## **RECEIVED**

11:29 am, Jul 18, 2011 Alameda County Environmental Health

Mr. Paresh Khatri Alameda County Environmental Health Services 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502-6577

Re: Foothill Mini Mart, 6600 Foothill Boulevard, Oakland, California (ACEHS Case No. RO0000175)

Dear Mr. Khatri:

Stratus Environmental, Inc. (Stratus) has recently prepared a document titled *Dual Phase Extraction Remediation Pilot Test Report* on my behalf. The report was prepared in regards to Alameda County Fuel Leak Case No. RO0000175, located at 6600 Foothill Boulevard, Oakland, 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,

Ravi Sekhon

0.8200W



July 14, 2011 Project No. 2087-6600-01

Mr. Paresh Khatri Alameda County Environmental Health Department 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502

Re: Dual Phase Extraction

Remediation Pilot Test Report

Foothill Mini Mart 6600 Foothill Boulevard Oakland, California

Dear Mr. Khatri:

Stratus Environmental, Inc. (Stratus) has prepared this document, on behalf of Mr. Ravi Sekhon, for the Foothill Mini Mart (the Site), located at 6600 Foothill Boulevard. Oakland, California (the Site, see Figures 1 and 2). Subsurface petroleum hydrocarbon impact to soil and groundwater has previously been identified in the vicinity of the site. In a letter dated October 14, 2010, Alameda County Environmental Health Department (ACEHD) requested that a work plan to conduct remediation pilot testing at the subject site be prepared and submitted for agency review. On December 13, 2010, Stratus prepared and submitted a report titled Feasibility Study Work Plan (Work Plan) on behalf of Mr. Sekhon; this document proposed to assess the viability of using dual phase extraction (DPE) and/or in-situ chemical oxidation (ISCO) by ozone and hydrogen peroxide injection to remediate petroleum hydrocarbon contaminant impact to the subsurface. After reviewing the Work Plan, ACEHD prepared a letter, dated February 10, 2011, which approved the pilot testing scope of work proposed by Stratus. However, in this letter, agency personnel requested that an additional work task not included in the Work Plan, pertaining to the monitoring of petroleum hydrocarbon concentrations in soil vapor within onsite underground utility corridors, be included as part of the pilot testing work. Stratus subsequently prepared an Addendum to Feasibility Study Work Plan, dated February 25, 2011, which proposed to install two onsite soil vapor monitoring wells and a protocol to conduct soil vapor sampling before, during, and after the DPE and ISCO pilot The addendum scope of work was subsequently approved by ACEHD via electronic mail correspondence, dated March 23, 2011.

Stratus recently completed a DPE remediation pilot test at the site; information and findings associated with this work are provided in this report. The ISCO (ozone/hydrogen peroxide injection) pilot test is tentatively scheduled to begin during the late second or early third quarter 2011. Results of the ISCO pilot testing will be reported to ACEHD in a separate report.

## SITE DESCRIPTION

The subject site is an active retail fueling station located at the northeast corner of the intersection of Havenscourt Boulevard and Foothill Boulevard in the city of Oakland. The property is situated in a mixed residential and commercial neighborhood. The station (now Golden Gasoline) dispenses fuel from two pump islands which contain two dispensers on each island. The general layout of the site is depicted on Figure 2. Service stations have operated on the subject property since approximately 1959, under Beacon, ARCO, and Shell branding. Mr. Sekhon purchased the service station from Beacon in 1998.

The property is situated on the East Bay Plain, immediately west of the Oakland Hills and approximately 2 miles east of San Francisco/San Leandro Bay. The service station is located roughly 60 feet above mean sea level (MSL). Residential buildings are located north of the site, a vacant building occupies the property to the east, and a vacant lot is present south of the site.

A service station formerly operated on the vacant lot situated south of the site, across Foothill Boulevard (6601 Foothill Boulevard). This property is not currently in the ACEHD oversight program; however, analytical data from a soil sample collected in the western portion of this property suggest that a fuel leak could have historically occurred on this property. Additional data would be needed to confirm or deny that a fuel leak occurred at 6601 Foothill Boulevard.

#### SITE BACKGROUND

# **Historical Site Assessment Activities**

This information regarding environmental activities performed to date at the site is summarized from documents uploaded to the State of California's Geotracker Database; these reports were prepared by consultants previously representing Mr. Sekhon (Advanced Assessment and Remediation Services [AARS] and Environmental Risk Specialties Corporation [ERS]).

A suspected fuel leakage was discovered in November 1998, at the time of removal of an 8,000-gallon steel underground storage tank (UST) and upgrading of the fuel storage and

delivery system. The following summarizes site characterization work activities that have been completed since removal and replacement of the former USTs and fuel delivery equipment:

- Compliance sampling of soil and groundwater was completed in December 1998. A sheen was observed on the groundwater situated within the cavity of the 8,000-gallon UST at that time. Prior to backfilling of this UST pit, batch extraction of groundwater was performed. Soil generated during construction work was hauled offsite for proper disposal.
- AARS directed the installation of three groundwater monitoring wells (MW-1 through MW-3) in June 2001.
- AARS oversaw the completion of three additional monitoring wells (MW-4 through MW-6), and two exploratory soil borings (SB-1 and SB-2) in June 2002.
- Intermittent groundwater monitoring and sampling was performed between 2001 and 2010 (14 total sampling events).
- An additional subsurface investigation, which consisted of advancing twelve additional exploratory soil borings (SB-3 through SB-14) was conducted in August 2005.
- A sensitive receptor survey and preferential pathway study was performed by ERS in 2008.
- ERS oversaw the installation of 8 additional groundwater monitoring wells (MW-5B, MW-6B, MW-7, MW-10, MW-11, MW-12A, MW-12B, and MW-13A) and advancement of 10 soil borings (SB-15 through SB-17, SMW-13, USB-2, USB-5, USB-7, USB-8, USB-10, and USB-11) in September 2009. This project included an assessment of the lateral and vertical extent of contaminant distribution in the subsurface, and an evaluation of contaminant migration within underground utility corridors.
- In April 2011, Stratus directed the installation of an extraction well (EX-1), two nested injection wells (IW-1 A/B and IW-2 A/B), and two soil vapor monitoring wells (SGW-1 and SGW-2) for use during remediation pilot testing.
- Groundwater monitoring and sampling at the site is being completed on an ongoing basis; currently, Stratus is collecting samples from each of the site monitoring wells on a semi-annual basis.

Table 1 presents available information regarding the construction of the site monitoring and remediation wells.

# Site Geology and Hydrogeology

Soil conditions beneath the site consist of heterogeneous mixtures of fine grained soils (silt/clay mixtures) and coarser grained soils (silty sand, sand, clayey gravel, sandy gravel, and gravel) from surface grade to approximately 50 feet below ground surface (bgs), the maximum depth explored beneath the site. In most of the boreholes, one to two

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intervals of coarser grained soils, typically about 2 to 5 feet in thickness, were logged between the depths of about 4 to 20 feet bgs. These coarser grained soil strata are typically saturated, and it is likely that lateral migration of contaminants within the subsurface (discussed in more detail below) occur within the coarser grained soils at these depths.

Below about 20 feet bgs, fine grained soils were predominately noted, although silty sand and clayey gravel were also encountered. In particular, offsite well MW-12B appears to be screened within the more permeable coarse grained soil. Based on the relatively low levels of contaminants reported in samples collected from 3 wells screened below first encountered groundwater (MW-5B, MW-6B, and MW-12B, discussed below) relative to concentrations of contaminants within first encountered groundwater, it appears as though soils between the uppermost water bearing strata and the screening interval of the 3 deeper monitoring wells are of sufficiently low permeability to retard vertical migration of contaminants at the site. Bedrock was not encountered in the upper 50 feet of the subsurface.

Between 2001 and 2010, groundwater levels fluctuated between approximately 6.5 and 11 feet bgs in onsite wells MW-1 through MW-3. Seasonal water level fluctuations of about 2 feet in the wells are typical. In 2002 and 2003, groundwater elevation contour maps that were available to Stratus generally depict southeast and south groundwater flow, and based on the distribution of contaminants in the subsurface (discussed below), site contaminants appear to be migrating towards the southeast and south in the saturated zone. Since 2004, significantly variable groundwater flow directions have been reported. The apparent discrepancy between the groundwater flow directions calculated since 2004, and the noticeable orientation of the plume of groundwater contaminants in the south-southeast direction, has not been resolved; however, we interpret that south-southeast groundwater flow is predominant beneath the site. A groundwater elevation contour map that was prepared using groundwater elevations measured during the fourth quarter 2010 is presented as Figure 3.

# Petroleum Hydrocarbon Impact to Soil

Gasoline range organics (GRO), benzene, toluene, ethylbenzene, and xylenes (BTEX constituents), methyl tertiary butyl ether (MTBE), and tertiary butyl alcohol (TBA) have been detected in soil samples collected in the site vicinity. The highest concentrations of contaminants in soil appear to be present between approximately 7.5 and 10 feet bgs. Onsite, the highest concentrations of petroleum hydrocarbons and MTBE in soil appear to be situated immediately south and southeast of the former UST complex. GRO was recently reported at concentrations of 410 milligrams per kilogram (mg/Kg) and 73 mg/Kg in samples collected from onsite borings SB-16 and SB-17, respectively, at approximately 7.5 feet bgs. Soil contamination offsite extends predominately in the

southeast direction, and to a lesser extent to the south of the site. The highest concentrations of GRO offsite have been reported in samples collected from the two borings located furthest away from the site in the southeast direction (borings SMW-13 and MW-13A, GRO at levels of 170 mg/Kg and 800 mg/Kg, respectively, at depths of approximately 7.5 to 8 feet bgs). Concentrations of petroleum hydrocarbons and fuel oxygenates in soil do not appear to consistently decrease with distance from the source(s) of the fuel leak; instead, contaminants appear irregularly distributed in areas where shallow groundwater has provided a transport mechanism for these contaminants. Petroleum hydrocarbons and fuel oxygenates are likely adsorbed to soil particles located within, and adjacent to, soils of elevated permeability, situated near the water table interface. These soils of elevated permeability appear to include both natural material and fill that has been placed around municipal water piping buried beneath the Foothill Boulevard roadway.

GRO was reported in a soil sample collected from offsite boring SB-4 at 11 feet bgs (4.7 mg/Kg). ERS (who collected this sample) has indicated their belief that the reported contaminants at boring SB-4 originated from a fuel leak at the former 6601 Foothill Boulevard service station. No soil samples from the vadose zone of boring SB-4 were submitted for chemical analysis, and thus given the available data set, Stratus is unable to definitively determine whether or not a separate fuel contamination source originating from 6601 Foothill Boulevard exists. Further subsurface investigation work at this vacant lot would be useful in evaluating whether or not a fuel release has occurred in this area, in particular, submittal of vadose zone soil samples for chemical analysis.

# Petroleum Hydrocarbon Impact to Groundwater

GRO, BTEX, MTBE, and TBA have been detected in groundwater in the site vicinity. Figures 4 through 7 illustrate the approximate extent of GRO, benzene, MTBE, and TBA impact to shallow groundwater, respectively, using data collected from the site's shallow monitoring well network during the fourth quarter 2010. Figure 8 summarizes groundwater contaminant concentrations in 3 monitoring wells screened below the uppermost water bearing interval from the fourth quarter 2010 samples.

The highest concentrations of contaminants in groundwater are generally present southeast of the former UST pit, near wells MW-2, MW-4, and MW-6. At the time of the fourth quarter 2010 well sampling event, GRO, benzene, MTBE, and TBA were detected at maximum concentrations of 6,200 micrograms per liter ( $\mu$ g/L), 90  $\mu$ g/L, 420  $\mu$ g/L, and 9,900  $\mu$ g/L, respectively. Given the layout of the site, with the former UST pit situated in the southeastern portion of the subject property, most of the dissolved petroleum hydrocarbon and fuel oxygenate mass appears to be situated offsite. GRO, MTBE, and TBA impact a relatively large area, with each plume extending at least 200 feet offsite in the southeast direction.

During a subsurface investigation performed in September 2009, grab groundwater samples were collected from 5 hand-augered soil borings (USB-5, USB-7, USB-8, USB-10, and USB-11) located along the northern portion of the Foothill Boulevard right-of-way (see Figure 2 for location). Each boring was located near an underground utility corridor containing a water main; the approximate locations of each of these borings are included on Figure 2 and Figures 4 through 7. The samples were collected from depths ranging from about 7 to 8 feet bgs. GRO and TBA were detected in each groundwater sample, at concentrations ranging from 3,700  $\mu$ g/L to 81,000  $\mu$ g/L and 16  $\mu$ g/L to 95  $\mu$ g/L, respectively. Low levels of MTBE were also detected in 4 of the 5 samples, at concentrations ranging from 1.7  $\mu$ g/L to 8.6  $\mu$ g/L. Although each of these 5 borings were situated within the limits of the contaminant plumes depicted on Figures 4, 6, and 7, the consultant who performed the investigation (ERS) concluded that the water main utility corridor was allowing for preferential eastward migration of contaminants.

Petroleum hydrocarbon and fuel oxygenate impact below the uppermost 10 to 15 feet of the saturated zone appears to be limited. Three wells were installed in September 2009, in order to assess concentrations of contaminants deeper within the saturated zone. Very limited impact has been detected in samples collected from these wells (see Figure 8 for fourth quarter 2010 sample result summary). Given the available data set, the vertical extent of contaminant distribution in groundwater appears adequately characterized.

#### **DUAL PHASE EXTRACTION EVENT**

The purpose of the pilot testing was to assess the feasibility of using DPE to mitigate petroleum hydrocarbon impact to soil and groundwater. Given the soil types historically observed beneath the site and shallow groundwater, DPE appeared to be a viable remedial alternative to mitigate contamination in soil and groundwater, and was thus selected for pilot testing. The remediation event was conducted between April 26 and 28, 2011, using a CBA Equipment, LLC (CBA) owned trailer mounted high vacuum dual phase extraction (HV-DPE) system with a Bay Area Air Quality Management District (BAAQMD) various locations permit (Plant Number 17101). Before initiating pilot testing, the BAAQMD and the property owners at 6600 and 6620 Foothill Boulevard were notified of the work schedule. A site-specific health and safety plan was also developed and discussed prior to conducting field activities.

# **Dual Phase Extraction Equipment**

The HV-DPE system, manufactured by Mako Industries, Inc. (Mako), consisted of a 20-horsepower (hp) liquid ring pump and a 250 cubic feet per minute (cfm) rated thermal oxidizer. The system also included a knockout tank and a 2-hp centrifugal pump used to transfer water to a water storage tank. A 49-hp propane generator rated at 68 KVA was

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used to power the DPE system. Liquid propane was used as supplemental fuel to maintain combustion temperatures in the thermal oxidizer. The DPE system, generator, and water storage tank were situated within a fenced enclosure at 6620 Foothill Boulevard, with pre-arranged consent from the property owner.

### **Dual Phase Extraction Procedure**

Initially, Stratus intended to conduct a 72-hour DPE test using only well EX-1 for extraction, consistent with the December 2010 *Work Plan*. Instead, DPE was conducted using well EX-1 for extraction for a period of approximately 34 hours. During this period (Test 1), negligible vacuum influence was observed in the nearby observation/monitoring wells. In order to evaluate potential changes in DPE performance by using more than one well for extraction, Stratus began simultaneously extracting soil vapors and groundwater from wells EX-1 and MW-4 (Test 2). However, after completing multi-well extraction for only about 2.0 hours, the generator powering the DPE system suffered a mechanical malfunction requiring termination of DPE.

The liquid ring pump of the DPE system was used to extract groundwater and soil vapors from the subsurface. Soil vapors were separated from groundwater in the knockout tank and then directed to the thermal oxidizer for abatement before discharging to the atmosphere. Groundwater in the knockout tank of the DPE system was routed through aboveground hoses to a water storage tank provided by Integrated Wastestream Management (IWM) of San Jose, California. IWM subsequently removed the extracted groundwater and the storage tank from the site; the groundwater was transported to a licensed facility for proper disposal.

During the DPE test, the EX-1 wellhead was temporarily modified to provide a seal for vacuum conditions and to facilitate insertion of a drop-tube (1.5-inch diameter) to extract soil vapors and groundwater. After 34 hours of test time, the MW-4 wellhead was also temporarily modified to allow for extraction of soil vapors and groundwater through a drop tube. Wells MW-1, MW-2, MW-5, MW-5B, MW-6, MW-6B, and MW-4 (through Test 1) were used as observation wells during the DPE test. The depth and screening interval for each well are provided in Table 1.

Magnahelic gauges were used to measure induced vacuum at the observation wells, and hand-operated electric water-level sounders were used to measure depth-to-groundwater in the observation wells. The DPE system was equipped to measure the groundwater extraction rate (discharge from the centrifugal pump after the knockout tank) and the soil vapor flow rate. A flow totalizer was installed to record the volume of groundwater that was transferred to the water storage trailer. Influent soil vapor concentrations were also monitored periodically using a photo-ionization detector (PID).

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On April 26, 27, and 28, 2011, one sample of the influent air and groundwater samples extracted from well EX-1, were collected for chemical analyses. An additional influent air and groundwater sample were collected following initiation of extraction from both EX-1 and MW-4. One sample of the effluent air stream was also collected on the initial day of the test. The air samples were retained in laboratory supplied tedlar bags, identified on a chain-of-custody form, and stored in a protective container at ambient air temperature. Groundwater samples were collected in laboratory supplied, properly preserved containers, identified on a chain-of-custody form, and placed in an ice-chilled cooler for temporary storage. Proper chain-of-custody procedures were followed until these samples were delivered to a representative of Alpha Analytical, Inc., who was retained to perform the chemical analyses on the samples.

All observations were recorded on field data sheets during the DPE tests; copies of these forms are provided in Appendix A.

# Soil Gas Sampling

Soil gas samples were collected on April 26, 27, and 28, 2011; the samples collected on April 26 and April 28 were collected before, and after, DPE. Prior to sampling, an expendable 6-liter SUMMA<sup>TM</sup> canister was used to purge ambient air situated inside of the sand filter pack and the Teflon tubing connected to the soil gas implant. Following purging of this ambient air, a separate 1-liter SUMMA<sup>TM</sup> canister was used to collect each soil gas sample. The sample collection SUMMA<sup>TM</sup> canisters were filled at a regulated flow rate between 100 and 200 milliliters per minute (ml/min). During sample collection, a tracer gas of 1,1-difluoroethane (1,1-DFA) was intermittently applied (sprayed from a canister) around the outside of the sample train in order to assess potential leakage during the sample collection procedure. Following retention of the samples, the SUMMA<sup>TM</sup> canisters were stored at ambient air temperature, using proper chain-of-custody procedures, until delivered to the analytical laboratory for chemical analysis.

# **Laboratory Analytical Methods**

All groundwater and air samples collected during the DPE event were forwarded, with appropriate chain-of-custody documentation, to Alpha Analytical, Inc., a California state-certified laboratory (ELAP #2019) located in Sparks, Nevada, for chemical analysis. Air and groundwater samples were analyzed for GRO using USEPA Method SW8015B, and for BTEX compounds, MTBE, and TBA using USEPA Method SW8260B. Groundwater samples were additionally analyzed for di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), and tertiary amyl methyl ether (TAME) using USEPA Method SW8260B Copies of certified analytical reports with chain-of-custody documentation are included in Appendix B. Analytical data for these samples have also been uploaded to the State of

California's Geotracker database; documentation regarding these data uploads are provided in Appendix C.

Soil gas samples were forwarded to Air Toxics, Ltd., a California state-certified laboratory (ELAP # 2110) located in Folsom, California, for chemical analysis. Soil gas samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg), BTEX, MTBE, TBA, naphthalene, and the leak detection gas 1,1-DFA using USEPA Method TO-15. Copies of certified analytical reports with chain-of-custody documentation are included in Appendix B. Analytical data for these samples have also been uploaded to the State of California's Geotracker database; documentation regarding these data uploads are provided in Appendix C.

### **DPE Event Results**

Data pertaining to the DPE pilot test work are presented in Tables 2 through 8. The following subsections of this report summarize the findings of the DPE pilot test.

- During the EX-1 DPE Test (Test 1), an average applied vacuum of 10.2 inches of mercury ("Hg) resulted in an average influent soil vapor flow rate of 58.68 cfm.
- During the EX-1 and MW-4 DPE Test (Test 2), an average applied vacuum of 9.5 "Hg resulted in an average influent soil vapor flow rate of 70.85 cfm.
- Negligible or no induced vacuum was observed in the observation wells during Test 1 and Test 2 because much of the well screen length in the observation wells was submerged at the time of the testing due to relatively high groundwater levels. Given the relatively good air flow rates at low applied vacuum, the vadose zone radius of influence (ROI) for DPE is likely about 25 feet.
- PID measurements of the influent air stream ranged from 1 part per million by volume (ppmv) to 100 ppmv during Test 1, generally declining during the test period. Influent PID measurements of 30 and 55 ppmv were recorded during Test 2.
- Four influent air samples were submitted for chemical analysis; GRO was only detected above reporting limits in one of these samples (the one collected during Test 2), at a concentration of 120 milligrams per cubic meter (mg/m³). MTBE was detected in the 3 samples collected during Test 1, at low concentrations ranging from 1.3 mg/m³ and 3.3 mg/m³. No BTEX or TBA detections were reported in the influent air samples.
- Groundwater level drawdown was observed in each of the shallow observation/monitoring wells, ranging from 0.22 feet (MW-4) to 3.42 feet (MW-2). Approximately 4.26 feet of drawdown was observed in deeply screened well MW-5B. Groundwater levels increased in well MW-6B.

- Approximately 1,170 gallons of groundwater were extracted during Test 1 and about 120 gallons of groundwater were extracted during Test 2, at average extraction rates of approximately 0.6 gallons per minute (gpm) during Test 1 and 1.1 gpm during Test 2.
- GRO, MTBE, and TBA were detected in each of 4 influent water samples submitted for chemical analysis, at concentrations ranging from 220  $\mu g/L$  to 330  $\mu g/L$ , 260  $\mu g/L$  to 840  $\mu g/L$ , and 730  $\mu g/L$  to 3,900  $\mu g/L$ , respectively. Low to non-detectable levels of BTEX, TAME, DIPE, and ETBE were extracted in the dissolved phase.

#### DISCUSSION AND RECOMMENDATIONS

The objective of the DPE pilot testing was to evaluate the feasibility of using combined soil vapor and groundwater extraction to remove petroleum mass situated near the soil/groundwater interface, in particular between 7 and 11 feet bgs. Given the findings of the test, DPE does not appear to be a viable remedial option for the site, as the extracted soil vapor concentrations were very low and groundwater level drawdown was insufficient to allow for vapor exposure and recovery of residual contaminants near the soil/groundwater interface. Concentrations of GRO, benzene, and MTBE in the extracted groundwater were also very low, resulting in low mass extraction rates. In addition, given the low contaminant mass extraction rates and the costs associated with constructing and operating a DPE system, it is apparent that DPE is not a cost effective remedial alternative for the subject site.

Concentrations of petroleum hydrocarbons and fuel oxygenates were very low in each of the soil gas samples and are far below current Environmental Screening Levels (ESLs) established by the San Francisco Bay office of the Regional Water Quality Control Board (SF-RWQCB). Given this observation, our understanding of the extent of subsurface impact onsite, and the close location of wells SGW-1 and SGW-2 to onsite utility trenches, it is our opinion that migration of soil vapor contaminants within onsite utility trenches is not likely a significant migration pathway.

Ozone and hydrogen peroxide injection was performed at the site between late May and late June 2011. Once all of the data associated with test work has been obtained, the report documenting this work will be prepared. This report will include a recommendation as to whether or not an ISCO system should be installed at the site, or another remedial approach should be pilot tested/utilized to remediate site contaminants.

Mr. Paresh Khatri, ACEHD DPE Remediation Pilot Test Report Foothill Mini Mart, Oakland, California Page 11

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### **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 somewhat 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.

If you have any questions regarding this report, or the project in general, please contact Scott Bittinger at (530) 676-2062 or Gowri Kowtha at (530) 676-6001.

# Sincerely,

STRATUS ENVIRONMENTAL, INC.

Scott G. Bittinger, P.G. Project Manager

Gowri S. Kowtha, P.E.

Principal Engineer



# Attachments:

Table 1	Well Construction Detail Summary
Table 2	Soil Vapor Analytical Results
Table 3	Groundwater Analytical Results
Table 4	Soil Gas Analytical Results
Table 5	Test 1: DPE Test Summary (Well EX-1)
Table 6	Test 2: DPE Test Summary (Wells EX-1 and MW-4)
Table 7	Petroleum Hydrocarbon Mass Extraction Rates Summary – Soil Vapor
Table 8	Petroleum Hydrocarbon Mass Extraction Rates Summary - Groundwater
Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Groundwater Elevation Contour Map, Shallow Screened Wells,
	Fourth Quarter 2010
Figure 4	GRO Iso-Concentration Contour Map, Shallow Screened Wells,
	Fourth Quarter 2010
Figure 5	Benzene Iso-Concentration Contour Map, Shallow Screened Wells,
	Fourth Quarter 2010
Figure 6	MTBE Iso-Concentration Contour Map, Shallow Screened Wells,
	Fourth Quarter 2010
Figure 7	TBA Iso-Concentration Contour Map, Shallow Screened Wells,
	Fourth Quarter 2010
Figure 8	Groundwater Analytical Summary Map, Deep Screened Wells,
	Fourth Quarter 2010
Appendix A	Field Data Sheets
Appendix B	Certified Analytical Reports and Chain-of-Custody Documentation
Appendix C	Geotracker Data Upload Confirmation Sheets

Mr. Ravi Sekhon, Former Property Owner cc:

Mr. Joseph LeBlanc, Property Owner, 6620 Foothill Boulevard

TABLE 1
WELL CONSTRUCTION DETAIL SUMMARY
Foothill Mini Mart, 6600 Foothill Boulevard, Oakland, California

Boring/Well I.D.	Date Installed	Boring Depth (feet)	Boring Diameter (inches)	Well Diameter (inches)	Well Depth (feet)	Screen Interval (feet bgs)	Slot Size (inches)	Drilling Method
Shallow Ground	lwater Monitoi	ring Wells						
MW-1	06/04/01	25	8	2	25	10-25	0.01	HSA
MW-2	06/04/01	25	8	2	25	10-25	0.01	HSA
MW-3	06/04/01	25	8	2	25	10-25	0.01	HSA
MW-4	06/26/02	20	8	2	20	7.5-20	0.01	HSA
MW-5	06/26/02	20	8	2	20	7.5-20	0.01	HSA
MW-6	06/26/02	20	8	2	20	7.5-20	0.01	HSA
MW-7	09/23/09	25	8	2	25	10-25	0.01	HSA
MW-10	09/22/09	25	8	2	25	15-25	0.01	HSA
MW-11	09/23/09	25	8	2	25	10-25	0.01	HSA HSA
MW-12A	09/22/09	25	8	2	25	10-25	0.01	
MW-13A	09/24/09	25	8	2	25	525	0.01	HSA HSA
Deeper Groundн	vater Monitorii	ng Wells						
MW-5B	09/23/09	45	8	2	45	35-45	0.01	HSA
MW-6B	09/24/09	50	8	2	50	35-50	0.01	HSA
MW-12B	09/22/09	43	8	2	43	33-43	0.01	HSA
Remediation We	Us							
EX-1	04/04/11	30	10	4	30	10-30	0.02	HSA
IW-1A/B	04/06/11	28	8	1	21.5	20.5-21.5	0.02	HSA
				1	27	25-27	microporous	110/1
W-2A/B	04/06/11	28	8	1	21.5	20.5-21.5	0.02	HSA
				1	27	25-27	microporous	11071
Soil Gas Monitor	ing Wells						•	
SGW-1	04/06/11	2.5	6	0.25	2.5	2-2.5		
SGW-2	04/07/11	1.5	6	0.25	1.5	2-2.5 1-1.5	mesh	hand diggin
	· · · · · · · · · · · · · · · · · · ·	1.5	U	0.23	1.5	1-1.3	mesh	hand diggin
Notes:								
ISA = hollow ste	m auger							

# Table 2 Soil Vapor Analytical Results

## Foothill Mini Mart

6600 Foothill Boulevard, Oakland, California

Sample Date	Sample ID	GRO	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	ТВА
INFLUENT AI	R SAMPLES							
Extraction fron	n Well EX-1							
04/26/11	Foothill A SYS INF	<15	< 0.15	< 0.15	< 0.15	< 0.15	3.3	<7.5
04/27/11	Foothill A SYS INF	<15	< 0.15	< 0.15	< 0.15	< 0.15	1.6	<7.5
04/28/11	Foothill A SYS INF	<15	< 0.15	< 0.15	< 0.15	< 0.15	1.3	<7.5
Extraction fron	n Well EX-1 and MW-4							
04/28/11	Foothill A SYS INF	120	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	<7.5
EFFLUENT AI	R SAMPLES							
04/26/11	Foothill A EFF	<15	<0.15	<0.15	< 0.15	< 0.15	<0.15	<7.5

# Notes:

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

GRO = Gasoline range organics

BTEX = Benzene, toluene, ethyl benzene, and total xylenes

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

# Analytical Methods

GRO analyzed by EPA Method SW8015B

BTEX, MTBE, and TBA analyzed by EPA Method SW8260B

# Analytical Laboratory

Alpha Analytical, Inc. (ELAP # 2019)

# Table 3 Groundwater Analytical Results

Foothill Mini Mart

6600 Foothill Boulevard, Oakland, California

Sample Date	Sample ID	GRO	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	TBA	TAME	DIPE	ETBE
Extraction 1	from Well EX-1		984								
04/26/11	Foothill W INF	310	<1.0*	<1.0*	<1.0*	2.2	460	3,900	<2.0*	<2.0*	<2.0*
04/27/11	Foothill W INF	220	< 0.50	7.0	< 0.50	0.52	530	880	<1.0	<1.0	<1.0
04/28/11	Foothill W INF	320	<1.0*	2.3	<1.0*	<1.0*	840	730	<2.0*	<2.0*	<2.0*
Extraction 1	from Wells EX-1 an	nd MW-4									
04/28/11	Foothill W INF	330	< 0.50	7.2	< 0.50	< 0.50	260	1,100	<1.0	<1.0	<1.0

# Notes:

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

GRO = Gasoline range organics <u>Analytical Methods</u>

BTEX = Benzene, toluene, ethyl benzene, and total xylenes GRO analyzed by EPA Method SW8015B

MTBE = Methyl tertiary butyl ether

BTEX and fuel oxygenates analyzed by EPA Method SW8260B

TBA = Tertiary butyl alcohol

TAME = Tertiary amyl methyl ether <u>Analytical Laboratory</u>

DIPE = Di-isopropyl ether Alpha Analytical, Inc. (ELAP # 2019)

ETBE = Ethyl tertiary butyl ether

\* = Reporting limits increased due to high concentrations of target analytes

# TABLE 4 SOIL GAS ANALYTICAL RESULTS

## Foothill Mini Mart 6600 Foothill Boulevard, Oakland, California

Sample ID	Date	TPHg (μg/m³)	Benzene (µg/m³)	Toluene (μg/m³)	Ethylbenzene (µg/m³)	Total Xylenes (μg/m³)	MTBE (μg/m³)	TBA (μg/m³)	Naphthalene (μg/m³)	1,1-DFA (μg/m³)
Environment Level ( (commercia	ESL) <sup>1</sup>	29,000	280	180,000	3,300	58,000	31,000		240	
Pre-DPE Test S	amples						***************************************		***************************************	
SGW-1	04/26/11	1,300	8.4	46	<5.4	26	4.6	<15	<26	770
SGW-2	04/26/11	1,800	5.5	38	<4.6	31	<3.8	<13	<22	64
During-DPE Te	st Samples									
SGW-1	04/27/11	410	4.9	20	<6.6	<6.6	<5.5	<18	<32	<16
SGW-2	04/27/11	410	9.2	63	<6.4	9.2	<5.3	<18	<31	<16
Post-DPE Test S	Samples									
SGW-1	04/28/11	410	<5.4	12	<7.3	<7.3	<6.1	<20	<35	<18
SGW-2	04/28/11	<300	<4.6	31	<6.3	6.5	<5.2	<18	<30	<16
Lagand:				Notes						

#### Legend:

TPHg = Total petroleum hydrocarbons as gasoline

MTBE = Methyl tertiary butyl ether

TBA = Tertiary butyl alcohol

1,1-DFA = 1,1-difluoroethane

 $\mu g/m^3 = micrograms per cubic meter$ 

#### Notes:

<sup>1</sup> = RWQCB-SF Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final – November 2007 (revised May 2008); Table E-2, Shallow Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion Concerns (lowest commercial established risk value)

#### Analytical Laboratory

Air Toxics, LTD. (NELAP 02110CA)

**BOLD** font indicates analyte exceeds corresponding ESL

#### Analytical Methods

TPHg, BTEX, MTBE, Naphthalene, and 1,1-DFA by Modified EPA Method TO-15

# Table 5 Test 1: DPE Test Summary (Well EX-1)

Foothill Mini Mart 6600 Foothill Boulevard Oakland, California

	Hour Meter	Time	Applied	Sys Inf	Dilution	Inf Air	Totalizer	GW Ext	PI	D	Stinger Der Wellhead V			Induc	ed Vacı	ıum (Vac	, "WC) an	d Depth to	Water (DT	W, feet bgs	s)
Date & Time	Reading	Elapased	Vac	Air Flow	Air Flow	Flow	Reading	Rate	Sys Inf	Eff	EX-1		MW-1	MV	N-2	MW-4	MW-5	MW-5B	MW-6	му	W-6B
	hours	hours	"Hg	cfm	cfm	cfm	gallons	gpm	ppmv	ppmv	Stinger Depth (ft bgs)	Vac ("WC)	DTW	Vac	DTW	DTW	DTW	DTW	DTW	Vac	DTW
4/26/11 6:00					Bas	seline Mea	surements						6.43	0.30	8.93	5.56	7.42	13.42	5.34	0.70	35.85
4/26/11 12:00	7,734.0					s	tart DPE tes	st using w	ell EX-1.	Hour me	eter reading of D	PE Systen	n = 7,734	1. Stinge	r set at a	ıpproxima	tely 29 fee	t bgs.		L	<u></u>
4/26/11 12:30	7,734.0	0.0	22	87.27	35.12	52.14	11,180		100	1.8	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4/26/11 13:30	NM		NM	NM	NM	NM	NM	NM	NM	NM	29	55	7.34	0.00	10.32	5,55	7.75	11.35	5.36	+1.20	35.49
4/26/11 14:00	7,735.0	1.0	17	87.27	23.74	63,53	11,290	1.83	38	1.1	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4/26/11 14:30	7,736.0	2.0	17	87.27	20.38	66.89	11,290	0.00	15	1.0	29	60	7.34	0.00	10.55	5.55	7.74	11.69	5.37	0.00	35.44
4/26/11 15:00	7,736.4	2.4	12	87.27	28.95	58.32	11,340	2.08	17	1.0	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4/26/11 16:00	7,737.5	3.5	11	87.27	27.51	59.76	11,380	0.61	15	1.0	29	49	7.40	0.00	11.25	5.55	NM	NM	5.37	+0.20	35.41
4/27/11 4:00	7,740.0	6.0		1	Sy	stem Dow	n, Restart			L	NM	NM	NM	NM	NM	5.57	7.77	14.57	5.37	+0.70	35.23
4/27/11 5:00	7,740.5	6.5	11	87.27	31.70	55.57	11,550	0.94	4	1.4	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4/27/11 6:00	7,741.2	7.2	10	87.27	26.20	61.06	11,600	1.19	4	1,0	29	20	7.75	+0.20	10.92	5.56	7.77	14.55	5.39	+0.60	35.20
4/27/11 7:00	7,742.4	8.4	10	87.27	24.74	62.53	11,650	0.69	5	1.0	29	20	7.79	0.00	11.08	5.56	7.77	14.44	5.40	+0.10	35.18
4/27/11 8:00	7,743.4	9.4	10	87.27	21.69	65.58	11,690	0.67	8	1.0	29	22	7.82	0.20	11.47	5.67	7.78	14.95	5.40	0.00	35.19
4/27/11 9:00	7,744.4	10.4	10	87.27	26.90	60.37	11,740	0.83	8	1.0	29	22	7.83	0.10	11.49	5.67	7.78	14.97	5.41	0.00	35.19
4/27/11 10:00	7,745.3	11.3	10	87.27	30.52	56.75	11,740	0.00	4	1.0	29	26	7.88	2.30	11.73	5.61	7.78	15.98	5.41	0.00	35.20
4/27/11 11:00	7,746.1	12.1	10	87.27	30.35	56.92	11,760	0.42	6	1.0	29	26	7.92	0.00	11.95	5.60	NM	NM	5.41	0.00	35.20
4/27/11 12:00	7,747.1	13.1	10	87.27	25.24	62.02	11,820	1.00	4	1.0	29	24	7.96	0.00	12.13	5.62	7.77	15.95	5.40	0.00	35.20
4/27/11 13:00	7,748.1	14.1	10	87.27	30.63	56.64	11,820	0.00	4	1.0	29	26	7.99	0.00	12.25	5.65	7.77	16.17	5.40	0.00	35.19
4/27/11 14:00	7,749.1	15.1	10	87.27	28.82	58.45	11,840	0.33	4	1.0	29	20	8.02	0.00	12.35	5.68	NM	NM	5.40	0.00	35.18
4/27/11 16:00	7,751.1	17.1	8	87.27	30.94	56.33	11,920	0.67	4	1.0	29	6	8.07	0.00	12.35	5.60	7.77	16.71	5.40	0.00	35.18
4/27/11 17:00	7,752.1	18.1	8	87.27	29.45	57.81	11,920	0.00	4	1.0	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4/28/11 4:00	7,762.0	28.0	7	87.27	30.22	57.05	12,170	0.42	2	0.8	29	5	8.38	0.00	12.29	5.76	7.80	17.48	5.42	+0.30	35.22
4/28/11 5:00	7,763.0	29.0	7	87.27	29.89	57.38	12,190	0.33	2	8.0	NM	NM	NM	NM	NM	5.75	7.79	17.48	5.43	+0.20	35.20

#### Table 5 Test 1: DPE Test Summary (Well EX-1)

#### Foothill Mini Mart 6600 Foothill Boulevard

Oakland, California

	Hour Meter	Time Elapased	Applied Vac		Dilution Air Flow	Inf Air		GW Ext	PI	D	Stinger Dep Wellhead V			Induc	ed Vacu	ıum (Vac	, "WC) an	d Depth to	Water (DT	W, feet bgs	5)
Date & Time	Reading	Liapaseu	Vac	All Flow	All Flow	Flow	Reading	Rate	Sys Inf	Eff	EX-1		MW-1	M۷	V-2	MW-4	MW-5	MW-5B	MW-6	MV	/-6B
	hours	hours	"Hg	cfm	cfm	cfm	gallons	gpm	ppmv	ppmv	Stinger Depth (ft bgs)	Vac ("WC)	DTW	Vac	DTW	DTW	DTW	DTW	DTW	Vac	DTW
4/28/11 6:00	7,764.0	30.0	7	87.27	30.11	57.16	12,260	1.17	2	8.0	29	6	8.43	0.00	12.29	5.55	7.80	17.60	5.43	+0.20	35.20
4/28/11 7:00	7,765.0	31.0	7	87.27	26.29	60.98	12,260	0.00	1	0.7	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4/28/11 8:00	7,766.0	32.0	7	87.27	31.50	55.76	12,260	0.00	1	0.7	29	6	8.48	0.10	12.31	5.74	NM	NM	5.43	0.00	35.21
4/28/11 9:00	7,767.0	33.0	7	87.27	33,20	54.06	12,320	1.00	1	0.7	29	6	8.50	0.00	12.31	5.78	7.81	17.68	5.45	0.00	35.21
4/28/11 10:00	7,768.0	34.0	7	87.27	31.96	55.31	12,350	0.50	1	0.7	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Average			10.2	87.27	28.59	58.68		0.64	11	1.0	29	23	7.94	0.17	11.71	5.63	7.78	15.44	5.40	+0.18	35.24
			Maxim	um Induce	d Vacuum,	"WC				•			0.00	2.	30	0.00	0.00	0.00	0.00	+1	.20
Maximum Depth to Water, feet bgs													8.50	12	.35	5.78	7.81	17.68	5.45	35	.85
			Distance	to extraction	on well (EX	-1), feet							77	1	2	41	77	74	76	7	4
	Screened interval (EX-1 = 10 - 30 ), feet bgs										10 - 30	)	10 - 25	10 -	- 25	7.5 - 20	7.5 - 20	35 - 45	7.5 - 20	35 -	- 50

Notes:

Vac = Vacuum

"Hg = Inches Mercury

Sys Inf = System influent

PID = Photo-ionization detector

"WC = Inches water column

GW Ext = Groundwater extraction

gpm = gallons per minute DTW = Depth to water

feet bgs = feet below ground surface

ppmv = parts per million by volume

NM = Not Measured

Eff = Effluent

Sample Calculations:

Sys Inf Air Flow

(0.0218 ft<sup>2</sup>) x (3000 ft/min)

= 65.45 cfm

Dilution Air Flow

(0.0218 ft<sup>2</sup>) x (2050 ft/min)

44.72 cfm

Inf Air Flow

= (65.45 cfm) - (44.72 cfm)

= 20.73 cfm

Groundwater Extraction Rate =

(360 - 10 gallons) / [(7686.8 - 7686.1 hours) x 60 min/hr]

8.33 gpm

Note: Induced Vacuums of 0 were not shown

#### Table 6

### Test 2: DPE Test Summary (Wells EX-1 and MW-4)

Foothill Mini Mart 6600 Foothill Boulevard Oakland, California

	Hour Meter	Time	Applied Vac		Dilution Air Flow	Inf Air	1		Р	ID	Wellhe	ead Vacuu Der		tinger			Depth to	o Water (fe	et bgs)	
Date & Time	Reading	Elapased	Vac	Air Flow	AIF Flow	Flow	Reading	Rate	Sys Inf	Eff	EX	<b>(-1</b>	MV	V-4	MW-1	MW-2	MW-5	MW-5B	MW-6	MW-6B
	hours	hours	"Hg	cfm	cfm	cfm	gallons	gpm	ppmv	ppmv	Vac ("WC)	Depth (ft bgs)	Vac ("WC)	Depth (ft bgs)	DTW	DTW	DTW	DTW	DTW	DTW
4/28/11 10:00					Bas	seline Mea	surements						NM	NM	NM	12.40	NM	NM	5.45	35.24
4/28/11 11:00	7,768.3		10.0	87.27	20.97	66.30	12,350		30	1.1	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4/28/11 12:00	7,769.2	0.9	9.0	98.17	22.78	75.40	12,420	1.30	55	1.0	30.00	26.00	101.00	17.00	8.56	12.46	NM	NM	5.45	35.24
4/28/11 13:00	7,770.0	1.7	Gener	ator Stopp	ed, Won't F	Restart	12,470	1.04	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
4/28/11 13:30													NM	NM	8.58	12.55	7.81	17.88	5.44	35.21
Average			9.5	92.72	21.87	70.85		1.17	43	1.1	30.00	26.00	101.00	17.00	8.57	12.51	7.81	17.88	5.45	35.23
			Maxim	num Induce	ed Vacuum,	"WC						·			0.00	0.00	0.00	0.00	0.00	0.00
	Maximum Depth to Water, feet													8.58	12.55	7.81	17.88	5.45	35.24	

Notes: Sample Calculations:

Vac = Vacuum Sys Inf Air Flow = (0.0218 ft<sup>2</sup>) x (3000 ft/min) = 65.45 cfm

"Hg = Inches Mercury

Sys Inf = System influent Dilution Air Flow = (0.0218 ft²) x (2050 ft/min) = 44.72 cfm

PID = Photo-ionization detector

"WC = Inches water column Inf Air Flow = (65.45 cfm) - (44.72 cfm) = 20.73 cfm

GW Ext = Groundwater extraction

gpm = gallons per minute Groundwater Extraction Rate = (360 - 10 gallons) / [(7686.8 - 7686.1 hours) x 60 min/hr]

DTW = Depth to water = 8.33 gpm

feet bgs = feet below ground surface

Eff = Effluent Note: Induced Vacuums of 0 were not shown

ppmv = parts per million by volume

NM = Not Measured

# Table 7 Petroleum Hydrcarbon Mass Extraction Rates Summary - Soil Vapor

Foothill Mini Mart 6600 Foothill Boulevard Oakland, California

Date & Time	Test Well ID	Duration Between Sampling Events (hours) <sup>1</sup>	Uptime Test Duration (hours)	Average Flowrate (cfm)	Influ	uent Concen (mg/m³)	itration	Extract from	rage ion Rate Wells /day)	Cumu Mass Rem	(GRO)	Mass (	oved
		(110410)			GRO	Benzene	MTBE	GRO	MTBE	lbs	lbs	lbs	lbs
4/26/11 14:10	EX-1		1.00	87.27	<15	<0.15	3.3	<0.12	0.03	<0.005	<0.005	0.001	0.001
4/27/11 14:10	EX-1	14.1	15.10	87.27	<15	<0.15	1.6	<0.12	0.01	<0.069	<0.074	0.007	0.008
4/28/11 10:00	EX-1	18.9	34.00	87.27	<15	<0.15	1.3	<0.12	0.01	<0.093	<0.167	0.008	0.016
4/28/11 13:20	EX-1 and MW-4		1.70	92.72	120	<0.15	<0.15	1.00	<0.001	0.071	<0.238	<0.0001	<0.017

### Sample Calculations

<sup>1</sup> Estimated as difference of hour meter readings between the two sampling events

<sup>2</sup> Period Mass Removed = average mass extraction rate \* difference between hour meter readings for consecutive sampling events

= 1.11 <u>lbs</u> x (7687.4 - 7686.1) hours x <u>day</u> = 0.06 lbs day 24 hours

Average Mass Extraction Rate = <u>72.72 cu ft</u> x<u>170 mg x lb x 1,440 min</u> <u>x cu meter</u>
min cu meter 453593 mg day 35.314 cu ft

1.11 bs/day

# Table 8 Petroleum Hydrocarbon Mass Extraction Rates Summary - Groundwater Foothill Mini Mart

6600 Foothill Boulevard Oakland, California

Date & Time	Test Well ID	Uptime Test Duration (hours)	Volume of Groundwater Extracted between	Time Duration Between Sampling	Infl	uent Conceι (μg/L)	ntration		n Rate from Ibs/day) <sup>a</sup>	Cumulati (GRO) Re	
			Sampling Events, gallons	Events, hours	GRO	Benzene	MTBE	GRO	MTBE	lbs	lbs
4/26/11 13:00	EX-1	1.00	110		310	<1.0	460	0.00001	0.00002	0.0003	0.0003
4/27/11 13:30	EX-1	14.10	530	13.10	220	<0.50	530	0.00053	0.00128	0.0012	0.0015
4/28/11 9:55	EX-1	34.00	530	19.90	320	<1.0	840	0.00117	0.00308	0.0012	0.0027
4/28/11 13:00	EX-1 and MW-4	1.70	120	1.70	330	<0.50	260	0.00002	0.00002	0.0003	0.0030

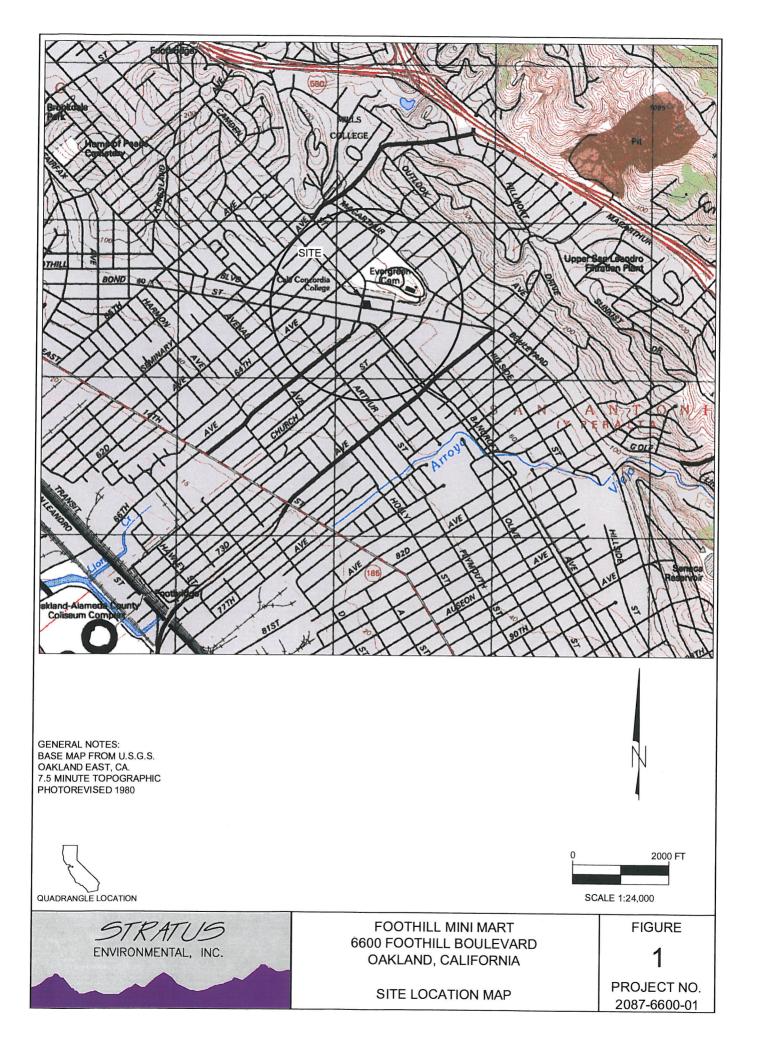
## Sample Calculations

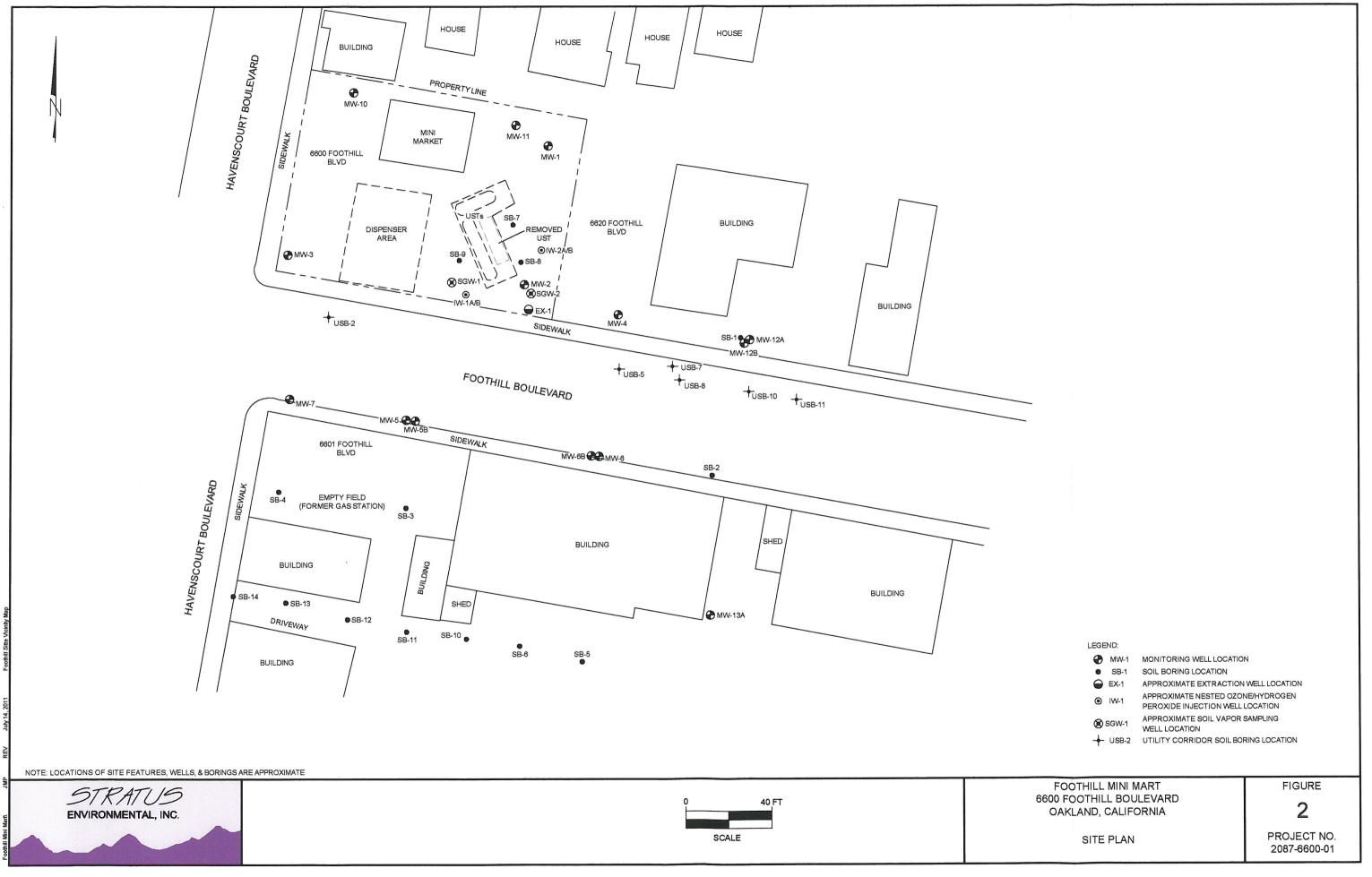
<sup>a</sup>Extraction Rate (lbs/day)

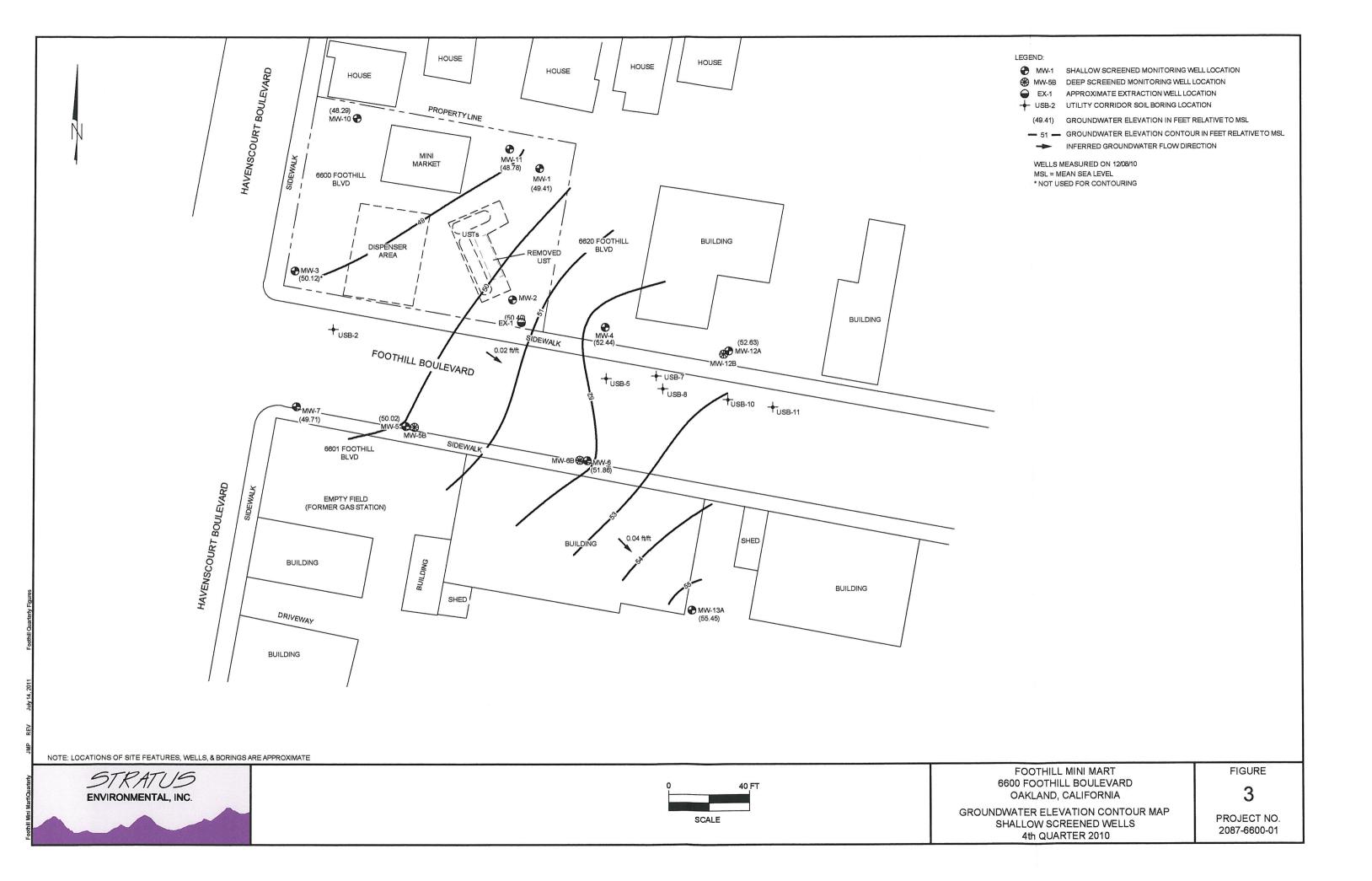
= Average concentration ( $\mu g/L$ ) x volume extracted (gal) x (2.2046 x  $10^{-9}$ )(lb/ $\mu g$ ) / 0.26418 (gal/L) \* time duration (hours)\*(1 day/24 hours)

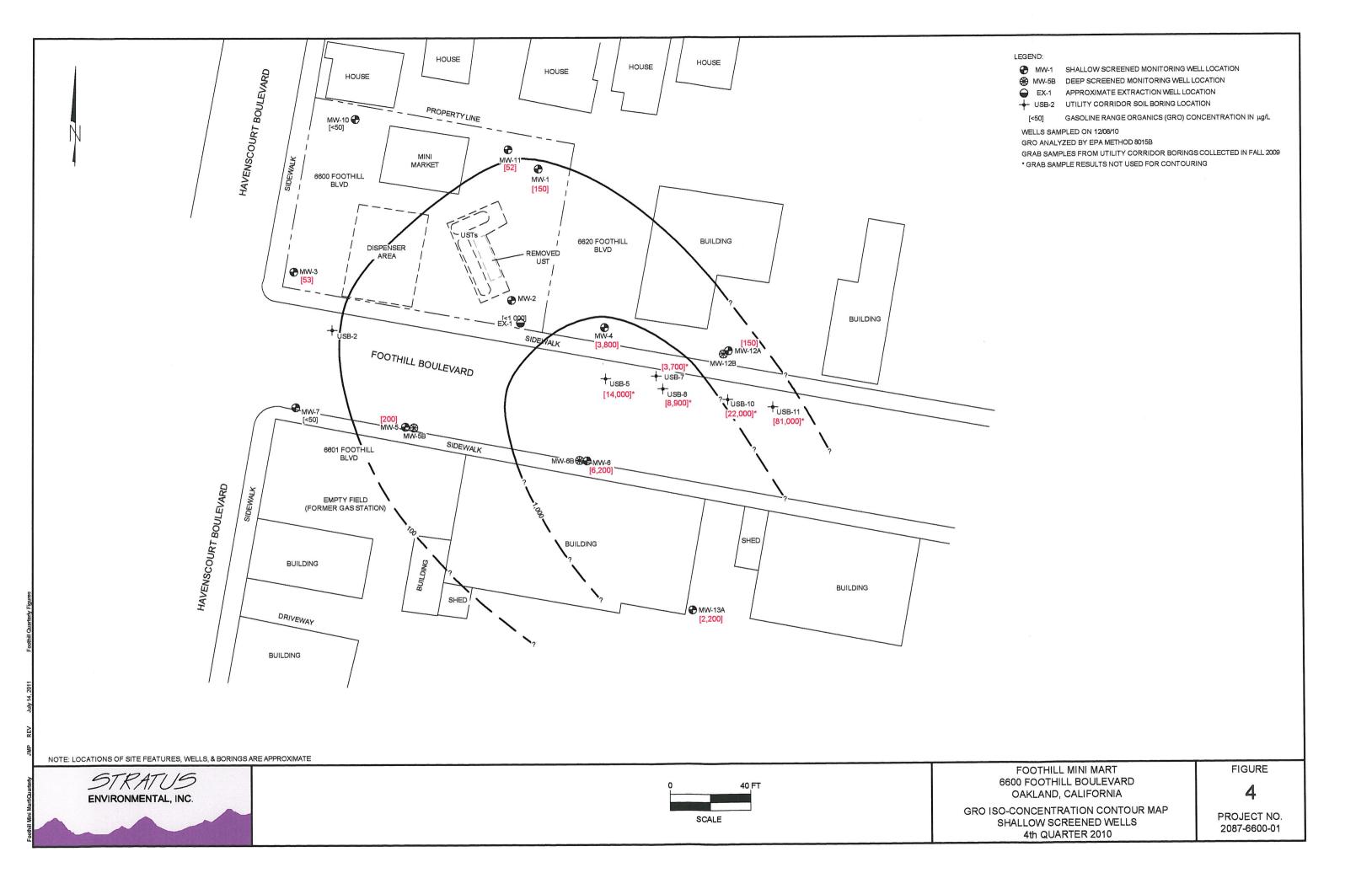
bMass removed from groundwater (lbs)

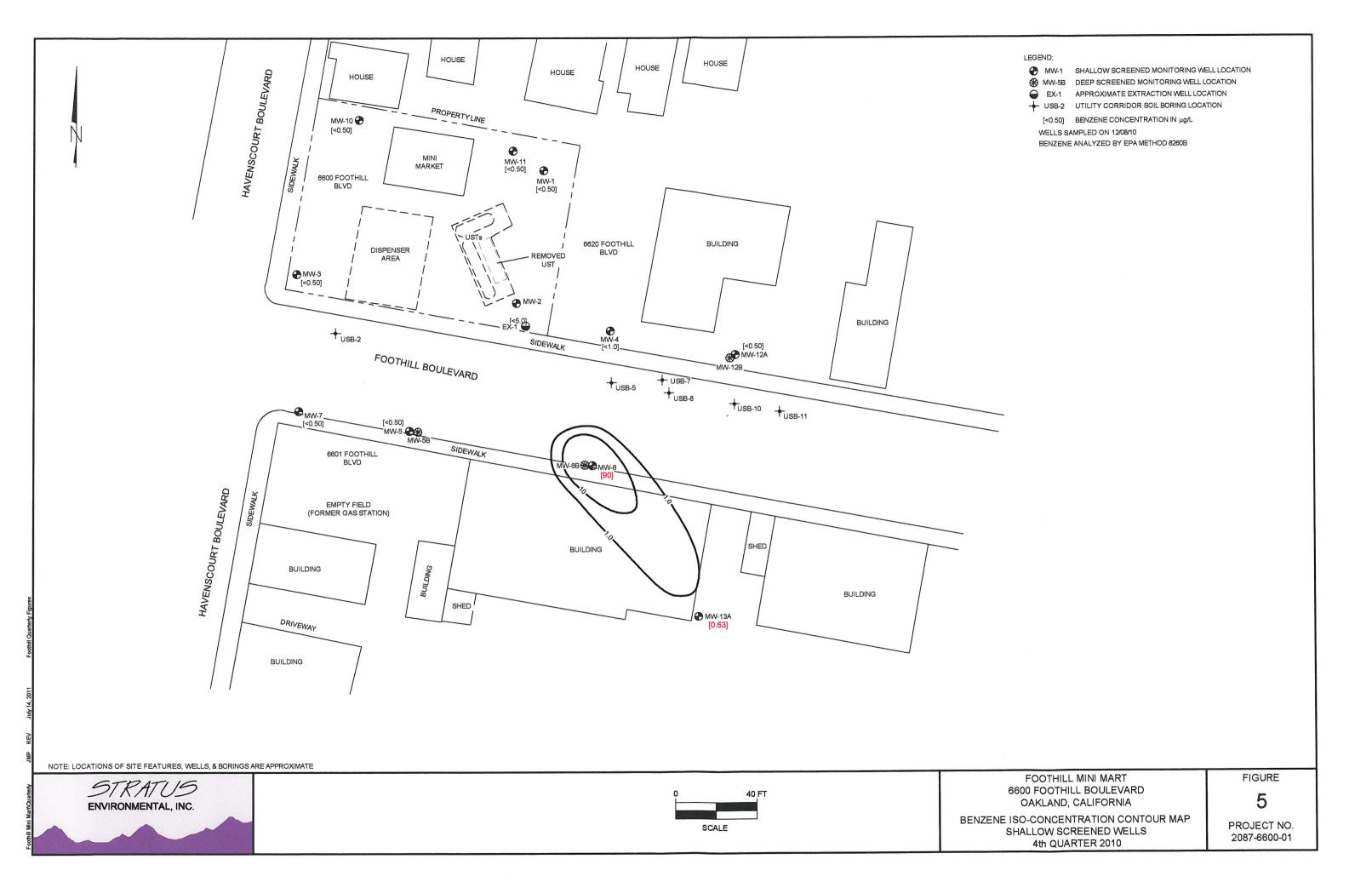
= Average concentration ( $\mu$ g/L) x volume extracted (gal) x (2.2046 x  $10^{-9}$ )( $lb/\mu$ g) / 0.26418 (gal/L)

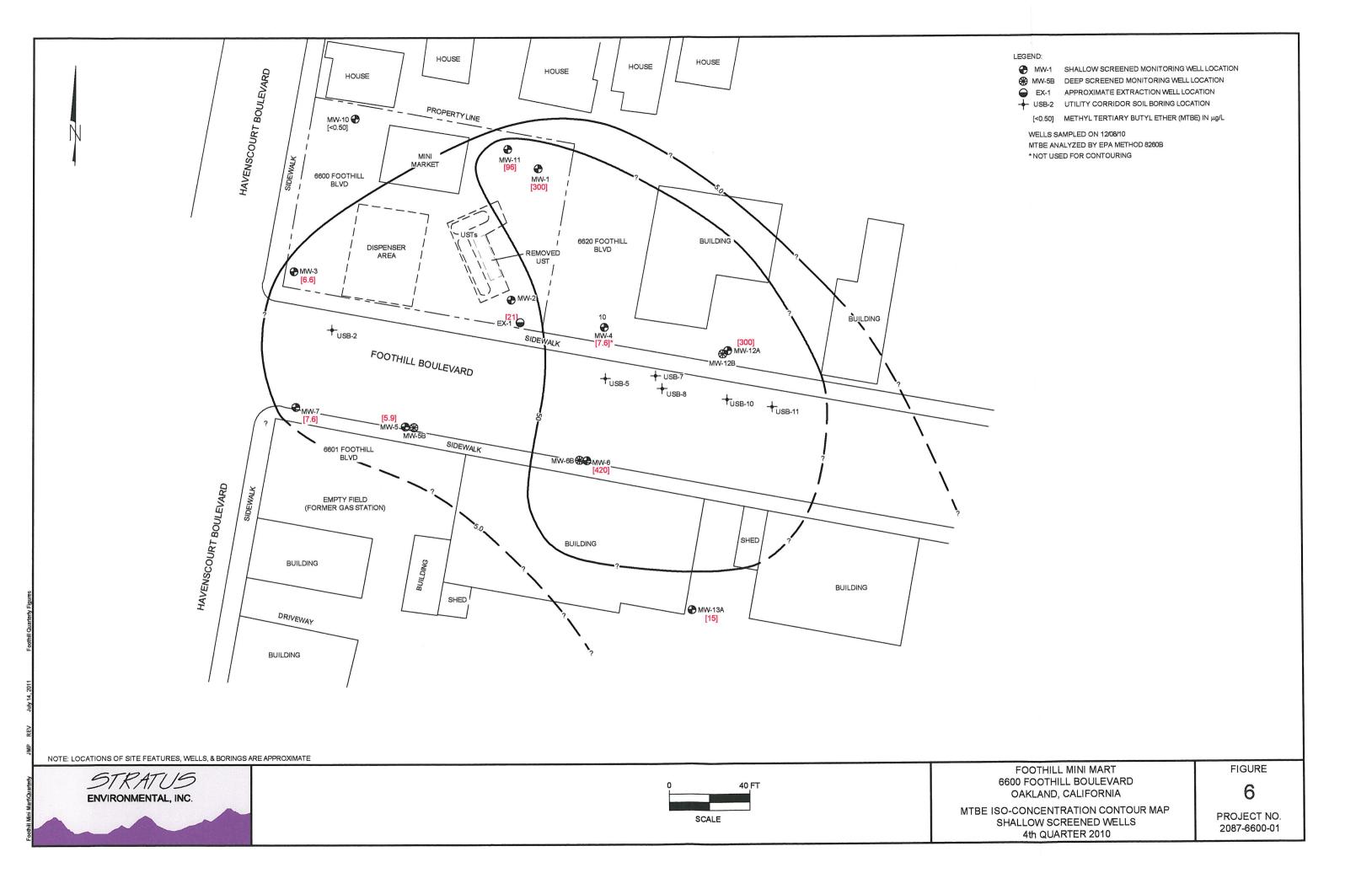


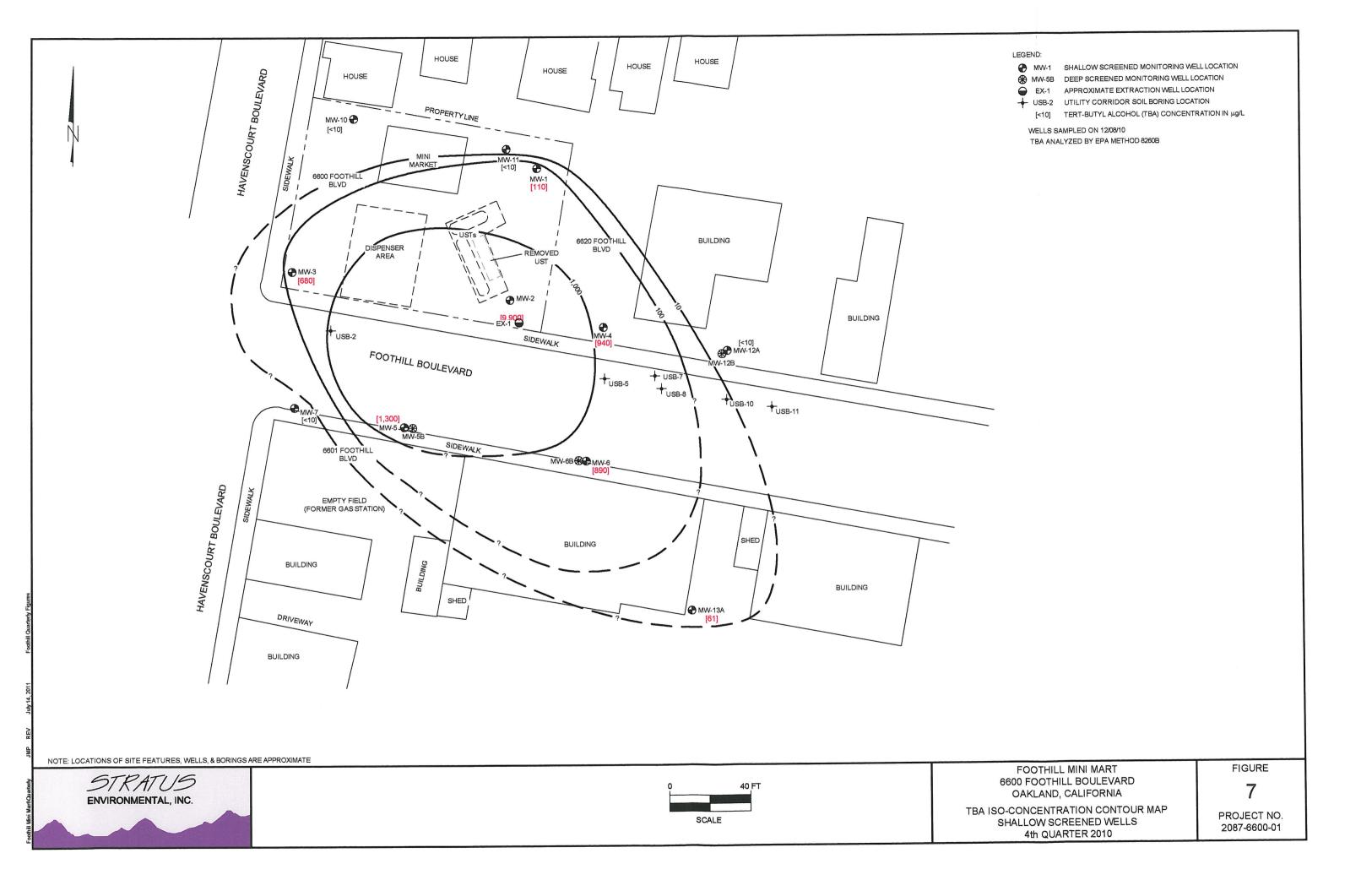


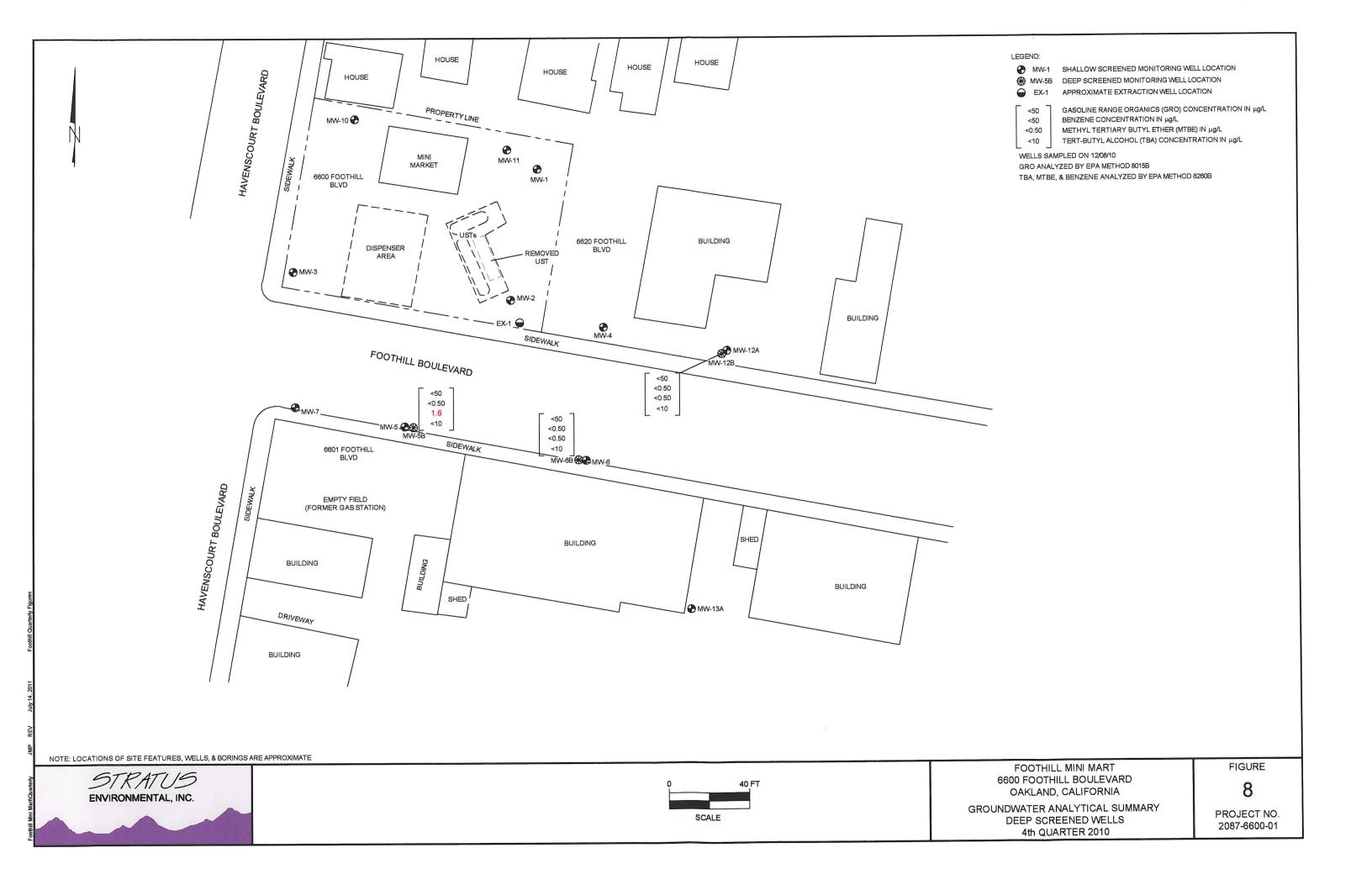












# APPENDIX A FIELD DATA SHEETS

Site Name & Foothill Minimart

Address

6600 Foothill Blvd., Oakland, CA

Test Well ID

EX-1

Date

**Test Operators** 

Equipment Model and Serial Nos.

PID Model

	II	I The second sec	<del>                                     </del>	<u> </u>			T					
4-ZG-1/ Date & Time	Hour Meter	Applied	Sys Inf Air Flow	Dilution Air Flow	Dilution Air	Flow totalizer	Sys Inf Air	Control	Effluent Air	System	Effluent	Totalizer 11180
Date & Time	Reading	Vacuum	Rate1	Rate <sup>2</sup>	Temp	(DPE unit)	Temp	Temp	Temp	Influent	PID	Comments/Notes
1200	hrs	"Hg	fpm/cfm	(fpm/cfm	deg F	gallons	deg F	deg F	deg F	ppmv	ppmv	
1230	7734	22	4000	1610	64	11180	175	1450	957	100	118	0
1500	7735	17	4000	1088	68	11290	125	1460	873	38		INF 1410 EFF 14115
1430	7736	17	4000	934	68	11290	125	1467	879	15	1.0	
1500	7736.4	12	4000	1327	70	11340	125	1460	868	17	1.0	
1600	7737,5		4000	1261	70	11380	125	1462	870	15	100	
						,						
427-11 0400	7740	5454	en I	Muss V	a Re	5 fait						
0500	374015	1	4000	1453	48	11550	100	1524	940	4	1.4	
0600	774/2	10	4000	1201	46	11600	100	1609	1004	4	1.0	50PM INF
	77424	10	4000	1134	49	11650			1030	5	1.0	
0800	7743.4	10	4000	494	56	1690	100	1662	1068	8	1.0	
0900	7744.4	10	4000	1233	63	11740	100	1663	1117	8	1.0	
1000	7745.3	10	4000	1399	68	11740	105	1657	1120	4	1.0	
				comme								

				~	
Diameter of the system	influent a	ir flow	pipe	is	inches

Diameter of the dilution air flow pipe is 2 inches

5748 SGW-2 CANT 23888 BIJ SGW-1 CHNT 37360

Having Problems with Trans pump + unit
Still having Problem with Trans pump will Not over come VAC TO Pump H30

Site Name & Foothill Minimart Address 6600 Foothill Blvd., Oakland, CA

Date **Test Operators** 

**Equipment Model** and Serial Nos.

CITZ 250TEAT LR M.- RAE

Test Well ID EX-

PID Model

	Hour Meter	Applied	Sys Inf Air Flow	Dilution Air Flow	Dilution Air	Flow totalizer	Sys Inf Air	Control	Effluent Air	System	Effluent	
Date & Time	Reading	Vacuum	Rate <sup>1</sup>	Rate <sup>2</sup>	Тетр	(DPE unit)	Temp	Тетр	Тетр	Influent	PID	Comments/Notes
42711	hrs	"Hg	ffm/cfm	fpin/cfm	deg F	gallons	deg F	deg F	deg F	ppmv	ppmy	
1100	77461	10	4000	1391	62	11760	105	1655	1093	6	1.0	
9 - 0	7747.1	İD	4000	1157	69	11820	105	1582	1040	4	1.0	
	7748.1	10	4000	1404	65	11820	105	1581	838	4	1.0	
11 - 0	7748.1	10	4000	1321	66	11840	105	1586	948	4	1.0	INF Suple AN 1410 INF " Water 1380
	7751.1		4000	1418		11920	107	1787	869	H	1.0	1370
	1752,(	8	4000	1350	68	11920	105	1586	869	4	1.0	
H 2811	7762.0	7	4000	1385	52	12170			928		8.8	
0500	7763.0	7	4000	1370	52	12190		1584	1008		08	
	7764.0		4000	1380	56	12260	100		1040		2.8	
	7765.0	7	tuvu	1205	56/	7260	100	1585	1100	-	8.7	
	766.0	7	4000	1444	57	12260	100		1070		8.7	
-	767.0	7 1			60	2320	100	1570	910	. \		INFW 0955
1000	768.0	7 5	1000	1465	61	12350	100	1784	1011		<b>R</b> 7	INFW 0955 545 INF AN 1000
Diameter of the system influent air flow pipe is Z inches												
Diameter of the	dilution air t		s	_ inches					1			

Foothill Field Data Sheet.xls

Site Name & Address	6600 Foothil	l Blvd., Oak		<del></del>		Dat Test Op		4-Z CH	4-11	**************************************	Equipment Model and Serial Nos.			2507	12 COTY
Test Well ID	EXV.	- Mu	V-4								PID Model			2507 M.n.	RAE
Date & Time 4 261( 1100	Hour Meter Reading hrs	Applied Vacuum "Hg	Rate fpnd/cfm	Rate <sup>2</sup> (pp)/cfm	Air Temp deg F	Flow totalizer (DPE unit) gallons	Sys Inf Air Temp deg F	Control Temp deg F	Effluent Air Temp deg F	System Influent ppmv	Effluent PID ppmv		Commer		
1300	7769.Z 1770.0		4500 enguex	1044 in 54	104 175-	12420	105	1537	1046	55	1.0	Bys Int Gen. S	Au t	330 13: von f K	20 15kix
Diameter of the			reason	Z inches	nches										

SGW-1 1429 35546 20/7 SGW-2 1445 37359 28/10

Address

Foothill Minimart

ORK MAL

Test Well ID

6600 Foothill Blvd., Oakland, CA

DIB 9.65 EX-129.76 MW-1 MW-2 MW-4 MW-5 MW-5B MW-6 MW-6B Wellhead Induced Depth to Date & Time Depth Vacuum Vacuum Vacuum water water Vacuum water Vacuum water Vacuum water Vacuum water Vacuum water feet bgs "WC feet bgs 6.43 B -, 3 8.93 35.85 10.32 5,55 55 HZ0 +1.235.49 8 10.50 49 m 15% 740 11.25 600 7,77 5.57 20 HZO 10.92 0600 フィフフ 5.50 20 mo 0700 7.79 11.08 7,77 5.56 35.18 22" 7.8Z 22 7.83 35.19 S X 35.20 35. ZÚ 35.19 89

Stinger 1' off Boffom - Bleed Air At well Head for HED Lift Tight Grand NUT Any Flow Air
50"HZo when No Bleed Air But HED Flow Stups
HANTO Reduce VAC TO WELL TO PUMP ITED 35.18

35.18

Site Name & Address

Foothill Minimart

6600 Foothill Blvd., Oakland, CA

Test Well ID

- MW-4

Date 4-28-11
Operators CHILL

	E	EX-1 MW-1		M	W 2	34337.4						T		T T T T T T T T T T T T T T T T T T T			
Date & Time	Stinger	Wellhead	Induced	Depth to	MW-2 Induced Depth to		MW-4		MW-5 Induced Depth to		MW-5B		MW-6		MW-6B		
	Depth	Vacuum HAC	Vacuum	water	Vacuum		Vacuum	water	Vacuum		Induced Vacuum	Depth to water	Induced Vacuum	Depth to water	Induced Vacuum	Depth to water	
4.52-11	feet bgs	<b>E</b>	"WC	feet bgs	"WC	feet bgs	"WC	feet bgs	"WC	feet bgs	"WC	feet bgs	"WC	feet bgs	"WC	feet bgs	
0400	29	5	B	8.38	8	12.29	RJ.	5.76	Ø	7.80	D	17.48		398		35.ZZ	
0500	_	-	P		-	Vignation.	152	5.75	D	7.79		17,46		-	ナス	22.40	
0600	29"	6	SQ.	8143	8	12.29		5.55	A	7.80	8	17.10		127	-	35.20	ļ
0800	29'	6	X	8:48	- 01	12.31		5.74	~		~	11.00	J.	5.43	t.2	35.20	
090V * 1200 1330	29	6		8.50		12.31	Ø.	5.78	B	741		1710			87	35.21	
×		HZ		5		12.4		_	0	7.81	8	17.68	X	5.45	Ø	30.21	
1200	26'	30	8	8,56		12.46	101	-	Street .					5,45		35.34	
1330			8	8.56	(				B	77 171	( 1			5,45		35.24	
				9.70	0	2.55		Diversion	0	7.81	8	17.88	8	7.44	82	37.26	
												A**					
- 6																	
* Add	MKH	To s	gystu	te M:	inger	AT I	71										 

### **APPENDIX B**

# CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION



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

### ANALYTICAL REPORT

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861

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

Date Received: 04/27/11

Job:

Foothill 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
Client ID:	Foothill A SYS INF			Limit	Extracted	Analyzed
Lab ID:	STR11042742-01A	TPH-P (GRO)	ND	15 mg/m <sup>3</sup>	04/27/11 12:40	04/28/11
Date Sampled	04/26/11 14:10	Tertiary Butyl Alcohol (TBA)	ND	7.5 mg/m <sup>3</sup>	04/27/11 12:40	04/28/11
		Methyl tert-butyl ether (MTBE)	3.3	0.15 mg/m <sup>3</sup>	04/27/11 12:40	04/28/11
		Benzene	ND	$0.15 \text{ mg/m}^3$	04/27/11 12:40	04/28/11
		Toluene	ND	$0.15 \text{ mg/m}^3$	04/27/11 12:40	04/28/11
		Ethylbenzene	ND	$0.15 \text{ mg/m}^3$	04/27/11 12:40	04/28/11
		m,p-Xylene	ND	$0.15 \text{ mg/m}^3$	04/27/11 12:40	04/28/11
		o-Xylene	ND	$0.15 \text{ mg/m}^3$	04/27/11 12:40	04/28/11
Client ID:	Foothill A EFF					
Lab ID:	STR11042742-02A	TPH-P (GRO)	ND	15 mg/m <sup>3</sup>	04/27/11 12:40	04/28/11
Date Sampled	04/26/11 14:05	Tertiary Butyl Alcohol (TBA)	ND	$7.5 \text{ mg/m}^3$	04/27/11 12:40	04/28/11
		Methyl tert-butyl ether (MTBE)	ND	0.15 mg/m <sup>3</sup>	04/27/11 12:40	04/28/11
		Benzene	ND	0.15 mg/m <sup>3</sup>	04/27/11 12:40	04/28/11
		Toluene	ND	0.15 mg/m <sup>3</sup>	04/27/11 12:40	04/28/11
		Ethylbenzene	ND	$0.15 \text{ mg/m}^3$	04/27/11 12:40	04/28/11
		m,p-Xylene	ND	$0.15 \text{ mg/m}^3$	04/27/11 12:40	04/28/11
		o-Xylene	ND	0.15 mg/m <sup>3</sup>	04/27/11 12:40	04/28/11

Gasoline Range Organics (GRO) C4-C13

Note: Concentrations of air in Tedlar Bags are at 21 degrees Celsius and 25.63 inches of mercury.

ND = Not Detected

Roger L Scholl Nandy Saulner
Roger L Scholl, Ph.D., Laboratory Director · Randy Gardner, Laboratory Manager .

Walter Hiridan

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) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

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.

5/4/11 Report Date



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

<b>Date:</b> 03-May-11		QC S	ummar	y Report			<b>Work Orde</b> 11042742	
Method Blank File ID: 11042819.D Sample ID: MBLK MS08A0428B Analyte	Units : <b>mg/</b> Result	Type: N m³ PQL	Ba Run ID: MS	est Code: EPA Met atch ID: MS08A042 SD_08_110428B .SnkRefVal %REC	8B	Analysis Date:	e: 04/28/2011 17:37 04/28/2011 17:37 efVal %RPD(Limit)	Qual
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	ND 1.68 2.38 1.69	1(		84 119 85	70 70 70	130 130 130	X /	
Laboratory Control Spike File ID: 11042806.D Sample ID: GLCS MS08A0428B Analyte	Units : <b>mg/</b> i Result	Type: L m³ PQL	Ba Run ID: MS	est Code: EPA Met atch ID: MS08A042 SD_08_110428B SpkRefVal %REC	8B	Analysis Date Prep Date:	e: 04/28/2011 11:38 04/28/2011 11:38 efVal %RPD(Limit)	Qual
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	448 9.61 10.3 8.98	10	·······	112 96 103 90	70 70 70 70	130 130 130 130		

#### 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.



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<b>Date:</b> 03-May-11	(	QC Su	mmar	y Report				Work Orde 11042742	
Method Blank File ID: 11042819.D Sample ID: MBLK MS08A0428A Analyte	Units : <b>mg/m</b> Result	Type: <b>MI</b> <sup>3</sup> I	Barren Bun ID: M	est Code: EPA atch ID: MS08 SD_08_11042 SpkRefVal %	A0428	BA		04/28/2011 17:37 04/28/2011 17:37 Val %RPD(Limit)	Qual
Tertiary Butyl Alcohol (TBA) Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	ND ND ND ND ND ND ND ND 1.68 2.38 1.69	5 0.1 0.1 0.1 0.1 0.1	2 2 2 2		84 119 85	70 70 70	130 130 130		
Laboratory Control Spike File ID: 11042803.D Sample ID: LCS MS08A0428A Analyte	Units : <b>mg/m</b> Result	Type: LC  3 F	Ba Run ID: <b>M</b> :	est Code: EPA atch ID: MS08, SD_08_11042 SpkRefVal %	A0428 8B	BA		04/28/2011 10:24 04/28/2011 10:24 Val %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE) Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	8.57 9.26 9.06 10.4 9.97 9.45 10.6 9.48 9.68	0.1 0.1 0.1 0.1 0.1 0.1	10 10 10 10 10 10 10 10	(	86 93 91 104 99.7 95 106 95 97	65 70 80 80 70 70 70 70 70	140 130 120 120 130 130 130 130 130		

### 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.

#### Billing Information:

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

### Alpha Analytical, Inc.

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

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

Client:

Stratus Environmental
3330 Cameron Park Drive
Suite 550

Cameron Park, CA 95682-8861

Report Attention Phone Number EMail Address

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

EDD Required: Yes

Sampled by : C. Hill

WorkOrder: STR11042742

Report Due By: 5:00 PM On: 04-May-11

Cooler Temp n/a °C

Samples Received 27-Apr-11

Date Printed 27-Apr-11

Page: 1 of 1

PO:

Client's COC #: 28491

Job: Foothill Mini Mart

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

							Requested Tests	
Alpha	Client	Collection	No. of	Bottles	3	TPH/P_A	VOC_A	V I MANAGEMENT MANAGEMENT ( VIET )
Sample ID	Sample ID	Matrix Date	Alpha	Sub	TAT			Sample Remarks
STR11042742-01A	Foothill A SYS INF	AR 04/26/11 14:10	1	0	5	GAS-N/C	BTEX/MTBE /TBA	Tedlar
STR11042742-02A	Foothill A EFF	AR 04/26/11 14:05	1	0	5	GAS-N/C	BTEX/MTBE /TBA	Tedlar

Comments:

No security seals. Ice n/a.:

Logged in by:

Signature

Ahman

Print Name

Company

Alpha Analytical, Inc.

Date/Time

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

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

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

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

Mama	51,	matio NV	5	of Colors	Ph D	Z		- Cα\	Alpha A 255 Glend Sparks, Ne Phone (77	ale Avenue vada 8943	Suite 1-5778	21	Sa AZ ID	mple	s Col CA OR	legte	d Froi NV _ OTHI	m W	hich : WA _		2849 <sub>1</sub>	
City, Sta Phone I	ite, Zip Number	570	var bil	Y Fax	530676	Z 6 6005			Fax (775)		-				F	Analys	ses Re	equii	red			
Client N Addres	lame <b>F</b>	poti	ro Il		mux	P.O. # EMail Address			Ú	ob#				SENS	a h	1			7	Req	uired QC Leve	
City, St	ate, Zip		Oak	elaus	0	Phone #			F	ax#		***************************************	$-\sqrt{c}$	<b>\</b>	87					FDD / FDI	?? YES NO	_
Time Sampled	Date Sampled	Matrix* See Key Below	Sampled by Lab II	H/L( Number	Office (Use Only)	Report Attention		Description		TAT	Field Filtered	Total and type containers ** See below	" \ <u>(0</u>		The state of the s		./		<u> </u>	Global ID #	MARKS	
1410 1405	)	175	2110	1042	742-01 -02	Foother Foother	LA	EFF	JUF -	57D 57D		1-1 1-T		X	X	X						_
							Alleria															
ADD	TION	AL IN	STRUC	TIONS	•	Ship	Fe	U E	X	- L				1	<u> </u>	I	L					
Relinqu	ished by	A.	Andruje IM			CHO	, P	Print Name		-	9	Farte	, co	ompan	у					Date	Time	ー ラ
Receive Relinqu	ished by	Oai		chu	202	Tara	, D	ickh	700			alf	the						41	27/11	1107	
Receive Relinqu																						
Receive																						
*Key: A	.Q - Αqι	ueous	SO -	Soil	WA - Wast	e OT - C	)ther	AR - Air	**: L-	Liter V	-Voa	S-Soil Ja	ar (	O-Orbo	Т	-Tedla	r E	3-Bras	ss	P-Plastic	OT-Other	

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



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: 04/28/11

Job:

Foothill Mini Mart

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

Client ID:	Foothill A SYS INF	Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Lab ID :	STR11042842-01A	TPH-P (GRO)	ND	15 mg/m <sup>3</sup>	04/28/11 13:50	05/03/11
Date Sampled	04/27/11 14:10	Tertiary Butyl Alcohol (TBA)	ND	7.5 mg/m <sup>3</sup>	04/28/11 13:50	05/03/11
		Methyl tcrt-butyl ether (MTBE)	1.6	$0.15 \text{ mg/m}^3$	04/28/11 13:50	05/03/11
		Benzene	ND	$0.15 \text{ mg/m}^3$	04/28/11 13:50	05/03/11
		Toluene	ND	$0.15 \text{ mg/m}^3$	04/28/11 13:50	05/03/11
		Ethylbenzene	ND	$0.15 \text{ mg/m}^3$	04/28/11 13:50	05/03/11
		m,p-Xylene	ND	$0.15 \text{ mg/m}^3$	04/28/11 13:50	05/03/11
		o-Xylene	ND	$0.15 \text{ mg/m}^3$	04/28/11 13:50	05/03/11

Gasoline Range Organics (GRO) C4-C13

Note: Concentrations of air in a Tedlar Bag are at 21 degrees Celsius and 25.22 inches of mercury.

ND = Not Detected

Toger Scholl Randy Souther Walter Firehous

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) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

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.

Report Date



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

<b>Date:</b> 04-May-1]	•	QC S	ummar	y Report			Work Orde 11042842	
Method Blank		Type N	ABLK T	est Code: EPA Me	thod SW8	8015B/C		
File ID: 11050312.D			Ba	atch ID: MS15A05	03B	Analysis Date	: 05/03/2011 13:23	
Sample ID: MBLK MS15A0503B	Units : mg/i	m³	Run ID: M	SD_15_110503A		Prep Date:	05/03/2011 13:23	
Analyte	Result	PQL	SpkVal	SpkRefVal %RE	C LCL(ME	) UCL(ME) RPDRe	fVal %RPD(Limit)	Qual
TPH-P (GRO)	ND	10	)					
Surr: 1,2-Dichloroethane-d4	2.12		2	106	70	130		
Surr: Toluene-d8	2.01		2	101	70	130		
Surr: 4-Bromofluorobenzene	1.94		2	97	70	130		
Laboratory Control Spike		Type L	.CS Te	est Code: EPA Me	thod SW8	015B/C		
File ID: 11050309.D			Ba	atch ID: MS15A05	03B	Analysis Date	: 05/03/2011 12:10	
Sample ID: GLCS MS15A0503B	Units : mg/ı	n³	Run ID: M:	SD_15_110503A		Prep Date:	05/03/2011 12:10	
Analyte	Result	PQL	SpkVal	SpkRefVal %REG	C LCL(ME	) UCL(ME) RPDRe	fVal %RPD(Limit)	Qual
TPH-P (GRO)	428	10	400	107	70	130		
Surr: 1,2-Dichloroethane-d4	10.5		10	105	70	130		
Surr: Toluene-d8	9.79		10	98	70	130		
Surr: 4-Bromofluorobenzene	9.92		10	99	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.



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<b>Date:</b> 04-May-11		QC St	ımmar	y Report					<b>Work Ordo</b> 11042842	
Method Blank File ID: 11050312.D		Туре М		est Code: EP/ atch ID: MS15				is Date:	05/03/2011 13:23	
Sample ID: MBLK MS15A0503A	Units : mg/	m³	Run ID: M	SD_15_11050	03A		Prep D	ate:	05/03/2011 13:23	
Analyte	Result	PQL	SpkVal	SpkRefVal %	%REC	LCL(ME)	UCL(ME) I	RPDRef\	/al %RPD(Limit)	Qua
Tertiary Butyl Alcohol (TBA)	ND	5				· · · · · · · · · · · · · · · · · · ·			······································	
Methyl tert-butyl ether (MTBE)	ND	0.1								
Benzene	ND	0.1								
Toluene	ND	0.1								
Ethylbenzene	ND	0.1								
m,p-Xylene	ND	0.1								
o-Xylene	ND	0.1								
Surr: 1,2-Dichloroethane-d4	2.12		2		106	70	130			
Surr: Toluene-d8	2.01		2		101	70	130			
Surr: 4-Bromofluorobenzene	1.94		2		97	70	130			
Laboratory Control Spike		Type L(	CS To	est Code: EPA	A Meti	hod SW82	260B			
File ID: 11050308.D			Ва	atch ID: MS15	A050	3A	Analys	is Date:	05/03/2011 11:48	
Sample ID: LCS MS15A0503A	Units : mg/	m³	Run ID: M	SD_15_11050	)3A		Prep D	ate:	05/03/2011 11:48	
Analyte	Result	PQL				LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	9.35	0.1	10		94	65	140			
Benzene	9.82	0.1	10		98	70	130			
Toluene	10	0.1	10		100	80	120			
Ethylbenzene	10.4	0.1	10		104	80	120			
m,p-Xylene	10.2	0.1	10		102	70	130			
o-Xylene	10.1	0.1	10		101	70	130			
Surr: 1,2-Dichloroethane-d4	10.1		10		101	70	130			
Surr: Toluene-d8	10.1		10		101	70	130			
Surr: 4-Bromofluorobenzene	9.45		10		95	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.

#### Billing Information:

### CHAIN-OF-CUSTODY RECORD

Alpha Analytical, Inc.

**EMail Address** 

sbittinger@stratusinc.net

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

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

**Phone Number** 

(530) 676-2062 x

WorkOrder: STR11042842

Report Due By: 5:00 PM On: 06-May-11

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 #: 28493

Job : Foothill Mini Mart

Report Attention

Scott Bittinger

Cooler Temp

Samples Received 28-Apr-11 Date Printed

QC Level: S3

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

n/a

-11 28-Apr-11

Page: 1 of 1

							Requested Tests		
Alpha	Client	Collection	No. of Bottle	es	TPH/P_A	VOC_A		***	
Sample ID	Sample ID	Matrix Date	Alpha Sub	TAT					Sample Remarks
STR11042842-01A	Foothill A SYS INF	AR 04/27/11 14:10	1 0	6	GAS-N/C	BTEX/MTBE /TBA			Tedlar
									· / · / · · · · · · · · · · · · · · · ·

Comments:

No security seals. Ice n/a.:

Logged in by:

Signature

YPrint Name

Company

Date/Time

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Alpha Analytical, Inc.

1/28/11 947

Name Addres City, St Phone	<b>57</b> s <b>33</b> ate, Zip Number	rmatio 30 ( Ca) 530	Counce Councer 1076 blu	rn Ph Ph 14ax 530V	DR 76 6605	(%)	255 Glend Sparks, N Phone (7	Analytic dale Avenue evada 8943 75) 355-104 355-0406	, Suite : 1-57 <mark>7</mark> 8	21	Sai AZ ID	mple	OR		d From NV_ OTH	ER _	on the transfer of the second of		28493 #or_(	
Client	Vame /	o Th	ell N	Ini met				Job #				2	12/	3	7		7	Rea	uired QC Level	_ ?
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City, S	ate, Zip	C	rete lan	J.	Phone #			Fax #			-/	. / 3	MIN					/	7 YES NO	_
Time	Date	Matrix*	·	· HILL	Report Attention S	11	<u></u>		T	Total and type	of 💫	1/ -		i/				Global ID #	7 720	~
Sampled	Sampled	See Key Below	Lab ID N		S	ample Description	1	TAT	Field Filtered	containers ** See belov			<i>  </i>	/	/ ,		/	L	MARKS	
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**NOTE:** Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.



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

### ANALYTICAL REPORT

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

Date Received: 04/29/11

Job:

Foothill 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:	Foothill A SYS INF					
Lab ID:	STR11042941-01A	TPH-P (GRO)	ND	$15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11
Date Sampled	04/28/11 10:00	Tertiary Butyl Alcohol (TBA)	ND	7.5 mg/m³	04/29/11 11:55	05/03/11
		Methyl tert-butyl ether (MTBE)	1.3	$0.15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11
		Benzene	ND	$0.15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11
		Toluene	ND	$0.15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11
		Ethylbenzene	ND	$0.15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11
		m,p-Xylene	ND	$0.15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11
		o-Xylene	ND	$0.15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11
Client ID:	Foothill A SYS INF					
Lab ID:	STR11042941-02A	TPH-P (GRO)	120	$15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11
Date Sampled	04/28/11 13:20	Tertiary Butyl Alcohol (TBA)	ND	7.5 mg/m <sup>3</sup>	04/29/11 11:55	05/03/11
		Methyl tert-butyl ether (MTBE)	ND	0.15 mg/m <sup>3</sup>	04/29/11 11:55	05/03/11
		Benzene	ND	0.15 mg/m <sup>3</sup>	04/29/11 11:55	05/03/11
		Toluene	ND	0.15 mg/m <sup>3</sup>	04/29/11 11:55	05/03/11
		Ethylbenzene	ND	$0.15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11
		m,p-Xylene	ND	$0.15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11
		o-Xylene	ND	$0.15 \text{ mg/m}^3$	04/29/11 11:55	05/03/11

Gasoline Range Organics (GRO) C4-C13

Note: Concentrations of air in Tedlar Bags are at 21 degrees Celsius and 25.34 inches of mercury.

ND = Not Detected

Roger L, Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman, Quality Assurance Officer Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

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.

Report Date



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<b>Date:</b> 04-May-11		QC S	ummar	y Report			Work Orde 11042941	
Method Blank File ID: 11050312.D		Type I		est Code: EPA Natch ID: MS15A0			o: 05/03/2011 13:23	
Sample ID: MBLK MS15A0503B	Units : mg/i	n³	Run ID: M	SD_15_110503 <i>A</i>	١.	Prep Date:	05/03/2011 13:23	
Analyte	Result	PQL	SpkVal	SpkRefVal %RI	EC LCL(ME	E) UCL(ME) RPDRe	fVal %RPD(Limit)	Qual
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	ND 2.12 2.01 1.94	10	) 2 2 2 2	10 10 97	1 70	130 130 130		
<b>Laboratory Control Spike</b>		Type L	.CS Te	est Code: EPA N	lethod SW	8015B/C		
File ID: 11050309.D			Ba	atch ID: MS15A0	503B	Analysis Date	: 05/03/2011 12:10	
Sample ID: GLCS MS15A0503B	Units : mg/r	n³	Run ID: M:	SD_15_110503A	<b>\</b>	Prep Date:	05/03/2011 12:10	
Analyte	Result	PQL	SpkVal	SpkRefVal %R	EC LCL(ME	UCL(ME) RPDRe	fVal %RPD(Limit)	Qual
TPH-P (GRO) Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	428 10.5 9.79 9.92	10	0 400 10 10 10	10 10 98 99	5 70 3 70	130 130 130 130		

#### 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.



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<b>Date:</b> 04-May-11		QC St	ımmar	y Report			<b>Work Orde</b> 11042941	
Method Blank File ID: 11050312.D		Type M		est Code: EPA Me atch ID: MS15A05			05/03/2011 13:23	
Sample ID: MBLK MS15A0503A	Units : mg/	m³ l	Run ID: M	SD_15_110503A		Prep Date:	05/03/2011 13:23	
Analyte	Result	PQL	SpkVal	SpkRefVal %RE	C LCL(ME	) UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Tertiary Butyl Alcohol (TBA)	ND	5						
Methyl tert-butyl ether (MTBE)	ND	0.1						
Benzene	ND	0.1						
Toluene	ND	0.1						
Ethylbenzene	ND	0.1						
m,p-Xylene	ND	0.1						
o-Xylene	ND	0.1						
Surr: 1,2-Dichloroethane-d4	2.12		2	106	70	130		
Surr: Toluene-d8	2,01		2	101	70	130		
Surr: 4-Bromofluorobenzene	1.94		2	97	70	130		
Laboratory Control Spike		Type LC	S Te	est Code: EPA M	ethod SW8	3260B		
File ID: 11050308.D			Ва	tch ID: MS15A05	i03A	Analysis Date:	05/03/2011 11:48	
Sample ID: LCS MS15A0503A	Units : mg/	m³ l	Run ID: M	SD_15_110503A		Prep Date:	05/03/2011 11:48	
Analyte	Result	PQL	SpkVal	SpkRefVal %RE	C LCL(ME	) UCL(ME) RPDRef	Val %RPD(Limit)	Qual
Methyl tert-butyl ether (MTBE)	9.35	0.1	10	94	65	140		_
Benzene	9.82	0.1	10	98	70	130		
Toluene	10	0.1	10	100	80	120		
Ethylbenzene	10.4	0.1	10	104	80	120		
m,p-Xylene	10.2	0.1	10	102		130		
o-Xylene	10.1	0.1	10	101	70	130		
Surr: 1,2-Dichloroethane-d4	10.1		10	101	70	130		
Surr: Toluene-d8	10.1		10	101	70	130		
Surr: 4-Bromofluorobenzene	9.45		10	95	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.

#### 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

**Phone Number** 

Page: 1 of 1

WorkOrder: STR11042941

Report Due By: 5:00 PM On: 09-May-11

Client:

Stratus Environmental 3330 Cameron Park Drive

Suite 550

Cameron Park, CA 95682-8861

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

EDD Required: Yes

Sampled by: C. Hill

PO:

Client's COC#: 28494

Foothill Mini Mart

Report Attention

Cooler Temp n/a °C

Samples Received 29-Apr-11

**Date Printed** 29-Apr-11

QC Level: S3

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

								Requested Tests	
Alpha	Client	Collection	No. of	<b>Bottles</b>		TPH/P_A	VOC_A		
Sample ID	Sample ID	Matrix Date	Alpha	Sub	TAT				Sample Rema
STR11042941-01A	Foothill A SYS INF	AR 04/28/11 10:00	1	0	6	GAS-N/C	BTEX/MTBE /TBA		Tedlar
STR11042941-02A	Foothill A SYS INF	AR 04/28/11 13:20	1	0	6	GAS-N/C	BTEX/MTBE /TBA		Tedlar

Comments:

No security seals. Ice n/a.:

Logged in by:

Signature

Print Name

Company

Date/Time

Alpha Analytical, Inc.

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

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

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

Billing Information: Name Structus Address 3336 Camerus PK City, State, Zip Lapus PK VK Phone Number 530676 600 Fax 53862		Alpha Analytic 255 Glendale Avenue Sparks, Nevada 8943 Phone (775) 355-104 Fax (775) 355-0406	Suite 21 1-5778	Sampi AZ ID	_ CA'	ected From NV OTI	IER		28494 .# <u>\</u> or <u>\</u>
	P.O. # EMail Address Phone #	Job#			6/	v0//		/ / , ,	uired QC Level?
	Report Attention Stort  Sample Description  FOOTH A 373	TAT TWF ST	Field containers See below	NO X	X WILL	KOL K		Global ID #RE	MARKS
1320 478 ATK -02	Foothell A Sys	INF STD	1-7	ye y	. <i>y</i>	人			
	· ·								
ADDITIONAL INSTRUCTIONS:	Fel B			1 1					
Relinquished by Relinquished b	Print Name  CHILL  Tale HOLLING	80	Startes a	Compa	iny		5	Date 12811 1/29/11	Time   1600   S33
Received by  Relinquished by  Received by  *Key: AO - Aqueous SO - Soil WA - Waste	e OT - Other AR - Air	**:  -  iter	/-Voa S-Soil Jar	O-Or	ho 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.



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### **ANALYTICAL REPORT**

Stratus Environmental 3330 Cameron Park Drive Cameron Park, CA 956828861

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

Date Received: 05/02/11

Job:

Foothill Minimart

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

			Parameter	Concentr	ation	Reporting	Date	Date
Debt   STR   1050222-01A   TPH-P (GRO)   310   200 µg/L   05/03/11   05/03/	Client ID:	Foothill W INF				Limit	Extracted	Analyzed
Date Sampled   04/26/11   3.00   Tertiary Butyl Alcohol (TBA)   3,900   20 µg/L   05/03/11   05/0			TPH-P (GRO)	310		200	05/02/11	05/02/11
Methyl tert-buryl ether (MTBE)	Date Sample	1 04/26/11 13:00	•					
Di-Sopropyl Ether (DIPE)   ND   V   2.0 µg/L   05/03/11   05/03/								
Eliyl Tertiary Buryl Ether (ETBE)					V			
Senzene								
Tertiary Amyl Methyl Ether (TAME)   ND   V   2.0 μg/L   05/03/11   05/03/11								
Toluene			Tertiary Amyl Methyl Ether (TAMF)					
Ethylbenzene								
m.p. Xylene   1.1   1.0 µg/L   0.5/03/11			Ethylbenzene					
Client ID   Foothil W INF					Y			
Client ID:   Foothill W INF			• •		•			
Date Sampled   04/27/11   13:30   Tertiary Butyl Alcohol (TBA)   880   10 μg/L   05/03/11   05/0	Client ID:	Foothill W INF	•	1.1		1.0 μg/L	05/03/11	05/03/11
Date Sampled   04/27/11 13:30   Tertiary Butyl Alcohol (TBA)   880   10 μg/L   05/03/11   05/03/11     Methyl tert-butyl ether (MTBE)   530   0.50 μg/L   05/03/11   05/03/11     Di-isopropyl Ether (DIPE)   ND   1.0 μg/L   05/03/11   05/03/11     Ethyl Tertiary Butyl Ether (ETBE)   ND   1.0 μg/L   05/03/11   05/03/11     Benzene   ND   0.50 μg/L   05/03/11   05/03/11     Toluene   7.0   0.50 μg/L   05/03/11   05/03/11     Ethylhenzene   ND   V   2.0 μg/L   05/03/11   05/03/11     Ethyl Tertiary Butyl Ether (ETBE)   ND   V   2.0 μg/L   05/03/11   05/03/11     Ethyl Tertiary Amyl Methyl Ether (TAME)   ND   V   2.0 μg/L   05/03/11   05/03/11     Ethylhenzene   ND   V   2.0 μg/L   05/03/11   05/03/11     Ethylhenze	Lab ID:	STR11050222-02A	TPH-P (GRO)	220		100 ug/I	05/02/11	05/02/11
Methyl tert-butyl ether (MTBE)   530   0.50 µg/L   05/03/11   05/03/11	Date Sampled	04/27/11 13:30	Tertiary Butyl Alcohol (TBA)			, .		
Di-isopropyl Ether (DIPE)   ND   1.0 µg/L   05/03/11   05/03/11								
Ethyl Tertiary Butyl Ether (ETBE)   ND   1.0 µg/L   05/03/11   05/03/11     Benzene   ND   0.50 µg/L   05/03/11   05/03/11     Tertiary Amyl Methyl Ether (TAME)   ND   1.0 µg/L   05/03/11   05/03/11     Toluene   7.0   0.50 µg/L   05/03/11   05/03/11     Toluene   7.0   0.50 µg/L   05/03/11   05/03/11     Ethylhenzene   ND   0.50 µg/L   05/03/11   05/03/11     m.p-Xylene   0.52   0.50 µg/L   05/03/11   05/03/11     m.p-Xylene   0.52   0.50 µg/L   05/03/11   05/03/11     m.p-Xylene   0.52   0.50 µg/L   05/03/11   05/03/11     Date Sampled   Value   Va						·		
Benzene   ND   0.50 µg/L   0.503/11   0.503/11								
Tertiary Amyl Methyl Ether (TAME) ND 1.0 μg/L 05/03/11 05/03/11 1 Toluene 7.0 0.50 μg/L 05/03/11 05/03/11 05/03/11 1 1 05/03/11 1 0								
Toluene 7.0 0.50 µg/L 05/03/11 05/03/11 Ethylhenzene ND 0.50 µg/L 05/03/11 05/03/11 m,p-Xylene 0.52 0.50 µg/L 05/03/11 05/03/11 O-Xylene ND 0.50 µg/L 05/03/11 05/03/11  Client ID: Foothill W INF Lab ID: STR11050222-03A TPH-P (GRO) 320 200 µg/L 05/03/11 05/03/11 Date Sampled 04/28/11 09:55 Tertiary Butyl Alcohol (TBA) 730 20 µg/L 05/03/11 05/03/11 Methyl tert-butyl ether (MTBE) 840 1.0 µg/L 05/03/11 05/03/11 Di-isopropyl Ether (DIPE) ND V 2.0 µg/L 05/03/11 05/03/11 Di-isopropyl Ether (ETBE) ND V 2.0 µg/L 05/03/11 05/03/11 Ethyl Tertiary Butyl Ether (ETBE) ND V 2.0 µg/L 05/03/11 05/03/11 Tertiary Amyl Methyl Ether (TAME) ND V 2.0 µg/L 05/03/11 05/03/11 Toluene 2.3 1.0 µg/L 05/03/11 05/03/11 Toluene 2.3 1.0 µg/L 05/03/11 05/03/11 Ethylbenzene ND V 1.0 µg/L 05/03/11 05/03/11 Toluene 2.3 1.0 µg/L 05/03/11 05/03/11			Tertiary Amyl Methyl Ether (TAMF)					
Ethylhenzene								
m.pXylene   0.52   0.50 μg/L   05/03/11   05/03/11			Ethylhenzene					
Client ID :   Foothill W INF     Lab ID :   STR11050222-03A   TPH-P (GRO)   320   200 μg/L   05/03/11   05/03/11   05/03/11     Date Sampled   04/28/11 09:55   Tertiary Butyl Alcohol (TBA)   730   20 μg/L   05/03/11   05/03/11   05/03/11     Methyl tert-butyl ether (MTBE)   840   1.0 μg/L   05/03/11   05/03/11   05/03/11     Di-isopropyl Ether (DIPE)   ND   V   2.0 μg/L   05/03/11   05/03/11   05/03/11     Ethyl Tertiary Butyl Ether (ETBE)   ND   V   2.0 μg/L   05/03/11   05/03/11     Benzene   ND   V   1.0 μg/L   05/03/11   05/03/11     Tertiary Amyl Methyl Ether (TAME)   ND   V   2.0 μg/L   05/03/11   05/03/11     Toluene   2.3   1.0 μg/L   05/03/11   05/03/11     Ethylbenzene   ND   V   1.0 μg/L   05/03/11   05/03/11     Ethylbenzene   ND   V   1.0 μg/L   05/03/11   05/03/11     Toluene   2.3   1.0 μg/L			m,p-Xylene					
Client ID: Foothill W INF Lab ID: STR11050222-03A Date Sampled 04/28/11 09:55 Tertiary Butyl Alcohol (TBA) 730 20 µg/L 05/03/11 05/03/11 Methyl tert-butyl ether (MTBE) 840 1.0 µg/L 05/03/11 05/03/11 Di-isopropyl Ether (DIPE) ND V 2.0 µg/L 05/03/11 05/03/11 Ethyl Tertiary Butyl Ether (ETBE) ND V 2.0 µg/L 05/03/11 05/03/11 Benzene ND V 1.0 µg/L 05/03/11 05/03/11 Tertiary Amyl Methyl Ether (TAME) ND V 2.0 µg/L 05/03/11 05/03/11 Toluene 2.3 1.0 µg/L 05/03/11 05/03/11 Ethylbenzene ND V 1.0 µg/L 05/03/11 05/03/11 Toluene 2.3 1.0 µg/L 05/03/11 05/03/11 Ethylbenzene ND V 1.0 µg/L 05/03/11 05/03/11 Toluene 2.3 1.0 µg/L 05/03/11 05/03/11 Toluene 2.3 1.0 µg/L 05/03/11 05/03/11 Ethylbenzene ND V 1.0 µg/L 05/03/11 05/03/11 Toluene 2.3 1.0 µg/L 05/03/11 05/03/11			o-Xylene					
Date Sampled 04/28/11 09:55  Tertiary Butyl Alcohol (TBA) 730 20 μg/L 05/03/11 05/03/11  Methyl tert-butyl ether (MTBE) 840 1.0 μg/L 05/03/11 05/03/11  Di-isopropyl Ether (DIPE) ND V 2.0 μg/L 05/03/11 05/03/11  Ethyl Tertiary Butyl Ether (ETBE) ND V 2.0 μg/L 05/03/11 05/03/11  Benzene ND V 1.0 μg/L 05/03/11 05/03/11  Tertiary Amyl Methyl Ether (TAME) ND V 2.0 μg/L 05/03/11 05/03/11  Toluene 2.3 1.0 μg/L 05/03/11 05/03/11  Ethylbenzene ND V 1.0 μg/L 05/03/11 05/03/11  σ-Xylene ND V 1.0 μg/L 05/03/11 05/03/11	Client ID:	Foothill W INF				0.50 μg/L	03/03/11	05/03/11
Date Sampled 04/28/11 09:55  Tertiary Butyl Alcohol (TBA) 730 20 μg/L 05/03/11 05/03/11  Methyl tert-butyl ether (MTBE) 840 1.0 μg/L 05/03/11 05/03/11  Di-isopropyl Ether (DIPE) ND V 2.0 μg/L 05/03/11 05/03/11  Ethyl Tertiary Butyl Ether (ETBE) ND V 2.0 μg/L 05/03/11 05/03/11  Benzene ND V 1.0 μg/L 05/03/11 05/03/11  Tertiary Amyl Methyl Ether (TAME) ND V 2.0 μg/L 05/03/11 05/03/11  Toluene 2.3 1.0 μg/L 05/03/11 05/03/11  Ethylbenzene ND V 1.0 μg/L 05/03/11 05/03/11  m,p-Xylene ND V 1.0 μg/L 05/03/11 05/03/11  σ-Xylene ND V 1.0 μg/L 05/03/11 05/03/11			TPH-P (GRO)	320		200 ug/I	05/03/11	05/02/11
Methyl tert-butyl ether (MTBE)       840       1.0 μg/L       05/03/11       05/03/11         Di-isopropyl Ether (DIPE)       ND       V       2.0 μg/L       05/03/11       05/03/11         Ethyl Tertiary Butyl Ether (ETBE)       ND       V       2.0 μg/L       05/03/11       05/03/11         Benzene       ND       V       1.0 μg/L       05/03/11       05/03/11         Tertiary Amyl Methyl Ether (TAME)       ND       V       2.0 μg/L       05/03/11       05/03/11         Toluene       2.3       1.0 μg/L       05/03/11       05/03/11         Ethylbenzene       ND       V       1.0 μg/L       05/03/11       05/03/11         m.p-Xylene       ND       V       1.0 μg/L       05/03/11       05/03/11         o-Xylene       ND       V       1.0 μg/L       05/03/11       05/03/11	Date Sampled	04/28/11 09:55	Tertiary Butyl Alcohol (TBA)					
Di-isopropyl Ether (DIPE) ND V 2.0 µg/L 05/03/11 05/03/11 Ethyl Tertiary Butyl Ether (ETBE) ND V 2.0 µg/L 05/03/11 05/03/11 05/03/11 Denzene ND V 1.0 µg/L 05/03/11 05/03/11 Tertiary Amyl Methyl Ether (TAME) ND V 2.0 µg/L 05/03/11 05/03/11 Toluene 2.3 1.0 µg/L 05/03/11 05/03/11 Ethylbenzene ND V 1.0 µg/L 05/03/11 05/0								
Ethyl Tertiary Butyl Ether (ETBE) ND V 2.0 µg/L 05/03/11 05/03/11  Benzene ND V 1.0 µg/L 05/03/11 05/03/11  Tertiary Amyl Methyl Ether (TAME) ND V 2.0 µg/L 05/03/11 05/03/11  Toluene 2.3 1.0 µg/L 05/03/11 05/03/11  Ethylbenzene ND V 1.0 µg/L 05/03/11 05/03/11  m,p-Xylene ND V 1.0 µg/L 05/03/11 05/03/11  o-Xylene ND V 1.0 µg/L 05/03/11 05/03/11					V			
Benzene   ND   V   1.0 μg/L   05/03/11   05/03/11     Tertiary Amyl Methyl Ether (TAME)   ND   V   2.0 μg/L   05/03/11   05/03/11     Toluene   2.3   1.0 μg/L   05/03/11   05/03/11     Ethylbenzene   ND   V   1.0 μg/L   05/03/11   05/03/11     m,p-Xylene   ND   V   1.0 μg/L   05/03/11   05/03/11     o-Xylene   ND   V   1.0 μg/L   05/03/11     o-Xylene   ND   V   0.0 μg/L   0.0 μg/L   0.0 μg/L     o-Xylene   ND   V   0.0 μg/L   0.0 μg/L   0.0 μg/L   0.0 μg/L     o-Xylene   0.0 μg/L   0.0								
Tertiary Amyl Methyl Ether (TAME) ND V 2.0 μg/L 05/03/11 05/03/11  Toluene 2.3 1.0 μg/L 05/03/11 05/03/11  Ethylbenzene ND V 1.0 μg/L 05/03/11 05/03/11  m,p-Xylene ND V 1.0 μg/L 05/03/11 05/03/11  ο-Xylene ND V 1.0 μg/L 05/03/11 05/03/11								
Toluene 2.3 1.0 µg/L 05/03/11 05/03/11 Ethylbenzene ND V 1.0 µg/L 05/03/11 05/03/11 m.p-Xylene ND V 1.0 µg/L 05/03/11 05/03/11 05/03/11 05/03/11 05/03/11			Tertiary Amyl Methyl Ether (TAME)					
Ethylbenzene ND V 1.0 µg/L 05/03/11 05/03/11 m,p-Xylene ND V 1.0 µg/L 05/03/11 05/03/11 o-Xylene ND V 1.0 µg/L 05/03/11 05/03/11					•			
m,p-Xylene ND V 1.0 µg/L 05/03/11 05/03/11 05/03/11			Ethylbenzene		v			
0-Xviene 05/05/11			m,p-Xylene					
			o-Xylene	ND	v	1.0 μg/L 1.0 μg/L	05/03/11	05/03/11



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Client ID:	Foothill W INF					
Lab ID:	STR11050222-04A	TPH-P (GRO)	330	100 μg/L	05/03/11	05/03/11
Date Sampled	04/28/11 13:00	Tertiary Butyl Alcohol (TBA)	1,100	10 μg/L	05/03/11	05/03/11
		Methyl tert-butyl ether (MTBE)	260	0.50 µg/L	05/03/11	05/03/11
		Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	05/03/11	05/03/11
		Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 µg/L	05/03/11	05/03/11
		Benzene	ND	0.50 μg/L	05/03/11	05/03/11
		Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	05/03/11	05/03/11
		Tolucne	7.2	0.50 μg/L	05/03/11	05/03/11
		Ethylbenzene	ND	0.50 μg/L	05/03/11	05/03/11
		m,p-Xylene	ND	0.50 μg/L	05/03/11	05/03/11
		o-Xylene	ND	0.50 μg/L	05/03/11	05/03/11

Gasoline Range Organics (GRO) C4-C13

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

ND = Not Detected

Reported in micrograms per Liter, per client request.

Roger Scholl Kandy Sulmer Walter Him

Roger L. Scholl, Ph.D., Laboratory Director • • Randy Gardner, Laboratory Manager • • Walter Hinchman. Quality Assurance Officer Sacramento. CA • (916) 366-9039 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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

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.

Report Date



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## **VOC Sample Preservation Report**

Work Order: STR11050222	Job: Foothill Minimar	•		
Alpha's Sample ID	Client's Sample ID	Matrix	рН	
11050222-01A		Aqueous	2	
11050222-02A	Foothill W INF	Aqueous	2	
11050222-03A 11050222-04A	Foothill W INF	Aqueous	2	
11030222-04A	Foothill W INF	Aqueous	2	



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<b>Date:</b> 04-May-11 .	(	QC S	ummar	y Repoi	rt				Work Ord 11050222	
Method Blank File ID: C:\hpchem\mso7\data\110503\1	1050306.D	Type N		est Code: Eatch ID: MS				s Date:	05/03/2011 10:45	
Sample ID: MBLK MS07W0503B Analyte	Units : µg/L Result	PQL		SD_07_110			Prep D		05/03/2011 10:45	
TPH-P (GRO)	ND			SpkRetVal	%REC	LCL(ME)	UCL(ME) F	PDRef	/al %RPD(Limit)	Qua
Surr: 1,2-Dichloroethane-d4	10.7	50	10		107	70	130			
Surr: Toluene-d8	9.95		10		107	70 70	130			
Surr: 4-Bromofluorobenzene	10.1		10		101	70	130			
Laboratory Control Spike		Type L	CS Te	est Code: E	PA Met	hod SW80	)15B/C			
File ID: C:\HPCHEM\MS07\DATA\110503\1	1050304.D		Ba	atch ID: MS	07W050	3B	Analysi	s Date:	05/03/2011 09:57	
Sample ID: GLCS MS07W0503B	Units : µg/L		Run ID: M:	SD_07_110	503A		Prep Da	ate:	05/03/2011 09:57	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) R	PDRef\	/al %RPD(Limit)	Qua
TPH-P (GRO)	368	50	400		92	70	130			
Surr: 1,2-Dichloroethane-d4	10.6		10		106	70	130			
Surr: Toluene-d8 Surr: 4-Bromofluorobenzene	9.89		10		99	70	130			
	9.99		10		99.9	70	130			
Sample Matrix Spike		Type M		est Code: E			15B/C			
File ID: C:\HPCHEM\MS07\DATA\110503\1			Ba	atch ID: MS	07W050	3B	Analysi	s Date:	05/03/2011 11:56	
Sample ID: 11050222-02AGS	Units : μ <b>g/L</b>		Run ID: MS	SD_07_110	503A		Prep Da	ate:	05/03/2011 11:56	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) R	PDRef\	/al %RPD(Limit)	Qua
TPH-P (GRO)	1880	250	2000	222.8	83	51	144			
Surr: 1,2-Dichloroethane-d4 Surr: Toluene-d8	53.9		50		108	70	130			
Surr: Foluene-da Surr: 4-Bromofluorobenzene	48.8		50		98	70	130			
	49.1		. 50		98	70	130			***********
Sample Matrix Spike Duplicate		Type M	SD Te	st Code: El	PA Meti	nod SW80	15B/C			
File ID: C:\HPCHEM\MS07\DATA\110503\1			Ba	tch ID: MS(	7W050	3B	Analysis	Date:	05/03/2011 12:20	
Sample ID: 11050222-02AGSD	Units : µg/L		Run ID: MS	SD_07_110	503A		Prep Da	ite:	05/03/2011 12:20	
Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME) R	PDRefv	al %RPD(Limit)	Qua
TPH-P (GRO)	2000	250	2000	222.8	89	51	144	1879	6.1(29)	
Surr: 1,2-Dichloroethane-d4	53.2		50		106	70	130		()	
Surr: Toluene-d8	48.1		50		96	70	130			
Surr: 4-Bromofluorobenzene	49.2		50		98	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.



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<b>Date:</b> 04-May-11		(	QC Sı	ımmar	y Repo	rt				Work Ord 1105022	
Method Blank			Type M	BLK T	est Code: E	PA Met	thod SW8	260B			
File ID: C:\HPCH	HEM\MS07\DATA\110503\1	1050306.D		В	atch ID: MS	07W05	03A	Analy	sis Date:	05/03/2011 10:45	
Sample ID: N	MBLK MS07W0503A	Units : µg/L		Run ID: M	SD_07_110	503A		•	Date:	05/03/2011 10:45	
Analyte		Result	PQL				LCL(ME)	•		Val %RPD(Limit)	Qual
Tertiary Butyl Alc	cohol (TBA)	ND	10							(/	
Methyl tert-butyl		ND	0.5								
Di-isopropyl Ethe		ND	1								
Ethyl Tertiary But Benzene	tyl Ether (E I BE)	ND	1								
	thyl Ether (TAME)	ND ND	0.5								
Toluene		ND	0.5								
Ethylbenzene		ND	0.5								
m,p-Xylene		ND	0.5								
o-Xylene Surr: 1,2-Dichloro	anthana da	ND	0.5								
Surr: Toluene-d8		10.7 9.95		10		107	70 70	130			
Surr: 4-Bromofluc		10.1		10 <b>1</b> 0		100 101	70 70	130 130			
Laboratory Co	antual Cailea		T 1 6							<del></del>	
Laboratory Co	ontrof Spike IEM\MS07\DATA\110503\1:	1050202 D	Type LC		est Code: E						
	.CS MS07W0503A				atch ID: MS		)3A	-		05/03/2011 09:33	
Analyte	ACOCOAA (ACOCOA	Units : µg/L			SD_07_110			Prep		05/03/2011 09:33	
	U /147777	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Methyl tert-butyl e Benzene	ether (MTBE)	10.2	0.5	10		102	65	140			
Toluene		10.6 10.3	0.5	10		106	70	130			
Ethylbenzene		10.3	0.5 0.5	10 10		103 107	80 80	120 120			
m,p-Xylene		11.3	0.5	10		113	70	130			
o-Xylene		11.7	0.5	10		117	70	130			
Surr: 1,2-Dichloro	ethane-d4	10.5		10		105	70	130			
Surr: Toluene-d8 Surr: 4-Bromofluo	vrohonzono	10.1		10		101	70	130			
		10.2		10		102	70	130			
Sample Matrix			Type MS		st Code: El			60B			
_	EM\MS07\DATA\110503\11				tch ID: MS(		3A	Analy	sis Date:	05/03/2011 11:08	
-	1050222-02AMS	Units : µg/L			SD_07_110			Prep		05/03/2011 11:08	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRef\	/al %RPD(Limit)	Qual
Methyl tert-butyl e Benzene	ether (MTBE)	588	1.3	50	530.4	115	47	150			
Toluene		55.1 59.5	1.3	50	0	110	59	138			
Ethylbenzene		54.6	1.3 1.3	50 50	6.98 0	105 109	68 68	130 130			
m,p-Xylene		58.2	1.3	50	0.52	115	68	131			
o-Xylene		61.5	1.3	50	0	123	70	130			
Surr: Toluono de	ethane-d4	53		50		106	70	130			
Surr: Toluene-d8 Surr: 4-Bromofluor	rohenzena	49.2		50		98	70	130			
		49.3		50		99	70	130			
	Spike Duplicate		Type MS		st Code: EF			60B			
_	EM\MS07\DATA\110503\11				tch ID: MS0		3 <b>A</b>	Analys	sis Date:	05/03/2011 11:32	
	1050222-02AMSD	Units : µg/L			D_07_1105			Prep [		05/03/2011 11:32	
Analyte		Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefV	al %RPD(Limit)	Qual
Methyl tert-butyl et	ther (MTBE)	633	1.3	50	530.4	205	47	150	587.7	7.4(40)	M3
Benzene		48.5	1.3	50	0	97	59	138	55.07	12.7(21)	
Toluene Ethylbenzene		53.4	1.3	50	6.98	93	68	130	59.52	10.8(20)	
m.p-Xylene		47.5 51	1.3	50 50	0.50	95	68	130	54.56	13.9(20)	
o-Xylene		53.7	1.3 1.3	50 50	0.52 0	101 107	68 70	131	58.24	13.2(20)	
Surr: 1,2-Dichloroe	ethane-d4	54.4	1.0	50 50	J	107	70 70	130 130	61.46	13.4(20)	
Surr: Toluene-d8	t	50.3		50		101	70	130			
Surr: 4-Bromofluor	openzene	49.3		50		99	70	130			



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**Date:** 04-May-11

QC Summary Report

Work Order: 11050222

#### 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.

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to the spike level. The method control sample recovery was acceptable.

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

Page: 1 of 1

Alpha Analytical, Inc.

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

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

WorkOrder: STR11050222

Report Due By: 5:00 PM On: 09-May-11

Client:

Report Attention

Phone Number

EMail Address

Scott Bittinger

(530) 676-2062 x

sbittinger@stratusinc.net

EDD Required: Yes

Sampled by: C Hill

PO:

Client's COC #: 28492

Cameron Park, CA 95682-8861

Stratus Environmental

3330 Cameron Park Drive

Foothill Minimart

Cooler Temp

0 °C

Samples Received 02-May-11

Date Printed 02-May-11

QC Level: S3

Suite 550

= Final Rot MBLK LCS MS/MSD With Surrogates

Alpha	Ottom	<b></b>						Requested	Tests			
Sample ID	Client Sample ID	Collection Matrix Date	No. of Alpha	Bottles Sub		TPH/P_W	VOC_W		:		100 A	Sample Remarks
STR11050222-01A	Foothill W INF	AQ 04/26/11 13:00	5	0	5	GAS-C	BTEX/OXY C					
STR11050222-02A	Foothill W INF	AQ 04/27/11 13:30	5	0	5	GAS-C	BTEX/OXY_				:	
STR11050222-03A	Foothill W INF	AQ 04/28/11 09:55	5	0	5	GAS-C	BTEX/OXY_			-		
STR11050222-04A	Foothill W INF	AQ 04/28/11 13:00	5	0	5	GAS-C	BTEX/OXY_ C	!				Sampling time on voas 13:10, logged in per clie chain.

Comments:

Security scals intact. Frozen ice. :

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

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

Billing Information: Name Strutus Address 3330 Cornerum Ph DR City, State, Zip Carmerum Ph	25	Alpha Analytical, Inc. 55 Glendale Avenue, Suite 21 parks, Nevada 89431-5778 hone (775) 355-1044	Samples Collected From AZ CA NV ID OR OTHER	14/A	28492 e#_l_or
Phone Number 530 676 6064 Fax 530 676	4009	ax (775) 355-0406	Analyses Req	uired /	
Client Name Foothill Minimus Y	P.O. #	Job #	12/2/1	/ / Req	uired QC Level?
Address	EMail Address		12 8 Jan 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	/ / / , .	II III IV
City, State, Zip Onh luad	Phone #	Fax #		EDD/ED	F? YESNO
Time Date Sampled by CHICL	Report Attention Scott	Total and type of containers		Global ID#	
Below Lab ID Number (Use Only)	Sample Description	TAT File ** See below		RE	MARKS
1300 474 AR STR11050222-01	Foothill W IN.	F 570 5-V	XXX		
1330 437 AQ 02	Foothill W INF	5TD 5-V	X J Y		•
0999 428 AQ 03	Foothell w INA	E 5TD 5-V	XXX		
1300 428 AC 04	F WIII TA	- 547			
13W 77 HK 09	Foothill w IN	= 51D 5-V			
	W				
ADDITIONAL INSTRUCTIONS:					·
Signature	Print Name	, , ,	Company	Date	Time
Relinquished by	CHILL	Stratus		4-2011	9:00
Received by the delice	Lisa dt Silvi	~ Â	(NEW	424-11	900
Relinquished by			- Indiana.		
Received by Kulluay Relinquished by	Knunay	447		5/2/11	0950
Received by					
*Key: AQ - Aqueous SO - Soil WA - Was	te OT - Other AR - Air	**: L-Liter V-Voa S-Soil Jar	O-Orbo T-Tediar B-Br	ass 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.



5/13/2011 Mr. Scott Bittinger Stratus Environmental, Inc. 3330 Cameron Park Drive

Suite 550

Cameron Park CA 95682-8861

Project Name: Foothill Minimart

Project #:

Workorder #: 1104521

Dear Mr. Scott Bittinger

The following report includes the data for the above referenced project for sample(s) received on 4/26/2011 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

July Butte



### **WORK ORDER #: 1104521**

#### Work Order Summary

CLIENT:

Mr. Scott Bittinger

Cameron Park, CA 95682-8861

BILL TO: Mr. Sc

Mr. Scott Bittinger

Stratus Environmental, Inc. 3330 Cameron Park Drive

Stratus Environmental, Inc. 3330 Cameron Park Drive

Suite 550

Suite 550

Cameron Park, CA 95682-8861

PHONE:

530-676-2062

P.O. # 2087-6600-1

FAX:

530-676-6005

PROJECT # Foothill Minimart

DATE RECEIVED: DATE COMPLETED:

04/26/2011 05/10/2011

CONTACT:

Kelly Buettner

FRACTION#	NAME
01A	SGW-1
02A	SGW-2
03A	Lab Blank
04A	CCV
05A	LCS
05AA	LCSD

	RECEIPT	FINAL
<u>TEST</u>	VAC./PRES.	PRESSURE
Modified TO-15	5.5 "Hg	15 psi
Modified TO-15	11.0 "Hg	5 psi
Modified TO-15	NA	ÑΑ
Modified TO-15	NA	NA
Modified TO-15	NA	NA
Modified TO-15	NA	NA

CERTIFIED BY:

Lindo d. Framer

DATE:

05/10/11

Laboratory Director

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP - AI 30763, NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/11

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020



#### LABORATORY NARRATIVE EPA Method TO-15 Stratus Environmental, Inc. Workorder# 1104521

One 1 Liter Summa Canister and one 6 Liter Summa Canister samples were received on April 26, 2011. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds. Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

All Quality Control Limit exceedences and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - Q Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.
  - UJ- Non-detected compound associated with low bias in the CCV and/or LCS.
  - N The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



# **Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SGW-1

Lab ID#: 1104521-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.2	1.3	4.4	4.6
Benzene	1.2	2.6	3.9	8.4
Toluene	1.2	12	4.6	46
m,p-Xylene	1.2	3.4	5.4	15
o-Xylene	1.2	2.5	5.4	11
1,1-Difluoroethane	4.9	280	13	770
TPH ref. to Gasoline (MW=100)	62	310	250	1300

Client Sample ID: SGW-2

Lab ID#: 1104521-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.1	1.7	3.4	5.5
Toluene	1.1	10	4.0	38
m,p-Xylene	1.1	4.7	4.6	20
o-Xylene	1.1	2.5	4.6	11
1,1-Difluoroethane	4.2	24	11	64
TPH ref. to Gasoline (MW=100)	53	430	220	1800



### Client Sample ID: SGW-1 Lab ID#: 1104521-01A

### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050613	Date of Collection: 4/26/11 8:00:00 AM
Dil. Factor:	2.47	Date of Analysis: 5/6/11 02:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.2	1.3	4.4	4.6
Benzene	1.2	2.6	3.9	8.4
Toluene	1.2	12	4.6	46
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
m,p-Xylene	1.2	3.4	5.4	15
o-Xylene	1.2	2.5	5.4	11
Naphthalene	4.9	Not Detected	26	Not Detected
1,1-Difluoroethane	4.9	280	13	770
tert-Butyl alcohol	4.9	Not Detected	15	Not Detected
TPH ref. to Gasoline (MW=100)	62	310	250	1300

### Container Type: 1 Liter Summa Canister

		Method Limits	
Surrogates	%Recovery		
Toluene-d8	104	70-130	
1,2-Dichloroethane-d4	92	70-130	
4-Bromofluorobenzene	105	70-130	



### Client Sample ID: SGW-2 Lab ID#: 1104521-02A

### EPA METHOD TO-15 GC/MS FULL SCAN

l		
File Name:	3050614	Date of Collection: 4/26/11 7:40:00 AM
Dil. Factor:	2.12	Date of Analysis: 5/6/11 03:29 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.1	Not Detected	3.8	Not Detected
Benzene	1.1	1.7	3.4	5.5
Toluene	1.1	10	4.0	38
Ethyl Benzene	1.1	Not Detected	4.6	Not Detected
m,p-Xylene	1.1	4.7	4.6	20
o-Xylene	1.1	2.5	4.6	11
Naphthalene	4.2	Not Detected	22	Not Detected
1,1-Difluoroethane	4.2	24	11	64
tert-Butyl alcohol	4.2	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	53	430	220	1800

### Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	104	70-130



### Client Sample ID: Lab Blank Lab ID#: 1104521-03A

### EPA METHOD TO-15 GC/MS FULL SCAN

1		
File Name:	3050609	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/6/11 12:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
1,1-Difluoroethane	2.0	Not Detected	5.4	Not Detected
tert-Butyl alcohol	2.0	Not Detected	6.1	Not Detected
TPH ref. to Gasoline (MW=100)	25	Not Detected	100	Not Detected

### Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	101	70-130



### Client Sample ID: CCV Lab ID#: 1104521-04A

### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/6/11 07:12 AM

Compound	%Recovery
Methyl tert-butyl ether	89
Benzene	95
Toluene	99
Ethyl Benzene	93
m,p-Xylene	93
o-Xylene	95
Naphthalene	85
1,1-Difluoroethane	91
tert-Butyl alcohol	85
TPH ref. to Gasoline (MW=100)	100

### Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits		
Toluene-d8	106	70-130		
1,2-Dichloroethane-d4	92	70-130		
4-Bromofluorobenzene	101	70-130		



### Client Sample ID: LCS Lab ID#: 1104521-05A

### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050603	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/6/11 08:07 AM

Compound	%Recovery
Methyl tert-butyl ether	95
Benzene	96
Toluene	99
Ethyl Benzene	94
m,p-Xylene	97
o-Xylene	98
Naphthalene	78
1,1-Difluoroethane	Not Spiked
tert-Butyl alcohol	59 Q
TPH ref. to Gasoline (MW=100)	Not Spiked

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits		
Toluene-d8	106	70-130		
1,2-Dichloroethane-d4	92	70-130		
4-Bromofluorobenzene	103	70-130		



### Client Sample ID: LCSD Lab ID#: 1104521-05AA

### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050604	Data of Collection, NA
	3030004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/6/11 08:48 AM

Compound	%Recovery
Methyl tert-butyl ether	96
Benzene	95
Toluene	97
Ethyl Benzene	96
m,p-Xylene	97
o-Xylene	96
Naphthalene	80
1,1-Difluoroethane	Not Spiked
tert-Butyl alcohol	60
TPH ref. to Gasoline (MW=100)	Not Spiked

### Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits		
Toluene-d8	105	70-130		
1,2-Dichloroethane-d4	97	70-130		
4-Bromofluorobenzene	103	70-130		



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

Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with 180 BLUE RAVINE ROAD, SUITE B all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

FOLSOM, CA 95630-4719 (916) 985-1000 FAX (916) 985-1020

Project Manager Scott Bittinger			Project Info:			Turn Around Time:		Lab Use Only Pressurized by:			
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Mr. Scott Bittinger Stratus Environmental, Inc.

3330 Cameron Park Drive

Suite 550

5/13/2011

Cameron Park CA 95682-8861

Project Name: Foothill Mini Mart

Project #:

Workorder #: 1104570

Dear Mr. Scott Bittinger

The following report includes the data for the above referenced project for sample(s) received on 4/28/2011 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards.

Kelly Buettner

Project Manager

Killy Butte



#### **WORK ORDER #:** 1104570

#### Work Order Summary

CLIENT:

Mr. Scott Bittinger

BILL TO: Mr. Scott Bittinger

Stratus Environmental, Inc. 3330 Cameron Park Drive

Cameron Park, CA 95682-8861

Stratus Environmental, Inc. 3330 Cameron Park Drive

Suite 550

Suite 550

Cameron Park, CA 95682-8861

PHONE:

530-676-2062

P.O. #

2087-6600-1

FAX: DATE RECEIVED: 530-676-6005

PROJECT #

Foothill Mini Mart

DATE COMPLETED:

04/28/2011 05/13/2011

CONTACT:

Kelly Buettner

			RECEIPT	FINAL
FRACTION #	NAME	TEST	VAC./PRES.	PRESSURE
01A	SGW-1	Modified TO-15	10.0 "Hg	15 psi
02A	SGW-2	Modified TO-15	9.5 "Hg	15 psi
03A	Lab Blank	Modified TO-15	NA	NA
04A	CCV	Modified TO-15	NA	NA
05A	LCS	Modified TO-15	NA	NA
05AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:

Sinda d. Fruman

05/13/11

Laboratory Director

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/11

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

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#### LABORATORY NARRATIVE EPA Method TO-15 Stratus Environmental, Inc. Workorder# 1104570

Two 1 Liter Summa Canister samples were received on April 28, 2011. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds.

Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

All Quality Control Limit exceedences and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - Q Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.
  - UJ- Non-detected compound associated with low bias in the CCV and/or LCS.
  - N The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified



b-File was quantified by a second column and detector r1-File was requantified for the purpose of reissue



# **Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SGW-1

Lab ID#: 1104570-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.5	1.5	4.8	4.9
Toluene	1.5	5.4	5.7	20
TPH ref. to Gasoline (MW=100)	76	100	310	410

Client Sample ID: SGW-2

Lab ID#: 1104570-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.5	2.9	4.7	9.2
Toluene	1.5	17	5.6	63
o-Xylene	1.5	2.1	6.4	9.2
TPH ref. to Gasoline (MW=100)	74	100	300	410



# Client Sample ID: SGW-1 Lab ID#: 1104570-01A

#### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050615	Date of Collection: 4/27/11 2:49:00 PM
Dil. Factor:	3.03	Date of Analysis: 5/6/11 04:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.5	Not Detected	5.5	Not Detected
Benzene	1.5	1.5	4.8	4.9
Toluene	1.5	5.4	5.7	20
Ethyl Benzene	1.5	Not Detected	6.6	Not Detected
m,p-Xylene	1.5	Not Detected	6.6	Not Detected
o-Xylene	1.5	Not Detected	6.6	Not Detected
Naphthalene	6.1	Not Detected	32	Not Detected
1,1-Difluoroethane	6.1	Not Detected	16	Not Detected
tert-Butyl alcohol	6.1	Not Detected	18	Not Detected
TPH ref. to Gasoline (MW=100)	76	100	310	410

### Container Type: 1 Liter Summa Canister

		Method
Surrogates	%Recovery	Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	102	70-130



# Client Sample ID: SGW-2 Lab ID#: 1104570-02A

### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050616	Date of Collection: 4/27/11 2:28:00 PM
Dil. Factor:	2.96	Date of Analysis: 5/6/11 04:30 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.5	Not Detected	5.3	Not Detected
Benzene	1.5	2.9	4.7	9.2
Toluene	1.5	17	5.6	63
Ethyl Benzene	1.5	Not Detected	6.4	Not Detected
m,p-Xylene	1.5	Not Detected	6.4	Not Detected
o-Xylene	1.5	2.1	6.4	9.2
Naphthalene	5.9	Not Detected	31	Not Detected
1,1-Difluoroethane	5.9	Not Detected	16	Not Detected
tert-Butyl alcohol	5.9	Not Detected	18	Not Detected
TPH ref. to Gasoline (MW=100)	74	100	300	410

### Container Type: 1 Liter Summa Canister

		Method
Surrogates	%Recovery	Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	102	70-130



# Client Sample ID: Lab Blank Lab ID#: 1104570-03A

# EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050609	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/6/11 12:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
1,1-Difluoroethane	2.0	Not Detected	5.4	Not Detected
tert-Butyl alcohol	2.0	Not Detected	6.1	Not Detected
TPH ref. to Gasoline (MW=100)	25	Not Detected	100	Not Detected

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	101	70-130



# Client Sample ID: CCV Lab ID#: 1104570-04A

# EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/6/11 07:12 AM

Compound	%Recovery
Methyl tert-butyl ether	89
Benzene	95
Toluene	99
Ethyl Benzene	93
m,p-Xylene	93
o-Xylene	95
Naphthalene	85
1,1-Difluoroethane	91
tert-Butyl alcohol	85
TPH ref. to Gasoline (MW=100)	100

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	101	70-130



### Client Sample ID: LCS Lab ID#: 1104570-05A

#### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050603	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/6/11 08:07 AM

Compound	%Recovery
Methyl tert-butyl ether	95
Benzene	96
Toluene	99
Ethyl Benzene	94
m,p-Xylene	97
o-Xylene	98
Naphthalene	78
1,1-Difluoroethane	Not Spiked
tert-Butyl alcohol	59 Q
TPH ref. to Gasoline (MW=100)	Not Spiked

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	103	70-130



# Client Sample ID: LCSD Lab ID#: 1104570-05AA

### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050604	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/6/11 08:48 AM

Compound	%Recovery
Methyl tert-butyl ether	96
Benzene	95
Toluene	97
Ethyl Benzene	96
m,p-Xylene	97
o-Xylene	96
Naphthalene	80
1,1-Difluoroethane	Not Spiked
tert-Butyl alcohol	60
TPH ref. to Gasoline (MW=100)	Not Spiked

Surrogates	%Recovery	Method Limits	
Toluene-d8	105	70-130	
1,2-Dichloroethane-d4	97	70-130	
4-Bromofluorobenzene	103	70-130	



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Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of an applicable local, State, Federal, national, and international laws, regulations and ordinatives of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnity Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

(916) 985-1000 FAX (916) 985-1020

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5/13/2011

Mr. Scott Bittinger Stratus Environmental, Inc. 3330 Cameron Park Drive Suite 550 Cameron Park CA 95682-8861

Project Name: Foothill Mini Mart

Project #:

Workorder #: 1104589

Dear Mr. Scott Bittinger

The following report includes the data for the above referenced project for sample(s) received on 4/29/2011 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

July Butte



#### **WORK ORDER #: 1104589**

#### Work Order Summary

CLIENT:

PHONE:

Mr. Scott Bittinger

BILL TO: Mr. Scott Bittinger

Stratus Environmental, Inc.

Stratus Environmental, Inc.

3330 Cameron Park Drive

3330 Cameron Park Drive

Cameron Park, CA 95682-8861

Suite 550

Suite 550

Cameron Park, CA 95682-8861

,

FAX:

530-676-2062

**P.O.** # 2087-6600-1

DATE RECEIVED:

530-676-6005 04/29/2011

PROJECT # Foothill Mini Mart

DATE COMPLETED:

05/13/2011

CONTACT: Kelly Buettner

			RECEIPT	FINAL
FRACTION #	NAME	$\underline{\mathrm{TEST}}$	VAC./PRES.	PRESSURE
01A	SGW-1	Modified TO-15	12.0 "Hg	15 psi
02A	SGW-2	Modified TO-15	9.0 "Hg	15 psi
03A	Lab Blank	Modified TO-15	NA	NA
04A	CCV	Modified TO-15	NA	NA
05A	LCS	Modified TO-15	NA	NA
05AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:

Sinda d. Fruman

DATE:

05/13/11

Laboratory Director

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/11

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

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#### LABORATORY NARRATIVE EPA Method TO-15 Stratus Environmental, Inc. Workorder# 1104589

Two 1 Liter Summa Canister samples were received on April 29, 2011. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds.

Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - Q Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.
  - UJ- Non-detected compound associated with low bias in the CCV and/or LCS.
  - N The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector



r1-File was requantified for the purpose of reissue



# **Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SGW-1

Lab ID#: 1104589-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.7	3.3	6.3	12
TPH ref. to Gasoline (MW=100)	84	100	340	410

**Client Sample ID: SGW-2** 

Lab ID#: 1104589-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.4	8.3	5.4	31
o-Xylene	1.4	1.5	6.3	6.5



# Client Sample ID: SGW-1 Lab ID#: 1104589-01A

#### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050727	Date of Collection: 4/28/11 2:25:00 PM
Dil. Factor:	3.37	Date of Analysis: 5/7/11 07:10 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.7	Not Detected	6.1	Not Detected
Benzene	1.7	Not Detected	5.4	Not Detected
Toluene	1.7	3.3	6.3	12
Ethyl Benzene	1.7	Not Detected	7.3	Not Detected
m,p-Xylene	1.7	Not Detected	7.3	Not Detected
o-Xylene	1.7	Not Detected	7.3	Not Detected
Naphthalene	6.7	Not Detected	35	Not Detected
1,1-Difluoroethane	6.7	Not Detected	18	Not Detected
tert-Butyl alcohol	6.7	Not Detected	20	Not Detected
TPH ref. to Gasoline (MW=100)	84	100	340	410

### Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	99	70-130



# Client Sample ID: SGW-2 Lab ID#: 1104589-02A

### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050728	Date of Collection: 4/28/11 2:45:00 PM
Dil. Factor:	2.89	Date of Analysis: 5/7/11 07:33 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.4	Not Detected	5.2	Not Detected
Benzene	1.4	Not Detected	4.6	Not Detected
Toluene	1.4	8.3	5.4	31
Ethyl Benzene	1.4	Not Detected	6.3	Not Detected
m,p-Xylene	1.4	Not Detected	6.3	Not Detected
o-Xylene	1.4	1.5	6.3	6.5
Naphthalene	5.8	Not Detected	30	Not Detected
1,1-Difluoroethane	5.8	Not Detected	16	Not Detected
tert-Butyl alcohol	5.8	Not Detected	18	Not Detected
TPH ref. to Gasoline (MW=100)	72	Not Detected	300	Not Detected

# Container Type: 1 Liter Summa Canister

		Method
Surrogates	%Recovery	Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	102	70-130



# Client Sample ID: Lab Blank Lab ID#: 1104589-03A

### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050708	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/7/11 10:39 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
1,1-Difluoroethane	2.0	Not Detected	5.4	Not Detected
tert-Butyl alcohol	2.0	Not Detected	6.1	Not Detected
TPH ref. to Gasoline (MW=100)	25	Not Detected	100	Not Detected

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	104	70-130



# Client Sample ID: CCV Lab ID#: 1104589-04A

### EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050702	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/7/11 08:10 AM

Compound	%Recovery
Methyl tert-butyl ether	89
Benzene	94
Toluene	99
Ethyl Benzene	99
m,p-Xylene	98
o-Xylene	97
Naphthalene	90
1,1-Difluoroethane	90
tert-Butyl alcohol	87
TPH ref. to Gasoline (MW=100)	100

Surrogates	%Recovery	Method Limits		
Currogates		Lillita		
Toluene-d8	107	70-130		
1,2-Dichloroethane-d4	98	70-130		
4-Bromofluorobenzene	104	70-130		



### Client Sample ID: LCS Lab ID#: 1104589-05A

# EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050703	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/7/11 08:42 AM

Compound	%Recovery
Methyl tert-butyl ether	94
Benzene	100
Toluene	99
Ethyl Benzene	102
m,p-Xylene	102
o-Xylene	100
Naphthalene	82
1,1-Difluoroethane	Not Spiked
ert-Butyl alcohol	Not Spiked
TPH ref. to Gasoline (MW=100)	Not Spiked

Surrogates	%Recovery	Method Limits		
Toluene-d8	108	70-130		
1,2-Dichloroethane-d4	96	70-130		
4-Bromofluorobenzene	104	70-130		



# Client Sample ID: LCSD Lab ID#: 1104589-05AA

# EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3050704	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/7/11 08:59 AM

%Recover		
94		
96		
100		
99		
100		
100		
81		
Not Spiked		
Not Spiked		
Not Spiked		

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	106	70-130



# CHAIN-OF-CUSTODY RECORD

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# APPENDIX C GEOTRACKER DATA UPLOAD CONFIRMATION SHEETS

# **GEOTRACKER ESI**

**UPLOADING A EDF FILE** 

# SUCCESS

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

**Submittal Type:** 

EDF - Pilot Study/ Treatability Report

**Submittal Title:** 

inf eff 4-26-11

Facility Global ID:

T0600102286

Facility Name:

FOOTHILL MINI MART

File Name:

11042742\_EDF.zip Stratus Environmental, Inc.

Organization Name: Username:

STRATUS NOCAL

IP Address:

12.186.106.98

Submittal Date/Time:

5/16/2011 6:56:55 AM

**Confirmation Number:** 

4882064104

<u>VIEW QC REPORT</u>

**VIEW DETECTIONS REPORT** 

# **GEOTRACKER ESI**

**UPLOADING A EDF FILE** 

# SUCCESS

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

**Submittal Type:** 

EDF - Pilot Study/ Treatability Report

Submittal Title:

Influent 4-28-11

Facility Global ID:

T0600102286

Facility Name:

**FOOTHILL MINI MART** 

File Name:

11042941\_EDF.zip

**Organization Name:** 

Stratus Environmental, Inc.

<u>Username:</u>

STRATUS NOCAL

IP Address:

12.186.106.98

**Submittal Date/Time:** 

5/16/2011 6:59:26 AM

**Confirmation Number:** 

5427225768

**VIEW QC REPORT** 

**VIEW DETECTIONS REPORT** 

# **GEOTRACKER ESI**

**UPLOADING A EDF FILE** 

# SUCCESS

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

**Submittal Type:** 

EDF - Pilot Study/ Treatability Report

Submittal Title:

Influent 4-26-11

Facility Global ID:

T0600102286

Facility Name:

**FOOTHILL MINI MART** 

File Name:

11050222\_EDF.zip

**Organization Name:** 

Stratus Environmental, Inc.

<u>Username:</u>

STRATUS NOCAL

IP Address:

12.186.106.98

Submittal Date/Time:

5/16/2011 7:03:26 AM

**Confirmation Number:** 

4334015846

**VIEW QC REPORT** 

**VIEW DETECTIONS REPORT** 

# **GEOTRACKER ESI**

**UPLOADING A EDF FILE** 

# SUCCESS

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

<u>Submittal Type:</u> EDF - Pilot Study/ Treatability Report

<u>Submittal Title:</u> Influent 4-27-11 <u>Facility Global ID:</u> T0600102286

Facility Name: FOOTHILL MINI MART File Name: 11042842\_EDF.zip

<u>Organization Name:</u> Stratus Environmental, Inc.

<u>Username:</u> STRATUS NOCAL IP Address: 12.186.106.98

**Submittal Date/Time:** 5/16/2011 6:58:14 AM

**Confirmation Number:** 7610959649

**VIEW QC REPORT** 

**VIEW DETECTIONS REPORT** 

# **GEOTRACKER ESI**

**UPLOADING A EDF FILE** 

# SUCCESS

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

**Submittal Type:** 

**EDF - Remedial Investigation Report** 

Submittal Title:

Soil Gas Samples 1104521

**Facility Global ID:** 

T0600102286

Facility Name:

**FOOTHILL MINI MART** 

File Name:

1104521.zip

**Organization Name:** 

Stratus Environmental, Inc.

<u>Username:</u>

STRATUS NOCAL 12.186.106.98

IP Address:
Submittal Date/Time:

6/1/2011 2:46:34 PM

**Confirmation Number:** 

8999222755

**VIEW QC REPORT** 

**VIEW DETECTIONS REPORT** 

# **GEOTRACKER ESI**

**UPLOADING A EDF FILE** 

# SUCCESS

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

Submittal Type: EDF - Remedial Investigation Report

Submittal Title: Soil Gas Samples 1104570

Facility Global ID: T0600102286

Facility Name: FOOTHILL MINI MART

File Name: 1104570.zip

Organization Name: Stratus Environmental, Inc.

<u>Username:</u> STRATUS NOCAL IP Address: 12.186.106.98

Submittal Date/Time: 6/1/2011 2:47:21 PM

Confirmation Number: 7111543059

**VIEW QC REPORT** 

**VIEW DETECTIONS REPORT** 

# **GEOTRACKER ESI**

**UPLOADING A EDF FILE** 

# SUCCESS

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

**Submittal Type:** 

**EDF - Remedial Investigation Report** 

Submittal Title:

Soil Gas Samples 1104589

Facility Global ID:

T0600102286

Facility Name:

**FOOTHILL MINI MART** 

File Name:

1104589.zip

**Organization Name:** 

Stratus Environmental, Inc.

<u>Username:</u>

STRATUS NOCAL 12.186.106.98

IP Address:

6/1/2011 2:48:13 PM

<u>Submittal Date/Time:</u> <u>Confirmation Number:</u>

1673918962

**VIEW QC REPORT** 

**VIEW DETECTIONS REPORT**