

# ALLIED ENGINEERING & PRODUCTION CORP.

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**RECEIVED**

*By Alameda County Environmental Health at 11:18 am, Jan 07, 2013*

December 12, 2012

In reference to Report of December 2012 Sampling, I declare under penalty of perjury that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Kassandra Miller, Vice President

Allied Engineering & Production Corporation

**geo - logic**

*geotechnical and environmental consulting services*

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December 11, 2012

Ms. Karel Detterman  
Alameda County Environmental Health Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**RE: Report of December 2012 Sampling  
Allied Engineering Co., 2421 Blanding Avenue, Alameda, CA  
Fuel Leak Case No. RO0002601**

Dear Ms. Detterman:

This report documents the recent sampling of three monitoring wells at the above-referenced site, the second sampling event. The wells were installed in April, 2010, in accordance with Geo-Logic's work plan dated December 22, 2008, as requested in a letter from Alameda County Environmental Health (ACEH) dated November 13, 2008.

### **SITE DESCRIPTION**

The subject site is located on the northeastern side of Blanding Avenue, southeast of Park Street, on the eastern perimeter of Alameda, Alameda County, California. The site is located adjacent to the tidal canal of Alameda Harbor. At the site, a 2,000-gallon gasoline tank, dispenser and the related product piping were removed. A Site Plan (Figure 1) showing the location of these features is attached to this report.

### **PREVIOUS FIELD ACTIVITIES**

On January 7, 2004, one 2,000-gasoline tank was removed. Mr. Bill Oyas, Fire Inspector with the City of Alameda, and Mr. Rob Weston of Alameda County Environmental Health (ACEH) witnessed the tank removal. Mr. Weston also directed the soil and groundwater sampling.

The tank was constructed of single wall steel, and appeared to have been covered with a tar paper that was largely dissolved. The tank, which measured approximately six feet in diameter and ten feet in length, appeared to be in good condition and no holes were observed. The fill port for the tank was located on the eastern end of the tank, and had consisted of a "T" fitting that was plumbed to a remote fill location and a fill port directly over the tank. The tank was transported under manifest to ECI in Richmond, California.

Odors of hydrocarbons were detected in the excavated soils and sidewalls, and in the groundwater. Groundwater collected in the tank pit excavation at approximately nine feet below grade.

The tank pit backfill material appeared to be a silty fine-grained sand which was stained dark gray to black. The native material in the sidewalls, beneath about 1.5 feet of fill material, appeared to be clayey silt and silty clay, which was dark brown to about five feet below grade, where the color changed to olive green.

Following the tank removal, a "grab" groundwater sample was collected from the tank pit excavation. The sample was collected using a disposable teflon bailer. Some oily product appeared to have collected on the surface of the water, which may have been the result of the dissolving of the tar paper that was originally on the tank. The groundwater sample had a moderate odor of weathered fuel.

One soil sample, designated as TP-W (7.25'), was collected from the sidewall of the western end of the tank pit excavation at the depth indicated. The soil at this location consisted of dark gray to black silty sand backfill with a moderate odor of weathered fuel. A second sample, designated as TP-N (8'), was collected from the northern sidewall of the excavation. The soil at this location consisted of green clayey silt/silty clay, which also had a moderate odor of weathered fuel. The locations of the sample points are shown on Figure 1.

One soil sample, designated as P1 (3.5'), was collected at a 90 degree elbow location in the product piping trench, approximately 1.5 foot below the excavation bottom. No odors of hydrocarbons were observed at this location. Another soil sample, designated as Disp. (3.5'), was collected from beneath the former dispenser location. A moderate odor of weathered fuel was observed on this sample. The materials at these locations consisted of native dark gray clayey silt/silty clay. The locations of these sample points are shown on Figure 1.

The soil and groundwater samples were analyzed for TPH as gasoline, benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA method 8020, and for total lead. All of the soil and groundwater samples were also analyzed for the eight fuel oxygenates by EPA Method 8260. The groundwater sample was also analyzed for organic lead.

Elevated concentrations of TPH as gasoline and BTEX were detected in the soil and groundwater samples. MTBE and the eight fuel oxygenates were non-detectable. 8.4 parts per billion of 1,2-dichloroethane was detected in the grab groundwater sample. Total Lead was detected in the samples at what appears to be naturally-occurring background concentrations. Organic Lead was non-detectable in the grab ground water sample.

On March 8, 2007, one four-part composite sample was collected from approximately 100 cubic yards of soil that had remained on site since the tank removal. The soil was underlain by plastic tarps. The stockpile sample was analyzed for TPH as gasoline, BTEX, and MTBE by EPA method 8020, and for total lead and STLC lead. The soil was profiled for disposal and was later removed from the site and transported to the Altamont Landfill in Livermore, California.

Based on letters from the ACEH dated September 22, 2006 and March 28, 2005, Geo-Logic prepared a work plan dated March 16, 2007 for a soil and groundwater investigation. The work plan was reviewed by ACEH and revisions were requested in a letter dated April 10, 2007. The revisions to the work plan were prepared and submitted on April 23, 2007, and were conditionally approved by the ACEH in a letter dated May 24, 2007.

On June 27, 2007, six of the eight proposed borings were completed to groundwater, and other shallow borings were completed. Borings B1, B5, B6 and B8 were completed at the proposed locations. Due to access limitations (the presence of concrete near the bank and trees overhead), boring B2 was not completed at the proposed location and B3 was relocated midway between the originally proposed locations of B2 and B3. Boring B4 could not be completed with the drilling rig due to the presence of trees. Two attempts were made using a hand auger. The first attempt, designated as B4A, encountered sheet metal at about one foot, proximal to a sheet metal building. The second attempt, designated as B4B, encountered metal shavings at about one foot below grade, and the hole was terminated due to refusal.

Boring 7 was attempted three times at or near the original location with the drill rig but encountered concrete about one foot below grade. As it was observed that there was an active storm drain that outletted to the estuary underlying this area, the boring was relocated and completed to the northwest. This location was desirable to provide delineation both of the hydrocarbons in water, and possible metal debris near the bank.

The borings were completed using a geoprobe rig provided by Vironex of Pacheco, California, a state-licensed driller. The locations of the borings are shown on Figure 1. The borings were continuously cored and the subsurface soils were examined for evidence of contamination. A photo-ionization detector (PID) was also used to screen the soil for contamination. Samples were selected from about five feet below grade, at the capillary fringe (about 7.5 feet below grade), and at about 12.5 feet and 15 feet below grade. The 12.5 foot samples generally corresponded to the last part of a layer of low permeability soils that appeared to contain hydrocarbons in many of the holes. The sample at the total depth (about 15 feet below grade) was generally in higher permeability water-bearing sandy soils and no odor of hydrocarbons was apparent.

All of the soil and groundwater samples were analyzed for TPH as gasoline, BTEX, and MTBE by EPA Methods 8015 and 8020. The ground water samples were analyzed for the fuel oxygenates and lead scavengers by EPA Method 8260. Selected soil samples from B3, B7B and B7C from a depth of four to 4.5 feet below grade, and the groundwater samples from B3 and B7C, were analyzed for the CAM 17 metals. The soil from B7B and B7C at that interval had visible metal debris in it. Mr. Steven Plunkett of ACDEH witnessed most of the drilling and sampling.

The analytical results of the soil samples indicated predominantly non-detectable results for petroleum hydrocarbons, except at the capillary fringe (about 7.5 feet below grade). The samples from B3, which was about 1.5 foot higher in elevation than the tank pit borings, had an elevated TPH as gasoline concentration at 12.5 feet below grade and non-detectable results at 7.5 feet below grade. The sample from 4.5 feet below grade near the former dispenser location at B5 also had elevated concentrations of hydrocarbons.

The analytical results of the grab groundwater samples indicated dissolved concentrations of hydrocarbons in groundwater in all of the borings except B7C, which was non-detectable. The concentrations of benzene in groundwater attenuated to very low (2.4 ppb in B3) to non-detectable to the north and east. The concentrations were not defined below about 100 to 160 ppb to the west and south.

The analytical results for the CAM 17 metals in B3 at 4.5 feet below grade, which appeared to be native soil, did not indicate any metals above the ESLs. The sample from B7B at four feet below grade, which contained abundant metal debris, had concentrations of nine of the CAM 17 metals above the ESLs. This sample, which contained the highest concentration of chromium of the soil samples analyzed, was also analyzed for hexavalent chromium by method E218.6m, which indicated a concentration of hexavalent chromium of 500 ppm. Arsenic and chromium concentrations exceeded their respective ESLs in the soil sample from B7C at 4.5 feet below grade, which also appeared to be historical fill material similar to the sample from B7B.

The analytical results for the CAM 17 metals in groundwater indicated concentrations of 14 metals above their respective ESLs in B3, and eleven metals above their respective ESLs in B7C. Except for lead and molybdenum, the concentrations of metals in the groundwater sample from B7C are significantly lower than the concentrations in B3. The collection of the sample in B7C was difficult and the rods were retracted three times, making it possible that metal debris from shallower depth affected the water sample analyses.

This work is summarized in Geo-Logic's "Report of Soil and Groundwater Investigation" dated July 18, 2007.

On April 19, 2010, three monitoring wells, designated as MW1 through MW3 on the attached Figure 3, were installed at the site. Well MW1 was located in the vicinity of previous boring B1, on the northeast side of the former tank pit, within the warehouse. Well MW2 was located adjacent to previous boring B5, at the former dispenser location. Well MW3 was located adjacent to previous boring B3, near the top of the estuary bank. Due to the previous logging and sampling, soil samples were not collected from the borings for these wells, however, the drill cuttings were examined for lithology and evidence of contamination. Odors of hydrocarbons were encountered beginning at approximately 6 feet (capillary fringe) in MW1, and at approximately two feet in MW2, in the former dispenser area.

Well Construction: The well casings consisted of two-inch diameter schedule 40 PVC with flush threaded joints and 0.010 inch factory slots. Based on previous conditions encountered in exploratory borings, the wells were screened between approximately 5 and 20 feet below grade with 0.010 inch screen. #2/12 sand was used for the filter pack and was placed from approximately 4.5 to 20 feet below grade, starting approximately 1/2 foot above the perforated interval. A 0.5-foot thick bentonite seal was placed in the annular space on top of the sand pack. Neat cement grout was placed on top of the bentonite seal to the surface.

On May 4, 2010, samples were obtained from the three wells, and the wells were monitored and sampled. The groundwater samples were analyzed for TPH as gasoline, BTEX, and MTBE and the fuel oxygenates and lead scavengers by EPA Method 8260 B, and for the CAM 17 metals. The analytical results of the groundwater samples collected from the three monitoring wells indicated concentrations ranging from predominantly non-detectable in MW3 to up to 2,300 parts per billion (ppb) of TPH as gasoline and up to 210 ppb of benzene in MW2, at the former dispenser area. At MW3, the only detected analyte was MTBE, at a concentration of 1.6 ppb. Toluene and xylenes were also detected in MW2 at concentrations of 5.8 and 130 ppb, respectively. At MW1, adjacent to the former tank pit, TPH as gasoline, benzene, toluene, xylenes and t-Butyl Alcohol were detected at concentrations of 380, 22, 0.77, 1.2 and 2.4 ppb, respectively. The concentrations of TPH as gasoline (2,300 ppb), benzene (210 ppb), and xylenes (130 ppb) are in excess of their respective Environmental Screening Levels (Table F-1b).

For the CAM 17 metals, six metals (beryllium, chromium, mercury, selenium, silver, and thallium) were non-detectable. Of the other eleven metals, cadmium, cobalt, copper, lead and nickel were detected in excess of their respective ESLs. Nickel concentrations were particularly elevated (ranging up to 190 ppb in MW2, in excess of the ESL of 8.2 ppb).

The analytical data is summarized in Tables 2 and 3. The results of this work were summarized in Geo-Logic's "Report of Monitoring Well Installation and May 2010 Sampling", dated May 14, 2010.

On Nov. 5, 2010, samples were again obtained from the three wells, and the wells were monitored. That work is summarized in Geo-Logic's "Report of November 2010 Sampling" dated November 19, 2010.

On May 13, 2011, and December 5, 2011, samples were again obtained from the three wells, and the wells were monitored. Also, two samples were obtained from the inner harbor waters, which yielded entirely non-detectable results for metals. That work is summarized in Geo-Logic's "Report of May 2011 Sampling" dated May 24, 2011, and "Report of December 2011 Sampling", dated December 16, 2011.

On June 1, 2012, samples were again obtained from the three wells, and the wells were monitored. That work is summarized in Geo-Logic's "Report of June 2012 Sampling" dated June 12, 2012.

### **RECENT FIELD ACTIVITIES –GROUNDWATER SAMPLING**

On December 3, 2012, samples were again obtained from the three wells, and the wells were monitored. The groundwater samples were collected as follows: prior to sampling, the wells were checked for depth to water and the presence of free product and sheen. No free product or sheen was noted in the wells.

The wells were bailed until the volume of water withdrawn was equal to at least three casing volumes. To assure that a representative groundwater sample was collected, periodic measurements of the temperature, pH and specific conductance were made. The samples were collected only when the temperature, pH, and/or specific conductance reached relatively constant values.

Water samples were collected using disposable bailers. An effort was made to minimize exposure of the samples to air. The samples were decanted into clean VOA vials that were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to the laboratory. The samples for metals analyses were filtered in the field due to hold time requirements. Excess water resulting from the purging and cleaning procedures was collected and contained in a drum.

### **HYDROLOGY**

On December 3, 2012, the measured depth to groundwater in wells MW1 through MW3 varied between approximately 4.55 to 7.20 feet below the tops of the well casings. As shown on Figure 2, the estimated hydraulic gradient was to the east at approximately 0.04 feet per foot. The direction of groundwater flow has been predominantly to the north in four out of five previous events, however, the site is under strong tidal influence. The elevations of groundwater rose between approximately 0.30 and 0.80 feet since the previous event on June 1, 2012.

The groundwater elevation data is summarized in Table 1 and on Figure 2. . Copies of the field data sheets are attached to this report.

## **ANALYTICAL RESULTS**

The groundwater samples were analyzed by McCampbell Analytical Laboratory in Pittsburg, California, a state-certified laboratory. The groundwater samples were analyzed for TPH as gasoline, BTEX, and MTBE and the fuel oxygenates and lead scavengers by EPA Method 8260 B, and for the CAM 17 metals.

The only detected hydrocarbons in the groundwater samples collected from the three monitoring wells consisted of 1.0 and 4.4 parts per billion (ppb) of benzene that was detected in MW1 and MW2, respectively. This was a historical low for hydrocarbon detections in the three wells.

For the CAM 17 metals in the monitoring well samples, antimony, beryllium, mercury, silver and thallium were non-detectable. Of the other metals, cadmium, cobalt and copper were detected above their respective ESLs in MW2, cadmium, copper and selenium were detected above their respective ESLs in MW3, and nickel was detected in all three wells at concentrations in excess of the ESL (where groundwater is not considered a potential drinking water source, Table F-1b).

The analytical data is summarized in Tables 2 and 3 and Figure 3. Copies of the laboratory analyses data sheets and chain of custody are attached to this report.

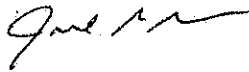
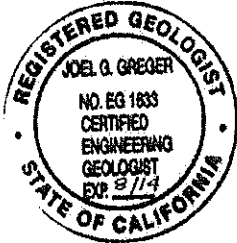
## **RECOMMENDATIONS**

This report will be uploaded to the Geotracker database in addition to the ACEH database. The next monitoring and sampling event will take place about June, 2013.



Should you have any questions regarding this report, please do not hesitate to call me at (510) 593-5382.

Sincerely,  
Geo-Logic



Joel G. Greger  
Certified Engineering Geologist  
Registered Environmental Assessor  
CEG # EG1633, REA # 07079

cc: Mr. Dave Belcher, Allied Engineering

Attachments: Tables 1 through 3  
Figures 1 through 3  
Laboratory Analytical Data  
Field Data Sheets



TABLE 2  
GROUNDWATER ANALYTICAL RESULTS - HYDROCARBONS  
2421 Blanding Ave., Alameda, CA

| Well No. | Date      | TPH-g (ppb) | Benzene (ppb) | Toluene (ppb) | Ethylbenzene (ppb) | Xylenes (ppb) | MTBE (ppb) | TBA (ppb) |
|----------|-----------|-------------|---------------|---------------|--------------------|---------------|------------|-----------|
| MW1      | 5/4/2010  | 380         | 22            | 0.77          | <0.5               | 1.2           | <0.5       | 2.4       |
|          | 11/5/2010 | 120         | 4.5           | <0.5          | <0.5               | <0.5          | <0.5       | <2.0      |
|          | 5/13/2011 | 250         | 14            | <0.5          | <0.5               | <0.5          | <0.5       | <2.0      |
|          | 12/5/2011 | 200         | 8.9           | <0.5          | <0.5               | <0.5          | <0.5       | <2.0      |
|          | 6/1/2012  | <50         | 2.1           | <0.5          | <0.5               | <0.5          | <0.5       | <2.0      |
|          | 12/3/2012 | <50         | 1.0           | <0.5          | <0.5               | <0.5          | <0.5       | <2.0      |
|          |           |             |               |               |                    |               |            |           |
| MW2      | 5/4/2010  | 2,300       | 210           | 5.8           | <5.0               | 130           | <5.0       | <20       |
|          | 11/5/2010 | 110         | 28            | <0.5          | 2.3                | <0.5          | 0.55       | <2.0      |
|          | 5/13/2011 | 2,600       | 240           | <5.0          | 57                 | 25            | <5.0       | <2.0      |
|          | 12/5/2011 | 990         | 140           | <2.5          | 9.8                | 3.7           | <2.5       | <10       |
|          | 6/1/2012  | 1,900       | 190           | <5.0          | 34                 | 15            | <5.0       | <20       |
|          | 12/3/2012 | <50         | 4.4           | <0.5          | <0.5               | <0.5          | <0.5       | <2.0      |
|          |           |             |               |               |                    |               |            |           |
| MW3      | 5/4/2010  | <50         | <0.5          | <0.5          | <0.5               | <0.5          | 1.6        | <2.0      |
|          | 11/5/2010 | <50         | <0.5          | <0.5          | <0.5               | <0.5          | <0.5       | <2.0      |
|          | 5/13/2011 | <50         | <0.5          | <0.5          | <0.5               | <0.5          | 0.84       | <2.0      |
|          | 12/5/2011 | <50         | <0.5          | <0.5          | <0.5               | <0.5          | 0.84       | 3.4       |
|          | 6/1/2012  | <50         | <0.5          | <0.5          | <0.5               | <0.5          | 0.70       | <2.0      |
|          | 12/3/2012 | <50         | <0.5          | <0.5          | <0.5               | <0.5          | <0.5       | <2.0      |
|          |           |             |               |               |                    |               |            |           |
| ESL      |           | 100/500     | 1.0/46        | 40/130        | 30/290             | 13/13         | 5.0/1,800  | 12/18,000 |

**EXPLANATION:**

ppb = parts per billion

TPH = Total Petroleum Hydrocarbons as gasoline.

TBA = t-Butyl alcohol

ESL - Environmental Screening Level, Tables F-1a/F-1b (groundwater is/is not a potential drinking water source).

**TABLE 3**  
**GROUNDWATER ANALYTICAL RESULTS - CAM 17 METALS**  
**2421 Blanding Avenue, Alameda, CA**

| Well No.   | Date      | Antimony (ppb) | Arsenic (ppb) | Barium (ppb) | Cadmium (ppb) | Chromium (ppb) | Cobalt (ppb) | Copper (ppb) | Lead (ppb) | Mercury (ppb) | Molybdenum (ppb) | Nickel (ppb) | Selenium (ppb) | Silver (ppb) | Vanadium (ppb) | Zinc (ppb) |
|------------|-----------|----------------|---------------|--------------|---------------|----------------|--------------|--------------|------------|---------------|------------------|--------------|----------------|--------------|----------------|------------|
| MW1        | 5/4/2010  | <0.5           | 17            | 130          | 0.29          | <0.5           | 6.2          | <0.5         | 2.1        | <0.025        | 4.8              | 120          | <0.5           | <0.19        | 6.0            | 5.9        |
|            | 11/5/2010 | <0.5           | 15            | 93           | <0.25         | <0.5           | 1.4          | 0.83         | <0.5       | <0.025        | 2.0              | 75           | <0.5           | <0.19        | 2.7            | <5.0       |
|            | 5/13/2011 | <0.5           | 18            | 100          | <0.25         | <0.5           | 0.92         | <0.5         | <0.5       | <0.025        | 2.3              | 85           | <0.5           | <0.19        | 0.71           | <5.0       |
|            | 12/5/2011 | <0.5           | 19            | 110          | <0.25         | <0.5           | 0.76         | <0.5         | <0.5       | <0.025        | 1.8              | 82           | <0.5           | <0.19        | 1.7            | <5.0       |
|            | 6/1/2012  | <0.5           | 11            | 99           | <0.25         | <1.0           | 0.70         | <0.5         | <0.5       | <0.025        | 1.6              | 59           | <0.5           | <0.19        | 0.75           | <5.0       |
|            | 12/3/2012 | <0.5           | 4.7           | 120          | <0.25         | <0.5           | 2.2          | 0.62         | <0.5       | <0.025        | 0.80             | 54           | <0.5           | <0.19        | 6.1            | <5.0       |
| MW2        | 5/4/2010  | <0.5           | 4.1           | 84           | 1.0           | <0.5           | 7.9          | 1.7          | 4.0        | <0.025        | 2.4              | 190          | <0.5           | <0.19        | 8.0            | 14         |
|            | 11/5/2010 | <0.5           | 5.3           | 61           | <0.25         | <0.5           | 1.9          | 3.6          | 1.7        | <0.025        | 0.74             | 110          | <0.5           | <0.19        | 9.1            | 10         |
|            | 5/13/2011 | <0.5           | 5.7           | 62           | <0.25         | <0.5           | 1.6          | <0.5         | <0.5       | <0.025        | 0.56             | 170          | <0.5           | <0.19        | 3.7            | <5.0       |
|            | 12/5/2011 | <0.5           | 7.8           | 81           | <0.25         | <0.5           | 0.98         | <0.5         | 0.81       | <0.025        | <0.5             | 220          | <0.5           | <0.19        | 5.1            | <5.0       |
|            | 6/1/2012  | <0.5           | 5.4           | 89           | <0.25         | <1.0           | 1.1          | <0.5         | <0.5       | <0.025        | <0.5             | 220          | <0.5           | <0.19        | 5.6            | <5.0       |
|            | 12/3/2012 | <0.5           | 5.3           | 83           | 0.50          | <0.5           | 3.2          | 3.7          | 1.4        | <0.025        | <0.5             | 120          | <0.5           | <0.19        | 7.3            | 68         |
| MW3        | 5/4/2010  | 0.65           | 2.7           | 180          | 2.1           | <0.5           | 5.9          | 6.4          | 14         | <0.025        | 20               | 85           | <0.5           | <0.19        | 4.4            | 7.0        |
|            | 11/5/2010 | 0.91           | 2.1           | 81           | 6.2           | 7.6            | 3.6          | 7.7          | 4.9        | 0.055         | 26               | 15           | 2.7            | 3.0          | 3.3            | 35         |
|            | 5/13/2011 | <0.5           | 2.7           | 63           | 0.51          | <0.5           | 2.1          | 4.9          | 2.1        | <0.025        | 6.0              | 55           | 0.70           | <0.19        | 4.4            | <5.0       |
|            | 12/5/2011 | <0.5           | 5.5           | 48           | 0.91          | 0.57           | 0.64         | 4.9          | 1.0        | <0.025        | 14               | 52           | 2.1            | <0.19        | 7.6            | <5.0       |
|            | 6/1/2012  | <0.5           | 3.3           | 38           | 0.37          | <1.0           | 3.8          | 5.3          | 1.1        | <0.025        | 6.1              | 91           | <0.5           | <0.19        | 6.3            | 6.8        |
|            | 12/3/2012 | <0.5           | 3.4           | 63           | 0.34          | 2.7            | 2.3          | 3.1          | <0.5       | <0.025        | 11               | 24           | 9.5            | <0.19        | 5.3            | <5.0       |
| IHC-W      | 5/13/2011 | <0.5           | <0.5          | <5.0         | <0.25         | <0.5           | <0.5         | <0.5         | <0.5       | <0.025        | <0.5             | <0.5         | <0.5           | <0.19        | <0.5           | <5.0       |
| IHC-E      | 5/13/2011 | <0.5           | <0.5          | <5.0         | <0.25         | <0.5           | <0.5         | <0.5         | <0.5       | <0.025        | <0.5             | <0.5         | <0.5           | <0.19        | <0.5           | <5.0       |
| ESL -      |           | 6.0            | 36            | 1000         | 0.25          | 50             | 3.0          | 3.1          | 2.5        | 0.025         | 35               | 8.2          | 5.0            | 0.19         | 15             | 81         |
| Table F-1a |           |                |               |              |               |                |              |              |            |               |                  |              |                |              |                |            |
| ESL -      |           | 30             | 36            | 1000         | 0.25          | 180            | 3.0          | 3.1          | 2.5        | 0.025         | 240              | 8.2          | 5.0            | 0.19         | 19             | 81         |
| Table F-1b |           |                |               |              |               |                |              |              |            |               |                  |              |                |              |                |            |

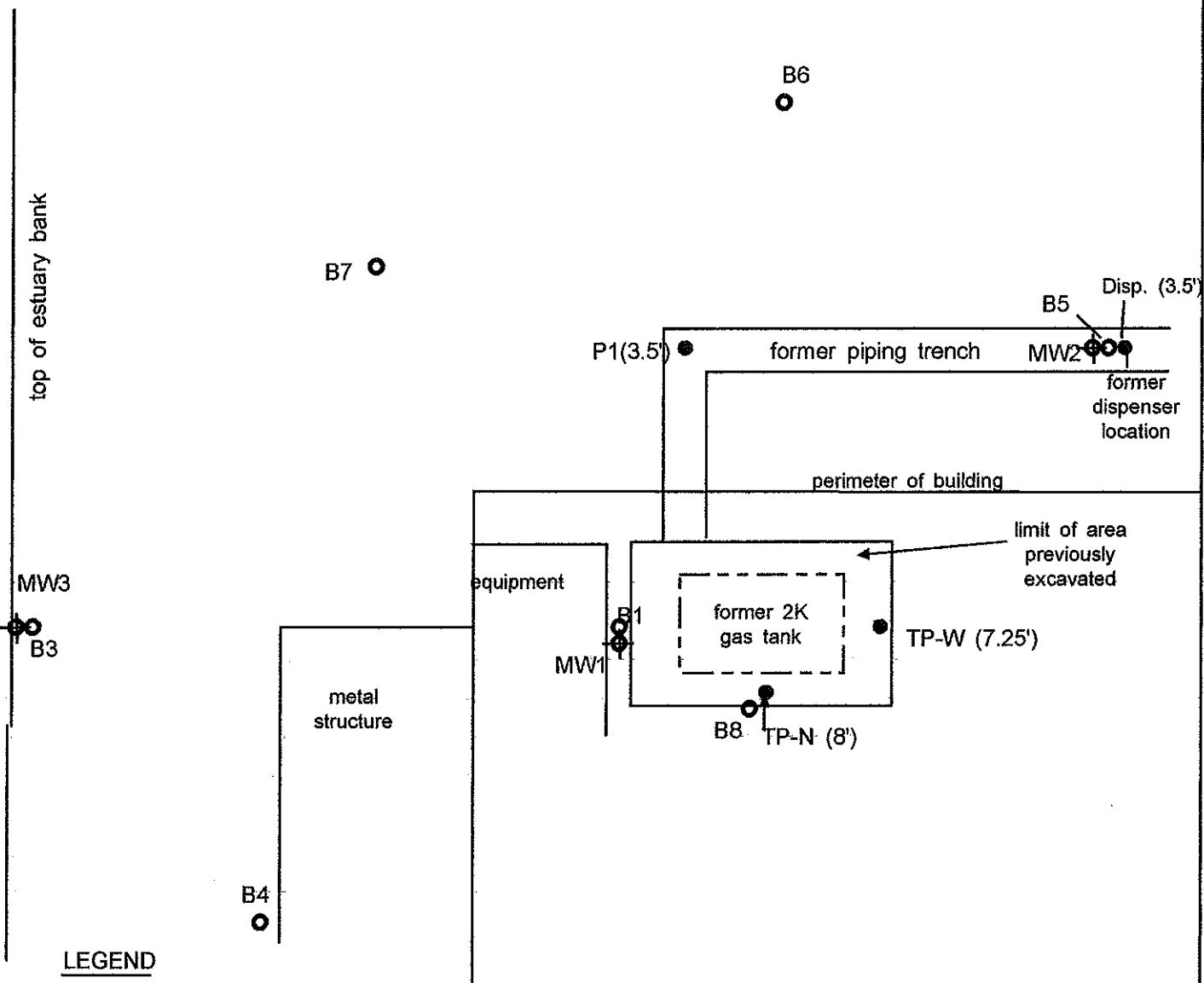
**EXPLANATION:**

ESL = Environmental Screening Level, RWQCB, May 2008. Table F-1a, groundwater is a potential drinking water source, Table F-1b, groundwater is not a potential drinking water source.

Beryllium and thallium were non-detectable.

IHC = Inner Harbor Channel

ppb = parts per billion



**LEGEND**

- soil sample, 1/7/04
- exploratory boring, 6/27/07
- ⊕ monitoring well, installed 4/19/2010

SCALE: 1" = 10'

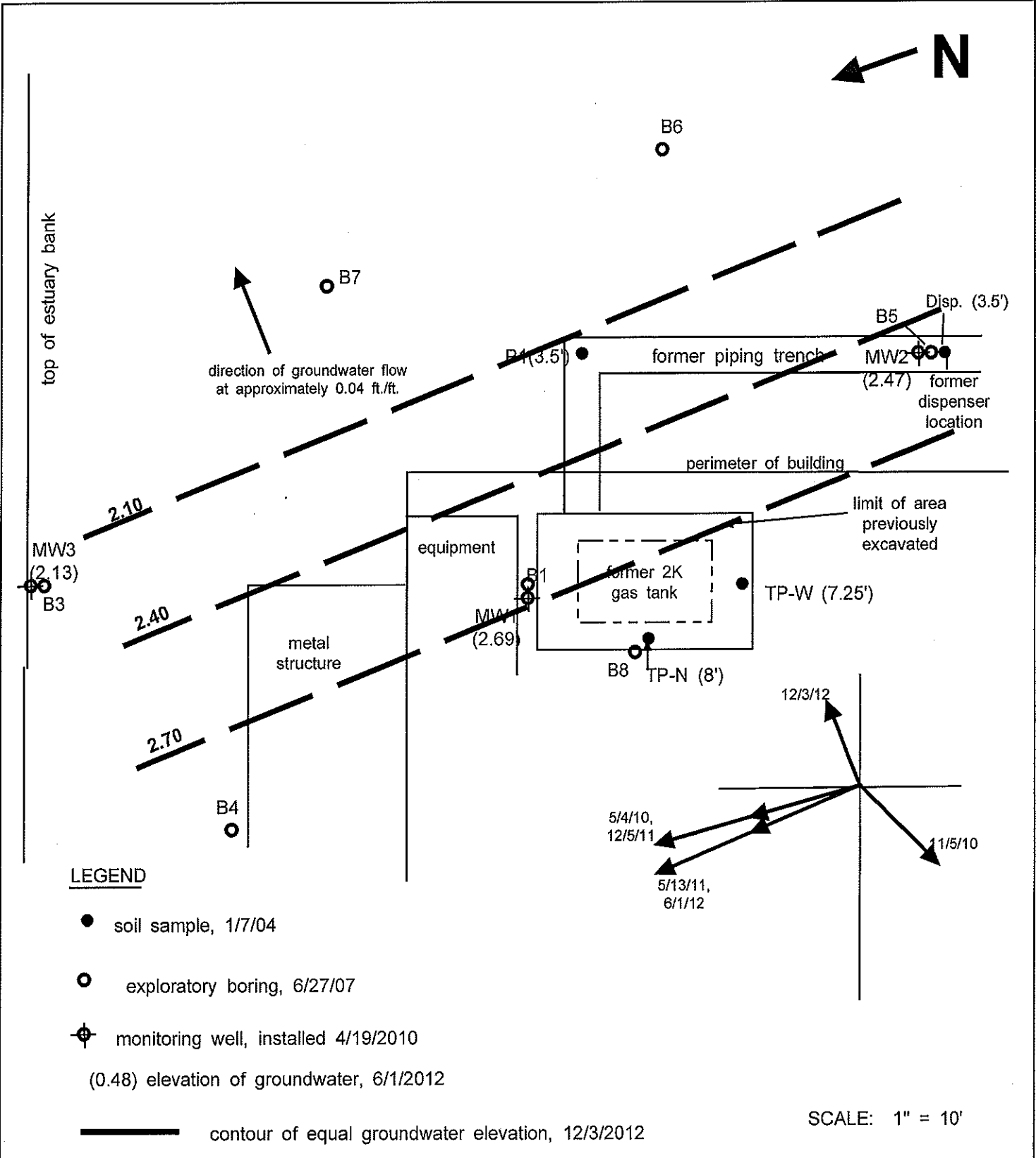
Allied Engineering & Production Co.  
2421 Blanding Avenue  
Alameda, California

Figure No:  
**1**

Date: May 6, 2010

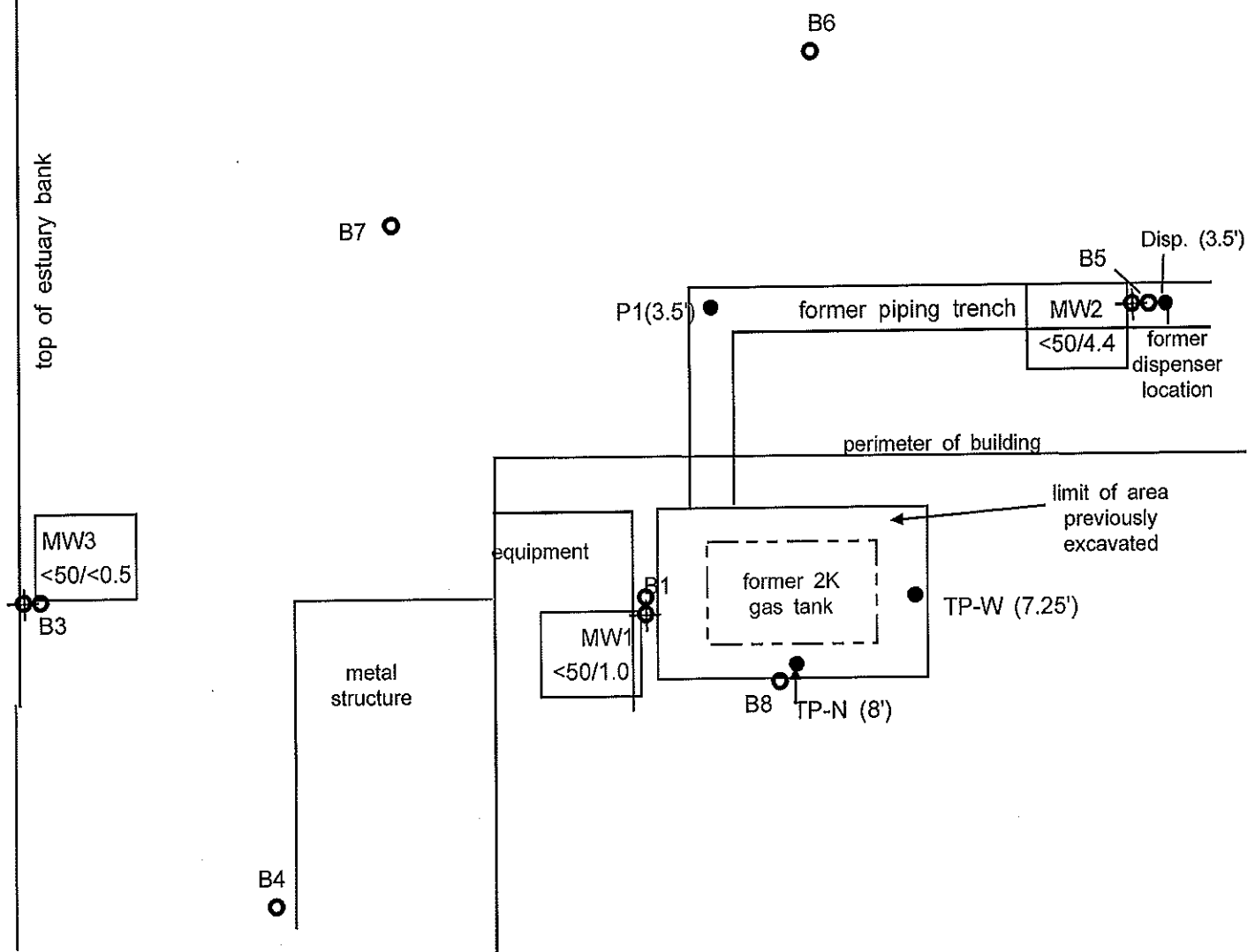
Drawn By: JG/Geo-Logic

# Site Plan



|  |                        |                        |
|--|------------------------|------------------------|
| Allied Engineering & Production Co.<br>2421 Blanding Avenue<br>Alameda, California | Figure No:<br><b>2</b> | Date: Dec. 11, 2012    |
|  |                        | Drawn By: JG/Geo-Logic |

# Potentiometric Surface Map



**LEGEND**

- soil sample, 1/7/04
- exploratory boring, 6/27/07
- ⊕ monitoring well, installed 4/19/2010

MW3 <50/<0.5 concentration of TPH-gas/benzene in ppb, 12/3/2012

SCALE: 1" = 10'

|  |                        |                        |
|--|------------------------|------------------------|
| Allied Engineering & Production Co.<br>2421 Blanding Avenue<br>Alameda, California | Figure No:<br><b>3</b> | Date: Dec. 11, 2012    |
|  |                        | Drawn By: JG/Geo-Logic |

# Groundwater Contaminant Concentration Map

# **FIELD DATA SHEETS**



# FLUID-LEVEL MONITORING DATA

Project Number: \_\_\_\_\_ Date: 12/3/2012

Project/Site Location: 2421 Blanding Ave. Alameda CA

Technician: K. Atkinson  Method: Electronic

| Boring/Well | Depth to Water (feet) | Depth to Product (feet) | Product Thickness (feet) | Total Well Depth (feet) | Comments       |
|-------------|-----------------------|-------------------------|--------------------------|-------------------------|----------------|
| MW1         | 5.80                  | NONE DETECTED           | N/A                      | 20.15                   | @ 1154 2" WELL |
| MW2         | 4.55                  | ↓                       | ↓                        | 19.17                   | @ 1158 2" WELL |
| MW3         | 7.20                  | ↓                       | ↓                        | 20.00                   | @ 1150 2" WELL |
|             |                       |                         |                          |                         |                |
|             |                       |                         |                          |                         |                |
|             |                       |                         |                          |                         |                |
|             |                       |                         |                          |                         |                |
|             |                       |                         |                          |                         |                |
|             |                       |                         |                          |                         |                |
|             |                       |                         |                          |                         |                |
|             |                       |                         |                          |                         |                |
|             |                       |                         |                          |                         |                |
|             |                       |                         |                          |                         |                |

WELL NUMBER / FIELD POINT ID: MW |

DATE: DECEMBER 3, 2012

PROJECT / GLOBAL ID: T06019716048

SITE LOCATION: 2421 Blanding ave

CITY: Alameda

STATE: CA

**PURGE DEVICE**

circle one submersible pump peristaltic pump bladder pump disposable bailer

**SAMPLING DEVICE**

circle one submersible pump peristaltic pump bladder pump disposable bailer

casing diameter (inches) circle one 0.75 2 4 6

casing volumes (gallons) circle one 0.02 0.2 0.7 1.52

**WELL DATA**

SAMPLER/S: Kian Atkinson

WELL NUMBER / FIELD POINT ID: MW |

A. TOTAL WELL DEPTH: 20.15

B. DEPTH TO WATER: 5.50

C. WATER HEIGHT (A-B): 14.35

D. WELL CASING DIAMETER: 2

E. CASING VOLUME: .2

F. SINGLE CASE VOLUME (Cx E): 2.87

G. PURGE CASE VOLUME (3 x E): 8.61

H. 80% RECHARGE LEVEL (F+B): 8.67

**PURGE DATA**

START TIME: 1245

TUBING DEPTH: 10'

FINISH TIME: 1315

TUBING DEPTH: 10'

**SAMPLE TIME**

DEPTH TO WATER: 5.95 TIME MEASURED: 1315

SAMPLE APPEARANCE / ODOR: CLEAR / NO ODOR

TOTAL GALLONS PURGED: 9

**WELL FLUID PARAMETERS**

| CASING VOL.      | 0           | 0.5  | 1    | 1.5  | 2    | 2.5  | 3    |
|------------------|-------------|------|------|------|------|------|------|
| TIME             | 1245        | 1250 | 1255 | 1300 | 1305 | 1310 | 1315 |
| pH               | 6.93        | 6.91 | 6.91 | 6.92 | 6.90 | 6.90 | 6.90 |
| TEMP in °C       | 21.2        | 21.0 | 21.0 | 21.1 | 21.1 | 21.0 | 21.1 |
| COND / SC us/cm  | 1493        | 1492 | 1495 | 1493 | 1493 | 1494 | 1495 |
| DTW              | 5.50        | 5.50 | 5.90 | 5.91 | 5.93 | 5.95 | →    |
| Tubing Depth     | 10'         |      |      |      |      |      | →    |
| Pump Rate ml/min | 1000 ml/min |      |      |      |      |      | →    |

WELL NUMBER / FIELD POINT ID: MW 2

DATE: DECEMBER 3, 2012

PROJECT / GLOBAL ID: T06019716048

SITE LOCATION: 2421 Blanding ave

CITY: Alameda

STATE: CA

PURGE DEVICE

circle one submersible pump peristaltic pump bladder pump disposable bailer

SAMPLING DEVICE

circle one submersible pump peristaltic pump bladder pump disposable bailer

casing diameter (inches) circle one 0.75 2 4 6

casing volumes (gallons) circle one 0.02 0.2 0.7 1.52

WELL DATA

SAMPLER/S: Kian Atkinson

WELL NUMBER / FIELD POINT ID: MW 2

A. TOTAL WELL DEPTH: 19.17

B. DEPTH TO WATER: 4.55

C. WATER HEIGHT (A-B): 14.62

D. WELL CASING DIAMETER: 2

E. CASING VOLUME: 2

F. SINGLE CASE VOLUME (Cx E): 2.92

G. PURGE CASE VOLUME (3 x E): 8.76

H: 80% RECHARGE LEVEL (F+B): 7.47

PURGE DATA

START TIME: 1325

TUBING DEPTH: 10'

FINISH TIME: 1355

TUBING DEPTH: 10'

SAMPLE TIME

DEPTH TO WATER: 4.61 TIME MEASURED: 1355

SAMPLE APPEARANCE / ODOR: clear / FUEL odor

TOTAL GALLONS PURGED: 9

WELL FLUID PARAMETERS

| CASING VOL.      | 0          | 0.5  | 1    | 1.5  | 2    | 2.5  | 3    |
|------------------|------------|------|------|------|------|------|------|
| TIME             | 1325       | 1330 | 1335 | 1340 | 1345 | 1350 | 1355 |
| pH               | 7.25       | 7.23 | 7.22 | 7.21 | 7.18 | 7.18 | 7.18 |
| TEMP in °C       | 22.6       | 22.6 | 22.1 | 22.3 | 22.5 | 22.7 | 22.8 |
| COND / SC us/cm  | 660        | 661  | 665  | 661  | 661  | 662  | 664  |
| DTW              | 4.55       | →    | 4.60 | 4.61 | →    | →    | →    |
| Tubing Depth     | 10'        | →    | →    | →    | →    | →    | →    |
| Pump Rate ml/min | 1000ml/min | →    | →    | →    | →    | →    | →    |

WELL NUMBER / FIELD POINT ID: MW3

DATE: DECEMBER 3, 2012

PROJECT / GLOBAL ID: T06019716048

SITE LOCATION: 2421 Blanding ave

CITY: Alameda

STATE: CA

PURGE DEVICE

circle one submersible pump peristaltic pump bladder pump disposable bailer

SAMPLING DEVICE

circle one submersible pump peristaltic pump bladder pump disposable bailer

casing diameter (inches) circle one 0.75 5 4 6

casing volumes (gallons) circle one 0.02 0.2 0.7 1.52

WELL DATA

SAMPLER/S: Kian Atkinson

WELL NUMBER / FIELD POINT ID: MW3

A. TOTAL WELL DEPTH: 20.00

B. DEPTH TO WATER: 7.20

C. WATER HEIGHT (A-B): 12.80

D. WELL CASING DIAMETER: 2

E. CASING VOLUME: .2

F. SINGLE CASE VOLUME (Cx E): 2.56

G. PURGE CASE VOLUME (3 x E): 7.68

H. 80% RECHARGE LEVEL (F+B): 9.76

PURGE DATA

START TIME: 1205

TUBING DEPTH: 12'

FINISH TIME: 1235

TUBING DEPTH: 12'

SAMPLE TIME

DEPTH TO WATER: 7.24 TIME MEASURED: 1235

SAMPLE APPEARANCE / ODOR: CLEAR / NONE

TOTAL GALLONS PURGED: 8 GALS

WELL FLUID PARAMETERS

| CASING VOL.      | 0                   | 0.5                 | 1                   | 1.5                 | 2                   | 2.5                 | 3                   |
|------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| TIME             | 1205                | 1210                | 1215                | 1220                | 1225                | 1230                | 1235                |
| pH               | 7.05                | 7.21                | 7.25                | 7.26                | 7.27                | 7.27                | 7.27                |
| TEMP in °C       | 20.5                | 20.8                | 20.8                | 20.8                | 20.8                | 20.8                | 20.8                |
| COND / SC us/cm  | 18.49 <sup>MS</sup> | 17.01 <sup>MS</sup> | 17.01 <sup>MS</sup> | 16.85 <sup>MS</sup> | 16.66 <sup>MS</sup> | 16.64 <sup>MS</sup> | 16.53 <sup>MS</sup> |
| DTW              | 7.20                | →                   |                     | 7.26                | →                   |                     | 7.24                |
| Tubing Depth     | 12'                 | →                   |                     |                     |                     |                     |                     |
| Pump Rate ml/min | 1000 ml/min         | →                   |                     |                     |                     |                     |                     |

**LABORATORY  
ANALYTICAL DATA**



**McC Campbell Analytical, Inc.**  
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269  
http://www.mccampbell.com / E-mail: main@mccampbell.com

|  |  |                         |
|--|--|-------------------------|
| Geo-Logic<br><br>1140 5th Avenue<br><br>Crockett, CA 94525 | Client Project ID: DE-5062; Allied Engineering | Date Sampled: 12/03/12  |
|  | Client Contact: Joel Gregor                    | Date Received 12/04/12  |
|  | Client P.O.:                                   | Date Extracted 12/04/12 |
|  |  | Date Analyzed 12/06/12  |

**CAM / CCR 17 Metals\***

|                 |              |              |              |   |      |
|-----------------|--------------|--------------|--------------|---|------|
| Lab ID          | 1212084-001A | 1212084-002A | 1212084-003A | Reporting Limit for DF =1;<br>ND means not detected above the reporting limit |      |
| Client ID       | MW-1         | MW-2         | MW-3         |   |      |
| Matrix          | W            | W            | W            | S   | W    |
| Extraction Type | DISS.        | DISS.        | DISS.        | mg/kg   | µg/L |

**ICP-MS Metals, Concentration\***

Analytical Method: E200.8

Extraction Method: E200.8

Work Order: 1212084

| Dilution Factor | 1    | 1    | 1    | 1  | 1     |
|-----------------|------|------|------|----|-------|
| Antimony        | ND   | ND   | ND   | NA | 0.5   |
| Arsenic         | 4.7  | 5.3  | 3.4  | NA | 0.5   |
| Barium          | 120  | 83   | 63   | NA | 5.0   |
| Beryllium       | ND   | ND   | ND   | NA | 0.5   |
| Cadmium         | ND   | 0.50 | 0.34 | NA | 0.25  |
| Chromium        | ND   | ND   | 2.7  | NA | 0.5   |
| Cobalt          | 2.2  | 3.2  | 2.3  | NA | 0.5   |
| Copper          | 0.62 | 3.7  | 3.1  | NA | 0.5   |
| Lead            | ND   | 1.4  | ND   | NA | 0.5   |
| Mercury         | ND   | ND   | ND   | NA | 0.025 |
| Molybdenum      | 0.80 | ND   | 11   | NA | 0.5   |
| Nickel          | 54   | 120  | 24   | NA | 0.5   |
| Selenium        | ND   | ND   | 9.5  | NA | 0.5   |
| Silver          | ND   | ND   | 0.23 | NA | 0.19  |
| Thallium        | ND   | ND   | ND   | NA | 0.5   |
| Vanadium        | 6.1  | 7.3  | 5.3  | NA | 0.5   |
| Zinc            | ND   | 68   | ND   | NA | 5.0   |
| %SS:            | N/A  | N/A  | N/A  |    |       |

**Comments**

\*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

# means surrogate diluted out of range; ND means not detected above the reporting limit/method detection limit; N/A means not applicable to this sample or instrument; %SS = Percent Recovery of Surrogate Standard; DF = Dilution Factor

TOTAL = Hot acid digestion of a representative sample aliquot.

TRM = Total recoverable metals is the "direct analysis" of a sample aliquot taken from its acid-preserved container.

DISS = Dissolved metals by direct analysis of 0.45 µm filtered and acidified sample.





|  |  |                          |
|--|--|--------------------------|
| Geo-Logic<br><br>1140 5th Avenue<br><br>Crockett, CA 94525 | Client Project ID: DE-5062; Allied Engineering | Date Sampled: 12/03/12   |
|  | Client Contact: Joel Gregor                    | Date Received: 12/04/12  |
|  | Client P.O.:                                   | Date Extracted: 12/05/12 |
|  |  | Date Analyzed: 12/05/12  |

**Oxygenates, MBTEX & Lead Scavengers by GC/MS\***

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 1212084

|           |              |              |              |                           |   |   |
|-----------|--------------|--------------|--------------|---------------------------|---|---|
| Lab ID    | 1212084-001B | 1212084-002B | 1212084-003B | Reporting Limit for DF =1 |   |   |
| Client ID | MW-1         | MW-2         | MW-3         |                           |   |   |
| Matrix    | W            | W            | W            |                           |   |   |
| DF        | 1            | 1            | 1            |                           | S | W |

| Compound                      | Concentration |     |    |  | ug/kg | ug/L |
|-------------------------------|---------------|-----|----|--|-------|------|
| tert-Amyl methyl ether (TAME) | ND            | ND  | ND |  | NA    | 0.5  |
| Benzene                       | 1.0           | 4.4 | ND |  | NA    | 0.5  |
| t-Butyl alcohol (TBA)         | ND            | ND  | ND |  | NA    | 2.0  |
| 1,2-Dibromoethane (EDB)       | ND            | ND  | ND |  | NA    | 0.5  |
| 1,2-Dichloroethane (1,2-DCA)  | ND            | ND  | ND |  | NA    | 0.5  |
| Diisopropyl ether (DIPE)      | ND            | ND  | ND |  | NA    | 0.5  |
| Ethylbenzene                  | ND            | ND  | ND |  | NA    | 0.5  |
| Ethyl tert-butyl ether (ETBE) | ND            | ND  | ND |  | NA    | 0.5  |
| Methyl-t-butyl ether (MTBE)   | ND            | ND  | ND |  | NA    | 0.5  |
| Toluene                       | ND            | ND  | ND |  | NA    | 0.5  |
| Xylenes, Total                | ND            | ND  | ND |  | NA    | 0.5  |

**Surrogate Recoveries (%)**

|          |     |     |     |  |  |
|----------|-----|-----|-----|--|--|
| %SS1:    | 106 | 105 | 106 |  |  |
| %SS2:    | 100 | 100 | 100 |  |  |
| %SS3:    | 98  | 94  | 96  |  |  |
| Comments |     |     |     |  |  |

\* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

# surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

%SS = Percent Recovery of Surrogate Standard

DF = Dilution Factor





**QC SUMMARY REPORT FOR E200.8**

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 72909

WorkOrder: 1212084

| EPA Method: E200.8 |        | Extraction: E200.8 |        |        |        | Spiked Sample ID: 1212001-003A |                         |     |          |
|--------------------|--------|--------------------|--------|--------|--------|--------------------------------|-------------------------|-----|----------|
| Analyte            | Sample | Spiked             | MS     | MSD    | MS-MSD | LCS                            | Acceptance Criteria (%) |     |          |
|                    | µg/L   | µg/L               | % Rec. | % Rec. | % RPD  | % Rec.                         | MS / MSD                | RPD | LCS      |
| Antimony           | ND     | 50                 | 109    | 108    | 0.738  | 106                            | 85 - 115                | 20  | 85 - 115 |
| Arsenic            | 1.5    | 50                 | 100    | 103    | 2.52   | 100                            | 85 - 115                | 20  | 85 - 115 |
| Barium             | 35     | 500                | 104    | 104    | 0      | 102                            | 85 - 115                | 20  | 85 - 115 |
| Beryllium          | ND     | 50                 | 103    | 103    | 0      | 104                            | 85 - 115                | 20  | 85 - 115 |
| Cadmium            | ND     | 50                 | 102    | 103    | 0.704  | 104                            | 85 - 115                | 20  | 85 - 115 |
| Chromium           | ND     | 50                 | 98.2   | 97.4   | 0.798  | 99.5                           | 85 - 115                | 20  | 85 - 115 |
| Cobalt             | ND     | 50                 | 101    | 101    | 0      | 106                            | 85 - 115                | 20  | 85 - 115 |
| Copper             | 2.4    | 50                 | 97.4   | 97.4   | 0      | 103                            | 85 - 115                | 20  | 85 - 115 |
| Lead               | ND     | 50                 | 99.3   | 99.9   | 0.602  | 100                            | 85 - 115                | 20  | 85 - 115 |
| Mercury            | ND     | 1.25               | 107    | 105    | 1.41   | 103                            | 85 - 115                | 20  | 85 - 115 |
| Molybdenum         | 2.6    | 50                 | 106    | 106    | 0      | 104                            | 85 - 115                | 20  | 85 - 115 |
| Nickel             | ND     | 50                 | 96.7   | 97.2   | 0.576  | 100                            | 85 - 115                | 20  | 85 - 115 |
| Selenium           | ND     | 50                 | 102    | 101    | 1.41   | 104                            | 85 - 115                | 20  | 85 - 115 |
| Silver             | ND     | 50                 | 101    | 100    | 0.278  | 104                            | 85 - 115                | 20  | 85 - 115 |
| Thallium           | ND     | 50                 | 97     | 97.2   | 0.185  | 97.1                           | 85 - 115                | 20  | 85 - 115 |
| Vanadium           | 1.9    | 50                 | 100    | 100    | 0      | 99.9                           | 85 - 115                | 20  | 85 - 115 |
| Zinc               | ND     | 500                | 99.3   | 99.3   | 0      | 103                            | 85 - 115                | 20  | 85 - 115 |
| %SS:               | 103    | 750                | 104    | 104    | 0      | 102                            | 70 - 130                | 20  | 70 - 130 |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

**BATCH 72909 SUMMARY**

| Lab ID       | Date Sampled     | Date Extracted | Date Analyzed    | Lab ID       | Date Sampled      | Date Extracted | Date Analyzed    |
|--------------|------------------|----------------|------------------|--------------|-------------------|----------------|------------------|
| 1212084-001A | 12/03/12 1:15 PM | 12/04/12       | 12/06/12 4:06 PM | 1212084-002A | 12/03/12 1:55 PM  | 12/04/12       | 12/06/12 4:13 PM |
| 1212084-002A | 12/03/12 1:55 PM | 12/04/12       | 12/06/12 9:13 PM | 1212084-003A | 12/03/12 12:35 PM | 12/04/12       | 12/06/12 4:21 PM |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.  
 % Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).  
 MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.  
 N/A = not applicable to this method.  
 NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



**QC SUMMARY REPORT FOR SW8260B**

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 72979

WorkOrder: 1212084

| Analyte                       | EPA Method: SW8260B |        | Extraction: SW5030B |        |        |        | Spiked Sample ID: 1212074-002C |     |          |  |
|-------------------------------|---------------------|--------|---------------------|--------|--------|--------|--------------------------------|-----|----------|--|
|                               | Sample              | Spiked | MS                  | MSD    | MS-MSD | LCS    | Acceptance Criteria (%)        |     |          |  |
|                               | µg/L                | µg/L   | % Rec.              | % Rec. | % RPD  | % Rec. | MS / MSD                       | RPD | LCS      |  |
| tert-Amyl methyl ether (TAME) | ND                  | 10     | 99.8                | 96.8   | 3.02   | 90.2   | 70 - 130                       | 20  | 70 - 130 |  |
| Benzene                       | ND                  | 10     | 99.5                | 98.4   | 1.06   | 93.3   | 70 - 130                       | 20  | 70 - 130 |  |
| t-Butyl alcohol (TBA)         | ND                  | 40     | 97.4                | 95.9   | 1.60   | 91.6   | 70 - 130                       | 20  | 70 - 130 |  |
| 1,2-Dibromoethane (EDB)       | ND                  | 10     | 92.6                | 88.3   | 4.75   | 94.5   | 70 - 130                       | 20  | 70 - 130 |  |
| 1,2-Dichloroethane (1,2-DCA)  | ND                  | 10     | 97.3                | 95.8   | 1.57   | 96     | 70 - 130                       | 20  | 70 - 130 |  |
| Diisopropyl ether (DIPE)      | ND                  | 10     | 111                 | 109    | 1.62   | 98     | 70 - 130                       | 20  | 70 - 130 |  |
| Ethyl tert-butyl ether (ETBE) | ND                  | 10     | 108                 | 106    | 2.44   | 99.5   | 70 - 130                       | 20  | 70 - 130 |  |
| Methyl-t-butyl ether (MTBE)   | ND                  | 10     | 103                 | 99.8   | 2.80   | 97.5   | 70 - 130                       | 20  | 70 - 130 |  |
| Toluene                       | ND                  | 10     | 87.3                | 85.5   | 2.03   | 88.5   | 70 - 130                       | 20  | 70 - 130 |  |
| %SS1:                         | 104                 | 25     | 103                 | 104    | 0.927  | 105    | 70 - 130                       | 20  | 70 - 130 |  |
| %SS2:                         | 101                 | 25     | 100                 | 99     | 0.477  | 101    | 70 - 130                       | 20  | 70 - 130 |  |
| %SS3:                         | 95                  | 2.5    | 90                  | 91     | 1.37   | 98     | 70 - 130                       | 20  | 70 - 130 |  |

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
 NONE

BATCH 72979 SUMMARY

| Lab ID       | Date Sampled      | Date Extracted | Date Analyzed    | Lab ID       | Date Sampled     | Date Extracted | Date Analyzed    |
|--------------|-------------------|----------------|------------------|--------------|------------------|----------------|------------------|
| 1212084-001B | 12/03/12 1:15 PM  | 12/05/12       | 12/05/12 4:22 PM | 1212084-002B | 12/03/12 1:55 PM | 12/05/12       | 12/05/12 5:02 PM |
| 1212084-003B | 12/03/12 12:35 PM | 12/05/12       | 12/05/12 5:41 PM |              |                  |                |                  |

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.  
 $\% \text{ Recovery} = 100 * (\text{MS-Sample}) / (\text{Amount Spiked}); \text{RPD} = 100 * (\text{MS} - \text{MSD}) / ((\text{MS} + \text{MSD}) / 2).$   
 MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.  
 N/A = not enough sample to perform matrix spike and matrix spike duplicate.  
 NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.  
 Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.



# McCAMPBELL ANALYTICAL, INC.

15M WILLOW PASS ROAD  
PITTSBURG, CA 94625-0991

Website: [www.mccampbell.com](http://www.mccampbell.com) Email: [main@mccampbell.com](mailto:main@mccampbell.com)  
Telephone: (927) 252-9262 Fax: (925) 252-9269

1212094

## CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH  24 HR  48 HR  72 HR  5 DAY

GeoTracker EDF  PDF  Excel  Write On (DW)

Check if sample is sufficient and "J" flag is required

Report To: Joel Greger

Bill To: Geo-Logic

Company: Geo-Logic

1140 S<sup>th</sup> Ave

Crockett CA 94525

E-Mail: [joelgreger2@gmail.com](mailto:joelgreger2@gmail.com)

Tele: (510) 591-5352

Fax: (510) 387-1457

Project #: DE-5062

Project Name: Allied Engineering

Project Location: 1421 Blanding Ave Alameda CA

Sampler Signature: Klan Atkinson

Analysis Request

Other

Comments

\*\*Indicate here if these samples are potentially dangerous to handle:

Disinfect Case 17 (0.45 Micron Filter) in Field  
Geo-Logic Analytical Lab Sacramento CA 95811

| SAMPLE ID | LOCATION/<br>Field Point<br>Name | SAMPLING |       | # Containers | Type Containers | MATRIX |      |     |        |       | METHOD PRESERVED |     |                  |       |   |
|-----------|----------------------------------|----------|-------|--------------|-----------------|--------|------|-----|--------|-------|------------------|-----|------------------|-------|---|
|           |                                  | Date     | Time  |              |                 | Water  | Soil | Air | Sludge | Other | ICE              | HCL | HNO <sub>3</sub> | Other |   |
| MW-1      |                                  | 12/17    | 13:15 | 3            | 100% PVC        | X      |      |     |        |       | X                | X   | X                | X     | X |
| MW-2      |                                  | 12/17    | 13:55 | 3            | 100% PVC        | X      |      |     |        |       | X                | X   | X                | X     | X |
| MW-3      |                                  | 12/17    | 14:05 | 3            | 100% PVC        | X      |      |     |        |       | X                | X   | X                | X     | X |

\*\*MAI Clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious long-term health enhancement as a result of leaks, gloves, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

|  |                   |               |                                    |
|--|-------------------|---------------|------------------------------------|
| Relinquished By:<br><i>[Signature]</i> | Date:<br>12/17/12 | Time:<br>1530 | Received By:<br>FL#01              |
| Relinquished By:<br>FL#01              | Date:<br>12/17/12 | Time:<br>1240 | Received By:<br><i>[Signature]</i> |
| Relinquished By:<br><i>[Signature]</i> | Date:<br>12/17    | Time:<br>1910 | Received By:<br><i>[Signature]</i> |

ICE 2

COMMENTS: Sample for Disposal Case 17 Filtered in Field with disposable 0.45 micron filter. Case 1L. Prio provided

GOOD CONDITION ✓  
HEAD SPACE ABSENT ✓  
DECHLORINATED IN LAB ✓  
APPROPRIATE CONTAINERS ✓  
PRESERVED IN LAB ✓  
LOSS O&G METALS OTHER PRESERVATION

GLOBAL 310: 18601974608  
to global@vnet.com  
not required