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**Alameda County
Environmental Health**

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October 24, 2007

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: Well Installation and Destruction 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. (MIGI), has prepared this *Well Installation and Destruction Report* for former USA Service Station No. 57 (the site), located at 10700 MacArthur Boulevard, Oakland, California (see Figure 1). In a letter dated July 25, 2007, Alameda County Health Care Services Agency (ACHCSA) approved the installation of two air sparge wells, and the destruction of one groundwater monitoring well, at the site. This report documents completion of these activities, and findings associated with completion of the work.

SITE BACKGROUND

The site is currently an undeveloped, partially paved parcel situated on the western corner of the intersection of 108th 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.

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 twelve 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 dual phase extraction (DPE) technology have been periodically conducted at the site since July 2004. Six DPE events to reduce the subsurface petroleum hydrocarbon mass were conducted between July 2004 and August 2006. 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, 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, 2005, 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.

Based on the findings of the first two DPE events, Stratus, in a work plan 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.

A third DPE petroleum hydrocarbon mass removal event was conducted at the site between August 29, 2005, 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 were extracted in aqueous phase during this DPE event.

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

The construction and installation of an oxygen injection system 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, 2006, 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 of GRO were extracted in vapor and aqueous phases during this DPE event.

A fifth DPE petroleum hydrocarbon mass removal event was conducted at the site between May 1, 2006, and May 25, 2006, using wells EX-1 through EX-4 for extraction. 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, 2006, and August 10, 2006, using wells EX-1 through EX-4 for

extraction. An applied vacuum in the range of 16 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 1,900 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 47.63 pounds of GRO were extracted in vapor phase and 0.0072 pounds of GRO were removed from the subsurface in aqueous phase during the sixth DPE event.

SITE INVESTIGATION ACTIVITIES

The objectives of this investigation were to:

- Install air sparge wells to be used in future remediation events at the site.
- Further characterize petroleum hydrocarbon impact to the subsurface.
- Destroy a damaged groundwater monitoring well.

To accomplish these objectives, Stratus implemented the following work activities:

- Drilled and installed two 1-inch diameter air sparge wells (AS-1 and AS-2) to approximately 20 feet bgs using 8-inch diameter hollow stem augers.
- Collected soil samples in 5-foot intervals during the advancement of the well borings.
- Destroyed well MW-6 by pressure grouting, following removal of an obstruction within the well.

Prior to implementation of field activities, well installation permits were obtained from Alameda County Public Works Agency (ACPWA). Drilling locations were marked 48 hours prior to fieldwork. Underground Service Alert, ACPWA, ACHCSA, MIGI, and the property owner were notified 48 hours prior to beginning work activities. Standard field practices and procedures for all fieldwork are described in Appendix A. All work was conducted under the direct supervision of a State of California Registered Geologist. A copy of the drilling permit is provided in Appendix B.

FIELD ACTIVITIES

Soil Borings

A Stratus geologist was on-site to oversee completion of work activities on August 23 and October 16, 2007. Mitchell Drilling Environmental Corporation (C-57 #672617) completed the well installation activities using a truck mounted drill rig equipped with 8-inch diameter hollow stem augers. Gregg Drilling and Testing, Inc. (C-57 #485165)

completed the well destruction activities using a limited access drill rig. Soils collected during the advancement of borings AS-1 and AS-2 were classified on-site using the Unified Soil Classification System. Boring logs detailing soil stratigraphy are presented in Appendix B. Borings AS-1 and AS-2 were converted to air sparge wells, as described below. Well boring locations are included on Figure 2.

The initial 5 feet of borings AS-1 and AS-2 were advanced with a hand auger and/or post-hole digger to reduce the possibility of damaging underground utilities. Soil samples were collected from the subsurface using a California-modified split spoon sampler equipped with three brass sleeves. The end of each retained sample was covered with Teflon™ sheets, capped, and sealed. Each sample was labeled, placed in a resealable plastic bag, and stored in an ice-chilled cooler. Select soil samples were forwarded to a state certified analytical laboratory for chemical analysis. Strict chain-of-custody procedures were followed from the time the samples were collected until the time the samples were relinquished to the laboratory.

Additional soil from each sampled interval was placed and sealed in plastic bags to allow the accumulation of volatile organic compound (VOC) vapors within the airspace in the bags. A portable photo-ionization detector (PID) was used to measure VOC concentrations from each sample in parts per million by volume (ppmv). PID results are included on the boring logs presented in Appendix B.

Air Sparge Well Installation

Wells AS-1 and AS-2 were constructed using 1-inch diameter PVC well casing and 2.5 feet of 0.02-inch diameter factory slotted well screen, situated from approximately 17.5 to 20 feet bgs. A filter pack of Lonestar™ #3 sand was placed in the annular space around the well from the bottom of the casing to approximately 3 feet above the top of the well screen. Approximately two feet of bentonite was placed on top of the filter pack and hydrated with clean water to provide a transition seal for the well. The remaining annular space around the well casing was backfilled with neat cement up to surface grade. A traffic rated vault box was placed over the well, and a watertight locking cap was placed on the top of the well casing. Drilling and well construction information is summarized on Table 1. Well construction details and DWR well completion reports for wells AS-1 and AS-2 are included in Appendix B.

Monitoring Well Destruction

Prior to destruction, the limited access drill rig was equipped with downhole tooling used to remove an obstruction (soil material). Once the obstruction was sufficiently removed to allow placement of tremie pipe to the bottom of the well, neat cement was used to grout the well casing. A DWR well destruction report for well MW-6 is included in Appendix B.

Waste Management

Drill cuttings and wastewater generated during drilling activities were placed in properly labeled, DOT-approved, 55-gallon steel drums and stored on-site pending disposal. A sample of the soil cuttings was collected and submitted for chemical analysis to determine the appropriate disposal facility. Belshire Environmental Services Inc. (Belshire) will transport all soil and wastewater to licensed facilities for disposal.

ANALYTICAL METHODS

Soil samples were forwarded to Alpha Analytical, Inc., a California state-certified laboratory (ELAP #2019), for chemical analysis under strict chain-of-custody procedures. The samples were analyzed for GRO using USEPA Method SW8015B DHS/LUFT Manual, and for BTEX, MTBE, TBA, ethyl tertiary butyl ether (ETBE), di-isopropyl ether (DIPE), and tertiary amyl methyl ether (TAME) using USEPA Method SW8260B. Soil analytical results are presented in Table 2, and certified analytical reports with chain-of-custody records are presented in Appendix C.

FINDINGS

Site Geology

The geology beneath the site generally consists of fine grained soil situated above sedimentary bedrock. Soil types encountered during this investigation are generally similar to findings of previous work at the site. Clay, silty clay, and clayey sand soils were predominately encountered during this investigation and previous site assessment activities. Gravelly soils were noted between approximately 18 and 21 feet bgs at boring AS-1. Weathered sedimentary bedrock (logged as sandstone, siltstone, and mudstone) have been observed at the site at depths ranging from approximately 17 to 24 feet bgs.

Analytical Results

Soil Analytical Results

Petroleum hydrocarbons were detected in soil samples collected from each of the sampled well borings. GRO was reported at concentrations of 80 milligrams per kilogram (mg/Kg) (11 feet bgs) and 500 mg/Kg (16 feet bgs) for the samples collected from boring AS-1. GRO concentrations ranged from 1.3 mg/Kg to 19 mg/Kg for samples collected from between 16 and 26 feet bgs from boring AS-2. Ethylbenzene (0.057 mg/Kg and 8.8 mg/Kg) and total xylenes (0.041 mg/Kg and 1.72 mg/Kg) were also reported in the samples collected from boring AS-1. Benzene (0.0058 mg/Kg to 0.67 mg/Kg) was detected in each sample collected from boring AS-2. Toluene,

ethylbenzene, and xylenes were reported at maximum concentrations of 0.018 mg/Kg, 0.43 mg/Kg, and 1.31 mg/Kg, respectively, from the well boring AS-2 samples.

SUMMARY

The following summarizes the findings of this investigation:

- Two air sparge wells were installed on-site for use in site remediation events.
- Petroleum hydrocarbons were detected in the soil samples collected from the well borings, with maximum GRO concentrations of 19 mg/Kg (AS-2) and 500 mg/Kg (AS-1).
- Damaged well MW-6 was grouted to surface grade after removing an obstruction in the casing.

LIMITATIONS

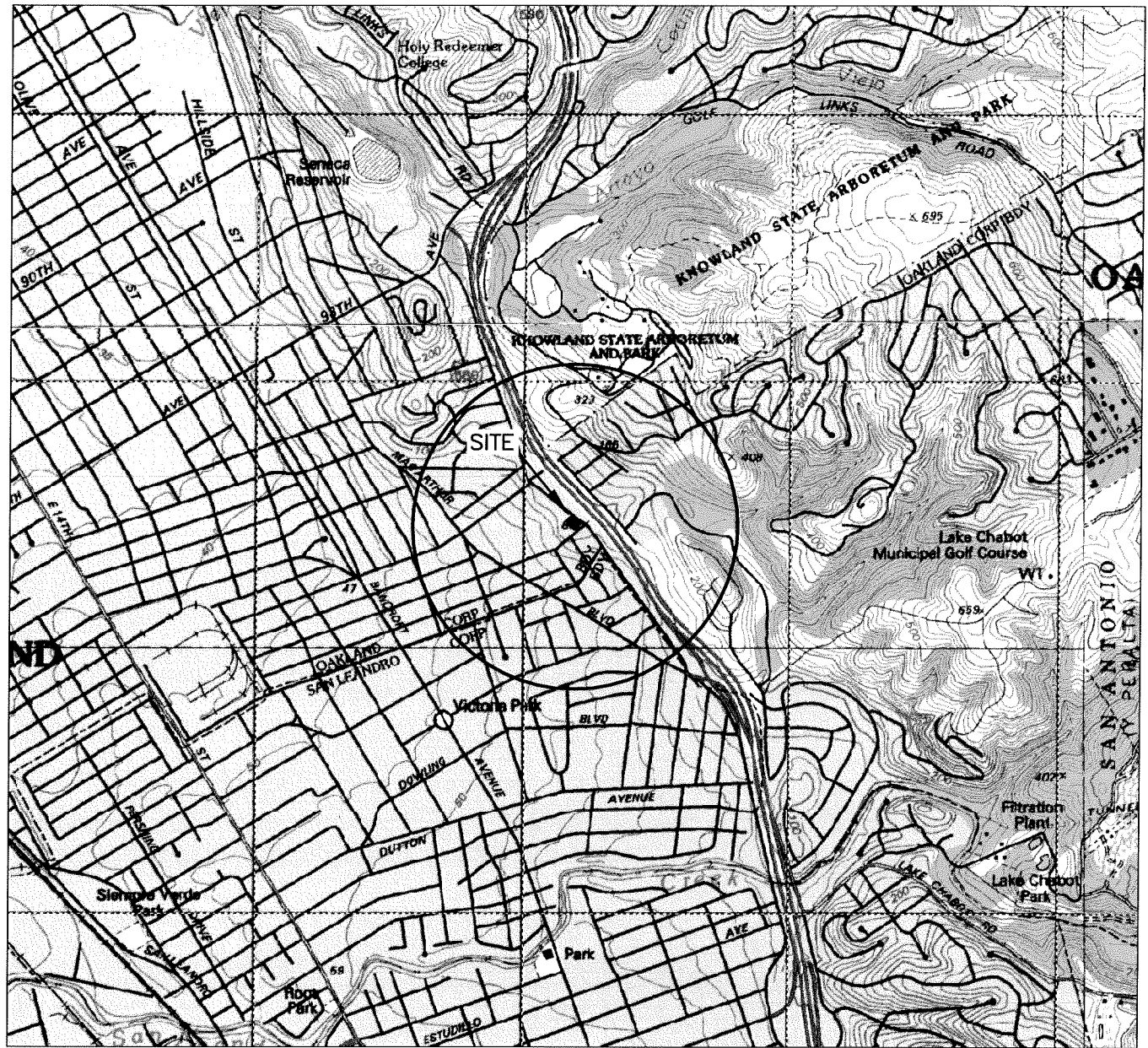
This report was prepared in general accordance with accepted standards of care that existed at the time this work was performed. No other warranty, expressed or implied, is made. Conclusions and recommendations are based on field observations and data obtained from this work and previous investigations. 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.

TABLE 1
DRILLING AND WELL CONSTRUCTION SUMMARY
Former USA Station #57
10700 MacArthur Boulevard
Oakland, California

ID	Date	Boring Dia. (inches)	Boring Depth (feet bgs)	Casing Diameter (inches)	Casing Depth (feet bgs)	Slot Size (inches)	Screen Interval (feet bgs)
<u>Monitoring 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
<u>Extraction Wells</u>							
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
<u>Air Sparge Wells</u>							
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
<u>Soil Borings</u>							
A	2/12/87	8	20				
B	2/12/87	6	20				
C	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				

TABLE 2
SOIL ANALYTICAL RESULTS
FORMER USA GASOLINE STATION 57
10700 MACARTHUR BOULEVARD, OAKLAND, CA

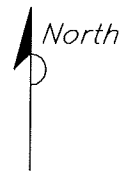
Sample ID	Sample Depth (feet bgs)	Date Collected	GRO (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl-benzene (mg/Kg)	Total Xylenes (mg/Kg)	MTBE (mg/Kg)	TBA (mg/Kg)	DIPE (mg/Kg)	ETBE (mg/Kg)	TAME (mg/Kg)
<u>Boring AS-1</u>												
AS-1-11 Ft.	11	8/23/07	80	<0.02*	<0.02*	0.057	0.041	<0.02*	<2.0*	<0.04*	<0.04*	<0.04*
AS-1-16 Ft.	16	8/23/07	500	<0.2*	<0.2*	8.8	1.72	<0.2*	<20*	<0.4*	<0.4*	<0.4*
<u>Boring AS-2</u>												
AS-2-16 Ft.	16	8/23/07	1.6	0.0058	<0.005	<0.005	<0.005	<0.005	<0.50	<0.020	<0.020	<0.020
AS-2-21 Ft.	21	8/23/07	19	0.67	0.018	0.43	1.31	<0.01*	<1.0*	<0.02*	<0.02*	<0.02*
AS-2-26 Ft.	26	8/23/07	1.3	0.16	<0.005	0.029	0.031	<0.005	<0.50	<0.020	<0.020	<0.020
<u>Explanation</u>						<u>Analytical Methods</u>						
GRO = Gasoline range organics						GRO analyzed using EPA Method SW8015B/DHS LUFT Manual						
BTEX = Benzene, toluene, ethylbenzene, and xylenes						BTEX, MTBE, TBA, DIPE, ETBE, and TAME analyzed using EPA Method SW8260B						
MTBE = Methyl tertiary butyl ether						<u>Analytical Laboratory</u>						
TBA=Tertiary butyl alcohol						Alpha Analytical, Inc. (ELAP #2019)						
DIPE =Di-isopropyl ether												
ETBE = Ethyl tertiary butyl ether												
TAME = Tertiary amyl methyl ether												
bgs = below ground surface												
mg/Kg = milligrams per kilogram												
* = Reporting limits increased due to high concentrations of target analytes												



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



QUADRANGLE LOCATION



SCALE 1:24,000

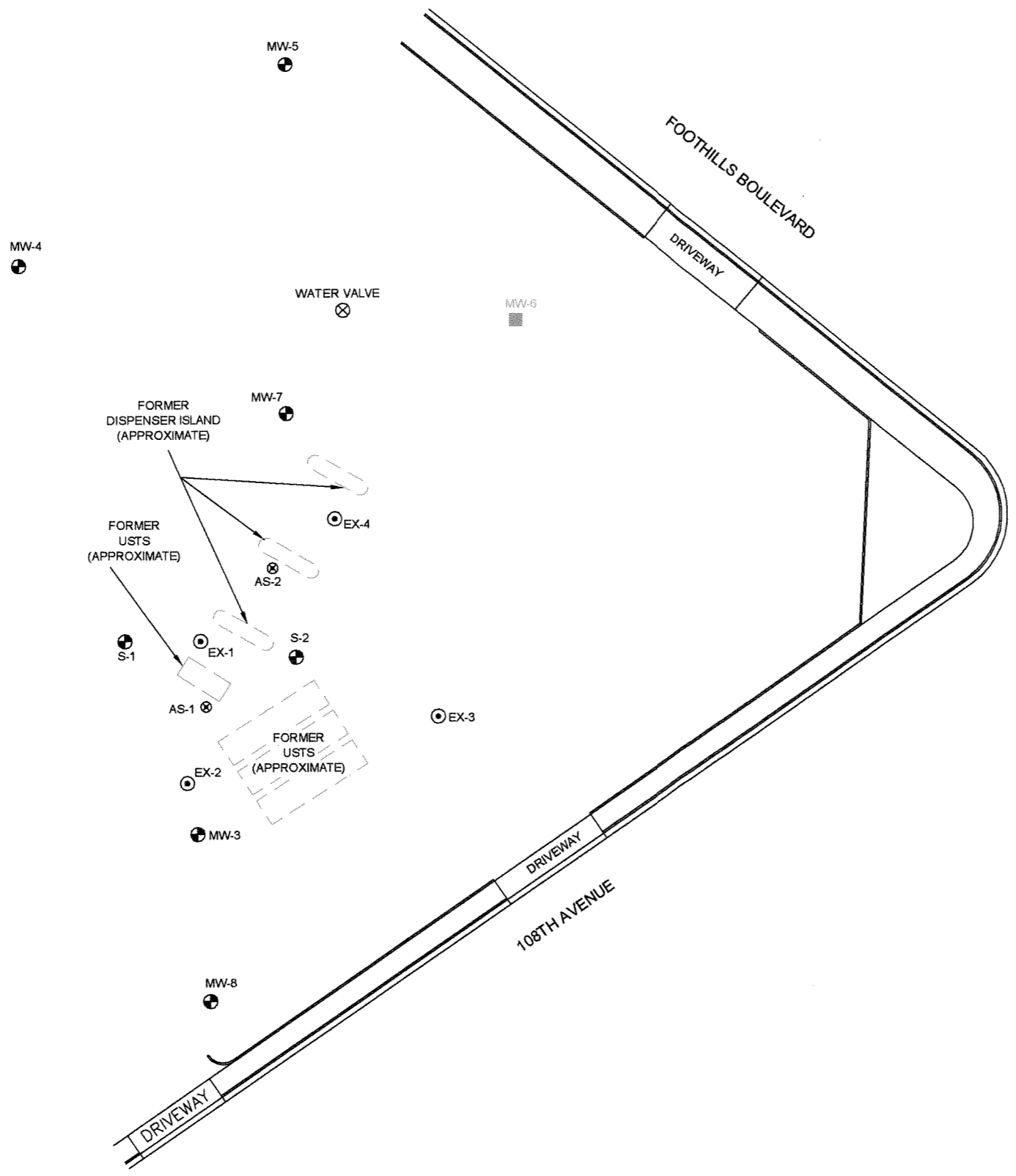
STRATUS
 ENVIRONMENTAL, INC.

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

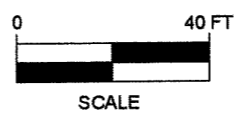
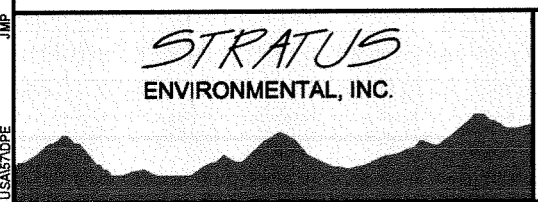
FIGURE
1
 PROJECT NO.
 2007-0057-01



- LEGEND
- MW-1 MONITORING WELL LOCATION
 - ⊗ WATER VALVE LOCATION
 - ⊙ EX-1 EXTRACTION WELL LOCATION
 - MW-6 ABANDONED WELL LOCATION
 - ⊗ AS-1 APPROXIMATE AIR SPARGE WELL LOCATION



USA57DPE JMP REV September 17, 2007 USA 57 Stanplan



FORMER USA STATION NO. 57
10700 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

SITE PLAN

FIGURE
2
PROJECT NO.
2007-0057-01

APPENDIX A

FIELD PRACTICES AND PROCEDURES

FIELD PRACTICES AND PROCEDURES

General procedures used by Stratus in site assessments for drilling exploratory borings, collecting samples, and installing monitoring wells are described herein. These general procedures are used to provide consistent and reproducible results; however, some procedure may be modified based on site conditions. A California Professional Geologist or Civil Engineer supervises the following procedures.

PRE-FIELD WORK ACTIVITIES

Health and Safety Plan

Field work performed by Stratus at the site is conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document which describes the hazards that may be encountered in the field and specifies protective equipment, work procedures, and emergency information. A copy of the SHSP is at the site and available for reference by appropriate parties during work at the site.

Locating Underground Utilities

Prior to commencement of any work that is to be below surface grade, the location of the excavation, boring, etc., is marked with white paint as required by law. An underground locating service such as Underground Service Alert (USA) is contacted. The locating company contacts the owners of the various utilities in the vicinity of the site to mark the locations of their underground utilities. Any invasive work is preceded by hand augering to a minimum depth of five feet below surface grade to avoid contact with underground utilities.

FIELD METHODS AND PROCEDURES

Exploratory Soil Borings

Soil borings will be drilled using a truck-mounted, hollow stem auger or air rotary casing hammer drill rig. Soil samples for logging will be obtained from auger-return materials and by advancing a modified California split-spoon sampler equipped with brass or stainless steel liners into undisturbed soil beyond the tip of the auger. Soils will be logged by a geologist according to the Unified Soil Classification System and standard geological techniques. Drill cuttings will be screened using a portable photoionization detector (PID) or a flame ionization detector (FID). Exploratory soil borings not used for monitoring well installation will be backfilled to the surface with a bentonite-cement slurry pumped into the boring through a tremie pipe.

Soil sampling equipment will be cleaned with a detergent water solution, rinsed with clean water, and equipped with clean liners between sampling intervals. Augers and

samplers will be steam cleaned between each boring to reduce the possibility of cross contamination. Steam cleaning effluent will be contained in 55-gallon drums and temporarily stored on site. The disposal of the effluent will be the responsibility of the client.

Soil Sample Collection

During hollow stem auger drilling, soil samples will be collected in cleaned brass, two by six inch tubes. The tubes will be set in an 18-inch-long split-barrel sampler. The sampler will be conveyed to bottom of the borehole attached to a wire-line hammer device on the drill rig. When possible, the split-barrel sampler will be driven its entire length, either hydraulically or by repeated pounding a 140-pound hammer using a 30-inch drop. The number of drops (blows) used to drive the sampler will be recorded on the boring log. The sampler will be extracted from the borehole, and the tubes containing the soil samples will be removed. Upon removal, the ends of the lowermost tube will be sealed with Teflon sheets and plastic caps. Soil samples for chemical analysis will be labeled, placed on ice, and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation. Soil samples are not normally collected during air rotary drilling.

Soil Classification

Soil samples collected in brass tubes, or drill cuttings evacuated from the borehole during air rotary drilling, will be logged on site by a geologist using the Unified Soil Classification System. Representative portions of the brass sleeve samples will be retained for further examination and for verification of the field classification. Logs of the borings indicating the depth and identification of the various strata and pertinent information regarding the method of maintaining and advancing the borehole will be prepared.

Soil Sample Screening

Soil samples selected for chemical analysis will be determined from a head-space analysis using a PID or an FID. The soil will be placed in a Ziploc[®] bag, sealed, and allowed to reach ambient temperature, at which time the PID probe will be inserted into the Ziploc[®] bag. The total volatile hydrocarbons present are detected by the PID and reported in parts per million by volume (ppmv). The PID will be calibrated to an isobutylene standard.

At least two soil samples retained from each soil boring will be submitted for chemical analysis unless otherwise specified in the scope of work. Soil samples selected for analysis typically represent the highest PID reading recorded for each soil boring and the sample just above first-encountered groundwater. Additional soil samples will be

submitted based on the findings at each individual borehole and the project specific data needs.

Stockpiled Drill Cuttings and Soil Sampling

Drill cuttings generated during the drilling procedure will be stockpiled on site, placed in 55-gallon steel drums, or containerized in covered roll-off steel containers. Stockpiled drill cuttings will be placed on and covered with plastic sheeting. A sample of the soil cuttings will be submitted for chemical analysis to determine an appropriate disposal method. Stratus Environmental will recommend an appropriate facility to accept the drill cuttings based on the analytical results. The client will be responsible for disposal of the drill cuttings.

Prior to collecting soil samples, Stratus personnel will calculate the approximate volume of soil in the stockpile. The stockpile will then be divided into sections, if warranted, containing the predetermined volume sampling interval. Four soil samples will be collected from the stockpile and composited into one sample by the laboratory prior to analysis. The soil samples will be collected in cleaned brass, two by six inch tubes using a hand driven sampling device. To reduce the potential for cross-contamination between samples, the sampler will be cleaned between each sampling event. Upon recovery, the sample container will be sealed at each end with Teflon sheeting and plastic caps to minimize the potential of volatilization and cross-contamination prior to chemical analysis. The soil sample will be labeled, placed on ice, and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation.

Direct Push Technology, Water Sampling

A well known example of direct push technology for water sampling is the Hydropunch[®]. For the purpose of this field method the term hydropunch will be used instead of direct push technology for water sampling.

The hydropunch is typically used with a drill rig. A boring is drilled with hollow stem-augers to just above the sampling zone. In some soil conditions the drill rig can push directly from the surface to the sampling interval. The hydropunch is conveyed to the bottom of the boring using drill rods. Once on bottom the hydropunch is driven a maximum of five feet. The tool is then opened by lifting up the drill rod no more than four feet. Once the tool is opened, water enters and a sample can be collected with a bailer or tubing utilizing a peristaltic pump. Soil particles larger than silt are prevented from entering the tool by a screen within the tool. The water sample is collected, labeled, and handled according to the Quality Assurance Plan.

Well Installation Procedures

Groundwater monitoring, soil vapor extraction, groundwater extraction, air sparging, and ozone injection wells, of variable diameters, are normally constructed during

environmental assessment and remediation projects. Wells are normally constructed using Schedule 40 polyvinyl chloride (PVC) casing. The borehole diameter will be a minimum of four inches larger than the outside diameter of the casing.

Wells installed for environmental assessment and remediation projects are typically cased with threaded, factory-perforated and blank Schedule 40 PVC. The perforated interval consists of slotted casing, generally with 0.01, 0.02, or 0.03-inch-wide by 1.5-inch-long slots, with 42 slots per foot. A threaded or slip PVC cap is secured to the bottom of the casing. The slip cap can be secured with stainless steel screws or friction; no solvents or cements are used. Centering devices may be fastened to the casing to ensure even distribution of filter material and grout within the borehole annulus. The well casing is thoroughly washed and/or steam cleaned, or may be purchased as pre-cleaned, prior to completion.

A filter pack of graded sand will be placed in the annular space between the PVC casing and the borehole wall. Sand will be added to the borehole through the hollow stem of the augers to provide a uniform filter pack around the casing and to stabilize the borehole. The sand pack will be placed to a maximum of 2 feet above the screens, followed by a minimum 1-foot seal consisting of bentonite pellets.

Cement grout containing 5 percent bentonite or concrete will be placed above the bentonite seal to the ground surface. A concrete traffic-rated vault box will be installed over the monitoring well(s). A watertight locking cap will be installed over the top of the well casing. Reference elevations for each monitoring well will be surveyed when more than two wells will be located on site. Well elevations will be surveyed by a California licensed surveyor to the nearest 0.01-foot relative to mean sea level (MSL). Horizontal coordinates of the wells will be measured at the same time. Horizontal coordinates are normally measured in California State Plane Coordinates. Latitudes and longitudes are normally calculated for each well, per California Assembly Bill 2886 (Geotracker) requirements.

Exploratory boring logs and well construction details will be prepared for the final written report.

APPENDIX B

**BORING LOGS, WELL DETAILS, DWR WELL
COMPLETION AND DESTRUCTION FORMS,
AND DRILLING PERMIT**

MAJOR DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE GRAINED SOILS MORE THAN 50% RETAINED ON NO.200 SIEVE	GRAVEL MORE THAN 50% OF COARSE FRACTION RETAINED ON NO.4 SIEVE	CLEAN GRAVEL	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
			GP	POORLY-GRADED GRAVEL
		GRAVEL WITH FINES	GM	SILTY GRAVEL
			GC	CLAYEY GRAVEL
	SAND MORE THAN 50% OF COARSE FRACTION PASSES NO.4 SIEVE	CLEAN SAND	SW	WELL-GRADED SAND, FINE TO COARSE SAND
			SP	POORLY-GRADED SAND
		SAND WITH FINES	SM	SILTY SAND
			SC	CLAYEY SAND
FINE GRAINED SOILS MORE THAN 50% PASSES NO.200 SIEVE	SILT AND CLAY LIQUID LIMIT LESS THAN 50	INORGANIC	ML	SILT
			CL	CLAY
		ORGANIC	OL	ORGANIC SILT, ORGANIC CLAY
	SILT AND CLAY LIQUID LIMIT 50 OR MORE	INORGANIC	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
			CH	CLAY OF HIGH PLASTICITY, FAT CLAY
		ORGANIC	OH	ORGANIC CLAY, ORGANIC SILT
HIGHLY ORGANIC SOILS			PT	PEAT

Ref: Unified Soil Classification System; from American Society for Testing and Materials, 1985

SOIL BORING LOG

Boring No. AS-1

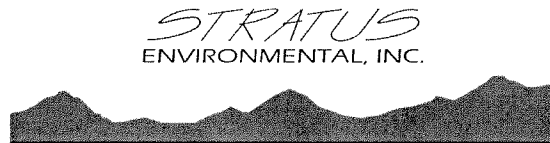
Sheet: 1 of 1

Client	Former USA Station No. 57	Date	August 23, 2007	
Address	10700 MacArthur Boulevard	Drilling Co.	Mitchell Drilling, Environmental	rig type: CME-75
	Oakland, CA	Driller	Edward Mitchell, Jr.	
Project No.	2007-0057-01	Method	Hollow Stem Auger	Hole Diameter: 8 inches
Logged By:	Allan Dudding	Sampler:	2 in. split spoon	
Well Pack	sand: 15.5 ft. to 20 ft.	Well Construction	Casing Material: Schedule 40 PVC	Screen Interval: 17.5 to 20 ft.
	bent.: 13.5 ft. to 15.5 ft.		Casing Diameter: 1 in.	Screen Slot Size: 0.020 -in.
	grout: 0 ft. to 13.5 ft.	Depth to GW:	▽ first encountered = NA	▼ Static =

Sample Type	Sample No.	Blow Count	Sample		Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
			Time	Recov.					
						1		Installed in approximately 6" of concrete pavement. Borehole cleared with hand auger to 5 feet bgs.	
						2			
						5			
S	AS-1-6'	11 15 17	1352	100%		6	CH	Fat Clay, trace sand, CH, very dark grayish brown (2.5Y 3/2), high plasticity, medium grained sand, moist, very stiff to hard. ~95% clay, trace sand.	4.3
						7			
						8			
						9			
						10			
S	AS-1-11'	11 17 23	1403	100%		11	CL	Lean Clay, trace sand and gravel, CL, dark greenish gray (GLE Y1 4/10Y), medium plasticity, fine to medium grained sand, fine grained gravel, moist, hard, hydrocarbon odor. ~95% clay, trace sand and gravel.	235.8
						12			
						13			
						14			
						15			
S	AS-1-16'	8 16 26	1412	100%		16	CL	Lean Clay, trace sand, CL, dark yellowish brown (10YR 4/4), medium plasticity fine to medium grained sand, moist, hard, hydrocarbon odor. ~95% clay, trace sand.	106.5
						17			
						18			
						19			
						20			
Insufficient Recovery		11 50/6"	1428	20%		21	GP	Poorly graded Gravel, GP, light olive brown (2.5Y 5/4), fine to medium grained, dry, dense, no odor, no staining.	13.1
						22			

Recovery Sample

Comments: Boring advanced to 20 feet bgs, sampled to 21 feet bgs.



SOIL BORING LOG

Boring No. AS-2

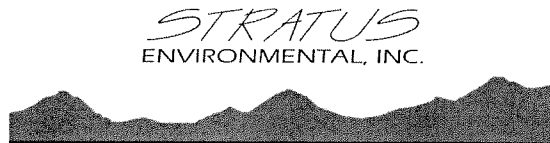
Sheet: 1 of 2

Client	Former USA Station No. 57	Date	August 23, 2007
Address	10700 MacArthur Boulevard Oakland, CA	Drilling Co.	Mitchell Drilling, Environmental rig type: CME-75
Project No.	2007-0057-01	Driller	Edward Mitchell, Jr.
Logged By:	Allan Dudding	Method	Hollow Stem Auger Hole Diameter: 8 inches
		Sampler:	2 in. split spoon
Well Pack	sand: 15.5 ft. to 20 ft. bent.: 13.5 ft. to 15.5 ft. grout: 0 ft. to 13.5 ft.	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 17.5 to 20 ft. Casing Diameter: 1 in. Screen Slot Size: 0.020 -in. Depth to GW: ▽ first encountered = NA ▼ Static =

Sample Type	Sample No.	Blow Count	Sample		Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
			Time	Recov.					
								Well installed on broken asphalt pavement. Borehole cleared using hand auger to 5 feet bgs.	
S	AS-2-5.5'	8 10 14	1112	50%		5 6	CL	Silty Clay, CL, dark greenish gray (GLE Y1 4/10Y), low plasticity, moist, very stiff, no odor, no staining. 70% clay, 30% silt.	0
S	AS-2-11'	9 14 19	1118	100%		10 11	CL	Clay, CL, very dark grayish brown (2.5Y 3/2), medium plasticity, moist, hard, hydrocarbon odor, no staining.	9.8
S	AS-2-16'	14 20 25	1124	100%		15 16	CL	Silty Clay, CL, dark yellowish brown (10YR 4/4) with green mottling, low plasticity, moist, hard, no odor. 70% clay, 30% silt.	59.6

Recovery
Sample

Comments:



SOIL BORING LOG

Boring No. AS-2

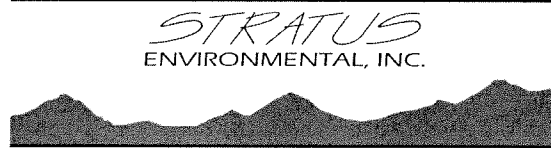
Sheet: 2 of 2

Client	Former USA Station No. 57	Date	August 23, 2007	
Address	10700 MacArthur Boulevard	Drilling Co.	Mitchell Drilling, Environmental	rig type: CME-75
	Oakland, CA	Driller	Edward Mitchell, Jr.	
Project No.	2007-0057-01	Method	Hollow Stem Auger	Hole Diameter: 8 inches
Logged By:	Allan Dudding	Sampler:	2 in. split spoon	

Type	Sample		Blow Count	Sample		Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
	No.			Time	Recov.					
S	AS-2-21'		14 17 36		1132	100%	21 22 23 24 25	CL	Clay, trace sand, CL, dark yellowish brown (10YR 4/4), medium plasticity, medium grained sand, moist, hard, hydrocarbon odor, no staining. ~95% clay, trace sand.	125.4
S	AS-2-26'		17 28 50/5"		1151	100%	26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	CL	Clay, trace sand, CL, dark yellowish brown (10YR 4/4), medium plasticity, medium to coarse grained sand, moist, hard, hydrocarbon odor, no staining. ~95% clay, trace sand.	412

Recovery Sample

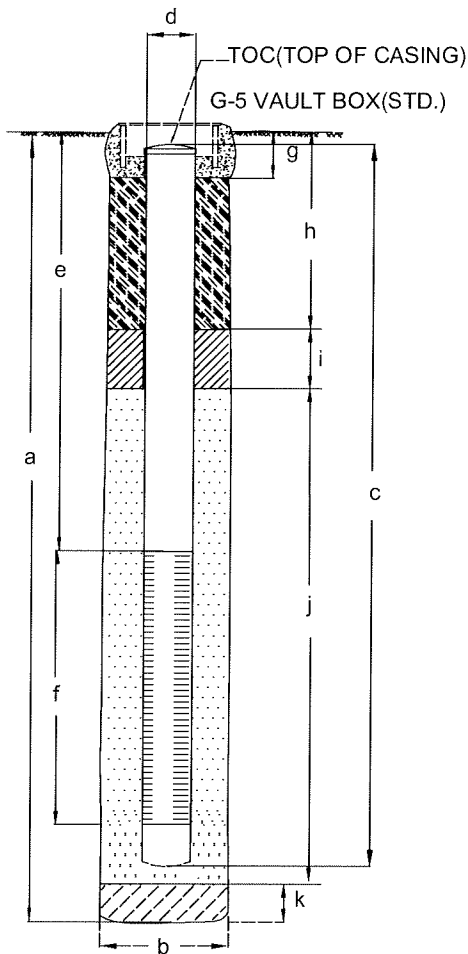
Comments: Boring drilled to 25 feet bgs, sampled to 26.5 feet bgs. Well installed at 20 feet bgs above five feet of bentonite fill.








WELL DETAILS

PROJECT NUMBER: 2007-0057-01
 PROJECT NAME: Former USA Service Station No. 57
 LOCATION: 10700 MacArthur Blvd, Oakland, California
 WELL PERMIT NO.: W2007-0903

BORING/WELL NO.: AS-1
 TOP OF CASING ELEV.: _____
 GROUND SURFACE ELEV.: _____
 DATUM: _____
 INSTALLATION DATE: August 23, 2007



- | | | | |
|---|-----------|---|-------------|
|  | BENTONITE |  | CONCRETE |
|  | CEMENT |  | SAND |
| | |  | PERFORATION |

NOT TO SCALE

EXPLORATORY BORING

a. TOTAL DEPTH 20 ft.
 b. DIAMETER 8 in.
 DRILLING METHOD Hollow Stem Auger

WELL CONSTRUCTION

c. TOTAL CASING LENGTH 20 ft.
 MATERIAL Schedule 40 PVC
 d. DIAMETER 1 in.
 e. DEPTH TO TOP PERFORATIONS 17.5 ft.
 f. PERFORATED
 INTERVAL FROM 17.5 TO 20 ft.
 PERFORATION TYPE Slotted Screen
 PERFORATION SIZE 0.02 in.
 g. SURFACE SEAL 0 to 1.0 ft.
 SEAL MATERIAL Concrete
 h. BACKFILL 1.0 to 13.5 ft.
 BACKFILL MATERIAL Neat Cement
 i. SEAL 13.5 to 15.5 ft.
 SEAL MATERIAL Bentonite
 j. FILTER PACK 15.5 to 20 ft.
 FILTER PACK MATERIAL #3 Sand
 k. BOTTOM SEAL _____
 SEAL MATERIAL N/A

PREPARED BY _____ DATE _____

REVIEWED BY _____ DATE _____

WELL DETAILS

PROJECT NUMBER: 2007-0057-01

PROJECT NAME: Former USA Service Station No. 57

LOCATION: 10700 MacArthur Blvd, Oakland, California

WELL PERMIT NO.: W2007-0904

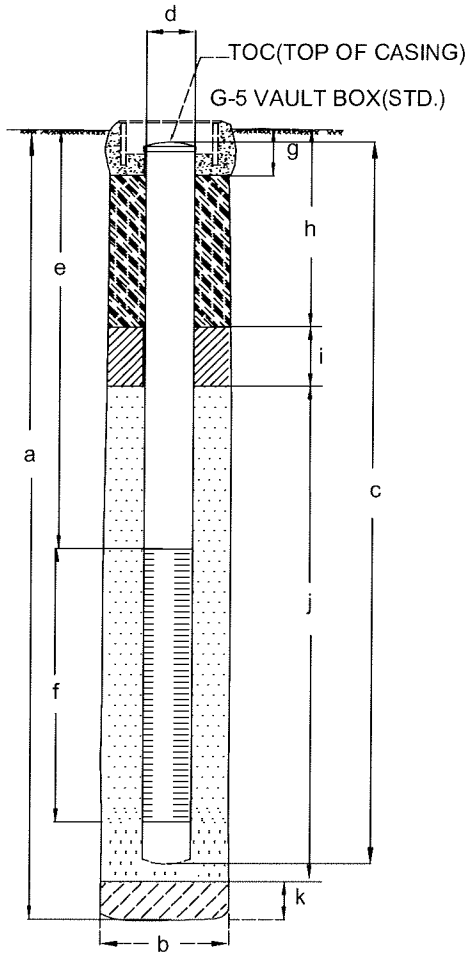
BORING/WELL NO.: AS-2






TOP OF CASING ELEV.: _____

GROUND SURFACE ELEV.: _____

DATUM: _____

INSTALLATION DATE: August 23, 2007



- | | | | |
|---|-----------|---|-------------|
|  | BENTONITE |  | CONCRETE |
|  | CEMENT |  | SAND |
| | |  | PERFORATION |

NOT TO SCALE

EXPLORATORY BORING

a. TOTAL DEPTH 25 ft.

b. DIAMETER 8 in.

DRILLING METHOD Hollow Stem Auger

WELL CONSTRUCTION

c. TOTAL CASING LENGTH 20 ft.

MATERIAL Schedule 40 PVC

d. DIAMETER 1 in.

e. DEPTH TO TOP PERFORATIONS 17.5 ft.

f. PERFORATED

INTERVAL FROM 17.5 TO 20 ft.

PERFORATION TYPE Slotted Screen

PERFORATION SIZE 0.02 in.

g. SURFACE SEAL 0 to 1.0 ft.

SEAL MATERIAL Concrete

h. BACKFILL 1.0 to 13.5 ft.

BACKFILL MATERIAL Neat Cement

i. SEAL 13.5 to 15.5 ft.

SEAL MATERIAL Bentonite

j. FILTER PACK 15.5 to 20 ft.

FILTER PACK MATERIAL #3 Sand

k. BOTTOM SEAL 20 to 25 ft.

SEAL MATERIAL Bentonite

PREPARED BY _____ DATE _____

REVIEWED BY _____ DATE _____

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

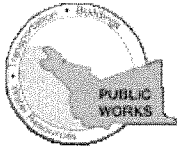
REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

Alameda County Public Works Agency - Water Resources Well Permit



399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 08/07/2007 By jamesy

Permit Numbers: W2007-0903 to W2007-0905
Permits Valid from 08/17/2007 to 10/16/2007

Application Id: 1186505601200
Site Location: 10700 MacArthur Blvd (Foothill Sq. Shopping Center), Oakland, CA 94605
Project Start Date: 08/16/2007
Extension Start Date: 08/17/2007
Extension Count: 1

City of Project Site: Oakland
Completion Date: 08/17/2007
Extension End Date: 10/16/2007
Extended By: vickyh1

Applicant: Stratus Environmental Inc. - Scott Bittinger
3330 Cameron Park Drive #550, Cameron Park, CA 95682
Property Owner: Jay-Phares Corporation
10700 MacArthur Blvd., Oakland, CA 94605
Client: ** same as Property Owner **

Phone: 530-676-2062
Phone: --

	Total Due:	\$900.00
Receipt Number: WR2007-0360	Total Amount Paid:	\$900.00
Payer Name : Stratus	Paid By: CHECK	PAID IN FULL

Works Requesting Permits:

Well Construction-Monitoring-Monitoring - 2 Wells
Driller: Mitchell Drilling - Lic #: 672617 - Method: auger

Work Total: \$600.00

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2007-0903	08/07/2007	11/14/2007	AS-1	8.00 in.	1.00 in.	14.00 ft	25.00 ft
W2007-0904	08/07/2007	11/14/2007	AS-2	8.00 in.	1.00 in.	14.00 ft	25.00 ft

Specific Work Permit Conditions

1. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, property damage, personal injury and wrongful death.
2. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.
3. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.
4. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well construction or destruction (Sections 13750 through 13755

Alameda County Public Works Agency - Water Resources Well Permit

(Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Including permit number and site map.

5. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 or email to vickyh@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
6. Wells shall have a Christy box or similar structure with a locking cap or cover. Well(s) shall be kept locked at all times. Well(s) that become damaged by traffic or construction shall be repaired in a timely manner or destroyed immediately (through permit process). No well(s) shall be left in a manner to act as a conduit at any time.
7. Minimum surface seal thickness is two inches of cement grout placed by tremie
8. Minimum seal (Neat Cement seal) depth for monitoring wells is 5 feet below ground surface(BGS) or the maximum depth practicable or 20 feet.
9. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.

Well Destruction-Monitoring - 1 Wells

Driller: Gregg Drilling - Lic #: 485165 - Method: auger

Work Total: \$300.00

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth	State Well #	Orig. Permit #	DWR #
W2007-0905	08/07/2007	11/14/2007	MW-6	10.00 in.	4.00 in.	8.00 ft	42.00 ft			

Specific Work Permit Conditions

1. Drilling Permit(s) can be voided/ cancelled only in writing. It is the applicant's responsibility to notify Alameda County Public Works Agency, Water Resources Section in writing for an extension or to cancel the drilling permit application. No drilling permit application(s) shall be extended beyond ninety (90) days from the original start date. Applicants may not cancel a drilling permit application after the completion date of the permit issued has passed.
2. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.
3. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well construction or destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Including permit number and site map.
4. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 or email to vickyh@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours

Alameda County Public Works Agency - Water Resources Well Permit

prior to drilling.

5. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

6. Remove the Christy box or similar structure.

Destroy well by grouting neat cement with a tremie pipe or pressure grouting (25 psi for 5min.) to the bottom of the well and by filling with neat cement to three (3-5) feet below surface grade. Allow the sealing material to spill over the top of the casing to fill any annular space between casing and soil.

After the seal has set, backfill the remaining hole with concrete or compacted material to match existing conditions.

APPENDIX C

CERTIFIED 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 08/25/07

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)	80,000		4,000 µg/Kg	08/23/07	08/28/07
AS-1-11 Ft.	Tertiary Butyl Alcohol (TBA)	ND	V	2,000 µg/Kg	08/23/07	08/28/07
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	V	20 µg/Kg	08/23/07	08/28/07
STR07082721-01A	Di-isopropyl Ether (DIPE)	ND	V	40 µg/Kg	08/23/07	08/28/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND	V	40 µg/Kg	08/23/07	08/28/07
	Benzene	ND	V	20 µg/Kg	08/23/07	08/28/07
	Tertiary Amyl Methyl Ether (TAME)	ND	V	40 µg/Kg	08/23/07	08/28/07
	Toluene	ND	V	20 µg/Kg	08/23/07	08/28/07
	Ethylbenzene	57		20 µg/Kg	08/23/07	08/28/07
	m,p-Xylene	41		20 µg/Kg	08/23/07	08/28/07
	o-Xylene	ND	V	20 µg/Kg	08/23/07	08/28/07
Client ID :	TPH-P (GRO)	500,000		40,000 µg/Kg	08/23/07	08/28/07
AS-1-16 Ft.	Tertiary Butyl Alcohol (TBA)	ND	V	20,000 µg/Kg	08/23/07	08/28/07
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	V	200 µg/Kg	08/23/07	08/28/07
STR07082721-02A	Di-isopropyl Ether (DIPE)	ND	V	400 µg/Kg	08/23/07	08/28/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND	V	400 µg/Kg	08/23/07	08/28/07
	Benzene	ND	V	200 µg/Kg	08/23/07	08/28/07
	Tertiary Amyl Methyl Ether (TAME)	ND	V	400 µg/Kg	08/23/07	08/28/07
	Toluene	ND	V	200 µg/Kg	08/23/07	08/28/07
	Ethylbenzene	8,800		200 µg/Kg	08/23/07	08/28/07
	m,p-Xylene	1,500		200 µg/Kg	08/23/07	08/28/07
	o-Xylene	220		200 µg/Kg	08/23/07	08/28/07
Client ID :	TPH-P (GRO)	1,600		1,000 µg/Kg	08/23/07	08/28/07
AS-2-16 Ft.	Tertiary Butyl Alcohol (TBA)	ND		500 µg/Kg	08/23/07	08/28/07
Lab ID :	Methyl tert-butyl ether (MTBE)	ND		5.0 µg/Kg	08/23/07	08/28/07
STR07082721-03A	Di-isopropyl Ether (DIPE)	ND		20 µg/Kg	08/23/07	08/28/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND		20 µg/Kg	08/23/07	08/28/07
	Benzene	5.8		5.0 µg/Kg	08/23/07	08/28/07
	Tertiary Amyl Methyl Ether (TAME)	ND		20 µg/Kg	08/23/07	08/28/07
	Toluene	ND		5.0 µg/Kg	08/23/07	08/28/07
	Ethylbenzene	ND		5.0 µg/Kg	08/23/07	08/28/07
	m,p-Xylene	ND		5.0 µg/Kg	08/23/07	08/28/07
	o-Xylene	ND		5.0 µg/Kg	08/23/07	08/28/07



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 :	TPH-P (GRO)	19,000		2,000 µg/Kg	08/23/07	08/28/07
AS-2-21 Ft.	Tertiary Butyl Alcohol (TBA)	ND	V	1,000 µg/Kg	08/23/07	08/28/07
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	V	10 µg/Kg	08/23/07	08/28/07
STR07082721-04A	Di-isopropyl Ether (DIPE)	ND	V	20 µg/Kg	08/23/07	08/28/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND	V	20 µg/Kg	08/23/07	08/28/07
	Benzene	670		10 µg/Kg	08/23/07	08/28/07
	Tertiary Amyl Methyl Ether (TAME)	ND	V	20 µg/Kg	08/23/07	08/28/07
	Toluene	18		10 µg/Kg	08/23/07	08/28/07
	Ethylbenzene	430		10 µg/Kg	08/23/07	08/28/07
	m,p-Xylene	680		10 µg/Kg	08/23/07	08/28/07
	o-Xylene	630		10 µg/Kg	08/23/07	08/28/07
Client ID :	TPH-P (GRO)	1,300		1,000 µg/Kg	08/23/07	08/28/07
AS-2-26 Ft.	Tertiary Butyl Alcohol (TBA)	ND		500 µg/Kg	08/23/07	08/28/07
Lab ID :	Methyl tert-butyl ether (MTBE)	ND		5.0 µg/Kg	08/23/07	08/28/07
STR07082721-05A	Di-isopropyl Ether (DIPE)	ND		20 µg/Kg	08/23/07	08/28/07
	Ethyl Tertiary Butyl Ether (ETBE)	ND		20 µg/Kg	08/23/07	08/28/07
	Benzene	160		5.0 µg/Kg	08/23/07	08/28/07
	Tertiary Amyl Methyl Ether (TAME)	ND		20 µg/Kg	08/23/07	08/28/07
	Toluene	ND		5.0 µg/Kg	08/23/07	08/28/07
	Ethylbenzene	29		5.0 µg/Kg	08/23/07	08/28/07
	m,p-Xylene	31		5.0 µg/Kg	08/23/07	08/28/07
	o-Xylene	ND		5.0 µg/Kg	08/23/07	08/28/07

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 Kilogram, per client request.

Roger Scholl

Randy Gardner

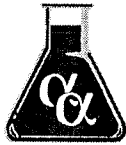
Walter Hinchman

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 / info@alpha-analytical.com

PS

9/4/07

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:
04-Sep-07

QC Summary Report

Work Order:
07082721

Method Blank

File ID: 07082814.D

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

Batch ID: MS08S8212B

Analysis Date: 08/28/2007 13:09

Sample ID: MBLK MS08S8212B

Units : µg/Kg

Run ID: MSD_08_070828B

Prep Date: 08/28/2007

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
TPH-P (GRO)	ND	1000								
Surr: 1,2-Dichloroethane-d4	177		200		89	69	126			
Surr: Toluene-d8	209		200		105	80	120			
Surr: 4-Bromofluorobenzene	182		200		91	80	120			

Laboratory Control Spike

File ID: 07082818.D

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

Batch ID: MS08S8212B

Analysis Date: 08/28/2007 14:36

Sample ID: GLCS MS08S8212B

Units : µg/Kg

Run ID: MSD_08_070828B

Prep Date: 08/28/2007

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
TPH-P (GRO)	17900	2000	16000		112	58	141			
Surr: 1,2-Dichloroethane-d4	332		400		83	69	126			
Surr: Toluene-d8	407		400		102	80	120			
Surr: 4-Bromofluorobenzene	378		400		94	80	120			

Sample Matrix Spike

File ID: 07082819.D

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

Batch ID: MS08S8212B

Analysis Date: 08/28/2007 14:58

Sample ID: 07082741-01GS

Units : µg/Kg

Run ID: MSD_08_070828B

Prep Date: 08/28/2007

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
TPH-P (GRO)	92600	2000	16000	31500	382	46	142			M1
Surr: 1,2-Dichloroethane-d4	324		400		81	69	126			
Surr: Toluene-d8	422		400		106	80	120			
Surr: 4-Bromofluorobenzene	374		400		94	80	120			

Sample Matrix Spike Duplicate

File ID: 07082820.D

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

Batch ID: MS08S8212B

Analysis Date: 08/28/2007 15:20

Sample ID: 07082741-01GSD

Units : µg/Kg

Run ID: MSD_08_070828B

Prep Date: 08/28/2007

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
TPH-P (GRO)	19200	2000	16000	31500	-77	46	142	92570	131.0(20)	M2 R58
Surr: 1,2-Dichloroethane-d4	327		400		82	69	126			
Surr: Toluene-d8	409		400		102	80	120			
Surr: 4-Bromofluorobenzene	378		400		95	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.

M1 = Matrix spike recovery was high, the method control sample recovery was acceptable.

M2 = Matrix spike recovery was low, the method control sample recovery was acceptable.

R58 = MS/MSD RPD exceeded the laboratory control limit.

Reported in micrograms per Kilogram, per client request.



Alpha Analytical, Inc.

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

Date:
04-Sep-07

QC Summary Report

Work Order:
07082721

Method Blank

File ID: 07082814.D

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

Batch ID: MS08S8212A

Analysis Date: 08/28/2007 13:09

Sample ID: **MBLK MS08S8212A**

Units : µg/Kg

Run ID: MSD_08_070828B

Prep Date: 08/28/2007

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Tertiary Butyl Alcohol (TBA)	ND	500								
Methyl tert-butyl ether (MTBE)	ND	5								
Di-isopropyl Ether (DIPE)	ND	20								
Ethyl Tertiary Butyl Ether (ETBE)	ND	20								
Benzene	ND	5								
Tertiary Amyl Methyl Ether (TAME)	ND	20								
Toluene	ND	5								
Ethylbenzene	ND	5								
m,p-Xylene	ND	5								
o-Xylene	ND	5								
Surr: 1,2-Dichloroethane-d4	177		200		89	69	126			
Surr: Toluene-d8	209		200		105	80	120			
Surr: 4-Bromofluorobenzene	182		200		91	80	120			

Laboratory Control Spike

File ID: 07082815.D

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

Batch ID: MS08S8212A

Analysis Date: 08/28/2007 13:31

Sample ID: **LCS MS08S8212A**

Units : µg/Kg

Run ID: MSD_08_070828B

Prep Date: 08/28/2007

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	476	10	400		119	63	136			
Benzene	445	10	400		111	70	140			
Toluene	439	10	400		110	70	130			
Ethylbenzene	427	10	400		107	70	130			
m,p-Xylene	426	10	400		107	70	133			
o-Xylene	424	10	400		106	70	135			
Surr: 1,2-Dichloroethane-d4	349		400		87	69	126			
Surr: Toluene-d8	398		400		99	80	120			
Surr: 4-Bromofluorobenzene	372		400		93	80	120			

Sample Matrix Spike

File ID: 07082816.D

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

Batch ID: MS08S8212A

Analysis Date: 08/28/2007 13:53

Sample ID: **07082741-01AMS**

Units : µg/Kg

Run ID: MSD_08_070828B

Prep Date: 08/28/2007

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	458	10	400	6.3	113	42	146			
Benzene	461	10	400	0	115	57	140			
Toluene	460	10	400	0	115	60	130			
Ethylbenzene	444	10	400	0	111	63	134			
m,p-Xylene	446	10	400	0	112	64	136			
o-Xylene	441	10	400	0	110	62	138			
Surr: 1,2-Dichloroethane-d4	343		400		86	69	126			
Surr: Toluene-d8	407		400		102	80	120			
Surr: 4-Bromofluorobenzene	374		400		94	80	120			

Sample Matrix Spike Duplicate

File ID: 07082817.D

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

Batch ID: MS08S8212A

Analysis Date: 08/28/2007 14:15

Sample ID: **07082741-01AMSD**

Units : µg/Kg

Run ID: MSD_08_070828B

Prep Date: 08/28/2007

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	472	10	400	6.3	116	42	146	458.3	2.9(20)	
Benzene	461	10	400	0	115	57	140	460.5	0.1(20)	
Toluene	465	10	400	0	116	60	130	460.2	1.1(20)	
Ethylbenzene	447	10	400	0	112	63	134	443.7	0.7(20)	
m,p-Xylene	449	10	400	0	112	64	136	446.4	0.5(20)	
o-Xylene	442	10	400	0	110	62	138	440.5	0.3(20)	
Surr: 1,2-Dichloroethane-d4	342		400		85	69	126			
Surr: Toluene-d8	403		400		101	80	120			
Surr: 4-Bromofluorobenzene	378		400		95	80	120			



Alpha Analytical, Inc.

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

Date:
04-Sep-07

QC Summary Report

Work Order:
07082721

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

WorkOrder : STR07082721

Report Due By : 5:00 PM On : 05-Sep-07

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

Scott Bittinger

TEL : (530) 676-2062
FAX : (530) 676-6005
EMail sbittinger@stratusinc.net

EDD Required : Yes

Sampled by : Allan Dudding

Report Attention : Scott Bittinger

Job : 2007-0057-01/USA 57

Cooler Temp

Samples Received

Date Printed

CC Report :

PO :

Client's COC # : 14815

4 °C

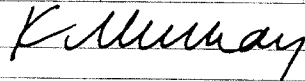
25-Aug-07

27-Aug-07

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

Alpha Sample ID	Client Sample ID	Collection Matrix	Collection Date	No. of Bottles				Requested Tests						Sample Remarks	
				ORG	SUB	TAT	PWS #	TPH/P_S	VOC_S						
STR07082721-01A	AS-1-11 Ft.	SO	08/23/07 14:03	1	0	6		GAS-C	BTEX/OXY C						
STR07082721-02A	AS-1-16 Ft.	SO	08/23/07 14:12	1	0	6		GAS-C	BTEX/OXY C						
STR07082721-03A	AS-2-16 Ft.	SO	08/23/07 11:24	1	0	6		GAS-C	BTEX/OXY C						
STR07082721-04A	AS-2-21 Ft.	SO	08/23/07 11:32	1	0	6		GAS-C	BTEX/OXY C						
STR07082721-05A	AS-2-26 Ft.	SO	08/23/07 11:51	1	0	6		GAS-C	BTEX/OXY C						

Comments: Samples rec'd Saturday 8/25/07, kept cold and secure until login on Monday 8/27/07. Security seals intact. Frozen ice. Send copy of receipt checklist with final report. :

Signature	Print Name	Company	Date/Time
	K Murray	Alpha Analytical, Inc.	8/27/07 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 Stratus Environmental
 Address 3330 Cameron Park Dr
 City, State, Zip Cameron Park, CA 95682
 Phone Number 530-676-6004 Fax 530-676-6005



Alpha Analytical, Inc.

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

Samples Collected From Which State?

AZ ___ CA NV ___ WA ___
 ID ___ OR ___ OTHER ___ Page # ___ of ___

Analyses Required **14815**

Client Name		P.O. #		Job #		Analyses Required						Required QC Level?	
USA 57				2007-0057-01								<input checked="" type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV	
Address		E-Mail Address		Phone #		Fax #							
10700 MacArthur Blvd.				530-676-6004		530-676-6005							
City, State, Zip		Sampled by		Report Attention		Total and type of containers							
Oakland, CA 94605		Allan Dudding		Scott Bittinger		** See below							
Time Sampled	Date Sampled	Matrix* See Key Below	Lab ID Number (Office Use Only)	Sample Description	TAT	Field Filtered	GR0	BTEX	SOXYS	REMARKS			
1403	8/23	SO	STR07082721-01	AS-1-11'			1B	X	X	X	SOXYS		
1412	8/23	SO	02	AS-1-16'			1B	X	X	X	MTBE		
											ETBE		
1124	8/23	SO	03	AS-2-16'			1B	X	X	X	TAME		
1132	8/23	SO	04	AS-2-21'			1B	X	X	X	D1PE		
1151	8/23	SO	05	AS-2-26'			1B	X	X	X	TBA		

ADDITIONAL INSTRUCTIONS:

Signature	Print Name	Company	Date	Time
Relinquished by <i>[Signature]</i>	Allan Dudding	Stratus Env.	8/24	1210
Received by <i>[Signature]</i>	Lisa de Silva	ALPHA	8/24/07	1210
Relinquished by				
Received by <i>[Signature]</i>	K Murray	AAI	8/27/07	0935
Relinquished by				
Received by				

*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.