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Allterra Environmental, Inc.  
849 Almar Avenue, Suite C  
No. 281  
Santa Cruz, California 95060

**Client:** Mary Dudum  
**Project Location:** 2512 107<sup>th</sup> Avenue, Oakland, California  
**Subject:** Additional Subsurface Investigation Report  
**Report Date:** May 1, 2013

To Whom It May Concern:

I have reviewed the report referenced above and approve its distribution to the necessary regulatory agencies. Should any of the regulatory agencies require it, "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached proposal or report is true and correct to the best of my knowledge."

Sincerely,

  
\_\_\_\_\_  
Mary Dudum



**Additional Subsurface Investigation Report**  
**2512 107<sup>th</sup> Avenue, Oakland, California**  
**SLIC Case No. RO0002657, Global ID T06019737919**

*Date:*  
May 1, 2013

*Project No.:*  
2512

*Prepared For:*  
Michael and Mary Dudum  
2601 37<sup>th</sup> Avenue  
San Francisco, California 94116

**Allterra Environmental, Inc.**  
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May 1, 2013  
*Project No.: 2512*

Michael and Mary Dudum  
2601 37<sup>th</sup> Avenue  
San Francisco, California 94116

**Subject: Additional Subsurface Investigation Report, Former Grand Auto, 2512 107<sup>th</sup> Avenue, Oakland, California**

Dear Mr. and Mrs. Dudum:

On your behalf, Allterra Environmental, Inc. (Allterra) has prepared this *Additional Subsurface Investigation Report* for the property located at 2512 107<sup>th</sup> Avenue in Oakland, California (Site). The purpose of the completed work was to assess current subsurface conditions, as well as confirm that groundwater beneath the Site has not been significantly impacted by the release of hydraulic oil associated with the former hydraulic hoists. Work was conducted in accordance with Allterra's *Work Plan for Additional Subsurface Investigation* dated March 27, 2013, as well as technical comments provided by Alameda County Environmental Health (ACEH) in their April 8, 2013 letter. Work was also performed in conformance with guidelines established by the San Francisco Bay Regional Water Quality Control Board (RWQCB), ACEH, and Allterra's field protocols presented in Appendix A.

#### **Site Location and Description**

The Site is a commercial property located at the intersection of 107<sup>th</sup> Avenue and MacArthur Boulevard in Oakland, California (Figure 1). The Site was previously occupied by a Grand Auto Store that ceased operation in November 1992. Five hydraulic hoists and associated reservoirs were removed from the Site in December 1992. Soil and groundwater samples collected following the hoist removals in 1992 and 1993 indicated the continued presence of heavy range petroleum hydrocarbons beneath the Site, particularly in the vicinity of former reservoir pit T3/T4. Historic soil and groundwater analytical results are summarized in Table 1. Pertinent site features, including the location of the former Grand Auto service area, are presented on Figure 2. Approximate locations of previous sampling completed in 1992 and 1993 are shown on Figure 3 and taken from various reports prepared by AllWest Environmental, Inc. (AllWest).

#### **Site Geology and Hydrogeology**

Based on regional geologic studies, the Site is situated on the west side of the San Leandro Hills on a broad gently westward sloping alluvial plane. Regional geologic maps indicate that Quaternary aged alluvial fan and fluvial deposits underlie the Site vicinity. These deposits are described as brown to tan, medium dense to dense gravelly sand or sandy gravel that grades upward to sandy or silty clay (Graymer, 2000). Fining upward sequences are common in alluvial fan deposits and are consistent with subsurface conditions observed during recent Site investigation activities.

The local surficial geology in the Site vicinity is inferred to be alluvial fan deposits, which is consistent with regional geologic mapping. Recent subsurface investigation indicates that soils beneath the Site are composed of silty clays with some thin silty sand and gravelly clay zones. It appears that a relatively coarser layer (gravelly to sandy clay) underlies the upper silty clay between 32 and 40 feet below ground surface (bgs). This zone is inferred to be the shallowest water-bearing zone beneath the Site. Initial groundwater was observed at depths between approximately 34 and 36 feet bgs and static groundwater was observed at depths between approximately 31 and 34 feet bgs, indicating possible semi-confined groundwater conditions.

The closest surface water body to the Site is San Leandro Creek, which is located approximately one mile to the south. San Leandro Creek is a perennial stream that drains south and westward through the San Leandro Hills and empties into San Francisco Bay approximately three miles northwest of the Site. Regional shallow groundwater flow is inferred to generally follow surface topography, which slopes gently to the southwest.

### **Site History**

The Site was formerly occupied by a Grand Auto Store, which ceased operation in November 1992. Grand Auto was an automobile service facility that included five hydraulic hoists and associated reservoirs on the southwest portion of the Site. Stokley Construction removed these hydraulic hoists and reservoirs under the supervision of AllWest on December 23 and 24, 1992. Soil samples collected from the sidewalls and bottoms of the excavations following hoist reservoir removal activities revealed the presence of heavy range petroleum hydrocarbons. Total petroleum hydrocarbons as motor oil (TPHmo) at concentrations up to 10,000 milligrams per kilogram (mg/kg) were reported (Table 1) (AllWest, 1993a).

AllWest began active remediation by over-excavating four of the reservoir pits and one of the hoist pits in March 1993. The excavation of hoist pit H-5 was expanded to approximately 4 by 7 feet and deepened to approximately 10 feet bgs. Reservoir pit excavations T-1/T-2 and T-3/T-4 were expanded to approximately 6 by 7 feet and were deepened to approximately 6.5 and 8 feet bgs, respectively. Excavation activities at T-3/T-4 were terminated at 8 feet due to the presence of a column footing at the northwest corner of the excavation even though soil staining was still observed at this depth. A structural engineering firm (Culley Associates) was retained to evaluate the feasibility of continued excavation activities as it pertained to the stability of the column footing and the building itself. Culley Associates recommended shoring and underpinning to maintain the structural integrity of the building. Culley Associates also advised that if these mitigation measures were not implemented then the pit should be backfilled immediately (AllWest, 1993a).

On April 9, 1993, additional soil samples collected from below the base of the T-3/T-4 excavation at depths of 12 and 13 feet bgs contained TPHmo at concentrations of 19,000 and 22,000 mg/kg, respectively. AllWest concluded that the potential for residual contaminated soils to leach downward and contaminate groundwater was very low. This conclusion was based on the following rationale: 1) fine-grained soils beneath the impacted area inhibiting downward migration, 2) the high viscosity of hydraulic oil itself, which also would inhibit downward migration, 3) the building and concrete floor preventing rainwater from percolating downward

through the soil and transporting contaminants via advection, and 4) the primary source and surrounding material had been removed. Based on these conclusions, reservoir pit T-3/T-4 was backfilled with clean sandy gravel on April 14, 1993. Verification soil sampling indicated that the over excavation of hoist pit H-5 and reservoir pit T-1/T-2 had effectively removed the impacted soil and consequently these excavations were also backfilled (AllWest, 1993a).

On September 15, 1993, two Geoprobe® borings were advanced in the vicinity of former reservoir pit T-3/T-4 under the supervision of AllWest. TPHmo was detected in a soil sample collected within the former reservoir pit (at 13 feet bgs) at a concentration of 0.61 mg/kg. TPHmo was also detected in the grab groundwater sample (collected at 34 feet bgs) at a concentration of 4,800 micrograms per liter (µg/L). Due to the difficulty of further soil excavation and the conclusion that impact to groundwater from residual contaminated soil was low, AllWest recommended that no further soil excavation be performed. AllWest did state that the installation of a down-gradient monitoring well and implementation of a groundwater monitoring program may be required to demonstrate that groundwater is no longer being impacted by residual contaminants beneath the Site (AllWest, 1993b).

According to AllWest's *Workplan for Groundwater Monitoring Well Installations and Sampling* dated May 28, 1996, ACEH requested the installation of two down-gradient groundwater monitoring wells. No records regarding the installation or location of these wells were available for review.

### **Additional Subsurface Investigation**

The ACEH recently performed a review of the case file for the Site to determine likely next steps to reach case closure. Based on their review, ACEH recommended conducting further investigation work to confirm that groundwater beneath the Site has not been significantly impacted by the release of hydraulic oil. The following sections provide a discussion of sampling activities completed at the Site to comply with this request and satisfy requirements for case closure.

#### Pre-Field Activities

A drilling permit was obtained from the Alameda County Public Works Agency prior to the commencement of field activities. A copy of this permit is included in Appendix B.

Cruz Brothers Locators, a private utility locating contractor, was retained to identify underground utilities at each proposed boring location. Additionally, the Underground Service Alert (USA) was notified at least 48 hours prior to the commencement of drilling activities to identify the public service utilities in the work area (USA Ticket #0118625).

#### Field Activities

On April 12, 2013, Geoprobe® borings were advanced at three locations (B-1 through B-3) in the vicinity and down-gradient of the former reservoir pit T3/T4 to evaluate current soil and groundwater conditions beneath the Site. The borings were advanced to depths ranging from 38 to 40 feet bgs using a limited-access Geoprobe® rig equipped with 2.5-inch diameter push core drilling equipment. Upon completion of drilling and sampling activities, the borings were

backfilled to surface grade with neat cement containing 5% bentonite. The locations of the borings are presented on Figure 3.

#### Soil Classification and Sample Collection

At boring location B-2, a percussion hammer driven Geoprobe® soil-coring system was used to collect continuous soil cores, at approximately four-foot intervals, for soil classification purposes. During drilling, soil from boring B-2 was described and classified using the Unified Soil Classification System (USCS). The boring log for B-2 is presented as Appendix C. Continuous soil cores were not collected for classification purposes from borings B-1 and B-3 due to the close proximity to B-2. It is assumed that soil stratigraphy beneath the Site does not vary significantly within the small footprint of the former service area.

At each boring location, soil was field screened for petroleum constituents using a photo-ionization detector (PID). Since no visible staining, odor, or elevated PID readings were observed; only one soil sample was collected from each boring for laboratory analysis (approximately at first-encountered groundwater). Soil samples were collected from borings B-1, B-2, and B-3 at depths of approximately 36, 32, and 40 feet bgs, respectively. Additionally, grab groundwater samples were collected for laboratory analysis from the bottom of borings B-1 and B-3. Groundwater was not encountered at boring location B-2 (refusal at 38 feet bgs); therefore a grab groundwater sample was not collected. Drilling and sampling procedures are further described in Appendix A.

#### Laboratory Analysis

Soil and groundwater samples collected during field activities were submitted for chemical testing under chain-of-custody protocol to Torrent Laboratory, Inc., of Milpitas, California, a State of California certified laboratory (ELAP #1991). Soil samples were analyzed for TPH as hydraulic oil (TPHho) and as motor oil (TPHmo) by EPA Method 8015B using silica gel cleanup. Groundwater samples were tested for TPHho, TPHmo, and volatile organic compounds (VOCs) by EPA Method 8260B. Copies of the chain-of-custody documentation and certified analytical reports, including quality assurance and quality control (QA/QC) data, are included in Appendix D.

### **Results of Additional Subsurface Investigation**

#### Subsurface Conditions

Subsurface soils encountered during this investigation consisted primarily of silty/sandy clays and silty/clayey sands from ground surface to a maximum depth of approximately 40 feet bgs. Some fine gravel was also observed from 32 to 40 feet bgs. Groundwater was encountered in two of the three borings (B-1 and B-3) advanced during this investigation at depths ranging from 34 to 36 feet bgs. Boring logs are presented in Appendix C.

#### Analytical Results

The three soil samples collected during field activities contained low residual levels of petroleum constituents. TPHmo was detected in all three samples at concentrations ranging from 5.0 mg/kg in B-1@36' to 5.7 mg/kg in B-2@32'. However, TPHho was not detected at or above laboratory reporting limits in any of the soil samples collected. Historic and recent soil analytical data is presented in Table 1.

Both grab groundwater samples collected during field activities contained low residual levels of petroleum constituents and VOCs. TPHmo was detected in both samples at concentrations of 170 micrograms per liter ( $\mu\text{g/L}$ ) in B-1-W and 300  $\mu\text{g/L}$  in B-3-W. Tetrachloroethylene (PCE) was detected in both samples at concentrations of 2.8  $\mu\text{g/L}$  in B-1-W and 0.84  $\mu\text{g/L}$  in B-3-W. Cis-1,2-dichloroethene was detected in one sample at a concentration of 6.4  $\mu\text{g/L}$  in B-3-W. TPHho was not detected at or above laboratory reporting limits in any of the groundwater samples collected. Historic and recent groundwater analytical data is presented in Table 1.

### Discussion

Low residual levels of TPHmo were detected in deep soils and groundwater beneath the Site during this investigation. No TPHho was detected in soil or groundwater, therefore residual TPHmo present beneath the Site could be indicative of regional impacts associated with historic industrial/commercial activities near the Site because hydraulic oil was not found in these samples. It appears that sufficient source removal was completed at the Site and the current extent of petroleum contaminants has been adequately characterized as a result of this investigation. Remaining petroleum impacts beneath the Site do not currently pose a significant threat to human health, safety, or the environment and natural attenuation will allow further reduction of contaminants within a reasonable timeframe.

Additionally, low levels of VOCs were detected in groundwater beneath the Site during this investigation. These concentrations are likely indicative of regional impacts associated with historical industrial/commercial activities near the Site as there is no evidence that these VOCs were used at the Site. VOCs have been documented to exist in soil and groundwater at nearby properties located up-gradient of the Site, including a dry cleaners, and the VOCs found are consistent with compounds used in the dry cleaning industry. Remaining VOC impacts beneath the Site do not currently pose a significant threat to human health, safety, or the environment and natural attenuation will allow further reduction of contaminants within a reasonable timeframe.

### **Conclusions**

Based on the results of site activities, Allterra concludes the following:

- Soils encountered during recent drilling activities at the Site were generally consistent with previous investigations, composed primarily of silty/sandy clays and silty/clayey sands from ground surface to a maximum depth of approximately 40 feet bgs. Groundwater was first encountered in two of the three borings at depths of approximately 34 to 36 feet bgs.
- Low residual concentrations of TPHmo were detected in soil and groundwater samples collected beneath the Site. The highest level of TPHmo in groundwater (300  $\mu\text{g/L}$ ) was detected in boring B-3 at a depth of approximately 40 feet bgs. TPHho was not detected in any of the soil or groundwater samples collected during this investigation.
- Low concentrations of VOCs were detected in groundwater samples collected beneath the Site. The highest level of PCE in groundwater (2.8  $\mu\text{g/L}$ ) was detected in boring B-1 at a depth of approximately 38.5 feet bgs.

- The current extent of low level, residual petroleum constituents in soil and groundwater is likely limited to the immediate area around the former hydraulic hoist and has been adequately characterized as a result of this investigation.
- Remaining petroleum and VOC impacts beneath the Site do not currently pose a significant threat to human health, safety, or the environment and natural attenuation will allow further reduction of concentrations to the ultimate cleanup levels within a reasonable timeframe.

### **Recommendations**

Based on the conclusions presented above, Allterra recommends the following:

- No further investigation or remediation is recommended at this time.
- Allterra contends that the Site qualifies for case closure.

### **References**

Allterra Environmental, Inc., 2013, "Work Plan for Additional Subsurface Investigation, 2512 107<sup>th</sup> Avenue, Oakland, California," March 27, 2013.

AllWest Environmental, Inc., 1993a, "Soil Remediation Progress Report, Hydraulic Hoist Removal Site, Former Grand Auto Store, 2512 107<sup>th</sup> Avenue, Oakland, California," April 30, 1993.

AllWest Environmental, Inc., 1993b, "Results of Soil and Groundwater Sampling and Testing, Former Grand Auto Store, 2512 107<sup>th</sup> Avenue, Oakland, California," October 5, 1993.

AllWest Environmental, Inc., 1996, "Workplan for Groundwater Monitoring Well Installations and Sampling, Former Grand Auto Store, 2512 107<sup>th</sup> Avenue, Oakland, California," May 28, 1996.

Graymer, R.W., 2000, "Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa, and San Francisco Counties, California," 2000.

### **Limitations**

Allterra prepared this report for the use of Michael and Mary Dudum, ACEH, and RWQCB in evaluating environmental conditions at select locations at the time of this study. Statements, conclusions, and recommendations in this report are based solely on the field observations and analytical results related to work performed by Allterra and there is no warranty, expressed or implied. Site conditions and data may change over time; therefore, data presented in this report is only applicable to the timeframe of this study. Allterra's services have been performed in accordance with environmental principles and practices generally accepted at this time and location.



If you have any questions, please call Allterra at (831) 425-2608.

Sincerely,  
Allterra Environmental, Inc.



A circular red seal for a Professional Geologist in the State of California. The seal contains the text "PROFESSIONAL GEOLOGIST" at the top, "AARON POWERS" in the center, and "No. 8977" below the name. The words "STATE OF CALIFORNIA" are written along the bottom inner edge of the seal.

Aaron Powers, PG 8977  
Project Geologist



A circular red seal for a Professional Geologist in the State of California. The seal contains the text "PROFESSIONAL GEOLOGIST" at the top, "JOSEPH G. MANGINE" in the center, and "No. 8423" below the name. The words "STATE OF CALIFORNIA" are written along the bottom inner edge of the seal.

Joe Mangine, PG 8423  
Senior Geologist

Attachments:

Figure 1: Vicinity Map

Figure 2: Site Plan

Figure 3: Boring Locations

Table 1: Historic Soil and Groundwater Analytical Results

Appendix A: Allterra's Site Investigation Field Protocol

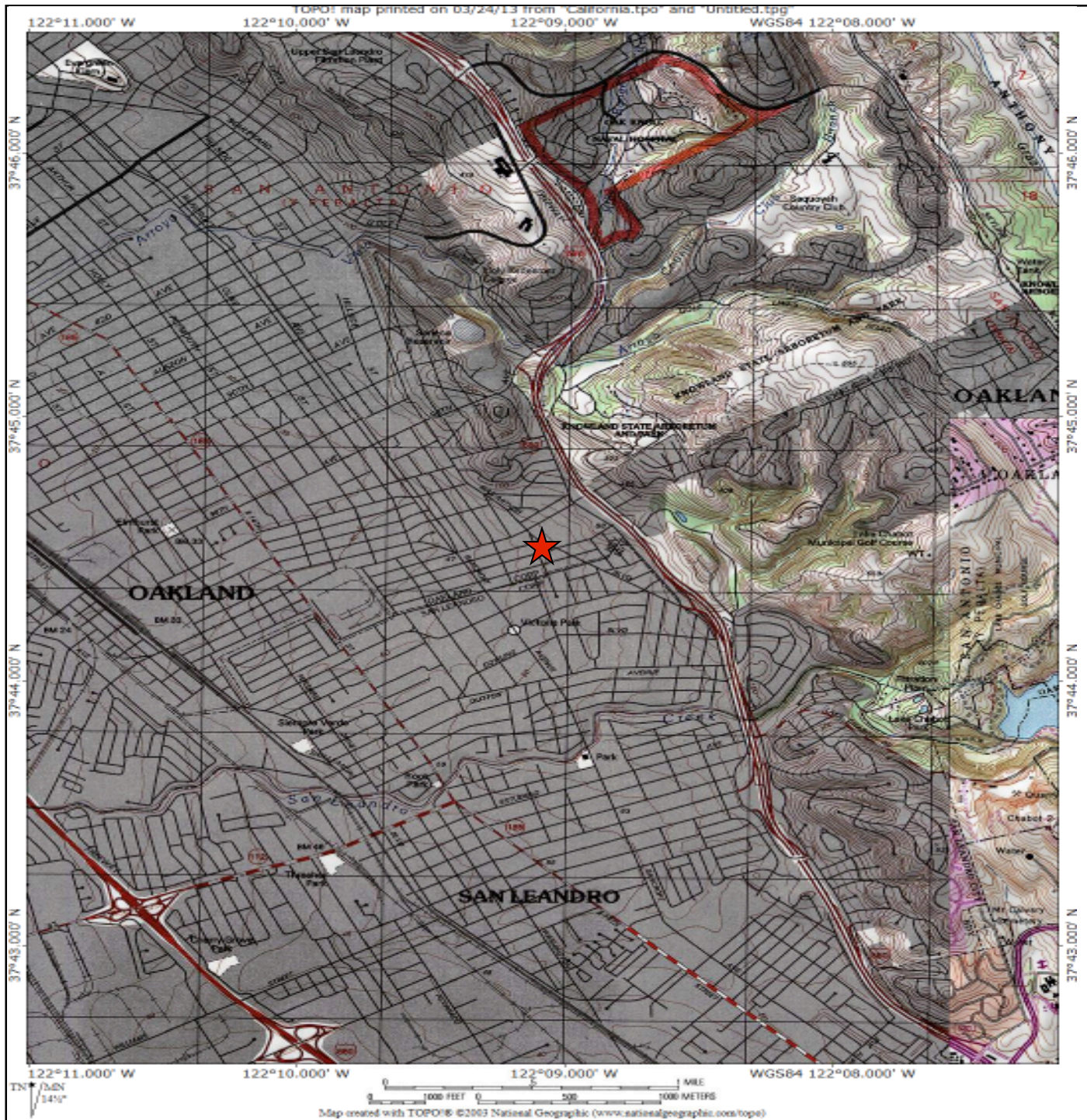
Appendix B: Drilling Permit

Appendix C: Boring Logs

Appendix D: Certified Analytical Reports and Chains-of-Custody

cc: Jerry Wickham, ACEH  
Lynda Brothers, Lynda Brothers Law

FIGURES 1 - 3

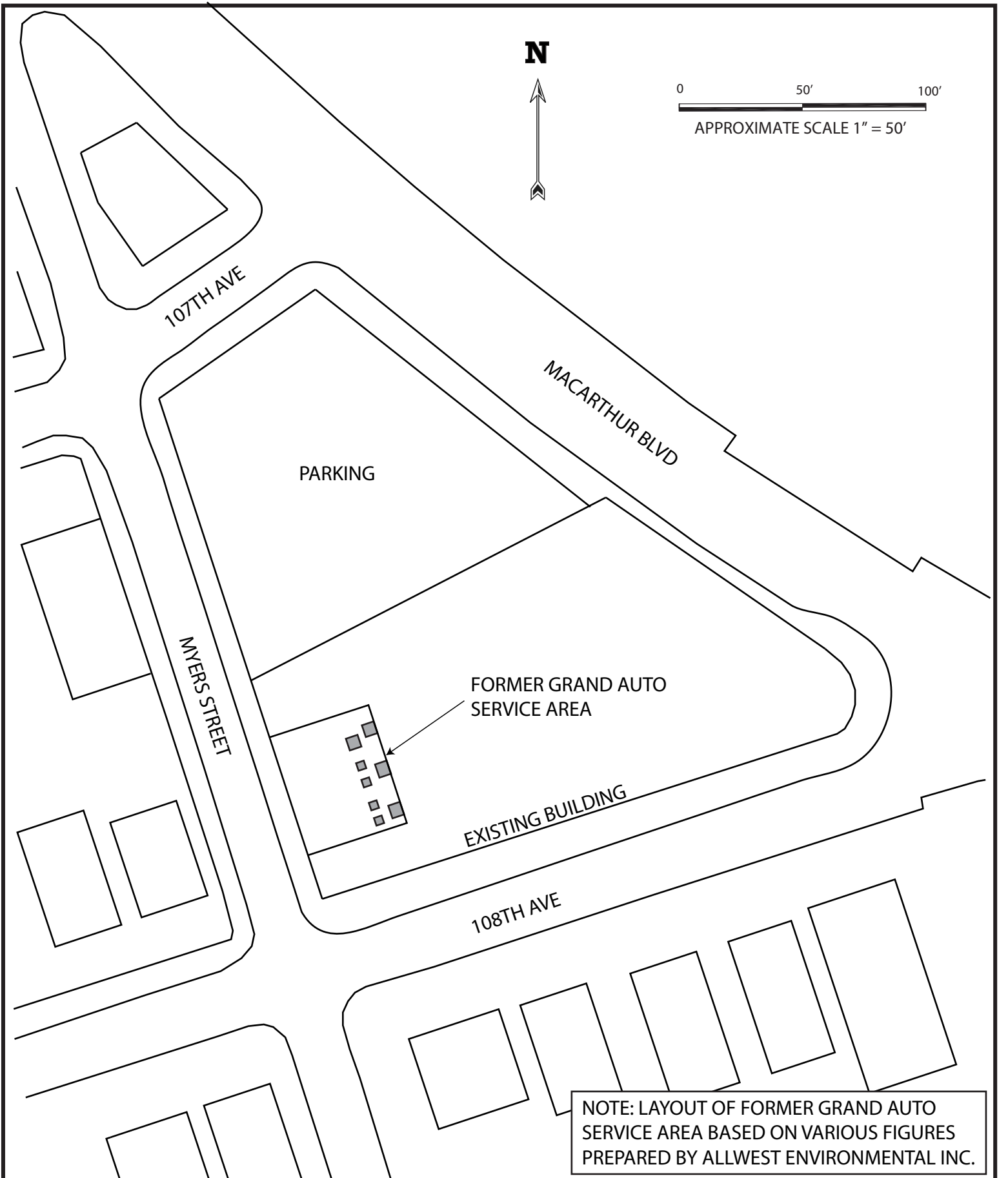


**Vicinity Map**  
 2512 107th Avenue  
 Oakland, California

Figure 1

3/25/13

**ALLTERRA**  
 849 Almar Avenue, Suite C, No. 281  
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**N**



0 50' 100'



APPROXIMATE SCALE 1" = 50'

107TH AVE

MACARTHUR BLVD

PARKING

MYERS STREET

FORMER GRAND AUTO SERVICE AREA

EXISTING BUILDING

108TH AVE

NOTE: LAYOUT OF FORMER GRAND AUTO SERVICE AREA BASED ON VARIOUS FIGURES PREPARED BY ALLWEST ENVIRONMENTAL INC.

**ALLTERRA**

849 Almar Ave.,  
Suite C, No. 281  
Santa Cruz, CA 95060

**SITE PLAN**  
2512 107th Ave  
Oakland, California

**FIGURE**

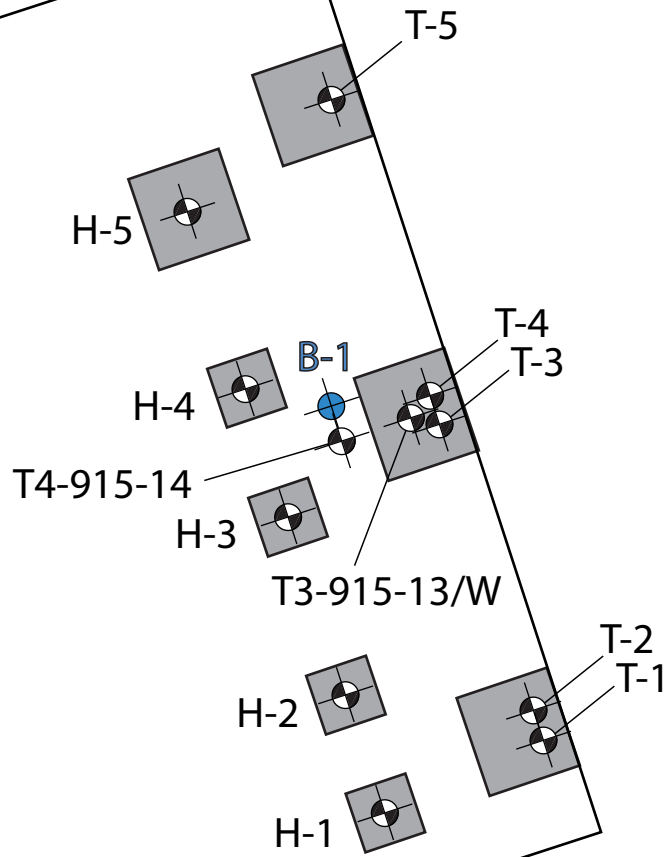
**2**






MYERS STREET

B-3

B-2



**LEGEND**

-  B-3 BORING LOCATION (April 2013)
-  T-4 PREVIOUS SAMPLING LOCATION
-  HOIST EXCAVATION LIMITS

NOTE: LAYOUT OF FROMER GRAND AUTO SERVICE AREA BASED ON VARIOUS FIGURES PREPARED BY ALLWEST ENVIRONMENTAL INC.

**ALLTERRA**  
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**BORING LOCATIONS**  
2512 107th Ave  
Oakland, California

**FIGURE**  
**3**

TABLE 1

**Table 1**  
**Historical Soil and Groundwater Analytical Results**  
 2512 107th Avenue, Oakland, California

Sample ID	Sample Depth (feet, bgs)	Date	Total Petroleum Hydrocarbons as			Volatile Organic Compounds (VOCs)			Polychlorinated Biphenyls (PCBs)
			Diesel	Motor Oil	Hydraulic Oil	PCE	cis-1,2-DCE	Other VOCs	
Analytical Method:			8015B	8015B	8015B	8260B	8260B	8260B	8080
Soil Units:			mg/kg	mg/kg	mg/kg	µg/kg	µg/kg	µg/kg	mg/kg
Groundwater Units:			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L

*Soil Sampling Results<sup>1</sup>:*

H-1	9.0	12/24/92	<10	<20	--	--	--	--	--
H-2	9.0	12/24/92	<10	<20	--	--	--	--	--
H-3	9.0	12/24/92	<10	<20	--	--	--	--	--
H-4	9.0	12/24/92	<10	<20	--	--	--	--	--
H-5	9.0	12/24/92	<10	100	--	--	--	--	--
T-1	4.0 - 7.0	12/24/92	<500	3,500	--	--	--	--	--
T-2	4.0 - 7.0	12/24/92	<1,000	6,800	--	--	--	--	--
T-3	4.0 - 7.0	12/24/92	<1,000	10,000	--	--	--	--	--
T-4	4.0 - 7.0	12/24/92	<1,000	6,400	--	--	--	--	--
T-5	4.0 - 7.0	12/24/92	<500	2,300	--	--	--	--	--
H-5-B	10	3/18/93	<10	<20	--	--	--	--	<1.0
H-5-S	9.0	3/18/93	<10	<20	--	--	--	--	<1.0
T-1-B	6.5	3/18/93	<10	<20	--	--	--	--	<1.0
T-1-S	6.0	3/18/93	<10	<20	--	--	--	--	<1.0
T-2-B	6.5	3/18/93	<10	<20	--	--	--	--	<1.0
T-2-S	5.5	3/18/93	<10	<20	--	--	--	--	<1.0
T-5-B	6.5	3/18/93	<10	<20	--	--	--	--	<1.0
T-5-S	6.0	3/18/93	<10	<20	--	--	--	--	<1.0
T-3/4-12	12	4/9/93	<2,000	19,000	--	--	--	--	--
T-3/4-13	13	4/9/93	<2,000	22,000	--	--	--	--	--
T3-915-13'	13	9/15/93	<0.05 <sup>2</sup>	0.61 <sup>2</sup>	--	--	--	--	--
T4-915-14'	14	9/15/93	<10	<20	--	--	--	--	--
<b>B-1@36'</b>	<b>36</b>	<b>4/12/13</b>	--	<b>5.0</b>	<b>&lt;4.0</b>	--	--	--	--
<b>B-2@32'</b>	<b>32</b>	<b>4/12/13</b>	--	<b>5.7</b>	<b>&lt;4.0</b>	--	--	--	--
<b>B-3@40'</b>	<b>40</b>	<b>4/12/13</b>	--	<b>5.4</b>	<b>&lt;4.0</b>	--	--	--	--

*Groundwater Sampling Results<sup>1</sup>:*

T3-915-W	34	9/15/93	<200	4,800	--	--	--	--	--
<b>B-1-W</b>	<b>38.5</b>	<b>4/12/13</b>	--	<b>170 J</b>	<b>&lt;146</b>	<b>2.8</b>	<b>&lt;0.63</b>	<b>ND</b>	--
<b>B-3-W</b>	<b>40</b>	<b>4/12/13</b>	--	<b>300 J</b>	<b>&lt;176</b>	<b>0.84</b>	<b>6.4</b>	<b>ND</b>	--

Notes:

bgs = below ground surface

mg/kg = milligrams per kilogram

µg/L = micrograms per liter

-- = not analyzed

ND = Not detected at or above laboratory reporting limits. See laboratory report for individual reporting limits.

The symbol "<" (less than) indicates that the analyte was not detected at a concentration above the laboratory detection limit specified.

1) Analytical results associated with historic sampling in 1992 and 1993 are taken from various reports prepared by AllWest.

2) Results reported are representative of TCLP analysis with units of µg/L.

J = The reported concentration should be considered estimated rather than quantitative. See laboratory report for more detail.

TCLP = Toxic characteristic leaching procedure

PCE = tetrachloroethylene

cis-1,2-DCE = cis-1,2-dichloroethene

**APPENDIX A**  
**Allterra's Site Investigation Field Protocol**



## APPENDIX A

### Allterra's Site Investigation Field Protocol

**Geoprobe Boring Installations and Sampling:** A truck-mounted Geoprobe rig hydraulically pushes a 4-foot steel core barrel (usually 2.5-inch diameter) equipped with an acetate liner into undisturbed soil. Four-foot core soil samples are collected in the acetate liner. The core barrel is extracted from the boring and the liner is removed. Soil samples from the necessary depth is cut from the acetate liner and capped with Teflon® sheets and plastic caps. The sample is labeled and stored on ice in an ice chest. The remainder of the acetate liner is then cut open and examined for lithology according to the Unified Soil Classification System. Job location, boring location, boring name, date, soil types, observations and activities are recorded on the boring logs. A portion of each sample is field screened using portable photo-ionization detector (PID). The core barrel is decontaminated between each boring. If groundwater samples are not necessary, the hole is filled with a cement grout and bentonite mixture from the bottom of the boring to surface grade.

Once the borings are advanced to the necessary depth, water samples are collected using a clean stainless steel bailer. If the boring does not stay open, a temporary well casing and screen is lowered into the boring to aid in water sample collection. Recovered water is transferred into labeled sample containers placed on ice. After the water samples are collected, the temporary well casing and screen are removed from the boring and is filled with a cement grout and bentonite mixture from the bottom of the boring to surface grade.

**Soil Gas Probe Installation/Construction:** Using a Geoprobe rig or hand auger equipment, approximately 3-inch diameter boreholes are advanced to depths of approximately 5- and 10-feet bgs, depending on site-specific conditions. The soil gas probes are constructed with ¼-inch diameter Teflon® tubing and a screened probe tip emplaced midway within a one (1) foot sand filter pack at the bottom of each borehole. At least one foot of dry granular bentonite will be placed on top of the sand pack to avoid infiltration of hydrated bentonite grout. The probes will be properly marked at the surface to identify their location and depth and will be completed and secured within locked well boxes. The soil gas probes are left for at least 48 hours following installation to facilitate re-equilibration prior to the initial sampling event. Following re-equilibration, leak and purge volume tests will also be performed prior to the initial sampling event. The soil gas probes are constructed in accordance with the DTSC and Cal-EPA Interim Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air revised February 7, 2005 and the updated Draft Advisory for Active Soil Gas Investigations dated March 3, 2010.

**Soil Gas Sampling:** Using permanent soil vapor probes, soil gas samples will be collected by attaching the ¼-inch diameter Teflon® tubing to a flow regulator, vacuum gauge, and then a 1L-Suma® canister. The tubing is initially purged using a designated purge canister; subsequently, the purge canister is closed and the vapors are collected in the sample canister. The internal surfaces of the stainless steel canisters will be passivated using the "Summa" process and are therefore referred to as Summa Canisters. A vacuum gage will be used to measure the initial vacuum of the canister before sampling and the final vacuum upon completion. The gages typically have ranges from 0 to 30 inches of mercury (in. Hg). The canisters vacuums are used to draw the sample, which is referred to as passive sampling (instead of using pumps). After confirming an initial pressure of -30 in. Hg, the canister is left open until the pressure increases to approximately -5 in. Hg. One replicate soil gas sample is also collected during field activities. The filled canister is sealed with a brass cap, placed into the original shipping container, and shipped to a state-certified analytical laboratory, using Chain-of-Custody procedures. Soil gas samples are collected in accordance with the DTSC and Cal-EPA Interim Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air revised February 7, 2005 and the updated Draft Advisory for Active Soil Gas Investigations dated March 3, 2010.

**Monitoring Well Installation/Construction and Soil Sampling:** A truck-mounted, hollow-stem auger drill rig is used to drill boreholes for monitoring wells. The borehole diameter is a minimum of 4-inches larger than the outside diameter of the casing when installing well screen. The hollow-stem auger provides minimal interruption of drilling while permitting soil sampling at desired intervals. An Allterra geologist or engineer will continuously log each borehole during drilling and will constantly check drill cuttings for indications of both the first recognizable

occurrence of groundwater and volatile organic compounds using a portable photoionization detector (PID).

During drilling, soil samples are collected in 2-inch by 6-inch brass sleeves. Three brass tubes are placed in an 18-inch long split-barrel (spoon) sampler of the appropriate inside-diameter. The split-barrel sampler is driven its entire length using a 140-pound hammer, or until refusal. The sampler is extracted from the borehole and the bottom brass sleeve is capped with Teflon® sheets and plastic caps, labeled, and stored on ice. The two other brass sleeves are used for soil lithology classification (according to the Unified Soil Classification System) and field screening using a PID.

All soil borings not converted into monitoring wells are backfilled with a mixture of neat cement with 5% bentonite powder to surface grade.

Monitoring wells are constructed with blank and factory-perforated Schedule 40 polyvinyl chloride (PVC). The perforated interval consists of slotted casing, generally with 0.02-inch wide by 1.5-inch long slots, with 42 slots per foot. A threaded PVC cap is secured to the bottom of the casing. After setting the casing inside the hollow-stem auger, sand or gravel filter material is poured into the annular space to fill from boring bottom to generally 1 to 2 feet above the screened interval. A 1- to 2-foot thick bentonite seal is set above this sand/gravel pack. Neat cement containing approximately 5% bentonite is then tremmied into the annular space from the top of the bentonite plug to approximately 0.5 feet below ground surface. A traffic-rated well box is installed around each wellhead.

**Monitoring Well Development:** After installation, the wells are thoroughly developed to remove residual drilling materials from the wellbore and fine material from the filter pack. Typically, 10 well volumes are removed from the well and field parameters, such as pH, temperature, and conductivity, are recorded between each well volume. Well development techniques used may include surging, swabbing, bailing, and/or pumping. All development water is collected either in drums or tanks for temporary storage, and properly disposed of pending laboratory analytical results. Following development, the well is typically allowed to stand undisturbed for a minimum of 48 hours before its first sampling.

**Well Monitoring and Sample Collection:** A Teflon bailer or submersible pump was used to purge a minimum of three well volumes of groundwater from each well. After each well volume is purged, field parameters such as pH, temperature, and conductivity are recorded. Wells are purged until field parameters have stabilized or a maximum of 10 well volumes of groundwater have been removed. If the well yield is low and the well was dewatered, the well is allowed to recharge to 80% of its original volume prior to sample collection. Field parameter measurements and pertinent qualitative observations, such as groundwater color and odor, are recorded in Groundwater Sampling Field Logs. Groundwater samples are collected in appropriate bottles and stored on ice for delivery, under chain-of-custody documentation, to a state-certified laboratory for analysis.

**Sample Identification and Chain-Of-Custody Procedures:** Each sample container submitted for analysis is labeled to identify the job number, date, time of sample collection, a sample number unique to the sample, any in-field measurements made, sampling methodology, name(s) of on-site personnel, and any other pertinent field observations also recorded on the field excavation or boring log. During shipment, the person with custody or the samples will relinquish them to the next person by signing the chain-of-custody form(s) and noting the date and time.

**Equipment Decontamination:** All drilling, sampling, well construction, and well development equipment is cleaned in a solution of laboratory grade detergent and distilled water or steam cleaned before use at each sampling point.

**Field Personnel:** During groundwater sampling activities, sampling personnel will wear pertinent attire to minimize risks to health and safety. Field personnel will also use a pair of clean, powderless, surgical gloves for each successive sampling point. Used surgical gloves will be placed into waste drums for future disposal.

**Waste Disposal:** Soil generated during drilling will be stored in DOT-approved 55-gallon waste drums pending proper disposal. Water generated during well development, purging, and sampling activities will be placed into DOT-approved 55-gallon waste drums pending disposal and/or permitted discharge to the sanitary sewer.

**APPENDIX B**  
**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: 03/27/2013 By jamesy

Permit Numbers: W2013-0245  
Permits Valid from 04/04/2013 to 04/04/2013

Application Id: 1363975832764  
Site Location: 2512 107th Avenue  
Project Start Date: 04/04/2013  
Assigned Inspector: Contact Steve Miller at (510) 670-5517 or stevem@acpwa.org

City of Project Site:Oakland

Completion Date:04/04/2013

Applicant: Allterra Environmental, Inc. - Joe Mangine  
849 Almar Avenue, Suite C-281, Santa Cruz, CA 95060

Phone: 831-425-2608

Property Owner: Mary Dudum  
2621 Vicente Street, San Francisco, CA 94116

Phone: --

Client: \*\* same as Property Owner \*\*

Receipt Number: WR2013-0111 Total Due: \$265.00  
Payer Name : James Allen Total Amount Paid: \$265.00  
Paid By: VISA PAID IN FULL

## Works Requesting Permits:

Borehole(s) for Geo Probes-Sampling 24 to 72 hours only - 3 Boreholes  
Driller: Environmental Control Associates, Inc. - Lic #: 695970 - Method: DP

Work Total: \$265.00

## Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2013-0245	03/27/2013	07/03/2013	3	2.50 in.	40.00 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 Steve Miller for an inspection time at (510) 670-5517 or email to stevem@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
5. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or

## **Alameda County Public Works Agency - Water Resources Well Permit**

waterways or be allowed to move off the property where work is being completed.

6. 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.

7. 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.

8. 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.

---

**APPENDIX C**  
**Boring Logs**



## Field Well/Boring Log

Field location of boring: Adjacent to former reservoir pit T-3/T-4 (See Figure 3)	<b>Boring ID</b> <b>B-1</b>	Page: 1 of 2
Project Number: 2512 Date: 4/12/13 Location: 2512 107th Ave., Oakland, CA Logged By: AP		

Drilling Method/Boring Diameter (inches): Geoprobe/ 2.5	Driller: ECA Inc.
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Well	Construction	Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Soil Group Symbol (USGS)	Description
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						1			
						2			Boring not logged continuously
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			
						20			
						21			
						22			
						23			
						24			
						25			
						26			
						27			
						28			
						29			
						30			

Water Level Information			When applicable 31-60 feet bgs on page 2
Date	Time	Depth (feet)	



## Field Well/Boring Log

Field location of boring:							<b>Boring ID</b>	<b>B-1</b>	Page: 2 of 2
Drilling Method/Boring Diameter (inches): Geoprobe / 2.5							Project Number: 015-01-012		
							Date: 2/24/06		
							Location: 2512 107th Ave., Oakland, CA		
							Logged By: AP		
							Driller: ECA Inc.		
							Casing installation data: N/A		
Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Soil Group Symbol (USGS)	Description		
			▼	31					
				32					
				33					
				34					
			▼	35					
			B-1@36'	36	X	CL	Silty Clay with some sand (CL), brown, moist, stiff, no product odor (npo)		
	0.0			37					
				38					
				39			Total depth = 38.5 feet bgs		
				40					
				41			Initial Groundwater at 36 feet bgs		
				42			Static Groundwater at 31.3 feet bgs		
				43					
				44					
				45					
				46					
				47					
				48					
				49					
				50					
				51					
				52					
53									
54									
55									
56									
57									
58									
59									
60									
61									
							▼	= initial water level	
							▼	= static water level	





## Field Well/Boring Log

Field location of boring: Southern down-gradient borehole (See Figure 3)	<b>Boring ID</b> <b>B-2</b>	Page: 1 of 2
Project Number: 2512 Date: 4/12/13 Location: 2512 107th Ave., Oakland, CA Logged By: AP		

Drilling Method/Boring Diameter (inches): Geoprobe/ 2.5	Driller: ECA Inc.
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Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Soil Group Symbol (USGS)	Description
---------------------------	-----------	------------------	-----------	--------------	--------	--------------------------	-------------

				1		GW	4" concrete at surface, 12-18" Sandy Gravel fill
				2			
				3			
	0.0			4		CL	Silty Clay (CL), dark brown, damp, medium stiff, trace fine sand, no product odor (npo)
				5			
				6			└─ stiff, medium brown
				7			
	0.0			8		CL	└─ more fine sand, damp
				9			
				10			
				11			└─ moist, olive brown
	0.0			12			
				13			
				14			
				15			
				16			
				17			
				18			
	0.0			19		SM	Silty Sand (SM), olive brown, moist, dense, some clay, npo
				20			
				21		CL	Silty Clay (CL), olive brown, moist, stiff, trace fine sand, npo
				22			
				23			
				24			
				25			
	0.0			26		CL	
				27			└─ Increase in silt content, decrease in clay content
				28			
				29			
				30			Sandy Clay (CL), olive brown, moist, stiff, trace fine gravel, npo

Water Level Information			When applicable 31-60 feet bgs on page 2
Date	Time	Depth (feet)	



## Field Well/Boring Log

Field location of boring:							<b>Boring ID</b>	<b>B-2</b>	Page: 2 of 2
Drilling Method/Boring Diameter (inches): Geoprobe / 2.5							Project Number: 015-01-012		
							Date: 2/24/06		
							Location: 2512 107th Ave., Oakland, CA		
							Logged By: AP		
							Driller: ECA Inc.		
							Casing installation data: N/A		
Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Soil Group Symbol (USGS)	Description		
	0.0		B-2@32'	31	X	CL			
				32		CL	Sandy Clay with gravel (CL) strong brown, moist, medium dense, npo ↙ 6 " of Sandy Gravel at 32 feet bgs, grades to Sandy Clay with gravel at 32.5 feet bgs		
				33					
				34					
				35					
				36					
	0.0			37					
				38			Refusal at 38 feet bgs		
				39			Total depth = 38 feet bgs		
				40			No groundwater encountered		
				41					
				42					
				43					
				44					
				45					
				46					
				47					
				48					
				49					
				50					
				51					
				52					
				53					
				54					
				55					
				56					
				57					
				58					
				59					
				60					
				61					



## Field Well/Boring Log

Field location of boring: Down-gradient to west (See Figure 3)	<b>Boring ID</b> <b>B-3</b>	Page: 1 of 2
Project Number: 2512 Date: 4/12/13 Location: 2512 107th Ave., Oakland, CA Logged By: AP		

Drilling Method/Boring Diameter (inches): Geoprobe/ 2.5      Driller: ECA Inc.

	Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Soil Group Symbol (USGS)	Casing installation data: N/A
								Description

					1			
					2			Boring not logged continuously
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
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					21			
					22			
					23			
					24			
					25			
					26			
					27			
					28			
					29			
					30			

Water Level Information			When applicable 31-60 feet bgs on page 2
Date	Time	Depth (feet)	



## Field Well/Boring Log

Field location of boring:	<b>Boring ID</b>	<b>B-3</b>	Page: 2 of 2
Project Number: 015-01-012			
Date: 2/24/06			
Location: 2512 107th Ave., Oakland, CA			
Logged By: AP			

Drilling Method/Boring Diameter (inches): Geoprobe / 2.5	Driller: ECA Inc.
--	-------------------

Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Soil Group Symbol (USGS)	Casing installation data: N/A
---------------------------	-----------	------------------	-----------	--------------	--------	--------------------------	-------------------------------

							Description
				31			
				32			
			▼	33			
				34			
				35			
			▽	36			
				37			
				38			
				39			Gravelly Coarse sand with some clay (GC), brown, moist, medium dense, no product odor (npo)
	0.0		B-3@40'	40	X	GC	
				41			Total depth = 38.5 feet bgs
				42			
				43			Initial Groundwater at 37 feet bgs
				44			Static Groundwater at 34.1 feet bgs
				45			
				46			
				47			
				48			
				49			
				50			
				51			
				52			
				53			
				54			
				55			
				56			
				57			
				58			
				59			▽ = initial water level
				60			▼ = static water level
				61			

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**APPENDIX D**  
**Certified Analytical Reports and Chains-of-Custody**



Allterra Environmental  
207 McPherson St, Suite B  
Santa Cruz, California 95060  
Tel: 831 425 2608  
RE: 2512 107th Ave, Oakland, INC

Work Order No.: 1304070 Rev: 1

Dear Aaron Powers:

Torrent Laboratory, Inc. received 5 sample(s) on April 12, 2013 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.

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

---

Patti Sandrock  
QA Officer

April 17, 2013  
Date



**Date:** 4/17/2013

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**Client:** Allterra Environmental

**Project:** 2512 107th Ave, Oakland, INC

**Work Order:** 1304070

### **CASE NARRATIVE**

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No issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

Analytical Comments for method 8015B, 1304070-002A MS/MSD, QC Analytical Batch ID 415017,  
Note: The % recoveries for diesel are outside of laboratory control limits but % RPD is within limits. The associated LCS/LCSD is within both % Recovery and %RPD limits. No corrective action required.

#### **REVISIONS:**

Report revised in order to provide MDL limits for TPHSG Motor Oil and Hydraulic Oil in water samples -004B and -005B. A comment regarding the sediment level was also added.

Rev 1 (4/18/13)



## Sample Result Summary

Report prepared for: Aaron Powers  
Allterra Environmental

Date Received: 04/12/13  
Date Reported: 04/17/13  
1304070-001

**B-2 @ 32'**

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
TPH as Motor Oil (SG)	SW8015B	1	1.3	4.0	5.7	mg/Kg

1304070-002

**B-1 @ 36'**

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
TPH as Motor Oil (SG)	SW8015B	1	1.3	4.0	5.0	mg/Kg

**B-3 @ 40'**

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
TPH as Motor Oil (SG)	SW8015B	1	1.3	4.0	5.4	mg/Kg

1304070-004

**B-1-W**

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Tetrachloroethylene	SW8260B	1.26	0.060	0.63	2.8	ug/L
TPH as Moter Oil (SG)	SW8015B	1	0.146	0.33	0.17	mg/L

**B-3-W**

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
cis-1,2-Dichloroethene	SW8260B	1	0.085	0.50	6.4	ug/L
Tetrachloroethylene	SW8260B	1	0.048	0.50	0.84	ug/L
TPH as Moter Oil (SG)	SW8015B	1	0.176	0.40	0.30	mg/L

1304070-005





## SAMPLE RESULTS

**Report prepared for:** Aaron Powers  
Allterra Environmental

**Date Received:** 04/12/13  
**Date Reported:** 04/17/13

<b>Client Sample ID:</b>	B-2 @ 32'	<b>Lab Sample ID:</b>	1304070-001A
<b>Project Name/Location:</b>	2512 107th Ave, Oakland, INC	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>			
<b>Date/Time Sampled:</b>	04/12/13 / 11:30		
<b>Tag Number:</b>	2512 107th Ave, Oakland, INC		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Hydraulic Oil (SG)	SW8015B	4/16/13	04/16/13	1	1.35	4.0	ND		mg/Kg	415017	8373
TPH as Motor Oil (SG)	SW8015B	4/16/13	04/16/13	1	1.3	4.0	5.7		mg/Kg	415017	8373
Pentacosane (S)	SW8015B	4/16/13	04/16/13	1	53.3	124	87.9		%	415017	8373



## SAMPLE RESULTS

**Report prepared for:** Aaron Powers  
Allterra Environmental

**Date Received:** 04/12/13  
**Date Reported:** 04/17/13

<b>Client Sample ID:</b>	B-1 @ 36'	<b>Lab Sample ID:</b>	1304070-002A
<b>Project Name/Location:</b>	2512 107th Ave, Oakland, INC	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>			
<b>Date/Time Sampled:</b>	04/12/13 / 12:30		
<b>Tag Number:</b>	2512 107th Ave, Oakland, INC		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Hydraulic Oil (SG)	SW8015B	4/16/13	04/16/13	1	1.35	4.0	ND		mg/Kg	415017	8373
TPH as Motor Oil (SG)	SW8015B	4/16/13	04/16/13	1	1.3	4.0	5.0		mg/Kg	415017	8373
Pentacosane (S)	SW8015B	4/16/13	04/16/13	1	53.3	124	68.2		%	415017	8373



## SAMPLE RESULTS

**Report prepared for:** Aaron Powers  
Allterra Environmental

**Date Received:** 04/12/13  
**Date Reported:** 04/17/13

<b>Client Sample ID:</b>	B-3 @ 40'	<b>Lab Sample ID:</b>	1304070-003A
<b>Project Name/Location:</b>	2512 107th Ave, Oakland, INC	<b>Sample Matrix:</b>	Soil
<b>Project Number:</b>			
<b>Date/Time Sampled:</b>	04/12/13 / 14:30		
<b>Tag Number:</b>	2512 107th Ave, Oakland, INC		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Hydraulic Oil (SG)	SW8015B	4/16/13	04/16/13	1	1.35	4.0	ND		mg/Kg	415017	8373
TPH as Motor Oil (SG)	SW8015B	4/16/13	04/16/13	1	1.3	4.0	5.4		mg/Kg	415017	8373
Pentacosane (S)	SW8015B	4/16/13	04/16/13	1	53.3	124	84.5		%	415017	8373



## SAMPLE RESULTS

**Report prepared for:** Aaron Powers  
Allterra Environmental

**Date Received:** 04/12/13  
**Date Reported:** 04/17/13

<b>Client Sample ID:</b>	B-1-W	<b>Lab Sample ID:</b>	1304070-004A
<b>Project Name/Location:</b>	2512 107th Ave, Oakland, INC	<b>Sample Matrix:</b>	Water
<b>Project Number:</b>			
<b>Date/Time Sampled:</b>	04/12/13 / 13:00		
<b>Tag Number:</b>	2512 107th Ave, Oakland, INC		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	04/16/13	1.26	0.23	0.63	ND		ug/L	415039	NA
Chloromethane	SW8260B	NA	04/16/13	1.26	0.20	0.63	ND		ug/L	415039	NA
Vinyl Chloride	SW8260B	NA	04/16/13	1.26	0.20	0.63	ND		ug/L	415039	NA
Bromomethane	SW8260B	NA	04/16/13	1.26	0.24	0.63	ND		ug/L	415039	NA
Trichlorofluoromethane	SW8260B	NA	04/16/13	1.26	0.18	0.63	ND		ug/L	415039	NA
1,1-Dichloroethene	SW8260B	NA	04/16/13	1.26	0.18	0.63	ND		ug/L	415039	NA
Freon 113	SW8260B	NA	04/16/13	1.26	0.16	0.63	ND		ug/L	415039	NA
Methylene Chloride	SW8260B	NA	04/16/13	1.26	0.29	6.3	ND		ug/L	415039	NA
trans-1,2-Dichloroethene	SW8260B	NA	04/16/13	1.26	0.12	0.63	ND		ug/L	415039	NA
1,1-Dichloroethane	SW8260B	NA	04/16/13	1.26	0.16	0.63	ND		ug/L	415039	NA
cis-1,2-Dichloroethene	SW8260B	NA	04/16/13	1.26	0.11	0.63	ND		ug/L	415039	NA
Chloroform	SW8260B	NA	04/16/13	1.26	0.15	0.63	ND		ug/L	415039	NA
Carbon Tetrachloride	SW8260B	NA	04/16/13	1.26	0.091	0.63	ND		ug/L	415039	NA
1,1,1-Trichloroethane	SW8260B	NA	04/16/13	1.26	0.12	0.63	ND		ug/L	415039	NA
1,1-Dichloropropene	SW8260B	NA	04/16/13	1.26	0.12	0.63	ND		ug/L	415039	NA
1,2-Dichloroethane	SW8260B	NA	04/16/13	1.26	0.14	0.63	ND		ug/L	415039	NA
Trichloroethylene	SW8260B	NA	04/16/13	1.26	0.072	0.63	ND		ug/L	415039	NA
1,2-Dichloropropane	SW8260B	NA	04/16/13	1.26	0.13	0.63	ND		ug/L	415039	NA
Bromodichloromethane	SW8260B	NA	04/16/13	1.26	0.12	0.63	ND		ug/L	415039	NA
cis-1,3-Dichloropropene	SW8260B	NA	04/16/13	1.26	0.080	0.63	ND		ug/L	415039	NA
Tetrachloroethylene	SW8260B	NA	04/16/13	1.26	0.060	0.63	2.8		ug/L	415039	NA
trans-1,3-Dichloropropene	SW8260B	NA	04/16/13	1.26	0.070	0.63	ND		ug/L	415039	NA
1,1,2-Trichloroethane	SW8260B	NA	04/16/13	1.26	0.11	0.63	ND		ug/L	415039	NA
Dibromochloromethane	SW8260B	NA	04/16/13	1.26	0.076	0.63	ND		ug/L	415039	NA
Chlorobenzene	SW8260B	NA	04/16/13	1.26	0.086	0.63	ND		ug/L	415039	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	04/16/13	1.26	0.085	0.63	ND		ug/L	415039	NA
Bromoform	SW8260B	NA	04/16/13	1.26	0.15	1.3	ND		ug/L	415039	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	04/16/13	1.26	0.13	0.63	ND		ug/L	415039	NA
1,3-Dichlorobenzene	SW8260B	NA	04/16/13	1.26	0.13	0.63	ND		ug/L	415039	NA
1,4-Dichlorobenzene	SW8260B	NA	04/16/13	1.26	0.087	0.63	ND		ug/L	415039	NA
1,2-Dichlorobenzene	SW8260B	NA	04/16/13	1.26	0.10	0.63	ND		ug/L	415039	NA
(S) Dibromofluoromethane	SW8260B	NA	04/16/13	1.26	61.2	131	73.7		%	415039	NA
(S) Toluene-d8	SW8260B	NA	04/16/13	1.26	75.1	127	81.8		%	415039	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	04/16/13	1.26	64.1	120	81.1		%	415039	NA

**NOTE:** Reporting limits were raised due to sediment in all VOAs.



## SAMPLE RESULTS

**Report prepared for:** Aaron Powers  
Allterra Environmental

**Date Received:** 04/12/13  
**Date Reported:** 04/17/13

<b>Client Sample ID:</b>	B-1-W	<b>Lab Sample ID:</b>	1304070-004B
<b>Project Name/Location:</b>	2512 107th Ave, Oakland, INC	<b>Sample Matrix:</b>	Water
<b>Project Number:</b>			
<b>Date/Time Sampled:</b>	04/12/13 / 13:00		
<b>Tag Number:</b>	2512 107th Ave, Oakland, INC		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
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*The results shown below are reported using their MDL.*

TPH as Hydraulic Oil	SW8015B	4/16/13	04/16/13	1	0.146	0.33	ND		mg/L	415024	8376
TPH as Moter Oil (SG)	SW8015B	4/16/13	04/16/13	1	0.146	0.33	0.17	J	mg/L	415024	8376
Pentacosane (S)	SW8015B	4/16/13	04/16/13	1	45.4	137	104		%	415024	8376

**NOTE:** Reporting limits raised due to limited sample volume available for extraction - 610 ml vs. 1000 ml (high level of sediment in 1 L amber)



## SAMPLE RESULTS

**Report prepared for:** Aaron Powers  
Allterra Environmental

**Date Received:** 04/12/13  
**Date Reported:** 04/17/13

<b>Client Sample ID:</b>	B-3-W	<b>Lab Sample ID:</b>	1304070-005A
<b>Project Name/Location:</b>	2512 107th Ave, Oakland, INC	<b>Sample Matrix:</b>	Water
<b>Project Number:</b>			
<b>Date/Time Sampled:</b>	04/12/13 / 15:00		
<b>Tag Number:</b>	2512 107th Ave, Oakland, INC		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	04/16/13	1	0.18	0.50	ND		ug/L	415039	NA
Chloromethane	SW8260B	NA	04/16/13	1	0.16	0.50	ND		ug/L	415039	NA
Vinyl Chloride	SW8260B	NA	04/16/13	1	0.16	0.50	ND		ug/L	415039	NA
Bromomethane	SW8260B	NA	04/16/13	1	0.19	0.50	ND		ug/L	415039	NA
Trichlorofluoromethane	SW8260B	NA	04/16/13	1	0.14	0.50	ND		ug/L	415039	NA
1,1-Dichloroethene	SW8260B	NA	04/16/13	1	0.14	0.50	ND		ug/L	415039	NA
Freon 113	SW8260B	NA	04/16/13	1	0.13	0.50	ND		ug/L	415039	NA
Methylene Chloride	SW8260B	NA	04/16/13	1	0.23	5.0	ND		ug/L	415039	NA
trans-1,2-Dichloroethene	SW8260B	NA	04/16/13	1	0.099	0.50	ND		ug/L	415039	NA
1,1-Dichloroethane	SW8260B	NA	04/16/13	1	0.13	0.50	ND		ug/L	415039	NA
cis-1,2-Dichloroethene	SW8260B	NA	04/16/13	1	0.085	0.50	6.4		ug/L	415039	NA
Chloroform	SW8260B	NA	04/16/13	1	0.12	0.50	ND		ug/L	415039	NA
Carbon Tetrachloride	SW8260B	NA	04/16/13	1	0.072	0.50	ND		ug/L	415039	NA
1,1,1-Trichloroethane	SW8260B	NA	04/16/13	1	0.098	0.50	ND		ug/L	415039	NA
1,1-Dichloropropene	SW8260B	NA	04/16/13	1	0.093	0.50	ND		ug/L	415039	NA
1,2-Dichloroethane	SW8260B	NA	04/16/13	1	0.11	0.50	ND		ug/L	415039	NA
Trichloroethylene	SW8260B	NA	04/16/13	1	0.057	0.50	ND		ug/L	415039	NA
1,2-Dichloropropane	SW8260B	NA	04/16/13	1	0.10	0.50	ND		ug/L	415039	NA
Bromodichloromethane	SW8260B	NA	04/16/13	1	0.093	0.50	ND		ug/L	415039	NA
cis-1,3-Dichloropropene	SW8260B	NA	04/16/13	1	0.064	0.50	ND		ug/L	415039	NA
Tetrachloroethylene	SW8260B	NA	04/16/13	1	0.048	0.50	0.84		ug/L	415039	NA
trans-1,3-Dichloropropene	SW8260B	NA	04/16/13	1	0.056	0.50	ND		ug/L	415039	NA
1,1,2-Trichloroethane	SW8260B	NA	04/16/13	1	0.090	0.50	ND		ug/L	415039	NA
Dibromochloromethane	SW8260B	NA	04/16/13	1	0.061	0.50	ND		ug/L	415039	NA
Chlorobenzene	SW8260B	NA	04/16/13	1	0.068	0.50	ND		ug/L	415039	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	04/16/13	1	0.067	0.50	ND		ug/L	415039	NA
Bromoform	SW8260B	NA	04/16/13	1	0.12	1.0	ND		ug/L	415039	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	04/16/13	1	0.11	0.50	ND		ug/L	415039	NA
1,3-Dichlorobenzene	SW8260B	NA	04/16/13	1	0.10	0.50	ND		ug/L	415039	NA
1,4-Dichlorobenzene	SW8260B	NA	04/16/13	1	0.069	0.50	ND		ug/L	415039	NA
1,2-Dichlorobenzene	SW8260B	NA	04/16/13	1	0.081	0.50	ND		ug/L	415039	NA
(S) Dibromofluoromethane	SW8260B	NA	04/16/13	1	61.2	131	71.2		%	415039	NA
(S) Toluene-d8	SW8260B	NA	04/16/13	1	75.1	127	80.7		%	415039	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	04/16/13	1	64.1	120	75.9		%	415039	NA



## SAMPLE RESULTS

**Report prepared for:** Aaron Powers  
Allterra Environmental

**Date Received:** 04/12/13  
**Date Reported:** 04/17/13

<b>Client Sample ID:</b>	B-3-W	<b>Lab Sample ID:</b>	1304070-005B
<b>Project Name/Location:</b>	2512 107th Ave, Oakland, INC	<b>Sample Matrix:</b>	Water
<b>Project Number:</b>			
<b>Date/Time Sampled:</b>	04/12/13 / 15:00		
<b>Tag Number:</b>	2512 107th Ave, Oakland, INC		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
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*The results shown below are reported using their MDL.*

TPH as Hydraulic Oil	SW8015B	4/16/13	04/16/13	1	0.176	0.40	ND		mg/L	415024	8376
TPH as Moter Oil (SG)	SW8015B	4/16/13	04/16/13	1	0.176	0.40	0.30	J	mg/L	415024	8376
Pentacosane (S)	SW8015B	4/16/13	04/16/13	1	45.4	137	117		%	415024	8376

**NOTE:** Reporting limits raised due to limited sample volume available for extraction - 500 ml vs. 1000 ml (high level of sediment in 1 L amber)



## MB Summary Report

<b>Work Order:</b>	1304070	<b>Prep Method:</b>	NA	<b>Prep Date:</b>	NA	<b>Prep Batch:</b>	NA
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW8260B	<b>Analyzed Date:</b>	04/16/13	<b>Analytical Batch:</b>	415039
<b>Units:</b>	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Dichlorodifluoromethane	0.18	0.50	ND		
Chloromethane	0.16	0.50	ND		
Vinyl Chloride	0.16	0.50	ND		
Bromomethane	0.18	0.50	ND		
Trichlorofluoromethane	0.18	0.50	ND		
1,1-Dichloroethene	0.15	0.50	ND		
Freon 113	0.19	0.50	ND		
Methylene Chloride	0.23	5.0	ND		
trans-1,2-Dichloroethene	0.19	0.50	ND		
MTBE	0.17	0.50	ND		
tert-Butanol	1.5	5.0	ND		
Diisopropyl ether (DIPE)	0.13	0.50	ND		
1,1-Dichloroethane	0.13	0.50	ND		
ETBE	0.17	0.50	ND		
cis-1,2-Dichloroethene	0.19	0.50	ND		
2,2-Dichloropropane	0.15	0.50	ND		
Bromochloromethane	0.20	0.50	ND		
Chloroform	0.13	0.50	ND		
Carbon Tetrachloride	0.15	0.50	ND		
1,1,1-Trichloroethane	0.097	0.50	ND		
1,1-Dichloropropene	0.15	0.50	ND		
Benzene	0.13	0.50	ND		
TAME	0.17	0.50	ND		
1,2-Dichloroethane	0.14	0.50	ND		
Trichloroethylene	0.13	0.50	ND		
Dibromomethane	0.15	0.50	ND		
1,2-Dichloropropane	0.17	0.50	ND		
Bromodichloromethane	0.13	0.50	ND		
cis-1,3-Dichloropropene	0.096	0.50	ND		
Toluene	0.14	0.50	ND		
Tetrachloroethylene	0.14	0.50	ND		
trans-1,3-Dichloropropene	0.23	0.50	ND		
1,1,2-Trichloroethane	0.14	0.50	ND		
Dibromochloromethane	0.096	0.50	ND		
1,3-Dichloropropane	0.10	0.50	ND		
1,2-Dibromoethane	0.19	0.50	ND		
Chlorobenzene	0.14	0.50	ND		
Ethyl Benzene	0.15	0.50	ND		
1,1,1,2-Tetrachloroethane	0.096	0.50	ND		
m,p-Xylene	0.13	1.0	ND		





## MB Summary Report

<b>Work Order:</b>	1304070	<b>Prep Method:</b>	NA	<b>Prep Date:</b>	NA	<b>Prep Batch:</b>	NA
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW8260B	<b>Analyzed Date:</b>	04/16/13	<b>Analytical Batch:</b>	415039
<b>Units:</b>	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
o-Xylene	0.15	0.50	ND		
Styrene	0.21	0.50	ND		
Bromoform	0.21	1.0	ND		
Isopropyl Benzene	0.097	0.50	ND		
Bromobenzene	0.15	0.50	ND		
1,1,2,2-Tetrachloroethane	0.11	0.50	ND		
n-Propylbenzene	0.078	0.50	0.095		
2-Chlorotoluene	0.076	0.50	ND		
1,3,5-Trimethylbenzene	0.074	0.50	0.11		
4-Chlorotoluene	0.088	0.50	0.095		
tert-Butylbenzene	0.081	0.50	0.13		
1,2,3-Trichloropropane	0.14	0.50	ND		
1,2,4-Trimethylbenzene	0.083	0.50	0.13		
sec-Butyl Benzene	0.092	0.50	0.13		
p-Isopropyltoluene	0.093	0.50	0.17		
1,3-Dichlorobenzene	0.10	0.50	0.11		
1,4-Dichlorobenzene	0.069	0.50	0.11		
n-Butylbenzene	0.081	0.50	0.22		
1,2-Dichlorobenzene	0.057	0.50	0.11		
1,2-Dibromo-3-Chloropropane	0.15	0.50	ND		
Hexachlorobutadiene	0.19	0.50	0.36		
1,2,4-Trichlorobenzene	0.12	0.50	0.36		
Naphthalene	0.14	1.0	0.54		
1,2,3-Trichlorobenzene	0.23	0.50	0.41		
(S) Dibromofluoromethane			73.8		
(S) Toluene-d8			85.3		
(S) 4-Bromofluorobenzene			83.4		
Ethanol	0.21	0.50	ND	TIC	

<b>Work Order:</b>	1304070	<b>Prep Method:</b>	3545_TPHSG	<b>Prep Date:</b>	04/16/13	<b>Prep Batch:</b>	8373
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8015B(M)	<b>Analyzed Date:</b>	04/16/13	<b>Analytical Batch:</b>	415017
<b>Units:</b>	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
TPH as Diesel	0.87	2.0	1.4		
TPH as Motor Oil	1.3	10	4.7		
Pentacosane (S)			93.4		



## MB Summary Report

<b>Work Order:</b>	1304070	<b>Prep Method:</b>	3510_TPHSG	<b>Prep Date:</b>	04/16/13	<b>Prep Batch:</b>	8376
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW8015B	<b>Analyzed Date:</b>	04/16/13	<b>Analytical Batch:</b>	415024
<b>Units:</b>	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Diesel Range Organics (DRO)	0.029	0.10	ND		
Bunker Oil	0.0880	0.20	ND		
TPH as Fuel Oil	0.0880	0.20	ND		
TPH as Diesel (SG)	0.0287	0.10	0.074		
TPH as Heating Oil	0.0880	0.20	ND		
TPH as Hydraulic Oil	0.0880	0.20	ND		
TPH as Jet A	0.0287	0.10	ND		
TPH as Jet Fuel	0.029	0.10	ND		
TPH as JP-4	0.0287	0.10	ND		
TPH as JP-5	0.0287	0.10	ND		
TPH as JP-7	0.0287	0.10	ND		
TPH as JP-8	0.0287	0.10	ND		
TPH as Kerosene	0.0287	0.10	ND		
TPH as Mineral Oil	0.0287	0.10	ND		
TPH as Moter Oil (SG)	0.0880	0.20	0.15		
TPH as Naphtha	0.0287	0.10	ND		
TPH as Oil	0.0880	0.20	ND		
TPH as Stoddard	0.0287	0.10	ND		
TPH as Transformer Oil	0.0880	0.20	ND		
Pentacosane (S)			90.7		



## LCS/LCSD Summary Report

*Raw values are used in quality control assessment.*

<b>Work Order:</b>	1304070	<b>Prep Method:</b>	NA	<b>Prep Date:</b>	NA	<b>Prep Batch:</b>	NA
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW8260B	<b>Analyzed Date:</b>	04/16/13	<b>Analytical Batch:</b>	415039
<b>Units:</b>	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	0.14	0.50	ND	17.04	101	98.1	2.89	61.4 - 129	30	
Benzene	0.087	0.50	ND	17.04	117	103	13.0	66.9 - 140	30	
Trichloroethylene	0.057	0.50	ND	17.04	122	99.2	20.7	69.3 - 144	30	
Toluene	0.059	0.50	ND	17.04	104	103	1.27	76.6 - 123	30	
Chlorobenzene	0.068	0.50	ND	17.04	104	96.1	7.78	73.9 - 137	30	
(S) Dibromofluoromethane			ND	17.04	74.2	73.5		61.2 - 131		
(S) Toluene-d8			ND	17.04	75.3	84.3		75.1 - 127		
(S) 4-Bromofluorobenzene			ND	17.04	79.6	76.3		64.1 - 120		

<b>Work Order:</b>	1304070	<b>Prep Method:</b>	3545_TPHSG	<b>Prep Date:</b>	04/16/13	<b>Prep Batch:</b>	8373
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8015B(M)	<b>Analyzed Date:</b>	04/16/13	<b>Analytical Batch:</b>	415017
<b>Units:</b>	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel	0.87	2.0	1.4	33.33	84.1	80.5	4.34	50.8 - 111	30	
Pentacosane (S)			4.7	100	108	103		49.9 - 144		

<b>Work Order:</b>	1304070	<b>Prep Method:</b>	3510_TPHSG	<b>Prep Date:</b>	04/16/13	<b>Prep Batch:</b>	8376
<b>Matrix:</b>	Water	<b>Analytical Method:</b>	SW8015B	<b>Analyzed Date:</b>	04/16/13	<b>Analytical Batch:</b>	415024
<b>Units:</b>	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel (SG)	0.029	0.10	ND	1	53.7	66.2	20.9	34.5 - 95.6	30	
Pentacosane (S)			ND	100	90.1	111		45.4 - 137		



## MS/MSD Summary Report

*Raw values are used in quality control assessment.*

<b>Work Order:</b>	1304070	<b>Prep Method:</b>	3545_TPHSG	<b>Prep Date:</b>	04/16/13	<b>Prep Batch:</b>	8373
<b>Matrix:</b>	Soil	<b>Analytical Method:</b>	SW8015B	<b>Analyzed Date:</b>	04/16/13	<b>Analytical Batch:</b>	415017
<b>Spiked Sample:</b>	1304070-002A						
<b>Units:</b>	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel (SG)	0.87	2.0	135.987	33.33	34.5	31.9	5.62	50.8 - 111	30	S
Pentacosane (S)				200	71.0	90.3		61.5 - 133		



## Laboratory Qualifiers and Definitions

### DEFINITIONS:

<b>Accuracy/Bias (% Recovery)</b> - The closeness of agreement between an observed value and an accepted reference value.
<b>Blank (Method/Preparation Blank)</b> -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
<b>Duplicate</b> - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
<b>Laboratory Control Sample (LCS ad LCSD)</b> - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
<b>Matrix</b> - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
<b>Matrix Spike (MS/MSD)</b> - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
<b>Method Detection Limit (MDL)</b> - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
<b>Practical Quantitation Limit (PQL)</b> - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
<b>Precision (%RPD)</b> - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
<b>Surrogate (S) or (Surr)</b> - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
<b>Tentatively Identified Compound (TIC)</b> - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
<b>Units:</b> the unit of measure used to express the reported result - <b>mg/L</b> and <b>mg/Kg</b> (equivalent to PPM - parts per million in <b>liquid</b> and <b>solid</b> ), <b>ug/L</b> and <b>ug/Kg</b> (equivalent to PPB - parts per billion in <b>liquid</b> and <b>solid</b> ), <b>ug/m<sup>3</sup></b> , <b>mg.m<sup>3</sup></b> , <b>ppbv</b> and <b>ppmv</b> (all units of measure for reporting concentrations in air), % (equivalent to 10000 ppm or 1,000,000 ppb), <b>ug/Wipe</b> ( concentration found on the surface of a single Wipe usually taken over a 100cm <sup>2</sup> surface)

### LABORATORY QUALIFIERS:

<p><b>B</b> - Indicates when the analyte is found in the associated method or preparation blank</p> <p><b>D</b> - Surrogate is not recoverable due to the necessary dilution of the sample</p> <p><b>E</b> - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.</p> <p><b>H</b>- Indicates that the recommended holding time for the analyte or compound has been exceeded</p> <p><b>J</b>- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative</p> <p><b>NA</b> - Not Analyzed</p> <p><b>N/A</b> - Not Applicable</p> <p><b>NR</b> - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added</p> <p><b>R</b>- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts</p> <p><b>S</b>- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative</p> <p><b>X</b> -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.</p>
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## Sample Receipt Checklist

Client Name: Allterra Environmental

Project Name: 2512 107th Ave, Oakland, INC

Work Order No.: 1304070

Date and Time Received: 4/12/2013 17:35

Received By: Idi

Physically Logged By: Idi

Checklist Completed By: Idi

Carrier Name: Client Drop Off

### Chain of Custody (COC) Information

Chain of custody present? Yes  
Chain of custody signed when relinquished and received? Yes  
Chain of custody agrees with sample labels? Yes  
Custody seals intact on sample bottles? Not Present

### Sample Receipt Information

Custody seals intact on shipping container/cooler? Not Present  
Shipping Container/Cooler In Good Condition? Yes  
Samples in proper container/bottle? Yes  
Samples containers intact? Yes  
Sufficient sample volume for indicated test? Yes

### Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes  
Container/Temp Blank temperature in compliance? Yes      Temperature: 5 °C  
Water-VOA vials have zero headspace? Yes  
Water-pH acceptable upon receipt? N/A

pH Checked by: n/a      pH Adjusted by: n/a



## Login Summary Report

**Client ID:** TL5401 Allterra Environmental

**QC Level:**

**Project Name:** 2512 107th Ave, Oakland, INC

**TAT Requested:** 3 day:25

**Project # :**

**Date Received:** 4/12/2013

**Report Due Date:** 4/17/2013

**Time Received:** 17:35

**Comments:** 3 day RUSH!!! for soils and STD for waters

Per client email: Change TAT for waters to 3day (except for HVOCs which will still be STD TAT). See attached email and CO for details. --KB 04/15/13

**Work Order # :** 1304070

<u>WO Sample ID</u>	<u>Client Sample ID</u>	<u>Collection Date/Time</u>	<u>Matrix</u>	<u>Scheduled Disposal</u>	<u>Sample On Hold</u>	<u>Test On Hold</u>	<u>Requested Tests</u>	<u>Subbed</u>
1304070-001A	B-2 @ 32'	04/12/13 11:30	Soil	10/09/13			EDF S_TEPHSG	
<b>Sample Note:</b>		Hydraulic Oil and Motor Oil Silica gel c/u . 3 day RUSH for soil samples only						
1304070-002A	B-1 @ 36'	04/12/13 12:30	Soil	10/09/13			S_TEPHSG	
1304070-003A	B-3 @ 40'	04/12/13 14:30	Soil	10/09/13			S_TEPHSG	
1304070-004A	B-1-W	04/12/13 13:00	Water	10/09/13			W_8260HVOC	
<b>Sample Note:</b>		Waters are STD TAT!!!!						
1304070-004B	B-1-W	04/12/13 13:00	Water	10/09/13			W_TEPH-SG	
<b>Sample Note:</b>		Sample -004B and -005B for Motor Oil and Hydraulic Oil w/ silica gel						
1304070-005A	B-3-W	04/12/13 15:00	Water	10/09/13			W_8260HVOC	
1304070-005B	B-3-W	04/12/13 15:00	Water	10/09/13			W_TEPH-SG	









**Change Order**

**Work Order:** 1304070

**Serial #:** CO13-0067

**Print Date:** 4/15/2013

**Project Name:** 2512 107th Ave, Oakland, INC

**Client:** Allterra Environmental

**Requested By:** Aaron Powers

	<u>Requested Date</u>	<u>Requested Time</u>	<u>Extended Price</u>
Change TPH (hyd. oil/motor oil) on 004, 005 to 3day TAT.	4/15/2013	10:22:00AM	



4/16/13

Torrent Laboratory, Inc. Mail - Re: 2512 107th Ave, Oakland - 1304070



Torrent Laboratory, Inc. <pm@torrentlaboratory.com>

**Re: 2512 107th Ave, Oakland - 1304070**

1 message

Aaron Powers <aaron@allterraenv.com>  
To: "Torrent Laboratory, Inc." <pm@torrentlaboratory.com>  
Cc: Joe Mangine <joe@allterraenv.com>

Mon, Apr 15, 2013 at 9:36 AM

Karin,

I would like to request a change to work order 1304070. Originally I had specified that all water sample tests should be run on a standard 5-day turnaround, but I would like to just have the HVOCs on the five day turnaround. All other tests I would like on the 72-hour turnaround (or as close as you can get it with this late notice; sorry). These tests include TPH as hydraulic oil, TPH as motor oil, and silica gel cleanup. Please call if you have any questions.

Thanks,

Aaron Powers, PG  
Project Geologist  
Allterra Environmental, Inc.  
207-B McPherson Street  
Santa Cruz, CA 95060  
aaron@allterraenv.com  
831.425.2608

On Fri, Apr 12, 2013 at 6:14 PM, Torrent Laboratory, Inc. <pm@torrentlaboratory.com> wrote:

Hi Aaron,  
Attached is the login summary for work order 1304070.  
Best,  
Karin

—  
Best Regards,

Janice Winn-Shilling x206 and Karin Bernstein x204, x209

Torrent's Project Management Team  
(408) 263-5258 ext 204, 206, 209  
pm@torrentlaboratory.com

483 Sinclair Frontage Rd  
Milpitas, CA 95035  
www.torrentlaboratory.com

The contents of this message are confidential and are bound by law from disclosure, tampering, or any other use by a third party.

If you are not the intended recipient of this message and its contents, please contact us immediately at (408) 263-5258 and delete the message and its contents.

<https://mail.google.com/mail/cv/u/0/?ui=2&ik=e890e8e2a7&view=pt&search=lnbo&th=13e0e8e5ee587441>

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