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Alameda County
Environmental Health

Mr. Jerry Wickham
Alameda County
Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: B&C Gas Mini Mart, 2008 First Street, Livermore, California
(ACEHD Case No. RO0000278)

Dear Mr. Wickham:

Stratus Environmental, Inc. (Stratus) has recently prepared a document titled *Quarterly Groundwater Monitoring Report, Third Quarter 2012* on my behalf. The report was prepared in regards to Alameda County Fuel Leak Case No. RO0000278, located at 2008 First Street, Livermore, California.

I have reviewed a copy of this report, sent to me by representatives of Stratus, and "I declare, under penalty of perjury, that the information and or/recommendations contained in the attached document or report is true and correct to the best of my knowledge."

Sincerely,

Balaji Angle
B&C Gas Mini Mart

STRATUS
ENVIRONMENTAL, INC.

3330 Cameron Park Drive, Ste 550
Cameron Park, California 95682
(530) 676-6004 ~ Fax: (530) 676-6005

November 8, 2012
Project No. 2146-2008-01

Mr. Jerry Wickham
Alameda County
Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: **Quarterly Groundwater Monitoring and Remediation Report, Third Quarter 2012,** B&C Gas Mini Mart, located at 2008 First Street, Livermore, California (ACEHD Case No. RO0000278)

Dear Mr. Wickham:

Stratus Environmental, Inc. (Stratus) is submitting the attached report, on behalf of Mr. Balaji Angle, to document work performed during the third quarter 2012 at the B&C Gas Mini Mart, located at 2008 First Street, Livermore, California. This report has been prepared in compliance with Alameda County Environmental Health Department (ACEHD) requirements for underground storage tank (UST) investigations.

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

Sincerely,

STRATUS ENVIRONMENTAL, INC.

Scott G. Bittinger, P.G.
Project Manager

Deborah L. Barr, P.E.
Project Engineer

Attachment: Quarterly Groundwater Monitoring and Remediation Report, Third Quarter 2012

cc: Mr. Balaji Angle, B&C Gas Mini Mart

Date November 8, 2012

B&C GAS MINI MART
QUARTERLY GROUNDWATER MONITORING AND REMEDIATION REPORT

Facility Address:	2008 First Street, Livermore, California
Consulting Co./Contact Person:	Stratus Environmental, Inc. / Scott Bittinger, P.G.
Consultant Project No:	2146-2008-01
Primary Agency/Regulatory ID No:	Alameda County Environmental Health Department (ACEHD) / Case No. RO0000278

WORK PERFORMED THIS PERIOD (Third Quarter 2012):

1. Stratus conducted semi-annual groundwater monitoring and sampling activities on September 20, 2012. During this event, all monitoring wells, with the exception of MW-6 which was damaged, were gauged for depth to water and evaluated for the presence of free product. Following gauging, wells MW-2, MW-3, MW-4, MW-7, and MW-13 were purged and sampled. Samples were forwarded to a state-certified analytical laboratory for analysis. Field data sheets, sampling procedures and laboratory analytical reports are included as Appendices A, B and C, respectively. Analytical results for sampled wells and depth to groundwater measurements have been uploaded to the State of California's GeoTracker database. Documentation of these data uploads is attached in Appendix D.

2. During the third quarter 2012, Stratus continued operation of the ozone (O_3) injection groundwater remediation system. Stratus completed a total of six site visits to verify system operation, conduct routine maintenance, and to periodically collect monitoring data/samples from observation well array to gauge system effectiveness and maintain permit compliance. Operational parameters and field data collected are summarized in Tables 2 and 3. Field data sheets are included as Appendix A and copies of laboratory analytical reports and chain-of-custody documentation are included as Appendix C.

3. On August 28, 2012, Stratus prepared a document titled *Work Plan for Supplemental Remediation* (*Work Plan*), which was requested by ACEHD. The document proposed to implement a soil vapor extraction (SVE) remedial project, at times of seasonal low water table levels, and complete associated remediation well installation (or destruction and reconstruction) work.

WORK PROPOSED FOR NEXT PERIOD (Fourth Quarter 2012):

1. Continue operation of the O_3 remediation system during the fourth quarter 2012. Stratus will continue to visit the site at least every other week to verify operation, conduct maintenance, and periodically collect monitoring data/samples from observation wells to gauge system effectiveness.

2. In accordance with SWRCB Resolution No. 2009-0042, this site is under a semi-annual groundwater monitoring and sampling program, with these activities performed during the first and third quarters of each calendar year; therefore, no groundwater monitoring/sampling will be conducted during the fourth quarter 2012.

3. In a letter dated October 15, 2012, ACEHD approved the *Work Plan for Supplemental Remediation*. Stratus will therefore begin implementing the scope of work proposed in this document.

Current Phase of Project:	Groundwater Monitoring, Onsite Ozone Injection (CAP/REM – O&M)
Frequency of Groundwater Sampling:	MW-2 though MW-7, MW-13, CMT-1 Z1, CMT-2 Z1, CMT-3 Z1, and CMT-4 Z2= semi-annually (first & third calendar quarter); MW-8 through MW-12 and D-2 = annually (third calendar quarter)
Frequency of Groundwater Monitoring:	MW-2, MW-3, MW-4, & MW-6 = quarterly All wells = semi-annual (1st & 3rd)
Groundwater Sampling Dates:	September 20, 2012
Is Free Product (FP) Present on Site:	No
Approximate Depth to Groundwater:	38.06 to 47.27 ft bgs
Groundwater Flow Direction:	West-Northwest
Groundwater Gradient:	0.02 ft/ft

IN-SITU GROUNDWATER REMEDIATION SYSTEM

Equipment Inventory:	Calcon Environmental (Calcon) HiPro™ 2500 Ozone Injection System
Ozone Injection System Status:	Non-Operational until February 28, 2012; Operational since February 28, 2012.
Injection wells:	SP-1A/B, SP-2A/B, SP-4A/B (ozone not being injected into well SP-3A/B). Offsite wells SP-5 A/B/C and SP-6 A/B/C not connected to remediation system).

DISCUSSION:

Stratus conducted groundwater monitoring and sampling activities on September 20, 2012. During this event, all monitoring wells, with the exception of MW-6 which was damaged, were gauged for depth to water and evaluated for the presence of free product. Following gauging, wells MW-2, MW-3, MW-4, and MW-7, and MW-13 were purged and groundwater samples were collected. Collected groundwater samples were forwarded to a state-certified analytical laboratory and analyzed for gasoline range organics (GRO) using EPA Method 8015B, for benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds), methyl tertiary butyl ether (MTBE), and tertiary butyl ether (TBA) using EPA Method 8260B.

At the time of the third quarter 2012 groundwater monitoring/sampling event, depth to groundwater was measured between 38.06 to 47.27 feet below ground surface (bgs) in the monitoring wells. Groundwater monitoring data was converted to feet above mean sea level (MSL) and used to prepare groundwater elevation contour map (Figure 3). The groundwater flow direction was to the west-northwest at a calculated gradient of 0.02 ft/ft. Northwest groundwater flow has predominately been observed during previous work.

During the third quarter 2012 monitoring and sampling event, GRO was reported in four of the five sampled wells with a concentration range between 53 micrograms per liter (µg/L), (well MW-7) and 720 µg/L (well MW-3). Benzene was reported only in the sample collected from well MW-3 (28 µg/L), and MTBE was reported in the MW-3 (41 µg/L), MW-7 (1.1 µg/L), and MW-13 (8.6 µg/L). TBA was not reported in any of the samples collected during the third quarter sampling event. Figure 4 summarizes analytical data from the third quarter 2012 well sampling event.

REMEDIATION SYSTEM

Ozone Injection System Description Third Quarter 2012 Operation and Maintenance

A Calcon HiPro™ 2500 ozone injection system is currently being used to inject air and ozone to mitigate petroleum hydrocarbon impact to the groundwater. The remediation system is situated within a locked,

fenced remedial compound located immediately adjacent to the convenience store building located on the property (see Figure 2). The system is currently configured to cyclically inject an air/ozone mixture into wells SP-1A/B, SP-2A/B, and SP-4A/B. Subgrade piping with conveyance tubing extends from the remediation compound area to well SP-3A/B, however, this tubing is not currently connected to the ozone injection system. Conveyance piping and tubing has not been installed to offsite wells SP-5A/B/C or SP-6A/B/C.

Stratus personnel visited the site on July 3 and 23, August 6 and 23, and September 3 and 20, 2012 in order to inspect and repair the ozone injection system, re-start the system for continuous operation, and perform operation and maintenance visits on the equipment. Field data sheets documenting observations and work performed by Stratus personnel are included in Appendix A.

There are no monitoring wells available to evaluate the effectiveness of the ozone injection wells, SP-1, SP-2 and SP-4, down gradient of the area of injection. The closest monitoring well that is being used to record and evaluate the effectiveness of ozone is MW-2. In addition, Stratus is collecting field parameters (pH, DO, ORP and temperature) at offsite wells MW-5 and injection well SP-5 A/B/C. The data collected from these wells does not yield adequate information to evaluate the effectiveness of the system (the monitoring points are either up gradient or too far down gradient). The August 2012 *Work Plan* includes a scope of work to install wells in closer proximity to the ozone injection wells that should assist in evaluating performance of the ozone injection system.

Given the design and construction of the ozone injection system, Stratus has been having a lot of difficulty keeping the system operating continuously, despite repairing and replacing the compressor on the system. Therefore, in order to increase operational uptime, Stratus has decided to replace the existing compressor with a more robust, high performance compressor.

During fourth quarter 2012, Stratus further plans to implement the proposed work plan dated August 28, 2012 as approved by ACEHD. Stratus will begin obtaining a power supply for the SVE system and installing three vapor extraction wells, one of which will be completed within the MW-6 well boring after overdrilling. The schedule for implementation of SVE will be dependent upon the time needed to obtain a temporary power supply and groundwater levels beneath the site.

ATTACHMENTS:

- Table 1 Historical Groundwater Elevation and Analytical Summary
- Table 2 Ozone Injection System – Operational Summary
- Table 3 Ozone Injection System – Summary of Field Data
- Figure 1 Site Location Map
- Figure 2 Site Plan
- Figure 3 Site Vicinity Map
- Figure 4 Groundwater Elevation Contour Map (Third Quarter 2012)
- Figure 5 Groundwater Analytical Summary (Third Quarter 2012)
- Appendix A Field Data Sheets
- Appendix B Sampling and Analyses Procedures
- Appendix C Laboratory Analytical Reports and Chain-of-Custody Documentation
- Appendix D GeoTracker Electronic Submittal Confirmations

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MS (MW-1)	03/21/07	32.57	477.79	445.22	--	--	--	--	--	--	--	--
	03/23/07	--	--	--	770	1.0	<0.50	<0.50	<0.50	<0.50	--	<5.0
	06/21/07	40.40		437.39	--	--	--	--	--	--	--	--
	09/24/07	48.16		429.63	--	--	--	--	--	--	--	--
	12/17/07	48.35		429.44	--	--	--	--	--	--	--	--
	03/03/08	36.20		441.59	--	--	--	--	--	--	--	--
	06/09/08	41.50		436.29	--	--	--	--	--	--	--	--
	08/26/08	50.58		427.21	--	--	--	--	--	--	--	--
	12/08/08	52.12		425.67	--	--	--	--	--	--	--	--
	12/31/08	--	--	--	560	16	0.68	4.6	1.4	11	<0.050	<10
					Well Destroyed							

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B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-2	03/21/07	28.77	486.25	457.48	--	--	--	--	--	--	--	--
	03/27/07	--		--	7,800	330	91	810	870	34	--	<7.0
	06/21/07	36.10		450.15	--	--	--	--	--	--	--	--
	06/22/07	--		--	2,400	150	12	130	23	23	--	<40
	09/25/07	44.99		441.26	10,000	270	17	230	31	15	--	43
	12/17/07	44.89		441.36	--	--	--	--	--	--	--	--
	12/18/07	--		--	4,500	51	4.7	58	32	10	<0.50	<10
	03/03/08	32.42		453.83	--	--	--	--	--	--	--	--
	03/04/08	--		--	3,600	70	7.2	70	120	6.3	--	<50
	06/09/08	37.39		448.86	--	--	--	--	--	--	--	--
	06/10/08	--		--	<50	59	6.5	19	65	12	--	<10
	08/26/08	46.79		439.46	--	--	--	--	--	--	--	--
	08/27/08	--		--	360	5.9	<0.50	0.56	<1.0	0.74	--	<10
	12/08/08	49.12		437.13	--	--	--	--	--	--	--	--
	12/10/08	--		--	4,800	37	11	26	310	14	--	<100
	03/26/09	38.90		447.35	2,000	3.6	<0.50	<0.50	3.8	0.84	--	<10
	02/18/11	33.40		452.85	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	--
	09/27/11	33.83		452.42	100	1.0	<0.50	0.66	<1.0	<0.50	--	<10
	01/25/12	39.57		446.68	210	5.5	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	41.40		444.85	55	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-3	03/21/07	28.09	486.39	458.30	--	--	--	--	--	--	--	--
	03/22/07	--		--	130	2.5	<0.50	0.98	<0.50	16	--	<5.0
	06/21/07	35.30		451.09	--	--	--	--	--	--	--	--
	06/22/07	--		--	180	6.4	<0.50	<0.50	<0.50	46	--	<20
	09/24/07	43.72		442.67	--	--	--	--	--	--	--	--
	09/25/07	--		--	6,500	29	2.0	76	42	8.6	--	33
	12/17/07	43.87		442.52	--	--	--	--	--	--	--	--
	12/18/07	--		--	7,200	93	6.8	70	73	24	<0.50	<10
	03/03/08	31.59		454.80	--	--	--	--	--	--	--	--
	03/04/08	--		--	1,400	1.1	<0.50	6.6	6.2	6.2	--	<10
	06/09/08	36.62		449.77	--	--	--	--	--	--	--	--
	06/10/08	--		--	<50	1.4	<0.50	0.60	<1.0	2.2	--	<10
	08/26/08	45.72		440.67	--	--	--	--	--	--	--	--
	08/27/08	--		--	2,600	160	9.8	56	30	100	--	<10
	12/08/08	48.22		438.17	--	--	--	--	--	--	--	--
	12/10/08	--		--	3,200	440	20	79	30	380	--	<100
	03/26/09	37.92		448.47	830	34	1.6	<0.50	3.5	42	--	<10
	02/18/11	32.26		454.13	120	1.2	<0.50	<0.50	<1.0	4.1	--	--
	09/27/11	32.79		453.60	490	2.0	<0.50	1.4	<1.0	19.0	--	<10
	01/25/12	38.66		447.73	600	19	<0.50	2.3	0.82	8.7	--	<10
	09/20/12	40.35		446.04	720	28	0.61	2.9	0.65	41	--	<10

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HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-4	03/21/07	28.67	487.43	458.76	--	--	--	--	--	--	--	--
	03/27/07	--		--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<5.0
	06/21/07	32.20		455.23	--	--	--	--	--	--	--	--
	06/22/07	--		--	<50	<0.50	<0.50	<0.50	<0.50	1.1	--	<20
	09/24/07	44.57		442.86	--	--	--	--	--	--	--	--
	09/25/07	--		--	140	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	12/17/07	44.67		442.76	--	--	--	--	--	--	--	--
	12/18/07	--		--	350	0.53	<0.50	0.72	<1.0	<0.50	<0.50	<10
	03/03/08	32.20		455.23	--	--	--	--	--	--	--	--
	03/04/08	--		--	93	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	06/09/08	37.28		450.15	--	--	--	--	--	--	--	--
	06/10/08	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	08/26/08	46.63		440.80	--	--	--	--	--	--	--	--
	08/27/08	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	12/08/08	49.23		438.20	--	--	--	--	--	--	--	--
	12/09/08	--		--	340	3.30	1.2	<0.50	2.8	<0.50	--	<10
	03/26/09	38.83		448.60	290	0.94	<0.50	<0.50	<1.0	<0.50	--	<10
	02/18/11	29.98		457.45	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	--
	09/27/11	33.61		453.82	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	01/25/12	39.42		448.01	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	41.16		446.27	63	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10

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HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-5	03/21/07	28.47	484.33	455.86	--	--	--	--	--	--	--	--
	03/27/07	--		--	4,000	140	4.2	300	64	23	--	<5.0
	06/21/07	35.30		449.03	--	--	--	--	--	--	--	--
	06/22/07	--		--	4,200	180	5.5	200	18	29	--	<20
	09/24/07	38.72		445.61	--	--	--	--	--	--	--	--
	09/25/07	--		--	6,000	420	27	560	110	56	--	98
	12/17/07	38.71		445.62	--	--	--	--	--	--	--	--
	03/03/08	32.10		452.23	--	--	--	--	--	--	--	--
	03/04/08	--		--	12,000	550	48	1,000	260	78	--	<100
	06/09/08	37.02		447.31	--	--	--	--	--	--	--	--
	06/11/08	--		--	<50	720	33	1,200	97	77	--	<10
	08/26/08	--		--	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	03/26/09	--		--	--	--	--	--	--	--	--	--
	02/18/11	32.79		451.54	4,500	230	<10	140	<20	21	--	--
	09/27/11	33.62		450.71	1,800	34	1.9	8.5	2.2	<0.50	--	<10
	01/25/12	38.62		445.71	--	--	--	--	--	--	--	--
	09/20/12	39.00		445.33	--	--	--	--	--	--	--	--
MW-6	09/27/11	--	486.29	--	--	--	--	--	--	--	--	--
	01/25/12	--		--				Well Damaged				

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B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-7	03/21/07	28.86	480.54	451.68	--	--	--	--	--	--	--	--
	03/23/07	--		--	560	4.3	<0.50	0.83	<0.50	22	--	<5.0
	06/21/07	35.70		444.84	--	--	--	--	--	--	--	--
	06/22/07	--		--	4,200	9.1	<0.50	18	4.1	9.9	--	<20
	09/24/07	44.07		436.47	--	--	--	--	--	--	--	--
	09/25/07	--		--	590	0.56	<0.50	0.52	<0.50	14	--	<10
	12/17/07	44.13		436.41	--	--	--	--	--	--	--	--
	12/18/07	--		--	1,800	2.2	<0.50	1.9	0.58	16	<0.50	<10
	03/03/08	31.89		448.65	--	--	--	--	--	--	--	--
	03/04/08	--		--	3,700	85	6.7	180	25	49	--	<10
	06/09/08	37.21		443.33	--	--	--	--	--	--	--	--
	06/10/08	--		--	<50	76	6.5	95	13	53	--	<10
	08/26/08	46.11		434.43	--	--	--	--	--	--	--	--
	08/27/08	--		--	650	11	0.56	4.0	<1.0	15	--	<10
	12/08/08	48.02		432.52	--	--	--	--	--	--	--	--
	12/09/08	--		--	1,600	7.2	<0.50	<0.50	<1.0	9.6	--	<10
	03/26/09	37.77		442.77	850	49	2.0	22	2.1	37	--	<10
	02/18/11	32.51		448.03	<50	<0.50	<0.50	<0.50	<1.0	0.98	--	--
	09/27/11	33.59		446.95	690	13	<0.50	<0.50	<1.0	23	--	<10
	01/26/12	39.07		441.47	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	41.04		439.50	53	<0.50	<0.50	<0.50	<0.50	1.1	--	<10

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B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-8	03/21/07	33.76	475.62	441.86	--	--	--	--	--	--	--	--
	06/21/07	42.10		433.52	--	--	--	--	--	--	--	--
	09/24/07	51.04		424.58	--	--	--	--	--	--	--	--
	12/17/07	50.18		425.44	--	--	--	--	--	--	--	--
	12/18/07	--		--	54	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<10
	03/03/08	37.84		437.78	--	--	--	--	--	--	--	--
	06/09/08	43.50		432.12	--	--	--	--	--	--	--	--
	08/26/08	44.53		431.09	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	02/18/11	37.59		438.03	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	--
	09/27/11	39.76		435.86	--	--	--	--	--	--	--	--
	01/26/12	44.27		431.35	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	46.94		428.68	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-9	03/21/07	30.76	479.48	448.72	--	--	--	--	--	--	--	--
	06/21/07	38.10		441.38	--	--	--	--	--	--	--	--
	09/24/07	43.30		436.18	--	--	--	--	--	--	--	--
	12/17/07	43.34		436.14	--	--	--	--	--	--	--	--
	03/03/08	34.35		445.13	--	--	--	--	--	--	--	--
	06/09/08	39.64		439.84	--	--	--	--	--	--	--	--
	08/26/08	43.33		436.15	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	01/25/12	41.12		438.36	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	43.23		436.25	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-10	03/21/07	34.01	473.84	439.83	--	--	--	--	--	--	--	--
	06/21/07	42.30		431.54	--	--	--	--	--	--	--	--
	09/24/07	51.43		422.41	--	--	--	--	--	--	--	--
	12/17/07	50.37		423.47	--	--	--	--	--	--	--	--
	12/18/07	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<10
	03/03/08	38.22		435.62	--	--	--	--	--	--	--	--
	06/09/08	44.28		429.56	--	--	--	--	--	--	--	--
	08/26/08	44.88		428.96	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	02/18/11	37.88		435.96	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	--
	09/27/11	40.12		433.72	--	--	--	--	--	--	--	--
	01/26/12	44.65		429.19	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	47.27		426.57	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-11	03/21/07	30.49	467.32	436.83	--	--	--	--	--	--	--	--
	06/21/07	38.30		429.02	--	--	--	--	--	--	--	--
	09/24/07	43.22		424.10	--	--	--	--	--	--	--	--
	12/17/07	43.18		424.14	--	--	--	--	--	--	--	--
	03/03/08	34.72		432.60	--	--	--	--	--	--	--	--
	06/09/08	40.42		426.90	--	--	--	--	--	--	--	--
	08/26/08	43.57		423.75	--	--	--	--	--	--	--	--
	12/08/08	50.18		417.14	--	--	--	--	--	--	--	--
	09/27/11	36.35		430.97	--	--	--	--	--	--	--	--
	01/26/12	40.72		426.60	<50	9.0	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	43.08		424.24	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-12	03/21/07	24.77	460.73	435.96	--	--	--	--	--	--	--	--
	06/21/07	32.90		427.83	--	--	--	--	--	--	--	--
	09/24/07	42.20		418.53	--	--	--	--	--	--	--	--
	12/17/07	40.93		419.80	--	--	--	--	--	--	--	--
	12/18/07	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<10
	03/03/08	28.99		431.74	--	--	--	--	--	--	--	--
	06/09/08	35.10		425.63	--	--	--	--	--	--	--	--
	08/26/08	42.55		418.18	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	09/27/11	30.80		429.93	--	--	--	--	--	--	--	--
	01/26/12	35.25		425.48	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	38.06		422.67	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-13	03/21/07	30.37	477.18	446.81	--	--	--	--	--	--	--	--
	03/27/07	--		--	<50	<0.50	<0.50	<0.50	<0.50	4.6	--	<5.0
	06/21/07	37.60		439.58	--	--	--	--	--	--	--	--
	06/22/07	--		--	180	0.52	<0.50	<0.50	<0.50	23	--	<200
	09/24/07	45.60		431.58	--	--	--	--	--	--	--	--
	09/25/07	--		--	<50	<0.50	<0.50	<0.50	<0.50	6.9	--	<10
	12/17/07	45.13		432.05	--	--	--	--	--	--	--	--
	12/18/07	--		--	73	<0.50	<0.50	<0.50	<1.0	2.8	<0.50	<10
	03/03/08	33.82		443.36	--	--	--	--	--	--	--	--
	03/04/08	--		--	740	20	0.76	5.8	2.0	35	--	<10
	06/09/08	39.02		438.16	--	--	--	--	--	--	--	--
	06/10/08	--		--	<50	27	0.5	1.9	<1.0	39	--	<10
	08/26/08	47.52		429.66	--	--	--	--	--	--	--	--
	08/27/08	--		--	<50	<0.50	<0.50	<0.50	<1.0	2.9	--	<10
	12/08/08	49.02		428.16	--	--	--	--	--	--	--	--
	12/10/08	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	03/26/09	39.59		437.59	350	15	0.52	<0.50	<1.0	19	--	<10
	02/18/11	34.27		442.91	<50	1.1	<0.50	<0.50	<1.0	8.4	--	--
	09/27/11	35.86		441.32	74	<0.50	<0.50	<0.50	<1.0	7.2	--	<10
	01/25/12	40.65		436.53	170	<0.50	<0.50	<0.50	<0.50	13	--	<10
	09/20/12	42.76		434.42	<50	<0.50	<0.50	<0.50	<0.50	8.6	--	<10

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
CMT-1 Z1	03/21/07	35.26	471.96	436.70	--	--	--	--	--	--	--	--
	03/22/07	--		--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<5.0
	06/21/07	43.40		428.56	--	--	--	--	--	--	--	--
	09/24/07	--		--	--	--	--	--	--	--	--	--
	12/17/07	--		--	--	--	--	--	--	--	--	--
	03/03/08	39.80		432.16	--	--	--	--	--	--	--	--
	03/05/08	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<10
	06/09/08	--		--	--	--	--	--	--	--	--	--
	08/26/08	--		--	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	02/18/11	38.38		433.58	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	--
	09/27/11	41.31		430.65	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	01/25/12	45.30		426.66	--	--	--	--	--	--	--	--
	09/20/12	45.30		426.66	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
CMT-2 Z1	03/21/07	34.15	472.53	438.38	--	--	--	--	--	--	--	--
	06/21/07	42.90		429.63	--	--	--	--	--	--	--	--
	09/24/07	--		--	--	--	--	--	--	--	--	--
	12/17/07	--		--	--	--	--	--	--	--	--	--
	03/03/08	38.63		433.90	--	--	--	--	--	--	--	--
	06/09/08	44.58		427.95	--	--	--	--	--	--	--	--
	08/26/08	--		--	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	02/18/11	37.62		434.91	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--
	09/27/11	40.59		431.94	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	01/25/12	45.14		427.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	48.47		424.06	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
CMT-3 Z1	03/21/07	34.40	476.28	441.88	--	--	--	--	--	--	--	--
	06/21/07	42.60		433.68	--	--	--	--	--	--	--	--
	09/24/07	--		--	--	--	--	--	--	--	--	--
	12/17/07	--		--	--	--	--	--	--	--	--	--
	03/03/08	38.45		437.83	--	--	--	--	--	--	--	--
	06/09/08	--		--	--	--	--	--	--	--	--	--
	08/26/08	--		--	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	02/18/11	38.48		437.80	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--
	09/27/11	40.64		435.64	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	25.00
	01/25/12	43.20		433.08	--	--	--	--	--	--	--	--
	09/20/12	43.20		433.08	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
CMT-4 Z2	03/21/07	28.22	485.82	457.60	--	--	--	--	--	--	--	--
	03/22/07	--		--	5,800	1,800	130	190	180	1,700	--	140
	06/21/07	35.20		450.62	--	--	--	--	--	--	--	--
	09/24/07	--		--	--	--	--	--	--	--	--	--
	12/17/07	--		--	--	--	--	--	--	--	--	--
	03/03/08	32.12		453.70	--	--	--	--	--	--	--	--
	03/05/08	--		--	8,200	1,600	160	290	690	900	<12	<250
	06/09/08	36.71		449.11	--	--	--	--	--	--	--	--
	08/26/08	--		--	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	03/27/09	--		--	--	--	--	--	--	--	--	--
	02/18/11	37.70		448.12	--	--	--	--	--	--	--	--
	09/27/11	33.22		452.60	1,400	210	10	66	140	150	<2.5	<50
	01/25/12	37.40		448.42	--	--	--	--	--	--	--	--
	09/20/12	37.40		448.42	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY
B&C Gas Mini Mart
2008 First Street, Livermore

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
D-2	03/21/07	26.50	460.01	433.51	--	--	--	--	--	--	--	--
	03/22/07	--		--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<5.0
	06/21/07	34.40		425.61	--	--	--	--	--	--	--	--
	06/22/07	--		--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<20
	09/24/07	43.61		416.40	--	--	--	--	--	--	--	--
	09/25/07	--		--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	12/17/07	39.07		420.94	--	--	--	--	--	--	--	--
	12/18/07	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<10
	03/03/08	28.07		431.94	--	--	--	--	--	--	--	--
	03/04/08	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	06/09/08	36.42		423.59	--	--	--	--	--	--	--	--
	06/10/08	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	08/26/08	45.39		414.62	--	--	--	--	--	--	--	--
	08/28/08	--		--	230	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	12/08/08	43.07		416.94	--	--	--	--	--	--	--	--
	12/09/08	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	03/26/09	34.33		425.68	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	09/27/11	31.46		428.55	--	--	--	--	--	--	--	--
	01/26/12	41.38		418.63	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	43.51		416.50	--	--	--	--	--	--	--	--

Notes:

GRO = Gasoline Range Organics C4-C13

MTBE = Methyl tert-butyl ether

TAME=Tert amyl-methyl ether

TBA=Tert-butyl alcohol

msl = Mean sea level

µg/L = Micrograms per liter

-- = Not analyzed/Not measured

Analysis:

GRO analyzed using EPA Method SW8015B,

all remaining analytes analyzed using EPA Method SW8260B.

All data taken from Golder Associates, 2011 Second Semi-Annual Groundwater Monitoring Report, dated November 2, 2011.

TABLE 2
Ozone Injection System --- Operational Summary
B&C Gas Mini Mart, 2008 First Street, Livermore, CA

Date	O_3 System Status (arrive/depart)	Hour Meter Reading	O_3 plus air Flowrate (scfm)	Injection Pressure (psi)	Oxygen Flowrate (scfh)
02/28/12	Off/On[1]	0.0	1.2	15.0	--
03/06/12	On/On	--	1.0	37.0	--
03/29/12	Off/On[2]	0.8	3.8	6.0	12.0
04/10/12	Off/On[3]	6.7	4.0	11.0	11.0
04/23/12	On/On	214.2	2.5	5.0	13.0
05/07/12	On/On	365.6	2.6	8.0	12.0
05/22/12	Off/On[3]	372.0	4.1	6.0	12.0
05/31/12	Off/On[4]	380.0	4.4	12.0	12.0
06/04/12	Off/On[5]	386.0	4.4	13.0	12.0
06/20/12	Off/On[6]	387.4	4.2	12.0	12.0
07/03/12	Off/On	396.7	4.4	9.0	12.0
07/23/12	Off/On[4]	397.1	5.0	13.0	12.0
08/06/12	Off/On[4]	399.3	3.4	14.0	12.0
08/23/12	Off/On[4]	402.0	2.0	5.0	12.0
09/03/12	Off/On	408.5	3.2	3.0	12.0
09/20/12	Off/Off	540.0	--	--	--
Average			3.3	11.3	12.0

Legend:
O_3 = ozone
psi = pounds per square inch
scfm = standard cubic feet per minute
scfh = standard cubic feet per hour
-- = not measured/not applicable

[1] System was originally shut down on December 28, 2011 due to a bad compressor. On January 18, 2012 a field visit to repair the compressor was completed, however, the existing compressor was unable to be repaired. Remediation system re-started Feburary 28, 2012 after replacing the compressor. Ozone system was re-started with a zero hour meter reading.
[2] System down upon arrival, compressor replaced.
[3] System down upon arrival, due to high temp, restart system.
[4] System down upon arrival, restart system.
[5] System down upon arrival due to lack of power, restart system.
[6] System down upon arrival due to high temp, tarp installed over compound to shade unit from sun, and restart system.

Notes:
1. Ozone system has a total of 8 ports available, six are currently connected to injection wells (SP-1A/B, SP-2A/B, and SP-4A/B) as of May 22, 2012.
2. Ozone injection duration set at 10 minutes per well.

TABLE 3
Ozone Injection System --- Summary of Field Data
B&C Gas Mini Mart, 2008 First Street, Livermore, CA

Well Number	Date[1]	Number of Days Since Test Start	Depth to Water (ft)	DO (mg/L)	Temp. (°C)	pH	Specific Conductivity (µS/cm)	ORP (mV)
MW-2	04/10/12	42	38.56	1.05	17.8	7.39	797	327
	04/23/12	55	36.84	2.26	19.1	7.16	738	168
	05/07/12	69	37.11	3.75	19.3	6.58	696	302
	05/22/12	84	37.81	1.06	18	6.94	706	303
	05/31/12	93	--	--	--	--	--	--
	06/04/12	97	38.37	2.77	18.8	7.01	694	217
	06/20/12	113	--	--	--	--	--	--
	07/03/12	126	39.94	2.13	18.7	6.73	687	209
	07/23/12	146	40.55	4.35	19.0	6.96	644	371
	08/06/12	160	--	--	--	--	--	--
	08/23/12	177	41.05	1.33	18.9	7.03	576	333
	09/03/12	188	--	--	--	--	--	--
	09/20/12	205	41.40	1.92	17.7	7.00	502	326
MW-3	04/10/12	42	37.69	0.60	18.1	6.89	721	357
	04/23/12	55	35.90	1.26	18.9	6.99	706	166
	05/07/12	69	36.25	1.95	18.8	6.71	701	297
	05/22/12	84	36.89	1.29	18.1	7.08	702	305
	05/31/12	93	--	--	--	--	--	--
	06/04/12	97	37.41	2.00	18.6	7.12	688	214
	06/20/12	113	--	--	--	--	--	--
	07/03/12	126	38.98	2.50	18.3	7.04	7	199
	07/23/12	146	39.52	4.36	18.7	6.93	630	368
	08/06/12	160	--	--	--	--	--	--
	08/23/12	177	40.23	0.96	18.5	7.04	553	331
	09/03/12	188	--	--	--	--	--	--
	09/20/12	205	40.35	1.25	17.1	6.96	488	315
MW-5	04/10/12	42	--	--	--	--	--	--
	04/23/12	55	--	--	--	--	--	--
	05/07/12	69	--	--	--	--	--	--
	05/22/12	84	37.27	1.24	18.1	6.94	910	259
	05/31/12	93	--	--	--	--	--	--
	06/04/12	97	--	--	--	--	--	--
	06/20/12	113	--	--	--	--	--	--
	07/03/12	126	38.75	12.20	18.3	7.20	814	282
	07/23/12	146	--	--	--	--	--	--
	08/06/12	160	--	--	--	--	--	--
	08/23/12	177	--	--	--	--	--	--
	09/03/12	188	--	--	--	--	--	--
	09/20/12	205	39.00			*Dry*		

TABLE 3
Ozone Injection System --- Summary of Field Data
B&C Gas Mini Mart, 2008 First Street, Livermore, CA

Well Number	Date[1]	Number of Days Since Test Start	Depth to Water (ft)	DO (mg/L)	Temp. (°C)	pH	Specific Conductivity (µS/cm)	ORP (mV)
SP-5A	04/10/12	42	37.87	1.94	18.1	6.69	924	334
	04/23/12	55	36.15	1.80	19.2	6.83	538	174
	05/07/12	69	36.58	1.81	18.8	6.49	716	323
	05/22/12	84	36.75	0.94	18.0	6.61	745	292
	05/31/12	93	--	--	--	--	--	--
	06/04/12	97	36.70	3.31	18.2	7.02	872	299
	06/20/12	113	--	--	--	--	--	--
	07/03/12	126	38.82			*Dry*		
	07/23/12	146	--			*Dry*		
	08/06/12	160	--	--	--	--	--	--
	08/23/12	177	--			*Dry*		
	09/03/12	188	--	--	--	--	--	--
	09/20/12	205	--	--	--	--	--	--
SP-5B	04/10/12	42	37.99	1.59	18.6	6.76	692	298
	04/23/12	55	36.02	1.65	18.8	7.15	691	128
	05/07/12	69	36.37	2.06	18.1	6.33	1420	290
	05/22/12	84	37.02	0.97	18.8	6.24	151.5	278
	05/31/12	93	--	--	--	--	--	--
	06/04/12	97	37.58	3.06	18.1	7.44	692	334
	06/20/12	113	--	--	--	--	--	--
	07/03/12	126	39.15	7.14	18.6	6.99	467	188
	07/23/12	146	39.65	4.33	19.3	7.49	220	346
	08/06/12	160	--	--	--	--	--	--
	08/23/12	177	40.33	0.94	18.9	7.66	384	322
	09/03/12	188	--	--	--	--	--	--
	09/20/12	205	--	--	--	--	--	--
SP-5C	04/10/12	42	37.62	2.04	18.6	7.14	697	366
	04/23/12	55	35.77	2.00	18.4	7.50	578	10
	05/07/12	69	36.00	3.23	18.6	6.37	189	242
	05/22/12	84	36.53	1.65	18.4	6.65	182	264
	05/31/12	93	--	--	--	--	--	--
	06/04/12	97	37.35	3.10	18.6	7.51	216	328
	06/20/12	113	--	--	--	--	--	--
	07/03/12	126	38.84	13.09	18.2	6.82	320	192
	07/23/12	146	40.53	4.88	19.1	8.00	301	314
	08/06/12	160	--	--	--	--	--	--
	08/23/12	177	39.99	0.97	18.4	8.24	529	318
	09/03/12	188	--	--	--	--	--	--
	09/20/12	205	--	--	--	--	--	--

TABLE 3

Ozone Injection System --- Summary of Field Data

B&C Gas Mini Mart, 2008 First Street, Livermore, CA

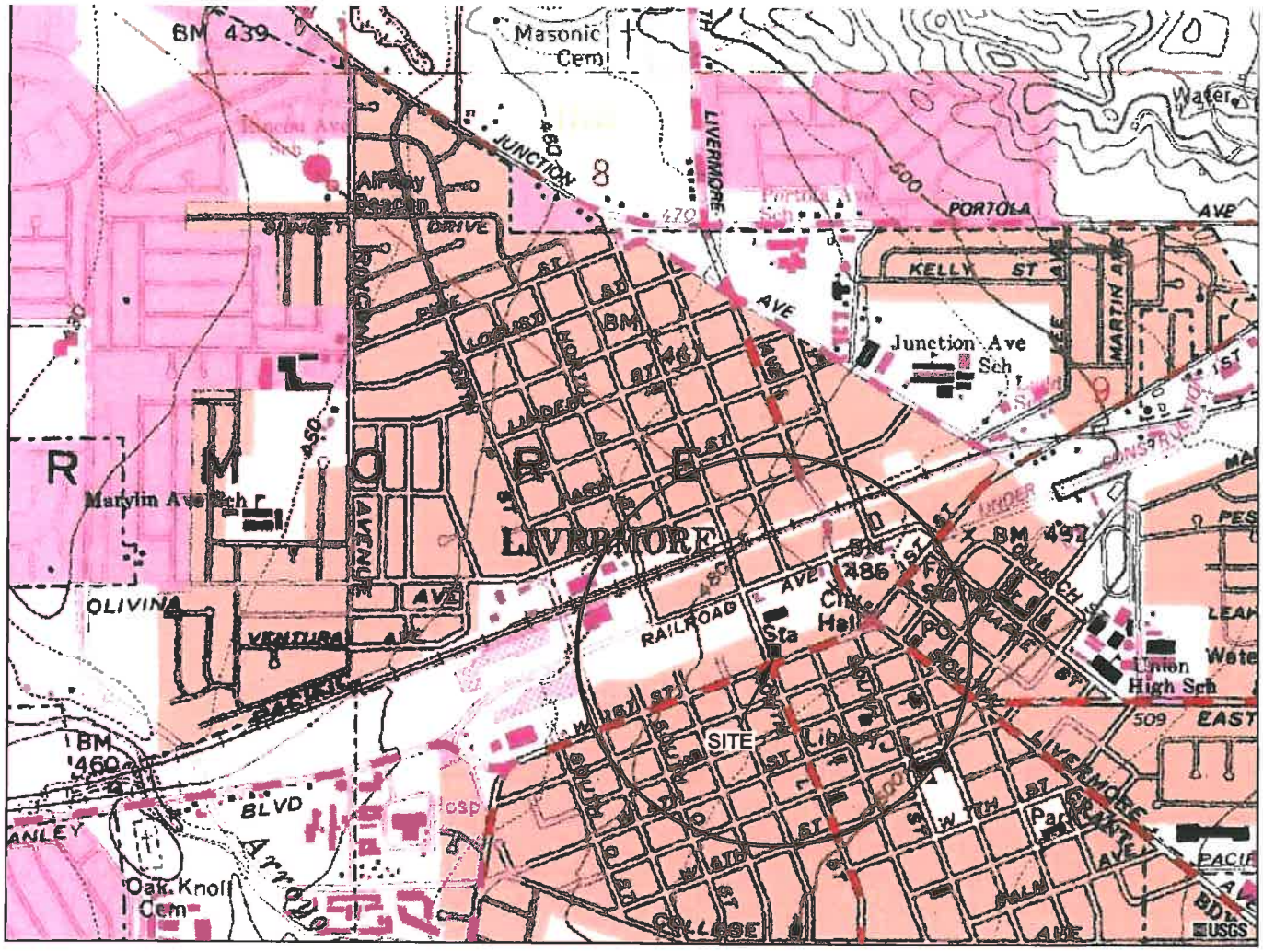
Well Number	Date[1]	Number of Days Since Test Start	Depth to Water (ft)	DO (mg/L)	Temp. (°C)	pH	Specific Conductivity (µS/cm)	ORP (mV)

Legend:

ft = feet
DO = dissolved oxygen
mg/L = milligrams per liter
Temp. = temperature
°C = degrees Celsius
µS/cm = microSiemens per centimeter
ORP = oxidation reduction potential
mV = millivolts

Temp., pH, specific conductivity, and ORP measurements recorded without purging.

[1] System was originally shut down on December 28, 2011 and re-started Feburary 28, 2012. Additional field parameters to monitor ozone systems remediation on groundwater were attained beginning April 10, 2012.



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
LIVERMORE, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1999

N

QUADRANGLE LOCATION

0 1800 FT

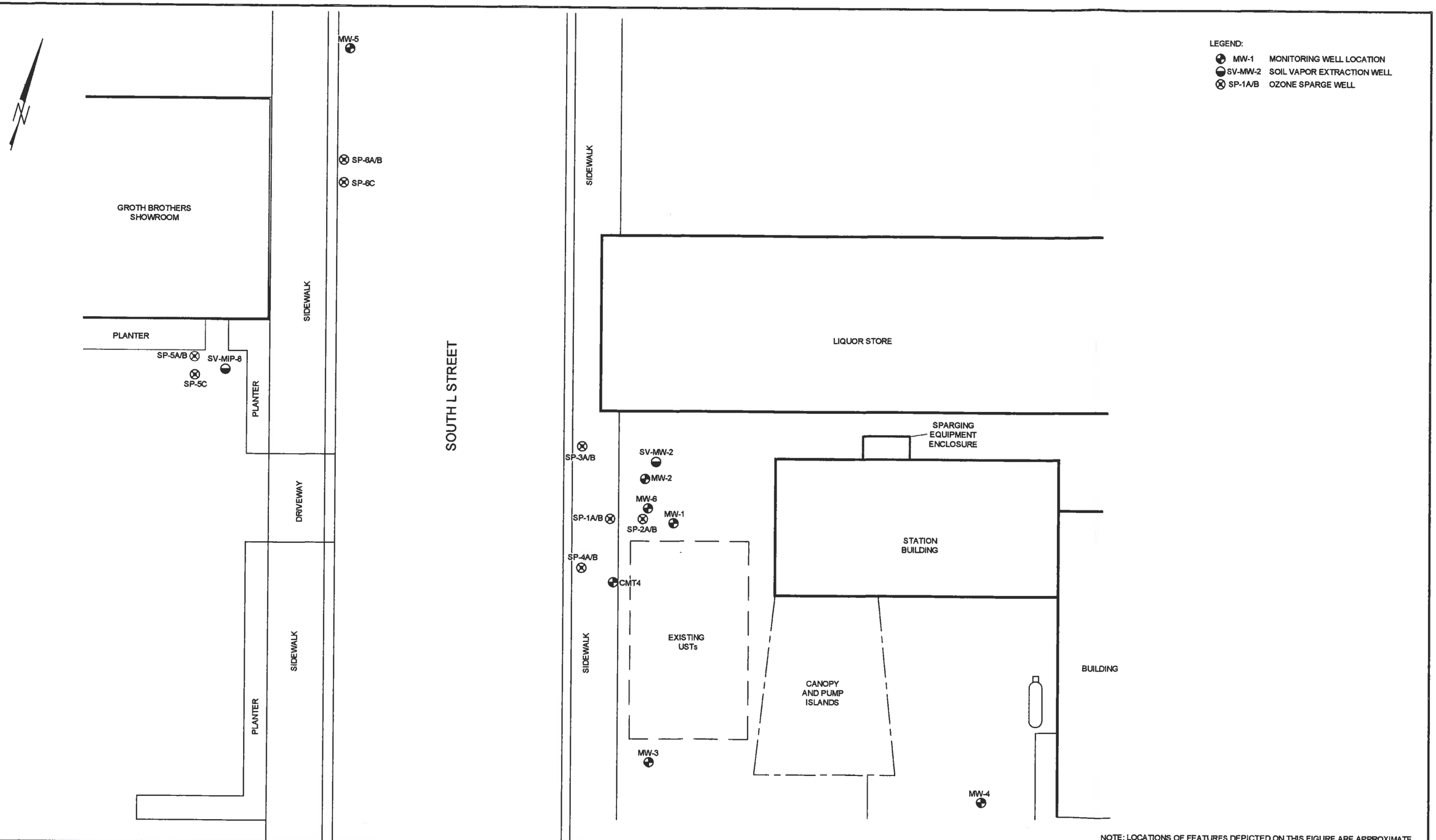
APPROXIMATE SCALE

STRATUS
ENVIRONMENTAL, INC.

B & C GAS MINI MART
2008 FIRST STREET
LIVERMORE, CALIFORNIA

SITE LOCATION MAP

FIGURE
1
PROJECT NO.
2146-2008-01



NOTE: LOCATIONS OF FEATURES DEPICTED ON THIS FIGURE ARE APPROXIMATE.

STRATUS ENVIRONMENTAL, INC.

0 20 FT

APPROXIMATE SCALE

B & C GAS MINI MART
2008 1st STREET
LIVERMOORE, CALIFORNIA

SITE PLAN

FIGURE
2

PROJECT NO.
2146-2008-01

STRATUS ENVIRONMENTAL, INC.

0 200 FT

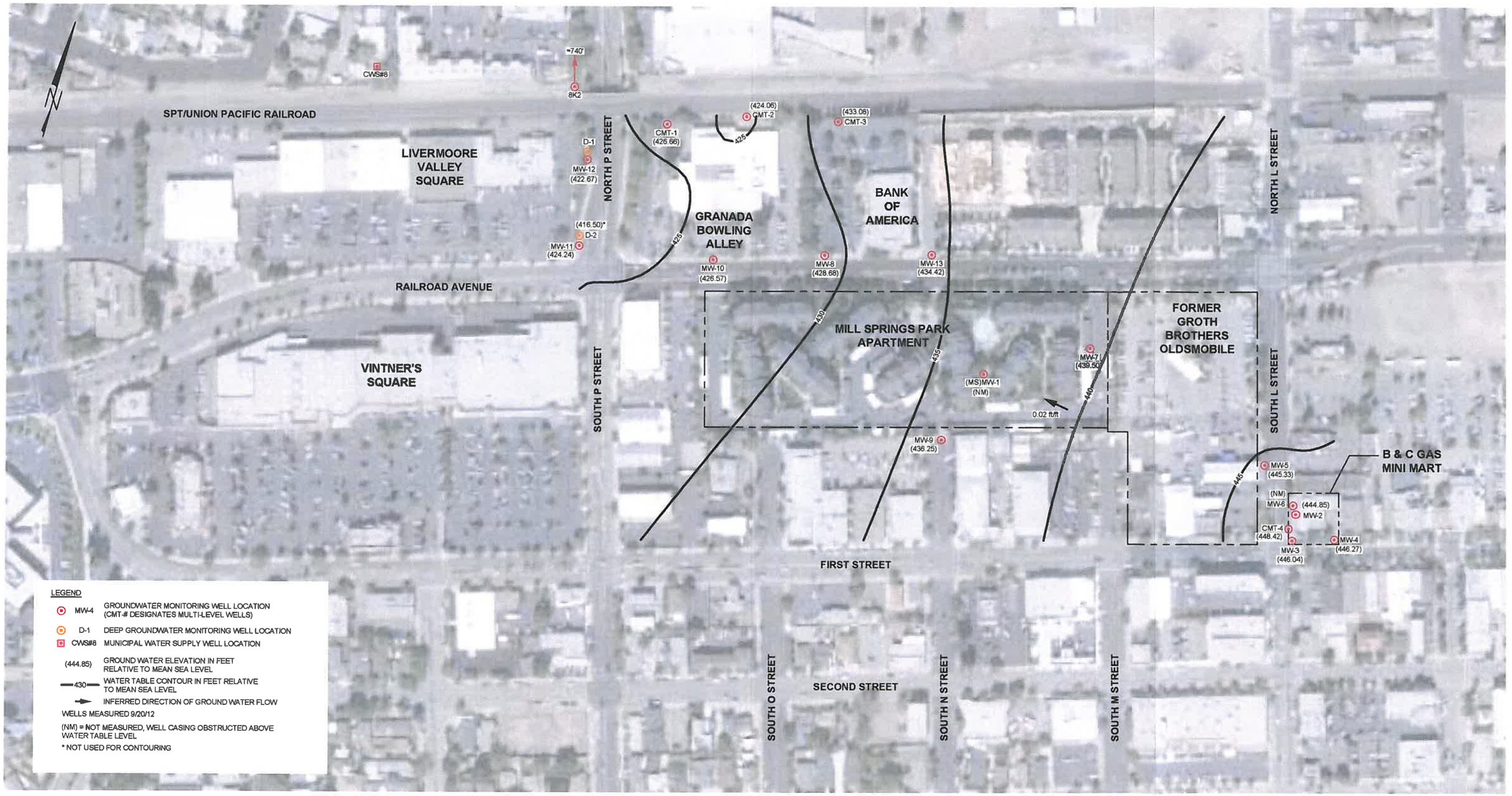
APPROXIMATE SCALE

B & C GAS MINI MART
2008 1st STREET
LIVERMORE, CALIFORNIA

SITE VICINITY MAP

FIGURE
3

PROJECT NO.
2146-2008-01



LEGEND

- MW-4 — GROUNDWATER MONITORING WELL LOCATION (CMT-# DESIGNATES MULTI-LEVEL WELLS)
- D-1 — DEEP GROUNDWATER MONITORING WELL LOCATION
- CWS#8 — MUNICIPAL WATER SUPPLY WELL LOCATION
- (444.85) — GROUND WATER ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- 430 — WATER TABLE CONTOUR IN FEET RELATIVE TO MEAN SEA LEVEL
- INFERRED DIRECTION OF GROUND WATER FLOW

WELLS MEASURED 9/20/12

(NM) = NOT MEASURED, WELL CASING OBSTRUCTED ABOVE WATER TABLE LEVEL

* NOT USED FOR CONTOURING

STRATUS ENVIRONMENTAL, INC.

0 200 FT

APPROXIMATE SCALE

B & C GAS MINI MART
2008 1st STREET
LIVERMORE, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP
3rd QUARTER 2012

FIGURE
4

PROJECT NO.
2146-2008-01

STRATUS ENVIRONMENTAL, INC.

0 200 FT

APPROXIMATE SCALE

B & C GAS MINI MART
2008 1st STREET
LIVERMORE, CALIFORNIA

GROUNDWATER ANALYTICAL SUMMARY
3rd QUARTER 2012

FIGURE
5

PROJECT NO.
2146-2008-01

APPENDIX A

FIELD DATA SHEETS

STRATUS ENVIRONMENTAL, INC.

Site Address: 2008 First Street
City: Livermore
Sampled by: Chris Hill
Signature: [signature]

Site Number: B&C Gas
Project Number: 2146-2008-01
Project PM: Scott Bittinger
DATE: 9-29-12

Water Level Data					Purge Volume Calculations					Purge Method				Sample Record			Field Data
Well ID	Time	Depth to Product (feet)	Depth to Water (feet)	Total Depth (feet)	Water column (feet)	Diameter (inches)	Multiplier	3 casing volumes (gallons)	Actual water purged (gallons)	No Purge	Bailer	Pump	other	DTW at sample time (feet)	Sample I.D	Sample Time	DO (mg/L)
• mw 2	0400		41.40	56.00	14.6	4	2.0	29	29		1	X		41.48	mw 2	0405	1.92
• mw 3	0404		40.35	57.30	16.95	4	2.0	34	34		y	X		40.44	mw 3	0430	1.25
• mw 4	0407		41.16	59.60	18.44	4	2.0	36	36			X		41.23	mw 4	0454	1.03
• mw 5	0345		39.00	39.40	DRY	4	2.0								mw 5	DRY	
• mw 7	0737		41.04	49.00	7.96	2	.5	4	4		Y			41.06	mw 7	0755	2.40
mw 8	0654		46.94														
mw 9	0727		43.23														
mw 10	0657		47.27														
mw 11	0717		43.08														
mw 12	0719		38.06														
• mw 13	0615		42.76	53.85	11.09	2	.5	6	6		X			42.80	mw 13	DUP0	1.45
○ cmt-121	0701		45.30	45.30	DRY	1.7	NP								cmt 121	DRY	
○ cmt-221	0707		48.47	48.74	DRY	1.7	NP								cmt 221	DRY	
• cmt-321	0647		43.20	43.20	DRY	1.7	NP								cmt 321	DRY	
• cmt 422	0403		32.40	32.40	DRY	1.7	NP								cmt 422	DRY	
D-2	0715		43.51	123.25		2											

Multiplier
2" = 0.5 3" = 1.0 4" = 2.0 6" = 4.4

Please refer to groundwater sampling field procedures
pH/Conductivity/temperature Meter - Oakton Model PC-10
DO Meter - Oakton 300 Series (DO is always measured before purge)

CALIBRATION DATE
pH 9-17-12
Conductivity
DO

T:\Forms

STRATUS ENVIRONMENTAL, INC.

Site Address 2008 First Street
City Livermore
Sampled By: Chris Hill
Signature C Hill

Site Number B&C Gas
Project Number 2146-2008-01
Project PM S. Bittinger
DATE 9-20-12

Well ID MW4				36
Purge start time 0415			Odor Y (N)	
	Temp C	pH	cond	gallons
time 0418	17.3	7.78	510	2
time 0423	18.0	7.67	493	10
time 0435	18.0	7.60	485	20
time 0448	18.2	7.61	493	36
purge stop time		1.03 DO	ORP 288	

Well ID MW3				34
Purge start time 0502			Odor (Y) N	
	Temp C	pH	cond	gallons
time 0504	17.1	6.96	488	2
time 0512	18.2	6.94	487	15
time 0525	18.5	7.02	482	34
time				
purge stop time 1.25 DO			ORP 315	

Well ID MW2				29
Purge start time 0534			Odor (Y) N	
	Temp C	pH	cond	gallons
time 0535	17.7	7.00	502	2
time 0545	18.6	7.02	492	15
time 0556	18.6	7.07	495	29
time				
purge stop time		1.92 DO	ORP 326	

Well ID MW13				6
Purge start time			Odor Y (N)	
	Temp C	pH	cond	gallons
time 0620	16.8	6.86	508	0
time 0629	17.4	6.98	504	3
time 0633	18.0	6.98	496	6
time				
purge stop time 1.45			ORP 330	

Well ID MW7				4
Purge start time			Odor Y (N)	
	Temp C	pH	cond	gallons
time 0740	17.0	6.99	420	0
time 0744	17.7	6.90	420	2
time 0747	18.0	6.92	467	4
time				
purge stop time		2.40	ORP 319	

Well ID				
Purge start time			Odor Y N	
	Temp C	pH	cond	gallons
time				
time				
time				
time				
purge stop time			ORP	

Well ID				
Purge start time			Odor Y N	
	Temp C	pH	cond	gallons
time				
time				
time				
time				
purge stop time			ORP	

Well ID				
Purge start time			Odor Y N	
	Temp C	pH	cond	gallons
time				
time				
time				
time				
purge stop time			ORP	

B+C GAS Mini Mart
2008 First Street, Livermore

ORIGINAL

Ozone Injection System

Date: 7-3-12
Onsite Time: 0430
Offsite Time: 0530
Equipment Manufacturer/Model#:

Technician: CHILL
Weather Conditions: Clear
Ambient Temperature: 50

Ozone Generator Panel:

System Status Upon Arrival: ☐ Operational ☒ Non-operational — Comp Running But NO Air PSI
System Status Upon Arrival: ☒ Operational ☐ Non-operational

Hour Meter Reading: 396.7
Injection Pressure: 9
2002 comp HRS

Oxygen flow rate: 12
Air + ozone flow rate: 4.4 CFM

D.O. Meter Acting up

Field Measurments

Well ID	Time	DTW	pH	DO	Cond.	ORP	Temp
		feet bgs	units	mg/L	msiemen	mV	deg F
MW-2		39.94	6.73	2.13	687	209	18.7
~~DAW-6~~							
~~AAW-1~~							
MW-3		38.98	7.04	2.50	650	199	18.3
MW-5		38.75	7.20	12.20	814	282	18.3
SP-5							
A		38.82	DRY				
B		39.15	6.99	7.14	467	188	18.6
C		38.84	6.82	13.09	320	192	18.2

- once or twice a quarter

Signature: CHILL
Date: 7-3-12

B+C GAS Mini Mart
2008 First Street, Livermore

Ozone Injection System

ORIGINAL

Date: 7-23-12
Onsite Time: 0446
Offsite Time: 0637
Equipment Manufacturer/Model#:

Technician: CHILL
Weather Conditions: Clear
Ambient Temperature: 50

Ozone Generator Panel:

System Status Upon Arrival: ☐ Operational ☒ Non-operational
System Status Upon Arrival: ☒ Operational ☐ Non-operational

Hour Meter Reading: 397.1
Oxygen flow rate: 12
Injection Pressure: 13
248Z Comp #25
Air + ozone flow rate: 5.0 CFM #3

Field Measurments

Well ID	Time	DTW	pH	DO	Cond.	ORP	Temp
		feet bgs	units	mg/L	msiemen	mV	deg F
mw-2		40.55	6.96	4.35	644	371	19.0
MW-6							
mw-1							
MW-3		39.52	6.43	4.36	630	368	18.7
MW-5							
SP-5							
A		DRY					
B		39.65	7.49	4.33	220	346	19.3
C		40.53	8.00	4.86	301	314	19.1

- once or twice a quarter

Signature: CHILL
Date: 7-23-12

Install check valve on Air in To help Stop Bad Flow on compressor

B+C GAS Main MART
2008 First Street, Livermore ORIGINAL

Ozone Injection System

Date: 8-6-12
Onsite Time: 0545
Offsite Time: 1015
Equipment Manufacturer/Model#:

Technician: CHILL
Weather Conditions: Clear
Ambient Temperature: 65

Ozone Generator Panel:

System Status Upon Arrival: ☐ Operational ☒ Non-operational
System Status Upon Arrival: ☒ Operational ☐ Non-operational
Hour Meter Reading: 399.3 ozml
Oxygen flow rate: 12
Injection Pressure: 14
Air + ozone flow rate: 3.4

Field Measurments

Comp 2653

Well ID	Time	DTW	pH	DO	Cond.	ORP	Temp
		feet bgs	units	mg/L	msiemen	mV	deg F
mw-2							
MW-6							
mw-1							
MW-3							
MW-5							
SP-5							
A							
B							
C							

No Turbidity

- once or twice a quarter

Signature: CHILL
Date: 8-6-12

B+C GAS Mini Mart
2008 First Street, Livermore

ORIGINAL

Ozone Injection System

Date: 8-23-12
Onsite Time: 0422
Offsite Time: 0545
Equipment Manufacturer/Model#:

Technician: CHILL
Weather Conditions: clear
Ambient Temperature: 48

Ozone Generator Panel:

System Status Upon Arrival: ☐ Operational ☒ Non-operational
System Status Upon Arrival: ☒ Operational ☐ Non-operational

Appears like compressor was turned OFF

Hour Meter Reading: 402
Injection Pressure: 5 PSI
2218 compressor

Oxygen flow rate: 12 scfH
Air + ozone flow rate: 2.0 CFM

Field Measurments

Well ID	Time	DTW	pH	DO	Cond.	ORP	Temp
		feet bgs	units	mg/L	msiemen	mV	deg F
mw-2		41.05	7.03	1.33	576	333	18.4
mw-6		—					
mw-1		—					
mw-3		40.23	7.04	8.96	553	331	18.5
MW-5		—					
SP-5							
A		DRY					
B		40.33	7.00	8.44	384	322	18.4
C		39.99	8.24	8.97	524	318	18.4

- once or twice a quarter

Signature: CHILL
Date: 8-23-12

B+C GAS Mini Mart
2008 First Street, Livermore

ORIGINAL

Ozone Injection System

Date: 9-3-12
Onsite Time: 0430
Offsite Time: 0600
Equipment Manufacturer/Model#:

Technician: CHILL
Weather Conditions: Clear
Ambient Temperature: 50

Ozone Generator Panel:

System Status Upon Arrival: ☐ Operational ☒ Non-operational
System Status Upon Arrival: ☒ Operational ☐ Non-operational

Hour Meter Reading: 14669 comp 4086 ozone
Oxygen flow rate: 12
Injection Pressure: 3
Air + ozone flow rate: 3.2

Field Measurments

Well ID	Time	DTW	pH	DO	Cond.	ORP	Temp
		feet bgs	units	mg/L	msiemen	mV	deg F
MW-2							
MW-6							
MW-1							
MW-3							
MW-5							
SP-5							
A							
B							
C							

- once or twice a quarter

Install New Different Compressor

Signature: CHill
Date: 9-3-12

B+C GAS Mini Mart
2008 First Street, Livermore

ORIGINAL

Ozone Injection System

Date: 9/2012
Onsite Time: 0330
Offsite Time: 0815

Technician: CHILC
Weather Conditions: Clear
Ambient Temperature: 50

Equipment Manufacturer/Model#:

Ozone Generator Panel:

System Status Upon Arrival: ☐ Operational ☒ Non-operational

System Status Upon Arrival: ☐ Operational ☒ Non-operational

Hour Meter Reading: 540

Oxygen flow rate:

Injection Pressure:

Air + ozone flow rate:

Field Measurments

Well ID	Time	DTW feet bgs	pH units	DO mg/L	Cond. msiemen	ORP mV	Temp deg F
mw-2							
mw-6							
mw-1							
mw-3							
MW-5							
SP-5							
A							
B							
C							

Set
Qm
For
Info

- once or twice a quarter

Compressor
Thermos
Turning off
Compressor

Signature: CHILC

Date: 9/2012

APPENDIX B

SAMPLING AND ANALYSES PROCEDURES

SAMPLING AND ANALYSIS PROCEDURES

The sampling and analysis procedures as well as the quality assurance plan are contained in this appendix. The procedures and adherence to the quality assurance plan will provide for consistent and reproducible sampling methods; proper application of analytical methods; accurate and precise analytical results; and finally, these procedures will provide guidelines so that the overall objectives of the monitoring program are achieved.

Ground Water and Liquid-Phase Petroleum Hydrocarbon Depth Assessment

A water/hydrocarbon interface probe is used to assess the liquid-phase petroleum hydrocarbon (LPH) thickness, if present, and a water level indicator is used to measure the ground water depth in monitoring wells that do not contain LPH. Depth to ground water or LPH is measured from a datum point at the top of each monitoring well casing. The datum point is typical a notch cut in the north side of the casing edge. If a water level indicator is used, the tip is subjectively analyzed for hydrocarbon sheen.

Subjective Analysis of Ground Water

Prior to purging, a water sample is collected from the monitoring well for subjective assessment. The sample is retrieved by gently lowering a clean, disposable bailer to approximately one-half the bailer length past the air/liquid interface. The bailer is then retrieved, and the sample contained within the bailer is examined for floating LPH and the appearance of a LPH sheen.

Monitoring Well Purging and Sampling

Monitoring wells are purged using a pump or bailer until pH, temperature, and conductivity of the purge water has stabilized and a minimum of three well volumes of water have been removed. If three well volumes can not be removed in one half hour's time the well is allowed to recharge to 80% of original level. After recharging, a ground water sample is then removed from each of the wells using a disposable bailer.

A Teflon bailer, electric submersible or bladder pump will be the only equipment used for well sampling. When samples for volatile organic analysis are being collected, the pump flow will be regulated at approximately 100 milliliters per minute to minimize pump effluent turbulence and aeration. Glass bottles of at least 40-milliliters volume and fitted with Teflon-lined septa will be used in sampling for volatile organics. These bottles will be filled completely to prevent air from remaining in the bottle. A positive meniscus forms when the bottle is completely full. A convex Teflon septum will be placed over the positive meniscus to eliminate air. After the bottle is capped, it is inverted and tapped to verify that it contains no air bubbles. The sample containers for other parameters will be filled, filtered as required, and capped.

The water sample is collected, labeled, and handled according to the Quality Assurance Plan. Water generated during the monitoring event is disposed of accruing to regulatory accepted method pertaining to the site.

QUALITY ASSURANCE PLAN

Procedures to provide data quality should be established and documented so that conditions adverse to quality, such as deficiencies, deviations, nonconforments, defective material, services, and/or equipment, can be promptly identified and corrected.

General Sample Collection and Handling Procedures

Proper collection and handling are essential to ensure the quality of a sample. Each sample is collected in a suitable container, preserved correctly for the intended analysis, and stored prior to analysis for no longer than the maximum allowable holding time. Details on the procedures for collection and handling of samples used on this project can be found in this section.

Soil and Water Sample Labeling and Preservation

Label information includes a unique sample identification number, job identification number, date, and time. After labeling all soil and water samples are placed in a Ziploc® type bag and placed in an ice chest cooled to approximately 4° Celsius. Upon arriving at Stratus' office the samples are transferred to a locked refrigerator cooled to approximately 4° Celsius. Chemical preservation is controlled by the required analysis and is noted on the chain-of-custody form. Trip blanks supplied by the laboratory accompany the groundwater sample containers and groundwater samples.

Upon recovery, the sample container is sealed to minimize the potential of volatilization and cross-contamination prior to chemical analysis. Soil sampling tubes are typically closed at each end with Teflon® sheeting and plastic caps. The sample is then placed in a Ziploc® type bag and sealed. The sample is labeled and refrigerated at approximately 4° Celsius for delivery, under strict chain-of-custody, to the analytical laboratory.

Sample Identification and Chain-of-Custody Procedures

Sample identification and chain-of-custody procedures document sample possession from the time of collection to ultimate disposal. Each sample container submitted for analysis has a label affixed to identify the job number, sampler, date and time of sample collection, and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel, and any other pertinent field observations, is recorded on the borehole log or in the field records. The samples are analyzed by a California-certified laboratory.

A chain-of-custody form is used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them relinquishes the samples by signing the chain-of-custody form and

noting the time. The sample-control officer at the laboratory verifies sample integrity and confirms that the samples are collected in the proper containers, preserved correctly, and contain adequate volumes for analysis. These conditions are noted on a Laboratory Sample Receipt Checklist that becomes part of the laboratory report upon request.

If these conditions are met, each sample is assigned a unique log number for identification throughout analysis and reporting. The log number is recorded on the chain-of-custody form and in the legally-required log book maintained by the laboratory. The sample description, date received, client's name, and other relevant information is also recorded.

Equipment Cleaning

Sample bottles, caps, and septa used in sampling for volatile and semivolatile organics will be triple rinsed with high-purity deionized water. After being rinsed, sample bottles will be dried overnight at a temperature of 200°C. Sample caps and septa will be dried overnight at a temperature of 60°C. Sample bottles, caps, and septa will be protected from solvent contact between drying and actual use at the sampling site. Sampling containers will be used only once and discarded after analysis is complete.

Plastic bottles and caps used in sampling for metals will be soaked overnight in a 1-percent nitric acid solution. Next, the bottles and caps will be triple rinsed with deionized water. Finally, the bottles and caps will be air dried before being used at the site. Plastic bottles and caps will be constructed of linear polyethylene or polypropylene. Sampling containers will be used only once and discarded after analysis is complete. Glass and plastic bottles used by Stratus to collect groundwater samples are supplied by the laboratory.

Before the sampling event is started, equipment that will be placed in the well or will come in contact with groundwater will be disassembled and cleaned thoroughly with detergent water, and then steam cleaned with deionized water. Any parts that may absorb contaminants, such as plastic pump valves, etc. will be cleaned as described above or replaced.

During field sampling, equipment surfaces that are placed in the well or contact groundwater will be steam cleaned with deionized water before the next well is purged or sampled. Equipment blanks will be collected and analyzed from non-disposable sampling equipment that is used for collecting groundwater samples at the rate of one blank per twenty samples collected.

Internal Quality Assurance Checks

Internal quality assurance procedures are designed to provide reliability of monitoring and measurement of data. Both field and laboratory quality assurance checks are necessary to evaluate the reliability of sampling and analysis results. Internal quality assurance procedures generally include:

- Laboratory Quality Assurance

  - Documentation of instrument performance checks
  - Documentation of instrument calibration
  - Documentation of the traceability of instrument standards, samples, and data
  - Documentation of analytical and QC methodology (QC methodology includes use of spiked samples, duplicate samples, split samples, use of reference blanks, and check standards to check method accuracy and precision)

- Field Quality Assurance

  - Documentation of sample preservation and transportation
  - Documentation of field instrument calibration and irregularities in performance

Internal laboratory quality assurance checks will be the responsibility of the contract laboratories. Data and reports submitted by field personnel and the contract laboratory will be reviewed and maintained in the project files.

Types of Quality Control Checks

Samples are analyzed using analytical methods outlined in EPA Manual SW 846 and approved by the California Regional Water Quality Control Board-Central Valley Region in the Leaking Underground Fuel Tanks (LUFT) manual and appendices. Standard contract laboratory quality control may include analysis or use of the following:

- Method blanks – reagent water used to prepare calibration standards, spike solutions, etc. is analyzed in the same manner as the sample to demonstrate that analytical interferences are under control.
- Matrix spiked samples – a known amount of spike solution containing selected constituents is added to the sample at concentrations at which the accuracy of the analytical method is to satisfactorily monitor and evaluate laboratory data quality.
- Split samples – a sample is split into two separate aliquots before analysis to assess the reproducibility of the analysis.
- Surrogate samples – samples are spiked with surrogate constituents at known concentrations to monitor both the performance of the analytical system and the effectiveness of the method in dealing with the sample matrix.
- Control charts – graphical presentation of spike or split sample results used to track the accuracy or precision of the analysis.
- Quality control check samples – when spiked sample analysis indicates atypical instrument performance, a quality check sample, which is prepared independently of the calibration standards and contains the constituents of interest, is analyzed to confirm that measurements were performed accurately.

- Calibration standards and devices – traceable standards or devices to set instrument response so that sample analysis results represent the absolute concentration of the constituent.

Field QA samples will be collected to assess sample handling procedures and conditions. Standard field quality control may include the use of the following, and will be collected and analyzed as outlined in EPA Manual SW 846.

- Field blanks – reagent water samples are prepared at the sampling location by the same procedure used to collect field groundwater samples and analyzed with the groundwater samples to assess the impact of sampling techniques on data quality. Typically, one field blank per twenty groundwater samples collected will be analyzed per sampling event.
- Field replicates – duplicate or triplicate samples are collected and analyzed to assess the reproducibility of the analytical data. One replicate groundwater sample per twenty samples collected will be analyzed per sampling event, unless otherwise specified. Triplicate samples will be collected only when specific conditions warrant and generally are sent to an alternate laboratory to confirm the accuracy of the routinely used laboratory.
- Trip blanks – reagent water samples are prepared before field work, transported and stored with the samples and analyzed to assess the impact of sample transport and storage for data quality. In the event that any analyte is detected in the field blank, a trip blank will be included in the subsequent groundwater sampling event.

Data reliability will be evaluated by the certified laboratory and reported on a cover sheet attached to the laboratory data report. Analytical data resulting from the testing of field or trip blanks will be included in the laboratory's report. Results from matrix spike, surrogate, and method blank testing will be reported, along with a statement of whether the samples were analyzed within the appropriate holding time.

Stratus will evaluate the laboratory's report on data reliability and note significant QC results that may make the data biased or unacceptable. Data viability will be performed as outlined in EPA Manual SW 846. If biased or unacceptable data is noted, corrective actions (including re-sample/re-analyze, etc.) will be evaluated on a site-specific basis.

APPENDIX C

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

Alpha Analytical, Inc.

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 : 09/21/12

Job: B & C Mini Mart

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

		Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID :	**MW2**					
Lab ID :	STR12092144-01A	TPH-P (GRO)	55	50 µg/L	09/24/12	09/24/12
Date Sampled	09/20/12 06:05	Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	09/24/12	09/24/12
		Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	09/24/12	09/24/12
		Benzene	ND	0.50 µg/L	09/24/12	09/24/12
		Toluene	ND	0.50 µg/L	09/24/12	09/24/12
		Ethylbenzene	ND	0.50 µg/L	09/24/12	09/24/12
		m,p-Xylene	ND	0.50 µg/L	09/24/12	09/24/12
		o-Xylene	ND	0.50 µg/L	09/24/12	09/24/12
Client ID :	**MW3**					
Lab ID :	STR12092144-02A	TPH-P (GRO)	720	50 µg/L	09/24/12	09/24/12
Date Sampled	09/20/12 05:30	Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	09/24/12	09/24/12
		Methyl tert-butyl ether (MTBE)	41	0.50 µg/L	09/24/12	09/24/12
		Benzene	28	0.50 µg/L	09/24/12	09/24/12
		Toluene	0.61	0.50 µg/L	09/24/12	09/24/12
		Ethylbenzene	2.9	0.50 µg/L	09/24/12	09/24/12
		m,p-Xylene	0.65	0.50 µg/L	09/24/12	09/24/12
		o-Xylene	ND	0.50 µg/L	09/24/12	09/24/12
Client ID :	**MW4**					
Lab ID :	STR12092144-03A	TPH-P (GRO)	63	50 µg/L	09/24/12	09/24/12
Date Sampled	09/20/12 04:55	Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	09/24/12	09/24/12
		Methyl tert-butyl ether (MTBE)	ND	0.50 µg/L	09/24/12	09/24/12
		Benzene	ND	0.50 µg/L	09/24/12	09/24/12
		Toluene	ND	0.50 µg/L	09/24/12	09/24/12
		Ethylbenzene	ND	0.50 µg/L	09/24/12	09/24/12
		m,p-Xylene	ND	0.50 µg/L	09/24/12	09/24/12
		o-Xylene	ND	0.50 µg/L	09/24/12	09/24/12
Client ID :	**MW7**					
Lab ID :	STR12092144-04A	TPH-P (GRO)	53	50 µg/L	09/24/12	09/24/12
Date Sampled	09/20/12 07:55	Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	09/24/12	09/24/12
		Methyl tert-butyl ether (MTBE)	1.1	0.50 µg/L	09/24/12	09/24/12
		Benzene	ND	0.50 µg/L	09/24/12	09/24/12
		Toluene	ND	0.50 µg/L	09/24/12	09/24/12
		Ethylbenzene	ND	0.50 µg/L	09/24/12	09/24/12
		m,p-Xylene	ND	0.50 µg/L	09/24/12	09/24/12
		o-Xylene	ND	0.50 µg/L	09/24/12	09/24/12

Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Client ID : **MW13**

Lab ID : STR12092144-05A

Date Sampled 09/20/12 06:40

TPH-P (GRO)	ND	50 µg/L	09/24/12	09/24/12
Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	09/24/12	09/24/12
Methyl tert-butyl ether (MTBE)	8.6	0.50 µg/L	09/24/12	09/24/12
Benzene	ND	0.50 µg/L	09/24/12	09/24/12
Toluene	ND	0.50 µg/L	09/24/12	09/24/12
Ethylbenzene	ND	0.50 µg/L	09/24/12	09/24/12
m,p-Xylene	ND	0.50 µg/L	09/24/12	09/24/12
o-Xylene	ND	0.50 µg/L	09/24/12	09/24/12

Gasoline Range Organics (GRO) C4-C13

ND = Not Detected

Reported in micrograms per Liter, per client request.

Roger Scholl Randy Gardner Walter Hinchman

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 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

Alpha Analytical, Inc. certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Statement of Data Authenticity : Alpha Analytical, Inc. attests that the data reported has not been altered an any way.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

9/28/12

Report Date

Alpha Analytical, Inc.

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: STR12092144 **Job:** B & C Mini Mart

Alpha's Sample ID	Client's Sample ID	Matrix	pH
12092144-01A	MW2	Aqueous	2
12092144-02A	MW3	Aqueous	2
12092144-03A	MW4	Aqueous	2
12092144-04A	MW7	Aqueous	2
12092144-05A	MW13	Aqueous	2

9/28/12

Report Date

Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: *28-Sep-12*

QC Summary Report

Work Order: 12092144

Method Blank

Type: **MBLK** Test Code: **EPA Method SW8015B/C**

File ID: **12092406.D** Batch ID: **MS12W0924B** Analysis Date: **09/24/2012 12:19**

Sample ID: **MBLK MS12W0924B** Units : **µg/L** Run ID: **MSD_12_120924A** Prep Date: **09/24/2012 12:19**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
TPH-P (GRO)	ND	50								
Surr: 1,2-Dichloroethane-d4	10.1		10		101	70	130			
Surr: Toluene-d8	10.6		10		106	70	130			
Surr: 4-Bromofluorobenzene	10.2		10		102	70	130			

Laboratory Control Spike

Type: **LCS** Test Code: **EPA Method SW8015B/C**

File ID: **12092405.D** Batch ID: **MS12W0924B** Analysis Date: **09/24/2012 11:56**

Sample ID: **GLCS MS12W0924B** Units : **µg/L** Run ID: **MSD_12_120924A** Prep Date: **09/24/2012 11:56**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
TPH-P (GRO)	397	50	400		99	70	130			
Surr: 1,2-Dichloroethane-d4	9.89		10		99	70	130			
Surr: Toluene-d8	10.2		10		102	70	130			
Surr: 4-Bromofluorobenzene	9.11		10		91	70	130			

Sample Matrix Spike

Type: **MS** Test Code: **EPA Method SW8015B/C**

File ID: **12092420.D** Batch ID: **MS12W0924B** Analysis Date: **09/24/2012 17:39**

Sample ID: **12092141-06AGS** Units : **µg/L** Run ID: **MSD_12_120924A** Prep Date: **09/24/2012 17:39**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
TPH-P (GRO)	1490	250	2000	0	75	51	144			
Surr: 1,2-Dichloroethane-d4	50.6		50		101	70	130			
Surr: Toluene-d8	52.2		50		104	70	130			
Surr: 4-Bromofluorobenzene	46.5		50		93	70	130			

Sample Matrix Spike Duplicate

Type: **MSD** Test Code: **EPA Method SW8015B/C**

File ID: **12092421.D** Batch ID: **MS12W0924B** Analysis Date: **09/24/2012 18:02**

Sample ID: **12092141-06AGSD** Units : **µg/L** Run ID: **MSD_12_120924A** Prep Date: **09/24/2012 18:02**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
TPH-P (GRO)	1610	250	2000	0	81	51	144	1492	7.7(29)	
Surr: 1,2-Dichloroethane-d4	48.5		50		97	70	130			
Surr: Toluene-d8	52.5		50		105	70	130			
Surr: 4-Bromofluorobenzene	45.2		50		90	70	130			

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.

Alpha Analytical, Inc.

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Date: *28-Sep-12*

QC Summary Report

Work Order: 12092144

Method Blank

Type: **MBLK** Test Code: **EPA Method SW8260B**

File ID: **12092406.D** Batch ID: **MS12W0924A** Analysis Date: **09/24/2012 12:19**

Sample ID: **MBLK MS12W0924A** Units : **µg/L** Run ID: **MSD_12_120924A** Prep Date: **09/24/2012 12:19**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Tertiary Butyl Alcohol (TBA)	ND	10								
Methyl tert-butyl ether (MTBE)	ND	0.5								
Benzene	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	10.1		10		101	70	130			
Surr: Toluene-d8	10.6		10		106	70	130			
Surr: 4-Bromofluorobenzene	10.2		10		102	70	130			

Laboratory Control Spike

Type: **LCS** Test Code: **EPA Method SW8260B**

File ID: **12092404.D** Batch ID: **MS12W0924A** Analysis Date: **09/24/2012 11:34**

Sample ID: **LCS MS12W0924A** Units : **µg/L** Run ID: **MSD_12_120924A** Prep Date: **09/24/2012 11:34**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	9.32	0.5	10		93	65	140			
Benzene	10.2	0.5	10		102	70	130			
Toluene	10.4	0.5	10		104	80	120			
Ethylbenzene	8.87	0.5	10		89	80	120			
m,p-Xylene	8.06	0.5	10		81	70	130			
o-Xylene	8.09	0.5	10		81	70	130			
Surr: 1,2-Dichloroethane-d4	10.2		10		102	70	130			
Surr: Toluene-d8	10.3		10		103	70	130			
Surr: 4-Bromofluorobenzene	8.72		10		87	70	130			

Sample Matrix Spike

Type: **MS** Test Code: **EPA Method SW8260B**

File ID: **12092418.D** Batch ID: **MS12W0924A** Analysis Date: **09/24/2012 16:54**

Sample ID: **12092141-06AMS** Units : **µg/L** Run ID: **MSD_12_120924A** Prep Date: **09/24/2012 16:54**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	56.2	1.3	50	0	112	47	150			
Benzene	57.6	1.3	50	0	115	59	138			
Toluene	59.5	1.3	50	0	119	68	130			
Ethylbenzene	50.3	1.3	50	0	101	68	130			
m,p-Xylene	46.2	1.3	50	0	92	68	131			
o-Xylene	47	1.3	50	0	94	70	130			
Surr: 1,2-Dichloroethane-d4	48.7		50		97	70	130			
Surr: Toluene-d8	53.1		50		106	70	130			
Surr: 4-Bromofluorobenzene	43.4		50		87	70	130			

Sample Matrix Spike Duplicate

Type: **MSD** Test Code: **EPA Method SW8260B**

File ID: **12092419.D** Batch ID: **MS12W0924A** Analysis Date: **09/24/2012 17:17**

Sample ID: **12092141-06AMSD** Units : **µg/L** Run ID: **MSD_12_120924A** Prep Date: **09/24/2012 17:17**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	54.5	1.3	50	0	109	47	150	56.2	3.2(40)	
Benzene	56.7	1.3	50	0	113	59	138	57.61	1.6(21)	
Toluene	57.9	1.3	50	0	116	68	130	59.53	2.8(20)	
Ethylbenzene	48.9	1.3	50	0	98	68	130	50.29	2.9(20)	
m,p-Xylene	45.6	1.3	50	0	91	68	131	46.15	1.3(20)	
o-Xylene	45.8	1.3	50	0	92	70	130	46.99	2.5(20)	
Surr: 1,2-Dichloroethane-d4	48.3		50		97	70	130			
Surr: Toluene-d8	52.3		50		105	70	130			
Surr: 4-Bromofluorobenzene	43.1		50		86	70	130			

Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date: *28-Sep-12*

QC Summary Report

Work Order: 12092144

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

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

CA

WorkOrder : STR12092144

Report Due By : 5:00 PM On : 28-Sep-12

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

Client:
Stratus Environmental
3330 Cameron Park Drive
Suite 550
Cameron Park, CA 95682-8861

EDD Required : Yes

Sampled by : C. Hill

PO :

Client's COC # : 60841 Job : B & C Mini Mart

Cooler Temp	Samples Received	Date Printed
5 °C	21-Sep-12	21-Sep-12

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

Alpha Sample ID	Client Sample ID	Matrix	Collection Date	No. of Bottles Alpha	Sub	TAT	Requested Tests TPH/P_W	VOC_W							Sample Remarks
STR12092144-01A	MW2	AQ	09/20/12 06:05	5	0	5	GAS-C	BTXE/MTBE /TBA_C							
STR12092144-02A	MW3	AQ	09/20/12 05:30	5	0	5	GAS-C	BTXE/MTBE /TBA_C							
STR12092144-03A	MW4	AQ	09/20/12 04:55	5	0	5	GAS-C	BTXE/MTBE /TBA_C							
STR12092144-04A	MW7	AQ	09/20/12 07:55	5	0	5	GAS-C	BTXE/MTBE /TBA_C							
STR12092144-05A	MW13	AQ	09/20/12 06:40	5	0	5	GAS-C	BTXE/MTBE /TBA_C							

Comments: Security seals intact. Frozen ice. ;

	Signature	Print Name	Company	Date/Time
Logged in by:		Sarah Nei	Alpha Analytical, Inc.	9/21/12 1100

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:
Company Name: Stantec
Attn: Scott
Address: 3330 Cameron Park Dr
City, State, Zip: Cameron Park
Phone Number: 530 626 6000 Fax: 530 626 6005

Alpha Analytical, Inc.
255 Glendale Avenue, Suite 21
Sparks, Nevada 89431-5778
Phone (775) 355-1044
Fax (775) 355-0406

60841

Samples Collected From Which State? AZ ____ CA X NV ____ WA ____ DOD Site ____
ID ____ OR ____ OTHER ____ Page # 1 of 1

Consultant / Client Name: B+C Mini Mart
Address:
City, State, Zip: Livermore
Job #:
Job Name:
Report Attention / Project Manager
Name: Scott
Email:
Phone: Mobile:

Analyses Required

Data Validation Level: III or IV

EDD / EDF? YES ____ NO ____
Global ID #:

Time Sampled	Date Sampled	Matrix* See Key Below	P.O. # / Lab ID Number (Office Use Only)	Sample Description	TAT	Field Filtered	# Containers**	GRO BTEX	MTBE	TBA	[illegible]				REMARKS
0605	9/20/12	AQ	1209121144-01A	MW2	3PD		5-V	X	X	X					
0530			02A	MW3			5-V	X	X	X					
0455			03A	MW4			5-V	X	X	X					
0755			04A	MW7			5-V	X	X	X					
0640			05A	MW13			5-V	X	X	X					

ADDITIONAL INSTRUCTIONS:

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled By: Scott

Relinquished by: (Signature/Affiliation)	Received by: (Signature/Affiliation)	Date:	Time:
Scott Stanton		9-20-12	1400
Relinquished by: (Signature/Affiliation)	Received by: (Signature/Affiliation)	Date:	Time:
	Alpha	9/21/12	1053
Relinquished by: (Signature/Affiliation)	Received by: (Signature/Affiliation)	Date:	Time:

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other AR - Air **: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar 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.

APPENDIX D

GEOTRACKER ELECTRONIC SUBMITTAL CONFIRMATIONS

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_WELL FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	GEO_WELL
Report Title:	3Q12 QMR GeoWell 9-20-12
Facility Global ID:	T0600100930
Facility Name:	DESERT PETROLEUM #795
File Name:	GEO_WELL.zip
Organization Name:	Stratus Environmental, Inc.
Username:	STRATUS NOCAL
IP Address:	12.186.106.98
Submittal Date/Time:	10/19/2012 8:39:48 AM
Confirmation Number:	1632740080

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STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A EDF FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	EDF
Report Title:	3Q QMR ANALYTICALS 9-20-12
Report Type:	Monitoring Report - Quarterly
Facility Global ID:	T0600100930
Facility Name:	DESERT PETROLEUM #795
File Name:	12092144_EDF.zip
Organization Name:	Stratus Environmental, Inc.
Username:	STRATUS NOCAL
IP Address:	12.186.106.98
Submittal Date/Time:	10/17/2012 3:29:35 PM
Confirmation Number:	9842391252

VIEW QC REPORT

VIEW DETECTIONS REPORT

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