	Time		
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Receive	d by																		
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*Key: A	IQ - Aq	ueous	SO - Soil WA - Wast	e OT - Other AR - Air	**: L-Lit	er V-\	∕oa	S-Soil Jar	. 0	-Orbo	T	-Tedla	r E	3-Bras	s	P-Plastic	OT-Other		

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.



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### **ANALYTICAL REPORT**

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861

Attn: Gowri Kowtha Phone: (530) 676-6001 Fax: (530) 676-6005 Date Received: 11/16/07

Job#: 2007-0057-01/ USA 57

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID:	TPH-P (GRO)	ND	15 mg/m <sup>3</sup>	11/15/07	11/16/07
0057 A EFF	Methyl tert-butyl ether (MTBE)	ND	0.15 mg/m <sup>3</sup>	11/15/07	11/16/07
Lab ID:	Benzene	ND	$0.15 \text{ mg/m}^3$	11/15/07	11/16/07
STR07111601-01A	Toluene	ND	$0.15 \text{ mg/m}^3$	11/15/07	11/16/07
	Ethylbenzene	ND	$0.15 \text{ mg/m}^3$	11/15/07	11/16/07
	m,p-Xylene	ND	$0.15 \text{ mg/m}^3$	11/15/07	11/16/07
	o-Xylene	ND	0.15 mg/m <sup>3</sup>	11/15/07	11/16/07

Gasoline Range Organics (GRO) C4-C13

Note: Concentrations of air in a Tedlar Bag are at 21 degrees Celsius and 25.65 inches of mercury.

Roger Scholl

ND = Not Detected

Roger L. Scholl. Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

Report Date



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: 19-Nov-07	OC Summary Report												
Method Blank		Type N	IBLK T	est Code: <b>EP</b>	A Met	hod SW80	)15 <b>B</b>						
File ID: C:\HPCHEM\MS07\DATA\071116\07	'111610.D		В	atch ID: MS0	7A111	6B	Analysis Da	te: 11/16/2007 12:20					
Sample ID: MBLK MS07A1116B	Units : mg/	m³	Run ID: M	SD_07_0711	071116A		Prep Date:	11/16/2007					
Analyte	Result	PQL	SpkVal	SpkRefVal 9	%REC	LCL(ME)	UCL(ME) RPDF	RefVal %RPD(Limit)	Qual				
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	ND 1.71 2.01	10	2 2		86 101	75 80	128 120						
	2.12		2 -		106	80	120						
Laboratory Control Spike File ID: C:\HPCHEM\MS07\DATA\071116\07	111607.D	Type L		est Code: <b>EP</b> . atch ID: <b>MS0</b> 7				te: 11/16/2007 11:12					
Sample ID: GLCS MS07B1116B	Units : <b>mg</b> /	m³	Run ID: M:	SD_07_0711 <sup>2</sup>	16A		Prep Date:	11/16/2007					
Analyte	Result	PQL	SpkVal	SpkRefVal %	6REC	LCL(ME)	UCL(ME) RPDR	efVal %RPD(Limit)	Qual				
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	411 9.14 9.95 .10.5	10	400 10 10 10		103 91 100 105	70 75 80 80	130 128 120 120						

### Comments:



255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778 (775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

<b>Date:</b> 19-Nov-07		QC Sı	ımmar	y Report				<b>Work Ord</b> 0711160	
Method Blank File ID: C:\HPCHEM\MS07\DATA\071116\07	'111610.D	Туре М		est Code: EPA atch ID: MS07		SW82		11/16/2007 12:20	
Sample ID: MBLK MS07A1116A	Units : mg/r	n³	Run ID: M	SD_07_071116	6A		Prep Date:	11/16/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %	REC LC	L(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene	ND ND ND ND ND	0.1 0.1 0.1 0.1 0.1						· · · · · · · · · · · · · · · · · · ·	
Surr: 1,2-Dichloroethane-d4	טא 1.71	0.1	2	:	86	75	128		
Surr: Toluene-d8	2.01		2			80	120		
Surr: 4-Bromofluorobenzene	2.12		2	1	106	80	120		
Laboratory Control Spike		Type LC	S T	est Code: EPA	Method	SW82	60B		
File ID: C:\HPCHEM\MS07\DATA\071116\07	111608.D		Ва	atch ID: MS07A	<b>A1116A</b>		Analysis Date:	11/16/2007 11:35	
Sample ID: LCS MS07A1116A	Units : mg/n	n³	Run ID: M	SD_07_071116	5 <b>A</b>		Prep Date:	11/16/2007	
Analyte	Result	PQL	SpkVal	SpkRefVal %F	REC LCI	_(ME)	UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	8.51 10 10.6 10.4 10.5 10.2 9.44 10.1 10.3	0.1 0.1 0.1 0.1 0.1	10 10 10 10 10 10 10	1 1 1 1 1 5 1	100 106 104 105 102 94	70 70 80 80 70 70 75 80	130 130 120 120 130 130 128 120		

### Comments:

### Billing Information:

Client:

PO:

## CHAIN-OF-CUSTODY RECORD

### Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Report Attention **Phone Number** EMail Address

Gowri Kowtha (530) 676-6001 x gkowtha@stratusinc.net

3330 Cameron Park Drive Suite 550

Stratus Environmental

Cameron Park, CA 95682-8861

EDD Required: Yes

20 °C

Sampled by : M. Morgan

WorkOrder: STR07111601

Report Due By: 5:00 PM On: 16-Nov-07

Cooler Temp Samples Received

> 16-Nov-07 16-Nov-07

Date Printed

RUSH!

Client's COC #: 14926

QC Level: S3

Job: = Final Rpt, MBLK, LCS, MS/MSD With Surrogates

2007-0057-01/ USA 57

A1t						
Alpha Sample ID	Client Sample ID	Collection No. of Bot Matrix Date Alpha Su		TPH/P_A VOC_A		Sample Remarks
STR07111601-01A	0057 A EFF	AR 11/15/07 1 0	1	GAS-N/C BTEX/MTBE		TEDLAR

Comments:

Security seals intact. Ice n/a. Send copy of receipt checklist with final report. ASAP TAT.:

Signature **Print Name** Company Date/Time Logged in by: 11 1/02alau Alpha Analytical, Inc.

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Matrix Type: AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billin Name Addres City, St	9 Info 5 Ya s _33 ate, Zip	rmatic TVS E 30 Ca Cau	on: Environmental ha meron Park Dr. # neron Park, CA 95 167166004 Fax 5306766	550 5682	Alpha An 255 Glendale Sparks, Neva Phone (775)	Avenue, da 89431 355-1044	Suite : -5778	21	Sai AZ ID	mple 	CA_ OR_	X N	V_ THER	WA	h State? Pag	1 4 0 0 C
Client f	Vame (	1530 JSA	· · · · · · · · · · · · · · · · · · ·	P.O. #	Fax (775) 355	#	7-00	57-01	-/	<u> </u>	An	alyses	Requ	ired /	Rea	14926
City, St		Par	Land, CA	EMail Address Phone #	Fax				$\int$				/ /	' /	0	או ווו ווי
Time Sampled	Date Sampled	Matrix* See Key Below	Sampled by MN Morgan  Lab ID Number (Use Only)	Report Attention Gowri KowH			Field	Total and type of containers	78		M780	/ /			EDD / EDI	F7 YES NO
0905	1/15/07	AR	STR0711160 -0	Sample Description 0057AEFF		TAT 24hr	Filtered	"See below	人人	X		+	+	_	<del>                                     </del>	MARKS
0910	1/5/61	AR		0057AINF		Standard		1-1	火	<u>^</u>				ļ .	STAT	TAT
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			Signature	Print Name					Со	mpany	,			<del>T -</del>	Date	Time
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Relinquished by			0	3					7	lpha				1115	10-01	100
Receive			00.0.1													
*Key: A NOTE:	•		SO - Soil WA - Wast	e OT - Other AR - Air	**: L-Liter			S-Soil Jar	0-	Orbo	T-Te	dlar	B-Bra	SS	P-Plastic	OT-Other

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