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December 2, 2009
(date)

RECEIVED

8:52 am, Dec 03, 2009

Alameda County
Environmental Health

Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Facility # 9-5542

Address: 7007 San Ramon Road, Dublin, California

I have reviewed the attached report titled *Soil Vapor Quality Evaluation, Feasibility Study, and Corrective Action Plan* and dated December 2, 2009.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Conestoga-Rovers & Associates, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

SH Frerichs

Stacie H. Frerichs
Project Manager

Enclosure: Report

SOIL VAPOR QUALITY EVALUATION, FEASIBILITY STUDY, AND CORRECTIVE ACTION PLAN

CHEVRON SERVICE STATION NO. 9-5542
7007 SAN RAMON ROAD
DUBLIN, CALIFORNIA

Prepared For:
Mr. Paresh Khatri
Alameda County Environmental Health

Prepared by:
Conestoga-Rovers
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DECEMBER 2, 2009
REF. NO. 611969 (7)

SOIL VAPOR QUALITY EVALUATION, FEASIBILITY STUDY, AND CORRECTIVE ACTION PLAN

CHEVRON SERVICE STATION NO. 9-5542
7007 SAN RAMON ROAD
DUBLIN, CALIFORNIA

FOR Christopher J. Benedict

James P. Kiernan, P.E

REGISTERED PROFESSIONAL ENGINEER
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DECEMBER 2, 2009
REF. NO. 611969 (7)

Worldwide Engineering, Environmental, Construction, and IT Services

TABLE OF CONTENTS

Page

LIST OF FIGURES
(Following Text)

LIST OF TABLES
(Following Text)

LIST OF APPENDICES

1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) has prepared this *Soil Vapor Quality Evaluation, Feasibility Study, and Corrective Action Plan* on behalf of Chevron Environmental Management Company (Chevron) for Chevron Station No. 9-5542 in Dublin, California (site). To evaluate shallow soil vapor quality, CRA installed and sampled three soil vapor wells (VP-1 through VP-3) at the site. The work was performed in general accordance with the August 17, 2009 *Site Conceptual Model and Additional Investigation Work Plan* (SCM/work plan), approved by Alameda County Environmental Health (ACEH) in a letter dated September 3, 2009. However, as requested by ACEH, one of the proposed soil vapor wells (VP-2) was moved to the area of two previous soil samples (#17 and #18). In the letter, ACEH also requested preparation of a Feasibility Study/Corrective Action Plan (FS/CAP) to evaluate remedial alternatives and determine the appropriate alternative to address residual impacts at the site. A copy of the letter is presented in Appendix A. The site description and background, details and results of the investigation, a summary of the extent of contamination at the site, a FS/CAP, and our conclusions and recommendations are presented in the following sections.

2.0 SITE DESCRIPTION AND BACKGROUND

The site is an active Chevron-branded station located on the northeast corner of the intersection of San Ramon Road and Dublin Boulevard (Figure 1). Current station facilities include a station building, three 12,000-gallon gasoline underground storage tanks (USTs), and three dispenser islands. The property reportedly was first leased by Chevron in 1965 at which time a station was constructed. The original station facilities included a station building with two hydraulic hoists, two 10,000-gallon and one 4,000-gallon steel gasoline USTs on the northern side of the site, a 500-gallon steel used-oil UST to the east of the station building, and two dispenser islands on the western side of the site. In 1990, Chevron purchased the property and the station was demolished including the removal of the four USTs, product lines, and dispenser islands. The station was subsequently reconstructed into the current configuration. In 1998, the dispensers and product piping were upgraded. The property is currently owned by Mr. T.W. Johnson. Current and former site facilities are shown on Figure 2.

Land use in the site vicinity is mixed commercial and residential. The site is bounded by San Ramon Road to the west, Dublin Boulevard to the south, and undeveloped land to the east and north. A former fuel release case (Unocal #5901 at 11976 Dublin Boulevard) was present on the northwest corner of the intersection of Dublin Boulevard and

San Ramon Road; and an open fuel release case (Shell #13-5243 at 11989 Dublin Boulevard) is present on the southwest corner of the intersection.

Environmental investigation associated with the subject site has been ongoing since 1983. Prior to the current investigation, 16 groundwater monitoring wells (#1 through #5, and MW-1 through MW-11) and two vacuum monitoring wells (VW-1 and VW-2) have been installed, and 10 exploratory borings (B-1 through B-4, SB-1 through SB-3, and CPT-1 through CPT-3) have been drilled, both on and offsite, and confirmation soil sampling has been performed during UST removal and system upgrade activities. Wells #3 and MW-6 through MW-10 were later destroyed; wells MW-6 through MW-10 were destroyed with ACEH approval due to proposed development of the adjacent property. Well MW-5 located in the Dublin Boulevard right-of-way was paved over by the City of Dublin (City) in 1995; multiple attempts to re-locate the well (most recently in March 2009) have been unsuccessful and it is considered abandoned. Wells #1, #2, #4, and #5 reportedly were also destroyed sometime prior to 1990; wells VW-1 and VW-2 also appear to have been destroyed, however, no documentation is available. A summary of the environmental work performed at the site is presented in Appendix B.

Groundwater monitoring has been performed since 1990. Sampling of wells MW-2 and MW-3 was discontinued in 1999; the remaining wells (MW-1, MW-4, and MW-11) are currently sampled on a semi-annual basis. The approximate well, boring, and soil sample locations are shown on Figure 2.

CRA previously prepared and submitted the August 17, 2009 SCM/work plan to summarize the site conditions and identify any remaining data gaps. An evaluation of potential vapor intrusion concerns was identified as the lone remaining data gap at the site and the installation and sampling of three soil vapor wells was proposed to address this data gap. In the September 3, 2009 letter, ACEH generally concurred with the proposed investigation; however, an additional well was requested in the vicinity of previous gasoline UST excavation sidewall samples #17 and #18, which contained elevated concentrations of total petroleum hydrocarbons as gasoline (TPHg). Rather than installing an additional well, CRA recommended moving one of the proposed wells to this area. ACEH verbally concurred with this recommendation on September 16, 2009, and CRA presented the updated well locations in a revised site plan sent to ACEH via e-mail on September 17, 2009.

2.1 REGIONAL GEOLOGY

The site is located in the north-central portion of the Livermore Valley, within the Coast Range Geomorphic Province, at the base of the eastern slope of the East Bay Hills. The Livermore Valley slopes gently to the west and is underlain by non-water-bearing rocks, and water-bearing rock and sediments. The non-water-bearing rocks are of marine origin and consist of sandstone, shale, and conglomerate of Eocene and Miocene age. These rocks are exposed at higher elevations surrounding Livermore Valley and are found at depths greater than 1,000 feet beneath the valley floor.

The Plio-Pleistocene age Livermore Formation overlaps the Tassajara Formation beneath the northern portion of the valley and is exposed over a broad region south of the valley. Sediments of this formation consist primarily of clayey gravel in a sandy clay matrix. Sedimentary units south of the valley dip gently north, are nearly level beneath the valley floor, and dip gently south beneath the north edge of the valley. The depth to the top of the Livermore Formation beneath the valley ranges from a few feet to greater than 40 feet.

2.2 REGIONAL HYDROGEOLOGY

Groundwater beneath the site is located within the Dublin sub-basin of the Livermore Valley groundwater basin. The sediments and water-bearing units comprising the basin include valley fill materials, the Tassajara Formation, and the Livermore Formation. The basin is characterized by hydrogeologic discontinuities, and is segregated into sub-basins on the basis of localized faults. The Livermore Valley groundwater system is a multi-layered system with an unconfined aquifer overlying sequential partially-confined aquifers. Groundwater in the basin generally flows to the west.

2.3 SITE GEOLOGY

Based on previous investigations, soil encountered beneath the site generally consists of interbedded layers of fine-grained soils (clays and silts) with varying amounts of clay, silt, sand, and gravel to the maximum depth of exploration (55 feet below grade [fbg]). Varying amounts of fill material were also observed in some of the borings.

2.4 SITE HYDROGEOLOGY

Groundwater was encountered in the borings drilled at and in the vicinity of the site at depths of approximately 21 to 29 fbg. The depth to groundwater in the site wells has ranged from approximately 17 to 30 feet below top of casing (TOC). The groundwater flow direction has generally been easterly. A groundwater flow direction rose diagram depicting radial gradient vectors is presented on Figure 2. Copies of the historical boring logs and well construction diagrams, and geologic cross-sections presenting soil encountered beneath the site and the historic range of groundwater elevations were presented in the SCM/work plan.

2.5 NEARBY WELLS AND SENSITIVE RECEPTORS

In 1991, Sierra Environmental Services (SES) reviewed California Department of Water Resources (DWR) records to evaluate the presence of any water-supply wells within a ½-mile radius of the site. Twenty-four wells were identified within the search radius; however, 12 were monitoring wells, including four at the subject site. Only one domestic well was identified, located approximately 1/8 mile west-southwest (up to crossgradient) of the site. The remaining identified wells were municipal. Nine of these municipal wells to the east-northeast were identified as being potentially downgradient of the site; however, they were all located approximately ½ mile from the site.

In 2000, Delta Environmental Consultants, Inc. (Delta) contacted the owner of the previously identified domestic well and confirmed that it had been destroyed. Delta also contacted the owner of the nearest previously identified municipal well (Alameda County Flood Control and Water Conservation District [Zone 7]) and confirmed that this well had also been destroyed. According to Zone 7, no known active domestic or municipal water-supply wells were present within 2,000 feet of the site. The well survey information and figures (prepared by others) showing the approximate well locations were presented in the SCM/work plan.

Drinking water for the City of Dublin is provided by Zone 7, which obtains the majority of its supply from the San Francisco Bay Delta via the State Water Project. As stated on the Zone 7 website, other sources include local rainfall runoff stored in Del Valle Reservoir and the groundwater basin. The nearest surface water body in the site vicinity is Dublin Creek, a concrete-lined and intermittent creek, located approximately 3,200 feet east-southeast of the site. Based on the distance from the site and/or the hydrogeologic position relative to the site, none of the identified wells or the surface water body appear likely to be impacted by hydrocarbons from the site.

2.6 SUMMARY OF PREVIOUS REMEDIAL ACTIVITIES

Over-excavation of impacted soil was performed during station demolition and UST removal activities in 1990. Impacted soil was removed in the area of the former gasoline USTs to depths of approximately 15 to 22 fbg, and in the area of the former used-oil UST to 10.5 fbg. Approximately 800 cubic yards of impacted soil was removed and disposed offsite during the work. The approximate extent of excavation is shown on Figure 2.

In March 1993, Geraghty & Miller, Inc. performed a groundwater extraction test in well MW-1, which had been deepened and converted to 4-inch diameter casing for the test. The purpose of the test was to determine the appropriate pumping rate required to dewater the area around the well for possible implementation of soil vapor extraction (SVE). The pumping reportedly was able to lower groundwater levels up to 2 feet in nearby vapor extraction wells VW-1 and VW-2; however, the drawdown was not sufficient to expose the screened interval of the wells. As a result, a planned SVE pilot test was never performed.

From late 2007 to early 2008, CRA performed periodic oxygen injection into wells MW-1 and MW-4 in an effort to decrease petroleum hydrocarbon concentrations in groundwater via enhanced biodegradation. Based on sampling results in February 2008, the oxygen injection was initially successful at reducing concentrations in the wells as TPHg and benzene were not detected. However, concentrations significantly rebounded shortly after injection was discontinued. Based on these results, it appeared that only the immediate area around each well was affected by the oxygen. Due to the predominantly fine-grained, low permeability soils at the site, the oxygen likely was not able to diffuse a significant distance away from the wells resulting in only a small area of influence around each well. As a result, concentrations rebounded rapidly as unaffected groundwater re-entered the wells; and have since increased back to pre-injection levels.

3.0 INVESTIGATION ACTIVITIES

CRA installed and sampled soil vapor wells VP-1 through VP-3 to evaluate shallow soil vapor quality at the site. Well VP-1 was installed adjacent to the western side of the station building, and well VP-3 was installed adjacent to the eastern side of the building. Well VP-2 was installed to the southeast of the station building in the vicinity of previous gasoline UST excavation samples #17 and #18 and existing well MW-1. Please note that the actual location of well VP-2 differed slightly from that which was originally proposed on the revised site plan due to the presence of underground utilities; however, the well is still in the former source area (area of greatest residual impacts). The approximate vapor well locations are shown on Figure 2. The details of the investigation are presented in the following sections. Fieldwork was performed by CRA staff Chris Benedict and Nate Allen under the supervision of James Kiernan, P.E.

3.1 DRILLING ACTIVITIES

Prior to drilling, CRA obtained Well Permit No. 29068 from Alameda County Flood Control & Water Conservation District (Zone 7) for the vapor wells. A copy of the permit is presented in Appendix C. Drilling activities were performed by CRA, under the supervision of Mr. Leon Gearhart (C-57 License # 936574).

On October 15, 2009, the borings for wells VP-1 and VP-3 were advanced using a 5-inch diameter hand auger to approximately 5 fbg, and a 3-inch diameter hand auger to the final depth of approximately 6 fbg. The boring for well VP-2 was advanced using a 5-inch diameter hand auger to approximately 4 fbg, and a 3-inch diameter hand auger to the final depth of approximately 5 fbg, where drilling refusal was encountered.

The soil encountered in the borings was logged in accordance with the Unified Soil Classification System (USCS). In borings VP-1 and VP-3, approximately 1-2 feet of fill material (silty gravel with sand and gravelly clay) was encountered beneath the asphalt/concrete, underlain by clay to the bottom of the borings. In boring VP-2, fill material (clay with sand) was encountered beneath the asphalt/concrete to the bottom of the boring as it was drilled within the former gasoline UST excavation. Groundwater was not encountered in any of the borings. Copies of the boring logs are presented in Appendix C. Soil samples were screened in the field for the presence of organic vapors using a photo-ionization detector (PID) and visually observed for any evidence of impact. The PID measurements are also presented on the boring logs. CRA's *Standard Field Procedures for Hand-Auger Soil Borings* are presented in Appendix D.

3.2 SOIL SAMPLING AND LABORATORY ANALYSIS

No evidence of impact was observed in the borings, and elevated concentrations of organic vapors were not detected using the PID. Therefore, soil samples were collected from borings VP-1 and VP-3 at approximately 5 fbg and from boring VP-2 at approximately 4.5 fbg for laboratory analysis using the hand auger. The samples were collected in clean brass liners, capped using Teflon tape and plastic end caps, labeled, placed in an ice-chilled cooler, and transported under chain-of-custody to Lancaster Laboratories, Inc. (Lancaster) in Lancaster, Pennsylvania, for analysis.

The three soil samples were analyzed by Lancaster for TPHg by EPA Method 8015B; and benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8260B.

3.3 SOIL VAPOR WELL INSTALLATION

Soil vapor wells VP-1 through VP-3 were constructed with ¼-inch diameter Nylaflow® tubing connected to a 6-inch-long section of Schedule 40 PVC screen with factory-machined 0.010-inch slots. The screen was placed in wells VP-1 and VP-3 at approximately 5.25 to 5.75 fbg, and in well VP-2 at approximately 4.15 to 4.65 fbg. Monterey Sand #2/16 was used as a filter pack from the bottom of the borings to 3 inches above the top of the screen. Three inches of dry, granular bentonite was placed above the sand pack topped with hydrated bentonite gel to approximately 2 fbg. The remainder of the annular space was filled with neat Portland cement to approximately 1 foot below grade. The tubing exiting the well was capped, and well boxes were installed flush to grade and equipped with traffic-rated lids. Well construction diagrams are shown on the boring logs in Appendix C.

3.4 SOIL VAPOR SAMPLING AND LABORATORY ANALYSIS

On October 21, 2009, soil vapor samples were collected from wells VP-1 through VP-3 in 1-liter Summa™ canisters. A field duplicate sample (Dupe) was also collected from well VP-2 at the same time as the original sample. The samples were collected in general accordance with the Department of Toxic Substances Control (DTSC) January 28, 2003 *Advisory-Active Soil Gas Investigations* guidance document. CRA's *Standard Field Procedures for Soil Vapor Probe Installation and Sampling* are presented in Appendix D.

In accordance with the DTSC guidance, leak testing was performed during sampling. Helium was used as the leak check compound to evaluate if significant ambient air was entering the SUMMA™ canisters during sampling. To perform the leak testing, a plastic shroud was placed over the sampling apparatus and well, and was filled with helium during sample collection. The helium concentration within the shroud was monitored using a helium detector and was maintained between 10 and 20 percent. Copies of the vapor sampling field data sheets are presented in Appendix D.

The soil vapor samples were kept at ambient temperature and submitted under chain-of-custody to Air Toxics Ltd. in Folsom, California, for analysis. The three soil vapor samples and the duplicate sample were analyzed for TPHg by EPA Method TO-3 and BTEX, MTBE, and 2,2,4-trimethylpentane (iso-octane) by EPA Method TO-15. To evaluate the data quality, the samples were additionally analyzed for helium (leak check compound), methane, oxygen, and carbon dioxide by ASTM Method D-1946.

3.5 INVESTIGATION-DERIVED WASTE

Soil cuttings and decontamination rinsate generated during drilling activities were temporarily stored onsite in a 55-gallon steel drum, and sampled for disposal purposes. Once profiled, the drum will be removed from the site by Integrated Wastestream Management (IWM) of San Jose, California, and transported to a Chevron-approved facility for disposal.

4.0 SOIL AND SOIL VAPOR SAMPLE ANALYTICAL RESULTS

4.1 SOIL SAMPLE ANALYTICAL RESULTS

None of the analytes were detected in any of the soil samples. The soil sample analytical results are presented in Table 1. A copy of the laboratory report and chain-of-custody documentation is presented in Appendix E.

4.2 SOIL VAPOR SAMPLE ANALYTICAL RESULTS

As mentioned above, a field duplicate sample was collected simultaneously with the original sample from VP-2 to further evaluate data quality. The duplicate sample analytical results are not included in the following discussion, as similar concentrations within an acceptable range were detected in both samples. Please refer to Appendix E for the duplicate sample analytical results.

TPHg was detected in the samples collected from wells VP-1 through VP-3 at concentrations of 1,900 micrograms per cubic meter (μg/m^3), 22,000 μg/m^3, and 3,800 μg/m^3, respectively. Benzene was only detected in the sample collected from well VP-3 (16 μg/m^3). Toluene was detected in the samples collected from wells VP-1 through VP-3 at concentrations of 24 μg/m^3, 13 μg/m^3, and 8.7 μg/m^3, respectively. Ethylbenzene was only detected in the sample collected from well VP-1 (12 μg/m^3).

M,p-xylenes were detected in the samples collected from wells VP-1 through VP-3 at concentrations of 49 μg/m^3, 17 μg/m^3, and 17 μg/m^3, respectively; and o-xylenes were detected in the samples collected from wells VP-1 through VP-3 at concentrations of 13 μg/m^3, 5.6 μg/m^3, and 5.2 μg/m^3, respectively. MTBE was not detected in any of the soil vapor samples. Iso-octane was only detected in the samples collected from wells VP-2 (11 μg/m^3) and VP-3 (30 μg/m^3).

Helium was not detected in any of the samples and the detected oxygen and carbon dioxide concentrations were consistent with subsurface levels. Furthermore, a leak test on the aboveground sampling connections was initially performed by creating a test vacuum using the purge canister. A constant vacuum was maintained for at least 10 minutes prior to sample collection, indicating significant leaks were not occurring. Therefore, the samples appear to be representative of subsurface conditions and the results are assumed to be valid.

The soil vapor analytical results were compared to the shallow soil gas environmental screening levels (ESLs) associated with vapor intrusion concerns at commercial/industrial sites (Table E); established by the San Francisco Bay Regional Water Quality Control Board (RWQCB) in May 2008. The ESLs are for use as screening levels in determining if further evaluation is warranted, in prioritizing areas of concern, in establishing cleanup goals, and in estimation of potential health risks. As stated by the RWQCB, the ESLs are considered to be conservative. The presence of a chemical at a concentration above an ESL does not necessarily indicate that adverse impacts to human health or the environment are occurring; exceeding ESLs indicates that the potential for impacts may exist and that additional evaluation may be needed. Under most circumstances, the presence of a chemical in soil, groundwater, or soil gas at concentrations below the corresponding ESL can be assumed to not pose a significant, long-term (chronic) threat to human health and the environment.

The detected TPHg concentrations did not exceed the ESL of 29,000 μg/m^3. The remaining detected compounds were well below the respective ESLs, where established. The soil vapor sample analytical results are presented in Table 2. Copies of the laboratory reports and chain-of-custody documentation are presented in Appendix E.

5.0 PETROLEUM HYDROCARBON DISTRIBUTION IN SOIL, GROUNDWATER, AND SOIL VAPOR

5.1 PETROLEUM HYDROCARBON DISTRIBUTION IN SOIL

Based on the historical soil sample analytical results, the primary residual impact to site soil consists of TPHg and BTEX. The extent of the soil with elevated concentrations appears limited to the area of the former gasoline USTs and just downgradient; and appears further limited to depths greater than 20 fbg, just at or below the groundwater table. The impacted soil was removed to the extent possible during the UST removal activities. Based on the results of soil samples collected from the surrounding borings and wells, the lateral extent of the impacted soil appears to have been adequately defined. With regards to the vertical extent of impacted soil, concentrations significantly attenuate by 30 fbg and impacts likely do not extend much deeper. Based on the time since most of the soil samples were collected, concentrations likely have further decreased due to natural attenuation processes. The historical soil sample analytical results and figures showing the approximate extent of impacted soil were presented in the SCM/work plan. As declining trends are evident in the site wells, the residual impacted soil does not appear to be acting as a significant continuing source of contamination to groundwater that would reverse improving quality trends.

5.2 PETROLEUM HYDROCARBON DISTRIBUTION IN GROUNDWATER

The highest concentrations of TPHg and BTEX historically have been detected in well MW-1 located in the former gasoline UST pit and well MW-4 located downgradient of the former USTs (Figure 2). Significant concentration fluctuations have been observed in well MW-1; however, overall declining trends are evident. MTBE generally has not been detected in well MW-1 and has not been detected since 2000. Declining trends are also evident in well MW-4 and concentrations have significantly decreased throughout the course of monitoring. Low to relatively low concentrations of MTBE have sporadically been detected in well MW-4; however, MTBE has not been detected in the last several years. TPHg and BTEX generally have not been detected in downgradient well MW-11 with the exception of low concentrations during a few events; MTBE has not been detected.

Elevated concentrations of TPHg (4,700 micrograms per liter [μg/L]) and benzene (340 μg/L) were detected in downgradient well MW-9 prior to its destruction in 2006. However, consistent declining trends were evident in this well and concentrations had significantly decreased since the start of monitoring. Concentrations in crossgradient well MW-6 had also decreased and TPHg, BTEX, and MTBE were no longer detected at the time of its destruction. TPHg, BTEX, and MTBE also generally were not detected in downgradient wells MW-8 and MW-10 prior to their destruction. At the time sampling of upgradient well MW-2 and crossgradient well MW-3 was discontinued in 1999, only low concentrations of TPHg and benzene remained in MW-3, and TPHg, BTEX, and MTBE generally had not been detected in MW-2 throughout the course of monitoring. TPHg and BTEX generally had not been detected in crossgradient well MW-5 prior to it being paved over; and TPHg and BTEX generally were not detected in crossgradient well MW-7 prior to its destruction (MTBE was not detected).

Based on the analytical results, impacted groundwater (TPHg and BTEX) is present beneath the site in the area of the former gasoline USTs and downgradient. During the most recent event (September 2009), TPHg was detected in wells MW-1 and MW-4 at 8,700 μg/L and 1,600 μg/L, respectively; and benzene was detected at 410 μg/L and 15 μg/L, respectively. Impacted groundwater also likely remains some distance beneath the adjacent property to the east-northeast. Overall declining trends are evident in both wells. Based on the analytical results and the predominant groundwater flow direction, the lateral extent of impacted groundwater appears to have been adequately defined. A deeper groundwater sample (63 fbg) collected downgradient of the site indicated that the vertical extent of impacted groundwater had been adequately evaluated. The plume appears to be stable, and decreasing in size.

Graphs of TPHg and benzene concentrations in wells MW-1, MW-4, and MW-9 (prior to destruction) over time are presented in Appendix F. Iso-concentration maps of TPHg and benzene in groundwater were presented in the SCM/work plan.

5.3 PETROLEUM HYDROCARBON DISTRIBUTION IN SOIL VAPOR

As described in Section 4.2, shallow soil vapor at the site is impacted with petroleum hydrocarbons (primarily TPHg); only low concentrations of BTEX were detected. As expected, the highest TPHg concentration was detected in well VP-2 located just downgradient of the former gasoline USTs. The detected concentrations did not exceed the commercial/industrial ESLs and therefore do not appear to pose a significant threat to human health under the current (and anticipated future) commercial land use scenario. No further work appears warranted at this time.

6.0 FEASIBILITY STUDY/CORRECTIVE ACTION PLAN

Based on the information presented in the SCM/work plan, ACEH requested the preparation of a FS/CAP (in accordance with Title 23, California Code of Regulations, Section 2725) due to the residual petroleum hydrocarbons beneath the site. The purpose of a FS/CAP is to evaluate remedial alternatives, including no action or monitored natural attenuation, and select the most appropriate alternative for the site based on various factors.

6.1 REMEDIATION OBJECTIVES

The primary objective of remediation at the site is to ensure that improving groundwater quality trends continue, and cleanup goals are achieved in a reasonable time frame. Included in this objective are the protection of human health and the environment and the protection of current and potential beneficial uses of water.

6.2 CONTAMINANTS OF CONCERN IN SOIL AND GROUNDWATER

Based on the historical data, the primary contaminants of concern (COCs) in soil and groundwater at the site are TPHg and BTEX. The majority of the soil samples collected at the site were not analyzed for MTBE; however, MTBE was not detected in the six soil samples collected beneath the second-generation dispensers in 1998. In addition, MTBE is no longer detected in groundwater in wells MW-1 and MW-4, and has not been detected in well MW-11. Therefore, MTBE does not appear to be a primary COC.

6.3 PROPOSED CLEANUP LEVELS

The RWQCB established the ESLs for common contaminants in soil and groundwater to address environmental protection goals for soil, groundwater, and surface water presented in the Water Quality Control Plan for the San Francisco Basin (Basin Plan). These goals include protection of drinking water resources, protection of terrestrial biota and aquatic habitats, protection of human health, and protection against adverse nuisance conditions.

As previously mentioned, the ESLs are considered to be conservative. The presence of a chemical at a concentration above an ESL does not necessarily indicate that adverse impacts to human health or the environment are occurring; exceeding ESLs indicates that the potential for impacts may exist and that additional evaluation may be needed. Under most circumstances, the presence of a chemical in soil, groundwater, or soil gas at concentrations below the corresponding ESL can be assumed to not pose a significant, long-term (chronic) threat to human health and the environment.

The ESLs are based on a varying combination of site characteristics such as general soil depth, the potential use of groundwater as a drinking water resource, and land use (residential or commercial/industrial). The magnitude of environmental concerns, and the ESLs that are most applicable to a site, are influenced by each combination of these characteristics. The ESLs for residential land use are the most conservative; however, given the current and historic use of the subject site as a gas station, and the fact that the land use is likely to remain commercial for the foreseeable future, the commercial/industrial ESLs appear to be more appropriate for the site. However, please note that for deep soil (greater than approximately 10 fbg) the ESLs are the same for both the residential and commercial/industrial land use scenarios; and for the groundwater ESLs, there is no distinction between residential or commercial/industrial land use. As previously mentioned, groundwater in the Livermore Valley Basin is used as a municipal water supply. Based on the number of documented releases in the site vicinity, it is unlikely shallow groundwater would be used as a drinking water resource. However, according to the Basin Plan, all groundwater must be considered beneficial for this use unless shown to be non-beneficial. Therefore, the ESLs applicable to the site are presented in the following table. These ESLs represent the proposed overall cleanup goals at the site.

Contaminant of Concern	*Soil ESL*[1] *(mg/kg)*	*Groundwater ESL*[2] *(μg/L)*
TPHg	83	100
Benzene	0.044	1.0
Toluene	2.9	40
Ethylbenzene	3.3	30
Xylenes	2.3	20

1 Deep soil screening levels (Table C) for residential or commercial/industrial land use at sites where groundwater is a current or potential source of drinking water-RWQCB May 2008.

2 Groundwater screening levels (Table C) at sites where groundwater is a current or potential source of drinking water-RWQCB May 2008.

6.4 EVALUATION OF REMEDIAL ALTERNATIVES

CRA evaluated four remedial alternatives for the site including in-situ chemical oxidation (ISCO), multi-phase extraction (MPE), groundwater extraction (GWE), and monitored natural attenuation (MNA). Each of the alternatives are discussed below and were evaluated based on cost-effectiveness, applicability given the site conditions, and ability and timeframe to achieve the cleanup goals.

6.4.1 IN-SITU CHEMICAL OXIDATION

In-situ chemical oxidation (ISCO) involves the use of chemical oxidizers to facilitate the destruction of organic contaminants in the subsurface. Oxidizers can directly reduce concentrations by breaking down petroleum hydrocarbons into carbon dioxide and water. The most commonly used oxidizers include ozone, hydrogen peroxide (H_2O_2), and potassium permanganate ($KMnO_4$). This alternative would involve the installation of injection points throughout the impacted area and use of a fixed injection system or periodic mobile injection events.

ISCO can rapidly reduce petroleum hydrocarbon concentrations in groundwater and has been shown to be effective at many sites. An additional benefit is that the oxidation can result in an increase in dissolved oxygen levels in the subsurface, potentially further reducing petroleum hydrocarbon concentrations through enhanced biodegradation. Also, no waste is generated that needs to be treated and disposed. However, the effectiveness of ISCO is limited by the ability of the oxidant to contact the contaminants. Therefore, this technology typically is not effective in fine-grained soils due to the low permeability as the oxidant will not travel a significant distance from the injection points. Additionally, the oxidant can react with natural organic matter in the subsurface, reducing the amount of oxidant available to destroy the contaminants.

ISCO could potentially decrease petroleum hydrocarbon concentrations and achieve cleanup goals in a relatively short timeframe. However, due to the predominantly low permeability soils at the site (clays and silts), a large number of injection points would need to be installed for the oxidant to adequately contact the contaminants. The results of the oxygen injection performed at the site indicated a very limited radius of influence (ROI) around the wells. Bench-scale testing would be required to evaluate the effectiveness of the selected oxidant; and installation of underground piping, an aboveground treatment system, and subsequent operation and maintenance costs may be required and can significantly add to the overall cost. Therefore, the cost to implement this alternative would be relatively high.

Based on the low permeability soils at the site, and the associated costs that would be required to provide adequate contact of the oxidant to the contaminants, ISCO does not appear to be the most cost-effective alternative and therefore is not recommended as the remedial alternative at the site.

6.4.2 MULTI-PHASE EXTRACTION

Multi-phase extraction (MPE) is a remedial method in which both groundwater and soil vapor are extracted. The process involves the application of a high vacuum through an airtight well seal to simultaneously extract soil vapors from the vadose zone and groundwater from the saturated zone. Extended dewatering of the saturated zone combined with vapor extraction can more effectively remediate residual petroleum hydrocarbons in the source area. In addition, groundwater extraction may provide hydraulic control of the hydrocarbon plume and reduce contaminant migration.

A positive displacement blower or liquid-ring pump may be used to create the high vacuum needed to extract groundwater and soil vapor simultaneously. Alternatively, a submersible groundwater pump can be used to extract groundwater, while a blower or liquid-ring pump is used solely to extract soil vapor. The extraction device is supplemented with a soil vapor treatment (oxidizer or carbon adsorption) system to treat the extracted soil vapor prior to discharge to the atmosphere. Extracted groundwater is treated and discharged to the local sanitary sewer or storm drain with the appropriate authorization, or off-hauled to a disposal facility.

The effectiveness of MPE is generally limited in low permeability soils. The GWE test performed at the site in 1993 failed to achieve adequate drawdown of the water table to expose soils for potential vapor extraction. A pilot test would be required to evaluate if MPE would be feasible at the site. The cost to implement MPE would be high due to system installation and start-up costs and the number of wells required. In addition to the required operational costs, maintenance costs are usually greater as more care must be exercised when operating a MPE system. The timeframe for MPE to achieve the cleanup goals likely would be extended due to the low permeability soils at the site.

Based on the low permeability soils at the site, MPE likely will not be effective at the site resulting in an extended timeframe to achieve the cleanup goals. In addition, the costs to install and operate a MPE system are high. Therefore, MPE is not recommended as the remedial alternative at the site.

6.4.3 GROUNDWATER EXTRACTION

Groundwater extraction (GWE) is a method in which submersible pumps are placed in wells or trenches to extract impacted groundwater from the subsurface. The extracted groundwater is treated aboveground with granular activated carbon (GAC), air stripping, or biological reactors to remove any dissolved-phase petroleum hydrocarbons prior to permitted discharge into the sanitary or storm sewer. This alternative would require the installation of extraction wells, pumps, and an extraction and treatment system.

GWE can directly remove contamination, dewater subsurface soils, and hydraulically control contamination. However, there is abundant data indicating that GWE is only marginally effective at reducing dissolved-phase petroleum hydrocarbon concentrations, even after years of pumping, due to the effects of tailing. Tailing refers to the progressively slower rate of decline in COC concentrations in the presence of extraction; tailing can significantly increase the timeframe that extraction systems must be operated in order to achieve cleanup goals. Typically, GWE is the least cost-effective remedial option due to the length of time required to significantly reduce petroleum hydrocarbon concentrations in groundwater, and ongoing operation and maintenance costs. The effectiveness can be further limited due to low permeability soils. In addition, a waste material (spent carbon, etc.) is generated that must be dealt with. The cost of implementing GWE would be high due to system installation, start-up, ongoing operations and maintenance, and treated water discharge.

The timeframe for GWE to achieve the cleanup goals at the site likely would be long due to the low permeability soils at the site and the effects of tailing. As the plume does not appear to be migrating, hydraulic control does not appear to be required. In addition, the cost to implement GWE would be high. Therefore, GWE is not recommended as the remedial alternative at the site.

6.4.4 MONITORED NATURAL ATTENUATION

Monitored natural attenuation (MNA) relies solely on natural processes to achieve cleanup goals. Petroleum hydrocarbons naturally attenuate in the subsurface through several processes including biodegradation, adsorption, chemical reaction, volatilization, dispersion, and dilution. Biodegradation is the most important process and results from the digestion of petroleum hydrocarbons by naturally occurring microbes in the subsurface. This alternative requires adequate site assessment and monitoring to confirm no sensitive receptors are adversely affected and to confirm the compounds are attenuating at an acceptable rate. All engineered remedial solutions ultimately rely on natural attenuation as a final cleanup mechanism because no engineered solution can remove all of the petroleum hydrocarbons in the subsurface. This method would be in compliance with applicable laws and regulations.

The primary indicator of natural attenuation is decreasing concentration trends. Secondary indicators such as dissolved oxygen (DO) concentrations, oxidation-reduction potential (ORP), alkalinity, and nitrate, sulfate, ferrous iron concentrations, and ^{13}C isotopes are also used to evaluate the existence of and the potential for natural attenuation. The progress of MNA is evaluated using periodic groundwater monitoring.

MNA is technically feasible for this site based on the following: 1) MNA is an effective remedial method for TPHg and benzene; and 2) historical site groundwater monitoring data show a natural decline in TPHg and benzene concentrations. These declines are shown on the trend graphs for wells MW-1, MW-4, and MW-9 (Appendix F). The existing monitoring program would be continued and expanded to include parameters that are useful in monitoring natural attenuation. The cost to implement MNA would be low as there are minimal additional incremental costs for natural attenuation analysis in addition to the current monitoring program. Based on the trend graphs, the petroleum hydrocarbon concentrations in the site wells are expected to continue to decline and meet the cleanup goals for TPHg and benzene by 2044 at the latest, which according to the RWQCB is a reasonable amount of time (within 50 years). The impacted groundwater does not appear to pose a significant risk to site occupants, and no sensitive receptors appear likely to be impacted. The plume does not appear to be migrating and appears to be shrinking in size.

Based on the above information, MNA is already occurring at the site and based on the site conditions is the most technically feasible alternative. Based on the concentration trends, MNA will achieve the cleanup goals within a reasonable timeframe. MNA also is the most cost-effective alternative. Therefore, MNA is the recommended remedial alternative at the site.

7.0 CONCLUSIONS AND RECOMMENDATIONS

CRA installed and sampled soil vapor wells VP-1 through VP-3 to evaluate potential vapor intrusion issues due to residual impacted groundwater and/or soil beneath the site. Petroleum hydrocarbons were not detected in any of the soil samples collected from the vapor well borings. TPHg was detected in all the soil vapor samples; the highest concentration was detected in the sample collected from well VP-2 located just downgradient of the former gasoline USTs. Only low concentrations of BTEX were detected in the soil vapor samples; MTBE was not detected in any of the samples. The detected concentrations did not exceed the respective shallow soil gas ESLs associated with vapor intrusion concerns at commercial/industrial sites.

Based on the analytical results, shallow soil vapor in the area of the former gasoline USTs (source area) is impacted with petroleum hydrocarbons. However, the detected concentrations do not appear to pose a significant threat to human health. No further investigation appears warranted.

CRA prepared a FS/CAP to evaluate remedial alternatives and determine the appropriate alternative to meet the site cleanup goals. Several remedial alternatives were evaluated based on cost-effectiveness, applicability given the site conditions, and the ability and timeframe to achieve the cleanup goals. Based on the low permeability soils beneath the site and relative cost of implementation, MNA appears to be the most cost-effective and technically feasible remedial alternative to achieve the cleanup goals at the site within a reasonable timeframe and is therefore the recommended alternative at the site. Petroleum hydrocarbon concentrations in groundwater are decreasing, the residual impacted soil does not appear to be acting as a significant continuing source of contamination to groundwater that would reverse these trends, the plume does not appear to be migrating, and no sensitive receptors appear likely to be impacted. MNA is expected to decrease petroleum hydrocarbon concentrations to the cleanup goals by 2044 at the latest. Based on these conditions, the site appears to meet the RWQCB criteria as a low-risk groundwater case. Therefore, if after one additional year of groundwater monitoring natural attenuation and the declining trends are confirmed, we plan on submitting a case closure request.

FIGURES

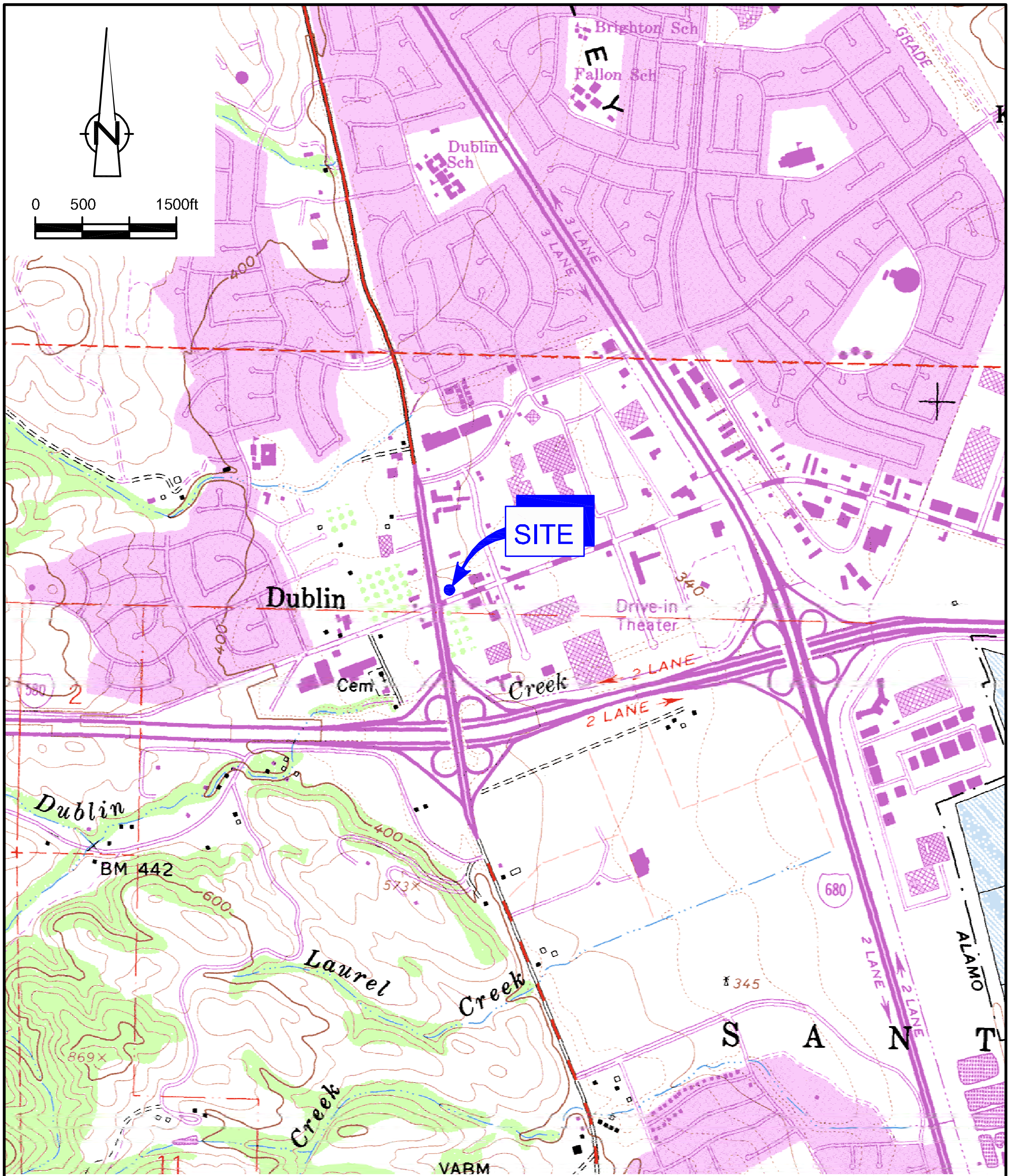
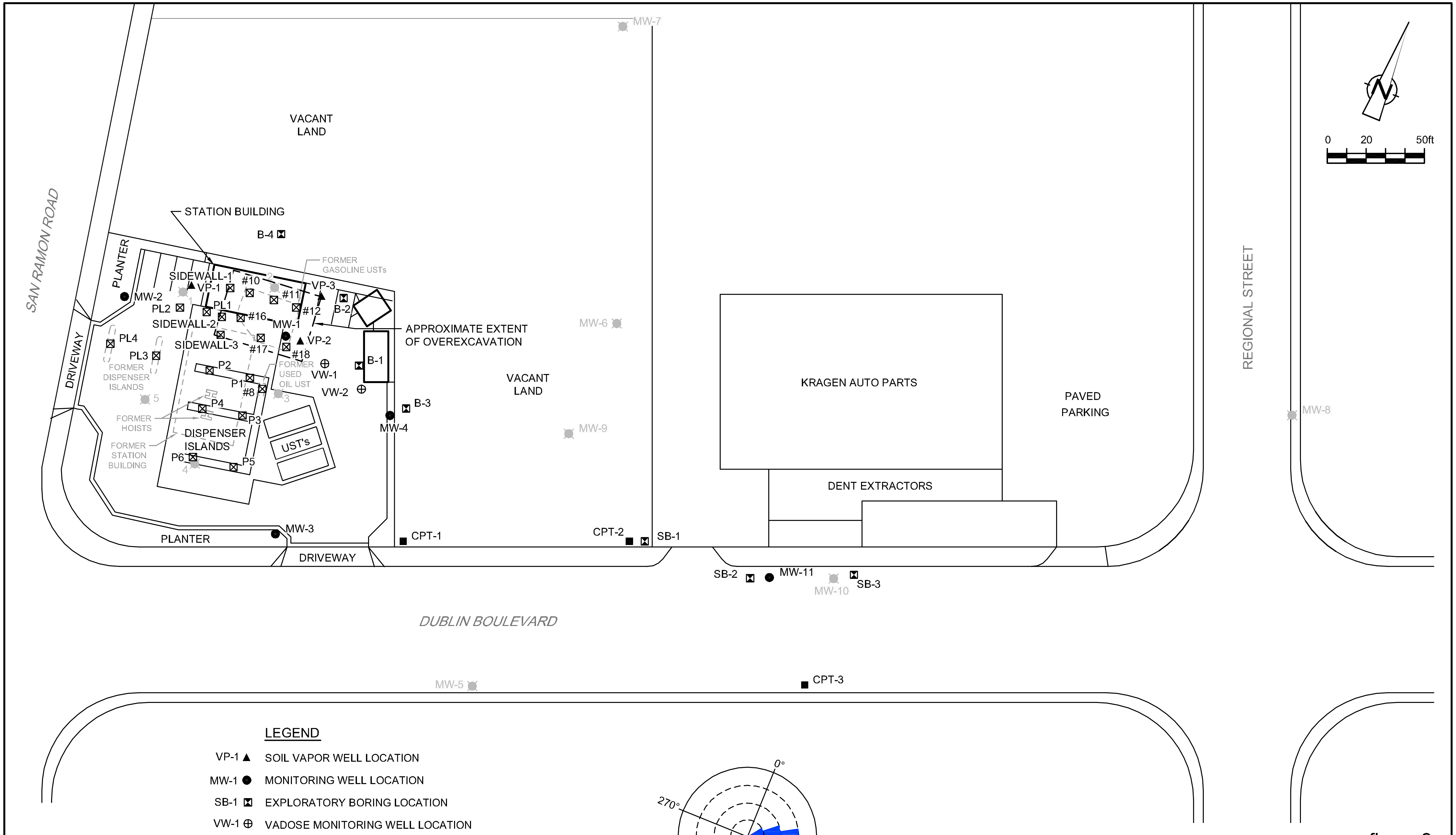


figure 1

VICINITY MAP
CHEVRON SERVICE STATION 9-5542
7007 SAN RAMON ROAD
Dublin, California

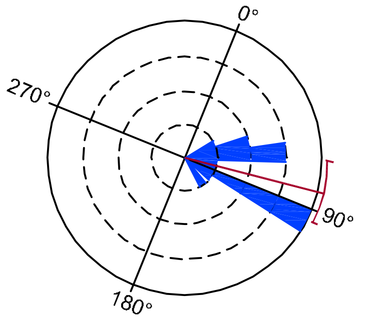
SOURCE: TOPO! MAPS

611969-299(007)GN-WA001 NOV 11/2009



LEGEND

VP-1 ▲	SOIL VAPOR WELL LOCATION
MW-1 ●	MONITORING WELL LOCATION
SB-1 ☒	EXPLORATORY BORING LOCATION
VW-1 ⊕	VADOSE MONITORING WELL LOCATION
CPT-1 ■	CPT BORING LOCATION
P5 ☒	SOIL SAMPLE LOCATION
MW-6 ☒	DESTROYED WELL LOCATION



HISTORICAL GROUNDWATER FLOW DIRECTION

figure 2

SITE PLAN
CHEVRON SERVICE STATION 9-5542
7007 SAN RAMON ROAD
Dublin, California

611969-299(007)GN-WA002 NOV 17/2009

TABLES

TABLE 1

SOIL SAMPLE ANALYTICAL RESULTS
CHEVRON STATION 9-5542
7007 SAN RAMON ROAD, DUBLIN, CALIFORNIA

Boring ID	*Depth (fbg)*	*Date Sampled*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*Xylenes*	*MTBE*
			Concentrations reported in milligrams per kilogram (mg/kg)					
VP-1	5.0	10/15/09	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005
VP-2	4.5	10/15/09	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005
VP-3	5	10/15/09	<1.0	<0.0009	<0.0009	<0.0009	<0.0009	<0.0005

Abbreviations and Methods:

TPHg = Total petroleum hydrocarbons as gasoline by EPA Method 8015
Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260
MTBE = Methyl tertiary butyl ether by EPA Method 8260
< = Not detected at or above stated laboratory reporting limit

TABLE 2

SOIL VAPOR SAMPLE ANALYTICAL RESULTS
CHEVRON STATION 9-5542
7007 SAN RAMON ROAD, DUBLIN, CALIFORNIA

Sample ID	*Date Sampled*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*m,p-Xylenes*	*o-Xylenes*	*MTBE*	*2,2,4-Trimethylpentane*	*Oxygen*	*Helium*	*Carbon Dioxide*	*Methane*
		← *Concentrations reported in micrograms per cubic meter (μg/m^3)* →								← Reported as percent →			
VP-1	10/15/09	**1,900**	<4.1	**24**	**12**	**49**	**13**	<4.6	<6.0	**8.8**	<0.13	**8.7**	<0.00026
VP-2	10/15/09	**22,000**	<4.2	**13**	<5.7	**17**	**5.6**[a]	<4.7	**11**	**17**	<0.13	**0.83**	<0.00026
VP-3	10/15/09	**3,800**	**16**	**8.7**	<4.9	**17**	**5.2**	<4.1	**30**	**14**	<0.11	**8.3**	<0.00023
Dupe	10/15/09	**23,000**	<29	<34	<40	<40	<40	<33	<42	**17**	<0.14	**0.86**	<0.00027
ESL		29,000	280	180,000	3,300	58,000[b]		31,000	NE				

Abbreviations and Methods:

TPHg = Total petroleum hydrocarbons as gasoline, by EPA Method TO-3
Benzene, Toluene, Ethylbenzene, and Xylenes by EPA Method TO-15
MTBE = Methyl tertiary butyl ether byEPA Method TO-15
Oxygen, Helium, Carbon Dioxide, and Methane by ASTM Method D-1946
Dupe = Field duplicate sample of VP-2
ESL = Environmental Screening Level for shallow soil gas associated with vapor intrusion concerns at commercial/industrial sites-RWQCB May 2008 (Table E)
< = Not detected at or above stated laboratory reporting limit
a = Estimated value
b = ESL is for total xylenes
NE = Not established

APPENDIX A

ACEH LETTER DATED SEPTEMBER 3, 2009

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

611969

CRA
SEP 08 2009
Received

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

September 3, 2009

Stacie H. Frerichs
Chevron Environmental Management Company
6001 Bollinger Canyon Road
San Ramon, CA 94583

T.W. Johnson
7007 San Ramon Road
Dublin, CA 94568-3239

Subject: Feasibility Study/Corrective Action Plan for Fuel Leak Case No. RO0000206 and GeoTracker Global ID T0600100354, Chevron #9-5542, 7007 San Ramon Road, Dublin, CA 94568

Dear Ms. Frerichs and Mr. Johnson:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "Site Conceptual Model and Additional Investigation Work Plan," dated August 17, 2009, which was prepared by Conestoga-Rovers & Associates (CRA) for the subject site. CRA states that the former source area is adequately characterized, the groundwater contaminant plume is adequately defined, and that "no further investigation appears warranted." CRA identifies "vapor intrusion into the site building as the only remaining data gap." CRA further states that "[i]f the results of the proposed investigation indicate that there is no significant risk to human health via this pathway, preparation of a FS/CAP may not be warranted."

ACEH concurs that groundwater contaminant plume appears adequately assessed and that assessment of potential vapor intrusion at the site is warranted. However, ACEH respectfully disagrees that the former source area is adequately characterized and that a Feasibility Study/Corrective Action Plan (FS/CAP) may not be warranted. Please note that potential vapor intrusion is not the only pathway of concern that must be considered at the site. ACEH request that you address the following technical comments, perform the proposed work, and send us the technical reports requested below.

TECHNICAL COMMENTS

1. **Soil Vapor Sampling** – As mentioned above, CRA proposes to install three soil vapor wells located on the southwest, southeast and northeast corners of the Station Building at the site. Although the proposed sampling locations appear to adequately evaluate potential contaminant volatilization to indoor in the vicinity of the service station building, the proposed locations do not appear to evaluate the entire site, including in the vicinity of sidewall samples #17 and #18 where elevated concentrations of TPH-g and benzene remain in place. It is important to note that case closure consideration for the site will be based on not only the

current land use scenario, but future land use as well. Therefore, it is conceivable that a commercial structure could be constructed over areas of elevated residual hydrocarbons at the site, which are currently not adequately characterized. To adequately characterize the site, additional soil vapor sampling locations in the areas of likely impact appear justified. Please include additional vapor sampling point(s) in the vicinity of sidewall sample #17 and #18. Also, please submit a revised site figure that identifies the additional sampling point, due by the date specified below.

2. **Residual Source Area Characterization** – In our May 15, 2009 correspondence, ACEH mistakenly identified the depth of the elevated residual soil contamination in boring MW-1, which detected TPH-g and benzene at concentrations of 1,300 mg/kg and 18 mg/kg, respectively, at a depth of 30 feet bgs. CRA clarified that ACEH identified a soil sample that was collected at 25 feet bgs and that an additional soil sample was collected 30 feet bgs, which detected TPH-g and benzene at lower concentrations of 270 mg/kg and 1 mg/kg, respectively. However, significantly elevated concentrations of TPH-g (3,100 mg/kg) and benzene (60 mg/kg) were also detected in UST confirmation soil sample #18 collected at 22 feet bgs and elevated concentrations of TPH-g (1,300 mg/kg) and benzene (20 mg/kg) were also detected in soil sample #17 collected at 22 feet bgs. As stated in our May 15, 2009 correspondence, the vertical extent of contamination in the source area still appears undefined and that a significant residual source area exists on site, which appears to continue to impact and degrade the waters of this groundwater basin. Active remediation will be necessary to abate elevated soil contaminant concentrations at the site.

3. **Beneficial Uses of Groundwater** – According to the San Francisco Bay RWQCB's Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin, "[t]he Livermore-Amador Valley groundwater basin is located in the middle of the Livermore-Amador Valley in eastern Alameda County and is primarily a closed groundwater basin within the Alameda Creek Watershed with multiple groundwater sub-basins of variable water quality." The site is located within the Livermore-Amador Valley Groundwater Basin, an active groundwater basin. Also according to the Basin Plan, "the term 'groundwater' includes all subsurface waters, whether or not these waters meet the classic definition of an aquifer or occur within identified groundwater basins." It is also stated in the Basin Plan that "all groundwaters are considered suitable, or potentially suitable, for municipal or domestic water supply (MUN)." Therefore, the groundwater beneath the subject site must be considered beneficial for these uses unless shown to be non-beneficial using criteria presented in the Basin Plan.

   Currently, concentrations of contaminants in groundwater are significantly above applicable Regional Water Quality Control Board's (RWQCB) Environmental Screening Levels (ESLs). Active remediation will be necessary to abate the elevated groundwater contaminant concentrations at the site.

4. **Feasibility Study/Corrective Action Plan** – As mentioned above, CRA proposes to collect vapor samples to evaluate potential contaminant volatilization to indoor air exposure pathway at the site. CRA further states that "[i]f the results of the proposed investigation indicate that there is no significant risk to human health via this pathway, preparation of a FS/CAP may not be warranted." As mentioned above, potential vapor intrusion is not the only consideration

for this site. Since the site is located within an active groundwater basin and that concentrations of contaminants at the site are significantly above applicable RWQCB's ESLs, an FS/CAP prepared in accordance with Title 23, California Code of Regulations, Section 2725 is required. The FS/CAP must include a concise background of soil and groundwater investigations performed in connection with this case and an assessment of the residual impacts of the chemicals of concern (COCs) for the site and the surrounding area where the unauthorized release has migrated or may migrate. The FS/CAP should also include, but not limited to, a detailed description of site lithology, including soil permeability, and most importantly, contamination cleanup levels and cleanup goals, in accordance with the San Francisco Regional Water Quality Control Board (SFRWQCB) Basin Plan and appropriate ESL guidance for all COCs and for the appropriate groundwater designation. Please note that soil cleanup levels should ultimately (within a reasonable timeframe) achieve water quality objectives (cleanup goals) for groundwater in accordance with the SFRWQCB Basin Plan. Please specify appropriate cleanup levels and cleanup goals in accordance with 23 CCR Section 2725, 2726, and 2727 in the FS/CAP.

The FS/CAP must evaluate at least three viable alternatives for remedying or mitigating the actual or potential adverse effects of the unauthorized release(s) besides the 'no action' and 'monitored natural attenuation' remedial alternatives. Each alternative shall be evaluated not only for cost-effectiveness but also its timeframe to reach cleanup levels and cleanup goals, and ultimately the Responsible Party must propose the most cost-effective corrective action.

NOTIFICATION OF FIELDWORK ACTIVITIES

Please schedule and complete the fieldwork activities by the date specified below and provide ACEH with at least three (3) business days notification prior to conducting the fieldwork.

TECHNICAL REPORT REQUEST

Please submit technical reports to ACEH (Attention: Paresh Khatri), according to the following schedule:

- **September 17, 2009** – Revised Site Figure
- **December 2, 2009** – Soil and Water Investigation Report & FS/CAP
- **Due within 30 Days of Sampling** – Semi-annual Monitoring Report (3rd Quarter 2009)
- **Due within 30 Days of Sampling** – Semi-annual Monitoring Report (1st Quarter 2010)

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "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." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

If you have any questions, please call me at (510) 777-2478 or send me an electronic mail message at paresh.khatri@acgov.org.

Sincerely,

Digitally signed by Paresh Khatri
DN: cn=Paresh Khatri, o=Alameda County Environmental Health, ou=Local Oversight Program, email=Paresh.Khatri@acgov.org, c=US
Date: 2009.09.03 16:57:55 -07'00'

Paresh C. Khatri
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Brian P. Carey, Conestoga-Rovers & Associates, 2000 Opportunity Drive, Suite 110, Roseville, CA 95678
James P. Kiernan, Conestoga-Rovers & Associates, 2000 Opportunity Drive, Suite 110, Roseville, CA 95678
Cheryl Dizon (QIC 8021), Zone 7 Water Agency, 100 North Canyons Pkwy, Livermore, CA 94551
Donna Drogos, ACEH (*Sent via E-mail to:* donna.drogos@acgov.org)
Paresh Khatri, ACEH (*Sent via E-mail to:* paresh.khatri@acgov.org)
GeoTracker
File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**ISSUE DATE:** July 5, 2005
	REVISION DATE: March 27, 2009
	PREVIOUS REVISIONS: December 16, 2005, October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**. (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

Submission Instructions

1) Obtain User Name and Password:
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to dehloptoxic@acgov.org
      Or
      ii) Send a fax on company letterhead to (510) 337-9335, to the attention of My Le Huynh.
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape and Firefox browsers will not open the FTP site.
   b) Click on File, then on Login As.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO# use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

APPENDIX B

SUMMARY OF PREVIOUS ENVIRONMENTAL WORK

SUMMARY OF PREVIOUS ENVIRONMENTAL WORK

Chevron Service Station No. 9-5542
7007 San Ramon Road, Dublin, California

1983 Tank Repair: In 1983, a hole was discovered in the regular leaded tank and the tank was re-lined with fiberglass.

1983-1984 Well Installation and Groundwater Monitoring: In December 1983, Gettler-Ryan Inc. (G-R) installed five monitoring wells (#1 through #5) at the site to approximately 20 feet below grade (fbg). Initially, groundwater was not encountered in any of the wells. Two weeks following installation, approximately 6 inches of light non-aqueous phase liquid (LNAPL) (what appeared to be used-oil) was observed in well #3 located just downgradient of the used-oil underground storage tank (UST). In January 1984, well #3 was drilled out and deepened to 35 fbg; LNAPL was not observed in the well at this time. The wells were monitored periodically from January through October 1984. In June 1984, approximately 0.02 feet of LNAPL was observed in Well #3. The LNAPL was bailed from the well, and there was no subsequent observation of LNAPL in this well. Details of the well installation were presented in G-R's letter dated December 20, 1983.

1984 UST System Repairs: In September 1984, a corroded section of product piping was replaced and cathodic protection was installed. In November 1984, the regular leaded product line failed a leak test and was subsequently repaired.

1990 Station Demolition: In February 1990, the station was remodeled including the removal of the existing USTs and product lines. Two 10,000-gallon and one 4,000-gallon steel gasoline USTs were removed from the site. Six soil samples were collected beneath the gasoline USTs at depths of 11 to 12 fbg and analyzed for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX). Elevated concentrations of TPHg (up to 5,000 milligrams per kilogram [mg/kg]) and BTEX (up to 780 mg/kg) were detected in several of the samples. Following collection of the initial samples, the gasoline UST excavation was deepened to approximately 15 to 16 fbg and six additional soil samples were collected from the excavation bottom in the approximate locations of the previous samples. Elevated concentrations of TPHg (up to 5,000 mg/kg) were detected in the three samples collected from the southeast portion of the excavation. Therefore, approximately the southeastern one-third of the excavation was deepened to approximately 22 fbg and three additional soil samples were collected from the excavation bottom. Elevated concentrations of TPHg (up to 3,100 mg/kg) and benzene (up to 60 mg/kg) were detected in two of the samples. Three soil samples were also collected from the southwest sidewall of the excavation at depths of 7.5 to 13.5 fbg; only low concentrations of TPHg (up to 18 mg/kg) and BTEX (up to 2.8 mg/kg) were detected in the samples.

Four soil samples (PL1 through PL4) were collected beneath the product piping at depths of 1.5 or 3 fbg and analyzed for TPHg and BTEX; only low concentrations of TPHg (up to 9 mg/kg) and BTEX (up to 1.2 mg/kg) were detected in the samples. A soil sample was also collected at 8 fbg beneath the used-oil UST and analyzed for TPHg, BTEX, total oil and grease (TOG), volatile organic compounds (VOCs), semi-VOCs, and 13 priority pollutant metals. Low concentrations of TPHg (0.55 mg/kg), BTEX (up to 0.49 mg/kg), and TOG (12 mg/kg) were detected in the sample; VOCs and semi-VOCs were not detected and the detected metals concentrations generally were consistent with natural background levels. The used-oil UST excavation was subsequently deepened to approximately 10.5 fbg and an additional soil sample collected from the excavation bottom and analyzed for the same constituents. Only xylenes (0.02 mg/kg), TOG (12 mg/kg), and metals were detected in the sample; the detected metals concentrations generally were consistent with background levels. The impacted soil generated during the work was disposed offsite. The site was then redeveloped into the current configuration including the installation of three 12,000-gallon, fiberglass USTs in a new tank pit to the south of the former USTs.

1990 Well Destruction and Installation: In March 1990, a remaining monitoring well (#3) that had been damaged during station redevelopment activities was destroyed and four new monitoring wells (MW-1 through MW-4) were installed at the site by Burlington Environmental, Inc. (Burlington). The wells were installed to depths of 35 or 37 fbg. A total of six soil samples were collected at various depths from the borings for wells MW-1 through MW-3 and analyzed for TPHg and BTEX. TPHg was only detected in the samples collected at 25 fbg (1,300 mg/kg) and 30 fbg (270 mg/kg) from boring MW-1, and at 25 fbg (51 mg/kg) from boring MW-3. Elevated concentrations of BTEX (benzene at 38 mg/kg) were also detected in the sample collected at 25 fbg from boring MW-1. Low concentrations of BTEX (up to 18 mg/kg) were detected in several of the other samples. Soil samples were collected at depths of 15, 20, and 25 fbg from boring MW-4 and analyzed for TPHg, TPH as diesel (TPHd), and the metals lead, chromium, cadmium, and zinc; which were not detected with the exception of lead (up to 41 mg/kg), chromium (up to 26 mg/kg), and zinc (up to 44 mg/kg). The sample collected at 25 fbg was also analyzed for TOG and BTEX; TOG was detected at 39 mg/kg and BTEX were detected up to 46 mg/kg. TPHg was detected in the initial groundwater samples collected from wells MW-1, MW-3, and MW-4 at concentrations of 46,000 micrograms per liter (µg/L), 2,200 µg/L, and 43,000 µg/L, respectively. Benzene was detected in the initial groundwater samples collected from wells MW-1, MW-3, and MW-4 at concentrations of 8,400 µg/L, 36 µg/L, and 4,000 µg/L, respectively. TOG was detected in the initial groundwater sample collected from well MW-4 at 18,000 µg/L; TPHd and metals were not detected. Details of the investigation were presented in Burlington's July 19, 1991 *Soil and Groundwater Investigation*.

1991 Monitoring Well Installation: In June 1991, three offsite monitoring wells (MW-5 through MW-7) were installed by SES to depths of 35 or 36 fbg. A soil sample was collected from each well boring at a depth of 26 or 28.5 fbg and analyzed for TPHg, BTEX, and lead. TPHg (5 mg/kg) and BTEX (up to 0.12 mg/kg) were only detected in the soil sample collected at 26 fbg from boring MW-6. Lead was not detected in any of the soil samples. TPHg (3,700 µg/L) and benzene (50 µg/L) were only detected in the initial groundwater sample collected from well MW-6. The initial samples collected from the wells were also analyzed for halogenated VOCs (HVOCs) and organic lead; which were not detected. Details of the investigation were presented in SES's *Subsurface Investigation Report*, dated July 22, 1991.

In December 1991, an additional offsite monitoring well (MW-8) was installed to 35 fbg by GeoStrategies, Inc. (GSI). A soil sample was collected at 20 fbg from the well boring and analyzed for TPHg and BTEX; which were not detected. The initial groundwater sample collected from the well also did not contain TPHg or BTEX. Details of the well installation were presented in GSI's *Well Installation Report*, dated January 16, 1992.

1992 Well Installation: In November 1992, Geraghty & Miller, Inc. (Geraghty & Miller) installed two vacuum monitoring wells (VW-1 and VW-2) and destroyed (overdrilled) and reinstalled existing well MW-1 in the same borehole to a depth of 50 fbg for groundwater extraction and the performance of a soil vapor extraction (SVE) pilot test at the site. Wells VW-1 and VW-2 were installed to depths of 31.5 fbg and 30 fbg, respectively. A total of 13 soil samples were collected at various depths from borings VW-1 and VW-2 and analyzed for TPHg and BTEX. TPHg was detected in several of the samples at concentrations ranging from 1 (VW-2 at 30 fbg) to 990 mg/kg (VW-1 at 24 fbg); BTEX (up to 99 mg/kg) were also detected in several of the samples. Details of the investigation were presented in Geraghty and Miller's *Letter Report for the Installation of Groundwater and Vapor-Extraction Well and Vacuum-Monitoring Wells*, dated January 5, 1993.

1994 Exploratory Borings and Well Installation: In June 1994, SES drilled two exploratory borings (B-1 and B-2) onsite and installed an additional offsite well (MW-9). Well MW-9 was installed to a depth of 34.5 fbg. A total of six soil samples were collected from borings B-1 and B-2 and analyzed for TPHg and BTEX; low concentrations of TPHg (up to 8 mg/kg) and BTEX (up to 0.83 mg/kg) were detected in several of the samples. An elevated concentration of TPHg (1,600 mg/kg) was detected in the sample collected at 20.5 fbg from boring B-1. Soil samples were also collected at depths of 24.5 fbg and 33.5 fbg from boring MW-9 and analyzed for TPHg and BTEX; TPHg (57 mg/kg) was only detected in the shallower sample. Low concentrations of BTEX (up to 3.4 mg/kg) were detected in both samples. The initial groundwater sample collected from well MW-9 contained elevated concentrations of TPHg (12,000 µg/L) and benzene (1,700 µg/L). Details of the investigation were presented in SES's *Monitoring Well Installation*, dated September 20, 1994.

1995 Exploratory Borings: In July 1995, Groundwater Technology, Inc. (GTI) drilled three offsite exploratory borings (SB-1 through SB-3) to 27 fbg to the east-southeast of the site. A groundwater sample was collected from each of the borings and analyzed for TPHg and BTEX. TPHg was only detected in the samples collected from borings SB-1 (65,000 µg/L) and SB-2 (2,900 µg/L). Benzene was only detected in the sample collected from boring SB-1 (470 µg/L). Concentrations of toluene (up to 200 µg/L), ethylbenzene (up to 210 µg/L), and xylenes (up to 2,100 µg/L) were also detected in the samples. Details of the investigation were presented in GTI's *Environmental Assessment Report*, dated September 28, 1995.

1996 Exploratory Borings and Well Installation: In June 1996, G-R drilled two offsite exploratory borings (B-3 and B-4) to 30 fbg and installed an additional offsite well (MW-10) to 35 fbg. Soil samples collected at 18 fbg from boring B-3 and at 12 fbg from boring B-4 were analyzed for TPHg and BTEX; which were not detected. Groundwater samples were also collected from borings B-3 and B-4 and analyzed for TPHg and BTEX. TPHg (63,000 µg/L), benzene (5,600 µg/L), toluene (2,900 µg/L), ethylbenzene (1,800 µg/L), and xylenes (7,900 µg/L) were only detected in the groundwater sample collected from boring B-3. The initial groundwater sample collected from well MW-10 did not contain TPHg or BTEX. Details of the investigation were presented in G-R's *Soil Boring and Well Installation Report*, dated August 29, 1996.

1998 Product Piping and Dispenser Replacement: In September 1998, G-R collected soil samples during product piping and dispenser replacement activities at the site. Six soil samples (P1 through P6) were collected at a depth of 3 fbg beneath each of the dispensers and analyzed for TPHg, BTEX, methyl tertiary butyl ether (MTBE), and total lead. None of the analytes were detected in any of the soil samples. Approximately 196 cubic yards of soil were removed and disposed offsite during the work. The details and results of the work were presented in G-R's *Soil Sampling During Product Dispenser and Piping Replacement*, dated November 10, 1998.

2006 Cone Penetrometer Test (CPT) Borings and Well Destructions: In January 2006, Cambria Environmental Technology, Inc. (Cambria; now CRA) drilled three offsite CPT borings (CPT-1 through CPT-3) to further evaluate groundwater quality downgradient of the site. Groundwater samples were collected at discrete depths from borings CPT-1 (46, 55, and 65 fbg), CPT-2 (52 and 63 fbg), and CPT-3 (42, 55, and 65 fbg) and analyzed for TPHg, BTEX, fuel oxygenates, 1,2-Dichloroethane (1,2-DCA), and ethylene dibromide (EDB). TPHg was only detected in the samples collected at 52 fbg (1,000 µg/L) and 63 fbg (170 µg/L) from boring CPT-2; low concentrations of ethylbenzene (up to 22 µg/L) and xylenes (up to 120 µg/L) were also detected in these samples. Benzene was only detected in the sample collected at 52 fbg from boring CPT-2 (1 µg/L). The remaining analytes generally were not detected in any of the samples with the exception of a low concentration of 1,2-DCA (3 µg/L) in the sample collected at 42 fbg from boring CPT-3. Wells MW-6 through MW-10 were also destroyed at this time. The details of the investigation were presented in Cambria's *Subsurface Investigation and Well Destruction Report*, dated March 2, 2006.

2006 Well Installation: In November 2006, Cambria installed deeper offsite well MW-11 (screened from 45 to 55 fbg). No soil samples collected from the well boring were submitted for laboratory analysis. Details of the investigation were presented in Cambria's *Subsurface Investigation Report*, dated January 22, 2007.

APPENDIX C

DRILLING PERMIT AND BORING LOGS

ZONE 7 WATER AGENCY

100 NORTH CANYONS PARKWAY, LIVERMORE, CALIFORNIA 94551 VOICE (925) 454-5000 FAX (925) 245-9306
E-MAIL whong@zone7water.com

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 7007 SAN RAMON RD
DUBLIN, CA

Coordinates Source ______ ft. Accuracy∀ ______ ft.
LAT: ______ ft. LONG: ______ ft.
APN ______

CLIENT
Name CHEVRON
Address 6111 BOLLINGER CANYON Phone ______
City SAN RAMON Zip 94583

APPLICANT
Name CONESTOGA-ROVERS & ASSOCIATES (CRA)
Email cbenedict@craworld.com Fax 916 889-8999
Address 10969 TRADE CENTER DR #107 Phone 916 889-8900
City RANCHO CORDOVA, Zip 95670

TYPE OF PROJECT:

Well Construction	X 9	Geotechnical Investigation	9
Well Destruction	9	Contamination Investigation	9
Cathodic Protection	9	Other ______	9

PROPOSED WELL USE:

Domestic	9	Irrigation	9
Municipal	9	Remediation	9
Industrial	9	Groundwater Monitoring	9
Dewatering	9	Other SOIL VAPOR	X

DRILLING METHOD:

Mud Rotary	9	Air Rotary	9	Hollow Stem Auger	9
Cable Tool	9	Direct Push	9	Other HAND AUGER	X

DRILLING COMPANY CRA

DRILLER'S LICENSE NO. CA C57 #936574

WELL SPECIFICATIONS:
Drill Hole Diameter 5 in. Maximum Depth 6 ft.
Casing Diameter 1/4 in.
Surface Seal Depth 2 ft. Number 3

SOIL BORINGS:
Number of Borings ______ Maximum Depth ______ ft.
Hole Diameter ______ in.

ESTIMATED STARTING DATE 10/13/09
ESTIMATED COMPLETION DATE 10/14/09

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE ______ Date 9/25/09

ATTACH SITE PLAN OR SKETCH

FOR OFFICE USE

PERMIT NUMBER 29068
WELL NUMBER 3S/1W-2H37 to 2H39
APN 941-0305-007-02

PERMIT CONDITIONS
(Circled Permit Requirements Apply)

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to your proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original **Department of Water Resources Water Well Drillers Report (DWR Form 188), signed by the driller**.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal diameter is four inches greater than the well casing diameter.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.
3. Grout placed by tremie.
4. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
5. A sample port is required on the discharge pipe near the wellhead.

(C.) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal diameter is four inches greater than the well or piezometer casing diameter.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.
3. Grout placed by tremie.

D. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION. See attached.

(G.) SPECIAL CONDITIONS. Submit to Zone 7 within 60 days after completion of permitted work the well installation report **including all soil and water laboratory analysis results**.

Approved Wyman Hong
Wyman Hong
Date 9/25/09

Revised: April 23, 2008

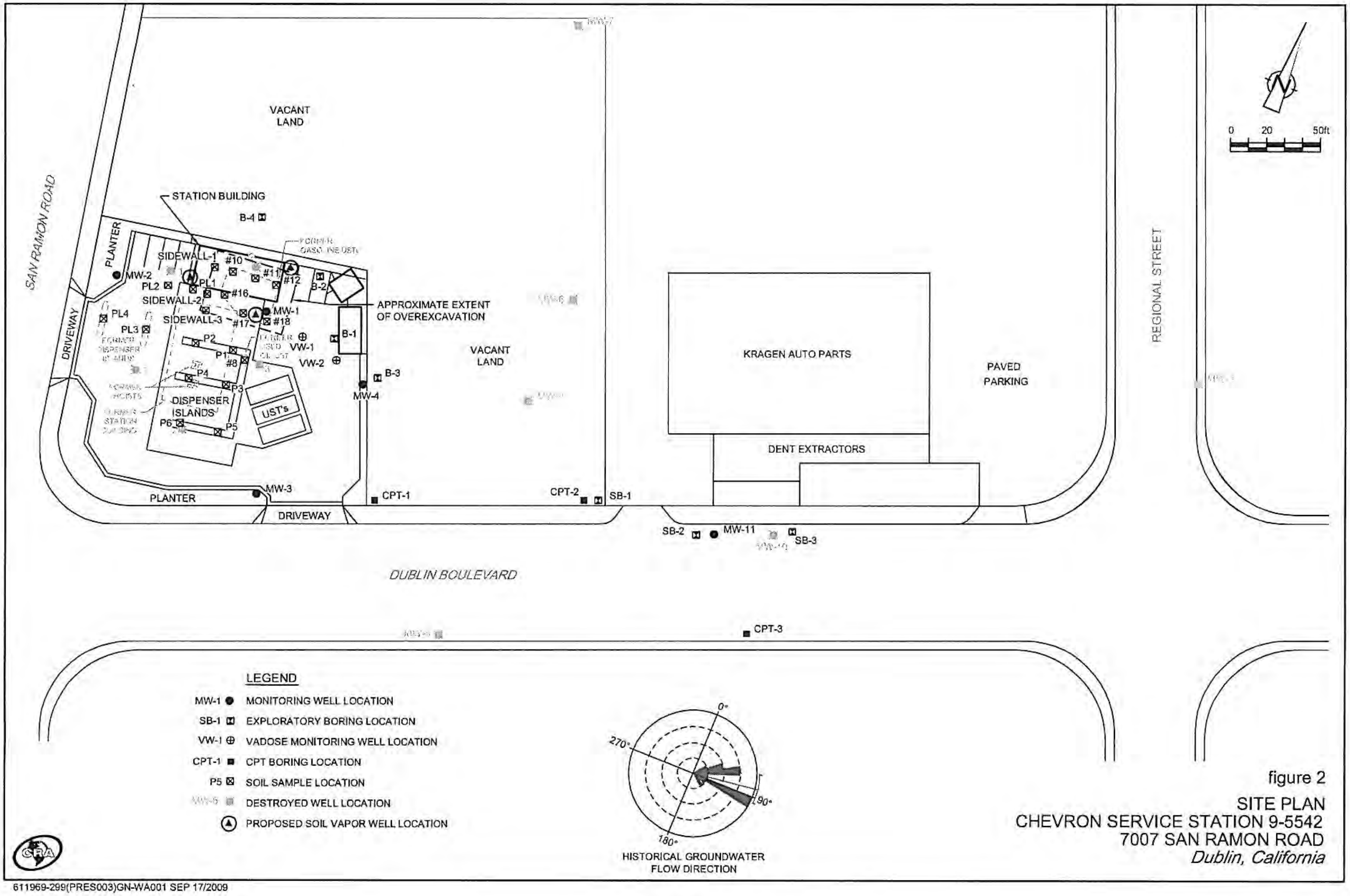


figure 2

SITE PLAN
CHEVRON SERVICE STATION 9-5542
7007 SAN RAMON ROAD
Dublin, California

611969-299(PRES003)GN-WA001 SEP 17/2009

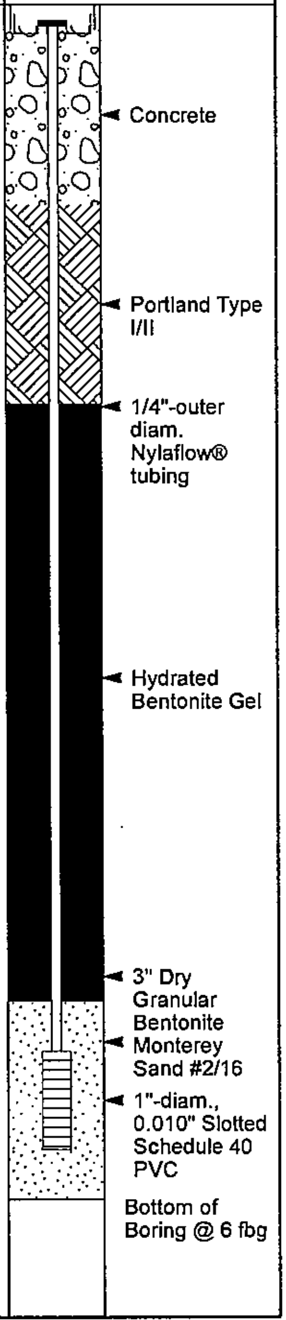
Conestoga-Rovers & Associates
10969 Trade Center Drive Suite 107
Rancho Cordova, CA 95670
Telephone: (916) 889-8900
Fax: (916) 889-8999

BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-1
JOB/SITE NAME	9-5542	**DRILLING STARTED**	15-Oct-09
LOCATION	7007 San Ramon Road, Dublin, CA	**DRILLING COMPLETED**	15-Oct-09
PROJECT NUMBER	611969	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	CRA	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand-Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	5" (0-5fbg)/3" (5-6fbg)	**SCREENED INTERVAL**	5.25 to 5.75 fbg
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA ∇
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)
							Asphalt	0.3
							Concrete	0.8
				1			FILL-Silty GRAVEL with sand: Grayish red (5R4/2); dry; 1" angular gravels; well graded sand.	1.5
				2			CLAY: Dusky Brown (5YR2/2); moist; high estimated plasticity; trace fine to medium grain sand.	
				3				
				4	CL			
0.0		VP-1-5		5				
				6				6.0

WELL DIAGRAM



WELL LOG (PID) I:\CHEVRON\6119~\611969~1\611969~3\611969-BORING LOGS.GPJ DEFAULT.GDT 11/12/09

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10969 Trade Center Drive Suite 107
Rancho Cordova, CA 95670
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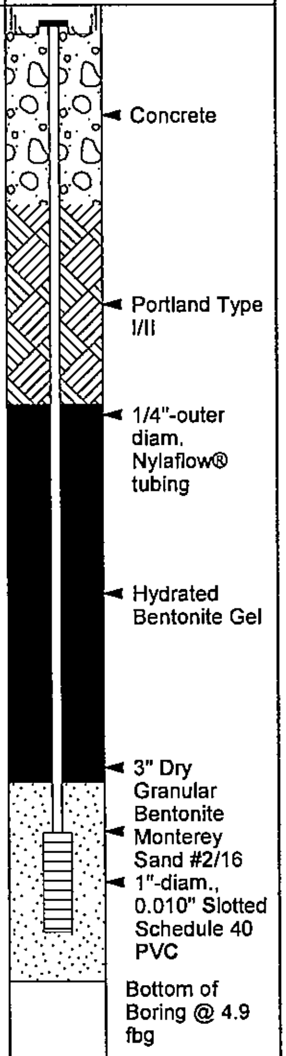
Fax: (916) 889-8999

BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-2
JOB/SITE NAME	9-5542	**DRILLING STARTED**	15-Oct-09
LOCATION	7007 San Ramon Road, Dublin, CA	**DRILLING COMPLETED**	15-Oct-09
PROJECT NUMBER	611969	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	CRA	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand-Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	5" (0-4fbg)/3" (4-4.9fbg)	**SCREENED INTERVAL**	4.15 to 4.65 fbg
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA ∇
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)
							ASPHALT	0.3
							CONCRETE	0.5
0.0		VP-2- 4.5		1 2 3 4			<u>FILL-CLAY with sand:</u> Moderate brown (5YR3/4); moist; medium estimated plasticity; well graded sand.	4.9
							REFUSAL	

WELL DIAGRAM



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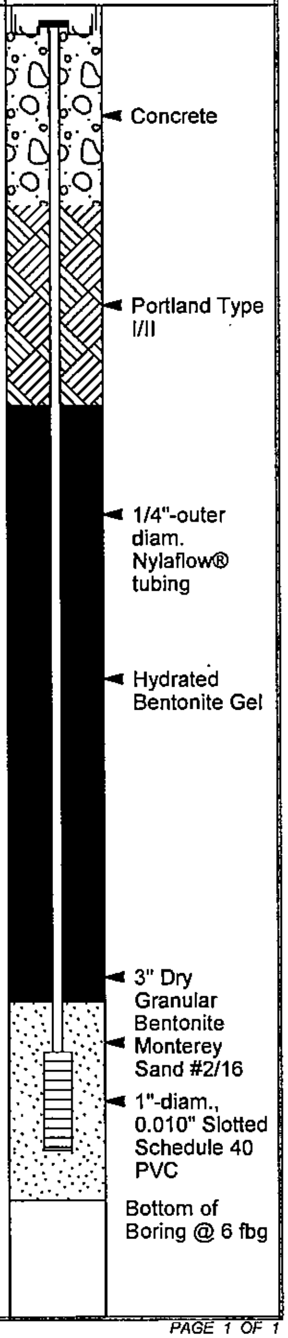
Fax: (916) 889-8999

BORING/WELL LOG

CLIENT NAME	Chevron Environmental Management Co.	**BORING/WELL NAME**	VP-3
JOB/SITE NAME	9-5542	**DRILLING STARTED**	15-Oct-09
LOCATION	7007 San Ramon Road, Dublin, CA	**DRILLING COMPLETED**	15-Oct-09
PROJECT NUMBER	611969	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	CRA	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand-Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	5" (0-5fbg)/3" (5-6fbg)	**SCREENED INTERVAL**	5.25 to 5.75 fbg
LOGGED BY	C. Benedict	**DEPTH TO WATER (First Encountered)**	NA ∇
REVIEWED BY	J. Kiernan, PE# C68498	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)
						Asphalt	0.3
						Concrete	0.8
				1		FILL-Silty GRAVEL: Moderate brown (5YR3/4); moist; 1" angular gravels; well graded sand.	2.0
				2		FILL-Gravelly CLAY: Dark yellowish brown (10YR4/2); moist; medium estimated plasticity; 1" angular gravels.	3.0
				3		CLAY: Dusky brown (5YR2/2); moist; high estimated plasticity; stiff.	
				4	CL	Pale brown (5YR5/2).	
0.0		VP-3- 5		5			
				6			6.0

WELL DIAGRAM



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APPENDIX D

STANDARD FIELD PROCEDURES AND VAPOR SAMPLING FIELD DATA SHEETS

Conestoga-Rovers & Associates

STANDARD FIELD PROCEDURES FOR HAND-AUGER SOIL BORINGS

This document describes Conestoga-Rovers & Associates standard field methods for drilling and sampling soil borings using a hand-auger. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate ground water depth and quality and to submit samples for chemical analysis.

Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist or engineer working under the supervision of a California Professional Geologist (PG) or a Certified Engineering Geologist (CEG). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or product saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e. cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Boring and Sampling

Hand-auger borings are typically drilled using a hand-held bucket auger to remove soil to the desired sampling depth. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments beyond the bottom of the augered hole. The vertical location of each soil sample is determined using a tape measure. All sample depths use the ground surface immediately adjacent to the boring as a datum. The horizontal location of each boring is measured in the field from an onsite permanent reference using a measuring wheel or tape measure.

Augering and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Storage, Handling and Transport

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4°C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

Duplicates and Blanks

Blind duplicate water samples are collected usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory QA/QC blanks contain the suspected field contaminants. An equipment blank may also be analyzed if non-dedicated sampling equipment is used.

Grouting

The borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite on top of and covered by plastic sheeting. At least four individual soil samples are collected from the stockpiles for later compositing at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Ground water removed during sampling and/or rinsate generated during decontamination procedures are stored onsite in sealed 55-gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Disposal of the water is based on the analytic results for the well samples. The water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.

Conestoga-Rovers & Associates

STANDARD FIELD PROCEDURES FOR SOIL VAPOR PROBE INSTALLATION AND SAMPLING

VAPOR POINT METHODS

This document describes Conestoga-Rovers & Associates' standard field methods for soil vapor sampling. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil vapor samples are collected and analyzed to assess whether vapor-phase subsurface contaminants pose a threat to human health or the environment.

Shallow Soil Vapor Point Installation

The shallow soil vapor point method for soil vapor sampling utilizes a hand auger or drill rig to advance a boring for the installation of a soil vapor sampling point. Once the boring is hand augered to the final depth, a probe, connected with Swagelok fittings to nylon or Teflon tubing of ¼-inch outer-diameter, is placed within 12-inches of number 2/16 filter sand (Figure A). A 12-inch layer of dry granular bentonite is placed on top of the filter pack. Pre-hydrated granular bentonite is then poured to fill the borehole. The tube is coiled and placed within a wellbox finished flush to the surface. Soil vapor samples will be collected no sooner than 48 hours after installation of the soil vapor points to allow adequate time for representative soil vapors to accumulate. Soil vapor sample collection will not be scheduled until after a minimum of three consecutive precipitation-free days and irrigation onsite has ceased. Figure B shows the soil vapor sampling apparatus. A measured volume of air will be purged from the tubing using a different Summa purge canister. Immediately after purging, soil vapor samples will be collected using the appropriate size Summa canister with attached flow regulator and sediment filter. The soil vapor points will be preserved until they are no longer needed for risk evaluation purposes. At that time, they will be destroyed by extracting the tubing, hand augering to remove the sand and bentonite, and backfilling the boring with neat cement. The boring will be patched with asphalt or concrete, as appropriate.

Sampling of Soil Vapor Points

Samples will be collected using a SUMMA™ canister connected to sampling tubing at each vapor point. Prior to collecting soil vapor samples, the initial vacuum of the canisters is measured and recorded on the chain-of-custody. The vacuum of the SUMMA™ canister is used to draw the soil vapor through the flow controller until a negative pressure of approximately 5-inches of Hg is observed on the vacuum gauge and recorded on the chain-of-custody. The flow controllers should be set to 100-200 ml/minute. Field duplicates should be collected for every day of sampling and/or for every 10 samples collected.

Prior to sample collection, stagnant air in the sampling apparatus should be removed by purging approximately 3 purge volumes. The purge volume is defined as the amount of air within the probe and tubing.

In accordance with the DTSC Advisory-Active Soil Gas Investigations guidance document, dated January 28, 2003, leak testing needs to be performed during sampling. Helium is recommended, although shaving cream is acceptable.

Vapor Sample Storage, Handling, and Transport

Samples are stored and transported under chain-of-custody to a state-certified analytic laboratory. Samples should never be cooled due to the possibility of condensation within the canister.

Conestoga-Rovers & Associates

SOIL VAPOR SAMPLING DATA SHEET

Soil Vapor Sampling Point ID: VP-1
Date: 10/21/09
Job/Site Name: 9-5542 Dublin
Technician: C. Benedict
Project No. 611909
PM: J. Kiernan
Site Address: 7007 San Ramon Rd, Dublin, CA

Vapor Sampling Apparatus Pressure Testing

Time	Vacuum Reading	Unit	Comments
1327	-25.5	in/Hg	Fail / Rebuild Sample train
1349	-25	in/Hg	
1359	-25	in/Hg	Pass

Purge Volume

Calculated Purge Volume: 0.1 L

Time	Flow	Volume	PID Reading
36 secs	167 mL/min	0.1L	

Sample Collection

Flow Control Orifice Setting: 167 mL/min
Summa Canister ID: 36501
Summa Canister Size: 1 L
Analysis:

Time - Begin Sampling	Canister Vacuum	Time - End Sampling	Canister Vacuum
1405	-30 in/Hg	1411	-6

Notes: [He] = 14%

SOIL VAPOR SAMPLING DATA SHEET

Soil Vapor Sampling Point ID: VP-2/Dupe
Date: 10/21
Job/Site Name: 9-5542 Dublin
Technician: C.Benedict
Project No. 611969
PM: S. Kernan
Site Address: 7007 San Ramon Rd Dublin, CA

Vapor Sampling Apparatus Pressure Testing

Time	Vacuum Reading	Unit	Comments
1227	-26	in/Hg	
1238	-26		

Purge Volume

Calculated Purge Volume: 0.1 L

Time	Flow	Volume	PID Reading
36 sec	167 mL/min	0.1L	

Sample Collection

Flow Control Orifice Setting: 167 mL/min
Summa Canister ID: 31755 / 22960
Summa Canister Size: 1L / 1L
Analysis:

Time - Begin Sampling	Canister Vacuum	Time - End Sampling	Canister Vacuum
1247	-30 in/Hg	1300	-6.5 / -6.5

Notes: [He] = 14%

Conestoga-Rovers & Associates

SOIL VAPOR SAMPLING DATA SHEET

Soil Vapor Sampling Point ID: VP-3
Date: 10/21/09
Job/Site Name: 9-5542 Dublin
Technician: C. Benedict
Project No. 611961
PM: J. Kiernan
Site Address: 7007 San Ramon Rd, Dublin

Vapor Sampling Apparatus Pressure Testing

Time	Vacuum Reading	Unit	Comments
1135	-27.5	in/Hg	
1140	-27.5		

Purge Volume

Calculated Purge Volume: ~~0.0~~ CB 0.1 L

Time	Flow	Volume	PID Reading
36 sec.	167 ml/min		

Sample Collection

Flow Control Orifice Setting: 167 ml/min
Summa Canister ID: 34632
Summa Canister Size: 1 L
Analysis:

Time - Begin Sampling	Canister Vacuum	Time - End Sampling	Canister Vacuum
1153	~30 in/Hg	1201	-5 in/Hg

Notes: [He]: 12%

APPENDIX E

LABORATORY REPORTS

ANALYTICAL RESULTS

Prepared for:

Chevron c/o CRA
Suite 110
2000 Opportunity Drive
Roseville CA 95678

916-677-3407

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

October 27, 2009

Project: 95542

Samples arrived at the laboratory on Wednesday, October 21, 2009. The PO# for this group is 95542 and the release number is MTI. The group number for this submittal is 1167318.

Client Sample Description	Lancaster Labs (LLI) #
VP-3-S-5-091015 NA Soil	5811869
VP-2-S-4.5-091015 NA Soil	5811870
VP-1-S-5-091015 NA Soil	5811871

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Chevron c/o CRA	Attn: CRA EDD
ELECTRONIC COPY TO	Chevron c/o CRA	Attn: James Kiernan

Questions? Contact your Client Services Representative
Angela M Miller at (717) 656-2300

Respectfully Submitted,

Michéle D Hamilton

Miche'le D. Hamilton
Group Leader

Sample Description: VP-3-S-5-091015 NA Soil
Facility# 95542 MTI# 611969 CRAW
7007 San Ramon-Dublin T0600100354 VP-3

LLI Sample # SW 5811869
LLI Group # 1167318
CA

Project Name: 95542

Collected: 10/15/2009 09:50 by CB

Account Number: 11997

Submitted: 10/21/2009 09:00
Reported: 10/27/2009 at 19:27
Discard: 11/27/2009

Chevron c/o CRA
Suite 110
2000 Opportunity Drive
Roseville CA 95678

SRVP3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**mg/kg**	**mg/kg**	**mg/kg**	
07360	Benzene	71-43-2	N.D.	0.0005	0.005	0.93
07360	Ethylbenzene	100-41-4	N.D.	0.0009	0.005	0.93
07360	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0005	0.005	0.93
07360	Toluene	108-88-3	N.D.	0.0009	0.005	0.93
07360	Xylene (Total)	1330-20-7	N.D.	0.0009	0.005	0.93
GC Volatiles	**SW-846 8015B modified**		**mg/kg**	**mg/kg**	**mg/kg**	
01725	TPH-GRO N. CA soil C6-C12	n.a.	N.D.	1.0	1.0	25

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07360	BTEX+MTBE by 8260B	SW-846 8260B	1	B092972AA	10/25/2009 06:25	Holly Berry	0.93
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	1	200929419567	10/21/2009 19:19	Eric L Vera	n.a.
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	2	200929419567	10/21/2009 19:19	Eric L Vera	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5030A	1	200929419567	10/21/2009 19:17	Eric L Vera	n.a.
01725	TPH-GRO N. CA soil C6-C12	SW-846 8015B modified	1	09296A16A	10/23/2009 14:32	Marie D John	25
01150	GC - Bulk Soil Prep	SW-846 5030A	1	200929419567	10/21/2009 19:18	Eric L Vera	n.a.

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*=This limit was used in the evaluation of the final result

Sample Description: **VP-2-S-4.5-091015 NA Soil**
Facility# 95542 MTI# 611969 CRAW
7007 San Ramon-Dublin T0600100354 VP-2

LLI Sample # SW 5811870
LLI Group # 1167318
CA

Project Name: 95542

Collected: 10/15/2009 12:13 by CB

Account Number: 11997

Submitted: 10/21/2009 09:00
Reported: 10/27/2009 at 19:27
Discard: 11/27/2009

Chevron c/o CRA
Suite 110
2000 Opportunity Drive
Roseville CA 95678

SRVP2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**mg/kg**	**mg/kg**	**mg/kg**	
07360	Benzene	71-43-2	N.D.	0.0005	0.005	0.98
07360	Ethylbenzene	100-41-4	N.D.	0.001	0.005	0.98
07360	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0005	0.005	0.98
07360	Toluene	108-88-3	N.D.	0.001	0.005	0.98
07360	Xylene (Total)	1330-20-7	N.D.	0.001	0.005	0.98
GC Volatiles	**SW-846 8015B modified**		**mg/kg**	**mg/kg**	**mg/kg**	
01725	TPH-GRO N. CA soil C6-C12	n.a.	N.D.	1.0	1.0	25

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07360	BTEX+MTBE by 8260B	SW-846 8260B	1	B092972AA	10/25/2009 06:48	Holly Berry	0.98
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	1	200929419567	10/21/2009 19:22	Eric L Vera	n.a.
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	2	200929419567	10/21/2009 19:22	Eric L Vera	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5030A	1	200929419567	10/21/2009 19:20	Eric L Vera	n.a.
01725	TPH-GRO N. CA soil C6-C12	SW-846 8015B modified	1	09296A16A	10/23/2009 15:10	Marie D John	25
01150	GC - Bulk Soil Prep	SW-846 5030A	1	200929419567	10/21/2009 19:21	Eric L Vera	n.a.

---

*=This limit was used in the evaluation of the final result

Lancaster Laboratories

Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: VP-1-S-5-091015 NA Soil
Facility# 95542 MTI# 611969 CRAW
7007 San Ramon-Dublin T0600100354 VP-1

LLI Sample # SW 5811871
LLI Group # 1167318
CA

Project Name: 95542

Collected: 10/15/2009 14:10 by CB

Account Number: 11997

Submitted: 10/21/2009 09:00
Reported: 10/27/2009 at 19:27
Discard: 11/27/2009

Chevron c/o CRA
Suite 110
2000 Opportunity Drive
Roseville CA 95678

SRVP1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**mg/kg**	**mg/kg**	**mg/kg**	
07360	Benzene	71-43-2	N.D.	0.0005	0.005	0.97
07360	Ethylbenzene	100-41-4	N.D.	0.001	0.005	0.97
07360	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0005	0.005	0.97
07360	Toluene	108-88-3	N.D.	0.001	0.005	0.97
07360	Xylene (Total)	1330-20-7	N.D.	0.001	0.005	0.97
GC Volatiles	**SW-846 8015B modified**		**mg/kg**	**mg/kg**	**mg/kg**	
01725	TPH-GRO N. CA soil C6-C12	n.a.	N.D.	1.0	1.0	25

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07360	BTEX+MTBE by 8260B	SW-846 8260B	1	B092972AA	10/25/2009 07:11	Holly Berry	0.97
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	1	200929419567	10/21/2009 19:25	Eric L Vera	n.a.
00374	GC/MS - Bulk Sample Prep	SW-846 5030A	2	200929419567	10/21/2009 19:25	Eric L Vera	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5030A	1	200929419567	10/21/2009 19:24	Eric L Vera	n.a.
01725	TPH-GRO N. CA soil C6-C12	SW-846 8015B modified	1	09296A16A	10/23/2009 16:26	Marie D John	25
01150	GC - Bulk Soil Prep	SW-846 5030A	1	200929419567	10/21/2009 19:24	Eric L Vera	n.a.

---

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron c/o CRA Group Number: 1167318
Reported: 10/27/09 at 07:27 PM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: B092972AA	Sample number(s): 5811869-5811871								
Benzene	N.D.	0.0005	0.005	mg/kg	95		80-120		
Ethylbenzene	N.D.	0.001	0.005	mg/kg	93		80-120		
Methyl Tertiary Butyl Ether	N.D.	0.0005	0.005	mg/kg	99		74-121		
Toluene	N.D.	0.001	0.005	mg/kg	92		80-120		
Xylene (Total)	N.D.	0.001	0.005	mg/kg	92		80-120		
Batch number: 09296A16A	Sample number(s): 5811869-5811871								
TPH-GRO N. CA soil C6-C12	N.D.	1.0	1.0	mg/kg	91	102	67-119	12	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: B092972AA	Sample number(s): 5811869-5811871 UNSPK: P808369								
Benzene	98	99	55-143	6	30				
Ethylbenzene	96	96	44-141	6	30				
Methyl Tertiary Butyl Ether	96	100	55-129	10	30				
Toluene	97	96	50-146	5	30				
Xylene (Total)	94	94	44-136	5	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX+MTBE by 8260B
Batch number: B092972AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5811869	103	107	100	87
5811870	100	96	101	84
5811871	101	101	105	80
Blank	99	97	102	88
LCS	101	104	101	93
MS	102	101	103	90
MSD	102	102	102	90

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron c/o CRA Group Number: 1167318
Reported: 10/27/09 at 07:27 PM

Surrogate Quality Control

Limits: 71-114 70-109 70-123 70-111

Analysis Name: TPH-GRO N. CA soil C6-C12
Batch number: 09296A16A

	Trifluorotoluene-F
5811869	83
5811870	77
5811871	79
Blank	85
LCS	78
LCSD	81
Limits:	61-122

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Chevron California Region Analysis Request/Chain of Custody

Lancaster Laboratories
Where quality is a science.

245411

For Lancaster Laboratories use only
Acct. #: 11997 Sample #: 5811869-71 SCR#:

Grp # 1167318

MTI: 611969

Facility #: CHEVRON 9-5542
Site Address: 7007 SAN RAMON RD, DUBLIN, CA
Chevron PM: R. SPEERS Lead Consultant: CRA
Consultant/Office: RANCHO CORDOVA
Consultant Prj. Mgr.: J. KIERNAN
Consultant Phone #: 916 889 8900 Fax #: 916 889-8999
Sampler: C. BENEDICT
Service Order #: ☐ Non SAR:

Analyses Requested

Preservation Codes

Field Point Name	Matrix	Repeat Sample	Top Depth	Year Month Day	Time Collected	New Field Pt.	Grab	Composite	Total Number of Containers	BTEX + MTBE 8260 ☒ 8021 ☐	TPH 8015 MOD GRO	TPH 8015 MOD DRO ☐ Silica Gel Cleanup	8260 full scan	___ Oxygenates	Lead 7420 ☐ 7421 ☐
VP-3-5	SOIL		5	09 10 15	950				1	X	X				
VP-2-4.5	|		4.5	| | |	1213				1	X	X				
VP-1-5	|		5		1410				1	X	X				

Preservative Codes

H = HCl	**T** = Thiosulfate
N = HNO_3	**B** = NaOH
S = H_2SO_4	**O** = Other

☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy's on highest hit
☐ Run ____ oxy's on all hits

Comments / Remarks

Turnaround Time Requested (TAT) (please circle)

[✓ STD. TAT] 72 hour 48 hour
24 hour 4 day 5 day

Data Package Options (please circle if required)
QC Summary Type I – Full
Type VI (Raw Data) ☐ Coelt Deliverable not needed
WIP (RWQCB)
Disk

Relinquished by: C Benedict	Date 10/20/09	Time 1350	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by Commercial Carrier: UPS [✓ FedEx] Other ____			Received by:	Date 10/21/09	Time 900
Temperature Upon Receipt 1 °C C°			Custody Seals Intact? [✓ Yes] No		

3460 Rev. 10/04/01

Lancaster Laboratories, Inc., 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 (717) 656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Lancaster Laboratories
Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	**BMQL**	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
IU	International Units	**CP Units**	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	**NTU**	nephelometric turbidity units
C	degrees Celsius	**F**	degrees Fahrenheit
Cal	(diet) calories	**lb.**	pound(s)
meq	milliequivalents	**kg**	kilogram(s)
g	gram(s)	**mg**	milligram(s)
ug	microgram(s)	**l**	liter(s)
ml	milliliter(s)	**ul**	microliter(s)
m3	cubic meter(s)	**fib >5 um/ml**	fibers greater than 5 microns in length per ml

<	less than – The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.
>	greater than
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

	Organic Qualifiers		**Inorganic Qualifiers**
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quatitated on a diluted sample	**N**	Spike amount not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
J	Estimated value	**U**	Compound was not detected
N	Presumptive evidence of a compound (TICs only)	**W**	Post digestion spike out of control limits
P	Concentration difference between primary and confirmation columns >25%	*****	Duplicate analysis not within control limits
		+	Correlation coefficient for MSA <0.995
U	Compound was not detected		
X,Y,Z	Defined in case narrative		

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY – In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.

Air Toxics LTD.
Laboratory Services Since 1989

11/14/2009
Mr. Chris Benedict
Conestoga-Rovers Associates (CRA)
10969 Trade Center Dr
Suite 107
Rancho Cordova CA 95670

Project Name: 9-5542 Dublin
Project #: 611969
Workorder #: 0910524BR1

Dear Mr. Chris Benedict

The following report includes the data for the above referenced project for sample(s) received on 10/22/2009 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-3 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

Kelly Buettner
Project Manager

WORK ORDER #: 0910524BR1

Work Order Summary

CLIENT:	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 10969 Trade Center Dr Suite 107 Rancho Cordova, CA 95670	**BILL TO:**	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 10969 Trade Center Dr Suite 107 Rancho Cordova, CA 95670
PHONE:	916-889-8925	**P.O. #**	40-4025462
FAX:	916-889-8999	**PROJECT #**	611969 9-5542 Dublin
DATE RECEIVED:	10/22/2009	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/03/2009		
DATE REISSUED:	11/14/2009		

FRACTION #	**NAME**	**TEST**	**RECEIPT VAC./PRES.**	**FINAL PRESSURE**
01A	VP-3	Modified TO-3	3.4 "Hg	15 psi
02A	VP-2	Modified TO-3	6.8 "Hg	15 psi
03A	VP-1	Modified TO-3	6.2 "Hg	15 psi
03AA	VP-1 Lab Duplicate	Modified TO-3	6.2 "Hg	15 psi
04A	Dupe	Modified TO-3	7.6 "Hg	15 psi
05A	Lab Blank	Modified TO-3	NA	NA
06A	LCS	Modified TO-3	NA	NA

CERTIFIED BY: Linda L. Freeman DATE: 11/14/09

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
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: 06/30/10
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
Modified TO-3
Conestoga-Rovers Associates (CRA)
Workorder# 0910524BR1

Four 1 Liter Summa Canister (100% Certified) samples were received on October 22, 2009. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	*TO-3*	*ATL Modifications*
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

Sample identification for sample Dupe was not provided on the sample tag. Therefore the information on the Chain of Custody was used to process and report the sample.

Analytical Notes

The hydrocarbon profile present in samples VP-2 and Dupe was heavier than that of commercial gasoline. Results were calculated using the response factor derived from the current gasoline linear calibration.

THE WORKORDER WAS REISSUED ON NOVEMBER 14, 2009 TO REPORT RESULTS IN UG/M3 PER CLIENT'S REQUEST.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
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 detection limit.
M - Reported value may be biased due to apparent matrix interferences.

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
MODIFIED EPA METHOD TO-3 GC/FID

Client Sample ID: VP-3

Lab ID#: 0910524BR1-01A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.057	0.93	230	3800

Client Sample ID: VP-2

Lab ID#: 0910524BR1-02A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.065	5.3	270	22000

Client Sample ID: VP-1

Lab ID#: 0910524BR1-03A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.064	0.46	260	1900

Client Sample ID: VP-1 Lab Duplicate

Lab ID#: 0910524BR1-03AA

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.064	0.41	260	1700

Client Sample ID: Dupe

Lab ID#: 0910524BR1-04A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.068	5.6	280	23000

Client Sample ID: VP-3

Lab ID#: 0910524BR1-01A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d103018	**Date of Collection:** 10/21/09 12:01:00 PM
Dil. Factor:	2.28	**Date of Analysis:** 10/30/09 07:08 PM

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.057	0.93	230	3800

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	100	75-150

Client Sample ID: VP-2

Lab ID#: 0910524BR1-02A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d103019**	**Date of Collection: 10/21/09 1:00:00 PM**
Dil. Factor:	**2.61**	**Date of Analysis: 10/30/09 07:43 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.065	5.3	270	22000

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	100	75-150

Client Sample ID: VP-1

Lab ID#: 0910524BR1-03A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d103020**	**Date of Collection: 10/21/09 2:11:00 PM**
Dil. Factor:	**2.55**	**Date of Analysis: 10/30/09 08:23 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.064	0.46	260	1900

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	100	75-150

Client Sample ID: VP-1 Lab Duplicate

Lab ID#: 0910524BR1-03AA

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d103022**	**Date of Collection: 10/21/09 2:11:00 PM**
Dil. Factor:	**2.55**	**Date of Analysis: 10/30/09 09:42 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.064	0.41	260	1700

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	103	75-150

Client Sample ID: Dupe

Lab ID#: 0910524BR1-04A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d103023**	**Date of Collection: 10/21/09**
Dil. Factor:	**2.70**	**Date of Analysis: 10/30/09 10:15 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.068	5.6	280	23000

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	101	75-150

Client Sample ID: Lab Blank

Lab ID#: 0910524BR1-05A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d103003**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis:**	**10/30/09 08:23 AM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH (Gasoline Range)	0.025	Not Detected	100	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	103	75-150

Client Sample ID: LCS

Lab ID#: 0910524BR1-06A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d103025**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/30/09 11:46 PM**

Compound	%Recovery
TPH (Gasoline Range)	112

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	114	75-150

Air Toxics LTD.
Laboratory Services Since 1989

11/19/2009

Mr. Chris Benedict
Conestoga-Rovers Associates (CRA)
10969 Trade Center Dr
Suite 107
Rancho Cordova CA 95670

Project Name: 9-5542 Dublin
Project #: 611969
Workorder #: 0910524AR1

Dear Mr. Chris Benedict

The following report includes the data for the above referenced project for sample(s) received on 10/22/2009 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 Butt

Kelly Buettner
Project Manager

WORK ORDER #: 0910524AR1

Work Order Summary

CLIENT:	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 10969 Trade Center Dr Suite 107 Rancho Cordova, CA 95670	**BILL TO:**	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 10969 Trade Center Dr Suite 107 Rancho Cordova, CA 95670
PHONE:	916-889-8925	**P.O. #**	40-4025462
FAX:	916-889-8999	**PROJECT #**	611969 9-5542 Dublin
DATE RECEIVED:	10/22/2009	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/17/2009		
DATE REISSUED:	11/19/2009		

FRACTION #	**NAME**	**TEST**	**RECEIPT VAC./PRES.**	**FINAL PRESSURE**
01A	VP-3	Modified TO-15	3.4 "Hg	15 psi
02A	VP-2	Modified TO-15	6.8 "Hg	15 psi
03A	VP-1	Modified TO-15	6.2 "Hg	15 psi
04A	Dupe	Modified TO-15	7.6 "Hg	15 psi
05A	Lab Blank	Modified TO-15	NA	NA
05B	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
06B	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07B	LCS	Modified TO-15	NA	NA

CERTIFIED BY: Linda L. Freeman DATE: 11/19/09

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
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: 06/30/10
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
Modified TO-15
Conestoga-Rovers Associates (CRA)
Workorder# 0910524AR1

Four 1 Liter Summa Canister (100% Certified) samples were received on October 22, 2009. 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.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	*TO-15*	*ATL Modifications*
Daily CCV	</= 30% Difference	</= 30% Difference; Compounds exceeding this criterion and associated data are flagged and narrated.
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

Sample identification for sample Dupe was not provided on the sample tag. Therefore the information on the Chain of Custody was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

THE WORKORDER WAS REISSUED ON NOVEMBER 19, 2009 TO REPORT 2,2,4-TRIMETHYLPENTANE PER CLIENT'S REQUEST.

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 no 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
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
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: VP-3

Lab ID#: 0910524AR1-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.1	5.0	3.6	16
Toluene	1.1	2.3	4.3	8.7
m,p-Xylene	1.1	3.8	5.0	17
o-Xylene	1.1	1.2	5.0	5.2
2,2,4-Trimethylpentane	1.1	6.4	5.3	30

Client Sample ID: VP-2

Lab ID#: 0910524AR1-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.3	3.4	4.9	13
m,p-Xylene	1.3	3.9	5.7	17
o-Xylene	1.3	1.3 J	5.7	5.6 J
2,2,4-Trimethylpentane	1.3	2.3	6.1	11

Client Sample ID: VP-1

Lab ID#: 0910524AR1-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.3	6.5	4.8	24
Ethyl Benzene	1.3	2.7	5.5	12
m,p-Xylene	1.3	11	5.5	49
o-Xylene	1.3	3.1	5.5	13

Client Sample ID: Dupe

Lab ID#: 0910524AR1-04A

No Detections Were Found.

Client Sample ID: VP-3

Lab ID#: 0910524AR1-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s110218r1**	**Date of Collection:**	**10/21/09 12:01:00 PM**
Dil. Factor:	**2.28**	**Date of Analysis:**	**11/2/09 10:37 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.1	Not Detected	4.1	Not Detected
Benzene	1.1	5.0	3.6	16
Toluene	1.1	2.3	4.3	8.7
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	1.1	3.8	5.0	17
o-Xylene	1.1	1.2	5.0	5.2
2,2,4-Trimethylpentane	1.1	6.4	5.3	30

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	106	70-130

Client Sample ID: VP-2

Lab ID#: 0910524AR1-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s110219r1**	**Date of Collection: 10/21/09 1:00:00 PM**
Dil. Factor:	**2.61**	**Date of Analysis: 11/2/09 11:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.3	Not Detected	4.7	Not Detected
Benzene	1.3	Not Detected	4.2	Not Detected
Toluene	1.3	3.4	4.9	13
Ethyl Benzene	1.3	Not Detected	5.7	Not Detected
m,p-Xylene	1.3	3.9	5.7	17
o-Xylene	1.3	1.3 J	5.7	5.6 J
2,2,4-Trimethylpentane	1.3	2.3	6.1	11

J = Estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: VP-1

Lab ID#: 0910524AR1-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s110221**	**Date of Collection: 10/21/09 2:11:00 PM**
Dil. Factor:	**2.55**	**Date of Analysis: 11/3/09 07:44 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.3	Not Detected	4.6	Not Detected
Benzene	1.3	Not Detected	4.1	Not Detected
Toluene	1.3	6.5	4.8	24
Ethyl Benzene	1.3	2.7	5.5	12
m,p-Xylene	1.3	11	5.5	49
o-Xylene	1.3	3.1	5.5	13
2,2,4-Trimethylpentane	1.3	Not Detected	6.0	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: Dupe

Lab ID#: 0910524AR1-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t110417**	**Date of Collection: 10/21/09**
Dil. Factor:	**18.2**	**Date of Analysis: 11/4/09 06:36 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	9.1	Not Detected	33	Not Detected
Benzene	9.1	Not Detected	29	Not Detected
Toluene	9.1	Not Detected	34	Not Detected
Ethyl Benzene	9.1	Not Detected	40	Not Detected
m,p-Xylene	9.1	Not Detected	40	Not Detected
o-Xylene	9.1	Not Detected	40	Not Detected
2,2,4-Trimethylpentane	9.1	Not Detected	42	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: Lab Blank

Lab ID#: 0910524AR1-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s110208**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis:**	**11/2/09 01:59 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
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: Lab Blank

Lab ID#: 0910524AR1-05B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t110406**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/4/09 10:49 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
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: CCV

Lab ID#: 0910524AR1-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s110202**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/2/09 09:38 AM**

Compound	%Recovery
Methyl tert-butyl ether	98
Benzene	98
Toluene	99
Ethyl Benzene	101
m,p-Xylene	96
o-Xylene	102
2,2,4-Trimethylpentane	104

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: CCV

Lab ID#: 0910524AR1-06B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	t110404	**Date of Collection: NA**
Dil. Factor:	1.00	**Date of Analysis: 11/4/09 09:03 AM**

Compound	%Recovery
Methyl tert-butyl ether	114
Benzene	121
Toluene	124
Ethyl Benzene	123
m,p-Xylene	124
o-Xylene	120
2,2,4-Trimethylpentane	120

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	97	70-130

Client Sample ID: LCS

Lab ID#: 0910524AR1-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s110203**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/2/09 10:29 AM**

Compound	%Recovery
Methyl tert-butyl ether	86
Benzene	87
Toluene	92
Ethyl Benzene	86
m,p-Xylene	84
o-Xylene	90
2,2,4-Trimethylpentane	92

Container Type: NA - Not Applicable

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

Client Sample ID: LCS

Lab ID#: 0910524AR1-07B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t110403**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/4/09 08:19 AM**

Compound	%Recovery
Methyl tert-butyl ether	112
Benzene	121
Toluene	127
Ethyl Benzene	120
m,p-Xylene	120
o-Xylene	119
2,2,4-Trimethylpentane	118

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	99	70-130

Air Toxics LTD.
Laboratory Services Since 1989

11/5/2009

Mr. Chris Benedict
Conestoga-Rovers Associates (CRA)
10969 Trade Center Dr
Suite 107
Rancho Cordova CA 95670

Project Name: 9-5542 Dublin
Project #: 611969
Workorder #: 0910524C

Dear Mr. Chris Benedict

The following report includes the data for the above referenced project for sample(s) received on 10/22/2009 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 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

Kelly Buettner
Project Manager

Air Toxics LTD.
Laboratory Services Since 1989

WORK ORDER #: 0910524C

Work Order Summary

CLIENT:	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 10969 Trade Center Dr Suite 107 Rancho Cordova, CA 95670	**BILL TO:**	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 10969 Trade Center Dr Suite 107 Rancho Cordova, CA 95670
PHONE:	916-889-8925	**P.O. #**	40-4025462
FAX:	916-889-8999	**PROJECT #**	611969 9-5542 Dublin
DATE RECEIVED:	10/22/2009	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/03/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VP-3	Modified ASTM D-1946	3.4 "Hg	15 psi
02A	VP-2	Modified ASTM D-1946	6.8 "Hg	15 psi
03A	VP-1	Modified ASTM D-1946	6.2 "Hg	15 psi
04A	Dupe	Modified ASTM D-1946	7.6 "Hg	15 psi
04AA	Dupe Lab Duplicate	Modified ASTM D-1946	7.6 "Hg	15 psi
05A	Lab Blank	Modified ASTM D-1946	NA	NA
05B	Lab Blank	Modified ASTM D-1946	NA	NA
06A	LCS	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Linda L. Freeman

DATE: 11/03/09

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
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: 06/30/10
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
Modified ASTM D-1946
Conestoga-Rovers Associates (CRA)
Workorder# 0910524C

Four 1 Liter Summa Canister (100% Certified) samples were received on October 22, 2009. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	*ASTM D-1946*	*ATL Modifications*
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

Sample identification for sample Dupe was not provided on the sample tag. Therefore the information on the Chain of Custody was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
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 detection limit.
M - Reported value may be biased due to apparent matrix interferences.
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
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: VP-3

Lab ID#: 0910524C-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	14
Carbon Dioxide	0.023	8.3

Client Sample ID: VP-2

Lab ID#: 0910524C-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	17
Carbon Dioxide	0.026	0.83

Client Sample ID: VP-1

Lab ID#: 0910524C-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	8.8
Carbon Dioxide	0.026	8.7

Client Sample ID: Dupe

Lab ID#: 0910524C-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.27	17
Carbon Dioxide	0.027	0.86

Client Sample ID: Dupe Lab Duplicate

Lab ID#: 0910524C-04AA

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.27	17
Carbon Dioxide	0.027	0.86

Client Sample ID: VP-3

Lab ID#: 0910524C-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9102704**	**Date of Collection: 10/21/09 12:01:00 PM**
Dil. Factor:	**2.28**	**Date of Analysis: 10/27/09 09:06 AM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.23	14
Methane	0.00023	Not Detected
Carbon Dioxide	0.023	8.3
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Client Sample ID: VP-2

Lab ID#: 0910524C-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9102705**	**Date of Collection:**	**10/21/09 1:00:00 PM**
Dil. Factor:	**2.61**	**Date of Analysis:**	**10/27/09 09:28 AM**

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	17
Methane	0.00026	Not Detected
Carbon Dioxide	0.026	0.83
Helium	0.13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Client Sample ID: VP-1

Lab ID#: 0910524C-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9102706**	**Date of Collection:**	**10/21/09 2:11:00 PM**
Dil. Factor:	**2.55**	**Date of Analysis:**	**10/27/09 10:04 AM**

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	8.8
Methane	0.00026	Not Detected
Carbon Dioxide	0.026	8.7
Helium	0.13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Client Sample ID: Dupe

Lab ID#: 0910524C-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9102707**	**Date of Collection:**	**10/21/09**
Dil. Factor:	**2.70**	**Date of Analysis:**	**10/27/09 10:28 AM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.27	17
Methane	0.00027	Not Detected
Carbon Dioxide	0.027	0.86
Helium	0.14	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Client Sample ID: Dupe Lab Duplicate

Lab ID#: 0910524C-04AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9102708**	**Date of Collection:**	**10/21/09**
Dil. Factor:	**2.70**	**Date of Analysis:**	**10/27/09 10:56 AM**

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.27	17
Methane	0.00027	Not Detected
Carbon Dioxide	0.027	0.86
Helium	0.14	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Client Sample ID: Lab Blank

Lab ID#: 0910524C-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9102703**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/27/09 08:41 AM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

Client Sample ID: Lab Blank

Lab ID#: 0910524C-05B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9102702b**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/27/09 08:19 AM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Helium	0.050	Not Detected

Container Type: NA - Not Applicable

Client Sample ID: LCS

Lab ID#: 0910524C-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9102722**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/27/09 09:28 PM**

Compound	**%Recovery**
Oxygen	99
Methane	100
Carbon Dioxide	100
Helium	106

Container Type: NA - Not Applicable

@ Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

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 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

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ____ of ____

Project Manager J. KIERNAN

Collected by: (Print and Sign) Chris Benedict C Benedict

Company CRA Email cbenedict@craworld.com

Address 10969 Trade Center #107 City Rancho Cordova State CA Zip 95670

Phone 916 889 8900 Fax 916 889 8199

Project Info:

P.O. # 611969

Project # 611969

Project Name 9-5542 Dublin

Turn Around Time:

☒ Normal

☐ Rush

_______ specify

Lab Use Only

Pressurized by:

Date:

Pressurization Gas:

N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	VP-3	34632	10/21/09	1201	TPHg by ~~15~~ CB TO-3	-30	-5		
02A	VP-2	31755	10/21/09	1300	BTEX & MTBE by TO-15	-30	-6.5		
03A	VP-1	36501	10/21/09	1411	He, O_2, CO_2, CH_4: ASTM 1946	-30	-6		
04A	Dupe	22968	10/21/09			-30	-6.5		

Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time
C Benedict 10/22/09 0840	Li Lim 10/22/09 0840
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Drop off		N/A	Good	Yes No [✓ None]	0910524

Form 1293 rev.11

APPENDIX F

CONCENTRATION TREND GRAPHS

TPHg CONCENTRATION TREND AND PREDICTION IN MW-1
CHEVRON STATION 9-5542 - 7007 SAN RAMON BOULEVARD, DUBLIN, CALIFORNIA

Calculate "time to cleanup" given the first-order decay equation:

$y = b e^{ax}$ ===> $x = \ln(y/b) / a$

Given

Water Quality Objective:	y	100	ug/L
Constant:	b	52,370	
Constant:	a	-0.0004	
Date of first sample:		4/4/1990	

Calculate

Days from first sample:	x	15,652	Days
Years from first sample:		42.9	Years
Estimated date of cleanup:		Feb-2033	

Calculated Half Life = $-\ln(2)/a$

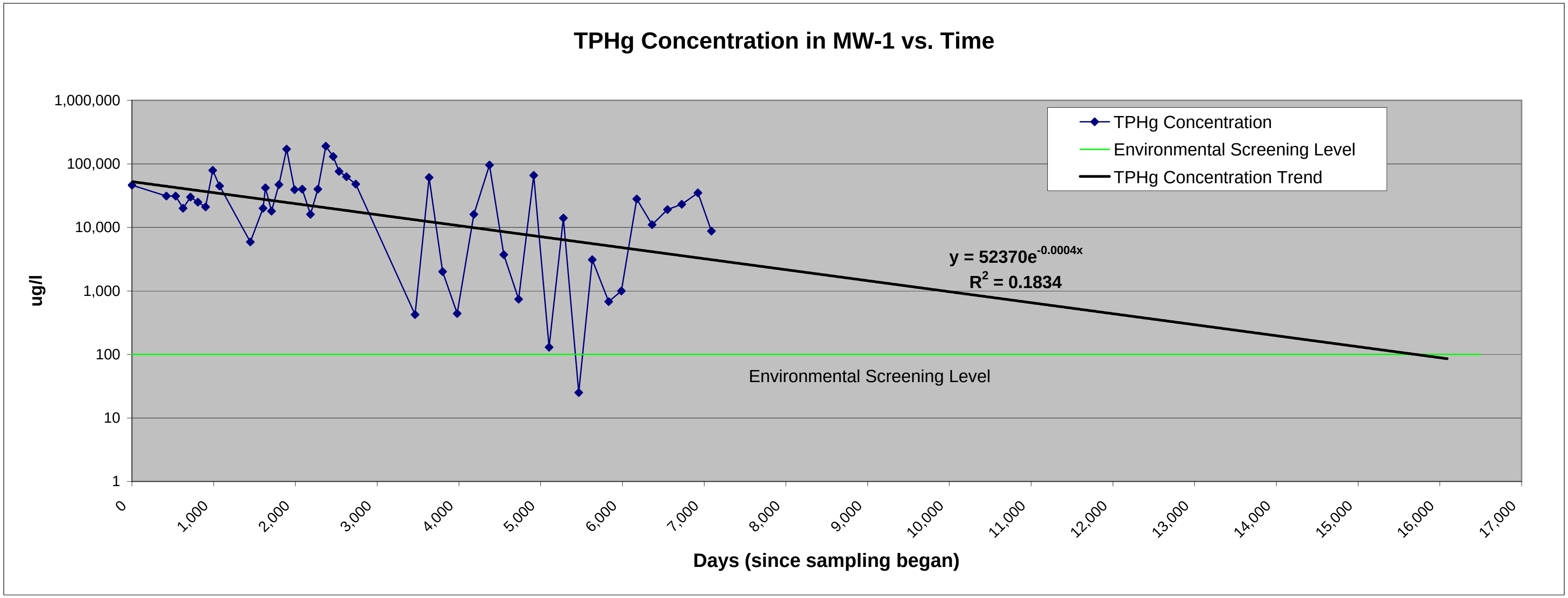
1,733	Days
4.75	years

Equation of trendline

$y = 52370e^{-0.0004x}$

Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
3/8/1994	0	52,370
3/8/1999	1,826	25,227
3/8/2004	3,653	12,148
3/8/2009	5,479	5,852
3/8/2014	7,305	2,819
3/8/2019	9,131	1,358
3/8/2024	10,958	654
3/8/2029	12,784	315
3/8/2034	14,610	152
3/8/2039	16,436	73
3/8/2044	18,263	35
3/8/2049	20,089	17
3/8/2054	21,915	8



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BENZENE CONCENTRATION TREND AND PREDICTION IN MW-1
CHEVRON STATION 9-5542 - 7007 SAN RAMON BOULEVARD, DUBLIN, CALIFORNIA

Calculate "time to cleanup" given the first-order decay equation:

$y = b e^{ax}$ ===> $x = \ln(y/b) / a$

Given

Water Quality Objective:	y	1	ug/L
Constant:	b	13,475.0	
Constant:	a	-0.0006	
Date of first sample:		4/4/1990	

Calculate

Days from first sample:	x	15,848	Days
Years from first sample:		43.4	Years
Estimated date of cleanup:		Aug-2033	

Calculated Half Life = -ln(2)/a

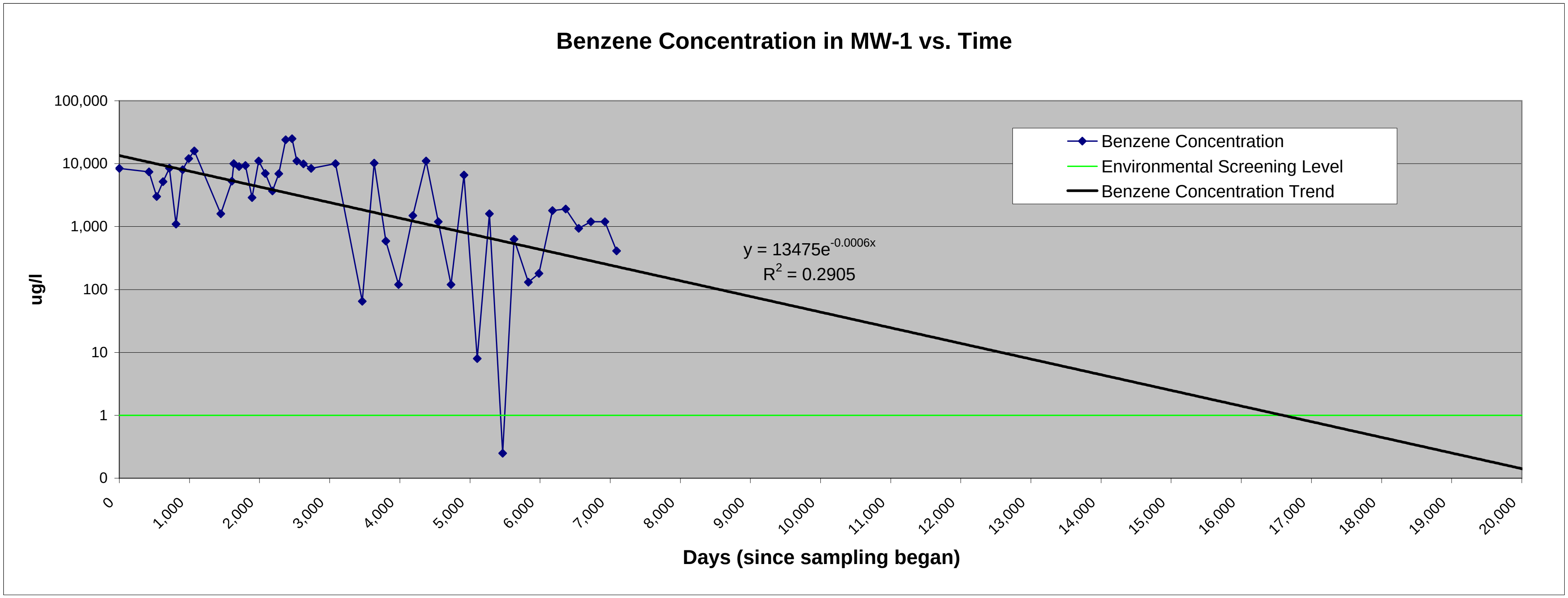
1,155	Days
3.17	years

Equation of trendline

y = 13475e-0.0006x

Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
4/4/1990	0	13,475
4/4/1995	1,826	4,505
4/3/2000	3,653	1,506
4/3/2005	5,479	503
4/4/2010	7,305	168
4/4/2015	9,131	56
4/3/2020	10,958	19
4/3/2025	12,784	6
4/4/2030	14,610	2
4/4/2035	16,436	1
4/3/2040	18,263	0
4/3/2045	20,089	0



TPHg CONCENTRATION TREND AND PREDICTION IN MW-4
CHEVRON STATION 9-5542 - 7007 SAN RAMON BOULEVARD, DUBLIN, CALIFORNIA

Calculate "time to cleanup" given the first-order decay equation:

$y = b\,e^{ax}$ ===> $x = \ln(y/b) / a$

Given

Water Quality Objective:	y	100	ug/L
Constant:	b	37,158	
Constant:	a	-0.0003	
Date of first sample:		4/4/1990	

Calculate

Days from first sample:	x	19,726	Days
Years from first sample:		54.0	Years
Estimated date of cleanup:		Apr-2044	

Calculated Half Life = -ln(2)/a

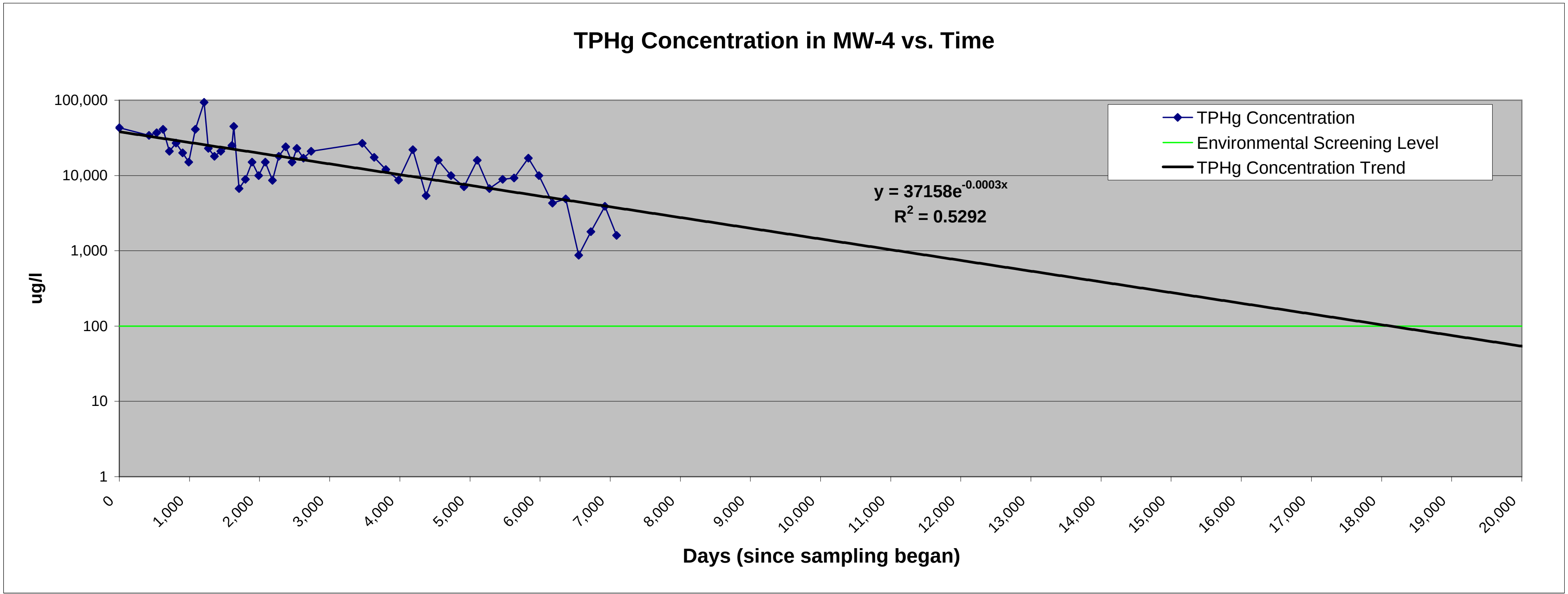
2,310	Days
6.33	years

Equation of trendline

$y = 37158e^{-0.0003x}$

Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
3/8/1994	0	37,158
3/8/1999	1,826	21,486
3/8/2004	3,653	12,420
3/8/2009	5,479	7,181
3/8/2014	7,305	4,152
3/8/2019	9,131	2,401
3/8/2024	10,958	1,388
3/8/2029	12,784	803
3/8/2034	14,610	464
3/8/2039	16,436	268
3/8/2044	18,263	155
3/8/2049	20,089	90



BENZENE CONCENTRATION TREND AND PREDICTION IN MW-4
CHEVRON STATION 9-5542 - 7007 SAN RAMON BOULEVARD, DUBLIN, CALIFORNIA

Calculate "time to cleanup" given the first-order decay equation:

$y = b e^{ax}$ ===> $x = \ln(y/b) / a$

Given

Water Quality Objective:	y	1	ug/L
Constant:	b	8,984	
Constant:	a	-0.0006	
Date of first sample:		4/4/1990	

Calculate

Days from first sample:	x	15,172	Days
Years from first sample:		41.6	Years
Estimated date of cleanup:		Oct-2031	

Calculated Half Life = -ln(2)/a

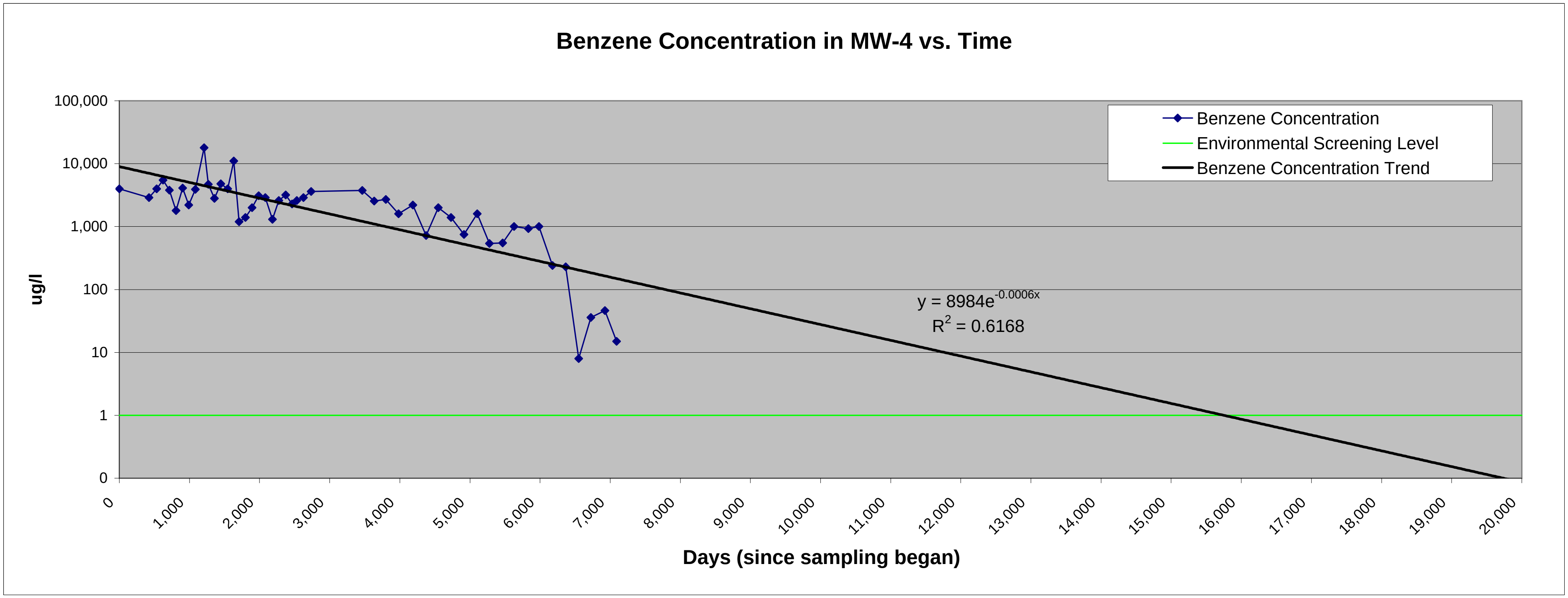
1,155	Days
3.17	years

Equation of trendline

y = 8984e-0.0006x

Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
3/8/1994	0	8,984
3/8/1999	1,826	3,004
3/8/2004	3,653	1,004
3/8/2009	5,479	336
3/8/2014	7,305	112
3/8/2019	9,131	38
3/8/2024	10,958	13
3/8/2029	12,784	4
3/8/2034	14,610	1
3/8/2039	16,436	0
3/8/2044	18,263	0
3/8/2049	20,089	0



TPHg CONCENTRATION TREND AND PREDICTION IN MW-9
CHEVRON STATION 9-5542 - 7007 SAN RAMON BOULEVARD, DUBLIN, CALIFORNIA

Calculate "time to cleanup" given the first-order decay equation:

$y = b\,e^{ax}$ ===> $x = \ln(y/b) / a$

Given

Water Quality Objective:	y	100	ug/L
Constant:	b	9,949.7	
Constant:	a	-0.00023	
Date of first sample:		8/26/1994	

Calculate

Days from first sample:	x	20,001	Days
Years from first sample:		54.8	Years
Estimated date of cleanup:		May-2049	

Calculated Half Life = -ln(2)/a

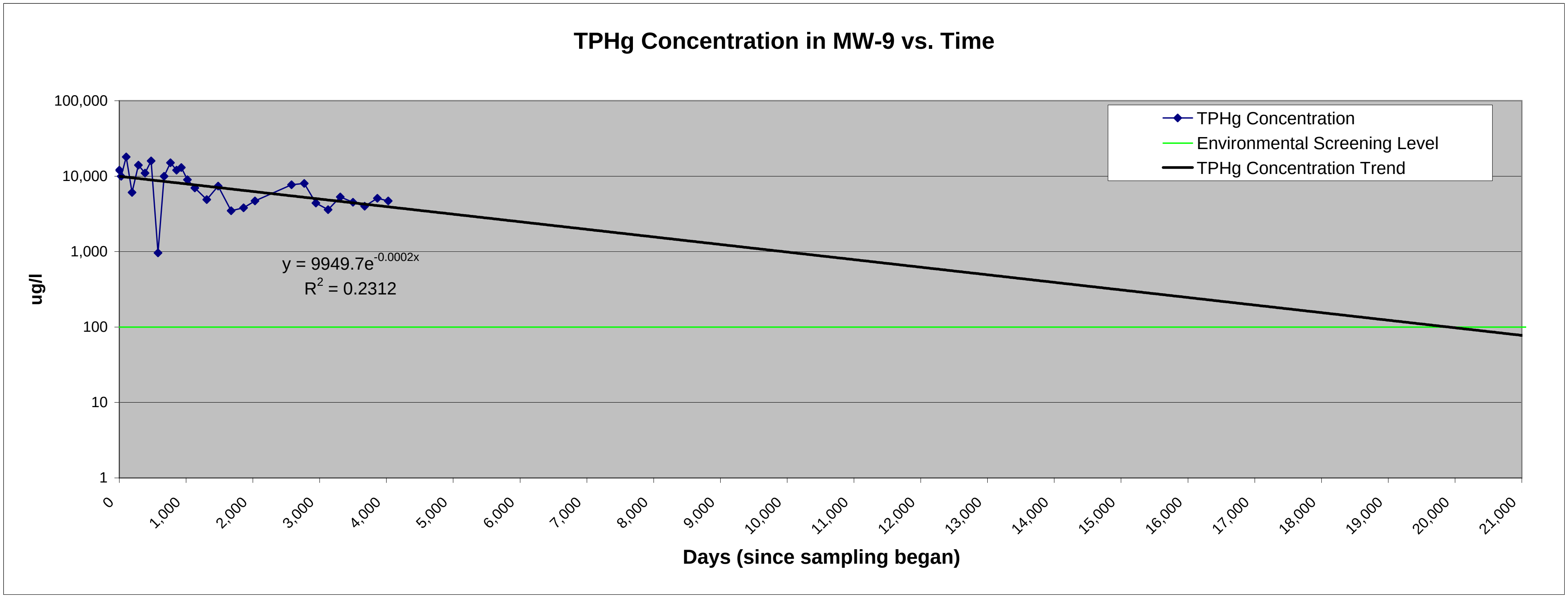
3,014	Days
8.26	years

Equation of trendline

y = 9949.7e-0.0002x

Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
8/26/1994	0	9,950
8/26/1999	1,826	6,537
8/25/2004	3,653	4,295
8/25/2009	5,479	2,822
8/26/2014	7,305	1,854
8/26/2019	9,131	1,218
8/25/2024	10,958	800
8/25/2029	12,784	526
8/26/2034	14,610	346
8/26/2039	16,436	227
8/25/2044	18,263	149
8/25/2049	20,089	98



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BENZENE CONCENTRATION TREND AND PREDICTION IN MW-9
CHEVRON STATION 9-5542 - 7007 SAN RAMON BOULEVARD, DUBLIN, CALIFORNIA

Calculate "time to cleanup" given the first-order decay equation:

$y = b e^{ax}$ ===> $x = \ln(y/b) / a$

Given

Water Quality Objective:	y	1	ug/L
Constant:	b	1,402.6	
Constant:	a	-0.00040	
Date of first sample:		8/26/1994	

Calculate

Days from first sample:	x	18,115	Days
Years from first sample:		49.6	Years
Estimated date of cleanup:		Mar-2044	

Calculated Half Life = -ln(2)/a

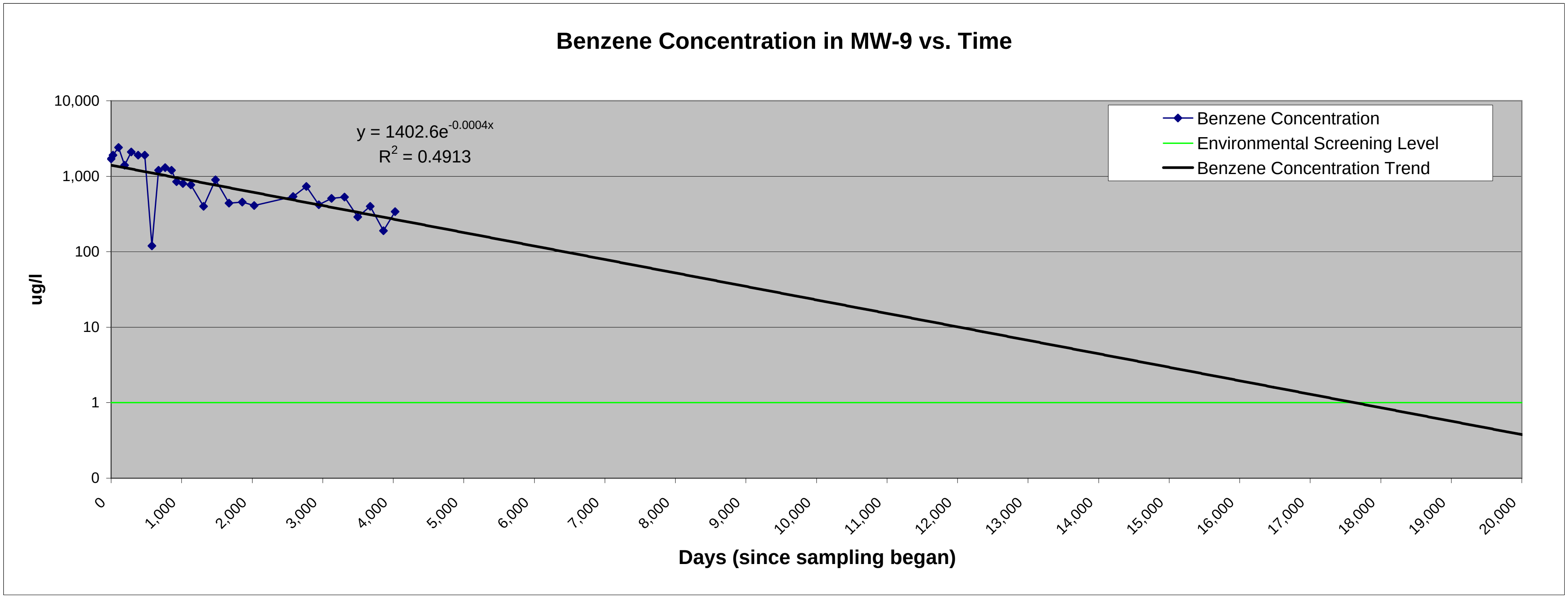
1,733	Days
4.75	years

Equation of trendline

y = 1402.6e-0.0004x

Concentration Trend Prediction

Date	Days from First Sample	Predicted Concentration (ug/l)
8/26/1994	0	1,403
8/26/1999	1,826	676
8/25/2004	3,653	325
8/25/2009	5,479	157
8/26/2014	7,305	75
8/26/2019	9,131	36
8/25/2024	10,958	18
8/25/2029	12,784	8
8/26/2034	14,610	4
8/26/2039	16,436	2
8/25/2044	18,263	1
8/25/2049	20,089	0


Benzene Concentration in MW-9 vs. Time