Equity Office

Peninsula Office Park 4
2655 Campus Drive, Suite 100
San Mateo, California 94403

phone 650.372.3500
www.equityoffice.com

August 26, 2009

Jerry Wickham
Alameda County Health Care Services Agency
Environmental Health Services, Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Second In Situ Chemical Oxidation Pilot Treatment Report, 700 Independent Road, Oakland, California, Fuel Leak Case No. RO0002900

Dear Mr. Wickham,

Enclosed is a report titled Second In Situ Chemical Oxidation Pilot Treatment Report, 700 Independent Road, Oakland, California. The report was prepared by Kleinfelder Inc. on behalf of Equity Office Properties – Industrial Portfolio, LLC. This report documents subsurface treatment activities including injection of chemical oxidants to breakdown of petroleum hydrocarbons in soil and groundwater and sampling and analysis to assess the effectiveness of in situ treatment at the site. Injection of chemical oxidants was performed between May 27 and June 4, 2009 and follow-up sampling for effectiveness assessment was performed on June 29 and 30, 2009. This report was prepared and is being submitted to Alameda Health Care Services Agency, Environmental Health Services pursuant to your request in a letter to Mr. James Soutter dated April 24, 2009.

I declare, under penalty of perjury, that the information and / or recommendations contained in the attached document are true and correct to the best of my knowledge.

Sincerely,
EOP – Industrial Portfolio, LLC.

James Soutter
Director – Engineering

Enclosure: Second In Situ Chemical Oxidation Treatment Report, 700 Independent Road, Oakland, California

SECOND *IN SITU* CHEMICAL OXIDATION TREATMENT REPORT 700 INDEPENDENT ROAD OAKLAND, CALIFORNIA

August 26, 2009

A Report Prepared for:

Mr. James Soutter
EOP – Industrial Portfolio, LLC
2655 Campus Drive, Suite 100
San Mateo, CA 94403

SECOND *IN SITU* CHEMICAL OXIDATION TREATMENT REPORT
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

Kleinfelder Job No: 54504/9

for:
Sophia Drugan
Environmental Project Manager

Charles Almestad, P.G., C.H.G.
Principal Professional

REGISTERED GEOLOGIST
CHARLES H. ALMESTAD
No. 6259
Exp. 7/31/11
STATE OF CALIFORNIA

KLEINFELDER WEST, INC.
1970 Broadway, Suite 710
Oakland, California 94612
(510) 628-9000

August 26, 2009

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1.0 INTRODUCTION

Kleinfelder has prepared this report on behalf of Equity Office Properties – Industrial Portfolio, L.L.C. (EOP) to document the activities and results related to the second *in situ* chemical oxidation (ISCO) treatment conducted at the former EOP property located at 700 Independent Road in Oakland, Alameda County, California (the site, Plate 1). Plate 2 presents a site plan for the site. Alameda County Health Care Services Agency (ACHCSA) is the lead agency providing regulatory oversight for the site and has assigned the site fuel leak case number RO0002900. The second ISCO treatment activities were performed as approved by ACHCSA in a letter to Mr. James Soutter of EOP dated April 24, 2009, in order to continue site clean up and remediate petroleum hydrocarbons in soil and groundwater at the site.

The ISCO pilot test activities were performed by Kleinfelder for EOP in general accordance with Kleinfelder's *Pilot Test Work Plan* dated August 6, 2008 (Kleinfelder 2008c) and *Proposal for Full Scale (Second) ISCO Treatment* dated May 12, 2009.

This report summarizes the activities performed during the second ISCO treatment of petroleum hydrocarbons impacted soil and groundwater at the site; and presents the results and comparative analysis of pre- and post-treatment petroleum hydrocarbon concentrations and physical parameters in soil and groundwater at the site. This report is organized as follows:

- Site Description and Background (Section 2.0),
- ISCO Treatemnt Objective (Section 3.0),
- In-Situ Oxidative Technologies, Inc.'s (ISOTEC) ISCO Process (Section 4.0),
- Second ISCO Treatment Activities (Section 5.0),
- Second ISCO Treatment Results and Discussions (Section 6.0),
- Conclusions and Recommendations (Section 7.0),
- Limitations (Section 8.0), and
- References (Section 9.0).

2.0 SITE DESCRIPTION AND BACKGROUND

2.1 SITE DESCRIPTION

The 700 Independent Road property is located in an industrial area of Oakland, California. The property is approximately five-acres in size and is located about 1,000 feet north of the McAfee Stadium (Plate 1). On the property, there are a one-story warehouse building, a parking lot and a railroad spur. Attached to the north side of the warehouse building there is a concrete block building that is about 900 square feet in size (Plate 2). The facility has been used as a warehouse since the 1950's. Previous subsurface investigations indicate that near surface soils at the site are predominantly clay and silty clay in texture, and that groundwater is generally first encountered at about 8 feet to 10 feet below ground surface (bgs).

2.2 UST REMOVAL AND PREVIOUS ENVIRONMENTAL SITE INVESTIGATION SUMMARY

A prospective purchaser of the 700 Independent Road property discovered the presence of petroleum hydrocarbons in soil and groundwater near the loading dock on the subject property in 2004. As a follow up to this discovery, Kleinfelder searched regulatory agency records and found no records indicating the presence of a UST on the property. Kleinfelder then performed a geophysical survey and identified the presence of a UST and associated piping in the vicinity of the loading dock and concrete block building. On August 17, 2005, Kleinfelder removed and disposed of one 1,100-gallon UST, under permit with the City of Oakland. The tank was in poor condition, with several holes, and the soil underneath the tank was visibly impacted with petroleum hydrocarbons. Kleinfelder collected confirmation samples from the bottom of the excavation. Backfilling and compaction was performed on September 15 and 16, 2005. A site plan, indicating the approximate location of the former UST, exploratory borings, and monitoring wells locations are presented in Plate 3.

The top of the UST was encountered at about four feet bgs. A product pipeline was observed in the excavation about a foot below the top of the excavation. The product line from the tank had previously been traced using surface geophysical methods under

the block building to an exterior corner between the block building and the main warehouse building. At this location a pedestal was observed where a fuel dispenser is believed to have existed. A vent line was observed on the side of the warehouse building, extending through the overhang of the warehouse roof. The product and vent lines were left in place when the tank excavation was backfilled. The depth of the product and vent pipelines below the floor of the block building is not known. No excavation activities other than those required to sample shallow soil were performed in the vicinity of the dispenser during UST removal work. Analytical results from the confirmation samples collected below the UST indicated the presence of total petroleum hydrocarbons as gasoline (TPHg) at concentrations as high as 877 milligrams per kilogram (mg/kg) and total petroleum hydrocarbons as diesel (TPHd) as high as 5,090 mg/kg. Kleinfelder summarized the tank removal work and analytical results in a report titled *Underground Storage Tank Removal Report* dated November 1, 2005 (Kleinfelder 2005). The report was submitted to the City of Oakland Fire Department.

Given the concentrations of petroleum hydrocarbons present, the Fire Department referred the site to ACHCSA for regulatory oversight. On February 24, 2006 the ACHCSA sent a letter requesting that EOP delineate the extent of the contamination associated with the recently removed UST. On July 24 and 25 and August 10, 2006 Kleinfelder performed the requested investigation, which consisted of collecting soil and groundwater samples from 13 soil boring locations (K-1 through K-13, Plate 3) advanced in the vicinity of the former UST location. Eleven of the borings were advanced to depths ranging from 16-feet to 24-feet bgs, and two borings were advanced to a depth of 32 feet bgs. Groundwater was first encountered at depths ranging from about 5.5 to 19 feet bgs.

Kleinfelder summarized the results of the investigation in the Site Field Investigation Report, dated September 27, 2006, which was submitted to the ACHCSA (Kleinfelder 2006a). In brief, benzene, toluene, ethylbenzene, and xylenes (BTEX) in soil were reported at concentrations up to 3,000 micrograms per kilogram (µg/kg), 2,400 µg/kg, 17,000 µg/kg, and 33,000 µg/kg, respectively. TPHg was detected as high as 810 milligrams per kilogram (mg/kg). In groundwater, BTEX was reported as high as 13,800 micrograms per liter (µg/L), 929 µg/L, 2,810 µg/L, and 3,140 µg/L, respectively. TPHg and TPHd were reported at concentrations up to 42 milligrams per liter (mg/L) and 4.19 mg/L respectively.

In a letter to EOP dated October 6, 2006 the ACHCSA requested that EOP further assess the horizontal extent of petroleum hydrocarbon impacts to the subsurface. The request included the collection of soil and groundwater samples in the southeast direction of the former UST location, installation of three monitoring wells, assessment of the presence of petroleum hydrocarbons in soil vapor, a well survey, and an assessment of potential preferential pathways. In response, Kleinfelder prepared a work plan titled *Work Plan for Further Site Investigation* that was submitted to ACHCSA on December 12, 2006 (Kleinfelder 2006b).

The work plan was approved by the ACHCSA in a letter dated December 26, 2006. Between March 4 and March 7, 2007, Kleinfelder collected soil-vapor samples from five sample locations in the warehouse building, advanced and collected soil and groundwater samples for chemical analysis from seven soil boring locations (K-14 through K-20), and installed three monitoring wells. The results of the investigation are summarized in the May 11, 2007 *Further Site Investigation Report* (Kleinfelder 2007a).

The soil-vapor investigation did not indicate the presence of organic volatiles, including TPHg, at concentrations above regulatory environmental thresholds. The soil and groundwater investigation identified two water bearing zones (seven to 11 feet bgs and 18 to 24 feet bgs) impacted with petroleum hydrocarbons. The 18 to 24 foot bgs zone is characterized by thicker, more permeable and more laterally continuous sediments than the shallower zone. Three monitoring were wells installed to target water quality in the 18 to 24 foot depth water bearing zone.

In soil, the highest TPHg, TPHd, and BTEX concentrations were reported at approximately 19 feet bgs in the samples collected from borings MW-1 and K-19. In MW-1, advanced approximately 65 feet east of the UST, TPHg, TPHd, and BTEX concentrations were reported at 1,200,000 µg/Kg, 588,000 µg/Kg, 63,000 µg/Kg, 250,000 µg/Kg, 310,000 µg/Kg, and 1,200,000 µg/Kg, respectively. In K-19, advanced adjacent to the former UST location, TPHg, TPHd, and BTEX concentrations were reported at 1,900,000-µg/Kg, 200,000-µg/Kg, 11,000-µg/Kg, 26,000-µg/Kg, 33,000-µg/Kg, and 170,000-µg/Kg, respectively.

In groundwater, the highest TPHg, TPHd, and BTEX concentrations were reported in the samples collected from borings MW-2 and K-19, both in close proximity to the former UST. In MW-2, TPHg, TPHd, and BTEX concentrations were reported at 38,000 µg/L, 940 µg/L, 11,600 µg/L, 274 µg/L, 588 µg/L, and 2,880 µg/L, respectively. In K-19, TPHg, TPHd, and BTEX concentrations were reported at 33,100 µg/L, 370 µg/L, 5,170 µg/L, 235 µg/L, 1,010 µg/L, and 955 µg/L, respectively. In addition, significantly high levels of contamination were reported in the groundwater sample collected from K-17, where TPHg, TPHd, and BTEX concentrations were reported at 24,000-µg/L, 530-µg/L, 2,780-µg/L, 150-µg/L, 774-µg/L, and 563-µg/L, respectively. Together, the groundwater samples chemical results suggest that the 18 to 24 foot bgs groundwater bearing zone is a more significant preferential pathway for contaminant migration.

Well survey data and water level measurements made on April 13, 2007 indicate groundwater flow to the south; however, some of the highest petroleum hydrocarbon concentrations were reported to the east of the former UST (MW-1), as opposed to the south (K-17), suggesting that groundwater flow patterns may be variable.

On June 13, 2007, after reviewing the May 11, 2007 *Further Site Investigation Report*, the ACHCSA requested that the extent of petroleum hydrocarbons east of the recently installed monitoring well MW-1 be assessed and that quarterly groundwater monitoring be implemented at the site.

Kleinfelder prepared a *Site Investigation Work Plan* dated September 26, 2007 describing the objectives, tasks, methods and schedule for performing the investigations requested by the ACHCSA in the June 13, 2007 letter (Kleinfelder 2007b). In the ACHCSA's letter approving the work plan, two additional soil borings and one monitoring well were requested. These additional borings and well were incorporated into the scope of work. The work performed and results of the additional investigation are described in a report prepared by Kleinfelder titled *Additional Site-Characterization Report* dated March 31, 2008 (Kleinfelder 2008b).

On May 13, 2008, after reviewing the March 31, 2008 *Additional Site-Characterization Report*, the ACHCSA in a letter to Mr. James Soutter of EOP concurred that the extent of petroleum contamination has been defined and concluded that no further

investigation is required at this time. In addition, the ACHCSA requested that a pilot test work plan be prepared to initiate site cleanup.

On August 6, 2008 Kleinfelder produced a *Pilot Test Work Plan*, which laid out the general methods for the pilot test study (Kleinfelder, 2008c)**.** On September 10, 2008, after reviewing the *Pilot Test Work Plan*, the ACHCSA in a letter to Mr. James Soutter of EOP concluded that the proposed pilot test implementation is generally acceptable; however ACHCSA requested that additional monitoring be performed to evaluate the effectiveness of ISCO.

Between December 9 and 12, 2008 Kleinfelder implemented *Pilot Test Work Plan,* injecting 4,446 gallons of ISCO reagent at 13 locations. Soil and groundwater sampling was performed pre- and post-ISCO treatment event in order to evaluate effectiveness. The work performed and results of the pilot test are described in a report prepared by Kleinfelder titled *In Situ Chemical Oxidation Pilot Test Report* dated March 18, 2009 (Kleinfelder 2009b). Based on the success of the ISCO pilot test, Kleinfelder recommended conducting a second ISCO treatment.

On April 24, 2009, after reviewing the March 18, 2009 *In Situ Chemical Oxidation Pilot Test Report*, the ACHCSA in a letter to Mr. James Soutter of EOP concurred with the recommendation to conduct a second ISCO treatment. Therefore, between May 27 and June 4, 2009 Kleinfelder implemented the second ISCO treatment. Soil and groundwater sampling was performed pre- and post second ISCO treatment in order to evaluate effectiveness. This report describes the work performed and results of the second ISCO treatment event.

3.0 ISCO TREATMENT OBJECTIVE

The objective of the ISCO remediation program using ISOTEC's modified Fenton's based oxidation process was to reduce the soil and groundwater chemicals of concern (COCs [e.g., benzene and total petroleum hydrocarbons]) concentrations to below specific project goals.

The ISCO was implemented at locations where the concentrations of COCs exceed their respective and most recent Environmental Screening Levels (ESLs) developed by the San Francisco Bay Region Regional Water Quality Control Board (RWQCB). The most recent ESLs are summarized in the Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final dated November 2007 and revised May 2008 (RWQCB 2007, revised May 2008). Based on these ESLs Plate 4 presents the ISCO pilot test treatment area.

The ESLs used in this report were obtained from Table B from the RWQCB ESL document (for shallow, less than 3 meters deep soils, commercial/industrial land use) and Table D (for greater than 3 meters bgs soils, commercial/industrial land use). These tables were developed assuming that groundwater is not a current or potential source of drinking water. For this report, these tables were used because the concentration of dissolved solids in the groundwater at the site is significantly greater than 3,000 milligrams per liter as documented in Kleinfelder's *First Quarter 2009 Groundwater Monitoring Report* (Kleinfelder 2009a) for the site, making the groundwater unsuitable as a drinking water resource per RWQCB Resolution 89-39, "Sources of Drinking Water".

4.0 ISOTEC'S ISCO PROCESS

In-Situ Oxidative Technologies, Inc. (ISOTEC) was selected to provide chemical oxidants and perform ISCO injections at the site. ISOTEC's ISCO process destroys organic contamination in situ using Fenton's reagent-based oxidation chemistry. It is characterized by the combination of soluble iron with low concentrations of hydrogen peroxide to produce hydroxyl radicals (OH•), which are injected into contaminated aquifers or vadose zones. The hydroxyl radicals attack the carbon double bonds of hydrocarbon molecules. The summary equation for Fenton's chemistry is shown below.

$$Fe^{+2} + H_2O_2 \rightarrow Fe^{+3} + OH^- + OH\bullet$$

Where H_2O_2 is hydrogen peroxide, Fe^{+2} is ferrous iron, Fe^{+3} is ferric iron, OH• is hydroxyl free radical and OH^- is hydroxide ion.

Iron is used to catalyze the reaction. Maintaining iron in solution is important for the process to be successful in an *in situ* application. To eliminate the necessity of performing the reaction under low pH conditions, as is the case with traditional Fenton's chemistry, complexed iron is used in *in situ* applications via ISOTEC's process. The hydrogen peroxide and dissolved iron solutions are injected through a site-specific delivery system providing sufficient distribution to selectively treat the area of concern. Reaction time is very fast, with oxidation capacity of the reagent being used up in a matter of a few days. Hydrogen peroxide breaks down into water and oxygen and the iron catalyst is oxidized and precipitates out of solution.

Fenton-based oxidation processes have been shown to effectively treat a wide range of contaminants including hard-to-treat compounds such as chlorinated solvents, petroleum hydrocarbons, gasoline additives including BTEX, and pesticides.

The stoichiometric relationship between benzene oxidation and hydrogen peroxide consumption can be predicted from the oxidative reaction:

$$C_6H_6 + 15H_2O_2 \rightarrow 6CO_2 + 18H_2O$$

Where C_6H_6 is benzene, H_2O_2 is hydrogen peroxide, CO_2 is carbon dioxide, and H_2O^+ is water. Hydrogen peroxide not consumed in the above reaction will continue to oxidize

the groundwater contaminants and will naturally degrade along with the contaminant to oxygen and water (ISOTEC 2009, Attachment D).

4.1 AQUEOUS CONTACT

The overwhelming portion of the oxidation process occurs in the aqueous phase. Contaminant dissolved in water contacts oxidant dissolved in water and the oxidation reactions occur. This is, for all practical purposes, an instantaneous process. The same is not true for contaminant mass that is present adsorbed to soil or found as liquid phase hydrocarbon (LPH). These two phases must be moved into the aqueous (dissolved) phase in order to be treated in a practical manner (ISOTEC 2009, Attachment D).

4.2 MASS PHASE CHANGES

Modified Fenton's with neutral pH catalyst actively transfers mass into the dissolved phase thereby greatly disrupting the mass equilibrium between the phases. The hydroxyl radical oxidizes contamination in the dissolved phase while the superoxide radical desorbs mass from the adsorbed phase by interfering with the electrical (molecular) forces that cause molecules of solvent to "stick" to grains of soil and organic carbon. In addition to these chemical processes, the reaction produces oxygen gas. As the peroxide decomposes it generates oxygen. This gas is produced within the individual pore spaces where the two reagents are mixed. As the gas bubbles are generated and then migrate vertically up through soil pores, a physical action occurs that mixes groundwater, disturbs soil "fines" (increasing turbidity) and dislodges residual non-aqueous phase liquid (NAPL). Mass is transferred from the adsorbed and NAPL phases into the dissolved phase through this physical agitation. Mass is also transferred from the NAPL phase to the adsorbed phase as the NAPL is mixed within the pore space and contacts more soil surface area.

These chemical and physical processes upset the phase equilibrium and can be observed as temporary increases in dissolved and sorbed concentrations, especially early in the treatment program when the total mass is still at levels near the original mass. However, given that such a small percentage of the total mass exists in the dissolved phase, even an order of magnitude increase in the dissolved phase mass is

still only a fraction of the total mass. As the total mass decreases with multiple injections, the post-injection increases in dissolved concentrations also decrease. Post injection dissolved concentrations will remain elevated and out of equilibrium with the total mass even as the total mass approaches minimal levels. Only time will allow the dissolved mass and total mass to reequilibrate through dilution, dispersion, re-adsorption and degradation. This time period varies depending on specific site conditions but has been observed to take from months up to quarters.

For the modified Fenton's process, this means that the oxidant is injected and treatment occurs almost instantly. The oxidant is consumed and the treatment process is complete within several days if not hours. The modified Fenton's process actively transfers mass from the adsorbed phase into the aqueous phase where oxidation can occur. This process allows for significant mass destruction in a short period of time (ISOTEC 2009, Attachment D).

5.0 SECOND ISCO TREATMENT ACTIVITIES

Based on the success of the ISCO pilot test, Kleinfelder recommended conducting a second ISCO treatment and the ACHCSA in a letter to Mr. James Soutter of EOP dated April 24, 2009 concurred with the Kleinfelder's recommendation. This section describes the activities related to the second ISCO treatment implementation.

5.1 PRE-ISCO ACTIVITIES

This section describes the activities that were conducted in order to prepare for the ISCO reagent injection, including surveying for underground utilities, obtaining a subsurface drilling permit, coordinating inspection activities with a regulatory inspector, as required, and updating the existing site-specific health and safety plan (HASP).

5.1.1 Underground Utility Surveying

Kleinfelder marked the proposed injection areas with marking paint prior to initiation of drilling activities. Underground Service Alert (USA) was notified shortly after the borings were marked, more than 48 hours prior to initiation of the drilling activities. The USA ticket number for the May and June 2009 drilling and the injection events was 0147159. In addition, Cruz Brothers, a private utility surveying company, was contracted to survey the injection areas for subsurface utilities. Kleinfelder personnel provided oversight for private utility locating activities.

5.1.2 Permitting

Kleinfelder submitted a permit application and paid associated permit fees to the Alameda County Public Works Agency (ACPWA) for drilling activities at the site. The drilling was performed in accordance with State and County requirements. A copy of the permit is included in Appendix A. Mr. John Souldice, an ACPWA inspector, was occasionally onsite to observe the ISCO reagent injection and borehole grouting activities.

5.1.3 Health and Safety

The existing site-specific HASP was amended to provide guidelines for worker and public safety during the planned ISCO treatment implementation. A copy of the HASP is included in Appendix B.

5.2 ISCO ACTIVITIES

This section describes the ISCO activities that were conducted at the site. These activities include injection point installation, preparation and injection of ISCO reagent, injection point abandonment, soil and groundwater monitoring, equipment decontamination, and waste characterization, handling and disposal.

5.2.1 Injection Point Installation

The ISCO reagents were injected at 30 injection locations (2I-01 through 2I-30) between May 27 and June 4, 2009. Plate 4 presents the ISCO injection points locations. ISOTEC utilized direct-push technology (DPT) to introduce reagents into the subsurface at the site. The drilling was performed by Resonant Sonic Inc. (RSI) in accordance with State and County requirements. Kleinfelder oversaw and documented drilling and injection activities, monitored field activities during the injection, and provided technical guidance to the contractor

In order to minimize the ISCO reagent surfacing during the injections, modifications were made to the spacing of the injection locations and reagent injection volumes of the second ISCO treatment, when compared to the ISCO pilot test. The spacing of the injection locations was reduced by half when compared to the ISCO pilot test spacing. Specifically, the temporary injection points were spaced approximately 12.5 feet apart and advanced to a depth of either approximately 17 to 20 feet bgs or 25 to 28 feet bgs. The depth adjustment was to make up for an approximate 3 foot raise in grade surface resulting from either the foundation of the building, the loading dock located adjacent to the building, or a slope leading to an elevated portion of the west side of the treatment area. ISOTEC injected reagents at each point through injection screens positioned from approximately 9 to 17 feet bgs or 12 to 20 feet bgs for the upper screen, and 17 to 25 feet bgs or 20 to 28 feet bgs for the lower screen. This method of selective vertical injection was designed to deliver reagent across the entire vertical extent of the target

saturated treatment interval. A direct-push injection schematic is included in Appendix D.

5.2.2 ISCO Treatment Reagent Preparation and Injection

In situ chemical injection technology was applied at the site using a proprietary modified Fenton's reagent, supplied by ISOTEC. The modified Fenton's technology involves a catalyzed chemical oxidation reaction with hydrogen peroxide (H_2O_2) as the oxidant. The methodology is described in the *Pilot Test Work Plan* (Kleinfelder, 2008c). The use of a modified Fenton's reagent was selected because of its general effectiveness in the remediation of petroleum hydrocarbon contamination and the relatively low changes in groundwater temperature and pH as compared to a standard Fenton's reagent.

ISOTEC technicians prepared stabilized 12% hydrogen peroxide (H_2O_2) from 25% hydrogen peroxide. The 25% hydrogen peroxide was delivered to the site and stored onsite in Department of Transportation (DOT) approved 55-gallon drums. To mix hydrogen peroxide, a 300-gallon polyethylene tank was filled with onsite water and dry stabilizer to a predetermined volume. The 25% hydrogen peroxide was then transferred with a drum pump into the 300-gallon polyethylene tank to the desired concentration. The technicians wore proper personal protective equipment and used appropriate safety procedures during the transfer. Iron (Fe) catalyst was also mixed in 300-gallon polyethylene tanks using onsite water, dry ISOTEC chemicals, and an electric mixing motor with attached mixing blade.

The injections were accomplished using air-operated diaphragm pumps, flow meters, polyvinyl chloride (PVC) flexible tubing and steel wellhead assemblies. The wellheads, with pressure gauges and relief valves, were attached to the direct-push injection rods. The wellhead assemblies were attached with PVC tubing to an air-operated diaphragm pump and from the pump to either the peroxide, catalyst or water tanks with PVC tubing. The peroxide, catalyst and water were injected through the PVC tubing using the pump. An injection method schematic is included in Appendix D.

In general, the injection process was similar for each injection screen. First, water was injected, followed by chelated Fe catalyst, a water flush, 12% stabilized hydrogen peroxide, and a final water flush. Kleinfelder's *In Situ Chemical Oxidation Pilot Test*

Report dated March 18, 2009 proposed injection of 35 to 75 gallons of reagent (Fe catalyst and hydrogen peroxide) at each screening depth for each injection location (Kleinfelder 2009b). Actual reagent volume at each screening depth for each injection location varied between 0 and 160 gallons, as it was depending on site conditions, including soil saturation and observed surfacing of the treatment reagent. Volumes of reagent injected for each location and screening interval are presented in Table 1.

Thirty locations (2I-01 through 2I-30) were used across the ISCO treatment area during the second ISCO treatment event. At each location, ISOTEC attempted to inject into two separate screens targeting the intervals from approximately 9 to 17 feet bgs or 12 to 20 feet bgs for the upper screen and 17 to 25 feet bgs or 20 to 28 feet bgs for the lower screen. At 11 locations (2I-15, 2I-16, 2I-21 and 2I-23 through 2I-30) the upper and lower screens were installed at 12-20 feet bgs and 20-28 feet bgs, respectively. This adjustment was to make up for an approximate 3 foot raise in grade surface resulting from either the foundation of the building, the loading dock located adjacent to the building, or a slope leading to an elevated portion of the west side of the treatment area.

A total of 60 injection screens (30 upper screens and 30 lower screens) were used to deliver reagent into the subsurface across the treatment area. Total volumes of reagent injected are as follows:

Upper screen (30 injection screens)

- 12 % H_2O_2 reagent – 641 gallons
- Fe catalyst – 912 gallons
- Total ISCO reagent – 1,553 gallons

Lower screen (30 injection screens)

- 12% H_2O_2 reagent – 1,078 gallons
- Fe catalyst – 1,299 gallons
- Total ISCO reagent – 2,377 gallons

A total of 3,930 of ISCO reagent (1,719 gallons of 12 % H_2O_2 reagent and 2,211 gallons of Fe catalyst) was injected through 60 injection screens or 30 injection locations during the second ISCO treatment event.

To date, a total of 8,376 gallons of ISCO reagent was injected through 86 injection screens or 43 injection locations over the course of two injection events, the pilot test (first ISCO treatment) and the second ISCO treatment events.

5.2.3 Injection Point Abandonment

The temporary injection locations were abandoned by the DPT subcontractor, RSI, by plugging the holes to water level with 3/8 inch bentonite chips and then pressure grouting the remaining of the hole to surface with Portland grout in a pressurized vessel. Specifically, bentonite chips were slowly poured into the temporary injection hole until the chips were above the water level which was roughly 5 feet or less. Portland cement was then mixed in a bucket with a drill and poured into a vessel. The vessel then was attached to the rod by a steel well head with reinforced PVC tubing. The Portland cement was poured into the bottom of the hole through the rod while the direct-push rod was slowly being retracted to surface. Finally, asphalt patch or cement was then added to patch the remaining hole to match the surrounding area. A total of 60 temporary injection locations were abandoned during the second ISCO treatment event at the site between May 27 and June 4, 2009.

5.2.4 Soil and Groundwater Monitoring

Soil sampling was performed at the site before and one month after the second ISCO treatment event. Groundwater sampling was performed at the site monitoring wells MW-1 through MW-3 before and MW-1 through MW-5 one month after the second ISCO treatment event. The groundwater sampling event one month after the second ISCO treatment event was performed in conjunction with the second quarter 2009 monitoring event. Physical and chemical parameters monitoring in groundwater was conducted at the site monitoring wells MW-1, MW-2 and MW-3 before, during (at beginning and at end of each injection event day), and one month post second ISCO treatment event.

5.2.4.1 Soil Sampling Activities

Soil sampling activities were performed before and one month after the second ISCO treatment event on May 26, 2009 and June 29, 2009, respectively. Plates 3 and 4 present the soil boring sampling locations. Table 2 presents the sampling schedule and

analyses. The field notes related to the soil sampling activities are included in Appendix C.

The drilling was performed by Fisch Drilling in accordance with State and County requirements at six boring locations using a truck-mounted direct-push (Geoprobe 6600) drill rig. Soil borings were advanced to depths of 24 feet bgs. The direct push rig advanced four-foot long steel tubes using a hydraulic cylinder (and a vibratory hammer when necessary). The steel tubes have an inside diameter of approximately two inches and interchangeable acrylic liners, to allow for a continuous sample through the entire depth of the borehole.

During each sampling event, soil samples were collected from three soil boring locations (2PS-1/2PS-1A, 2PS-2/2PS-2A and 2PS-3/2PS-3A). Specifically, on May 26, 2009, two soil samples were collected from boring location 2PS-1 (one at 10 feet bgs and one at 20 feet bgs), four soil samples were collected from boring location 2PS-2 (7, 11, 15 and 20 feet bgs), and two soil samples were collected from boring location 2PS-3 (one at 10 feet bgs and one at 21 feet bgs). On June 29, 2009, two soil samples were collected from boring location 2PS-1A (one at 10 feet bgs and one at 20 feet bgs), four soil samples were collected at separate depths from boring location 2PS-2A (7, 11, 15, and 20 feet bgs), and two soil samples were collected at separate depths from boring location 2PS-3A (10 and 21bgs). Boring locations to be compared (2PS-1 vs. 2PS-1A, 2PS-2 vs. 2PS-2A, and 2PS-3 vs. 2PS-3A) were located within one foot of each other.

A Kleinfelder representative observed the sampling activities, and prepared a log of the soils encountered in each boring. The soil borings were logged in the field using the Unified Soil Classification System. The soil boring logs are included in Appendix C. Soil samples were retained in acrylic liners and inspected for indications of staining and/or odors. The soil samples were screened in the field using a photoionization detector (PID) to measure volatile organic compounds. In the event that signs of impacted soils were observed (i.e., visual staining, odor, elevated PID readings, etc.), samples from the impacted soil interval were collected. A total of 16 soil samples were collected for chemical analyses at approximately 7 through 21 feet bgs during the two soil sampling events. The soil samples were analyzed following analytical methods:

- TPHd using U.S. Environmental Protection Agency (USEPA) Method 8015M following silica gel cleanup;
- TPHg using USEPA Method 8015M; and
- BTEX using USEPA Method 8021B.

The soil samples were labeled and transferred on ice to Torrent Laboratories, Inc., a state-certified analytical laboratory, under chain-of-custody protocol for analyses. Soil sampling equipment was decontaminated between sample intervals and locations, as described below. The soil sampling analyses and results are presented in Table 3. The laboratory analytical reports and chain-of-custody documents are included in Appendix E. The soil samples results are discussed in Section 6.

5.2.4.2 Groundwater Monitoring Activities

Groundwater samples were collected from monitoring wells MW-1 through MW-3 before and MW-1 through MW-5 one month after the second ISCO treatment event. The one month after groundwater sampling event was performed in conjunction with the second quarter 2009 monitoring event. Table 2 presents the sampling schedule and analyses. The field notes related to the groundwater monitoring activities are included in Appendix C.

Groundwater physical and chemical parameters monitoring was conducted at the site monitoring wells MW-1, MW-2 and MW-3 before, during (at beginning and at end of each injection event day), and one month post ISCO injection pilot test. Using down-hole field equipment, the well groundwater from monitoring wells MW-1, MW-2 and MW-3 was monitored in the field for the following parameters:

- pH;
- Dissolved oxygen (DO);
- Oxidation-reduction potential (ORP);
- Temperature;
- Conductivity; and
- Turbidity.

The groundwater field parameters are included in Appendix C. The groundwater samples results are discussed in Section 6.

Groundwater monitoring wells were sampled in accordance with quarterly sampling protocols using a clean disposable bailer or dedicated polyethylene tubing; a groundwater sample was retrieved from each monitoring well, and decanted into clean laboratory-supplied containers. The monitoring well groundwater samples were analyzed using the following analytical methods:

- TPHd using USEPA Method 8015B following silica gel cleanup;
- TPHg using USEPA Method 8260B;
- BTEX using USEPA Method 8260B; and
- Volatile organic compounds (VOCs) using USEPA Method 8260B (May 2009 samples only).

The groundwater samples were labeled and transferred on ice to Torrent Laboratories, Inc., a state-certified analytical laboratory, under chain-of-custody protocol for analysis. The groundwater sampling analyses and results are presented in Table 4. The laboratory analytical reports and chain-of-custody documents are included in Appendix E. The groundwater samples results are discussed in Section 6.

5.2.6 Equipment Decontamination

Drilling and sampling equipment was properly decontaminated prior to use and between each location. The down-hole drilling equipment was decontaminated by steam cleaning at a designated wash pad or within a portable containment unit. Sampling equipment was decontaminated by washing the equipment with a soap and water solution, and two rinses, tap water followed by deionized water. Disposable equipment was discarded after each use.

5.2.7 Waste Characterization, Handling, and Disposal

Investigative derived waste (IDW) that was generated during the ISCO treatment and monitoring events included soil cuttings, equipment decontamination fluids, and used personal protective equipment. Soil cutting and decontamination rinse water were collected and stored on site in Department of Transportation (DOT) approved 55-gallon steel drums with covers, which were labeled to identify the IDW source location, date collected, and generator's name. All used personal protective equipment (PPE) was placed in the soil cuttings drums. The containers storing the generated wastes were temporarily stored at a centralized location pending waste characterization for offsite disposal. An adhesive label was affixed to each container noting the following: container number, waste type, location that the IDW was generated, and date of waste generation. Seventeen drums of IDW were generated during the ISCO treatment and monitoring events. Following receipt of analytical data from the laboratory, the waste will be profiled, disposal options identified, and the waste transported and disposed of at a permitted facility under the required disposal manifest.

6.0 SECOND ISCO TREATMENT RESULTS AND DISCUSSIONS

6.1 SUMMARY OF SOIL AND GROUNDWATER MONITORING RESULTS

6.1.1 Soil Analytical Results

A summary of the soil sampling analyses and results are presented in Table 3. The laboratory analytical reports and chain-of-custody documents are included in Appendix E. Boring locations to be compared (2PS-1 vs. 2PS-1A, 2PS-2 vs. 2PS-2A, and 2PS-3 vs. 2PS-3A), pre and post second ISCO treatment, were located within one foot of each other. The following is a summary of the soil results at the site.

TPHg, TPHd and BTEX were below the laboratory reporting limits in the shallow and deep soil samples 2PS-1-10 and 2PS-1-20 (pre second ISCO treatment), and 2PS-1A-10 and 2PS-1A-20 (post second ISCO treatment).

TPHg, TPHd and BTEX were below the laboratory reporting limits or, if detected, below their respective ESLs in the shallow and deep soil samples 2PS-3-10 and 2PS-3-21 (pre second ISCO treatment), and 2PS-3A-10 and 2PS-3A-21 (post second ISCO treatment).

TPHg was detected at a concentration of 1,200 milligrams per kilogram (mg/kg) in the shallow soil sample of 2PS-2-7 (pre second ISCO treatment) and at a concentration of 190 mg/kg in the shallow soil sample of 2PS-2A-7 (post second ISCO treatment). This represents a TPHg reduction by 84% when comparing the post ISCO to pre ISCO results. The post ISCO TPHg result was above the TPHg ESL of 180 mg/kg for shallow, less than 3 meters bgs soils, for commercial/industrial land use.

TPHg was detected at a concentration of 53 mg/kg in the deep soil sample of 2PS-2-11 (pre second ISCO treatment) and at a concentration of 750 mg/kg in the deep soil sample of 2PS-2A-11 (post second ISCO treatment). This increase could be associated with an isolated pocket of TPHg contamination located at the post second ISCO treatment soil boring location. The post ISCO TPHg result was above the TPHg ESL of 180 mg/kg for deep, greater than 3 meters bgs soils, for commercial/industrial land use.

TPHg was detected at a concentration of 1,700 mg/kg in the deep soil sample of 2PS-2-15 (pre second ISCO treatment) and at a concentration of 180 mg/kg in the deep soil sample of 2PS-2A-15 (post second ISCO treatment). This represents a TPHg decrease by 89% when comparing the post ISCO to pre ISCO results. The post ISCO TPHg result was at the TPHg ESL of 180 mg/kg for deep, greater than 3 meters bgs soils, for commercial/industrial land use.

TPHg was detected at a concentration of 3,000 mg/kg in the deep soil sample of 2PS-2-20 (pre second ISCO treatment) and at a concentration of 250 mg/kg in the deep soil sample of 2PS-2A-20 (post second ISCO treatment). This represents a TPHg decrease by 92% when comparing the post ISCO to pre ISCO results. The post ISCO TPHg result was above the TPHg ESL of 180 mg/kg for deep, greater than 3 meters bgs soils, for commercial/industrial land use.

Detected concentrations of TPHd were below their respective ESLs of 180 mg/kg in the shallow and deep soil samples 2PS-2-7 and 2PS-2-11 (pre second ISCO treatment) and 2PS-2A-7 and 2PS-2A-11 (post second ISCO treatment).

TPHd was detected at a concentration of 51.7 mg/kg in the deep soil sample of 2PS-2-15 (pre second ISCO treatment) and at a concentration of 264 mg/kg in the deep soil sample of 2PS-2A-15 (post second ISCO treatment). This increase could be associated with an isolated pocket of TPHd contamination located at the post second ISCO treatment soil boring location. The post ISCO TPHd result was above the TPHd ESL of 180 mg/kg for deep, greater than 3 meters bgs soils, for commercial/industrial land use.

TPHd was detected at a concentration of 206 mg/kg in the deep soil sample of 2PS-2-20 (pre second ISCO treatment) and at a concentration of 11.7 mg/kg in the deep soil sample of 2PS-2A-20 (post second ISCO treatment). This represents a TPHd decrease by 94% when comparing the post ISCO to pre ISCO results. The post ISCO TPHg result was below the TPHd ESL of 180 mg/kg for deep, greater than 3 meters bgs soils, for commercial/industrial land use.

Benzene was detected at a concentration of 3.1 mg/kg in the shallow soil sample of 2PS-2-7 (pre second ISCO treatment) and at a concentration of 3 mg/kg in the shallow

soil sample of 2PS-2A-7 (post second ISCO treatment). The post ISCO benzene result was above the benzene ESL of 0.27 mg/kg for shallow, less than 3 meters bgs soils, for commercial/industrial land use.

Benzene concentrations of 0.88, 3.6, and 12 mg/kg were detected in the deep soil samples of 2PS-2-11, 2PS-2-15, and 2PS-2-20 (pre second ISCO treatment), respectively, and were below the laboratory reporting limits in the deep soil sample of 2PS-2A-11, 2PS-2A-15, and 2PS-2A-20 (post second ISCO treatment).

Concentrations of ethylbenzene, toluene, and total xylenes decreased in the shallow sample of 2PS-2A-7 (post second ISCO treatment) when compared to 2PS-2-7 (pre second ISCO treatment) by greater than 88%, 57% and 75%, respectively.

Concentrations of ethylbenzene and toluene in either 2PS-2-11 (pre second ISCO treatment) or 2PS-2A-11 (post second ISCO treatment) soil samples were below the laboratory reporting limits or, if detected, below their respective ESLs, for deep, greater than 3 meters bgs soils, for commercial/industrial land use.

Total xylenes was detected at a concentration of 0.31 mg/kg in the deep soil sample of 2PS-2-11 (pre second ISCO treatment) and at a concentration of 12 mg/kg in the deep soil sample of 2PS-2A-11 (post second ISCO treatment). This increase could be associated with an isolated pocket of total xylenes contamination located at the post second ISCO treatment soil boring location. The post ISCO total xylenes result of 12 was above the total xylenes ESL of 11 mg/kg for deep, greater than 3 meters bgs soils, for commercial/industrial land use.

Concentrations of ethylbenzene, and total xylenes decreased in the deep sample of 2PS-2A-15 (post second ISCO treatment) when compared to 2PS-2-15 (pre second ISCO treatment). Toluene was not reported in either 2PS-2-15 or 2PS-2A-15 soil samples. The post ISCO treatment BTEX results were below the laboratory reporting limits or, if detected, below their respective ESLs for deep, greater than 3 meters bgs soils, for commercial/industrial land use.

Concentrations of benzene, ethylbenzene, and toluene decreased in the deep sample of 2PS-2A-20 (post second ISCO treatment) when compared to 2PS-2-20 (pre second

ISCO treatment) to below their respective ESLs for deep, greater than 3 meters bgs soils, for commercial/industrial land use. The post ISCO treatment total xylenes result of 44 mg/kg was above the total xylenes ESL of 11 mg/kg for deep, greater than 3 meters bgs soils, for commercial/industrial land use.

6.1.2 Groundwater Field Monitoring Results

The groundwater field parameters and field notes related to the groundwater monitoring activities are included in Appendix C.

Review of the second ISCO treatment event field monitoring data indicated that the temperature increased when comparing most of the end of the day with the beginning of the day readings; however, temperature did not rise significantly and no large changes occurred overall during the second ISCO treatment event. Temperature ranged between 17.43 and 18.79 degrees Celsius in monitoring well MW-1, between 16.87 and 18.11 degrees Celsius in monitoring well MW-2, and between 21.25 and 23.84 degrees Celsius in monitoring well MW-3.

Review of the second ISCO treatment event field monitoring data indicated that relatively no changes occurred in groundwater pH. pH ranged between 6.30 and 6.98 in monitoring wells MW-1, MW-2, and MW-3, with the of one pH reading of 3.02 on one occasion the end of the day in MW-3. It is suspected that the anomalous pH reading was an error. The pH for the desired reaction is near neutral; however, reactions will continue to take place between pH 3 and pH 12.

The dissolved oxygen (DO) concentration in groundwater generally increased during and post ISCO injection when compared with the pre ISCO treatment concentration. The DO concentration usually reflects the site's organic contaminant load (the lower the DO, the greater the contaminant concentrations). One month post ISCO injections, the DO concentrations remained elevated in monitoring wells MW-1, MW-2, and MW-3. DO concentrations ranged between 5.69 and 19.99 mg/L in monitoring wells MW-1, MW-2, and MW-3.

Review of the second ISCO treatment event field monitoring data indicated that on most occasions ORP values decreased during and post ISCO injection. The ORP in

monitoring well MW-2 was negative at the beginning of the second ISCO treatment event, and ORP decreased in this well during the first two days of the event. The decrease in ORP can be attributed to the increased oxidant demand as reduced metals, minerals, natural organic material, and general chemical oxygen demand interact and utilize the injected oxidants. As the natural soil and groundwater oxidant demand is overcome with increased oxidant loading, the ORP increased and became positive. ORP ranged between -138 to 172 millivolts (mV) in monitoring wells MW-1, MW-2, and MW-3 pre second ISCO treatment event and between 64 to 233 mV in monitoring wells MW-1, MW-2, and MW-3 post second ISCO treatment event.

The conductivity of groundwater increased following injections. This increase reflects the oxidant dispersion during the injections. One month post ISCO injections, the conductivity values returned to near pre-injection levels, although still elevated, in MW-1, MW-2, and MW-3. Conductivity ranged from 3.70 to 33.3 millisiemens per centimeter (mS/cm) in monitoring wells MW-1, MW-2, and MW-3, with the of one reading of 0.0 on one occasion the end of the day in MW-3. It is suspected that the anomalous conductivity reading was an error.

Generally turbidity increased during and post ISCO injections. Turbidity ranged from 19.3 to 999 nephelometric turbidity unit (NTU) in monitoring wells MW-1, MW-2, and MW-3.

6.1.3 Groundwater Analytical Results

A summary of the current and historical groundwater sampling from monitoring wells at the site, including the chemicals of concern (COCs) (i.e., benzene and total petroleum hydrocarbons) and TDS in groundwater at the site, is presented in Tables 4. The field notes related to the groundwater monitoring activities are included in Appendix C. The laboratory analytical reports and chain-of-custody documents are included in Appendix E.

6.1.3.1 Chemicals of Concern in Groundwater

The following section presents a summary of the groundwater COC results, including percentage reduction, in monitoring wells MW-1, MW-2, and MW-3 at the site. Table 4 presets the COCs in groundwater at the site.

MW-1

TPHg in groundwater monitoring well MW-1 was detected at a concentration of 2,900 µg/L during the December 2008 sampling event (baseline), at a concentration of 3,300 µg/L during the January 2009 sampling event, at a concentration of 7,770 µg/L during the March 2009 sampling event, at a concentration of 2,900 µg/L during the May 2009 sampling event (pre second ISCO treatment event), and at a concentration of 870 µg/L during the June 2009 sampling event (one month post second ISCO treatment event). This represents an decrease of 70% when comparing the post second ISCO treatment event to the baseline results. The TPHg concentrations initially increased (January and March 2009) due to desorption, then finally decreased due to destruction. Currently, the post second ISCO treatment event TPHg concentration is above its ESL of 210 µg/L.

Benzene in groundwater monitoring well MW-1 was detected at a concentration of 295 µg/L during the December 2008 sampling event (baseline), at a concentration of 380 µg/L during the January 2009 sampling event, at a concentration of 488 µg/L during the March 2009 sampling event, at a concentration of 340 µg/L during the May 2009 sampling event (pre second ISCO treatment event), and at a concentration of 99 µg/L during the June 2009 sampling event (one month post second ISCO treatment event). This represents an decrease of 64% when comparing the post second ISCO treatment event to the baseline results. The benzene concentrations initially increased (January and March 2009) due to desorption, then finally decreased due to destruction. Currently, the post second ISCO treatment event benzene concentration is above its ESL of 46 µg/L.

Ethylbenzene in groundwater monitoring well MW-1 was detected at a concentration of 137 µg/L during the December 2008 sampling event (baseline), at a concentration of 91 µg/L during the January 2009 sampling event, at a concentration of 235 µg/L during the March 2009 sampling event, at a concentration of 79 µg/L during the May 2009 sampling event (pre second ISCO treatment event), and at a concentration of 33 µg/L

during the June 2009 sampling event (one month post second ISCO treatment event). This represents an decrease of 76% when comparing the post second ISCO treatment event to the baseline results. The ethylbenzene concentrations initially increased (March 2009) due to desorption, then finally decreased due to destruction. Currently, the post second ISCO treatment event ethylbenzene concentration is below its ESL of 43 µg/L.

Toluene in groundwater monitoring well MW-1 was detected at a concentration of 27.1 µg/L during the December 2008 sampling event (baseline), at a concentration of 84 µg/L during the January 2009 sampling event, at a concentration of 144 µg/L during the March 2009 sampling event, at a concentration of 50 µg/L during the May 2009 sampling event (pre second ISCO treatment event), and at a concentration of 15 µg/L during the June 2009 sampling event (one month post second ISCO treatment event). This represents an decrease of 45% when comparing the post second ISCO treatment event to the baseline results. The toluene concentrations initially increased (March 2009) due to desorption, then finally decreased due to destruction. Currently, the post second ISCO treatment event toluene concentration is below its ESL of 130 µg/L.

Total xylenes in groundwater monitoring well MW-1 was detected at a concentration of 218 µg/L during the December 2008 sampling event (baseline), at a concentration of 174 µg/L during the January 2009 sampling event, at a concentration of 455 µg/L during the March 2009 sampling event, at a concentration of 62 µg/L during the May 2009 sampling event (pre second ISCO treatment event), and at a concentration of 34 µg/L during the June 2009 sampling event (one month post second ISCO treatment event). This represents an decrease of 84% when comparing the post second ISCO treatment event to the baseline results. The total xylenes concentrations initially increased (March 2009) due to desorption, then finally decreased due to destruction. Currently, the post second ISCO treatment event total xylenes concentration is below its ESL of 100 µg/L.

TPHd in groundwater monitoring well MW-1 was detected at a concentration of 484 µg/L during the December 2008 sampling event (baseline), at a concentration of 264 µg/L during the January 2009 sampling event, at a concentration of 504 µg/L during the March 2009 sampling event, and at a concentration of 152 µg/L during the May 2009 sampling event (pre second ISCO treatment event). TPHd was below the laboratory reporting limits during the June 2009 sampling event (one month post second ISCO

treatment event). This represents a decrease of greater than 79% when comparing the post second ISCO treatment event to the baseline results. TPHd concentrations initially increased (March 2009) due to desorption, then finally decreased due to destruction. Currently, the post second ISCO treatment event TPHd concentration is below its ESL of 210 µg/L.

Other VOCs analyzed for during the May and June 2009 sampling events in groundwater monitoring well MW-1 were below the laboratory reporting limits or, if detected, below their respective ESLs, if established.

MW-2

TPHg in groundwater monitoring well MW-2 was detected at a concentration of 53,000 µg/L during the December 2008 sampling event (baseline), at a concentration of 35,000 µg/L during the January 2009 sampling event, at a concentration of 40,000 µg/L during the March 2009 sampling event, at a concentration of 31,000 µg/L during the May 2009 sampling event (pre second ISCO treatment event), and at a concentration of 20,000 µg/L during the June 2009 sampling event (one month post second ISCO treatment event). This represents a decrease of 62% when comparing the post second ISCO treatment event to the baseline results. The TPHg concentrations initially decreased (January 2009), then increased (March 2009) due to desorption, then finally decreased due to destruction. Currently, the post second ISCO treatment event TPHg concentration is above its ESL of 210 µg/L.

Benzene in groundwater monitoring well MW-2 was detected at a concentration of 20,500 µg/L during the December 2008 sampling event (baseline), at a concentration of 15,300 µg/L during the January 2009 sampling event, at a concentration of 10,300 µg/L during the March 2009 sampling event, at a concentration of 10,000 µg/L during the May 2009 sampling event (pre second ISCO treatment event), and at a concentration of 7,300 µg/L during the June 2009 sampling event (one month post second ISCO treatment event). This represents an decrease of 64% when comparing the post second ISCO treatment event to the baseline results. The benzene concentrations continued to decrease since December 2008 sampling event (baseline). Currently, the post second ISCO treatment event benzene concentration is above its ESL of 46 µg/L.

Ethylbenzene in groundwater monitoring well MW-2 was detected at a concentration of 1,240 µg/L during the December 2008 sampling event (baseline), at a concentration of 1,030 µg/L during the January 2009 sampling event, at a concentration of 1,050 µg/L during the March 2009 sampling event, at a concentration of 1,100 µg/L during the May 2009 sampling event (pre second ISCO treatment event), and at a concentration of 400 µg/L during the June 2009 sampling event (one month post second ISCO treatment event). This represents an decrease of 68% when comparing the post second ISCO treatment event to the baseline results. The ethylbenzene concentrations continued to decrease since December 2008 sampling event (baseline). Currently, the post second ISCO treatment event ethylbenzene concentration is above its ESL of 43 µg/L.

Toluene in groundwater monitoring well MW-2 was below the laboratory reporting limit during December 2008 sampling event (baseline) and during the June 2009 sampling event (one month post second ISCO treatment event), and at a concentration of 92 µg/L during the May 2009 sampling event (pre second ISCO treatment event). When detected, the toluene concentration in MW-2 was below its ESL of 130 µg/L.

Total xylenes in groundwater monitoring well MW-2 was detected at a concentration of 1,180 µg/L during the December 2008 sampling event (baseline), at a concentration of 1,050 µg/L during the January 2009 sampling event, at a concentration of 980 µg/L during the March 2009 sampling event, at a concentration of 730 µg/L during the May 2009 sampling event (pre second ISCO treatment event), and at a concentration of 330 µg/L during the June 2009 sampling event (one month post second ISCO treatment event). This represents an decrease of 72% when comparing the post second ISCO treatment event to the baseline results. The total xylenes concentrations continued to decrease since December 2008 sampling event (baseline). Currently, the post second ISCO treatment event total xylenes concentration is above its ESL of 100 µg/L.

TPHd in groundwater monitoring well MW-2 was detected at a concentration of 965 µg/L during the December 2008 sampling event (baseline), at a concentration of 2,500 µg/L during the January 2009 sampling event, at a concentration of 862 µg/L during the March 2009 sampling event, at a concentration of 2,670 µg/L during the May 2009 sampling event (pre second ISCO treatment event), and at a concentration of 675 µg/L during the June 2009 sampling event (one month post second ISCO treatment event). This represents a decrease of 30% when comparing the post second ISCO treatment

event to the baseline results. TPHd concentrations fluctuated (January, March and May 2009) due to desorption, then finally decreased due to destruction. The current concentration is about 82% lower than the peak concentration of TPHd (3,770 µg/L) in December 2007. Currently, the post second ISCO treatment event TPHd concentration is above its ESL of 210 µg/L.

Other VOCs analyzed for during the May and June 2009 sampling events in groundwater monitoring well MW-2 were below the laboratory reporting limits or, if detected, below their respective ESLs, if established.

MW-3

TPHd, TPHg, BTEX and other VOCs analyzed for were below the laboratory reporting limits in groundwater monitoring well MW-3 during December 2008 sampling event (baseline), during the May 2009 sampling event (pre second ISCO treatment event), and during the June 2009 sampling event (one month post second ISCO treatment event).

6.2 DISCUSSION OF OTHER ISCO DESIGN PARAMETERS

A total of 60 injection screens (30 upper screens and 30 lower screens) were used to deliver reagent into the subsurface across the treatment area. A total of 34 injection screens (15 upper and 19 lower) received the target reagent quantities; 75 gallons of reagent (oxidizer and catalyst) at each screening depth for each injection location. The remaining 26 injection screens did not receive the target reagent volumes due to surfacing during injection activities at 24 screens or proximity to prior surfacing. Of the 24 screens that surfaced, 12 surfaced at one distinct point near injection location 2I-08. The screens that experienced surfacing received between 0 and 75 gallons of reagent. Pressures at the wellheads of the 60 injection screens ranged from 0 to 75 psi and the injection rates ranged from 2.4 to 3.1 gpm during injection activities. A total of 3,930 gallons of ISCO reagent (1,719 gallons of 12 % H_2O_2 reagent and 2,211 gallons of Fe catalyst) was injected through 60 injection screens during the second injection event.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

The objective of the ISCO remediation program using ISOTEC's modified Fenton's based oxidation process was to reduce the soil and groundwater concentrations to below specific project goals.

The effectiveness of the ISCO can be evaluated by:

- Reduction in contaminant concentrations (benzene and TPHg, the cleanup drivers) in treatment area saturated soils and/or
- Changes in dissolved phase contaminant concentrations within treatment area monitoring wells.

As explained in the Mass Phase Changes section (Section 4.2), the ISCO process liberates contaminant mass within the adsorbed phase (saturated soil) and transfers this mass to the dissolved phase for oxidation. This phenomenon is clearly illustrated by comparing the baseline and post second ISCO treatment saturated soil and groundwater results.

Benzene and TPHg concentrations were reduced in saturated soil. Based on the adsorbed phase concentration reductions, the selected ISCO treatment process was effective at removing through desorption contaminant mass from the soil. The soil samples collected and analyzed currently meet the project goals, except at one soil sampling location (2PS-2/2PS-2A) where concentrations detected post second ISCO treatment still exceed the ESL values for the COCs due to possible isolated pockets of residual COCs.

Reductions in the dissolved phase concentrations are dependent on the amount of mass in the adsorbed phase. As evident by the large reduction in saturated soil contamination concentrations, a significant adsorbed mass was transferred into the dissolved phase during the ISCO treatment. As a result, a small portion of that mass

may remain untreated in the dissolved phase following the second ISCO treatment event.

Dissolved phase concentrations were observed to both increase and decrease in monitoring well MW-1 and MW-2. Dissolved concentration fluctuations are a good indication that the selected ISCO treatment process is working. Review of the dissolved phase concentrations further indicates that the selected ISCO treatment process has been successful in reducing dissolved contaminant concentrations in the treatment area monitoring wells. Overall, the dissolved phase concentration of benzene was reduced by approximately 64% as shown by groundwater monitoring results in wells MW-1 and MW-2. The dissolved phase concentration of TPHg was reduced by approximately 62% to 70% as shown by groundwater monitoring results in wells MW-1 and MW-2.

Consistent and permanent reductions in dissolved concentrations will only occur following complete adsorbed contaminant mass removal and a period of equilibration. Equilibration allows dissolved concentrations to reduce naturally over time due to readsorption, dispersion, dilution, and degradation until final dissolved concentration is reached.

This phenomenon appears to be supported when comparing the pre-first ISCO treatment (baseline) TPHg dissolved concentrations to the post ISCO treatments concentrations at MW-2 (Table 4). Specifically, the dissolved TPHg concentration at MW-2 was reduced from a baseline concentration of 53,000 µg/L to 35,000 µg/L following the first injection event. After two months with no injection activities, the dissolved TPHg concentration at MW-2 increased to 40,000 µg/L. However, after allowing the groundwater to continue to equilibrate for an additional two months without any injection activities, the dissolved TPHg concentration at MW-2 reduced to 31,000 µg/L. The TPHg concentration further decreased to 20,000 µg/L after the second ISCO treatment event. The TPHg concentration is further expected to decrease.

The selected ISCO treatment process was very effective at reducing contaminant mass after two applications. This suggests that the quantity of reagent injected and the reagent concentrations were sufficient to achieve significant mass reduction; and that the reagent distribution radius generated by the injection flow rates and pressures were sufficient to distribute reagent across the treatment area.

7.2 RECOMMENDATIONS

As indicated in the report titled "Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks (LUFTs)" issued by the Lawrence Livermore National Laboratory (LLNL) in October 1995 (LLNL 1995), bioremediation of petroleum is an important factor in stabilizing plumes and may be the only remedial activity necessary in the absence of free product. The LLNL report also found that petroleum plumes tend to stabilize close to the source, generally occur in shallow groundwater and rarely impact drinking water wells in the state. Based on LLNL report, the RWQCB's issued in 1996 an Interim Guidance Document (RWQCB 1996) which provides supplemental instructions to the San Francisco Bay Area Agencies Overseeing UST Cleanup. The RWQCB's Interim Guidance Document summarizes strategies for closing low risk soil only cases, and closing and/or managing low risk groundwater impact cases utilizing natural/passive bioremediation as the preferred remedial alternative. Base on the RWQCB's Interim Guidance Document, San Francisco Bay Area Agencies overseeing UST cleanup could close low risk groundwater impact cases if:

1. The leak has been stopped and ongoing sources have been removed or remediated;
2. The site has been adequately characterized;
3. Groundwater sampling has been performed for a minimum of four consecutive quarters to monitor the variation and seasonal trend of groundwater quality and demonstrate the stability of a relatively low concentration plume. The dissolved plume is not migrating;
4. No water wells, deeper drinking water aquifers, surface water, or other sensitive receptors are likely to be impacted;
5. The site presents no significant risk to human health;
6. The site presents no significant risk to the environment.

Therefore, Kleinfelder recommends that the site is deemed appropriate for regulatory closure or No Further Action (NFA) as a low risk groundwater case based on the following facts:

- The primary sources (USTs) for the groundwater impacts were removed from the site in 2005 (Kleinfelder 2005).
- Some secondary sources (impacted soil) were removed during the UST removal. Furthermore, given the effectiveness of ISCO treatment at the site as demonstrated during the two ISCO treatment events, the COC mass removal has achieved, nearly achieved or will continue to achieve objectives.
- As discussed in previous environmental reports for the site by Kleinfelder, the pre ISCO treatment horizontal extent of the hydrocarbon plume was limited to a distance about 100 feet or less from the former UST and the plume is stable with no evidence of offsite migration (Kleinfelder 2006a, 2007a, 2008b).
- Quarterly groundwater monitoring performed at the site for four consecutive quarters since March 2007 has demonstrated that the COCs have naturally attenuated and have reached, nearly reached or will continue to reach the site objectives (ESLs). Groundwater COC concentrations will continue to decrease over time as equilibration allows dissolved COC concentrations to reduce naturally due to readsorption, dispersion, dilution and degradation. In addition, the natural attenuation processes would be reinstated as equilibrium post ISCO treatments is attained and should be adequate to reduce any residual mass of petroleum hydrocarbons in the future.
- No sensitive receptors have been found in the immediate vicinity of the site nor have any been impacted (Kleinfelder 2007a).
- The groundwater has been found to be brackish and not suitable for drinking water by RWQCB policy (Kleinfelder 2008a).
- Drinking water at the site and neighboring property is obtained from the East Bay Municipal Utility District (EBMUD).
- No significant vapor intrusion has been detected nor is significant vapor intrusion likely to be occurring given the low permeability of the clays present in the subsurface (Kleinfelder 2007a).
- Potential receptors were not identified down gradient of the site.

For the reasons stated above, Kleinfelder recommends NFA at the site, as a low risk groundwater case, and requests regulatory case closure.

8.0 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in Alameda County, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. It should be recognized that remediation is a trial and enhancement process where future activities are directed based on performance monitoring of previous steps. Regulations and professional standards applicable to Kleinfelder's services are continually evolving. Techniques are, by necessity, often new and relatively untried. Different professionals may reasonably adopt different approaches to similar problems. As such, our services are intended to provide EOP with a source of professional advice, opinions and recommendations based on a limited number of field observations and tests, collected and performed in accordance with the generally accepted practice that exists at the time, and may depend on, and be qualified by, information gathered previously by others and provided to Kleinfelder by EOP. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that EOP has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. EOP is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. EOP is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

This report may be used only by EOP and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report. Non-commercial, educational, and scientific use of this report by regulatory agencies is regarded as a “fair use” and not a violation of copyright. Regulatory agencies may make additional copies of this document for internal use. Copies may also be made available to the public as required by law. Any reprint must acknowledge the copyright and indicate that permission to reprint has been received. Non-compliance with any of these requirements by the client or anyone else, unless specifically agreed to in advance by Kleinfelder in writing, will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party, and client agrees to defend, indemnify, and hold harmless Kleinfelder from any claim or liability associated with such unauthorized use or non-compliance.

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TABLES

Table 1
ISCO Reagent Injection Volumes
EOP - 700 Independent Road, Oakland, California

Injection ID	Date	Injection Interval (feet bgs)		Injection Volume (gal)					
		Upper Screen	Lower Screen	Upper Screen			Lower Screen		
				12% H_2O_2	Fe Catalyst	Total Reagent	12 % H_2O_2	Fe Catalyst	Total Reagent
Pilot Test Event (First ISCO Treatment Event)									
1I-01	12/11/2008	9-17	17-25	0	50	50	0	50	50
1I-02	12/10/2008	9-17	17-25	10	100	110	100	100	200
1I-03	12/12/2008	9-17	17-25	18	0	18	15	50	65
1I-04	12/9/2008	9-17	17-25	45	150	195	15	150	165
1I-05	12/11/2008	12-20	20-28	185	100	285	85	80	165
1I-06	12/10/2008	9-17	17-25	25	150	175	105	150	255
1I-07	12/12/2008	9-17	17-25	95	50	145	100	100	200
1I-08	12/9/2008	9-17	17-25	150	150	300	150	150	300
1I-09	12/11/2008	9-17	17-25	100	100	200	100	100	200
1I-10	12/10/2008	9-17	17-25	100	100	200	100	100	200
1I-11	12/9/2008	9-17	17-25	150	150	300	150	150	300
1I-12	12/11/2008	9-17	17-25	50	50	100	95	100	195
1I-13	12/12/2008	9-17	17-25	3	0	3	20	50	70
Total				931	1,150	2,081	1,035	1,330	2,365
Total Reagent Volume Injected - Pilot Test Event (gal)									**4,446**
Second ISCO Treatment Event									
2I-01	5/29/2009	9-17	17-25	8	35	43	40	40	80
2I-02	5/27/2009	9-17	17-25	35	35	70	40	40	80
2I-03	5/28/2009	9-17	17-25	0	3	3	40	40	80
2I-03	5/29/2009	9-17	17-25	0	10	10	---	---	---
2I-04	6/3/2009	9-17	17-25	10	35	45	40	40	80
2I-05	6/2/2009	9-17	17-25	0	15	15	20	40	60

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Injection ID	Date	Injection Interval (feet bgs)		Injection Volume (gal)					
		Upper Screen	Lower Screen	Upper Screen			Lower Screen		
				12% H_2O_2	Fe Catalyst	Total Reagent	12 % H_2O_2	Fe Catalyst	Total Reagent
Second ISCO Treatment Event (continuation)									
2I-06	5/27/2009	9-17	17-25	25	35	60	25	40	65
2I-07	5/29/2009	9-17	17-25	0	20	20	30	40	70
2I-08	6/4/2009	9-17	17-25	5	0	5	14	40	54
2I-09	5/27/2009	9-17	17-25	0	35	35	0	40	40
2I-09	5/28/2009	9-17	17-25	20	35	55	22	40	62
2I-10	5/29/2009	12-20	20-28	35	35	70	40	40	80
2I-11	6/2/2009	9-17	17-25	35	35	70	40	40	80
2I-12	5/28/2009	9-17	17-25	35	35	70	40	40	80
2I-13	6/2/2009	9-17	17-25	30	35	65	26	40	66
2I-14	6/3/2009	9-17	17-25	0	0	0	80	80	160
2I-15	6/2/2009	12-20	20-28	35	35	70	40	40	80
2I-16	5/28/2009	12-20	20-28	35	35	70	40	40	80
2I-17	5/29/2009	9-17	17-25	35	35	70	40	40	80
2I-18	6/3/2009	9-17	17-25	0	35	35	26	40	66
2I-19	6/4/2009	9-17	17-25	0	0	0	10	12	22
2I-20	5/27/2009	9-17	17-25	35	35	70	40	40	80
2I-21	5/28/2009	12-20	20-28	35	35	70	40	40	80
2I-22	6/2/2009	12-20	20-28	35	35	70	15	40	55
2I-23	5/29/2009	12-20	20-28	35	35	70	5	40	45
2I-24	6/4/2009	12-20	20-28	35	35	70	50	80	130
2I-25	6/3/2009	12-20	20-28	35	35	70	40	40	80
2I-26	5/28/2009	12-20	20-28	0	35	35	35	40	75
2I-27	6/2/2009	12-20	20-28	35	35	70	40	40	80
2I-28	5/29/2009	12-20	20-28	35	35	70	40	40	80
2I-29	6/3/2009	12-20	20-28	0	24	24	40	40	80

Table 1
ISCO Reagent Injection Volumes
EOP - 700 Independent Road, Oakland, California

Injection ID	Date	Injection Interval (feet bgs)		Injection Volume (gal)					
		Upper Screen	Lower Screen	Upper Screen			Lower Screen		
				12% H_2O_2	Fe Catalyst	Total Reagent	12 % H_2O_2	Fe Catalyst	Total Reagent
Second ISCO Treatment Event (continuation)									
2I-30	6/3/2009	12-20	20-28	18	35	53	40	40	80
2I-30	6/4/2009	12-20	20-28	---	---	---	40	7	47
Total				641	912	1,553	1,078	1,299	2,377
Total Reagent Volume Injected - Second ISCO Treatment Event (gal)									**3,930**
Project Summary [1]									
Total				1,572	2,062	3,634	2,113	2,629	4,742
Total Reagent Volume Injected at the Site (gal)									**8,376**

Notes/Acronyms:

---	not injected
bgs	below ground surface
gal	gallons
H_2O_2	Hydrogen Peroxide
Fe	Iron

[1] Includes the cummulative injection volumes for all ISCO injection events to date (pilot test event and second ISCO treatment event)

Table 2
Second ISCO Treatment Sampling Schedule and Analyses
EOP - 700 Independent Road, Oakland, California

Analyte	Method	Scheduled Sampling	2PS-1/2PS-1A (approximately 10 and 20 feet bgs)	2PS-2/2PS-2A (approximately 5, 10, 15, 20 feet bgs)	2PS-2/2PS-2A (approximately 10 and 20 feet bgs)	MW-1	MW-2	MW-3
pH, DO, ORP, temperature, conductivity, turbidity	field measurement	prior second ISCO treatment				1	1	1
		Injection day 1 (start of day)				1	1	1
		Injection day 1 (end of day)				1	1	1
		Injection day 2 (start of day)				1	1	1
		Injection day 2 (end of day)				1	1	1
		Injection day 3 (start of day)				1	1	1
		Injection day 3 (end of day)				1	1	1
		Injection day 4 (start of day)				1	1	1
		Injection day 4 (end of day)				1	1	1
		Injection day 5 (start of day)				1	1	1
		Injection day 5 (end of day)				1	1	1
		Injection day 6 (start of day)				1	1	1
		Injection day 6 (end of day)				1	1	1
		one month post second ISCO treatment				1	1	1
TPHd	EPA 8015M	prior second ISCO treatment	2	4	2	1	1	1
		one month post second ISCO treatment	2	4	2	1	1	1
TPHg	EPA 8021B	prior second ISCO treatment	2	4	2	1	1	1
		one month post injection	2	4	2	1	1	1
BTEX	EPA 8015M	prior second ISCO treatment	2	4	2	1	1	1
		one month post second ISCO treatment	2	4	2	1	1	1

Notes:
PS - point of sampling
MW- monitoring well
DO - dissolved oxygen
ORP - oxidation-reduction potential
TDS - total dissolved solids
TOC - total organic carbon
BTEX - benzene, toluene, ethylbenzene, and xylenes
TPHd - total petroleum hydrocarbons as diesel
TPHg - total petroleum hydrocarbons as gasoline
bgs - below ground surface

Table 3
Total Petroleum Hydrocarbons and Volatile Organics in Soil
EOP - 700 Independent Road, Oakland, California

Sample Location / Sample ID / Date Sampled	ESL: Commercial/ Industrial (Shallow Soil)*	ESL: Commercial/ Industrial (Deep Soil)**	Pilot Test Event (First ISCO Treatment Event)							
			PS-1/PS-1A				PS-2/PS-2A			
			PS-1-8 (Shallow Soil)*	PS-1A-10 (Shallow Soil)*	PS-1-20 (Deep Soil)**	PS-1A-20 (Deep Soil)**	PS-2-16 (Deep Soil)**	PS-2A-10 (Shallow Soil)*	PS-2-19 (Deep Soil)**	PS-2A-20 (Deep Soil)**
			12/1/2008	1/12/2009	12/1/2008	1/12/2009	12/1/2008	1/12/2009	12/1/2008	1/12/2009
TPHd	180	180	<2.00	<2.00	<2.00	<2.00	78.1 a	16.1 b	143 a	<2.00
TPHg	**180**	**180**	**330 a**	<0.100	<0.100	0.120 a	**1,500**	**260 bc**	430	10 b
Benzene	**0.27**	**2**	<1	<0.001	<0.001	<0.001	**16**	**2.2**	**2.5**	0.16
Ethylbenzene	4.7	**4.7**	<1	<0.001	<0.001	<0.001	**46**	4.5	5.6	0.64
Toluene	9.3	9.3	<1	<0.001	<0.001	<0.001	<10	<1	1.0	<0.050
Xylenes, total	11	**11**	<1.5	<0.0015	<0.0015	<0.0015	**40**	4.1	9.4	0.80

Sample Location / Sample ID / Date Sampled	ESL: Commercial/ Industrial (Shallow Soil)*	ESL: Commercial/ Industrial (Deep Soil)**	Second ISCO Treatment Event															
			2PS-1/2PS-1A				2PS-2/2PS-2A								2PS-3/2PS-3A			
			2PS-1-10 (Shallow Soil)*	2PS-1A-10 (Shallow Soil)*	2PS-1-20 (Deep Soil)**	2PS-1A-20 (Deep Soil)**	2PS-2-7 (Shallow Soil)*	2PS-2A-7 (Shallow Soil)*	2PS-2-11 (Deep Soil)**	2PS-2A-11 (Deep Soil)**	2PS-2-15 (Deep Soil)**	2PS-2A-15 (Deep Soil)**	2PS-2-20 (Deep Soil)**	2PS-2A-20 (Deep Soil)**	2PS-3-10 (Shallow Soil)*	2PS-3A-10 (Shallow Soil)*	2PS-3-21 (Deep Soil)**	2PS-3A-21 (Deep Soil)**
			5/26/2009	6/29/2009	5/26/2009	6/29/2009	5/26/2009	6/29/2009	5/26/2009	6/29/2009	5/26/2009	6/29/2009	5/26/2009	6/29/2009	5/26/2009	6/29/2009	5/26/2009	6/29/2009
TPHd	180	**180**	<2.0	<2.0	<2.0	<2.0	23.7d	15.2d	9.16d	129d	51.7d	**264d**	**206d**	11.7d	<2.0	3.45d	5.49d	18.7d
TPHg	**180**	**180**	<0.1	<0.1	<0.1	<0.1	**1,200ab**	**190ab**	53ab	**750ab**	**1,700ab**	180ab	**3,000ab**	**250ab**	8.2ab	37ab	64ab	170ab
Benzene	**0.27**	**2**	<0.01	<0.01	<0.01	<0.01	**3.1**	**3**	0.88	<1	**3.6**	<1	**12**	<1	0.16	<1	<1	<1
Ethylbenzene	**4.7**	**4.7**	<0.01	<0.01	<0.01	<0.01	**8.6**	<1	0.75	<1	**7.4**	<1	**45**	<1	0.094	<1	1.5	<1
Toluene	9.3	**9.3**	<0.01	<0.01	<0.01	<0.01	2.8	1.2	<0.050	<1	<1	<1	**54**	5.9	<0.05	<1	<1	2.6
Xylenes, total	**11**	**11**	<0.015	<0.015	<0.015	<0.015	**19**	4.7	0.31	**12**	8.8	3.1	**180**	**44**	<0.075	<1.5	2.1	8.4

Notes:
All results in milligrams per kilogram (mg/kg). Values in bold exceed corresponding ESLs.
a - Sample chromatogram does not resemble gasoline standard pattern.
b - Although TPH as Gasoline are present, reported value is significantly elevated due to the presence of heavy end hydrocarbons within C5-C12 quantitation range for Gasoline (possibly aged gasoline or carry over from fuel heavier than gasoline)
c - Estimated value
d - Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Lighter end hydrocarbons and hydrocarbon peaks within the diesel range quantified as diesel.
NE - Not established
NA - Not analyzed
* ESL - Environmental Screening Levels from San Francisco Regional Water Quality Control Board, Interim Final - November 2007 (revised May 2008). Lowest level reported from: Table B. Environmental Screening Levels. Shallow Soils (less or equal to 3 meters below ground surface). Groundwater IS NOT a current or potential drinking water source.
** ESL - Environmental Screening Levels from San Francisco Regional Water Quality Control Board, Interim Final - November 2007 (revised May 2008). Lowest level reported from: Table D. Environmental Screening Levels. Deep Soils (greater than 3 meters below ground surface). Groundwater IS NOT a current or potential drinking water source.
Acronyms:
TPHd - Total Petroleum Hydrocarbons as diesel
TPHg - Total Petroleum Hydrocarbons as gasoline

Table 4
Total Petroleum Hydrocarbons, Volatile Organics and Total Dissolved Solids In Groundwater
EOP - 700 Independent Road, Oakland, California

Sample Location	Date Sampled	TPHd	TPHg	Benzene	Butylbenzene (sec-)	1,2 Dichloroethane (EDC)	Ethylbenzene	Isopropylbenzene	Isopropyltoluene (4-)	Naphthalene	Propylbenzene (n-)	Toluene	Trimethylbenzene (1,2,4-)	Trimethylbenzene (1,3,5-)	Xylenes, total	Methyl tert butyl ether (MTBE)	Total Dissolved Solids (TDS)	Comments
MW-1	3/19/2007	**390a**	**3,300**	**162**	NA	<1.1	**60.2**	NA	NA	NA	NA	**205**	NA	NA	**351**	<1.1	NA	
	9/10/2007	**315a**	**1,700b**	**145**	0.9	<0.500	**72.2**	11.6	2.42	7.69	20.8	56.1	94.6	17.1	**197**	<500	NA	
	12/17/2007	186a	**1,510b**	**204**	2.41	<0.500	**78.6**	9.96	1.69	4.35	19	15.1	67	6.12	56.7	<0.500	14,000,000	
	3/28/2008	<100	**12,000**	**1,020**	NA	NA	**161**	NA	NA	NA	NA	19.1	NA	NA	60.0	<1.10	NA	
	6/11/2008	**235a**	**4,700**	**721**	<4.40	<4.40	**160**	18.9	NA	**<52.8**	<4.40	84.8	132	11.0	**126**	1.7	NA	
	12/1&2/2008	**484f**	**2,900**	**295**	<4.40	<4.40	**137**	36.7	NA	**298**	88.4	27.1	501	35.1	**218**	12	14,000,000	baseline - pre first ISCO treatment
	1/12/2009	**264f**	**3,300**	**380**	NA	NA	**91**	NA	NA	NA	NA	84	NA	NA	**174**	NA	14,000,000	1 month post first ISCO treatment
	3/12/2009	**504**	**7,700**	**488**	NA	NA	**235**	NA	NA	NA	NA	**144**	NA	NA	**455**	<4.40	NA	
	5/19/2009	152f	**2,900**	**340**	4.6	<4.4	**79**	19	<4.4	9.7	30	50	100	<4.4	62	<4.4	NA	pre second ISCO treatment
	6/30/2009	<100	**870**	**99**	NA	NA	33	NA	NA	NA	NA	15	NA	NA	34	NA	NA	1 month post second ISCO treatment
MW-2	3/19/2007	**940a**	**38,000**	**11,600**	NA	**226**	**588**	NA	NA	NA	NA	**274**	NA	NA	**2,880**	<13.2	NA	
	9/10/2007	**1690a**	**52,100b**	**15,800**	<22.0	**611**	**1,120**	69.1	<22.0	**231**	143	**552**	1,270	650	**5,420**	<22.0	NA	
	12/17/2007	**3,770a**	**30,900b**	**13,300**	<22.0	**568**	**1,350**	73	<22.0	**227**	118	**172**	1,230	352	**2,330**	<22.0	17,000,000	
	3/28/2008	**300c**	**47,000**	**12,600**	NA	NA	**619**	NA	NA	NA	NA	67.3	NA	NA	**1,040**	<22.0	NA	
	6/11/2008	**1,030a**	**31,000**	**19,700**	<44.0	**542**	**1,090**	<88.0	NA	**<528**	<44.0	81.0	154	731	**1,410**	<44.0	NA	
	12/1&2/2008	**965f**	**53,000**	**20,500**	<44.0	**468**	**1,240**	<88.0	NA	**196**	125	<44.0	1,200	66.9	**1,180**	<44.0	17,000,000	baseline - pre first ISCO treatment
	1/12/2009	**2,500f**	**35,000**	**15,300**	NA	NA	**1,030**	NA	NA	NA	NA	62.5	NA	NA	**1,050**	NA	13,000,000	1 month post first ISCO treatment
	3/12/2009	**862**	**40,000**	**10,300**	NA	NA	**1,050**	NA	NA	NA	NA	91.5	NA	NA	**980**	<44.0	NA	
	3/12/2009 Dup	NA	**42,000**	**10,900**	NA	NA	**1,030**	NA	NA	NA	NA	95.9	NA	NA	**995**	<44.0	NA	
	5/19/2009	**2,670f**	**31,000**	**10,000**	<88	180	**1,100**	<88	<44	130	120	92	750	110	**730**	<44	NA	pre second ISCO treatment
	6/30/2009	**675f**	**20,000**	**7,300**	NA	NA	**400**	NA	NA	NA	NA	<44	NA	NA	**330**	NA	NA	1 month post second ISCO treatment
	6/30/2009 Dup	**624f**	**20,000**	**7,600**	NA	NA	**370**	NA	NA	NA	NA	<44	NA	NA	**300**	NA	NA	
MW-3	3/19/2007	<100	<50	<0.500	NA	<0.500	<0.500	NA	NA	NA	NA	<0.500	NA	NA	<1.5	<0.500	NA	
	9/10/2007	<100	<50	<0.500	<0.500	<0.500	<0.500	<1.0	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<1.5	<0.500	NA	
	12/17/2007	<100	<50	<0.500	<0.500	<0.500	<0.500	<1.0	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<1.5	<0.500	8,600,000	
	3/28/2008	<100	<50	<0.500	NA	NA	<0.500	NA	NA	NA	NA	<0.500	NA	NA	<1.50	<0.500	NA	
	6/11/2008	<100	<50	<0.50	<0.50	<0.50	<0.50	<1.00	NA	<6.00	<0.50	<0.50	<0.50	<0.50	<1.50	<0.50	NA	
	12/1&2/2008	<100	<50	<0.50	<0.50	<0.50	<0.50	<1.00	NA	<1.00	<0.50	<0.50	<0.50	<0.50	<1.50	<0.50	7,700,000	baseline - pre first ISCO treatment
	1/12/2009	<100	<50	<0.50	NA	NA	<0.50	NA	NA	NA	NA	<0.50	NA	NA	<1.50	NA	8,800,000	1 month post first ISCO treatment
	3/12/2009	<100	<50	<0.500	NA	NA	<0.500	NA	NA	NA	NA	<0.500	NA	NA	<1.50	<0.500	NA	
	5/19/2009	<100	<50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<1.5	<0.50	NA	pre second ISCO treatment
	6/30/2009	<100	<50	<0.50	NA	NA	<0.50	NA	NA	NA	NA	<0.50	NA	NA	<1.5	NA	NA	1 month post second ISCO treatment
MW-4	1/31/2008	< 100	56.0e	< 0.500	NA	NA	< 0.500	NA	NA	NA	NA	<0.500	NA	NA	<1.50	<0.500	NA	
	3/28/2008	<100	61d	<0.500	NA	NA	<0.500	NA	NA	NA	NA	<0.500	NA	NA	<1.50	<0.500	NA	
	6/11/2008	<100	<50	<0.50	<0.50	<0.50	<0.50	<1.00	NA	<6.00	<0.50	<0.50	<0.50	<0.50	<1.50	<0.50	NA	
	12/1&2/2008	<100	<50	<0.50	<0.50	<0.50	<0.50	<1.00	NA	<1.00	<0.50	<0.50	<0.50	<0.50	<1.50	<0.50	NA	
	3/12/2009	<100	<50	<0.500	NA	NA	<0.500	NA	NA	NA	NA	<0.500	NA	NA	<1.50	<0.500	NA	
	6/29/2009	<100	<50	<0.50	NA	NA	<0.50	NA	NA	NA	NA	<0.50	NA	NA	<1.5	NA	NA	
MW-5	1/31/2008	**544f**	55.0e	<0.500	NA	NA	<0.500	NA	NA	NA	NA	<0.500	NA	NA	< 1.50	<0.500	NA	
	3/28/2008	<100	57d	<0.500	NA	NA	<0.500	NA	NA	NA	NA	<0.500	NA	NA	<1.50	<0.500	NA	
	6/11/2008	<100	<50	<0.50	<0.50	<0.50	<0.50	<1.00	NA	<6.00	<0.50	<0.50	<0.50	<0.50	<1.50	<0.50	NA	
	12/1&2/2008	<100	<50	<0.50	<0.50	<0.50	<0.50	<1.00	NA	<1.00	<0.50	<0.50	<0.50	<0.50	<1.50	<0.50	NA	
	3/12/2009	<100	<50	<0.500	NA	NA	<0.500	NA	NA	NA	NA	<0.500	NA	NA	<1.50	<0.500	NA	
	6/30/2009	<100	<50	<0.50	NA	NA	<0.50	NA	NA	NA	NA	<0.50	NA	NA	<1.5	NA	NA	
ESL*		210	210	46	NE	200	43	NE	NE	24	NE	130	NE	NE	100	1,800	NE	

Notes:

All results in micrograms per liter (ug/l). Values in bold exceed corresponding ESLs.

a - Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Lighter end hydrocarbons and hydrocarbon peaks within the diesel range quantified as diesel.

b - Although TPH as gasoline is present, result is elevated due to the presence of non-target compounds within the gasoline quantitative range.

c - Although TPH as Gasoline constituents are present, results are elevated due to the presence of non-target compounds within range of C5-C12 quantified as Gasoline.

d - Does not match typical gasoline pattern. TPH value contains only non-target compounds within gasoline quantitative range.

e - Does not match typical gasoline pattern. Reported values are the result of presence of non-gasoline compounds within the gasoline quantitation range.

f - Sample chromatogram does not resemble typical diesel pattern. Hydrocarbons within the diesel range quantitated as diesel.

NE - Not established

NA - Not analyzed

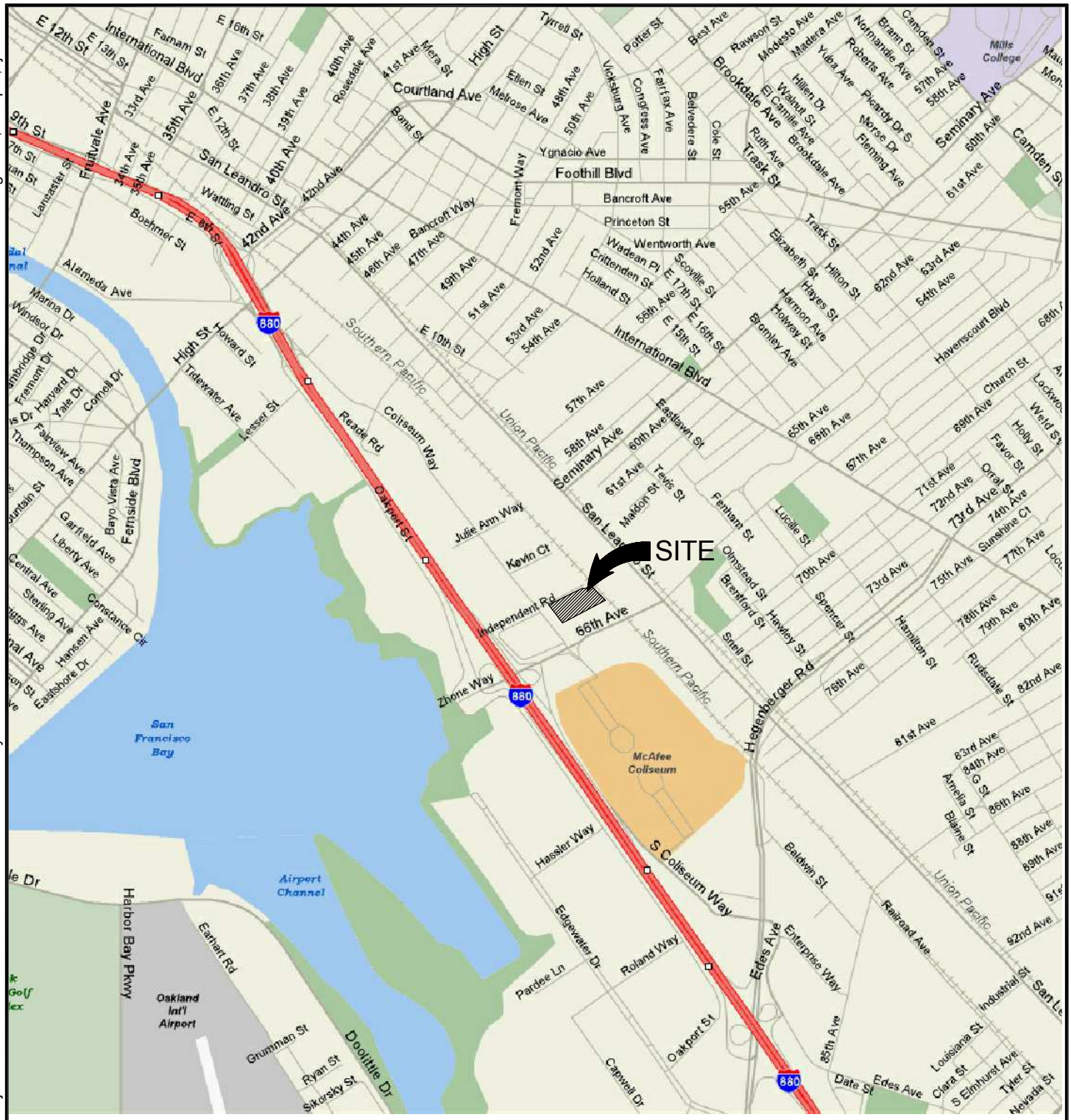
* ESL - Environmental Screening Levels from San Francisco Regional Water Quality Control Board, Interim Final - November 2007 (revised May 2008). Lowest level reported from:
Table B. Environmental Screening Levels. Groundwater IS NOT a current or potential drinking water source.

Acronyms:

TPHd - Total Petroleum Hydrocarbons as diesel

TPHg - Total Petroleum Hydrocarbons as gasoline

PLATES



N

2000 1000 0 2000

APPROXIMATE SCALE (feet)

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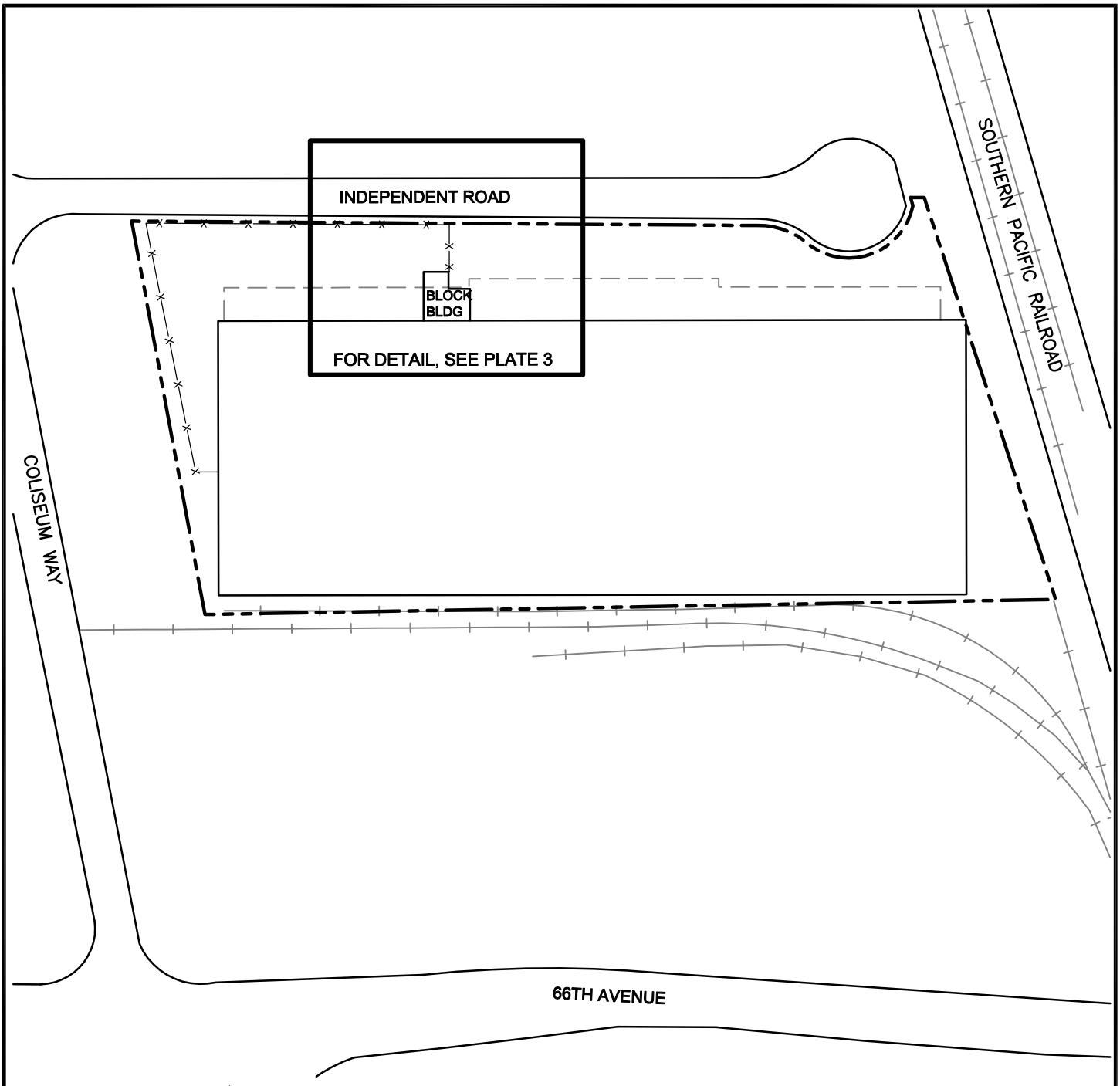
PROJECT NO.	54504
DRAWN:	AUG 2009
DRAWN BY:	JDS
CHECKED BY:	SD
FILE NAME: SITE-VIC.dwg	

SITE VICINITY MAP

700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE
1

PLOTTED: 06 Aug 2009, 5:35pm, jsala
LAYOUT: Layout1
CAD FILE: L:\2009\09Projects\54504\GRAPHICs\9-2009\
XRef: Eng-A_8x11_P StyleA
ATTACHED XREFS:
Images: VIC-MAP.jpg
ATTACHED IMAGES:
PLEASANTON, CA



LEGEND

PROPERTY BOUNDARY

FENCE LINE

LIMITS OF BUILDING OVERHANG

NOTE: Locations are approximate.

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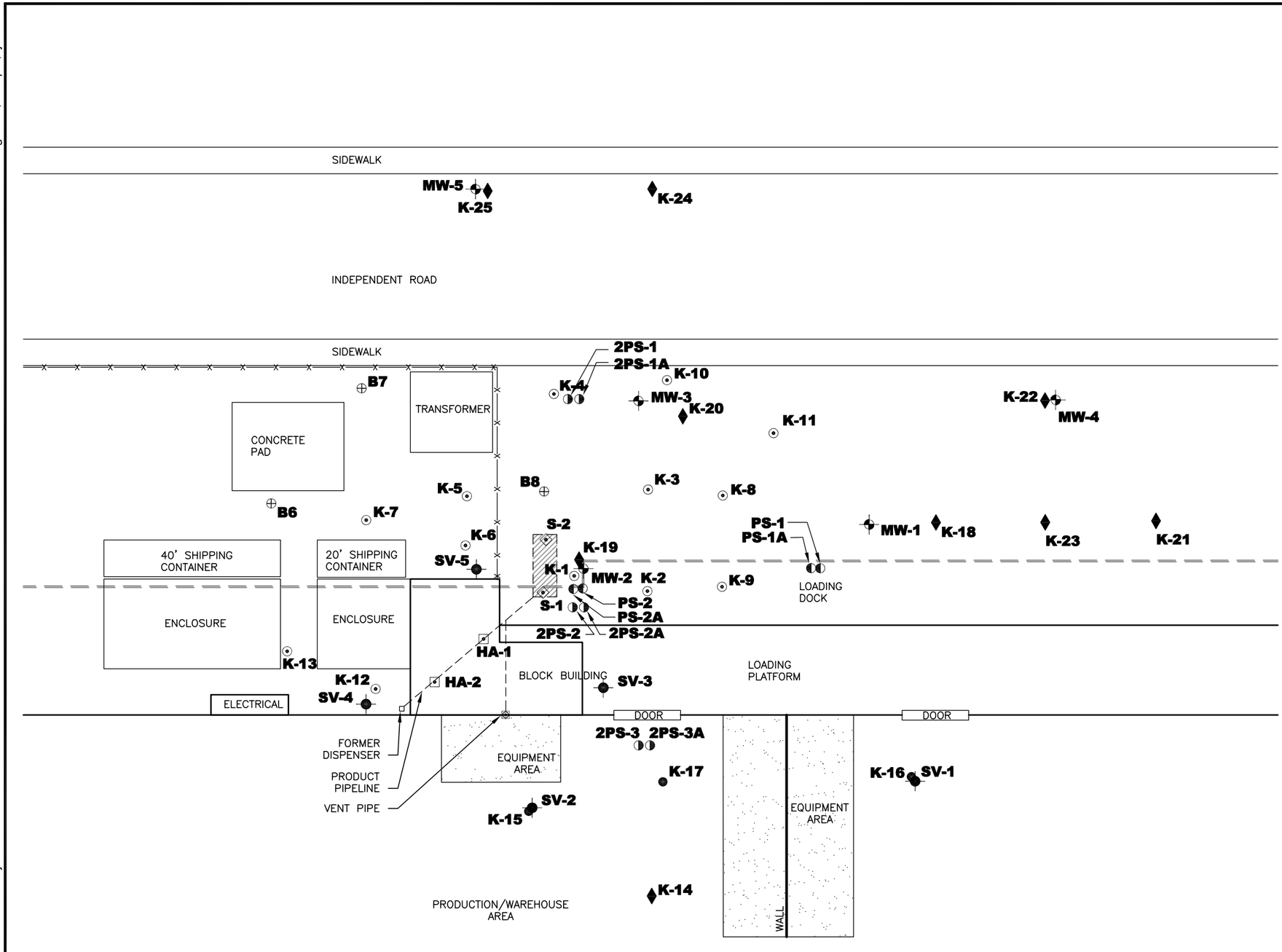
PROJECT NO.	54504
DRAWN:	AUG 2009
DRAWN BY:	JDS
CHECKED BY:	SD
FILE NAME:	SP OVERALL.dwg

SITE PLAN: OVERALL

700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE **2**

PLOTTED: 06 Aug 2009, 5:36pm, jsala
LAYOUT: PLATE 2
XRef: Eng-A_8x11_P_StyleA
CAD FILE: L:\2009\09Projects\54504\GRAPHICs\9\8-2009\
ATTACHED IMAGES:
ATTACHED XREFS:
PLEASANTON, CA



LEGEND

- ROOF OVERHANG
- FENCE
- PRODUCT PIPELINE
- FORMER UNDERGROUND STORAGE TANK
- MONITORING WELL (Kleinfelder, March 2007)
- SOIL VAPOR BORING (Kleinfelder, March 2007)
- SOIL BORING (Kleinfelder, May and June 2009)
- SOIL BORING (Kleinfelder, December 2008 and January 2009)
- SOIL BORING depth 38-45 ft (Kleinfelder, March 2007 and February 2008)
- SOIL BORING depth 24-32 ft (Kleinfelder, March 2007)
- SOIL BORING (Kleinfelder, 2006)
- SOIL BORING (Golder Associates, August 2004)
- HAND AUGER
- UST CONFIRMATION SOIL SAMPLE

NOTE:
Golder boring B8 located in the field.
Locations of Golder borings B6 and B7 are approximate.

N

25 0 25
APPROXIMATE SCALE (feet)

KLEINFELDER
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PROJECT NO.	54504
DRAWN:	AUG 2009
DRAWN BY:	JDS
CHECKED BY:	SD
FILE NAME:	Task9_P-03.dwg

SOIL BORING AND MONITORING WELL LOCATIONS

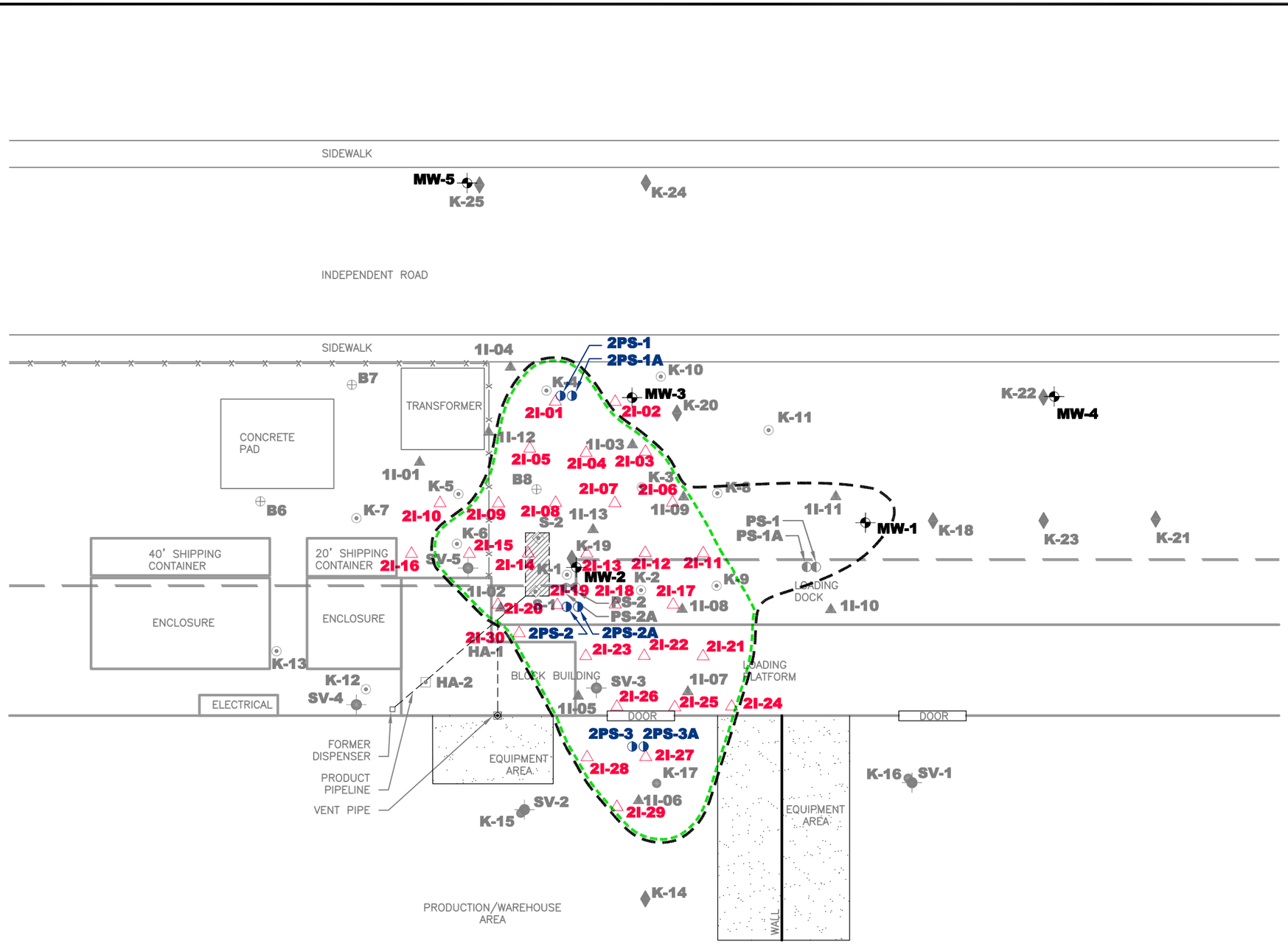
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE
3

PLOTTED: 14 Aug 2009, 3:38pm, jsala

LAYOUT: Plate 4

ATTACHED IMAGES: Images: points1.jpg
ATTACHED XREFS: XRef: SITEPLAN: XRef: Eng-B_11x17_L_StyleA
PLEASANTON, CA CAD FILE: L:\2009\09Projects\54504\GRAPHICs\9-8-2009\



LEGEND

- ROOF OVERHANG
- FENCE
- PRODUCT PIPELINE
- FORMER UNDERGROUND STORAGE TANK
- MONITORING WELL (Kleinfelder, March 2007)
- SOIL VAPOR BORING (Kleinfelder, March 2007)
- SOIL BORING (Kleinfelder, May and June 2009)
- SOIL BORING (Kleinfelder, December 2008 and January 2009)
- SOIL BORING depth 38-45 ft (Kleinfelder, March 2007 and February 2008)
- SOIL BORING depth 24-32 ft (Kleinfelder, March 2007)
- SOIL BORING (Kleinfelder, 2006)
- SOIL BORING (Golder Associates, August 2004)
- HAND AUGER
- UST CONFIRMATION SOIL SAMPLE
- IN SITU CHEMICAL OXIDATION (ISCO) INJECTION LOCATION (December 2008)
- ISCO INJECTION LOCATION (May and June 2009)
- APPROXIMATE LIMIT OF THE FIRST ISCO (PILOT TEST) TREATMENT AREA
- APPROXIMATE LIMIT OF THE SECOND ISCO TREATMENT AREA

NOTES: Locations are approximate.

N

25 0 25

APPROXIMATE SCALE (feet)

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PROJECT NO.	54504
DRAWN:	AUG 2009
DRAWN BY:	JDS
CHECKED BY:	SD
FILE NAME:	Task9_P-04.dwg

SECOND ISCO TREATMENT AREA, ISCO INJECTION LOCATIONS AND SOIL BORING SAMPLING LOCATIONS

700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE 4

APPENDIX A

ALAMEDA COUNTY PUBLIC WORKS AGENCY

DRILLING PERMIT

Alameda County Public Works Agency - Water Resources Well Permit

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

Application Approved on: 05/19/2009 By jamesy

Permit Numbers: W2009-0417
Permits Valid from 05/26/2009 to 07/02/2009

Application Id: 1242672016937 **City of Project Site:** Oakland
Site Location: 700 Independent Road
Project Start Date: 05/26/2009 **Completion Date:** 07/02/2009
Assigned Inspector: Contact John Shouldice at (510) 670-5424 or johns@acpwa.org

Applicant:	Kleinfelder - Sophia Drugan 4670 Willow Road, Suite 100, Pleasanton, CA 94588	**Phone:** 925-484-1700 x4539
Property Owner:	Francis J. Meyard, (Manager) 700 Independent Road, LP 104 Caledonia Street, Suite C, Sausalito, CA 94965	**Phone:** 415-331-3838
Client:	Equity Office Properties -Industrial Portfolio LLC 2655 Campus Drive, Suite 100, San Mateo, CA 94403	**Phone:** 650-372-3553
Contact:	Sophia Drugan	**Phone:** 925-484-1700 x4539 **Cell:** 925-766-5623

Total Due: $230.00
Receipt Number: WR2009-0183 **Total Amount Paid:** $230.00
Payer Name : Kleinfelder Pleasanton Paid By: MC **PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Investigation-Environmental/Monitorinig Study - 66 Boreholes
Driller: Fisch Drilling - Lic #: 683865 - Method: DP **Work Total: $230.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2009-0417	05/19/2009	08/24/2009	66	3.00 in.	25.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.

3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Applicant shall contact John Shouldice for an inspection time at 510-670-5424 at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

5. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

6. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

7. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

PROGRAMS AND SERVICES

Well Standards Program

The Alameda County Public Works Agency, Water Resources is located at:
399 Elmhurst Street
Hayward, CA 94544
For Driving Directions or General Info, Please Contact 510-670-5480 or wells@acpwa.org
For Drilling Permit information and process contact James Yoo at
Phone: 510-670-6633
FAX: 510-782-1939
Email: Jamesy@acpwa.org

Alameda County Public Works is the administering agency of General Ordinance Code, Chapter 6.88 . The purpose of this chapter is to provide for the regulation of groundwater wells and exploratory holes as required by California Water Code. The provisions of these laws are administered and enforced by Alameda County Public Works Agency through its Well Standards Program.

Drilling Permit Jurisdictions in Alameda County: There are four jurisdictions in Alameda County.

Location: Agency with Jurisdiction Contact Number

Berkeley City of Berkeley Ph: 510-981-7460
Fax: 510-540-5672

Fremont, Newark, Union City Alameda County Water District Ph: 510-668-4460
Fax: 510-651-1760

Pleasanton, Dublin, Livermore, Sunol Zone 7 Water Agency Ph: 925-454-5000
Fax: 510-454-5728

The Alameda County Public Works Agency, Water Resources has the responsibility and authority to issue drilling permits and to enforce the County Water Well Ordinance 73-68. This jurisdiction covers the western Alameda County area of **Oakland**, **Alameda**,**Piedmont**, **Emeryville**, **Albany**, **San Leandro**, **San Lorenzo**, **Castro Valley**, and **Hayward** . The purpose of the drilling permits are to ensure that any new well or the destruction of wells, including geotechnical investigations and environmental sampling within the above jurisdiction and within Alameda County will not cause pollution or contamination of ground water or otherwise jeopardize the health, safety or welfare of the people of Alameda County.

Permits are required for all work pertaining to wells and exploratory holes at any depth within the jurisdiction of the Well Standards Program. A completed permit application *(30 Kb)** , along with a site map, should be submitted at least **ten (10) working days prior to the planned start of work**. Submittals should be sent to the address or fax number provided on the application form. When submitting an application via fax, please use a high resolution scan to retain legibility.

Fees
Beginning April 11, 2005 , the following fees shall apply:

A permit to construct, rehabilitate, or destroy wells, including cathodic protection wells, but excluding dewatering wells (*Horizontal hillside dewatering and dewatering for construction period only), shall cost $300.00 per well.

A permit to bore exploratory holes, including temporary test wells, shall cost $200 per site. A site includes the project parcel as well as any adjoining parcels.

Please make checks payable to: **Treasurer, County of Alameda**

Permit Fees are exempt to State & Federal Projects
Applicants shall submit a letter from the agency requesting the fee exemption.

Scheduling Work/Inspections:
Alameda County Public Works Agency (ACPWA), Water Resources Section requires scheduling and inspection of permitted work. All drilling activities must be scheduled in advance. Availability of inspections will vary from week to week and will come on a first come, first served bases. To ensure inspection availability on your desired or driller scheduled date, the following procedures are required:

Please contact **James Yoo at 510-670-6633** to schedule the inspection date and time (You must have drilling permit approved prior to scheduling).

Schedule the work as far in advance as possible (at least 5 days in advance); and confirm the scheduled drilling date(s) at least 24 hours prior to drilling.

Once the work has been scheduled, an ACPWA Inspector will coordinate the inspection requirements as well as how the Inspector can be reached if they are not at the site when Inspection is required. Expect for special circumstances given, all work will require the inspection to be conducted during the working hours of 8:30am to 2:30pm., Monday to Friday, excluding holidays.

Request for Permit Extension:
Permits are only valid from the start date to the completion date as stated on the drilling permit application and Conditions of Approval. To request an extension of a drilling permit application, applicants must request in writing prior to the completion date as set forth in the Conditions of Approval of the drilling permit application. Please send fax or email to Water Resources Section, Fax 510-782-1939 or email at wells@acpwa.org. There are no additional fees for permit extensions or for re-scheduling inspection dates. You may not extend your drilling permit dates beyond 90 days from the approval date of the permit application. **NO refunds** shall be given back after 90 days and the permit shall be deemed voided.

Cancel a Drilling Permit:
Applicants may cancel a drilling permit only in writing by mail, fax or email to Water Resources Section, Fax 510-782-1939 or email at wells@acpwa.org. If you do not cancel your drilling permit application before the drilling completion date or notify in writing within 90 days, Alameda County Public Works Agency, Water Resources Section may void the permit and No refunds may be given back.

Refunds/Service Charge:
A service charge of $25.00 dollars for the first check returned and $35.00 dollars for each subsequent check returned.

Applicants who cancel a drilling permit application **before** we issue the approved permit(s), will receive a **FULL** refund (at any amount) and will be mailed back within two weeks.

Applicants who cancel a drilling permit application **after** a permit has been issued will then be charged a service fee of $50.00 (fifty Dollars).

To collect the remaining funds will be determined by the amount of the refund to be refunded (see process below).

Board of Supervisors Minute Order, File No. 9763, dated January 9, 1996, gives blanket authority to the Auditor-Controller to process claims, from all County departments for the refund of fees which do not exceed $500 (Five Hundred Dollars)(with the exception of the County Clerk whose limit is $1,500).

Refunds over the amounts must be authorized by the Board of Supervisors Minute Order, File No. 9763 require specific approval by the Board of Supervisors. The forms to request for refunds under $500.00 (Five Hundred Dollars) are available at this office or any County Offices. If the amount is exceeded, a Board letter and Minute Order must accompany the claim. Applicant shall fill out the request form and the County Fiscal department will process the request.

Enforcement
Penalty. Any person who does any work for which a permit is required by this chapter and who fails to obtain a permit shall be guilty of a misdemeanor punishable by fine not exceeding Five Hundred Dollars ($500.00) or by imprisonment not exceeding six months, or by both such fine and imprisonment, and such person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any such

violation is committed, continued, or permitted, and shall be subject to the same punishment as for the original offense. (Prior gen. code §3-160.6)

Enforcement actions will be determined by this office on a case-by-case basis
Drilling without a permit shall be the cost of the permit(s) and a fine of $500.00 (Five Hundred Dollars).

Well Completion Reports (State DWR-188 forms) must be filed with the Well Standards Program within 60 days of completing work. Staff will review the report, assign a state well number, and then forward it to the California Department of Water Resources (DWR). Drillers should not send completed reports to DWR directly. Failure to file a Well Completion Report or deliberate falsification of the information is a misdemeanor; it is also grounds for disciplinary action by the Contractors' State License Board. Also note that filed Well Completion Reports are considered private record protected by state law and can only be released to the well owner or those specifically authorized by government agencies.

See our website (www.acgov.org/pwa/wells/index.shtml) for links to additional forms.

APPENDIX B

HEALTH AND SAFETY PLAN

SITE-SPECIFIC HEALTH AND SAFETY PLAN

Project No.54503/9 **Date** May 11, 2009

Client Equity Office Properties **Address** 2655 Campus Drive, Suite 100
Industrial Portfolio, L.L.C. San Mateo, CA 94403

Site Contact James Soutter P.E. **Site Phone No.** (650) 372-3553

Job Location 700 Independent Road, Oakland, California

Work Objectives Advance three soil borings to 25 feet and sample soil using direct push (DPT) drill rig. Then sixty injection points (at 30 locations) will also be advanced to a maximum 25 feet below ground surface using a direct-push drill rig across the treatment area. The boreholes will then be chemically treated using the direct push injection points to deliver the *in situ* chemical oxidation (ISCO) reagent into the subsurface. Finally three additional soils borings will be advanced to 25 feet and sampled.

Key Individuals: **Project Manager** Charles Almestad

Site Health and Safety Nathan Berner

Prepared by William Uchiyama/Sophia Drugan **Reviewer/Approver** Charles Almestad

Hospital/Clinic Alameda County Medical Center – Highland Hospital

Phone No. (510) 437-4140

Address: 1411 E. 31st Street, Oakland, CA

Paramedic. 911 **Fire Dept.** 911 **Police Dept.** 911

Emergency/Contingency Plans: Stop work and evaluate situation and stabilize victim(s). Notify health and safety officer and site project manager. Apply first aid and/or seek medical aid as necessary. Move injured personnel only if injuries permit. If necessary call Ambulance and/or Medical Personnel to transport injured to hospital. Refer to attached maps for location of nearest medical facility site. Health and Safety Officer to notify Client and appropriate personnel of situation.

15 Minute Eyewash required **Fire Extinguisher** required **First Aid Kit** required

Site Control Measures: Do not allow unauthorized personnel into the work area. Install barricade tape to define the work zone as necessary.

Personal Decontamination Procedures: Disposable gloves will be utilized for soil and water sampling, and when in contact with the ISCO reagent. Skin that comes in contact with soil, groundwater, or reagent will be washed immediately with soap and water. Safety glasses with side shields should be worn during sampling and while the chemical injections are taking place to protect eyes. Hands and face shall be thoroughly washed prior to eating, drinking, smoking, or other hand to mouth contact and prior to leaving the site.

CHEMICAL HAZARDS

The primary chemicals of concern at the site are petroleum hydrocarbons acute/chronic health effect associated with petroleum hydrocarbons and other chemicals are listed in the table below.

Chemical Name	PEL	Expected Concentration	Health Hazards
Fuel Hydrocarbons (i.e. gasoline); TPH-gasoline	300 ppm	Soil: low-level, if any Groundwater: 10,000 ppb	Acute: Headache, nausea, dizziness, skin/eye irritation, blurred vision, abdominal pains, vertigo, diarrhea, convulsions Chronic: n/a
Total Petroleum Hydrocarbons (Diesel and other petroleum hydrocarbons): TPH-diesel	n/a	Soil: low-level, if any Groundwater: 10,000 ppb	Acute: Skin, eye, and respiratory irritation; headache, dizziness Chronic: n/a
Benzene	1 ppm	Soil: low-level, if any Groundwater: 1,000 ppb	Acute: Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis Chronic: Potential carcinogen
Toluene	200 ppm	Soil: low-level, if any Groundwater: 1,000 ppb	Acute: Irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears) Chronic: anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage
Ethylbenzene	100 ppm	Soil: low-level, if any Groundwater: 1,000 ppb	Acute: Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma Chronic: n/a

Xylenes	100 ppm	Soil: low-level, if any Groundwater: 1,000 ppb	Acute: Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis Chronic: n/a

Notes: µg/ m^3 = Micrograms per cubic meter of air.
mg/kg = milligrams per kilogram, approximately equivalent to parts per million (ppm)
n/a = Not Applicable

Respiratory Protection

The principal routes of potential exposure are inhalation and ingestion during field activities. However, at this time, Level D personal protective equipment without respiratory protection is anticipated. Kleinfelder site activities are not expected to generate significant quantities of dust. If site conditions are different or change, the need for respiratory protection will be reevaluated.

PHYSICAL HAZARDS

Physical hazards during sampling and during the chemical injections consist of accidents that can occur during handling of sharp tools and injuries resulting form trips and falls working around powered equipment. In general, these types of accidents will be minimized by the use of proper safety equipment (hard hat, safety glasses, and steel-toed boots), good communication among all on-site personnel, and being alert to potential hazards such as pinch points and splash hazards. Safety hazards associated with this site requiring specific precautions are summarized below.

PHYSICAL HAZARDS

X	Heat	X	Slip, Trip, Fall	X	Excavations/Trench
X	Cold		Electrical Hazards	X	Moving Equipment
X	Wet	X	Underground Hazards		Confined Space
X	Noise	X	Overhead Hazards		

X Other Drill Rig

PERSONAL PROTECTIVE EQUIPMENT

R = Required *A = As Needed*

R	Hard Hat	R	Safety Eye gear: glasses w/ side protection
R	Safety Boots	A	Respirator (Type): Full-face _____ Half-face A
R	Orange Vest		Filter Type: Organic vapor A Acid gas ___ HEPA __
A	Hearing Protection	R	Gloves (Type): Neoprene ___ PVC ___ Nitrile A
A	Tyvek Coveralls	R	Other Mobile phone
	5 Minute Escape Respirator		

AIR MONITORING REQUIREMENTS

In general, if air monitoring readings in workers' breathing zone exceed 5 ppm for 60 seconds or longer, upgrade to Level C (respirator, etc.) or vacate the immediate area.

	Organic Vapor Analyzer (FID)	R	PID with lamp of 10.6 eV, (in PPM)
	Oxygen Meter		Detector Tube (specify)
	Combustible Gas Meter		Passive Dosimeter
	H_2S Meter		Air Sampling Pump
	W. B. G. T.		Filter Media

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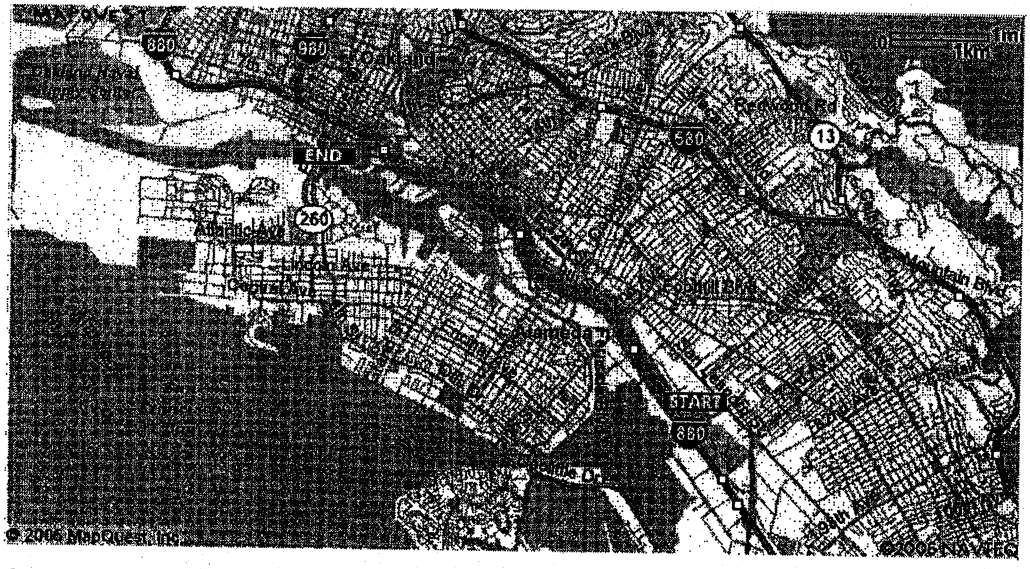
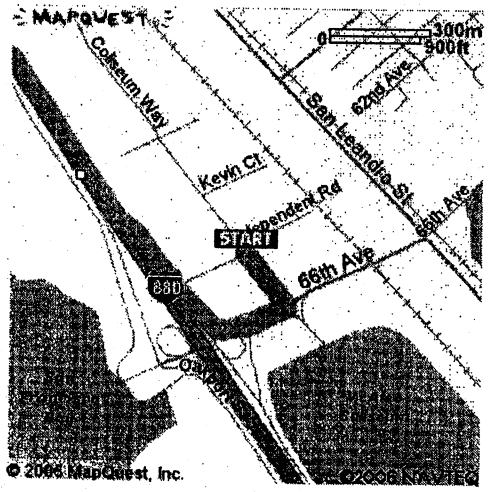
ONSITE SAFETY MEETING ATTENDEES

Signature	Name (Printed)/Title	Date

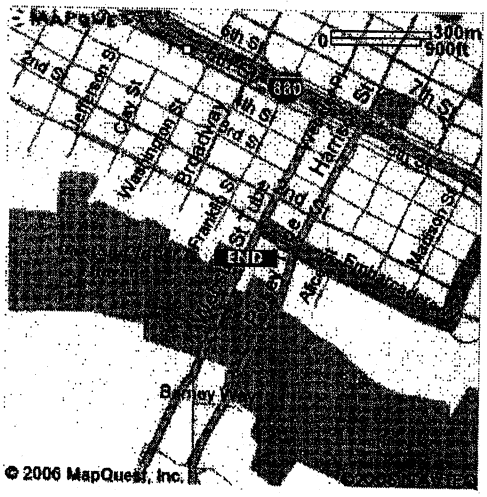
Directions		Distance
Total Est. Time: 8 minutes	**Total Est. Distance:** 5.39 miles	
START	**1:** Start out going SOUTHWEST on INDEPENDENT RD toward COLISEUM WAY.	<0.1 miles
	2: Turn LEFT onto COLISEUM WAY.	0.1 miles
	3: Turn RIGHT onto 66TH AVE.	<0.1 miles
NORTH 880	**4:** Merge onto I-880 N toward DOWNTOWN OAKLAND.	4.3 miles
EXIT	**5:** Take the OAK STREET exit toward LAKESIDE DR.	0.1 miles
	6: Turn LEFT onto OAK ST.	0.2 miles
	7: Turn RIGHT onto EMBARCADERO W.	0.3 miles
END	**8:** End at **3 Webster St** Oakland, CA 94607-3720, US	



Start:
700 Independent Rd
Oakland, CA 94621-3726, US



End:
3 Webster St
Oakland, CA 94607-3720, US



APPENDIX C

FIELD NOTES
AND BORING LOGS

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MONITORING WELL SAMPLING LOG

Date: 5/19/2009 **Well No.:** MW-1 **Sheet** 1 **of** 1

Project: 700 Independent Road

Project No.: 54504 **Completed by:** Nathan Berner **Date:** 5/19/2009

Weather

EQUIPMENT & DECONTAMINATION

Purging Eqpt: ☐ Bailer ☐ Disposable Bailer ☐ Bladder Pump ☐ Submersible Pump ☑ Peristaltic Pump ☐ Other

Sampling Eqpt ☐ Bailer ☐ Disposable Bailer ☐ Bladder Pump ☐ Submersible Pump ☑ Peristaltic Pump ☐ Other

Test Equipment	Water Level	Water Quality Meter		
Meter No.	SOLINST	Horiba U-22XD		
Calibration Date/Time				

Decontamination Methods	Wash	Rinse 1	Rinse 2	Rinse 3
☐ TSP ☐ Alconox ☐ Other	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool
Volume (gal)	N/A			
Source				
Decon. Notes				

PURGE RECORD

Purge Volume (CV)		TD	–	DTW	X	Factor	=	1 CV	3 CV	
Well Diameter	2"	25.18	–	4.68	X	0.175	=	3.69	11.07	gallon(s)
	4"					0.663				
	6"					1.469				

Well Security ☑ Good ☐ Fair ☐ Poor **Well Integrity** ☑ Good ☐ Fair ☐ Poor **Locked?** ☑ Yes ☐ No

Product? ☑ None ☐ Free ☐ Floating ☐ Sheen ☐ Film _____ **Thickness (ft)** **Odor?**

Purge Record

Reference: ☑ Top of Casing ☐ Other _____

Time	Temp (°C)	pH	Conductivity (mS/cm)	DO (mg/L)	ORP (mEV)	Turbidity (NTU)	DTW (ft)
	obs	±0.2	±3%	±10% or ±0.2	obs	obs	
1315	17.69	7.39	6.07	0.75	-254	8.3	
1325	17.59	7.3	6.07	0.6	-269	5.2	
1340	17.61	7.28	6.04	0.52	-264	3.3	
1355	17.62	7.25	6.05	0.48	-270	0	

☐ Continued on reverse

SAMPLE LOG

Sample No.	Time	Quantitiy	Volume	Type	Preserv.	Filtration	Analysis	Lab
MW-1	1400							

MISC

Other Observations:

Final Check: VOAs free of bubbles? ☑ Yes ☐ No ☐ NA Well Locked? ☑ Yes ☐ No ☐ NA

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MONITORING WELL SAMPLING LOG

Date: 5/19/2009 **Well No.:** MW-2 **Sheet** 1 **of** 1
Project: 700 Independent Road
Project No.: 54504 **Completed by:** Nathan Berner **Date:** 5/19/2009
Weather

EQUIPMENT & DECONTAMINATION

Purging Eqpt:	☐ Bailer	☐ Disposable Bailer	☐ Bladder Pump	☐ Submersible Pump	☑ Peristaltic Pump	☐ Other					
Sampling Eqpt	☐ Bailer	☐ Disposable Bailer	☐ Bladder Pump	☐ Submersible Pump	☑ Peristaltic Pump	☐ Other					

Test Equipment	Water Level	Water Quality Meter		
Meter No.	SOLINST	Horiba U-22XD		
Calibration Date/Time				

Decontamination Methods	Wash	Rinse 1	Rinse 2	Rinse 3
☐ TSP	☐ DI ☐ Steam	☐ DI ☐ Steam	☐ DI ☐ Steam	☐ DI ☐ Steam
☐ Alconox	☐ Tap ☐ Hot	☐ Tap ☐ Hot	☐ Tap ☐ Hot	☐ Tap ☐ Hot
☐ Other _____	☐ Other ☐ Cool	☐ Other ☐ Cool	☐ Other ☐ Cool	☐ Other ☐ Cool
Volume (gal)	N/A			
Source				
Decon. Notes				

PURGE RECORD

Purge Volume (CV)		TD	–	DTW	X	Factor	=	1 CV	3 CV
Well Diameter	2"					0.175			
	4"	18.79	–	4.55	X	0.663	=	2.55	7.65 gallon(s)
	6"					1.469			

Well Security ☑ Good ☐ Fair ☐ Poor **Well Integrity** ☑ Good ☐ Fair ☐ Poor **Locked?** ☑ Yes ☐ No
Product? ☑ None ☐ Free ☐ Floating ☐ Sheen ☐ Film _____ **Thickness (ft)** **Odor?**

Purge Record
Reference: ☑ Top of Casing ☐ Other _____

Time	Temp (°C)	pH	Conductivity (mS/cm)	DO (mg/L)	ORP (mEV)	Turbidity (NTU)	DTW (ft)
	obs	±0.2	±3%	±10% or ±0.2	obs	obs	
1420	17.59	7.25	4.86	2.57	-169	4.7	
1428	17.47	7.11	4.83	2.96	-217	3.2	
1437	17.48	7.02	4.58	4.22	-220	0	
1446	17.48	7.01	4.57	4.53	-222	0	

☐ Continued on reverse

SAMPLE LOG

Sample No.	Time	Quantitiy	Volume	Type	Preserv.	Filtration	Analysis	Lab
MW-2	1450							

MISC

Other Observations:

Final Check: VOAs free of bubbles? ☑ Yes ☐ No ☐ NA Well Locked? ☑ Yes ☐ No ☐ NA

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MONITORING WELL SAMPLING LOG

Date: 5/19/2009 **Well No.:** MW-3 **Sheet** 1 **of** 1

Project: 700 Independent Road

Project No.: 54504 **Completed by:** Nathan Berner **Date:** 5/19/2009

Weather

EQUIPMENT & DECONTAMINATION

Purging Eqpt:	☐ Bailer	☐ Disposable Bailer	☐ Bladder Pump	☐ Submersible Pump	☑ Peristaltic Pump	☐ Other
Sampling Eqpt	☐ Bailer	☐ Disposable Bailer	☐ Bladder Pump	☐ Submersible Pump	☑ Peristaltic Pump	☐ Other

Test Equipment	Water Level	Water Quality Meter		
Meter No.	SOLINST	Horiba U-22XD		
Calibration Date/Time				

Decontamination Methods	Wash	Rinse 1	Rinse 2	Rinse 3
☐ TSP	☐ DI ☐ Steam	☐ DI ☐ Steam	☐ DI ☐ Steam	☐ DI ☐ Steam
☐ Alconox	☐ Tap ☐ Hot	☐ Tap ☐ Hot	☐ Tap ☐ Hot	☐ Tap ☐ Hot
☐ Other _____	☐ Other ☐ Cool	☐ Other ☐ Cool	☐ Other ☐ Cool	☐ Other ☐ Cool
Volume (gal)	N/A			
Source				
Decon. Notes				

PURGE RECORD

Purge Volume (CV)	TD	–	DTW	X	Factor	=	1 CV	3 CV	
Well Diameter 2"					0.175				
Well Diameter 4"	23.05	–	5.73	X	0.663	=	3.12	9.36	gallon(s)
Well Diameter 6"					1.469				

Well Security ☑ Good ☐ Fair ☐ Poor **Well Integrity** ☑ Good ☐ Fair ☐ Poor **Locked?** ☑ Yes ☐ No

Product? ☑ None ☐ Free ☐ Floating ☐ Sheen ☐ Film _____ **Thickness (ft)** **Odor?**

Purge Record

Reference: ☑ Top of Casing ☐ Other _____

Time	Temp (°C)	pH	Conductivity (S/m)	DO (mg/L)	ORP (mEV)	Turbidity (NTU)	DTW (ft)
	obs	±0.2	±3%	±10% or ±0.2	obs	obs	
1202	19.54	7.44	2.34	0.69	116	12	
1213	19.48	7.54	2.5	0.58	43	3.5	
1220	19.75	7.12	3.82	0.49	-27	0	
1232	19.75	7.17	3.82	0.49	-32	0	

☐ Continued on reverse

SAMPLE LOG

Sample No.	Time	Quantitiy	Volume	Type	Preserv.	Filtration	Analysis	Lab
MW-3	1240							

MISC

Other Observations:

Final Check: VOAs free of bubbles? ☑ Yes ☐ No ☐ NA Well Locked? ☑ Yes ☐ No ☐ NA

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MONITORING WELL SAMPLING LOG

Date: 6/30/2009 **Well No.:** MW-1 **Sheet** 1 **of** 1

Project: 700 Independent Road

Project No.: 54504 **Completed by:** Nathan Berner **Date:** 6/30/2009

Weather

EQUIPMENT & DECONTAMINATION

Purging Eqpt: ☐ Bailer ☐ Disposable Bailer ☐ Bladder Pump ☐ Submersible Pump ☑ Peristaltic Pump ☐ Other

Sampling Eqpt ☐ Bailer ☐ Disposable Bailer ☐ Bladder Pump ☐ Submersible Pump ☑ Peristaltic Pump ☐ Other

Test Equipment	Water Level	Water Quality Meter		
Meter No.	SOLINST	Horiba U-22XD		
Calibration Date/Time				

Decontamination Methods	Wash	Rinse 1	Rinse 2	Rinse 3
☐ TSP ☐ Alconox ☐ Other	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool
Volume (gal)	N/A			
Source				
Decon. Notes				

PURGE RECORD

Purge Volume (CV)		TD	–	DTW	X	Factor	=	1 CV	3 CV	
Well Diameter	2" 4" 6"	25.5	–	4.86	X	0.175 0.663 1.469	=	3.72	11.16	gallon(s)

Well Security ☑ Good ☐ Fair ☐ Poor **Well Integrity** ☑ Good ☐ Fair ☐ Poor **Locked?** ☑ Yes ☐ No

Product? ☑ None ☐ Free ☐ Floating ☑ Sheen ☐ Film _____ **Thickness (ft)** **Odor? YES**

Purge Record

Reference: ☑ Top of Casing ☐ Other _____

Time	Temp (°C)	pH	Conductivity (S/m)	DO (mg/L)	ORP (mEV)	Turbidity (NTU)	DTW (ft)
	obs	±0.2	±3%	±10% or ±0.2	obs	obs	
1348	18.74	7.4	18.5	10.15	-50.3	26.2	
1400	17.59	8.36	17.9	10.8	11.4	7.17	
1412	17.31	8.45	17.6	10.92	17.9	8.36	

☐ Continued on reverse

SAMPLE LOG

Sample No.	Time	Quantitiy	Volume	Type	Preserv.	Filtration	Analysis	Lab
MW-1	1424							

MISC

Other Observations:

Final Check: VOAs free of bubbles? ☑ Yes ☐ No ☐ NA Well Locked? ☑ Yes ☐ No ☐ NA

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MONITORING WELL SAMPLING LOG

Date: 6/30/2009 **Well No.:** MW-2 **Sheet** 1 **of** 1

Project: 700 Independent Road

Project No.: 54504 **Completed by:** Nathan Berner **Date:** 6/30/2009

Weather

EQUIPMENT & DECONTAMINATION

Purging Eqpt:	☐ Bailer	☐ Disposable Bailer	☐ Bladder Pump	☐ Submersible Pump	☑ Peristaltic Pump	☐ Other					
Sampling Eqpt	☐ Bailer	☐ Disposable Bailer	☐ Bladder Pump	☐ Submersible Pump	☑ Peristaltic Pump	☐ Other					
Test Equipment	Water Level		Water Quality Meter								
Meter No.	SOLINST		Horiba U-22XD								
Calibration Date/Time											
Decontamination Methods	Wash		Rinse 1		Rinse 2		Rinse 3				
☐ TSP ☐ Alconox ☐ Other _____	☐ DI ☐ Tap ☐ Other	☐ Steam ☐ Hot ☐ Cool	☐ DI ☐ Tap ☐ Other	☐ Steam ☐ Hot ☐ Cool	☐ DI ☐ Tap ☐ Other	☐ Steam ☐ Hot ☐ Cool	☐ DI ☐ Tap ☐ Other	☐ Steam ☐ Hot ☐ Cool			
Volume (gal)	N/A										
Source											
Decon. Notes											

PURGE RECORD

Purge Volume (CV)		TD	–	DTW	X	Factor	=	1 CV	3 CV	
Well Diameter	2" 4" 6"	18.95	–	4.82	X	0.175 0.663 1.469	=	2.54	7.62	gallon(s)

Well Security ☑ Good ☐ Fair ☐ Poor **Well Integrity** ☑ Good ☐ Fair ☐ Poor **Locked?** ☑ Yes ☐ No

Product? ☑ None ☐ Free ☐ Floating ☐ Sheen ☐ Film _____ **Thickness (ft)** **Odor?**

Purge Record

Reference: ☑ Top of Casing ☐ Other _____

Time	Temp (°C)	pH	Conductivity (S/m)	DO (mg/L)	ORP (mEV)	Turbidity (NTU)	DTW (ft)
	obs	±0.2	±3%	±10% or ±0.2	obs	obs	
1500	16.99	5.6	18.17	9.34	143.6	867	
1510	16.96	5.55	18.17	8.78	152.2	120.7	
1520	16.95	5.59	18.69	8.82	159	96.7	

☐ Continued on reverse

SAMPLE LOG

Sample No.	Time	Quantitiy	Volume	Type	Preserv.	Filtration	Analysis	Lab
MW-2	1530							
MW-2D	1530							

MISC

Other Observations: opaque, tan to brown color, has an odor like the injected ferrous iron catalyst

Final Check: VOAs free of bubbles? ☑ Yes ☐ No ☐ NA Well Locked? ☑ Yes ☐ No ☐ NA

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MONITORING WELL SAMPLING LOG

Date: 6/30/2009 **Well No.:** MW-3 **Sheet** 1 **of** 1
Project: 700 Independent Road
Project No.: 54504 **Completed by:** Nathan Berner **Date:** 6/30/2009
Weather

EQUIPMENT & DECONTAMINATION

Purging Eqpt: ☐ Bailer ☐ Disposable Bailer ☐ Bladder Pump ☐ Submersible Pump ☑ Peristaltic Pump ☐ Other
Sampling Eqpt ☐ Bailer ☐ Disposable Bailer ☐ Bladder Pump ☐ Submersible Pump ☑ Peristaltic Pump ☐ Other

Test Equipment	Water Level	Water Quality Meter		
Meter No.	SOLINST	Horiba U-22XD		
Calibration Date/Time				
Decontamination Methods	Wash	Rinse 1	Rinse 2	Rinse 3
☐ TSP ☐ Alconox ☐ Other _____	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool
Volume (gal)	N/A			
Source				
Decon. Notes				

PURGE RECORD

Purge Volume (CV)		TD	–	DTW	X	Factor	=	1 CV	3 CV	
Well Diameter	2"					0.175				
	4"	21.6	–	5.97	X	0.663	=	2.81	8.43	gallon(s)
	6"					1.469				

Well Security ☑ Good ☐ Fair ☐ Poor **Well Integrity** ☑ Good ☐ Fair ☐ Poor **Locked?** ☑ Yes ☐ No
Product? ☑ None ☐ Free ☐ Floating ☐ Sheen ☐ Film _____ **Thickness (ft)** **Odor?**

Purge Record
Reference: ☑ Top of Casing ☐ Other _____

Time	Temp (°C)	pH	Conductivity (S/m)	DO (mg/L)	ORP (mEV)	Turbidity (NTU)	DTW (ft)
	obs	±0.2	±3%	±10% or ±0.2	obs	obs	
1125	22.34	6.94	84.12	0.81	12.8	90.7	
1135	21.86	6.87	83.5	0.55	16.4	31.3	
1145	21.56	6.89	82.99	0.51	21.7	16.9	

☐ Continued on reverse

SAMPLE LOG

Sample No.	Time	Quantitiy	Volume	Type	Preserv.	Filtration	Analysis	Lab
MW-3	1155							

MISC

Other Observations:

Final Check: VOAs free of bubbles? ☑ Yes ☐ No ☐ NA Well Locked? ☑ Yes ☐ No ☐ NA

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MONITORING WELL SAMPLING LOG

Date: 6/29/2009 **Well No.:** MW-4 **Sheet** 1 **of** 1

Project: 700 Independent Road

Project No.: 54504 **Completed by:** Nathan Berner **Date:** 6/29/2009

Weather

EQUIPMENT & DECONTAMINATION

Purging Eqpt:	☐ Bailer	☐ Disposable Bailer	☐ Bladder Pump	☐ Submersible Pump	☑ Peristaltic Pump	☐ Other
Sampling Eqpt	☐ Bailer	☐ Disposable Bailer	☐ Bladder Pump	☐ Submersible Pump	☑ Peristaltic Pump	☐ Other

Test Equipment	Water Level	Water Quality Meter
Meter No.	SOLINST	Horiba U-22XD
Calibration Date/Time		

Decontamination Methods	Wash	Rinse 1	Rinse 2	Rinse 3
☐ TSP	☐ DI ☐ Steam	☐ DI ☐ Steam	☐ DI ☐ Steam	☐ DI ☐ Steam
☐ Alconox	☐ Tap ☐ Hot	☐ Tap ☐ Hot	☐ Tap ☐ Hot	☐ Tap ☐ Hot
☐ Other _____	☐ Other ☐ Cool	☐ Other ☐ Cool	☐ Other ☐ Cool	☐ Other ☐ Cool
Volume (gal)	N/A			
Source				
Decon. Notes				

PURGE RECORD

Purge Volume (CV)		TD	–	DTW	X	Factor	=	1 CV	3 CV	
Well Diameter	2"					0.175				
	4"	24.5	–	5.37	X	0.663	=	3.44	10.32	gallon(s)
	6"					1.469				

Well Security ☑ Good ☐ Fair ☐ Poor **Well Integrity** ☑ Good ☐ Fair ☐ Poor **Locked?** ☑ Yes ☐ No

Product? ☑ None ☐ Free ☐ Floating ☐ Sheen ☐ Film _____ **Thickness (ft)** **Odor?**

Purge Record

Reference: ☑ Top of Casing ☐ Other _____

Time	Temp (°C)	pH	Conductivity (S/m)	DO (mg/L)	ORP (mEV)	Turbidity (NTU)	DTW (ft)
	obs	±0.2	±3%	±10% or ±0.2	obs	obs	
1040	18.79	6.73	23.87	0.33	-149.9	6.58	
1050	18.78	6.78	25.49	0.29	-185	5.38	
1100	18.78	6.64	26.19	0.28	-194.2	4.72	

☐ Continued on reverse

SAMPLE LOG

Sample No.	Time	Quantitiy	Volume	Type	Preserv.	Filtration	Analysis	Lab
MW-4	1110							

MISC

Other Observations:

Final Check: VOAs free of bubbles? ☑ Yes ☐ No ☐ NA Well Locked? ☑ Yes ☐ No ☐ NA

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MONITORING WELL SAMPLING LOG

Date: 6/30/2009 **Well No.:** MW-5 **Sheet** 1 **of** 1

Project: 700 Independent Road

Project No.: 54504 **Completed by:** Nathan Berner **Date:** 6/30/2009

Weather

EQUIPMENT & DECONTAMINATION

Purging Eqpt: ☐ Bailer ☐ Disposable Bailer ☐ Bladder Pump ☐ Submersible Pump ☑ Peristaltic Pump ☐ Other

Sampling Eqpt ☐ Bailer ☐ Disposable Bailer ☐ Bladder Pump ☐ Submersible Pump ☑ Peristaltic Pump ☐ Other

Test Equipment	Water Level	Water Quality Meter		
Meter No.	SOLINST	Horiba U-22XD		
Calibration Date/Time				
Decontamination Methods	Wash	Rinse 1	Rinse 2	Rinse 3
☐ TSP ☐ Alconox ☐ Other	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool	☐ DI ☐ Steam ☐ Tap ☐ Hot ☐ Other ☐ Cool
Volume (gal)	N/A			
Source				
Decon. Notes				

PURGE RECORD

Purge Volume (CV)		TD	–	DTW	X	Factor	=	1 CV	3 CV	
Well Diameter	2"					0.175				
	4"	27.69	–	5.62	X	0.663	=	3.97	11.91	gallon(s)
	6"					1.469				

Well Security ☑ Good ☐ Fair ☐ Poor **Well Integrity** ☑ Good ☐ Fair ☐ Poor **Locked?** ☑ Yes ☐ No

Product? ☑ None ☐ Free ☐ Floating ☐ Sheen ☐ Film _____ **Thickness (ft)** **Odor?**

Purge Record

Reference: ☑ Top of Casing ☐ Other _____

Time	Temp (°C)	pH	Conductivity (S/m)	DO (mg/L)	ORP (mEV)	Turbidity (NTU)	DTW (ft)
	obs	±0.2	±3%	±10% or ±0.2	obs	obs	
1000	19.22	6.99	52.48	0.47	-122.6	21.8	
1011	19.22	6.97	52.62	0.36	-122.2	43.7	
1022	19.22	6.99	52.71	0.36	-124	17.1	

☐ Continued on reverse

SAMPLE LOG

Sample No.	Time	Quantitiy	Volume	Type	Preserv.	Filtration	Analysis	Lab
MW-5	1034							

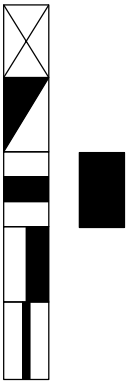
MISC

Other Observations:

Final Check: VOAs free of bubbles? ☑ Yes ☐ No ☐ NA Well Locked? ☑ Yes ☐ No ☐ NA

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		LTR	ID	DESCRIPTION
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY	GW		Well-graded gravels or gravel with sand, little or no fines.
		GP		Poorly-graded gravels or gravel with sand, little or no fines.
		GM		Silty gravels, silty gravel with sand mixture.
		GC		Clayey gravels, clayey gravel with sand mixture.
	SAND AND SANDY	SW		Well-graded sands or gravelly sands, little or no fines.
		SP		Poorly-graded sands or gravelly sands, little or no fines.
		SM		Silty sand.
		SC		Clayey sand.
FINE GRAINED SOILS	SILTS AND CLAYS	ML		Inorganic silts and very fine sands, rock flour or clayey silts with slight plasticity.
		CL		Inorganic lean clays of low to medium plasticity, gravelly clays, sandy clays, silty clays.
		OL		Organic silts and organic silt-clays of low plasticity.
	SILTS AND CLAYS	MH		Inorganic elastic silts, micaceous or diatomaceous or silty soils.
		CH		Inorganic fat clays (high plasticity).
		OH		Organic clays of medium high to high plasticity.
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils.



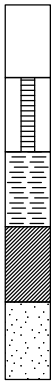
Geoprobe, Direct Push Sample

Large Bore Discrete Soil Sampler, 1.5 in. O.D., 1.12 in. I.D.

Modified California Sampler, 2.5 in. O.D., 2 in. I.D.

California Sampler, 3.0 in. dia.

Shelby Tube 3.0 inch O.D.



Blank casing

Screened casing

Cement grout

Bentonite

Sand pack or gravel pack

OVA	Organic Vapor Analyzer
PID	Total organic vapors (parts per million) measured by a photo-ionization device
FID	Total Organic vapors (parts per million) measured by a flame-ionization device
NA	Not Applicable

Sharp Contact (observed)

Inferred Contact (contact not observed)

Gradational Contact (observed)

Water level observed in boring

Stabilized water level

NFWE No free water encountered

Notes: Blow counts represent the number of blows a 140-pound hammer falling 30 inches required to drive a sampler through the last 12 inches of an 18 inch penetration.

The lines separating strata on the logs represent approximate boundaries only. The actual transition may be gradual. No warranty is provided as to the continuity of soil strata between borings. Logs represent the soil section observed at the boring location on the date of drilling only.

References to plasticity of cohesive soils are based on qualitative field observations and not on quantative field or laboratory tests. Qualitative soil plasticity is noted solely to aid in stratigraphic correlation and is not intended for geotechnical characterization of soils.

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PROJECT NO. *54504-5A*

BORING LOG LEGEND

EOP - INDEPENDENT ROAD
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE

C-1

8/26/2009 2:22:17 PM

Date Completed: **5/26/09**

Logged By: **N. Berner**

Total Depth: **25.0 ft**

Drilling method: **Fisch Drilling**
Direct Push

Hammer Wt: **None**

Notes:

Depth (feet)	Sample Number	Sample Type	Blows/Foot	Recovery (%)	OVA (ppm) PID	USCS	Description	Remarks
1				60	0.0		**ASPHALT CONCRETE** - approximately 4-inches thick **AGGREGATE BASEROCK** - approximately 6-inches thick **SANDY CLAY (CL)** - brown, moist, medium stiff, medium plasticity	
4				0			**NO RECOVERY**	
8				100	101		**SILTY CLAY (CL)** - dark brown, moist, medium stiff, medium plasticity, odor, discoloration	
10	2PS-1-10	⊠			150			
11					71.2			
12				100	2.6		- no odor	
13					0.0			
16				100			**SANDY CLAY (CL)** - moist, medium stiff, medium plasticity	
20	2PS-1-20	⊠		100	0.0			
21							**SAND (SP)** - brown, wet, medium dense, coarse grained sand	
22							**SILTY CLAY (CL)** - brown, medium stiff, medium plasticity	
25							Boring terminated at approx. 25 feet below ground surface. Backfilled with neat cement grout.	

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PROJECT NO. *54504-5A*

LOG OF BORING NO. 2PS-1

EOP - INDEPENDENT ROAD
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE

C-1

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8/26/2009 2:20:06 PM

Date Completed: **5/26/09**

Logged By: **N. Berner**

Total Depth: **25.0 ft**

Drilling method: **Fisch Drilling**
Direct Push

Hammer Wt: **None**

Notes:

Depth (feet)	Sample Number	Sample Type	Blows/Foot	Recovery (%)	OVA (ppm) PID	USCS	Description	Remarks
1				100			**ASPHALT CONCRETE** - approximately 4-inches thick **SILTY CLAY (CL)** - brown, moist, stiff, medium plasticity	
2					0.0			
3								
4					0.0			
5				100	7.6		**SAND (SC)** - gray, moist, dense, coarse grained sand, odor, discolor - strong	
6					432			
7	2PS-2-7	☒			810		**SANDY CLAY (CL)** - dark brown, stiff, medium plasticity, discoloration - strong odor, discolor	
8					797			
9					1027			
10					72.3		- with gravel	
11	2PS-2-11	☒			1071			
12					648		**SANDY CLAY (CL)** - brown, moist, stiff, medium plasticity, odor, mottling	
13					124			
14					14.7			
15	2PS-2-15	☒			1327 1498		**SANDY CLAY (CL)** - stiff, medium plasticity, discolor, strong odor	
16					1423			
17					1365		**SANDY CLAY (CL)** - dark brown, moist, stiff, medium plasticity, odor	
18								
19					1208		**CLAYEY SAND (SC)** - brown, moist, stiff, medium plasticity, discolor, odor	
20	2PS-2-20	☒			1320			
21					120		**SANDY CLAY (CL)** - brown, mottling color, stiff, medium plasticity, odor	
22					78.3			
23								
24					24.6			
25							Boring terminated at approx. 25 feet below ground surface. Backfilled with neat cement grout.	
26								
27								
28								
29								
30								

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PROJECT NO. *54504-5A*

LOG OF BORING NO. 2PS-2

EOP - INDEPENDENT ROAD
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE

C-2

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Date Completed: **5/26/09**

Logged By: **N. Berner**

Total Depth: **25.0 ft**

Drilling method: **Fisch Drilling**
Direct Push

Hammer Wt: **None**

Notes:

Depth (feet)	Sample Number	Sample Type	Blows/Foot	Recovery (%)	OVA (ppm) PID	USCS	Description	Remarks
1				80			**ASPHALT CONCRETE** - approximately 2-inches thick	
2					0		**AGGREGATE BASEROCK** - approximately 7-inches thick	
3					0		**CLAYEY SAND with GRAVEL (SC)** - yellow, mottling, moist, dense, coarse grained sand, pebble size gravel,	
4				100	0.0			
5								
6					0			
7					0			
8				80	14.1		**SANDY CLAY (CL)** - gray, moist, medium stiff, medium plasticity, odor - approximately 2-inches thick of concrete - approximately 4-inches thick of baserock	
9	2PS-3-10	☒			352.1			
10							**SILTY CLAY (CL)** - dark gray, moist, soft, medium plasticity, odor, discoloration	
11					98.7			
12				100	52			
13					330			
14					100			
15								
16					60			
17					268			
18					255			
19					270			
20	2PS-3-20	☒			560			
21	2PS-3-21	☒			1032			
22					200			
23					100		**SAND (SP)** - brown, moist, loose, coarse grained sand	
24								
25							Boring terminated at approx. 25 feet below ground surface. Backfilled with neat cement grout.	
26								
27								
28								
29								
30								

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PROJECT NO. *54504-5A*

LOG OF BORING NO. 2PS-3

EOP - INDEPENDENT ROAD
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE

C-3

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Date Completed: **6/29/09**

Logged By: **N. Berner**

Total Depth: **25.0 ft**

Drilling method: **Fisch Drilling**
Direct Push

Hammer Wt: **None**

Notes:

Depth (feet)	Sample Number	Sample Type	Blows/Foot	Recovery (%)	OVA (ppm) PID	USCS	Description	Remarks
1				100			**ASPHALT CONCRETE** - approximately 4-inches thick	
1							**SAND and GRAVEL (SW)**	
2							**SILTY CLAY (CL)** - gray, moist, medium stiff, medium plasticity	
3					19			
4				100			- soft	
4							**CLAYEY GRAVEL (GW)** - coarse gravel	
5					75		**SILTY CLAY (CL)** - gray, soft, high plasticity, wood	
6					90			
7								
8				100	1587			
9					1742			
10	2PS-1A-10	⊠						
11					0			
12					0			
12				100			**SILTY CLAY (CL)** - brown, moist, stiff, high plasticity	
13					0			
14							with gravel, fine	
15					0			
16				100	0			
17					0		**CLAYEY SAND (SP)** - brown, mottling, loose	
18								
19					0			
20							**SAND (SP)** - brown, wet, loose, coarse grained sand	▽
20				100	0			
21					0		**SANDY CLAY (CL)** - light brown, moist, stiff, high plasticity, mottling	
22					0			
23					0			
24					0			
25							Boring terminated at approx. 25 feet below ground surface. Backfilled with neat cement grout.	
26								
27								
28								
29								
30								

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PROJECT NO. *54504-5A*

LOG OF BORING NO. 2PS-1A

EOP - INDEPENDENT ROAD
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE

C-4

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Date Completed: **6/29/09**

Logged By: **N. Berner**

Total Depth: **25.0 ft**

Drilling method: **Fisch Drilling**
Direct Push

Hammer Wt: **None**

Notes:

Depth (feet)	Sample Number	Sample Type	Blows/Foot	Recovery (%)	OVA (ppm) PID	USCS	Description	Remarks
1				75			**ASPHALT CONCRETE** - approximately 6-inches thick	
2					0		**SAND and GRAVEL (GW)** - approximately 4-inches thick, tan, fine grained sand, coarse gravel	
3					0			
4					0		**SILTY CLAY (CL)** - gray, moist, soft, high plasticity	
5				75	84			
6					357			
7	2PS-2A-7	☒			9999		- moist, soft, strong odor	
8				100				
9					9999			
10								
11	2PS-2A-11	☒			9999			
12					1371			
13				100	9999			
14					9999			
15	2PS-2A-15	☒			9999			
16				100	5827		**CLAYEY SAND (SP)** - brown, moist, loose, discolor, strong odor	
17								
18					9999		**SAND (SW)** - brown, wet, loose, coarse grained sand, odor	▽
19					9999			
20		☒					**CLAYEY SAND (SP)**	
21				100	9999			
22					2150			
23					8365		**SANDY CLAY (CL)** - brown, stiff, medium plasticity, discolor, strong odor	
24					2285			
25							Boring terminated at approx. 25 feet below ground surface. Backfilled with neat cement grout.	
26								
27								
28								
29								
30								

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PROJECT NO. *54504-5A*

LOG OF BORING NO. 2PS-2A

EOP - INDEPENDENT ROAD
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE

C-5

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Date Completed: 6/29/09
Logged By: N. Berner
Total Depth: 25.0 ft
Drilling method: Fisch Drilling
Direct Push
Hammer Wt: None
Notes:

Depth (feet)	Sample Number	Sample Type	Blows/Foot	Recovery (%)	OVA (ppm) PID	USCS	Description	Remarks
1				80			**ASPHALT CONCRETE** - approximately 2-inches thick	
2							**AGGREGATE BASEROCK** - approximately 4-inches thick	
3					0		**CLAYEY SAND (SP)** - yellow-red, moist, loose, fine grained sand, with gravel (FILL)	
4				80			**SANDY CLAY (CL)** - greenish-gray, moist, medium stiff, low plasticity, fine grained sand, with gravel	
5								
6					6.0			
7					12		**SILTY CLAY (CL)** - gray, moist, soft, high plasticity, discolor, odor	
8				100	179		- approximately 4-inches thick of concrete	
9					175			
10	2PS-3A-10				83			
11					120			
12				100	280		- stiff	
13					1064		- strong odor	
14					973			
15					2100		- brown, stiff, discoloration, odor	
16				100	2410			
17					723			
18					4130			
19					107			
20				100	39			
21	2PS-3A-21				397			
22					207			
23					1069			
24	2PS-3A-24				3450			
25					3436			
26					9990		**SAND (SP)** - brown, moist, loose, coarse grained sand, very strong odor	
27					9999			
28							Boring terminated at approx. 25 feet below ground surface. Backfilled with neat cement grout.	
29								
30								

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PROJECT NO. 54504-5A

LOG OF BORING NO. 2PS-3A

EOP - INDEPENDENT ROAD
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE

C-6

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APPENDIX D

ISOTEC'S IN-SITU CHEMICAL OXIDATION REMEDIATION REPORT

IN-SITU CHEMICAL OXIDATION REMEDIATION PROGRAM REPORT

SITE:

700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

JULY 2009

PREPARED FOR

KLEINFELDER
1970 BROADWAY, SUITE 710
OAKLAND, CALIFORNIA 94612

PROJECT # 900949

PREPARED BY:

IN-SITU OXIDATIVE TECHNOLOGIES, INC.
6452 FIG STREET, SUITE C
ARVADA, COLORADO 80004

WWW.INSITUOXIDATION.COM

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1.0 INTRODUCTION

In-Situ Oxidative Technologies, Inc. (ISOTEC) was retained by Kleinfelder to conduct an in-situ chemical oxidation (ISCO) remediation program using modified Fenton's Reagent (ISOTEC Process) on saturated soil and groundwater contamination at a warehouse located at 700 Independent Road (the Site), in Oakland, California.

This ISCO Remediation Program Report contains details of ISOTEC's field activities associated with the injection of ISOTEC reagents. Reagents were injected in order to treat benzene, toluene, ethylbenzene, xylenes and total petroleum hydrocarbons as gasoline (TPH-g) through the use of in-situ chemical oxidation. The field activities conducted by ISOTEC to date occurred during two injection events conducted from December 9th through 12th, 2008 and May 27th through June 4th, 2009.

1.1 PROJECT BACKGROUND AND SITE CONDITIONS

According to information provided by Kleinfelder, petroleum hydrocarbons impacted soil and groundwater are present at the Site. Maximum saturated soil concentrations at the Site prior to initiating the ISCO remediation program were reported at 16 milligrams per kilogram (mg/kg) for benzene and 1,500 mg/kg for TPH-g. Maximum dissolved phase concentrations at the Site prior to injection activities were reported at 20,500 micrograms per liter (µg/L) for benzene and 53,000 µg/L for TPH-g.

The treatment area at the Site is located northwest of the Site building and covers approximately 5,500 square feet encompassing monitoring wells MW-1, MW-2, and MW-3 (**Figure 1)**. The depth to groundwater at the Site is approximately 4 to 5 feet below ground surface (bgs). The subsurface soils are described as predominantly interbedded sand, silt, clay, and gravel. The target treatment interval for the saturated zone is from approximately 9 feet bgs to a depth of approximately 25 feet bgs.

1.2 ISCO REMEDIATION PROGRAM OBJECTIVES

According to Kleinfelder, the objective of the ISCO remediation program is to reduce the soil and groundwater concentrations to below the San Francisco Water Quality Control Board environmental screening levels (ESLs) for commercial/industrial properties. The ESLs for groundwater are 5,000 µg/L for TPH-g and 540 µg/L for benzene. The saturated soil ESLs for TPH-g are 450 mg/kg in the shallow soils (8 to 11 feet bgs) and 4,200 mg/kg in the deep soils (18 to 25 feet bgs). The saturated soil ESLs for benzene are 0.26 mg/kg in the shallow soils and 11 mg/kg in the deep soils.

To achieve these specific goals, ISOTEC estimated that three separate injection applications, and one possible "hot spot" event, would be required to reduce the COCs to the Kleinfelder project goals.

2.0 THE ISOTEC PROCESS

The ISOTEC process is an in-situ remedial technology that destroys organic contamination using Fenton's reagent-based oxidation chemistry. Fenton's chemistry was first documented by H.J.H. Fenton in 1894. It is characterized by the combination of soluble iron with low concentrations of hydrogen peroxide to produce hydroxyl radicals ($OH^{\bullet}$). These hydroxyl radicals are very powerful and short-lived oxidizers. Similar to the reaction of other oxidizers, the hydroxyl radicals attack the carbon double bonds of the chlorinated hydrocarbon molecule. Under certain conditions reductive species can also be formed by Fenton's chemistry. This gives Fenton's reagent two separate pathways to attack a wide range of contaminants. The summary equation for Fenton's chemistry is shown below.

$$Fe^{+2} + H_2O_2 \rightarrow Fe^{+3} + OH^- + OH^{\bullet}$$

Where H_2O_2 is hydrogen peroxide, Fe^{+2} is ferrous iron, Fe^{+3} is ferric iron, $OH^{\bullet}$ is hydroxyl free radical and OH^- is hydroxide ion.

Iron is used to catalyze the reaction. Maintaining iron in solution is important for the process to be successful in an in-situ application. To eliminate the necessity of performing the reaction under low pH conditions, as is the case with traditional Fenton's chemistry, complexed iron is used in in-situ applications via the ISOTEC process. The hydrogen peroxide and dissolved iron solutions are injected through a site-specific delivery system providing sufficient distribution to selectively treat the area of concern. Reaction time is very fast, with oxidation capacity of the reagent being used up in a matter of a few days. Hydrogen peroxide breaks down into water and oxygen and the iron catalyst is oxidized and precipitates out of solution. It is important to note that the concentration of hydrogen peroxide will be relatively dilute, generally less than 17%, which eliminates the potential for significant exothermic reactions that are associated with higher concentrations of hydrogen peroxide. Experience with this process using low hydrogen peroxide concentrations and complexed iron has resulted in less than a 25^{o} F temperature increase in field applications.

Fenton-based oxidation processes have been shown to effectively treat a wide range of contaminants including hard-to-treat compounds such as chlorinated solvents, petroleum hydrocarbons, gasoline additives including benzene, toluene, ethylbenzene and xylene (BTEX), and pesticides. Hydroxyl radicals and reductive species generated by the Fenton-based reagent will treat nearly all contaminants with carbon/carbon double bonds (i.e., dichloroethene and tetrachloroethene) and single bonded contaminants with extractable hydrogen (i.e., trichloroethane).

The ISOTEC process consists of injecting stabilized hydrogen peroxide and complexed iron catalysts into contaminated aquifers or vadose zones. As compared to conventional Fenton's Reagent, which requires acidic conditions (pH $\leq$ 3), the ISOTEC process is effective at neutral (pH = 7) conditions. This is an important consideration in full-scale application since acidifying an aquifer is typically impractical. ISOTEC's oxidation

method utilizes a site-specific delivery system(s) designed to treat organic contaminants within an area of concern. ISOTEC oxidants and catalysts generate hydroxyl radicals, which react with the organic contaminants within the subsurface producing innocuous by-products such as carbon dioxide and water (and chloride ions if chlorinated compounds are being treated).

2.1 AQUEOUS CONTACT

The overwhelming portion of the oxidation process occurs in the aqueous phase. Contaminant dissolved in water contacts oxidant dissolved in water and the oxidation reactions occur. This is, for all practical purposes, an instantaneous process. The same is not true for contaminant mass that is present adsorbed to soil or found as liquid phase hydrocarbon (LPH). These two phases must be moved into the aqueous phase in order to be treated in a practical manner.

2.2 MASS PHASE CHANGES

Modified Fenton's with neutral pH catalyst actively transfers mass into the dissolved phase thereby greatly disrupting the mass equilibrium between the phases. The hydroxyl radical oxidizes contamination in the dissolved phase while the superoxide radical desorbs mass from the adsorbed phase by interfering with the electrical (molecular) forces that cause molecules of solvent to "stick" to grains of soil and organic carbon. In addition to these chemical processes, the reaction produces oxygen gas. As the peroxide decomposes it generates oxygen. This gas is produced within the individual pore spaces where the two reagents are mixed. As the gas bubbles are generated and then migrate vertically up through soil pores, a physical action occurs that mixes groundwater, disturbs soil "fines" (increasing turbidity) and dislodges residual non-aqueous phase liquid (NAPL). Mass is transferred from the adsorbed and NAPL phases into the dissolved phase through this physical agitation. Mass is also transferred from the NAPL phase to the adsorbed phase as the NAPL is mixed within the pore space and contacts more soil surface area.

These chemical and physical processes upset the phase equilibrium and can be observed as temporary increases in dissolved and sorbed concentrations, especially early in the treatment program when the total mass is still at levels near the original mass. However, given that such a small percentage of the total mass exists in the dissolved phase, even an order of magnitude increase in the dissolved phase mass is still only a fraction of the total mass. As the total mass decreases with multiple injections, the post-injection increases in dissolved concentrations also decrease. Post injection dissolved concentrations will remain elevated and out of equilibrium with the total mass even as the total mass approaches minimal levels. Only time will allow the dissolved mass and total mass to re-equilibrate through dilution, dispersion, re-adsorption and degradation. This time period varies depending on specific site conditions but has been observed to take from months up to quarters.

For the modified Fenton's process, this means that the oxidant is injected and treatment occurs almost instantly. The oxidant is consumed and the treatment process is complete within several days if not hours. The modified Fenton's process actively transfers mass from the adsorbed and NAPL phases into the aqueous phase where oxidation can occur. This process allows for significant mass destruction in a short period of time.

3.0 ISCO REMEDIATION PROGRAM

The treatment area for this remediation program is located at 700 Independent Road in Oakland, California and is bounded by Independent Road to the north and an operational warehouse and distribution facility to the south (**Figure 1)**. The treatment area covers approximately 5,500 square feet and encompasses groundwater monitoring wells MW-1, MW-2 and MW-3. The northern half of the treatment area occupies two recessed loading bays used to load and unload commercial trucks and is located immediately adjacent to the warehouse loading platform. The southern half of the treatment area includes the warehouse loading platform and areas inside of the warehouse building and is situated at a surface elevation that is approximately three feet higher than the northern half of the treatment area.

The ISCO remediation program consisted of injecting ISOTEC's patented neutral pH catalyst and stabilized 12% hydrogen peroxide into the subsurface at the Site. ISOTEC injected reagents at the Site during two separate injection events conducted from December 9th through 12th, 2008 and from May 27th through June 4th, 2009.

During the first injection event in December 2008, ISOTEC introduced reagents into the subsurface at 13 injection locations within the 5,500 square-foot treatment area at the Site. The number and spacing of the locations was based upon an anticipated 12.5-foot reagent distribution radius. Specifically, the injection locations were spaced approximately 25 feet apart in a grid-like patter across the treatment area. Reagents were injected through temporary injection screens installed by a DPT subcontractor. At each of the 13 first event injection locations, an upper interval injection screen and a lower interval injection screen were installed. Upper interval screens located in the northern half of the treatment area were deployed from approximately 9 to 17 feet bgs and from 12 to 20 feet in the elevated southern half of the treatment area. Lower interval screens located in the northern half of the treatment area were deployed from approximately 17 to 25 feet bgs and from 20 to 28 feet in the elevated southern half of the treatment area. This method of selective vertical injection was designed to deliver reagent across the entire vertical extent of the target treatment interval. A direct-push injection screen schematic is shown in **Figure 2**. ISOTEC installed and injected reagents into 26 temporary injection screens at 13 locations during the first event.

A second injection event was completed in May 2009. During this injection event, ISOTEC introduced reagents into the subsurface at 30 injection locations within the 5,500 square-foot treatment area at the Site. The increased number of injection locations compared to the first event was due to a reduction in injection location spacing. Specifically, the spacing of the second event locations was reduced from 25 feet during the first injection event to 12.5 feet during the second event. Additionally, ISOTEC reduced the reagent volume per location in an attempt to reduce the frequency and intensity of reagent surfacing. It is important to note, however, that the overall target reagent volume for the 5,500 square-foot treatment area was the same for the second event as for the first event. The target treatment interval for the second injection event

did not change. Upper interval screens located in the northern half of the treatment area were deployed from approximately 9 to 17 feet bgs and from 12 to 20 feet in the elevated southern half of the treatment area. Lower interval screens located in the northern half of the treatment area were deployed from approximately 17 to 25 feet bgs and from 20 to 28 feet in the elevated southern half of the treatment area. ISOTEC installed and injected reagents into 60 temporary injection screens at 30 locations during the first event.

3.1 ISCO REMEDIATION PROGRAM FIELD METHODS

ISOTEC technicians prepared stabilized 12% hydrogen peroxide from 35% hydrogen peroxide during the first event and from 25% hydrogen peroxide during the second event. The 25% and 35% hydrogen peroxide was delivered to the Site and stored on-site in Department of Transportation (DOT) approved 55-gallon drums. To mix peroxide, a 300-gallon polyethylene tank was filled with on-site water and dry stabilizer to a predetermined volume. The 25% and 35% hydrogen peroxide was then transferred with a drum pump into the 300-gallon polyethylene tank to the desired concentration. The technicians wore proper personal protective equipment and used appropriate safety procedures during the transfer. Iron catalyst was also mixed in 300-gallon polyethylene tanks using on-site water, dry ISOTEC chemicals, and an electric mixing motor with attached mixing blade.

The injections were accomplished using air-operated diaphragm pumps, flow meters, polyvinyl chloride (PVC) flexible tubing and steel wellhead assemblies. The wellheads, with pressure gauges and relief valves, were attached to the direct-push injection rods. The wellhead assemblies were attached with PVC tubing to an air-operated diaphragm pump and from the pump to either the peroxide, catalyst or water tanks with PVC tubing. The peroxide, catalyst and water were injected through the PVC tubing using the pump. In general, the injection process was similar for each injection screen. First, water was injected, followed by chelated iron catalyst (catalyst), a water flush, 12% stabilized hydrogen peroxide (oxidizer), and a final water flush.

During the first injection event, the temporary injection locations were abandoned by the DPT subcontractor, Resonant Sonic Inc. (RSI), by plugging the holes to water level with 3/8" bentonite chips and then pressure grouting the remainder of the hole to surface level with Portland grout in a pressurized vessel. Specifically, bentonite chips were slowly poured into the temporary injection hole until the chips were above the water level which was roughly 5 feet or less. Portland cement was then mixed in a bucket with a drill and poured into a vessel. The vessel then was pressurized up to 80 pounds per square-inch (psi) with compressed air and attached to the rod by a steel well head with reinforced PVC tubing. The Portland cement was then pumped to the bottom of the hole through the rod while the direct-push rod was slowly being retracted to surface. Finally asphalt patch or cement was then added to patch the remaining hole to match the surrounding area. A total of 26 temporary injection locations were abandoned during the first injection event at the Site from December 9th through 12th, 2008.

During the second injection event hole abandonment procedures were similar with the exception that the Portland cement was poured into the holes, rather than pumped. A total of 60 temporary injection locations were abandoned during the second injection event at the Site from May 27th through June 4th, 2009.

3.2 FIRST INJECTION EVENT FIELD ACTIVITIES

The first injection of ISOTEC's Fenton-based reagent was conducted at the Site on December 9th through 12th, 2008. The injected reagent volumes and injection pressures and rates for the injection event are discussed below and presented in **Table 1**. The injection event locations are shown in **Figure 3**.

A total of 13 locations (1I-1 through 1I-13) were used across the ISCO treatment area during the first injection event. At each location, ISOTEC attempted to inject into two separate screens targeting the intervals from 9 to 17 feet bgs (1I-1U through 1I-13U) and from 17 to 25 feet bgs (1I-1L through 1I-13L). The "U" designates an upper screen. The "L" designates a lower injection screen. At locations 1I-5 and 1I-7, the upper and lower screens were installed at 12-20 feet bgs and 20-28 feet bgs, respectively. This adjustment was to make up for an approximate 3 foot raise in grade surface resulting from either the foundation of the building, the loading dock located adjacent to the building, or a slope leading to an elevated portion of the west side of the treatment area.

A total of 26 injection screens (13 upper screens and 13 lower screens) were used to deliver reagent into the subsurface across the treatment area. Surfacing occurred during injections into 12 of the 26 screens. However, ISOTEC was able to inject a minimum of 150 gallons of reagent into 15 of the 26 screens (**Table 1**). The remaining screens received between 3 and 145 gallons of reagent. Pressures at the wellheads of the 26 injection screens ranged from 0 to 45 psi and the injection rates ranged from 0.8 to 3.6 gallons per minute (gpm) during injection activities.

ISOTEC injected a total of 4,423 gallons of reagent through 26 injection screens during the first injection event.

3.2.1 Field Monitoring data

Field monitoring was conducted by ISOTEC at the Site monitoring wells MW-1, MW-2 and MW-3 during the injection event. Groundwater measurements for hydrogen peroxide and iron were obtained from these monitoring wells prior to initiating activities (baseline) and at the completion of each day. Hydrogen peroxide and iron were measured in the field using colorimetric test kits. First event field monitoring data is presented in **Table 2**.

Review of the first event field monitoring data indicated that relatively no changes occurred in groundwater concentrations of hydrogen peroxide and iron in monitoring wells MW-1, MW-2 and MW-3. The hydrogen peroxide ranged from 0.0 mg/L to 0.3 mg/L and the iron levels ranged from 0.0 mg/L to 0.8 mg/L.

3.3 SECOND INJECTION EVENT FIELD ACTIVITIES

The second injection of ISOTEC's Fenton-based reagent was conducted at the Site from May 27th through June 4th, 2009. The injected reagent volumes and injection pressures and rates for the injection event are discussed below and presented in **Table 3**. The injection event locations are shown in **Figure 3**.

ISOTEC injected reagent at 30 locations (2I-1 through 2I-30) across the ISCO treatment area during the second injection event. At each location, ISOTEC attempted to inject into two separate screens, targeting the intervals from 9 to 17 feet bgs (2I-1U through 2I-30U) and from 17 to 25 feet bgs (2I-1L through 2I-30L). The "U" designates an upper injection screen. The "L" designates a lower injection screen. At 11 locations (2I-15, 2I-16, 2I-21 and 2I-23 through 2I-30) the upper and lower screens were installed at 12-20 feet bgs and 20-28 feet bgs, respectively. This adjustment was to make up for an approximate 3 foot raise in grade surface resulting from either the foundation of the building, the loading dock located adjacent to the building, or a slope leading to an elevated portion of the west side of the treatment area.

A total of 60 injection screens (30 upper screens and 30 lower screens) were used to deliver reagent into the subsurface across the treatment area. A total of 34 injection screens (15 upper and 19 lower) received the target reagent quantities; 35 gallons of oxidizer and 35 gallons of catalyst for upper screens and 40 gallons of oxidizer and 40 gallons of catalyst for lower screens. The remaining 26 injection screens did not receive the target reagent volumes due to surfacing during injection activities at 24 screens or proximity to prior surfacing. Of the 24 screens that surfaced, 12 surfaced at one distinct point near injection location 2I-8. The screens that experienced surfacing received between 0 and 75 gallons of reagent. Pressures at the wellheads of the 60 injection screens ranged from 0 to 75 psi and the injection rates ranged from 2.4 to 3.1 gpm during injection activities.

ISOTEC injected a total of 3,930 gallons of reagent through 60 injection screens during the second injection event.

3.4 FIELD ACTIVITIES SUMMARY

The remediation program to date has consisted of injecting ISOTEC reagents into the subsurface using direct-push injection screens at multiple locations across the treatment area at the Site over two injection events to treat the saturated soil and groundwater.

A total of 8,353 gallons of ISOTEC reagents were injected into the subsurface through 86 direct-push injection screens over the course of the two injection events.

4.0 ISCO REMEDIATION PROGRAM ANALYTICAL RESULTS

Kleinfelder collected soil and groundwater samples at specific intervals during the remediation program.

Soil samples were collected prior to initiation of injection activities (baseline), following the first injection event (post-first), prior to initiating the second injection event (post-first four months), and following the second injection event (post-second).

Groundwater samples were collected prior to initiation of injection activities (baseline), following the first injection event (post-first), two months following the first injection event (post-first two months), prior to initiating the second injection event (post-first four months), and following the second injection event (post-second).

The soil and groundwater samples were analyzed for petroleum hydrocarbons. The primary COCs are TPH-g and benzene. The soil and groundwater analytical data are presented in **Section 4.1** and **Section 4.2**, respectively.

4.1 SOIL

Kleinfelder collected baseline and post-first soil samples from treatment area location PS-1 and PS-2. Post-first four months and post-second soil samples were collected from boring locations 2PS-1, 2PS-2 and 2PS-3. Boring location PS-1 is located approximately 65 feet south-southeast of 2PS-1.

The baseline and post-first soil sampling activities consisted of Kleinfelder collecting four soil samples using DPT at sample locations PS-1 and PS-2 (**Figure 1**). Specifically, two baseline soil samples were collected at boring location PS-1 (one at 8 feet bgs and one at 20 feet bgs) and at boring location PS-2 (one at 16 feet bgs and one at 19 feet bgs). Following the first event, two soil samples were collected immediately adjacent to boring locations PS-1 and PS-2, and are designated PS-1A and PS-2A. Post-first soil samples were collected from PS-1A at 10 feet bgs and 20 feet bgs, and at PS-2A from 10 feet bgs and 20 feet bgs.

The post-first four months and post-second soil sampling activities consisted of Kleinfelder collecting eight soil samples using DPT at sample locations 2PS-1, 2PS-2 and 2PS-3 (**Figure 1**). Specifically, two soil samples were collected from boring locations 2PS-1 (one at 10 feet bgs and one at 20 feet bgs) and 2PS-3 (one at 10 feet bgs and one at 21 feet bgs) and four soil samples were collected at separate depths from sample location 2PS-2 (7, 11, 15 and 20 feet bgs). Post-second soil samples were collected from the same locations and depths intervals as post-first four months. Boring location 2PS-1/1A and PS-1/1A are located approximately 65 feet apart.

The soil sample collection dates and analytical data with percentage reduction calculations for TPH-g and benzene are included in **Table 4** and **Table 5**, respectively.

In the subsequent section, when discussing analytical data, ISOTEC will refer to a soil sample collected from an individual location by the soil location name.

It important to note that the samples collected from PS-1 are not included in the subsequent benzene discussion (**Section 4.2.2**) because the baseline benzene concentrations were below method detection limits (MDLs). Additionally, the samples collected from 2PS-1 are not included in the subsequent sections because the baseline TPH-g and benzene concentrations were below MDLs.

4.1.1 Total Petroleum Hydrocarbons As Gasoline

The average baseline TPH-g concentration of the samples collected at PS-1 in the 8 to 10 foot bgs interval and at PS-2 in the 15 to 16 foot bgs and 19 to 20 foot bgs intervals was 753 mg/kg. The maximum TPH-g concentration was observed in PS-2 in the 15 to 16 foot bgs interval at 1,500 mg/kg.

Following the first injection event, the average TPH-g concentration was 90 mg/kg, a reduction of 88% compared to baseline. The most significant concentration reduction was observed at PS-2 in the 10 to 16 foot bgs interval, which was reduced from a baseline concentration of 1,500 mg/kg to a post-first concentration of 260 mg/kg, a reduction of 83%.

Prior to initiating the second injection event (post-first four months), the average TPH-g concentration of the four samples collected at 2PS-2 and the two samples collected at 3PS-3 was 965 mg/kg. The TPH-g concentrations in soil ranged from 8.2 mg/kg at 2PS-3 in the 10 foot bgs interval to 3,000 mg/kg at 2PS-2 in the 19 to 20 foot bgs interval.

Following the second injection event, the average TPH-g concentration at 2PS-2 and 2PS-3 was 277 mg/kg, a 71% reduction when compared to post-first four months. The most significant concentration reduction was observed at 2PS-2 in the 19 to 20 foot bgs interval, which was reduced from a post-first four months concentration of 3,000 mg/kg to a post-second concentration of 250 mg/kg, a reduction of 92%.

4.1.2 Benzene

The average baseline benzene concentration of the samples collected at PS-2 in the 15 to 16 foot bgs interval and 19 to 20 foot bgs intervals was 9.3 mg/kg. The maximum benzene concentration was observed in PS-2 in the 15 to 16 foot bgs interval at 16 mg/kg.

Following the first injection event, the average benzene concentration was 1.2 mg/kg, a reduction of 87% compared to baseline.

Prior to initiating the second injection event (post-first four months), the average benzene concentration of the four samples collected at 2PS-2 and the two samples collected at 3PS-3 was 3.3 mg/kg. The benzene concentrations in soil ranged from not-detected at the MDL at 2PS-3 in the 20 foot bgs interval to 12 mg/kg at 2PS-2 in the 19 to 20 foot bgs interval.

Following the second injection event, benzene was not reported above the MDL.

4.2 GROUNDWATER

Kleinfelder collected baseline, post-first, two months post-first, four months post-first and post-second groundwater samples from treatment area wells MW-1, MW-2 and MW-3.

The groundwater sample collection dates and analytical data with percentage reduction calculations for TPH-g and benzene are included in **Table 6** and **Table 7**, respectively.

In the subsequent section, when discussing analytical data, ISOTEC will refer to a groundwater sample collected from an individual well by the well name. Additionally, monitoring well MW-3 is not included in the subsequent discussion because the baseline and post-injection benzene and TPH-g concentrations were below the detection limit.

4.2.1 Total Petroleum Hydrocarbons As Gasoline

The average baseline TPH-g concentration in MW-1 and MW-2 was 27,950 µg/L. The baseline TPH-g concentrations ranged from 2,900 µg/L in MW-1 to 53,000 µg/L in MW-2.

Following the first injection event, the average TPH-g concentration in wells MW-1 and MW-2 was 19,150 µg/L, a reduction of 31% compared to baseline. The post-first TPH-g concentrations ranged from 3,300 µg/L in MW-1 to 35,000 µg/L in MW-2. The most significant reduction was observed in MW-2, which was reduced from a baseline concentration of 53,000 µg/L to 35,000 µg/L, a 34% reduction.

Two months following the first event, the average TPH-g concentration in wells MW-1 and MW-2 was 24,850 µg/L, a reduction of 11% compared to baseline. The post-first two months TPH-g concentrations ranged from 7,700 µg/L in MW-1 to 42,000 µg/L in MW-2. The most significant reduction was observed in MW-2, which was reduced from a baseline concentration of 53,000 µg/L to 42,000 µg/L, a 21% reduction.

Four months following the first event (prior to the second event), the average TPH-g concentration in wells MW-1 and MW-2 was 16,950 µg/L, a reduction of 39% compared to baseline. The post-first four months TPH-g concentrations ranged from 2,900 µg/L in MW-1 to 31,000 µg/L in MW-2. The most significant reduction was observed in MW-2, which was reduced from a baseline concentration of 53,000 µg/L to 31,000 µg/L, a 42% reduction.

Following the second injection event, the average TPH-g concentration in wells MW-1 and MW-2 was 10,435 µg/L, a reduction of 63% compared to baseline. The post-second TPH-g concentrations ranged from 870 µg/L in MW-1 to 20,000 µg/L in MW-2. Significant reductions compared to baseline were observed in both MW-1 (70% reduction) and MW-2 (62% reduction).

4.2.2 Benzene

The average baseline benzene concentration in MW-1 and MW-2 was 10,398 µg/L. The baseline benzene concentration ranged from 295 µg/L in MW-1 to 20,500 µg/L in MW-2.

Following the first injection event, the average benzene concentration in wells MW-1 and MW-2 was 7,840 µg/L, a reduction of 25% compared to baseline. The post-first benzene concentrations ranged from 380 µg/L in MW-1 to 15,300 µg/L in MW-2. The most significant reduction was observed in MW-2, which was reduced from a baseline concentration of 20,500 µg/L to 15,300 µg/L, a 25% reduction.

Two months following the first event, the average benzene concentration in wells MW-1 and MW-2 was 5,694 µg/L, a reduction of 45% compared to baseline. The post-first two months benzene concentrations ranged from 488 µg/L in MW-1 to 10,900 µg/L in MW-2. The most significant reduction was observed in MW-2, which was reduced from a baseline concentration of 20,500 µg/L to 10,900 µg/L, a 47% reduction.

Four months following the first event (prior to the second event), the average benzene concentration in wells MW-1 and MW-2 was 5,170 µg/L, a reduction of 50% compared to baseline. The post-first four months benzene concentrations ranged from 340 µg/L in MW-1 to 10,000 µg/L in MW-2.

Following the second injection event, the average benzene concentration in wells MW-1 and MW-2 was 3,700 µg/L, a reduction of 64% compared to baseline. The post-second benzene concentrations ranged from 99 µg/L in MW-1 to 7,300 µg/L in MW-2. Significant reductions compared to baseline were observed in both MW-1 (66% reduction) and MW-2 (64% reduction).

5.0 CONCLUSIONS

According to Kleinfelder, the objective of the ISCO remediation program is to reduce the soil and groundwater concentrations to below the San Francisco Water Quality Control Board ESLs for commercial/industrial properties. The ESLs for groundwater are 5,000 µg/L for TPH-g and 540 µg/L for benzene. The ESLs for TPH-g in soil are 450 mg/kg in the shallow saturated soils (8 to 11 feet bgs) and 4,200 mg/kg in the deep saturated soils (18 to 25 feet bgs). The ESLs for benzene are 0.26 mg/kg in the shallow saturated soils and 11 mg/kg in the deep saturated soils.

To achieve these specific goals, ISOTEC estimated that three separate injection applications, and one possible "hot spot" event, would be required to reduce the COCs to the Kleinfelder project goals.

5.1 EFFECTIVENESS OF THE ISOTEC PROCESS

The effectiveness of the ISOTEC process can be evaluated by:

- Reduction in contaminant concentrations in treatment area saturated soils and/or
- Changes in dissolved phase contaminant concentrations within treatment area monitoring wells.

As explained in the Mass Phase Changes section (**Section 2.2**), the ISOTEC process liberates contaminant mass within the adsorbed phase (saturated soil) and transfers this mass to the dissolved phase for oxidation. This phenomenon is clearly illustrated by comparing the baseline and post-first saturated soil and groundwater results. The maximum benzene concentration in saturated soils was reduced from a baseline concentration of 16 mg/kg to a non-detectable post-second concentration, a 99.9% reduction. The maximum TPH-g concentration in saturated soils was reduced from a baseline concentration of 753 mg/kg to a post-second concentration 277 mg/kg, a 63% reduction. Based on these adsorbed phase concentration reductions, the ISOTEC process was effective at removing contaminant mass from the adsorbed phase during the first and second injection events of the ISCO remediation program. All of the post-second soil samples collected and analyzed for benzene and TPH-g currently meet the Kleinfelder project goals, with the exception of the TPH-g concentration of 750 mg/kg at sample location 2PS-2 at the 10 to 11 foot bgs interval.

Review of the dissolved phase concentrations further indicates that the ISOTEC process has been successful in reducing dissolved contaminant concentrations in the treatment area monitoring wells. Specifically, the average groundwater TPH-g concentration in the treatment area monitoring wells (MW-1 and MW-2) was reduced from a baseline concentration of 27,950 µg/L to a post-second concentration of 10,435 µg/L, a 63% reduction from baseline. The average groundwater benzene concentration in MW-1 and MW-2 was reduced from a baseline concentration of 10,398 µg/L to a post-second concentration of 3,700 µg/L, a 64% reduction from baseline. The most significant TPH-g and benzene concentration reduction were observed in MW-2, which were reduced from

a baseline concentration of 53,000 µg/L and 20,500 µg/L, respectively, to post-second concentrations of 20,000 µg/L (62% reduction) and 7,300 µg/L (64% reduction), respectively.

As discussed in **Section 2.2**, that post injection dissolved concentrations will fluctuate and will remain out of equilibrium with the total mass even as the total mass approaches minimal levels. Consistent and permanent reductions in dissolved concentrations will only occur following complete adsorbed contaminant mass removal and a period of equilibration. Equilibration allows dissolved concentrations to reduce naturally over time due to re-adsorption, dispersion, dilution and degradation until the final dissolved concentration is reached. This time period varies depending on specific site conditions but has been observed to take from months up to quarters.

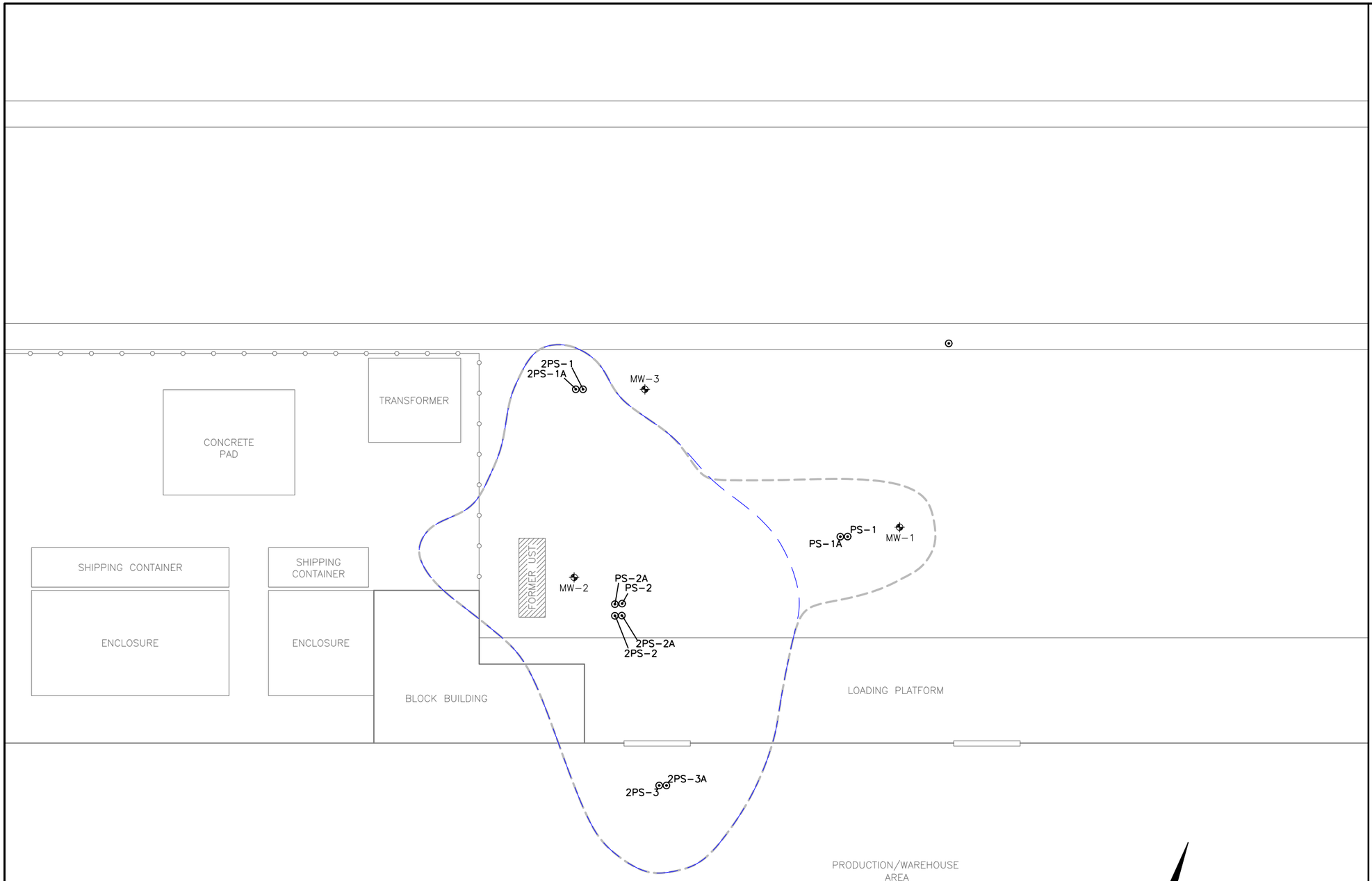
This phenomenon appears to be supported when comparing the post-first TPH-g dissolved concentrations to the post-first two months and post-first four months concentrations at MW-2 (**Table 6**). Specifically, the dissolved TPH-g concentration at MW-2 was reduced from a baseline concentration of 53,000 µg/L to 35,000 µg/L following the first injection event. After two months with no injection activities, the dissolved TPH-g concentration at MW-2 increased to 42,000 µg/L. However, after allowing the groundwater to continue to equilibrate for an additional two months without any injection activities, the dissolved TPH-g concentration at MW-2 reduced to 31,000 µg/L, which represents a 26% reduction from the post-second two month concentration of 42,000 µg/L.

The ISOTEC process was very effective at reducing contaminant mass after two injection applications. This suggests that the quantity of reagent injected and the reagent concentrations were sufficient to achieve significant mass reduction; and that the reagent distribution radius generated by the injection flow rates and pressures were sufficient to distribute reagent across the treatment area.

5.2 RECOMMENDATIONS

ISOTEC recommends several quarters of groundwater monitoring to allow the monitoring wells that exhibit elevated contaminant concentrations to equilibrate. A decision regarding the need for an additional injection event should not be made until at least three quarters of additional groundwater sampling are completed.

FIGURES



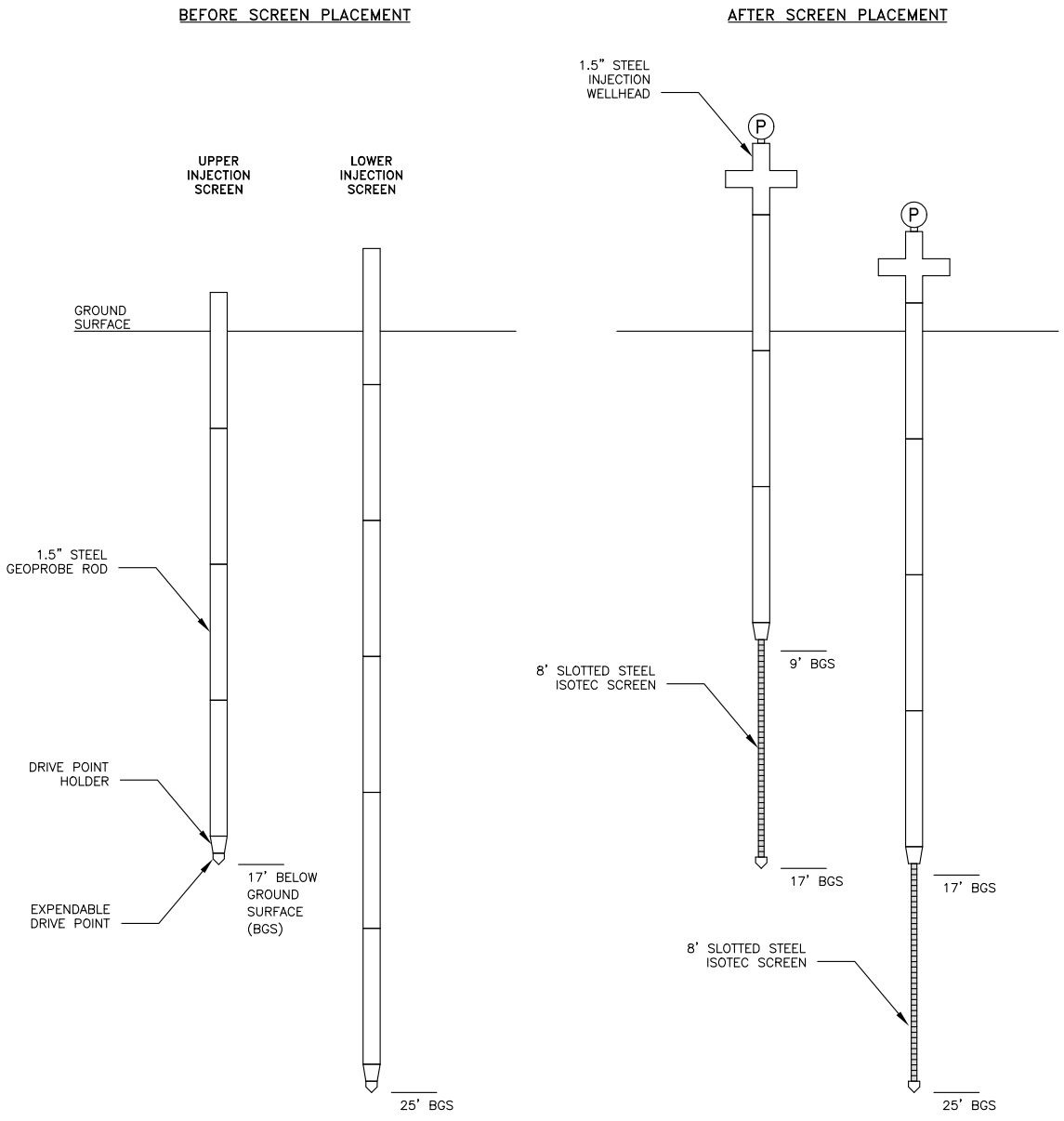
LEGEND

- Fence
- ISCO Treatment Area (First Event)
- ISCO Treatment Area (Second Event)
- Groundwater Monitoring Well
- Soil Boring – ISCO Remediation Program

In-Situ Oxidative Technologies, Inc.
ISOTEC
6452 Fig Street, Suite C
Arvada, Colorado 80004
www.insituoxidation.com
(303) 843-9079

SITE MAP
ISCO REMEDIATION PROGRAM
700 Independent Road
Oakland, California

DRAWN BY: KH	DATE: 5/18/09	FIGURE 1
CHECKED BY: SH	PROJECT NO: 900949	



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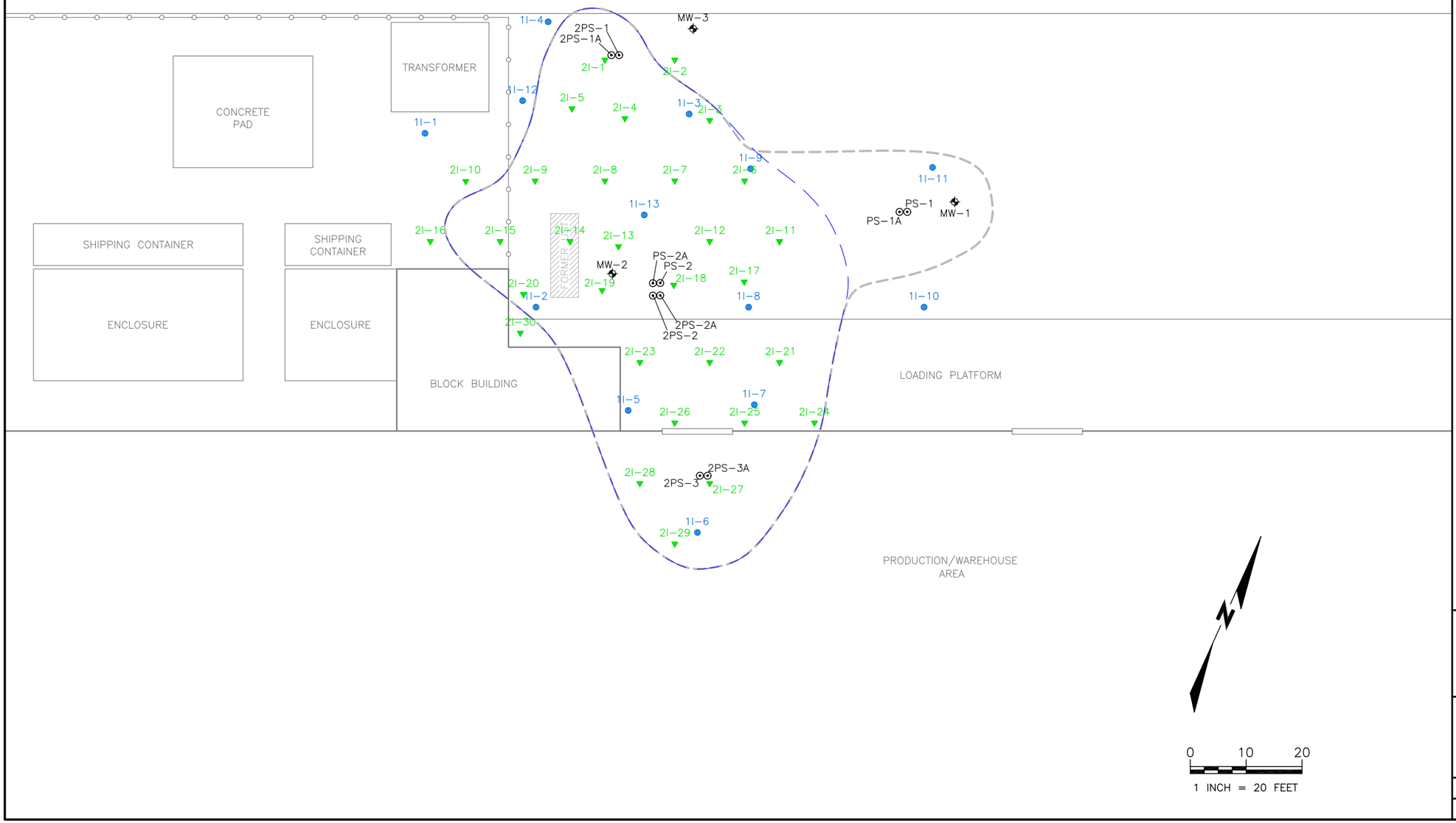
ISOTEC
6452 Fig Street, Suite C
Arvada, Colorado 80004
www.insituoxidation.com
(303) 843-9079

DIRECT–PUSH INJECTION SCREEN SCHEMATIC
ISCO REMEDIATION PROGRAM
700 Independent Road
Oakland, California

DRAWN BY: TE	DATE: 7/8/09	FIGURE 2
CHECKED BY: SH	PROJECT NO: 900949	



LEGEND

- Fence
- ISCO Treatment Area (First Event)
- ISCO Treatment Area (Second Event)
- Groundwater Monitoring Well
- Soil Boring – ISCO Remediation Program
- First Event Injection Location (December 2008)
- Second Event Injection Location (May 2009)

In-Situ Oxidative Technologies, Inc.
ISOTEC
6452 Fig Street, Suite C
Arvada, Colorado 80004
www.insituoxidation.com
(303) 843-9079

INJECTION LOCATION MAP
ISCO REMEDIATION PROGRAM
700 Independent Road
Oakland, California

DRAWN BY: KH	DATE: 5/18/09	FIGURE 3
CHECKED BY: SH	PROJECT NO: 900949	

TABLES

Table 1
FIRST EVENT INJECTION LOG

700 Independent Road
Oakland, California

Injection Date	Injection Point	Injection Interval (feet bgs)	ISOTEC REAGENT			FIELD OBSERVATIONS		
			12% H2O2 (gallons)	Catalyst (gallons)	Total (gallons)	Flow Rate (gpm)	Pressure (psi)	Notes (surfacing, refusal, pressure or flow rate changes, etc.)
12/9/08	1I-4U	9-17	45	150	195	2.0-3.5	5-15	Surfaced 3 feet south of 1I-3
	1I-4L	17-25	15	150	165	1.5-3.5	5-20	Surfaced 3 feet south of 1I-3
	1I-11L	17-25	150	150	300	1.5-3.5	20-35	
	1I-8U	9-17	150	150	300	1.6-3.6	0-25	
	1I-11U	9-17	150	150	300	1.5-3.6	0-20	
	1I-8L	17-25	150	150	300	1.5-3.6	0-45	
12/10/08	1I-10U	9-17	100	100	200	0.9-3.6	0-30	
	1I-2L	17-25	100	100	200	1.5-3.5	15-35	
	1I-10L	17-25	100	100	200	1.6-3.4	0-25	
	1I-2U	9-17	10	100	110	1.6-3.6	0-20	Surfaced 9 feet west of 1I-2U
	1I-6U	9-17	25	150	175	1.4-3.6	10-20	Surfaced 16 feet south of 1I-6U
	1I-6L	17-25	105	150	255	2.0-3.5	15-35	Surfaced 16 feet south of 1I-6L
12/11/08	1I-1L	17-25	0	50	50	3.5	5-35	Surfaced 9 feet west of 1I-2U
	1I-1U	9-17	0	50	50	3.5	10-30	Surfaced 9 feet west of 1I-2U
	1I-9U	9-17	100	100	200	1.5-3.5	0-30	
	1I-9L	17-25	100	100	200	1.4-3.5	20-35	
	1I-12L	17-25	95	100	195	0.8-3.0	5-15	Surfaced 5 feet southeast of 1I-12L
	1I-12U	9-17	50	50	100	1.5-3.0	5-15	
	1I-5U	12-20	100	100	200	1.3-3.0	10-25	
	1I-5L	20-28	50	80	130	1.5-3.1	5-45	Surfaced up prior boring B8
12/12/08	1I-7L	20-28	100	100	200	1.5-3.0	5-45	
	1I-3L	17-25	15	50	65	1.5-3.4	0-45	
	1I-7U	12-20	95	50	145	1.5-3.0	10-30	
	1I-13L	17-25	20	50	70	1.8-3.2	10-45	Surfaced 5 feet southeast of 1I-13L
	1I-13U	9-17	3	0	3	1.0-1.5	0-5	Surfaced 9 feet west of 1I-2U

Table 1
FIRST EVENT INJECTION LOG

700 Independent Road
Oakland, California

Injection Date	Injection Point	Injection Interval (feet bgs)	ISOTEC REAGENT			FIELD OBSERVATIONS		
			12% H2O2 (gallons)	Catalyst (gallons)	Total (gallons)	Flow Rate (gpm)	Pressure (psi)	Notes (surfacing, refusal, pressure or flow rate changes, etc.)
	1I-3U	9-17	18	0	18	0.9-1.4	30-35	
	1I-5L	20-28	35	0	35	1.1	10-15	
	1I-5U	12-20	85	0	85	0.9-1.4	30-35	
FIRST EVENT REAGENT TOTAL			**1,966**	**2,480**	**4,446**			

NOTES

bgs = below ground surface

gpm = gallons per minute

psi = pounds per square inch

H2O2 = hydrogen peroxide

TABLE 2
FIRST EVENT MONITORING DATA

700 Independent Road
Oakland, CA 94621

Monitoring Well	Sample Date	FIELD OBSERVATIONS			
		Sample Time	Iron (mg/l)	Hydrogen Peroxide (mg/l)	Notes
MW-1	Baseline 12/09/2008	8:17	0.0	0.0	
	12/9/2008		0.8	0.0	Water level 1.5' from top of well
	12/10/2008	15:22	0.0	0.0	
	12/11/2008	16:36	0.0	0.0	
	12/12/2008	15:25	0.0	0.0	
MW-2	Baseline 12/09/2008	8:08	1.0	0.0	
	12/9/2008		NS	NS	
	12/10/2008	7:33	0.0	0.0	
	12/10/2008	15:27	0.0	0.3	
	12/11/2008	16:46	0.2	0.2	
	12/12/2008	15:35	0.1	0.3	
MW-3	Baseline 12/09/2008	8:21	0.0	0.0	
	12/9/2008		NS	NS	
	12/10/2008	7:50	0.2	0.0	
	12/10/2008	15:18	0.0	0.0	
	12/11/2008	16:41	0.0	0.0	
	12/12/2008	16:36	0.0	0.0	

NOTES

NS: Not sampled (monitoring well under pressure)

Table 3
SECOND EVENT INJECTION LOG

700 Independent Road
Oakland, California

Injection Date	Injection Point	Injection Interval (feet bgs)	ISOTEC REAGENT			FIELD OBSERVATIONS		
			12% H_2O_2 (gallons)	Catalyst (gallons)	Total (gallons)	Flow Rate (gpm)	Pressure (psi)	Notes (surfacing, refusal, pressure or flow rate changes, etc.)
5/27/09	2I-2U	9-17	35	35	70	2.5-3.0	35-60	
	2I-2L	17-25	40	40	80	2.5-3.0	15-35	
	2I-6U	9-17	25	35	60	2.5-3.0	5-20	
	2I-6L	17-25	25	40	65	2.4-3.0	20-40	
	2I-9U	9-17	0	35	35	3.0	0-15	
	2I-9L	17-25	0	40	40	3.0	25-55	
	2I-20U	9-17	35	35	70	2.5-3.1	10-30	Surfaced 30 feet northeast near 2I-8
	2I-20L	17-25	40	40	80	2.5-3.0	20-40	
5/28/09	2I-3U	9-17	0	3	3	3.0	10-20	Surfaced at 2I-3L
	2I-3L	17-25	40	40	80	2.5-3.0	15-35	
	2I-9U	9-17	20	35	55	2.5-3.0	0-5	Surfaced 18 feet east near 2I-8
	2I-9L	17-25	22	40	62	2.5-3.0	15-30	Surfaced 18 feet east near 2I-8
	2I-12U	9-17	35	35	70	2.5-3.0	0-10	
	2I-12L	17-25	40	40	80	2.5-3.0	5-25	
	2I-16U	12-20	35	35	70	2.5-3.0	10-25	
	2I-16L	20-28	40	40	80	2.5-3.0	20-40	
	2I-21U	12-20	35	35	70	2.5-3.0	10-20	
	2I-21L	20-28	40	40	80	2.5-3.0	20-35	
	2I-26U	12-20	0	35	35	3.0	0-5	Surfaced 50 feet north near 2I-8
	2I-26L	20-28	35	40	75	2.4-3.0	30-75	Surfaced 50 feet north near 2I-8
5/29/09	2I-1U	9-17	8	35	43	2.5-3.0	5-20	Surfaced 20 feet south of 2I-1U
	2I-1L	17-25	40	40	80	2.5-3.0	10-45	
	2I-3U	9-17	0	10	10	3.0	0-10	Surfaced 5 feet south of 2I-3U
	2I-7U	9-17	0	20	20	3.0	10-15	Surfaced 8 feet north of 2I-7U

Table 3
SECOND EVENT INJECTION LOG

700 Independent Road
Oakland, California

Injection Date	Injection Point	Injection Interval (feet bgs)	ISOTEC REAGENT			FIELD OBSERVATIONS		
			12% H_2O_2 (gallons)	Catalyst (gallons)	Total (gallons)	Flow Rate (gpm)	Pressure (psi)	Notes (surfacing, refusal, pressure or flow rate changes, etc.)
	2I-7L	17-25	30	40	70	2.5-3.0	5-30	Surfaced 30 feet north of 2I-7L
	2I-10U	12-20	35	35	70	2.5-3.0	0-10	
	2I-10L	20-28	40	40	80	2.5-3.0	15-30	
	2I-17U	9-17	35	35	70	2.5-3.0	5-15	
	2I-17L	17-25	40	40	80	2.5-3.0	15-40	
	2I-23U	12-20	35	35	70	2.5-3.0	10-20	
	2I-23L	20-28	5	40	45	2.5-3.0	20-40	Surfaced 35 feet north near 2I-8
	2I-28U	12-20	35	35	70	2.5-3.0	5-10	
	2I-28L	20-28	40	40	80	2.5-3.0	5-45	
6/2/09	2I-5U	9-17	0	15	15	3.0	5-25	Surfaced at 2I-8
	2I-5L	17-25	20	40	60	2.5-3.0	15-45	Surfaced 3 feet east of 2I-5L
	2I-11U	9-17	35	35	70	2.5-3.0	5-15	
	2I-11L	17-25	40	40	80	2.5-3.0	20-40	
	2I-13U	9-17	30	35	65	2.5-3.0	15-25	Surfaced 20 feet north near 2I-8
	2I-13L	17-25	26	40	66	2.5-3.0	15-30	Surfaced 20 feet north near 2I-8
	2I-15U	12-20	35	35	70	2.5-3.0	0-15	
	2I-15L	20-28	40	40	80	2.5-3.0	15-35	
	2I-22U	12-20	35	35	70	2.5-3.0	5-15	Surfaced 18 feet south of 2I-22U
	2I-22L	20-28	15	40	55	2.5-3.0	20-40	Surfaced at 2I-22L
	2I-27U	12-20	35	35	70	2.5-3.0	0-10	
	2I-27L	20-28	40	40	80	2.5-3.0	30-60	
6/3/09	2I-4U	9-17	10	35	45	2.5-3.0	5-20	Surfaced near 2I-8
	2I-4L	17-25	40	40	80	2.5-3.0	20-40	
	2I-14U	9-17	0	0	0	3.0	0-10	Surfaced near 2I-8

Table 3
SECOND EVENT INJECTION LOG

700 Independent Road
Oakland, California

Injection Date	Injection Point	Injection Interval (feet bgs)	ISOTEC REAGENT			FIELD OBSERVATIONS		
			12% H_2O_2 (gallons)	Catalyst (gallons)	Total (gallons)	Flow Rate (gpm)	Pressure (psi)	Notes (surfacing, refusal, pressure or flow rate changes, etc.)
	2I-14L	17-25	80	80	160	2.5-3.0	0-35	
	2I-18U	9-17	0	35	35	3.0	0-10	Surfaced 30 feet north of 2I-18U
	2I-18L	17-25	26	40	66	2.5-3.0	25-50	
	2I-25U	12-20	35	35	70	2.5-3.0	0-10	
	2I-25L	20-28	40	40	80	2.5-3.0	15-40	
	2I-29U	12-20	0	24	24	3.0	15-20	
	2I-29L	20-28	40	40	80	2.5-3.0	20-40	
	2I-30U	12-20	18	35	53	2.5-3.0	5-20	Surfaced 3 feet northwest of 2I-30U
	2I-30L	20-28	40	40	80	2.5-3.0	20-40	
6/4/09	2I-8U	9-17	5	0	5	2.5	0-5	Surfaced 1 feet north of 2I-8U
	2I-8L	17-25	14	40	54	2.0-3.0	15-45	
	2I-19U	9-17	0	0	0	3.0	5-10	Surfaced 6 feet east of 2I-19U
	2I-19L	17-25	10	12	22	2.0-3.0	5-45	Surfaced 6 feet east of 2I-19L
	2I-24U	12-20	35	35	70	2.5-3.0	0-10	
	2I-24L	20-28	50	80	130	2.5-3.0	15-35	
	2I-30L	20-28	40	7	47	2.5-3.0	5-10	
SECOND EVENT REAGENT TOTAL			**1,719**	**2,211**	**3,930**			

NOTES

bgs = below ground surface

gpm = gallons per minute

psi = pounds per square inch

H2O2 = hydrogen peroxide

Table 4
TPH-G CONCENTRATIONS
IN TARGET TREATMENT INTERVAL SATURATED SOIL

700 Independent Road
Oakland, California

Soil Boring	Sample Depth (feet bgs)	Baseline (mg/kg)	Post-First Injection (mg/kg)		Post-First Injection - Four Months (mg/kg)		Post-Second Injection (mg/kg)		
		12/1/2008	1/12/2009	vs Baseline	5/26/2009	vs Baseline	6/29/2009	vs Baseline	vs 5/26/09
PS-1	8-10	330	<0.1	99.98%	NC	-	NC	-	-
	20	<0.1	0.12	-140%	NC	-	NC	-	-
2PS-1	10	NC	NC	-	<0.1	-	<0.1	-	0%
	20	NC	NC	-	<0.1	-	<0.1	-	0%
PS-2 and 2PS-2	10-11	NC	260	-	53	-	**750**	-	-1315%
	15-16	**1,500**	NC	-	**1,700**	-13%	180	88%	89%
	19-20	430	10	98%	3,000	-598%	250	42%	92%
2PS-3	10	NC	NC	-	8.2	-	37	-	-351%
	20	NC	NC	-	64	-	170	-	-166%
Average		753	90	88%	965	-28%	277	63%	71%

NOTES

bgs = below ground surface

mg/kg = milligrams per kilogram

TPH-G = Total petroleum hydrocarbons - gasoline

<0.1 = Analyte not detected above indicated method detection limit

NC = Not Collected (Soil sample not collected during the sampling event).

Concentrations in **bold** exceed San Francisco Regional Water Quality Control Board Environmental Screening Levels

ISCO remediation program target treatment interval is 9 to 25 feet bgs

Table 5
BENZENE CONCENTRATIONS
IN TARGET TREATMENT INTERVAL SATURATED SOIL

700 Independent Road
Oakland, California

Soil Boring	Sample Depth (feet bgs)	Baseline (mg/kg)	Post-First Injection (mg/kg)		Post-First Injection - Four Months (mg/kg)		Post-Second Injection (mg/kg)		
		12/1/2008	1/12/2009	vs Baseline	5/26/2009	vs Baseline	6/29/2009	vs Baseline	vs 5/26/09
PS-1	8-10	<0.01	<0.01	0%	NC	-	NC	-	-
	20	<0.01	<0.01	0%	NC	-	NC	-	-
2PS-1	10	NC	NC	-	<0.01	-	<0.01	-	0%
	20	NC	NC	-	<0.01	-	<0.01	-	0%
PS-2 and 2PS-2	10-11	NC	**2.2**	-	**0.88**	-	<0.01	-	99.4%
	15-16	**16**	NC	-	**3.6**	78%	<0.01	99.97%	99.9%
	19-20	**2.5**	0.16	94%	**12**	-380%	<0.01	99.8%	99.96%
2PS-3	10	NC	NC	-	0.16	-	<0.01	-	96.9%
	20	NC	NC	-	<0.01	-	<0.01	-	0%
Average		9.3	1.2	87%	3.3	64%	<0.01	99.9%	99.8%

NOTES

bgs = below ground surface

mg/kg = milligrams per kilogram

<0.01 = Analyte not detected above indicated method detection limit

NC = Not Collected (Soil sample not collected during the sampling event).

Concentrations in **bold** exceed San Francisco Regional Water Quality Control Board Environmental Screening Levels

ISCO remediation program target treatment interval is 9 to 25 feet bgs

Table 6
TPH-G CONCENTRATIONS IN GROUNDWATER
WITH PERCENTAGE REDUCTIONS

700 Independent Road
Oakland, California

Monitoring Well	Baseline (µg/L)	Post-First Injection (µg/L)		Post-First Injection - Two Months (µg/L)		Post-First Injection - Four Months (µg/L)		Post-Second Injection (µg/L)	
	12/1/2008	1/12/2009	vs Baseline	3/12/2009	vs Baseline	5/19/2009	vs Baseline	6/30/2009	vs Baseline
MW-1	**2,900**	**3,300**	-14%	**7,700**	-166%	**2,900**	0%	**870**	70%
MW-2	**53,000**	**35,000**	34%	**42,000**	21%	**31,000**	42%	**20,000**	62%
MW-3	<50	<50	0%	<50	0%	<50	0%	<50	0%
Average	27,950	19,150	31%	24,850	11%	16,950	39%	10,435	63%

NOTES

µg/L = micrograms per liter

TPH-G = Total petroleum hydrocarbons - gasoline

<10 = Analyte not detected above indicated method detection limit

NS = Monitoring well not sampled during the sampling event

Concentrations in **bold** exceed San Francisco Regional Water Quality Control Board Environmental Screening Levels

Average derived from groundwater concentrations in wells MW-1 and MW-2

Table 7
BENZENE CONCENTRATIONS IN GROUNDWATER
WITH PERCENTAGE REDUCTIONS

700 Independent Road
Oakland, California

Monitoring Well	Baseline (µg/L)	Post-First Injection (µg/L)		Post-First Injection - Two Months (µg/L)		Post-First Injection - Four Months (µg/L)		Post-Second Injection (µg/L)	
	12/1/2008	1/12/2009	vs Baseline	3/12/2009	vs Baseline	5/19/2009	vs Baseline	6/30/2009	vs Baseline
MW-1	**295**	**380**	-29%	**488**	-65%	**340**	-15%	**99**	66%
MW-2	**20,500**	**15,300**	25%	**10,900**	47%	**10,000**	51%	**7,300**	64%
MW-3	<0.5	<0.5	0%	<0.5	0%	<0.5	0%	<0.5	0%
Average	10,398	7,840	25%	5,694	45%	5,170	50%	3,700	64%

NOTES

µg/L = micrograms per liter

<0.5 = Analyte not detected above indicated method detection limit

NS = Monitoring well not sampled during the sampling event

Concentrations in **bold** exceed San Francisco Regional Water Quality Control Board Environmental Screening Levels

Average derived from groundwater concentrations in wells MW-1 and MW-2

APPENDIX E

LABORATORY ANALYTICAL REPORTS
AND
CHAIN-OF-CUSTODY FORMS

Torrent
LABORATORY, INC.

May 28, 2009

Sophia Drugan
Kleinfelder
4670 Willow Road,Suite 100
Pleasanton, CA 94588

TEL: (925) 484-1700
FAX

RE: 700 Independent Road,Oakland

Order No.: 0905122

Dear Sophia Drugan:

Torrent Laboratory, Inc. received 3 samples on 5/19/2009 for the analyses presented in the following report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.
Reported data is applicable for only the samples received as part of the order number referenced above.

Torrent Laboratory, Inc, is certified by the State of California, ELAP #1991. If you have any questions regarding these tests results, please feel free to contact the Project Management Team at (408)263-5258;ext: 204.

Sincerely,

Laboratory Director 5/28/09 Date

TORRENT LABORATORY, INC.

483 Sinclair Frontage Road * Milpitas, CA * Phone: (408) 2635258 * Fax: (408) 263-8293
Visit us ar www.torrentlab.com email: analysis@torrentlab.com

Report Prepaired For: Sophia Drugan
Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Summary Report

MW-1 **VOLATILES by GC/MS** **Lab ID: 0905122-001A**

Parameter	Preped	Analyzed	Result	RL	Unit
1,2,4-Trimethylbenzene	5/21/2009	5/21/2009	100	4.4	µg/L
Benzene	5/21/2009	5/21/2009	340	4.4	µg/L
Ethylbenzene	5/21/2009	5/21/2009	79	4.4	µg/L
Isopropylbenzene	5/21/2009	5/21/2009	19	8.8	µg/L
m,p-Xylene	5/21/2009	5/21/2009	46	8.8	µg/L
Naphthalene	5/21/2009	5/21/2009	9.7	8.8	µg/L
n-Propylbenzene	5/21/2009	5/21/2009	30	4.4	µg/L
o-Xylene	5/21/2009	5/21/2009	15	8.8	µg/L
sec-Butylbenzene	5/21/2009	5/21/2009	4.6	4.4	µg/L
Toluene	5/21/2009	5/21/2009	50	4.4	µg/L
Xylenes, Total	5/21/2009	5/21/2009	62	13	µg/L

MW-1 **Gasoline by GC/MS** **Lab ID: 0905122-001A**

Parameter	Preped	Analyzed	Result	RL	Unit
TPH (Gasoline)	5/21/2009	5/21/2009	2900	440	µg/L

MW-1 **Diesel Water by 8015** **Lab ID: 0905122-001A**

Parameter	Preped	Analyzed	Result	RL	Unit
TPH (Diesel)	5/20/2009	5/21/2009	0.15	0.10	mg/L

MW-2 **VOLATILES by GC/MS** **Lab ID: 0905122-002A**

Parameter	Preped	Analyzed	Result	RL	Unit
1,2,4-Trimethylbenzene	5/21/2009	5/21/2009	750	44	µg/L
1,2-Dichloroethane (EDC)	5/21/2009	5/21/2009	180	44	µg/L
1,3,5-Trimethylbenzene	5/21/2009	5/21/2009	110	44	µg/L
Benzene	5/21/2009	5/21/2009	10000	44	µg/L
Ethylbenzene	5/21/2009	5/21/2009	1100	44	µg/L
m,p-Xylene	5/21/2009	5/21/2009	680	88	µg/L
Naphthalene	5/21/2009	5/21/2009	130	88	µg/L
n-Propylbenzene	5/21/2009	5/21/2009	120	44	µg/L
Toluene	5/21/2009	5/21/2009	92	44	µg/L
Xylenes, Total	5/21/2009	5/21/2009	730	130	µg/L

TORRENT LABORATORY, INC.

483 Sinclair Frontage Road * Milpitas, CA * Phone: (408) 2635258 * Fax: (408) 263-8293
Visit us ar www.torrentlab.com email: analysis@torrentlab.com

Report Prepaired For: Sophia Drugan
Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Summary Report

MW-2 **Gasoline by GC/MS** **Lab ID: 0905122-002A**

Parameter	Preped	Analyzed	Result	RL	Unit
TPH (Gasoline)	5/21/2009	5/21/2009	31000	4400	µg/L

MW-2 **Diesel Water by 8015** **Lab ID: 0905122-002A**

Parameter	Preped	Analyzed	Result	RL	Unit
TPH (Diesel)	5/20/2009	5/27/2009	2.7	0.20	mg/L

TORRENT LABORATORY, INC.

483 Sinclair Frontage Road • Milpitas, CA • Phone: (408) 263-5258 • Fax: (408) 263-8293

Visit us at www.torrentlab.com email: analysis@torrentlab.com

Report prepared for: Sophia Drugan
Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Client Sample ID: MW-1
Sample Location: 700 Independent Road,Oakland
Sample Matrix: GROUNDWATER
Date/Time Sampled 5/19/2009 2:00:00 PM

Lab Sample ID: 0905122-001
Date Prepared: 5/20/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel)	SW8015B	5/21/2009	0.1	1	0.10	0.152x	mg/L	R19671
Surr: Pentacosane	SW8015B	5/21/2009	0	1	57.9-125	79.0	%REC	R19671

Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Client Sample ID: MW-1
Sample Location: 700 Independent Road,Oakland
Sample Matrix: GROUNDWATER
Date/Time Sampled 5/19/2009 2:00:00 PM

Lab Sample ID: 0905122-001
Date Prepared: 5/20/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
1,1,1-Trichloroethane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
1,1,2,2-Tetrachloroethane	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
1,1,2-Trichloroethane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
1,1-Dichloroethene	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
1,1-Dichloropropene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
1,2,3-Trichlorobenzene	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
1,2,3-Trichloropropane	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
1,2,4-Trichlorobenzene	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
1,2,4-Trimethylbenzene	SW8260B	5/21/2009	0.5	8.8	4.4	100	µg/L	R19608
1,2-Dibromo-3-chloropropane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
1,2-Dibromoethane (EDB)	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
1,2-Dichlorobenzene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
1,2-Dichloroethane (EDC)	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
1,2-Dichloropropane	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
1,3,5-Trimethylbenzene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
1,3-Dichlorobenzene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
1,3-Dichloropropene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
1,4-Dichlorobenzene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
2,2-Dichloropropane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
2-Chloroethyl vinyl ether	SW8260B	5/21/2009	6	8.8	53	ND	µg/L	R19608
2-Chlorotoluene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
4-Chlorotoluene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
4-Isopropyltoluene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Acetone	SW8260B	5/21/2009	10	8.8	88	ND	µg/L	R19608
Benzene	SW8260B	5/21/2009	0.5	8.8	4.4	340	µg/L	R19608
Bromobenzene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Bromochloromethane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Bromodichloromethane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Bromoform	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
Bromomethane	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
Carbon tetrachloride	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
Chlorobenzene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Chloroform	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Chloromethane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
cis-1,2-Dichloroethene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
cis-1,3-Dichloropropene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Dibromochloromethane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Dibromomethane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Dichlorodifluoromethane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Diisopropyl ether (DIPE)	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Ethyl tert-butyl ether (ETBE)	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Ethylbenzene	SW8260B	5/21/2009	0.5	8.8	4.4	79	µg/L	R19608

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Client Sample ID: MW-1
Sample Location: 700 Independent Road,Oakland
Sample Matrix: GROUNDWATER
Date/Time Sampled 5/19/2009 2:00:00 PM

Lab Sample ID: 0905122-001
Date Prepared: 5/20/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Freon-113	SW8260B	5/21/2009	1	8.8	8.8	ND	µg/L	R19608
Hexachlorobutadiene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Isopropylbenzene	SW8260B	5/21/2009	1	8.8	8.8	19	µg/L	R19608
Methyl tert-butyl ether (MTBE)	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Methylene chloride	SW8260B	5/21/2009	5	8.8	44	ND	µg/L	R19608
Naphthalene	SW8260B	5/21/2009	1	8.8	8.8	9.7	µg/L	R19608
n-Butylbenzene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
n-Propylbenzene	SW8260B	5/21/2009	0.5	8.8	4.4	30	µg/L	R19608
sec-Butylbenzene	SW8260B	5/21/2009	0.5	8.8	4.4	4.6	µg/L	R19608
Styrene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
t-Butyl alcohol (t-Butanol)	SW8260B	5/21/2009	5	8.8	44	ND	µg/L	R19608
tert-Amyl methyl ether (TAME)	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
tert-Butylbenzene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Tetrachloroethene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Toluene	SW8260B	5/21/2009	0.5	8.8	4.4	50	µg/L	R19608
trans-1,2-Dichloroethene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
trans-1,3-Dichloropropene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Trichloroethene	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Trichlorofluoromethane	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Vinyl chloride	SW8260B	5/21/2009	0.5	8.8	4.4	ND	µg/L	R19608
Xylenes, Total	SW8260B	5/21/2009	1.5	8.8	13	62	µg/L	R19608
Surr: Dibromofluoromethane	SW8260B	5/21/2009	0	8.8	61.2-131	90.8	%REC	R19608
Surr: 4-Bromofluorobenzene	SW8260B	5/21/2009	0	8.8	64.1-120	83.6	%REC	R19608
Surr: Toluene-d8	SW8260B	5/21/2009	0	8.8	75.1-127	103	%REC	R19608
TPH (Gasoline)	SW8260B(TPH)	5/21/2009	50	8.8	440	2900	µg/L	G19608
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	5/21/2009	0	8.8	58.4-133	123	%REC	G19608

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Client Sample ID: MW-2
Sample Location: 700 Independent Road,Oakland
Sample Matrix: GROUNDWATER
Date/Time Sampled 5/19/2009 2:50:00 PM

Lab Sample ID: 0905122-002
Date Prepared: 5/20/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel)	SW8015B	5/27/2009	0.1	2	0.20	2.67x	mg/L	R19671
Surr: Pentacosane	SW8015B	5/27/2009	0	2	57.9-125	82.0	%REC	R19671

Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Client Sample ID: MW-2
Sample Location: 700 Independent Road,Oakland
Sample Matrix: GROUNDWATER
Date/Time Sampled 5/19/2009 2:50:00 PM

Lab Sample ID: 0905122-002
Date Prepared: 5/20/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
1,1,1-Trichloroethane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
1,1,2,2-Tetrachloroethane	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
1,1,2-Trichloroethane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
1,1-Dichloroethene	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
1,1-Dichloropropene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
1,2,3-Trichlorobenzene	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
1,2,3-Trichloropropane	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
1,2,4-Trichlorobenzene	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
1,2,4-Trimethylbenzene	SW8260B	5/21/2009	0.5	88	44	750	µg/L	R19608
1,2-Dibromo-3-chloropropane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
1,2-Dibromoethane (EDB)	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
1,2-Dichlorobenzene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
1,2-Dichloroethane (EDC)	SW8260B	5/21/2009	0.5	88	44	180	µg/L	R19608
1,2-Dichloropropane	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
1,3,5-Trimethylbenzene	SW8260B	5/21/2009	0.5	88	44	110	µg/L	R19608
1,3-Dichlorobenzene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
1,3-Dichloropropene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
1,4-Dichlorobenzene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
2,2-Dichloropropane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
2-Chloroethyl vinyl ether	SW8260B	5/21/2009	6	88	530	ND	µg/L	R19608
2-Chlorotoluene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
4-Chlorotoluene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
4-Isopropyltoluene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Acetone	SW8260B	5/21/2009	10	88	880	ND	µg/L	R19608
Benzene	SW8260B	5/21/2009	0.5	88	44	10000	µg/L	R19608
Bromobenzene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Bromochloromethane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Bromodichloromethane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Bromoform	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
Bromomethane	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
Carbon tetrachloride	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
Chlorobenzene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Chloroform	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Chloromethane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
cis-1,2-Dichloroethene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
cis-1,3-Dichloropropene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Dibromochloromethane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Dibromomethane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Dichlorodifluoromethane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Diisopropyl ether (DIPE)	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Ethyl tert-butyl ether (ETBE)	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Ethylbenzene	SW8260B	5/21/2009	0.5	88	44	1100	µg/L	R19608

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Client Sample ID: MW-2
Sample Location: 700 Independent Road,Oakland
Sample Matrix: GROUNDWATER
Date/Time Sampled 5/19/2009 2:50:00 PM

Lab Sample ID: 0905122-002
Date Prepared: 5/20/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Freon-113	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
Hexachlorobutadiene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Isopropylbenzene	SW8260B	5/21/2009	1	88	88	ND	µg/L	R19608
Methyl tert-butyl ether (MTBE)	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Methylene chloride	SW8260B	5/21/2009	5	88	440	ND	µg/L	R19608
Naphthalene	SW8260B	5/21/2009	1	88	88	130	µg/L	R19608
n-Butylbenzene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
n-Propylbenzene	SW8260B	5/21/2009	0.5	88	44	120	µg/L	R19608
sec-Butylbenzene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Styrene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
t-Butyl alcohol (t-Butanol)	SW8260B	5/21/2009	5	88	440	ND	µg/L	R19608
tert-Amyl methyl ether (TAME)	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
tert-Butylbenzene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Tetrachloroethene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Toluene	SW8260B	5/21/2009	0.5	88	44	92	µg/L	R19608
trans-1,2-Dichloroethene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
trans-1,3-Dichloropropene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Trichloroethene	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Trichlorofluoromethane	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Vinyl chloride	SW8260B	5/21/2009	0.5	88	44	ND	µg/L	R19608
Xylenes, Total	SW8260B	5/21/2009	1.5	88	130	730	µg/L	R19608
Surr: Dibromofluoromethane	SW8260B	5/21/2009	0	88	61.2-131	100	%REC	R19608
Surr: 4-Bromofluorobenzene	SW8260B	5/21/2009	0	88	64.1-120	106	%REC	R19608
Surr: Toluene-d8	SW8260B	5/21/2009	0	88	75.1-127	108	%REC	R19608
TPH (Gasoline)	SW8260B(TPH)	5/21/2009	50	88	4400	31000	µg/L	G19608
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	5/21/2009	0	88	58.4-133	120	%REC	G19608

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Client Sample ID: MW-3
Sample Location: 700 Independent Road,Oakland
Sample Matrix: GROUNDWATER
Date/Time Sampled 5/19/2009 12:40:00 PM

Lab Sample ID: 0905122-003
Date Prepared: 5/20/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel)	SW8015B	5/21/2009	0.1	1	0.10	ND	mg/L	R19671
Surr: Pentacosane	SW8015B	5/21/2009	0	1	57.9-125	75.0	%REC	R19671

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Client Sample ID: MW-3
Sample Location: 700 Independent Road,Oakland
Sample Matrix: GROUNDWATER
Date/Time Sampled 5/19/2009 12:40:00 PM

Lab Sample ID: 0905122-003
Date Prepared: 5/20/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
1,1,1-Trichloroethane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,1,2,2-Tetrachloroethane	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
1,1,2-Trichloroethane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,1-Dichloroethene	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
1,1-Dichloropropene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,2,3-Trichlorobenzene	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
1,2,3-Trichloropropane	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
1,2,4-Trichlorobenzene	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
1,2,4-Trimethylbenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,2-Dibromo-3-chloropropane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,2-Dibromoethane (EDB)	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,2-Dichlorobenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,2-Dichloroethane (EDC)	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,2-Dichloropropane	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
1,3,5-Trimethylbenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,3-Dichlorobenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,3-Dichloropropene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
1,4-Dichlorobenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
2,2-Dichloropropane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
2-Chloroethyl vinyl ether	SW8260B	5/20/2009	6	1	6.0	ND	µg/L	R19608
2-Chlorotoluene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
4-Chlorotoluene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
4-Isopropyltoluene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Acetone	SW8260B	5/20/2009	10	1	10	ND	µg/L	R19608
Benzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Bromobenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Bromochloromethane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Bromodichloromethane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Bromoform	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
Bromomethane	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
Carbon tetrachloride	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
Chlorobenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Chloroform	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Chloromethane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
cis-1,2-Dichloroethene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
cis-1,3-Dichloropropene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Dibromochloromethane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Dibromomethane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Dichlorodifluoromethane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Diisopropyl ether (DIPE)	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Ethyl tert-butyl ether (ETBE)	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Ethylbenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan Kleinfelder

Date Received: 5/19/2009
Date Reported: 5/28/2009

Client Sample ID: MW-3
Sample Location: 700 Independent Road,Oakland
Sample Matrix: GROUNDWATER
Date/Time Sampled 5/19/2009 12:40:00 PM

Lab Sample ID: 0905122-003
Date Prepared: 5/20/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Freon-113	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
Hexachlorobutadiene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Isopropylbenzene	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
Methyl tert-butyl ether (MTBE)	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Methylene chloride	SW8260B	5/20/2009	5	1	5.0	ND	µg/L	R19608
Naphthalene	SW8260B	5/20/2009	1	1	1.0	ND	µg/L	R19608
n-Butylbenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
n-Propylbenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
sec-Butylbenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Styrene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
t-Butyl alcohol (t-Butanol)	SW8260B	5/20/2009	5	1	5.0	ND	µg/L	R19608
tert-Amyl methyl ether (TAME)	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
tert-Butylbenzene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Tetrachloroethene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Toluene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
trans-1,2-Dichloroethene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
trans-1,3-Dichloropropene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Trichloroethene	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Trichlorofluoromethane	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Vinyl chloride	SW8260B	5/20/2009	0.5	1	0.50	ND	µg/L	R19608
Xylenes, Total	SW8260B	5/20/2009	1.5	1	1.5	ND	µg/L	R19608
Surr: Dibromofluoromethane	SW8260B	5/20/2009	0	1	61.2-131	85.2	%REC	R19608
Surr: 4-Bromofluorobenzene	SW8260B	5/20/2009	0	1	64.1-120	101	%REC	R19608
Surr: Toluene-d8	SW8260B	5/20/2009	0	1	75.1-127	112	%REC	R19608
TPH (Gasoline)	SW8260B(TPH)	5/20/2009	50	1	50	ND	µg/L	G19608
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	5/20/2009	0	1	58.4-133	81.0	%REC	G19608

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Definitions, legends and Notes

Note	Description
ug/kg	Microgram per kilogram (ppb, part per billion).
ug/L	Microgram per liter (ppb, part per billion).
mg/kg	Milligram per kilogram (ppm, part per million).
mg/L	Milligram per liter (ppm, part per million).
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate.
MDL	Method detection limit.
MRL	Modified reporting limit. When sample is subject to dilution, reporting limit times dilution factor yields MRL.
MS/MSD	Matrix spike/matrix spike duplicate.
N/A	Not applicable.
ND	Not detected at or above detection limit.
NR	Not reported.
QC	Quality Control.
RL	Reporting limit.
% RPD	Percent relative difference.
a	pH was measured immediately upon the receipt of the sample, but it was still done outside the holding time.
sub	Analyzed by subcontracting laboratory, Lab Certificate #

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

CLIENT: Kleinfelder
Work Order: 0905122
Project: 700 Independent Road,Oakland

ANALYTICAL QC SUMMARY REPORT

BatchID: G19608

Sample ID **MB_G19608**	SampType: **MBLK**	TestCode: **TPPH_W_GC**	Units: **µg/L**	Prep Date: **5/20/2009**	RunNo: **19608**
Client ID: **ZZZZZ**	Batch ID: **G19608**	TestNo: **SW8260B(TP**		Analysis Date: **5/20/2009**	SeqNo: **283945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	ND	50									
Surr: 4-Bromofllurobenzene	12.30	0	11.6	0	106	58.4	133				

Sample ID **LCS_G19608**	SampType: **LCS**	TestCode: **TPPH_W_GC**	Units: **µg/L**	Prep Date: **5/20/2009**	RunNo: **19608**
Client ID: **ZZZZZ**	Batch ID: **G19608**	TestNo: **SW8260B(TP**		Analysis Date: **5/20/2009**	SeqNo: **283946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	249.0	50	227	37	93.4	52.4	127				
Surr: 4-Bromofllurobenzene	12.10	0	11.6	0	104	58.4	133				

Sample ID **LCSD_G19608**	SampType: **LCSD**	TestCode: **TPPH_W_GC**	Units: **µg/L**	Prep Date: **5/20/2009**	RunNo: **19608**
Client ID: **ZZZZZ**	Batch ID: **G19608**	TestNo: **SW8260B(TP**		Analysis Date: **5/20/2009**	SeqNo: **283947**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	234.0	50	227	37	86.8	52.4	127	249	6.21	20	
Surr: 4-Bromofllurobenzene	13.00	0	11.6	0	112	58.4	133	0	0	20	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Kleinfelder
Work Order: 0905122
Project: 700 Independent Road,Oakland

ANALYTICAL QC SUMMARY REPORT

BatchID: R19608

Sample ID **MB_R19608**	SampType: **MBLK**	TestCode: **8260B_W**	Units: **µg/L**	Prep Date: **5/21/2009**	RunNo: **19608**
Client ID: **ZZZZZ**	Batch ID: **R19608**	TestNo: **SW8260B**		Analysis Date: **5/21/2009**	SeqNo: **283929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	1.0									
1,1,1-Trichloroethane	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	1.0									
1,1,2-Trichloroethane	ND	0.50									
1,1-Dichloroethene	ND	1.0									
1,1-Dichloropropene	ND	0.50									
1,2,3-Trichlorobenzene	ND	1.0									
1,2,3-Trichloropropane	ND	1.0									
1,2,4-Trichlorobenzene	ND	1.0									
1,2,4-Trimethylbenzene	ND	0.50									
1,2-Dibromo-3-chloropropane	ND	0.50									
1,2-Dibromoethane (EDB)	ND	0.50									
1,2-Dichlorobenzene	ND	0.50									
1,2-Dichloroethane (EDC)	ND	0.50									
1,2-Dichloropropane	ND	1.0									
1,3,5-Trimethylbenzene	ND	0.50									
1,3-Dichlorobenzene	ND	0.50									
1,4-Dichlorobenzene	ND	0.50									
2,2-Dichloropropane	ND	0.50									
2-Chloroethyl vinyl ether	ND	6.0									
2-Chlorotoluene	ND	0.50									
4-Chlorotoluene	ND	0.50									
4-Isopropyltoluene	ND	0.50									
Acetone	ND	10									
Benzene	ND	0.50									
Bromobenzene	ND	0.50									
Bromochloromethane	ND	0.50									
Bromodichloromethane	ND	0.50									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon tetrachloride	ND	1.0									

Qualifiers:
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: Kleinfelder
Work Order: 0905122
Project: 700 Independent Road,Oakland

ANALYTICAL QC SUMMARY REPORT

BatchID: R19608

Sample ID **MB_R19608**	SampType: **MBLK**	TestCode: **8260B_W**	Units: **µg/L**	Prep Date: **5/21/2009**	RunNo: **19608**
Client ID: **ZZZZZ**	Batch ID: **R19608**	TestNo: **SW8260B**		Analysis Date: **5/21/2009**	SeqNo: **283929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.50									
Chloroform	ND	0.50									
Chloromethane	ND	0.50									
cis-1,2-Dichloroethene	ND	0.50									
cis-1,3-Dichloropropene	ND	0.50									
Dibromochloromethane	ND	0.50									
Dibromomethane	ND	0.50									
Dichlorodifluoromethane	ND	0.50									
Diisopropyl ether (DIPE)	ND	0.50									
Ethyl tert-butyl ether (ETBE)	ND	0.50									
Ethylbenzene	ND	0.50									
Freon-113	ND	1.0									
Hexachlorobutadiene	ND	0.50									
Isopropylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	0.50									
Methylene chloride	ND	5.0									
Naphthalene	ND	1.0									
n-Butylbenzene	ND	0.50									
n-Propylbenzene	ND	0.50									
sec-Butylbenzene	ND	0.50									
Styrene	ND	0.50									
t-Butyl alcohol (t-Butanol)	ND	5.0									
tert-Amyl methyl ether (TAME)	ND	0.50									
tert-Butylbenzene	ND	0.50									
Tetrachloroethene	ND	0.50									
Toluene	ND	0.50									
trans-1,2-Dichloroethene	ND	0.50									
trans-1,3-Dichloropropene	ND	0.50									
Trichloroethene	ND	0.50									
Trichlorofluoromethane	ND	0.50									
Vinyl chloride	ND	0.50									

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Kleinfelder
Work Order: 0905122
Project: 700 Independent Road,Oakland

ANALYTICAL QC SUMMARY REPORT

BatchID: R19608

Sample ID **MB_R19608**	SampType: **MBLK**	TestCode: **8260B_W**	Units: **µg/L**	Prep Date: **5/21/2009**	RunNo: **19608**
Client ID: **ZZZZZ**	Batch ID: **R19608**	TestNo: **SW8260B**		Analysis Date: **5/21/2009**	SeqNo: **283929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Xylenes, Total	ND	1.5									
Surr: Dibromofluoromethane	10.77	0	11.36	0	94.8	61.2	131				
Surr: 4-Bromofluorobenzene	12.76	0	11.36	0	112	64.1	120				
Surr: Toluene-d8	11.52	0	11.36	0	101	75.1	127				

Sample ID **LCS_R19608**	SampType: **LCS**	TestCode: **8260B_W**	Units: **µg/L**	Prep Date: **5/21/2009**	RunNo: **19608**
Client ID: **ZZZZZ**	Batch ID: **R19608**	TestNo: **SW8260B**		Analysis Date: **5/21/2009**	SeqNo: **283930**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	13.83	1.0	17.04	0	81.2	61.4	129				
Benzene	16.37	0.50	17.04	0	96.1	66.9	140				
Chlorobenzene	16.02	0.50	17.04	0	94.0	73.9	137				
Toluene	16.19	0.50	17.04	0	95.0	76.6	123				
Trichloroethene	15.95	0.50	17.04	0	93.6	69.3	144				
Surr: Dibromofluoromethane	10.57	0	11.36	0	93.0	61.2	131				
Surr: 4-Bromofluorobenzene	9.290	0	11.36	0	81.8	64.1	120				
Surr: Toluene-d8	12.43	0	11.36	0	109	75.1	127				

Sample ID **LCSD_R19608**	SampType: **LCSD**	TestCode: **8260B_W**	Units: **µg/L**	Prep Date: **5/21/2009**	RunNo: **19608**
Client ID: **ZZZZZ**	Batch ID: **R19608**	TestNo: **SW8260B**		Analysis Date: **5/21/2009**	SeqNo: **283931**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	13.82	1.0	17.04	0	81.1	61.4	129	13.83	0.0723	20	
Benzene	15.66	0.50	17.04	0	91.9	66.9	140	16.37	4.43	20	
Chlorobenzene	15.16	0.50	17.04	0	89.0	73.9	137	16.02	5.52	20	
Toluene	15.46	0.50	17.04	0	90.7	76.6	123	16.19	4.61	20	
Trichloroethene	16.37	0.50	17.04	0	96.1	69.3	144	15.95	2.60	20	
Surr: Dibromofluoromethane	10.90	0	11.36	0	96.0	61.2	131	0	0	0	
Surr: 4-Bromofluorobenzene	10.43	0	11.36	0	91.8	64.1	120	0	0	0	
Surr: Toluene-d8	11.97	0	11.36	0	105	75.1	127	0	0	0	

Qualifiers:
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: Kleinfelder
Work Order: 0905122
Project: 700 Independent Road,Oakland

ANALYTICAL QC SUMMARY REPORT

BatchID: R19671

Sample ID **WD090520A-MB**	SampType: **MBLK**	TestCode: **TPHD_W**	Units: **mg/L**	Prep Date: **5/20/2009**	RunNo: **19671**
Client ID: **ZZZZZ**	Batch ID: **R19671**	TestNo: **SW8015B**		Analysis Date: **5/20/2009**	SeqNo: **284441**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel)	ND	0.10									
Surr: Pentacosane	0.09100	0	0.1	0	91.0	57.9	125				

Sample ID **WD090520A-LCS**	SampType: **LCS**	TestCode: **TPHD_W**	Units: **mg/L**	Prep Date: **5/20/2009**	RunNo: **19671**
Client ID: **ZZZZZ**	Batch ID: **R19671**	TestNo: **SW8015B**		Analysis Date: **5/20/2009**	SeqNo: **284442**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel)	0.6800	0.10	1	0	68.0	50.3	125				
Surr: Pentacosane	0.09200	0	0.1	0	92.0	57.9	125				

Sample ID **WD090520A-LCSD**	SampType: **LCSD**	TestCode: **TPHD_W**	Units: **mg/L**	Prep Date: **5/20/2009**	RunNo: **19671**
Client ID: **ZZZZZ**	Batch ID: **R19671**	TestNo: **SW8015B**		Analysis Date: **5/20/2009**	SeqNo: **284443**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel)	0.7660	0.10	1	0	76.6	50.3	125	0.68	11.9	30	
Surr: Pentacosane	0.09300	0	0.1	0	93.0	57.9	125	0	0	0	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

Torrent LABORATORY, INC.
483 Sinclair Frontage Road
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 0905122

Company Name: Kleinfelder
Address: 4670 Willow Road, Suite 100
City: Pleasanton State: CA Zip Code: 94588
Telephone: 925-484-1700 FAX:
REPORT TO: SAMPLER:

Location of Sampling: 700 Independent Road, Oakland
Purpose:
Special Instructions / Comments: Report to Sophia Drugan SDrugan@Kleinfelder.com
P.O. #: EMAIL:

TURNAROUND TIME:
☐ 10 Work Days ☐ 3 Work Days ☐ Noon - Nxt Day
☐ 7 Work Days ☐ 2 Work Days ☐ 2 - 8 Hours
☒ 5 Work Days ☐ 1 Work Day ☐ Other

SAMPLE TYPE:
☐ Storm Water ☐ Air
☐ Waste Water ☐ Other
☒ Ground Water
☐ Soil

REPORT FORMAT:
☐ QC Level IV
☐ EDF
☐ Excel / EDD

ANALYSIS REQUESTED

LAB ID	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	EPA 8260B - Full List ☒ / EPA 8260B - 8010 List ☐	BTEX ☒ / MTBE ☐ / TPH gas ☒ / Oxygenates ☐	Si-Gel ☐ / TPH Diesel ☒ / Motor Oil ☐	Pesticide - 8081 ☐	PCB - 8082 ☐	Metals ☐ / CAM - 17 ☐ / LUFT 5 ☐ / 7 Metals ☐	8270 Full List ☐ / PAHs Only ☐			REMARKS
001A	MW-1	5/19/09 1400	W	6	1 Amber 5 VOAs HCl	X	X	X							
002A	MW-2	5/19/09 1450	W	6	↓	X	X	X							
003A	MW-3	5/19/09 1240	W	6	↓	X	X	X							
													Temp 4°C		
														5-19-09	

TORRENT LAB

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	Nathan Berner	Nathan Berner	5/19/09	1631		LORNA D-Juezat	5-19-09	1631
2								

Were Samples Received in Good Condition? ☐ Yes ☐ NO Samples on Ice? ☐ Yes ☐ NO Method of Shipment D/O Sample seals intact? ☐ Yes ☐ NO ☐ N/A

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

Page ____ of ____

Log In By: ____ Date: ____ Log In Reviewed By: ____ Date: ____

Torrent
LABORATORY, INC.

June 03, 2009

Sophia Drugan
KLEINFELDER INC.
4670 Willow Rd, Ste 100
Pleasanton, CA 94588

TEL: (925) 484-1700
FAX 925-484-5838

RE: 54503

Order No.: 0905163

Dear Sophia Drugan:

Torrent Laboratory, Inc. received 9 samples (One sample On hold) on 5/26/2009 for the analyses presented in the following report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.
Reported data is applicable for only the samples received as part of the order number referenced above.

Torrent Laboratory, Inc, is certified by the State of California, ELAP #1991. If you have any questions regarding these tests results, please feel free to contact the Project Management Team at (408)263-5258;ext: 204.

Sincerely,

Laboratory Director 6/3/09 Date

Patti Sandrock
QA Officer

TORRENT LABORATORY, INC.

483 Sinclair Frontage Road • Milpitas, CA • Phone: (408) 263-5258 • Fax: (408) 263-8293

Visit us at www.torrentlab.com email: analysis@torrentlab.com

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 5/26/2009
Date Reported: 6/3/2009

Client Sample ID: 2PS-1-10
Sample Location: 700 Independent Road
Sample Matrix: SOIL
Date/Time Sampled 5/26/2009 10:35:00 AM

Lab Sample ID: 0905163-001
Date Prepared: 5/29/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	5/29/2009	2	1	2.0	ND	mg/Kg	R19694
Surr: Pentacosane	SW8015B	5/29/2009	0	1	61.5-133	90.6	%REC	R19694
Benzene	SW8260B	5/29/2009	10	1	10	ND	µg/Kg	R19716
Toluene	SW8260B	5/29/2009	10	1	10	ND	µg/Kg	R19716
Ethylbenzene	SW8260B	5/29/2009	10	1	10	ND	µg/Kg	R19716
Xylenes, Total	SW8260B	5/29/2009	15	1	15	ND	µg/Kg	R19716
Surr: 4-Bromofluorobenzene	SW8260B	5/29/2009	0	1	55.8-141	99.2	%REC	R19716
Surr: Dibromofluoromethane	SW8260B	5/29/2009	0	1	59.8-148	91.7	%REC	R19716
Surr: Toluene-d8	SW8260B	5/29/2009	0	1	55.2-133	95.9	%REC	R19716
TPH (Gasoline)	SW8260B(TPH)	5/29/2009	100	1	100	ND	µg/Kg	G19716
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	5/29/2009	0	1	56.9-133	86.0	%REC	G19716

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 5/26/2009
Date Reported: 6/3/2009

Client Sample ID: 2PS-1-20
Sample Location: 700 Independent Road
Sample Matrix: SOIL
Date/Time Sampled 5/26/2009 10:45:00 AM

Lab Sample ID: 0905163-002
Date Prepared: 5/29/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	5/29/2009	2	1	2.0	ND	mg/Kg	R19694
Surr: Pentacosane	SW8015B	5/29/2009	0	1	61.5-133	92.0	%REC	R19694
Benzene	SW8260B	5/29/2009	10	1	10	ND	µg/Kg	R19716
Toluene	SW8260B	5/29/2009	10	1	10	ND	µg/Kg	R19716
Ethylbenzene	SW8260B	5/29/2009	10	1	10	ND	µg/Kg	R19716
Xylenes, Total	SW8260B	5/29/2009	15	1	15	ND	µg/Kg	R19716
Surr: 4-Bromofluorobenzene	SW8260B	5/29/2009	0	1	55.8-141	103	%REC	R19716
Surr: Dibromofluoromethane	SW8260B	5/29/2009	0	1	59.8-148	109	%REC	R19716
Surr: Toluene-d8	SW8260B	5/29/2009	0	1	55.2-133	94.1	%REC	R19716
TPH (Gasoline)	SW8260B(TPH)	5/29/2009	100	1	100	ND	µg/Kg	G19716
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	5/29/2009	0	1	56.9-133	84.0	%REC	G19716

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 5/26/2009
Date Reported: 6/3/2009

Client Sample ID: 2PS-2-7
Sample Location: 700 Independent Road
Sample Matrix: SOIL
Date/Time Sampled 5/26/2009 11:45:00 AM

Lab Sample ID: 0905163-003
Date Prepared: 5/29/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	5/29/2009	2	1	2.0	23.7x	mg/Kg	R19694
Surr: Pentacosane	SW8015B	5/29/2009	0	1	61.5-133	87.3	%REC	R19694
Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	5/29/2009	10	100	1000	3100	µg/Kg	R19716
Toluene	SW8260B	5/29/2009	10	100	1000	2800	µg/Kg	R19716
Ethylbenzene	SW8260B	5/29/2009	10	100	1000	8600	µg/Kg	R19716
Xylenes, Total	SW8260B	5/29/2009	15	100	1500	19000	µg/Kg	R19716
Surr: 4-Bromofluorobenzene	SW8260B	5/29/2009	0	100	55.8-141	91.3	%REC	R19716
Surr: Dibromofluoromethane	SW8260B	5/29/2009	0	100	59.8-148	99.5	%REC	R19716
Surr: Toluene-d8	SW8260B	5/29/2009	0	100	55.2-133	104	%REC	R19716
TPH (Gasoline)	SW8260B(TPH)	6/1/2009	100	1000	100000	1200000x	µg/Kg	G19728
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	6/1/2009	0	1000	56.9-133	112	%REC	G19728
Note: x- Sample chromatogram does not resemble gasoline standard pattern. Although TPH as Gasoline constituents are present, TPH value includes a significant portion of non-gasoliner hydrocarbons within range of C5-C12 quantified as Gasoline that biases the quantitation.								

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 5/26/2009
Date Reported: 6/3/2009

Client Sample ID: 2PS-2-11
Sample Location: 700 Independent Road
Sample Matrix: SOIL
Date/Time Sampled 5/26/2009 11:50:00 AM

Lab Sample ID: 0905163-004
Date Prepared: 5/29/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	5/29/2009	2	1	2.0	9.16x	mg/Kg	R19694
Surr: Pentacosane	SW8015B	5/29/2009	0	1	61.5-133	91.1	%REC	R19694
Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	5/29/2009	10	5	50	880	µg/Kg	R19716
Toluene	SW8260B	5/29/2009	10	5	50	ND	µg/Kg	R19716
Ethylbenzene	SW8260B	5/29/2009	10	5	50	750	µg/Kg	R19716
Xylenes, Total	SW8260B	5/29/2009	15	5	75	310	µg/Kg	R19716
Surr: 4-Bromofluorobenzene	SW8260B	5/29/2009	0	5	55.8-141	83.8	%REC	R19716
Surr: Dibromofluoromethane	SW8260B	5/29/2009	0	5	59.8-148	112	%REC	R19716
Surr: Toluene-d8	SW8260B	5/29/2009	0	5	55.2-133	120	%REC	R19716
TPH (Gasoline)	SW8260B(TPH)	6/1/2009	100	100	10000	53000x	µg/Kg	G19728
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	6/1/2009	0	100	56.9-133	98.0	%REC	G19728
Note: x- Sample chromatogram does not resemble gasoline standard pattern. Although TPH as Gasoline constituents are present, TPH value includes a significant portion of non-gasoliner hydrocarbons within range of C5-C12 quantified as Gasoline that biases the quantitation.								

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 5/26/2009
Date Reported: 6/3/2009

Client Sample ID: 2PS-2-15
Sample Location: 700 Independent Road
Sample Matrix: SOIL
Date/Time Sampled 5/26/2009 12:05:00 PM

Lab Sample ID: 0905163-005
Date Prepared: 5/29/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	5/29/2009	2	1	2.0	51.7x	mg/Kg	R19694
Surr: Pentacosane	SW8015B	5/29/2009	0	1	61.5-133	89.2	%REC	R19694
Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	5/29/2009	10	100	1000	3600	µg/Kg	R19716
Toluene	SW8260B	5/29/2009	10	100	1000	ND	µg/Kg	R19716
Ethylbenzene	SW8260B	5/29/2009	10	100	1000	7400	µg/Kg	R19716
Xylenes, Total	SW8260B	5/29/2009	15	100	1500	8800	µg/Kg	R19716
Surr: 4-Bromofluorobenzene	SW8260B	5/29/2009	0	100	55.8-141	83.2	%REC	R19716
Surr: Dibromofluoromethane	SW8260B	5/29/2009	0	100	59.8-148	94.7	%REC	R19716
Surr: Toluene-d8	SW8260B	5/29/2009	0	100	55.2-133	99.4	%REC	R19716
TPH (Gasoline)	SW8260B(TPH)	6/1/2009	100	2000	200000	1700000x	µg/Kg	G19728
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	6/1/2009	0	2000	56.9-133	104	%REC	G19728
Note: Sample chromatogram does not resemble gasoline standard pattern. Although TPH as Gasoline constituents are present, TPH value includes a significant portion of non-gasoliner hydrocarbons within range of C5-C12 quantified as Gasoline that biases the quantitation.								

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 5/26/2009
Date Reported: 6/3/2009

Client Sample ID: 2PS-2-20
Sample Location: 700 Independent Road
Sample Matrix: SOIL
Date/Time Sampled 5/26/2009 12:15:00 PM

Lab Sample ID: 0905163-006
Date Prepared: 5/29/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	6/2/2009	2	10	20	206x	mg/Kg	R19725
Surr: Pentacosane	SW8015B	6/2/2009	0	10	61.5-133	118	%REC	R19725
Note:x-Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	5/29/2009	10	400	4000	12000	µg/Kg	R19716
Toluene	SW8260B	5/29/2009	10	400	4000	54000	µg/Kg	R19716
Ethylbenzene	SW8260B	5/29/2009	10	400	4000	45000	µg/Kg	R19716
Xylenes, Total	SW8260B	5/29/2009	15	400	6000	180000	µg/Kg	R19716
Surr: 4-Bromofluorobenzene	SW8260B	5/29/2009	0	400	55.8-141	87.2	%REC	R19716
Surr: Dibromofluoromethane	SW8260B	5/29/2009	0	400	59.8-148	107	%REC	R19716
Surr: Toluene-d8	SW8260B	5/29/2009	0	400	55.2-133	114	%REC	R19716
TPH (Gasoline)	SW8260B(TPH)	6/1/2009	100	2000	200000	3000000	µg/Kg	G19728
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	6/1/2009	0	2000	56.9-133	104	%REC	G19728

Note: x- Sample chromatogram does not resemble gasoline standard pattern. Although TPH as Gasoline constituents are present, TPH value includes a significant portion of non-gasoliner hydrocarbons within range of C5-C12 quantified as Gasoline that biases the quantitation.

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 5/26/2009
Date Reported: 6/3/2009

Client Sample ID: 2PS-3-10
Sample Location: 700 Independent Road
Sample Matrix: SOIL
Date/Time Sampled 5/26/2009 1:45:00 PM

Lab Sample ID: 0905163-007
Date Prepared: 5/29/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	6/1/2009	2	1	2.0	ND	mg/Kg	R19725
Surr: Pentacosane	SW8015B	6/1/2009	0	1	61.5-133	102	%REC	R19725
Benzene	SW8260B	5/29/2009	10	5	50	160	µg/Kg	R19716
Toluene	SW8260B	5/29/2009	10	5	50	ND	µg/Kg	R19716
Ethylbenzene	SW8260B	5/29/2009	10	5	50	94	µg/Kg	R19716
Xylenes, Total	SW8260B	5/29/2009	15	5	75	ND	µg/Kg	R19716
Surr: 4-Bromofluorobenzene	SW8260B	5/29/2009	0	5	55.8-141	83.4	%REC	R19716
Surr: Dibromofluoromethane	SW8260B	5/29/2009	0	5	59.8-148	105	%REC	R19716
Surr: Toluene-d8	SW8260B	5/29/2009	0	5	55.2-133	84.5	%REC	R19716
TPH (Gasoline)	SW8260B(TPH)	6/1/2009	100	5	500	8200x	µg/Kg	G19728
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	6/1/2009	0	5	56.9-133	94.0	%REC	G19728

Note: x- Sample chromatogram does not resemble gasoline standard pattern. Although TPH as Gasoline constituents are present, TPH value includes a significant portion of non-gasoliner hydrocarbons within range of C5-C12 quantified as Gasoline that biases the quantitation.

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 5/26/2009
Date Reported: 6/3/2009

Client Sample ID: 2PS-3-21
Sample Location: 700 Independent Road
Sample Matrix: SOIL
Date/Time Sampled 5/26/2009 2:05:00 PM

Lab Sample ID: 0905163-009
Date Prepared: 5/29/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	6/1/2009	2	1	2.0	5.49x	mg/Kg	R19725
Surr: Pentacosane	SW8015B	6/1/2009	0	1	61.5-133	88.7	%REC	R19725
Note:x-Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	5/29/2009	10	100	1000	ND	µg/Kg	R19716
Toluene	SW8260B	5/29/2009	10	100	1000	ND	µg/Kg	R19716
Ethylbenzene	SW8260B	5/29/2009	10	100	1000	1500	µg/Kg	R19716
Xylenes, Total	SW8260B	5/29/2009	15	100	1500	2100	µg/Kg	R19716
Surr: 4-Bromofluorobenzene	SW8260B	5/29/2009	0	100	55.8-141	88.9	%REC	R19716
Surr: Dibromofluoromethane	SW8260B	5/29/2009	0	100	59.8-148	109	%REC	R19716
Surr: Toluene-d8	SW8260B	5/29/2009	0	100	55.2-133	89.9	%REC	R19716
TPH (Gasoline)	SW8260B(TPH)	5/29/2009	100	100	10000	64000x	µg/Kg	G19716
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	5/29/2009	0	100	56.9-133	82.0	%REC	G19716

Note: x- Sample chromatogram does not resemble gasoline standard pattern. Although TPH as Gasoline constituents are present, TPH value includes a significant portion of non-gasoline hydrocarbons within range of C5-C12 quantified as Gasoline that biases the quantitation.

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Definitions, legends and Notes

Note	Description
ug/kg	Microgram per kilogram (ppb, part per billion).
ug/L	Microgram per liter (ppb, part per billion).
mg/kg	Milligram per kilogram (ppm, part per million).
mg/L	Milligram per liter (ppm, part per million).
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate.
MDL	Method detection limit.
MRL	Modified reporting limit. When sample is subject to dilution, reporting limit times dilution factor yields MRL.
MS/MSD	Matrix spike/matrix spike duplicate.
N/A	Not applicable.
ND	Not detected at or above detection limit.
NR	Not reported.
QC	Quality Control.
RL	Reporting limit.
% RPD	Percent relative difference.
a	pH was measured immediately upon the receipt of the sample, but it was still done outside the holding time.
sub	Analyzed by subcontracting laboratory, Lab Certificate #

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

CLIENT: KLEINFELDER INC.
Work Order: 0905163
Project: 54503

ANALYTICAL QC SUMMARY REPORT

BatchID: G19716

Sample ID **MB_G19716**	SampType: **MBLK**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **5/29/2009**	RunNo: **19716**
Client ID: **ZZZZZ**	Batch ID: **G19716**	TestNo: **SW8260B(TP**		Analysis Date: **5/29/2009**	SeqNo: **285101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	ND	100									
Surr: 4-Bromofllurobenzene	51.00	0	50	0	102	56.9	133				

Sample ID **LCS_G19716**	SampType: **LCS**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **5/28/2009**	RunNo: **19716**
Client ID: **ZZZZZ**	Batch ID: **G19716**	TestNo: **SW8260B(TP**		Analysis Date: **5/28/2009**	SeqNo: **285102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	926.0	100	1000	0	92.6	48.2	132				
Surr: 4-Bromofllurobenzene	52.00	0	50	0	104	56.9	133				

Sample ID **LCSD_G19716**	SampType: **LCSD**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **5/29/2009**	RunNo: **19716**
Client ID: **ZZZZZ**	Batch ID: **G19716**	TestNo: **SW8260B(TP**		Analysis Date: **5/29/2009**	SeqNo: **285103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	876.0	100	1000	0	87.6	48.2	132	926	5.55	30	
Surr: 4-Bromofllurobenzene	52.00	0	50	0	104	56.9	133	0	0	0	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: KLEINFELDER INC.
Work Order: 0905163
Project: 54503

ANALYTICAL QC SUMMARY REPORT

BatchID: G19728

Sample ID **MB_G19728**	SampType: **MBLK**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **6/1/2009**	RunNo: **19728**
Client ID: **ZZZZZ**	Batch ID: **G19728**	TestNo: **SW8260B(TP**		Analysis Date: **6/1/2009**	SeqNo: **285342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	ND	100									
Surr: 4-Bromofllurobenzene	56.00	0	50	0	112	56.9	133				

Sample ID **LCS_G19728**	SampType: **LCS**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **6/1/2009**	RunNo: **19728**
Client ID: **ZZZZZ**	Batch ID: **G19728**	TestNo: **SW8260B(TP**		Analysis Date: **6/1/2009**	SeqNo: **285343**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	958.0	100	1000	46	91.2	48.2	132				
Surr: 4-Bromofllurobenzene	50.00	0	50	0	100	56.9	133				

Sample ID **LCSD_G19728**	SampType: **LCSD**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **6/1/2009**	RunNo: **19728**
Client ID: **ZZZZZ**	Batch ID: **G19728**	TestNo: **SW8260B(TP**		Analysis Date: **6/1/2009**	SeqNo: **285345**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	1074	100	1000	46	103	48.2	132	958	11.4	30	
Surr: 4-Bromofllurobenzene	59.00	0	50	0	118	56.9	133	0	0	0	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: KLEINFELDER INC.
Work Order: 0905163
Project: 54503

ANALYTICAL QC SUMMARY REPORT

BatchID: R19694

Sample ID **SDSG090527A-MB** SampType: **MBLK** TestCode: **TPHDOSG_S** Units: **mg/Kg** Prep Date: **5/27/2009** RunNo: **19694**
Client ID: **ZZZZZ** Batch ID: **R19694** TestNo: **SW8015B** Analysis Date: **5/28/2009** SeqNo: **284751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	ND	2.0									
Surr: Pentacosane	3.006	0	3.3	0	91.1	61.5	133				

Sample ID **SDSG090527A-LCS** SampType: **LCS** TestCode: **TPHDOSG_S** Units: **mg/Kg** Prep Date: **5/27/2009** RunNo: **19694**
Client ID: **ZZZZZ** Batch ID: **R19694** TestNo: **SW8015B** Analysis Date: **5/28/2009** SeqNo: **284752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	26.41	2.0	33.33	0	79.2	50.8	111				
Surr: Pentacosane	3.103	0	3.3	0	94.0	61.5	133				

Sample ID **SDSG090527A-LCS** SampType: **LCSD** TestCode: **TPHDOSG_S** Units: **mg/Kg** Prep Date: **5/27/2009** RunNo: **19694**
Client ID: **ZZZZZ** Batch ID: **R19694** TestNo: **SW8015B** Analysis Date: **5/28/2009** SeqNo: **284753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	25.70	2.0	33.33	0	77.1	50.8	111	26.41	2.74	30	
Surr: Pentacosane	3.045	0	3.3	0	92.3	61.5	133	0	0	0	

Qualifiers:
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: KLEINFELDER INC.
Work Order: 0905163
Project: 54503

ANALYTICAL QC SUMMARY REPORT

BatchID: R19716

Sample ID **MB_R19716**	SampType: **MBLK**	TestCode: **8260B_S**	Units: **µg/Kg**	Prep Date: **5/29/2009**	RunNo: **19716**
Client ID: **ZZZZZ**	Batch ID: **R19716**	TestNo: **SW8260B**		Analysis Date: **5/29/2009**	SeqNo: **285033**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	10									
Ethylbenzene	ND	10									
Toluene	ND	10									
Xylenes, Total	ND	15									
Surr: 4-Bromofluorobenzene	49.26	0	50	0	98.5	55.8	141				
Surr: Dibromofluoromethane	62.28	0	50	0	125	59.8	148				
Surr: Toluene-d8	45.36	0	50	0	90.7	55.2	133				

Sample ID **LCS_R19716**	SampType: **LCS**	TestCode: **8260B_S**	Units: **µg/Kg**	Prep Date: **5/29/2009**	RunNo: **19716**
Client ID: **ZZZZZ**	Batch ID: **R19716**	TestNo: **SW8260B**		Analysis Date: **5/29/2009**	SeqNo: **285034**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	49.76	10	50	0	99.5	66.5	135				
Toluene	53.01	10	50	0	106	56.8	134				
Surr: 4-Bromofluorobenzene	47.89	0	50	0	95.8	55.8	141				
Surr: Dibromofluoromethane	45.86	0	50	0	91.7	59.8	148				
Surr: Toluene-d8	54.63	0	50	0	109	55.2	133				

Sample ID **LCSD_R19716**	SampType: **LCSD**	TestCode: **8260B_S**	Units: **µg/Kg**	Prep Date: **5/29/2009**	RunNo: **19716**
Client ID: **ZZZZZ**	Batch ID: **R19716**	TestNo: **SW8260B**		Analysis Date: **5/29/2009**	SeqNo: **285035**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	59.77	10	50	0	120	66.5	135	49.76	18.3	30	
Toluene	45.81	10	50	0	91.6	56.8	134	53.01	14.6	30	
Surr: 4-Bromofluorobenzene	50.13	0	50	0	100	55.8	141	0	0	0	
Surr: Dibromofluoromethane	55.91	0	50	0	112	59.8	148	0	0	0	
Surr: Toluene-d8	45.49	0	50	0	91.0	55.2	133	0	0	0	

Qualifiers:
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: KLEINFELDER INC.
Work Order: 0905163
Project: 54503

ANALYTICAL QC SUMMARY REPORT

BatchID: R19725

Sample ID **SDSG090528A-MB**	SampType: **MBLK**	TestCode: **TPHDOSG_S**	Units: **mg/Kg**	Prep Date: **5/28/2009**	RunNo: **19725**
Client ID: **ZZZZZ**	Batch ID: **R19725**	TestNo: **SW8015B**		Analysis Date: **5/29/2009**	SeqNo: **285293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	ND	2.0									
Surr: Pentacosane	3.850	0	3.3	0	117	61.5	133				

Sample ID **SDSG090528A-LCS**	SampType: **LCS**	TestCode: **TPHDOSG_S**	Units: **mg/Kg**	Prep Date: **5/28/2009**	RunNo: **19725**
Client ID: **ZZZZZ**	Batch ID: **R19725**	TestNo: **SW8015B**		Analysis Date: **5/29/2009**	SeqNo: **285294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	31.35	2.0	33.33	0	94.1	50.8	111				
Surr: Pentacosane	3.774	0	3.3	0	114	61.5	133				

Sample ID **SDSG090528A-LCS**	SampType: **LCSD**	TestCode: **TPHDOSG_S**	Units: **mg/Kg**	Prep Date: **5/28/2009**	RunNo: **19725**
Client ID: **ZZZZZ**	Batch ID: **R19725**	TestNo: **SW8015B**		Analysis Date: **5/29/2009**	SeqNo: **285295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	29.88	2.0	33.33	0	89.7	50.8	111	31.35	4.81	30	
Surr: Pentacosane	3.805	0	3.3	0	115	61.5	133	0	0	0	

Sample ID **SDSG090601A-MB**	SampType: **MBLK**	TestCode: **TPHDSG_S**	Units: **mg/Kg**	Prep Date: **5/28/2009**	RunNo: **19725**
Client ID: **ZZZZZ**	Batch ID: **R19725**	TestNo: **SW8015B**		Analysis Date: **6/2/2009**	SeqNo: **285352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	ND	2.0									
Surr: Pentacosane	3.277	0	3.3	0	99.3	61.5	133				

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

Torrent Laboratory, Inc.

WORK ORDER Summary

27-May-09

Work Order 0905163

Client ID: KLEINFELDER (PLEASANTON)

Project: 54503 **QC Level:**

Comments: 5 day TAT!! Pls email results to sdrugan@kleinfelder.com.

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
0905163-001A	2PS-1-10	5/26/2009 10:35:00 AM	5/26/2009	6/1/2009	Soil	8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				6/1/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				6/1/2009		TPHDSG_S	☐	☐	☐	☐	SR
0905163-002A	2PS-1-20	5/26/2009 10:45:00 AM		6/1/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				6/1/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				6/1/2009		TPHDSG_S	☐	☐	☐	☐	SR
0905163-003A	2PS-2-7	5/26/2009 11:45:00 AM		6/1/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				6/1/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				6/1/2009		TPHDSG_S	☐	☐	☐	☐	SR
0905163-004A	2PS-2-11	5/26/2009 11:50:00 AM		6/1/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				6/1/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				6/1/2009		TPHDSG_S	☐	☐	☐	☐	SR
0905163-005A	2PS-2-15	5/26/2009 12:05:00 PM		6/1/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				6/1/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				6/1/2009		TPHDSG_S	☐	☐	☐	☐	SR
0905163-006A	2PS-2-20	5/26/2009 12:15:00 PM		6/1/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				6/1/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				6/1/2009		TPHDSG_S	☐	☐	☐	☐	SR
0905163-007A	2PS-3-10	5/26/2009 1:45:00 PM		6/1/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				6/1/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				6/1/2009		TPHDSG_S	☐	☐	☐	☐	SR
0905163-008A	2PS-3-20	5/26/2009 1:50:00 PM		6/1/2009		8260B_S_PETROLEUM	☑	☐	☑	☐	SR
				6/1/2009		TPH_GAS_S_GCMS	☑	☐	☐	☐	SR
				6/1/2009		TPHDSG_S	☑	☐	☐	☐	SR
0905163-009A	2PS-3-21	5/26/2009 2:05:00 PM		6/1/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				6/1/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				6/1/2009		TPHDSG_S	☐	☐	☐	☐	SR

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.	PROJECT NAME	NO. OF CON-TAINERS	TYPE OF CON-TAINERS	ANALYSIS: TPHg / BTEX (8260) / TPHd silica gel cleanup (8015)	RECEIVING LAB: Torrent Lab 0905163
54503	700 Independent Road				
L.P. NO. (PO. NO.)	SAMPLERS: (Signature/Number) Nathan Berner				INSTRUCTIONS/REMARKS ~~Rush to~~ Standard turnaround

		DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	NO. OF CON-TAINERS	TYPE OF CON-TAINERS	TPHg	BTEX (8260)	TPHd silica gel cleanup (8015)											
001A	1	5/26/09	1035	2PS-1-10	S	1		X	X												
002A	2	5/26/09	1045	2PS-1-20	S	1		X	X												
003A	3	5/26/09	1145	2PS-2-7	S	1		X	X												~~Hold~~ WAB
004A	4	5/26/09	1150	2PS-2-11	S	1		X	X												~~Hold~~ WAB
005A	5	5/26/09	1205	2PS-2-15	S	1		X	X												
006A	6	5/26/09	1215	2PS-2-20	S	1		X	X												
007A	7	5/26/09	1345	2PS-3-10	S	1		X	X												
008A	8	5/26/09	1350	2PS-3-20	S	1															Hold
009A	9	5/26/09	1405	2PS-3-21	S	1		X	X												
	10																				
	11																				
	12																				
	13																				
	14																				
	15																				
	16																				
	17																				
	18																				
	19																				
	20																				

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Instructions/Remarks:	Send Results To:
Nathan Berner	5/26/09 1611	W. Leslie	5/26/09 16:11 pm	Sophia Drugan SDrugan@Kleinfelder.com
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		Attn:
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)		

ENV-02 REV 05/08)

White – Sampler Canary – Return Copy To Shipper Pink – Lab Copy

CHAIN OF CUSTODY

Drop-off

COC No 15336

Torrent
LABORATORY, INC.

July 09, 2009

Sophia Drugan
KLEINFELDER INC.
4670 Willow Rd, Ste 100
Pleasanton, CA 94588

TEL: (925) 484-1700
FAX 925-484-5838

RE: 54504/700 Independent Rd

Order No.: 0906269

Dear Sophia Drugan:

Torrent Laboratory, Inc. received 6 samples on 6/30/2009 for the analyses presented in the following report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.
Reported data is applicable for only the samples received as part of the order number referenced above.

Torrent Laboratory, Inc, is certified by the State of California, ELAP #1991. If you have any questions regarding these tests results, please feel free to contact the Project Management Team at (408)263-5258;ext: 204.

Sincerely,

Laboratory Director 7/9/09 Date

Patti Sandrock
QA Officer

TORRENT LABORATORY, INC.

483 Sinclair Frontage Road • Milpitas, CA • Phone: (408) 263-5258 • Fax: (408) 263-8293

Visit us at www.torrentlab.com email: analysis@torrentlab.com

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/9/2009

Client Sample ID: MW-4
Sample Location: 700 Independent Rd
Sample Matrix: GROUNDWATER
Date/Time Sampled 6/29/2009 11:10:00 AM

Lab Sample ID: 0906269-001
Date Prepared: 7/8/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/7/2009	0.1	1	0.10	ND	mg/L	R20194
Surr: Pentacosane	SW8015B	7/7/2009	0	1	64.2-123	85.0	%REC	R20194
Benzene	SW8260B	7/8/2009	0.5	1	0.50	ND	µg/L	R20201
Toluene	SW8260B	7/8/2009	0.5	1	0.50	ND	µg/L	R20201
Ethylbenzene	SW8260B	7/8/2009	0.5	1	0.50	ND	µg/L	R20201
Xylenes, Total	SW8260B	7/8/2009	1.5	1	1.5	ND	µg/L	R20201
Surr: Dibromofluoromethane	SW8260B	7/8/2009	0	1	61.2-131	85.8	%REC	R20201
Surr: 4-Bromofluorobenzene	SW8260B	7/8/2009	0	1	64.1-120	88.1	%REC	R20201
Surr: Toluene-d8	SW8260B	7/8/2009	0	1	75.1-127	82.8	%REC	R20201
TPH (Gasoline)	SW8260B(TPH)	7/8/2009	50	1	50	ND	µg/L	G20201
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/8/2009	0	1	53-118	103	%REC	G20201

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/9/2009

Client Sample ID: MW-5
Sample Location: 700 Independent Rd
Sample Matrix: GROUNDWATER
Date/Time Sampled 6/30/2009 10:34:00 AM

Lab Sample ID: 0906269-002
Date Prepared: 7/8/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/7/2009	0.1	1	0.10	ND	mg/L	R20194
Surr: Pentacosane	SW8015B	7/7/2009	0	1	64.2-123	93.0	%REC	R20194
Benzene	SW8260B	7/8/2009	0.5	1	0.50	ND	µg/L	R20201
Toluene	SW8260B	7/8/2009	0.5	1	0.50	ND	µg/L	R20201
Ethylbenzene	SW8260B	7/8/2009	0.5	1	0.50	ND	µg/L	R20201
Xylenes, Total	SW8260B	7/8/2009	1.5	1	1.5	ND	µg/L	R20201
Surr: Dibromofluoromethane	SW8260B	7/8/2009	0	1	61.2-131	83.2	%REC	R20201
Surr: 4-Bromofluorobenzene	SW8260B	7/8/2009	0	1	64.1-120	85.7	%REC	R20201
Surr: Toluene-d8	SW8260B	7/8/2009	0	1	75.1-127	81.3	%REC	R20201
TPH (Gasoline)	SW8260B(TPH)	7/8/2009	50	1	50	ND	µg/L	G20201
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/8/2009	0	1	53-118	96.6	%REC	G20201

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/9/2009

Client Sample ID: MW-3
Sample Location: 700 Independent Rd
Sample Matrix: GROUNDWATER
Date/Time Sampled 6/30/2009 11:55:00 AM

Lab Sample ID: 0906269-003
Date Prepared: 7/7/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/7/2009	0.1	1	0.10	ND	mg/L	R20194
Surr: Pentacosane	SW8015B	7/7/2009	0	1	64.2-123	104	%REC	R20194
Benzene	SW8260B	7/7/2009	0.5	1	0.50	ND	µg/L	R20201
Toluene	SW8260B	7/7/2009	0.5	1	0.50	ND	µg/L	R20201
Ethylbenzene	SW8260B	7/7/2009	0.5	1	0.50	ND	µg/L	R20201
Xylenes, Total	SW8260B	7/7/2009	1.5	1	1.5	ND	µg/L	R20201
Surr: Dibromofluoromethane	SW8260B	7/7/2009	0	1	61.2-131	79.0	%REC	R20201
Surr: 4-Bromofluorobenzene	SW8260B	7/7/2009	0	1	64.1-120	91.3	%REC	R20201
Surr: Toluene-d8	SW8260B	7/7/2009	0	1	75.1-127	82.9	%REC	R20201
TPH (Gasoline)	SW8260B(TPH)	7/7/2009	50	1	50	ND	µg/L	G20201
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/7/2009	0	1	53-118	101	%REC	G20201

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/9/2009

Client Sample ID: MW-1
Sample Location: 700 Independent Rd
Sample Matrix: GROUNDWATER
Date/Time Sampled 6/30/2009 2:24:00 PM

Lab Sample ID: 0906269-004
Date Prepared: 7/7/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/7/2009	0.1	1	0.10	ND	mg/L	R20194
Surr: Pentacosane	SW8015B	7/7/2009	0	1	64.2-123	94.0	%REC	R20194
Benzene	SW8260B	7/7/2009	0.5	8.8	4.4	99	µg/L	R20201
Toluene	SW8260B	7/7/2009	0.5	8.8	4.4	15	µg/L	R20201
Ethylbenzene	SW8260B	7/7/2009	0.5	8.8	4.4	33	µg/L	R20201
Xylenes, Total	SW8260B	7/7/2009	1.5	8.8	13	34	µg/L	R20201
Surr: Dibromofluoromethane	SW8260B	7/7/2009	0	8.8	61.2-131	79.2	%REC	R20201
Surr: 4-Bromofluorobenzene	SW8260B	7/7/2009	0	8.8	64.1-120	80.4	%REC	R20201
Surr: Toluene-d8	SW8260B	7/7/2009	0	8.8	75.1-127	82.5	%REC	R20201
TPH (Gasoline)	SW8260B(TPH)	7/7/2009	50	8.8	440	870	µg/L	G20201
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/7/2009	0	8.8	53-118	99.1	%REC	G20201

Note: Although TPH as Gasoline is present, result is elevated due to presence of non-target compounds within range of C5-C12 quantified as Gasoline.

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/9/2009

Client Sample ID: MW-2
Sample Location: 700 Independent Rd
Sample Matrix: GROUNDWATER
Date/Time Sampled 6/30/2009 3:30:00 PM

Lab Sample ID: 0906269-005
Date Prepared: 7/7/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/7/2009	0.1	1	0.10	0.657x	mg/L	R20194
Surr: Pentacosane	SW8015B	7/7/2009	0	1	64.2-123	96.0	%REC	R20194
Note:x-Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	7/7/2009	0.5	88	44	7300	µg/L	R20201
Toluene	SW8260B	7/7/2009	0.5	88	44	ND	µg/L	R20201
Ethylbenzene	SW8260B	7/7/2009	0.5	88	44	400	µg/L	R20201
Xylenes, Total	SW8260B	7/7/2009	1.5	88	130	330	µg/L	R20201
Surr: Dibromofluoromethane	SW8260B	7/7/2009	0	88	61.2-131	84.9	%REC	R20201
Surr: 4-Bromofluorobenzene	SW8260B	7/7/2009	0	88	64.1-120	88.0	%REC	R20201
Surr: Toluene-d8	SW8260B	7/7/2009	0	88	75.1-127	82.6	%REC	R20201
TPH (Gasoline)	SW8260B(TPH)	7/7/2009	50	88	4400	20000	µg/L	G20201
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/7/2009	0	88	53-118	100	%REC	G20201

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/9/2009

Client Sample ID: MW-2D
Sample Location: 700 Independent Rd
Sample Matrix: GROUNDWATER
Date/Time Sampled 6/30/2009 3:30:00 PM

Lab Sample ID: 0906269-006
Date Prepared: 7/7/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/7/2009	0.1	1	0.10	0.624x	mg/L	R20194
Surr: Pentacosane	SW8015B	7/7/2009	0	1	64.2-123	89.0	%REC	R20194
Note:x-Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	7/7/2009	0.5	88	44	7600	µg/L	R20201
Toluene	SW8260B	7/7/2009	0.5	88	44	ND	µg/L	R20201
Ethylbenzene	SW8260B	7/7/2009	0.5	88	44	370	µg/L	R20201
Xylenes, Total	SW8260B	7/7/2009	1.5	88	130	300	µg/L	R20201
Surr: Dibromofluoromethane	SW8260B	7/7/2009	0	88	61.2-131	85.6	%REC	R20201
Surr: 4-Bromofluorobenzene	SW8260B	7/7/2009	0	88	64.1-120	84.0	%REC	R20201
Surr: Toluene-d8	SW8260B	7/7/2009	0	88	75.1-127	83.5	%REC	R20201
TPH (Gasoline)	SW8260B(TPH)	7/7/2009	50	88	4400	20000	µg/L	G20201
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/7/2009	0	88	53-118	100	%REC	G20201

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Definitions, legends and Notes

Note	Description
ug/kg	Microgram per kilogram (ppb, part per billion).
ug/L	Microgram per liter (ppb, part per billion).
mg/kg	Milligram per kilogram (ppm, part per million).
mg/L	Milligram per liter (ppm, part per million).
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate.
MDL	Method detection limit.
MRL	Modified reporting limit. When sample is subject to dilution, reporting limit times dilution factor yields MRL.
MS/MSD	Matrix spike/matrix spike duplicate.
N/A	Not applicable.
ND	Not detected at or above detection limit.
NR	Not reported.
QC	Quality Control.
RL	Reporting limit.
% RPD	Percent relative difference.
a	pH was measured immediately upon the receipt of the sample, but it was still done outside the holding time.
sub	Analyzed by subcontracting laboratory, Lab Certificate #

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

CLIENT: KLEINFELDER INC.
Work Order: 0906269
Project: 54504/700 Independent Rd

ANALYTICAL QC SUMMARY REPORT

BatchID: G20201

Sample ID **MB-G20201**	SampType: **MBLK**	TestCode: **TPH_GAS_W**	Units: **µg/L**	Prep Date: **7/7/2009**	RunNo: **20201**
Client ID: **ZZZZZ**	Batch ID: **G20201**	TestNo: **SW8260B(TP**		Analysis Date: **7/7/2009**	SeqNo: **292460**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	ND	50									
Surr: 4-Bromofllurobenzene	10.00	0	11.36	0	88.0	53	118				

Sample ID **LCS-G20201**	SampType: **LCS**	TestCode: **TPH_GAS_W**	Units: **µg/L**	Prep Date: **7/7/2009**	RunNo: **20201**
Client ID: **ZZZZZ**	Batch ID: **G20201**	TestNo: **SW8260B(TP**		Analysis Date: **7/7/2009**	SeqNo: **292461**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	215.0	50	227	0	94.7	52.4	127				
Surr: 4-Bromofllurobenzene	10.90	0	11.36	0	96.0	53	118				

Sample ID **LCSD-G20201**	SampType: **LCSD**	TestCode: **TPH_GAS_W**	Units: **µg/L**	Prep Date: **7/8/2009**	RunNo: **20201**
Client ID: **ZZZZZ**	Batch ID: **G20201**	TestNo: **SW8260B(TP**		Analysis Date: **7/8/2009**	SeqNo: **292462**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	208.0	50	227	0	91.6	52.4	127	215	3.31	20	
Surr: 4-Bromofllurobenzene	11.20	0	11.36	0	98.6	53	118	0	0	0	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: KLEINFELDER INC.
Work Order: 0906269
Project: 54504/700 Independent Rd

ANALYTICAL QC SUMMARY REPORT

BatchID: R20194

Sample ID **WDSG090702A-MB**	SampType: **MBLK**	TestCode: **TPHDOSG_**	Units: **mg/L**	Prep Date: **7/2/2009**	RunNo: **20194**
Client ID: **ZZZZZ**	Batch ID: **R20194**	TestNo: **SW8015B**		Analysis Date: **7/7/2009**	SeqNo: **292254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	ND	0.10									
Surr: Pentacosane	0.08400	0	0.1	0	84.0	64.2	123				

Sample ID **WDSG090702A-LCS**	SampType: **LCS**	TestCode: **TPHDOSG_**	Units: **mg/L**	Prep Date: **7/2/2009**	RunNo: **20194**
Client ID: **ZZZZZ**	Batch ID: **R20194**	TestNo: **SW8015B**		Analysis Date: **7/7/2009**	SeqNo: **292255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	0.7010	0.10	1	0	70.1	34.5	95.6				
Surr: Pentacosane	0.08600	0	0.1	0	86.0	64.2	123				

Sample ID **WDSG090702A-LCS**	SampType: **LCSD**	TestCode: **TPHDOSG_**	Units: **mg/L**	Prep Date: **7/2/2009**	RunNo: **20194**
Client ID: **ZZZZZ**	Batch ID: **R20194**	TestNo: **SW8015B**		Analysis Date: **7/7/2009**	SeqNo: **292256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	0.7420	0.10	1	0	74.2	34.5	95.6	0.701	5.68	30	
Surr: Pentacosane	0.08200	0	0.1	0	82.0	64.2	123	0	0	0	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: KLEINFELDER INC.
Work Order: 0906269
Project: 54504/700 Independent Rd

ANALYTICAL QC SUMMARY REPORT

BatchID: R20201

Sample ID **MB_R20201**	SampType: **MBLK**	TestCode: **8260B_W**	Units: **µg/L**	Prep Date: **7/7/2009**	RunNo: **20201**
Client ID: **ZZZZZ**	Batch ID: **R20201**	TestNo: **SW8260B**		Analysis Date: **7/7/2009**	SeqNo: **292373**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Ethylbenzene	ND	0.50									
Toluene	ND	0.50									
Xylenes, Total	ND	1.5									
Surr: Dibromofluoromethane	9.190	0	11.36	0	80.9	61.2	131				
Surr: 4-Bromofluorobenzene	9.220	0	11.36	0	81.2	64.1	120				
Surr: Toluene-d8	9.580	0	11.36	0	84.3	75.1	127				

Sample ID **LCS_R20201**	SampType: **LCS**	TestCode: **8260B_W**	Units: **µg/L**	Prep Date: **7/7/2009**	RunNo: **20201**
Client ID: **ZZZZZ**	Batch ID: **R20201**	TestNo: **SW8260B**		Analysis Date: **7/7/2009**	SeqNo: **292375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.97	0.50	17.04	0	117	66.9	140				
Toluene	16.92	0.50	17.04	0	99.3	76.6	123				
Surr: Dibromofluoromethane	10.56	0	11.36	0	93.0	61.2	131				
Surr: 4-Bromofluorobenzene	9.270	0	11.36	0	81.6	64.1	120				
Surr: Toluene-d8	9.810	0	11.36	0	86.4	75.1	127				

Sample ID **LCSD_R20201**	SampType: **LCSD**	TestCode: **8260B_W**	Units: **µg/L**	Prep Date: **7/7/2009**	RunNo: **20201**
Client ID: **ZZZZZ**	Batch ID: **R20201**	TestNo: **SW8260B**		Analysis Date: **7/7/2009**	SeqNo: **292376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	17.51	0.50	17.04	0	103	66.9	140	19.97	13.1	20	
Toluene	16.11	0.50	17.04	0	94.5	76.6	123	16.92	4.90	20	
Surr: Dibromofluoromethane	10.05	0	11.36	0	88.5	61.2	131	0	0	0	
Surr: 4-Bromofluorobenzene	9.310	0	11.36	0	82.0	64.1	120	0	0	0	
Surr: Toluene-d8	9.900	0	11.36	0	87.1	75.1	127	0	0	0	

Qualifiers:
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Torrent Laboratory, Inc.

WORK ORDER Summary

01-Jul-09

Work Order 0906269

Client ID: KLEINFELDER (PLEASANTON)

Project: 54504/700 Independent Rd **QC Level:**

Comments: 5 Day TAT!! TPHG/ BTEX. TPHD with SiO2! Report to Sophia and Nathan EDF requested - check with client!

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
0906269-001A	MW-4	6/29/2009 11:10:00 AM	6/30/2009	7/7/2009	Groundwater	8260B_W_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		EDF	☐	☐	☐	☐	SR
				7/7/2009		TPH_GAS_W_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_W	☐	☐	☐	☐	SR
0906269-002A	MW-5	6/30/2009 10:34:00 AM		7/7/2009		8260B_W_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_W_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_W	☐	☐	☐	☐	SR
0906269-003A	MW-3	6/30/2009 11:55:00 AM		7/7/2009		8260B_W_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_W_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_W	☐	☐	☐	☐	SR
0906269-004A	MW-1	6/30/2009 2:24:00 PM		7/7/2009		8260B_W_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_W_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_W	☐	☐	☐	☐	SR
0906269-005A	MW-2	6/30/2009 3:30:00 PM		7/7/2009		8260B_W_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_W_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_W	☐	☐	☐	☐	SR
0906269-006A	MW-2D			7/7/2009		8260B_W_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_W_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_W	☐	☐	☐	☐	SR

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.	PROJECT NAME	NO. OF CON-TAINERS	TYPE OF CON-TAINERS	ANALYSIS: TPHg BTEX 8260 TPHd silica gel cleanup 8015	RECEIVING LAB:
54504	700 Independent Rd				0906269
L.P. NO. (PO. NO.)	SAMPLERS: (Signature/Number) Nathan Berner				INSTRUCTIONS/REMARKS: Standard Turnaround Time

	DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	NO. OF CON-TAINERS	TYPE OF CON-TAINERS	ANALYSIS													
1	6/29/09	1110	MW-4	W	4	3 VOAs 1 Amber	X	X												-001A
2	6/30/09	1034	MW-5	W	4	↓	X	X												-002A
3	6/30/09	1155	MW-3	W	4		X	X												-003A
4	6/30/09	1424	MW-1	W	4		X	X												-004A
5	6/30/09	1530	MW-2	W	4		X	X												-005A
6	6/30/09	1530	MW-2D	W	4	↓	X	X												-006A
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				

Temp 4°C
6-30-09

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Instructions/Remarks:	Send Results To:
Nathan Berner	6/30/09 1723	NAVIN G.		Sophia Drugan
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)		Attn:

ENV-02 REV 05/08)

White – Sampler Canary – Return Copy To Shipper Pink – Lab Copy

D/O.

CHAIN OF CUSTODY

COC No 15339

Torrent
LABORATORY, INC.

July 13, 2009

Sophia Drugan
KLEINFELDER INC.
4670 Willow Rd, Ste 100
Pleasanton, CA 94588

TEL: (925) 484-1700
FAX 925-484-5838

RE: 54504/700 Independent Rd

Order No.: 0906270

Dear Sophia Drugan:

Torrent Laboratory, Inc. received 9 samples on 6/30/2009 for the analyses presented in the following report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.
Reported data is applicable for only the samples received as part of the order number referenced above.

Torrent Laboratory, Inc, is certified by the State of California, ELAP #1991. If you have any questions regarding these tests results, please feel free to contact the Project Management Team at (408)263-5258;ext: 204.

Sincerely,

Laboratory Director 7/13/09 Date

Patti Sandrock
QA Officer

Torrent Laboratory, Inc.

Date: *13-Jul-09*

CLIENT: KLEINFELDER INC.
Project: 54504/700 Independent Rd
Lab Order: 0906270

CASE NARRATIVE

Analytical Comment for Method TPH Diesel, Note:The % recovery in the MS for Diesel is outside of laboratory control limits but within % RPD limits and % recovery limits for the LCS/LCSD. No corrective action is required.

TORRENT LABORATORY, INC.

483 Sinclair Frontage Road • Milpitas, CA • Phone: (408) 263-5258 • Fax: (408) 263-8293

Visit us at www.torrentlab.com email: analysis@torrentlab.com

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/13/2009

Client Sample ID: 2PS-3A-10
Sample Location: 54504/700 Independent Rd
Sample Matrix: SOIL
Date/Time Sampled 6/29/2009 1:43:00 PM

Lab Sample ID: 0906270-001
Date Prepared: 7/8/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/10/2009	2	1	2.0	3.45x	mg/Kg	R20249
Surr: Pentacosane	SW8015B	7/10/2009	0	1	61.5-133	89.5	%REC	R20249
Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	7/8/2009	10	100	1000	ND	µg/Kg	P20223
Toluene	SW8260B	7/8/2009	10	100	1000	ND	µg/Kg	P20223
Ethylbenzene	SW8260B	7/8/2009	10	100	1000	ND	µg/Kg	P20223
Xylenes, Total	SW8260B	7/8/2009	15	100	1500	ND	µg/Kg	P20223
Surr: 4-Bromofluorobenzene	SW8260B	7/8/2009	0	100	55.8-141	80.3	%REC	P20223
Surr: Dibromofluoromethane	SW8260B	7/8/2009	0	100	59.8-148	120	%REC	P20223
Surr: Toluene-d8	SW8260B	7/8/2009	0	100	55.2-133	73.8	%REC	P20223
TPH (Gasoline)	SW8260B(TPH)	7/8/2009	100	100	10000	37000x	µg/Kg	G20223
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/8/2009	0	100	56.9-133	92.0	%REC	G20223
Note: x - Sample chromatogram does not resemble gasoline standard pattern. TPH value due to a significant amount of heavy unidentified compounds within the C5-C12 range quantified as Gasoline.								

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/13/2009

Client Sample ID: 2 PS-3A-21
Sample Location: 54504/700 Independent Rd
Sample Matrix: SOIL
Date/Time Sampled 6/29/2009 2:14:00 PM

Lab Sample ID: 0906270-002
Date Prepared: 7/8/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/10/2009	2	1	2.0	18.7x	mg/Kg	R20249
Surr: Pentacosane	SW8015B	7/10/2009	0	1	61.5-133	84.0	%REC	R20249
Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	7/8/2009	10	100	1000	ND	µg/Kg	P20223
Toluene	SW8260B	7/8/2009	10	100	1000	2600	µg/Kg	P20223
Ethylbenzene	SW8260B	7/8/2009	10	100	1000	ND	µg/Kg	P20223
Xylenes, Total	SW8260B	7/8/2009	15	100	1500	8400	µg/Kg	P20223
Surr: 4-Bromofluorobenzene	SW8260B	7/8/2009	0	100	55.8-141	85.3	%REC	P20223
Surr: Dibromofluoromethane	SW8260B	7/8/2009	0	100	59.8-148	93.0	%REC	P20223
Surr: Toluene-d8	SW8260B	7/8/2009	0	100	55.2-133	78.7	%REC	P20223
TPH (Gasoline)	SW8260B(TPH)	7/8/2009	100	100	10000	170000x	µg/Kg	G20223
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/8/2009	0	100	56.9-133	70.0	%REC	G20223
Note: x - Sample chromatogram does not resemble gasoline standard pattern. TPH value due to a significant amount of heavy unidentified compounds within the C5-C12 range quantified as Gasoline.								

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/13/2009

Client Sample ID: 2 PS-2A-11
Sample Location: 54504/700 Independent Rd
Sample Matrix: SOIL
Date/Time Sampled 6/29/2009 2:43:00 PM

Lab Sample ID: 0906270-004
Date Prepared: 7/9/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/10/2009	2	4	8.0	129x	mg/Kg	R20249
Surr: Pentacosane	SW8015B	7/10/2009	0	4	61.5-133	80.4	%REC	R20249

Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.

Benzene	SW8260B	7/9/2009	10	100	1000	ND	µg/Kg	R20223
Toluene	SW8260B	7/9/2009	10	100	1000	ND	µg/Kg	R20223
Ethylbenzene	SW8260B	7/9/2009	10	100	1000	ND	µg/Kg	R20223
Xylenes, Total	SW8260B	7/9/2009	15	100	1500	12000	µg/Kg	R20223
Surr: 4-Bromofluorobenzene	SW8260B	7/9/2009	0	100	55.8-141	93.1	%REC	R20223
Surr: Dibromofluoromethane	SW8260B	7/9/2009	0	100	59.8-148	103	%REC	R20223
Surr: Toluene-d8	SW8260B	7/9/2009	0	100	55.2-133	108	%REC	R20223
TPH (Gasoline)	SW8260B(TPH)	7/9/2009	100	1000	100000	750000x	µg/Kg	T20223
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/9/2009	0	1000	56.9-133	102	%REC	T20223

Note: x - Sample chromatogram does not resemble gasoline standard pattern. TPH value due to a significant amount of heavy unidentified compounds within the C5-C12 range quantified as Gasoline.

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/13/2009

Client Sample ID: 2 PS-2A-7
Sample Location: 54504/700 Independent Rd
Sample Matrix: SOIL
Date/Time Sampled 6/29/2009 2:35:00 PM

Lab Sample ID: 0906270-005
Date Prepared: 7/8/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/10/2009	2	1	2.0	15.2x	mg/Kg	R20249
Surr: Pentacosane	SW8015B	7/10/2009	0	1	61.5-133	73.8	%REC	R20249

Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.

Benzene	SW8260B	7/8/2009	10	100	1000	3000	µg/Kg	P20223
Toluene	SW8260B	7/8/2009	10	100	1000	1200	µg/Kg	P20223
Ethylbenzene	SW8260B	7/8/2009	10	100	1000	ND	µg/Kg	P20223
Xylenes, Total	SW8260B	7/8/2009	15	100	1500	4700	µg/Kg	P20223
Surr: 4-Bromofluorobenzene	SW8260B	7/8/2009	0	100	55.8-141	72.6	%REC	P20223
Surr: Dibromofluoromethane	SW8260B	7/8/2009	0	100	59.8-148	111	%REC	P20223
Surr: Toluene-d8	SW8260B	7/8/2009	0	100	55.2-133	79.8	%REC	P20223
TPH (Gasoline)	SW8260B(TPH)	7/8/2009	100	100	10000	190000x	µg/Kg	G20223
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/8/2009	0	100	56.9-133	102	%REC	G20223

Note: x - Sample chromatogram does not resemble gasoline standard pattern. Although TPH as gasoline compounds are present, result includes significant contribution from heavy end hydrocarbons within the C5-C12 range quantified as Gasoline.

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/13/2009

Client Sample ID: 2 PS-2A-15
Sample Location: 54504/700 Independent Rd
Sample Matrix: SOIL
Date/Time Sampled 6/29/2009 2:50:00 PM

Lab Sample ID: 0906270-006
Date Prepared: 7/9/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/10/2009	2	5	10	246x	mg/Kg	R20249
Surr: Pentacosane	SW8015B	7/10/2009	0	5	61.5-133	67.7	%REC	R20249
Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	7/9/2009	10	100	1000	ND	µg/Kg	P20223
Toluene	SW8260B	7/9/2009	10	100	1000	ND	µg/Kg	P20223
Ethylbenzene	SW8260B	7/9/2009	10	100	1000	ND	µg/Kg	P20223
Xylenes, Total	SW8260B	7/9/2009	15	100	1500	3100	µg/Kg	P20223
Surr: 4-Bromofluorobenzene	SW8260B	7/9/2009	0	100	55.8-141	86.2	%REC	P20223
Surr: Dibromofluoromethane	SW8260B	7/9/2009	0	100	59.8-148	114	%REC	P20223
Surr: Toluene-d8	SW8260B	7/9/2009	0	100	55.2-133	94.5	%REC	P20223
TPH (Gasoline)	SW8260B(TPH)	7/9/2009	100	100	10000	180000x	µg/Kg	G20223
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/9/2009	0	100	56.9-133	114	%REC	G20223
Note: x - Sample chromatogram does not resemble gasoline standard pattern. TPH value due to a significant amount of heavy unidentified compounds within the C5-C12 range quantified as Gasoline.								

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/13/2009

Client Sample ID: 2 PS-2A-20
Sample Location: 54504/700 Independent Rd
Sample Matrix: SOIL
Date/Time Sampled 6/29/2009 3:20:00 PM

Lab Sample ID: 0906270-007
Date Prepared: 7/8/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/10/2009	2	1	2.0	11.7x	mg/Kg	R20249
Surr: Pentacosane	SW8015B	7/10/2009	0	1	61.5-133	75.5	%REC	R20249
Note: x- Sample chromatogram does not resemble typical diesel pattern (possibly fuel lighter than diesel). Hydrocarbons within the diesel range quantitated as diesel.								
Benzene	SW8260B	7/9/2009	10	100	1000	ND	µg/Kg	P20223
Toluene	SW8260B	7/9/2009	10	100	1000	5900	µg/Kg	P20223
Ethylbenzene	SW8260B	7/9/2009	10	100	1000	ND	µg/Kg	P20223
Xylenes, Total	SW8260B	7/9/2009	15	100	1500	44000	µg/Kg	P20223
Surr: 4-Bromofluorobenzene	SW8260B	7/9/2009	0	100	55.8-141	96.0	%REC	P20223
Surr: Dibromofluoromethane	SW8260B	7/9/2009	0	100	59.8-148	99.8	%REC	P20223
Surr: Toluene-d8	SW8260B	7/9/2009	0	100	55.2-133	108	%REC	P20223
TPH (Gasoline)	SW8260B(TPH)	7/8/2009	100	1000	100000	250000x	µg/Kg	G20223
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/8/2009	0	1000	56.9-133	108	%REC	G20223
Note: x - Sample chromatogram does not resemble gasoline standard pattern. TPH value due to a significant amount of heavy unidentified compounds within the C5-C12 range quantified as Gasoline.								

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/13/2009

Client Sample ID: 2 PS-1A-10
Sample Location: 54504/700 Independent Rd
Sample Matrix: SOIL
Date/Time Sampled 6/29/2009 4:03:00 PM

Lab Sample ID: 0906270-008
Date Prepared: 7/9/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/10/2009	2	1	2.0	ND	mg/Kg	R20249
Surr: Pentacosane	SW8015B	7/10/2009	0	1	61.5-133	72.7	%REC	R20249
Benzene	SW8260B	7/9/2009	10	1	10	ND	µg/Kg	R20223
Toluene	SW8260B	7/9/2009	10	1	10	ND	µg/Kg	R20223
Ethylbenzene	SW8260B	7/9/2009	10	1	10	ND	µg/Kg	R20223
Xylenes, Total	SW8260B	7/9/2009	15	1	15	ND	µg/Kg	R20223
Surr: 4-Bromofluorobenzene	SW8260B	7/9/2009	0	1	55.8-141	88.6	%REC	R20223
Surr: Dibromofluoromethane	SW8260B	7/9/2009	0	1	59.8-148	113	%REC	R20223
Surr: Toluene-d8	SW8260B	7/9/2009	0	1	55.2-133	82.3	%REC	R20223
TPH (Gasoline)	SW8260B(TPH)	7/9/2009	100	1	100	ND	µg/Kg	G20223
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/9/2009	0	1	56.9-133	70.0	%REC	G20223

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Report prepared for: Sophia Drugan
KLEINFELDER INC.

Date Received: 6/30/2009
Date Reported: 7/13/2009

Client Sample ID: 2-PS-1A-20
Sample Location: 54504/700 Independent Rd
Sample Matrix: SOIL
Date/Time Sampled 6/29/2009 4:20:00 PM

Lab Sample ID: 0906270-009
Date Prepared: 7/8/2009

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
TPH (Diesel-SG)	SW8015B	7/10/2009	2	1	2.0	ND	mg/Kg	R20249
Surr: Pentacosane	SW8015B	7/10/2009	0	1	61.5-133	77.5	%REC	R20249
Benzene	SW8260B	7/8/2009	10	1	10	ND	µg/Kg	P20223
Toluene	SW8260B	7/8/2009	10	1	10	ND	µg/Kg	P20223
Ethylbenzene	SW8260B	7/8/2009	10	1	10	ND	µg/Kg	P20223
Xylenes, Total	SW8260B	7/8/2009	15	1	15	ND	µg/Kg	P20223
Surr: 4-Bromofluorobenzene	SW8260B	7/8/2009	0	1	55.8-141	92.3	%REC	P20223
Surr: Dibromofluoromethane	SW8260B	7/8/2009	0	1	59.8-148	116	%REC	P20223
Surr: Toluene-d8	SW8260B	7/8/2009	0	1	55.2-133	104	%REC	P20223
TPH (Gasoline)	SW8260B(TPH)	7/8/2009	100	1	100	ND	µg/Kg	G20223
Surr: 4-Bromofllurobenzene	SW8260B(TPH)	7/8/2009	0	1	56.9-133	96.0	%REC	G20223

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Definitions, legends and Notes

Note	Description
ug/kg	Microgram per kilogram (ppb, part per billion).
ug/L	Microgram per liter (ppb, part per billion).
mg/kg	Milligram per kilogram (ppm, part per million).
mg/L	Milligram per liter (ppm, part per million).
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate.
MDL	Method detection limit.
MRL	Modified reporting limit. When sample is subject to dilution, reporting limit times dilution factor yields MRL.
MS/MSD	Matrix spike/matrix spike duplicate.
N/A	Not applicable.
ND	Not detected at or above detection limit.
NR	Not reported.
QC	Quality Control.
RL	Reporting limit.
% RPD	Percent relative difference.
a	pH was measured immediately upon the receipt of the sample, but it was still done outside the holding time.
sub	Analyzed by subcontracting laboratory, Lab Certificate #

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

CLIENT: KLEINFELDER INC.
Work Order: 0906270
Project: 54504/700 Independent Rd

ANALYTICAL QC SUMMARY REPORT

BatchID: G20223

Sample ID **MB_G20223**	SampType: **MBLK**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **7/8/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **G20223**	TestNo: **SW8260B(TP**		Analysis Date: **7/8/2009**	SeqNo: **292894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	ND	100									
Surr: 4-Bromofllurobenzene	47.00	0	50	0	94.0	56.9	133				

Sample ID **LCS_G20223**	SampType: **LCS**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **7/8/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **G20223**	TestNo: **SW8260B(TP**		Analysis Date: **7/8/2009**	SeqNo: **292895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	1076	100	1000	0	108	48.2	132				
Surr: 4-Bromofllurobenzene	59.00	0	50	0	118	56.9	133				

Sample ID **LCSD_G20223**	SampType: **LCSD**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **7/9/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **G20223**	TestNo: **SW8260B(TP**		Analysis Date: **7/9/2009**	SeqNo: **292896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	1048	100	1000	0	105	48.2	132	1076	2.64	30	
Surr: 4-Bromofllurobenzene	52.00	0	50	0	104	56.9	133	0	0	0	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: KLEINFELDER INC.
Work Order: 0906270
Project: 54504/700 Independent Rd

ANALYTICAL QC SUMMARY REPORT

BatchID: P20223

Sample ID **MB_P20223**	SampType: **MBLK**	TestCode: **8260B_S_PE**	Units: **µg/Kg**	Prep Date: **7/8/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **P20223**	TestNo: **SW8260B**		Analysis Date: **7/8/2009**	SeqNo: **292866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	10									
Toluene	ND	10									
Ethylbenzene	ND	10									
Xylenes, Total	ND	15									
Surr: 4-Bromofluorobenzene	44.83	0	50	0	89.7	55.8	141				
Surr: Dibromofluoromethane	54.85	0	50	0	110	59.8	148				
Surr: Toluene-d8	37.50	0	50	0	75.0	55.2	133				

Sample ID **LCS_P20223**	SampType: **LCS**	TestCode: **8260B_S_PE**	Units: **µg/Kg**	Prep Date: **7/8/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **P20223**	TestNo: **SW8260B**		Analysis Date: **7/8/2009**	SeqNo: **292874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	51.66	10	50	0	103	66.5	135				
Toluene	41.31	10	50	0	82.6	56.8	134				
Surr: 4-Bromofluorobenzene	42.63	0	50	0	85.3	55.8	141				
Surr: Dibromofluoromethane	61.84	0	50	0	124	59.8	148				
Surr: Toluene-d8	39.66	0	50	0	79.3	55.2	133				

Sample ID **LCSD_P20223**	SampType: **LCSD**	TestCode: **8260B_S_PE**	Units: **µg/Kg**	Prep Date: **7/8/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **P20223**	TestNo: **SW8260B**		Analysis Date: **7/8/2009**	SeqNo: **292883**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	44.42	10	50	0	88.8	66.5	135	51.66	15.1	30	
Toluene	41.83	10	50	0	83.7	56.8	134	41.31	1.25	30	
Surr: 4-Bromofluorobenzene	40.96	0	50	0	81.9	55.8	141	0	0	0	
Surr: Dibromofluoromethane	51.81	0	50	0	104	59.8	148	0	0	0	
Surr: Toluene-d8	40.15	0	50	0	80.3	55.2	133	0	0	0	

Qualifiers:
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: KLEINFELDER INC.
Work Order: 0906270
Project: 54504/700 Independent Rd

ANALYTICAL QC SUMMARY REPORT

BatchID: R20223

Sample ID **MB_R20223**	SampType: **MBLK**	TestCode: **8260B_S_PE**	Units: **µg/Kg**	Prep Date: **7/9/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **R20223**	TestNo: **SW8260B**		Analysis Date: **7/9/2009**	SeqNo: **292918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	10									
Toluene	ND	10									
Ethylbenzene	ND	10									
Xylenes, Total	ND	15									
Surr: 4-Bromofluorobenzene	44.64	0	50	0	89.3	55.8	141				
Surr: Dibromofluoromethane	49.77	0	50	0	99.5	59.8	148				
Surr: Toluene-d8	38.18	0	50	0	76.4	55.2	133				

Sample ID **LCS_R20223**	SampType: **LCS**	TestCode: **8260B_S_PE**	Units: **µg/Kg**	Prep Date: **7/9/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **R20223**	TestNo: **SW8260B**		Analysis Date: **7/9/2009**	SeqNo: **292919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	62.57	10	50	0	125	66.5	135				
Toluene	51.16	10	50	0	102	56.8	134				
Surr: 4-Bromofluorobenzene	43.79	0	50	0	87.6	55.8	141				
Surr: Dibromofluoromethane	63.79	0	50	0	128	59.8	148				
Surr: Toluene-d8	43.48	0	50	0	87.0	55.2	133				

Sample ID **LCSD_R20223**	SampType: **LCSD**	TestCode: **8260B_S_PE**	Units: **µg/Kg**	Prep Date: **7/9/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **R20223**	TestNo: **SW8260B**		Analysis Date: **7/9/2009**	SeqNo: **292920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	59.99	10	50	0	120	66.5	135	62.57	4.21	30	
Toluene	55.21	10	50	0	110	56.8	134	51.16	7.61	30	
Surr: 4-Bromofluorobenzene	43.87	0	50	0	87.7	55.8	141	0	0	0	
Surr: Dibromofluoromethane	63.21	0	50	0	126	59.8	148	0	0	0	
Surr: Toluene-d8	47.19	0	50	0	94.4	55.2	133	0	0	0	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: KLEINFELDER INC.
Work Order: 0906270
Project: 54504/700 Independent Rd

ANALYTICAL QC SUMMARY REPORT

BatchID: R20249

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
SDSG090707A-MB	**MBLK**	**TPHDSG_S**	**mg/Kg**	**7/7/2009**	**20249**
Client ID: **ZZZZZ**	Batch ID: **R20249**	TestNo: **SW8015B**		Analysis Date: **7/10/2009**	SeqNo: **293169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	ND	2.0									
Surr: Pentacosane	3.031	0	3.3	0	91.8	61.5	133				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
SDSG090707A-LCS	**LCS**	**TPHDSG_S**	**mg/Kg**	**7/7/2009**	**20249**
Client ID: **ZZZZZ**	Batch ID: **R20249**	TestNo: **SW8015B**		Analysis Date: **7/10/2009**	SeqNo: **293170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	29.29	2.0	33.33	0	87.9	50.8	111				
Surr: Pentacosane	2.972	0	3.3	0	90.1	61.5	133				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
SDSG090707A-LCS	**LCSD**	**TPHDSG_S**	**mg/Kg**	**7/7/2009**	**20249**
Client ID: **ZZZZZ**	Batch ID: **R20249**	TestNo: **SW8015B**		Analysis Date: **7/10/2009**	SeqNo: **293171**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	30.10	2.0	33.33	0	90.3	50.8	111	29.29	2.73	30	
Surr: Pentacosane	3.092	0	3.3	0	93.7	61.5	133	0	0	0	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
0906270-002A MS	**MS**	**TPHDSG_S**	**mg/Kg**	**7/7/2009**	**20249**
Client ID: **2 PS-3A-21**	Batch ID: **R20249**	TestNo: **SW8015B**		Analysis Date: **7/10/2009**	SeqNo: **293181**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	35.08	2.0	33.33	18.7	49.1	50.8	111				S
Surr: Pentacosane	2.656	0	3.3	0	80.5	61.5	133				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
0906270-002A MSD	**MSD**	**TPHDSG_S**	**mg/Kg**	**7/7/2009**	**20249**
Client ID: **2 PS-3A-21**	Batch ID: **R20249**	TestNo: **SW8015B**		Analysis Date: **7/10/2009**	SeqNo: **293182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel-SG)	39.07	2.0	33.33	18.7	61.1	50.8	111	35.08	10.8	30	
Surr: Pentacosane	2.819	0	3.3	0	85.4	61.5	133	0	0	0	

Qualifiers:
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: KLEINFELDER INC.
Work Order: 0906270
Project: 54504/700 Independent Rd

ANALYTICAL QC SUMMARY REPORT

BatchID: T20223

Sample ID **MB_T20223**	SampType: **MBLK**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **7/10/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **T20223**	TestNo: **SW8260B(TP**		Analysis Date: **7/10/2009**	SeqNo: **292980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	ND	100									
Surr: 4-Bromofllurobenzene	49.00	0	50	0	98.0	56.9	133				

Sample ID **LCS_T20223**	SampType: **LCS**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **7/9/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **T20223**	TestNo: **SW8260B(TP**		Analysis Date: **7/9/2009**	SeqNo: **292981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	1102	100	1000	0	110	48.2	132				
Surr: 4-Bromofllurobenzene	56.00	0	50	0	112	56.9	133				

Sample ID **LCSD_T20223**	SampType: **LCSD**	TestCode: **TPH_GAS_S**	Units: **µg/Kg**	Prep Date: **7/10/2009**	RunNo: **20223**
Client ID: **ZZZZZ**	Batch ID: **T20223**	TestNo: **SW8260B(TP**		Analysis Date: **7/10/2009**	SeqNo: **292982**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	903.0	100	1000	0	90.3	48.2	132	1102	19.9	30	
Surr: 4-Bromofllurobenzene	54.00	0	50	0	108	56.9	133	0	0	0	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

Torrent Laboratory, Inc.

WORK ORDER Summary

01-Jul-09

Work Order 0906270

Client ID: KLEINFELDER (PLEASANTON)

Project: 54504/700 Independent Rd **QC Level:**

Comments: 5 Day TAT!! TPHG/ BTEX. TPHD with SiO2! Report to Sophia and Nathan EDF requested - check with client!

Sample ID	Client Sample ID	Collection Date	Date Received	Date Due	Matrix	Test Code	Hld	MS	SEL	Sub	Storage
0906270-001A	2PS-3A-10	6/29/2009 1:43:00 PM	6/30/2009	7/7/2009	Soil	8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_S	☐	☐	☐	☐	SR
0906270-002A	2 PS-3A-21	6/29/2009 2:14:00 PM		7/7/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_S	☐	☐	☐	☐	SR
0906270-003A	2 PS-3A-24	6/29/2009 2:26:00 PM		7/7/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_S	☐	☐	☐	☐	SR
0906270-004A	2 PS-2A-11	6/29/2009 2:43:00 PM		7/7/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_S	☐	☐	☐	☐	SR
0906270-005A	2 PS-2A-7	6/29/2009 2:35:00 PM		7/7/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_S	☐	☐	☐	☐	SR
0906270-006A	2 PS-2A-15	6/29/2009 2:50:00 PM		7/7/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_S	☐	☐	☐	☐	SR
0906270-007A	2 PS-2A-20	6/29/2009 3:20:00 PM		7/7/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_S	☐	☐	☐	☐	SR
0906270-008A	2 PS-1A-10	6/29/2009 4:03:00 PM		7/7/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_S	☐	☐	☐	☐	SR
0906270-009A	2-PS-1A-20	6/29/2009 4:20:00 PM		7/7/2009		8260B_S_PETROLEUM	☐	☐	☑	☐	SR
				7/7/2009		TPH_GAS_S_GCMS	☐	☐	☐	☐	SR
				7/7/2009		TPHDSG_S	☐	☐	☐	☐	SR

KLEINFELDER
Bright People. Right Solutions.

0906270

PROJECT NO.	PROJECT NAME	NO. OF CONTAINERS	TYPE OF CONTAINERS	ANALYSIS	RECEIVING LAB:
545504	700 Independent Rd				
L.P. NO. (PO. NO.)	SAMPLERS: (Signature/Number) Nathan Beiner				INSTRUCTIONS/REMARKS: Standard turn around time

	DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	NO. OF CON-TAINERS	TYPE OF CON-TAINERS	TPH-g BTEX (8260) TPH-d Silica gel cleanup (8015)	
1	6/29/09	1343	2PS-3A-10	S	1		X	X
2	6/29/09	1414	2PS-3A-21	S	1		X	X
3	6/29/09	1426	2PS-3A-24	S	1		X	X
4	6/29/09	1443	2PS-2A-11	S	1		X	X
5	6/29/09	9435	2PS-2A-7	S	1		X	X
6	6/29/09	1450	2PS-2A-15	S	1		X	X
7	6/29/09	1520	2PS-2A-20	S	1		X	X
8	6/29/09	1603	2PS-1A-10	S	1		X	X
9	6/29/09	1620	2PS-1A-20	S	1		X	X
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

-001A
-002A
-003A
-004A
-005A
-006A
-007A
-008A
-009A

Temp 4°C.
6-30-09

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Nathan Beiner	6/30/09 1723	NAVIN R. Khodasara
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)

Instructions/Remarks:

Send Results To: Sophia Drugan
SDrugan@Kleinfelder.com
Attn:

ENV-02 REV 05/08)

White – Sampler Canary – Return Copy To Shipper Pink – Lab Copy

D/O.

CHAIN OF CUSTODY

COC No 15338