

ALLIED ENGINEERING & PRODUCTION CORP.

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May 27, 2011

RECEIVED

11:16 am, Jun 08, 2011

Alameda County
Environmental Health

In reference to Report of May 2011 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

May 24, 2011

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

**RE: Report of May 2011 Sampling
Allied Engineering Co., 2421 Blanding Avenue, Alameda, CA
Fuel Leak Case No. RO0002601**

Dear Ms. Drogos:

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.

RECENT FIELD ACTIVITIES –GROUNDWATER SAMPLING

On May 13, 2011, 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, where the samples for metals analyses were filtered. Excess water resulting from the purging and cleaning procedures was collected and contained in a drum.

In addition to the sampling of the three existing wells, two samples for metals analyses were collected from the inner harbor channel. One sample was collected at the water's edge directly below MW3, and about eight feet north of the storm drain that outlets there. The other sample was collected directly across the channel, at the water's edge where another storm drain outlets. The samples were collected by filling the sample containers directly at the surface.

HYDROLOGY

On May 13, 2011, the measured depth to groundwater in wells MW1 through MW3 varied between approximately 5.09 to 7.49 feet below the tops of the well casings. As shown on Figure 2, the estimated hydraulic gradient was to the north at approximately 0.005 feet per foot, apparently under tidal influence. The direction of groundwater flow was virtually identical to the previous event on May 4, 2010, and differing from the most recent event on November 5, 2010.

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 analytical results of the groundwater samples collected from the three monitoring wells indicated concentrations ranging from largely non-detectable in MW3 to up to 2,600 parts per billion (ppb) of TPH as gasoline and up to 240 ppb of benzene in MW2, at the former dispenser area. Ethylbenzene and xylenes were also detected in MW2 at concentrations of 57 and 25 ppb, respectively. TPH as gasoline and benzene were detected in MW1 at concentrations of 250 and 14 ppb, respectively. MTBE was the only detected constituent in MW3, at a concentration of 0.84 ppb. The concentrations of hydrocarbons detected are significantly more than the last event, but very similar to the event approximately one year ago, where the gradient was nearly identical. The concentrations of TPH as gasoline and benzene in MW2 are in excess of their respective Environmental Screening Levels (where groundwater is not considered a potential drinking water source, Table F1b).

For the CAM 17 metals in the monitoring well samples, antimony, chromium, mercury, silver and zinc were non-detectable. Of the other twelve metals, cadmium and copper were detected above their respective ESLs in MW3, and nickel again was detected in all three wells at elevated concentrations in excess of the ESL (where groundwater is not considered a potential drinking water source, Table F-1b). The nickel concentrations ranged up to 170 ppb in MW2, in excess of the ESL of 8.2 ppb.

The two water samples collected from the inner harbor channel yielded entirely non-detectable results for the CAM 17 metals.

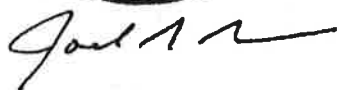
The analytical data is summarized in Tables 2 and 3 and Figure 3. Copies of the laboratory analyses data sheets and chain of custody are attached to this report.

RECOMMENDATIONS

This report will be uploaded to the Geotracker database in addition to the ACEH database. Additional sampling is proposed to further evaluate the hydrologic conditions and contaminant concentrations. The next monitoring and sampling event will take place about November, 2011. After review of the additional data, additional recommendations will be made, as warranted.

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 I
GROUNDWATER MONITORING DATA
2421 Blanding Ave., Alameda, CA

Well No.	Date	Groundwater Elevation	Top of casing Elevation	Depth to Water	Well Depth	Product Thickness	Sheen	Water purged (gallons)
MW1	4/26/2010	2.37	8.27	5.90	20.13	0	No	25
	5/4/2010	-0.30		8.57	20.18	0	No	7
	11/5/2010	2.24		6.03	20.16	0	No	9
	5/13/2011	1.99		6.28	20.27	0	No	9
MW2	4/27/2010	2.60	7.24	4.64	18.90	0	No	28
	5/4/2010	0.48		6.76	19.18	0	No	8.5
	11/5/2010	1.91		5.33	19.14	0	No	8
	5/13/2011	2.15		5.09	19.09	0	No	9
MW3	4/26/2010	2.36	9.33	6.97	20.02	0	No	25
	5/4/2010	-1.16		10.49	20.04	0	No	5.75
	11/5/2010	3.93		5.40	20.03	0	No	9
	5/13/2011	1.84		7.49	20.03	0	No	8

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
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
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
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
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
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
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 - Table F-1a		6.0	36	1000	0.25	50	3.0	3.1	2.5	0.025	35	8.2	5.0	0.19	15	81
ESL - Table F-1b		30	36	1000	0.25	180	3.0	3.1	2.5	0.025	240	8.2	5.0	0.19	19	81

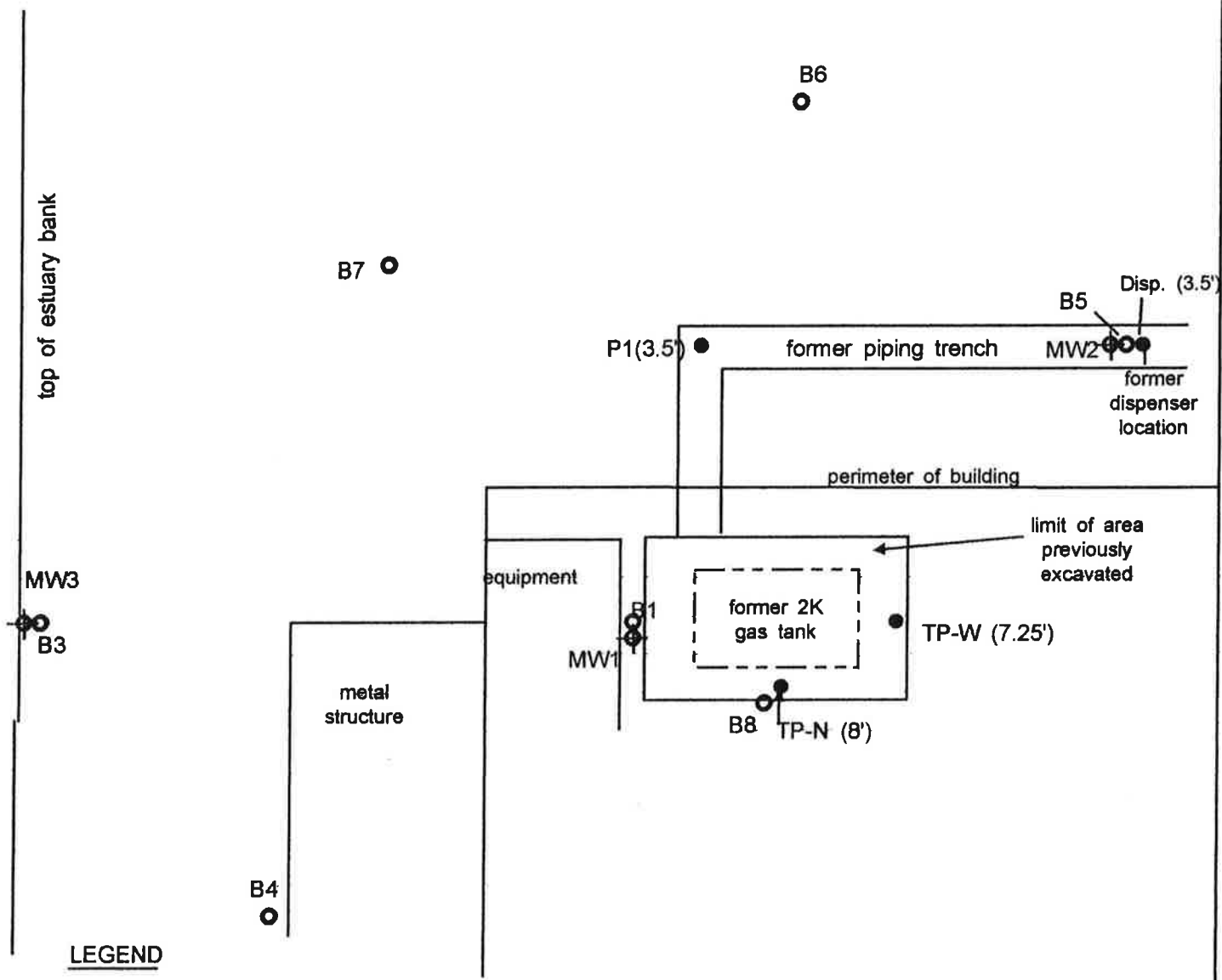
EXPLANATION:

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



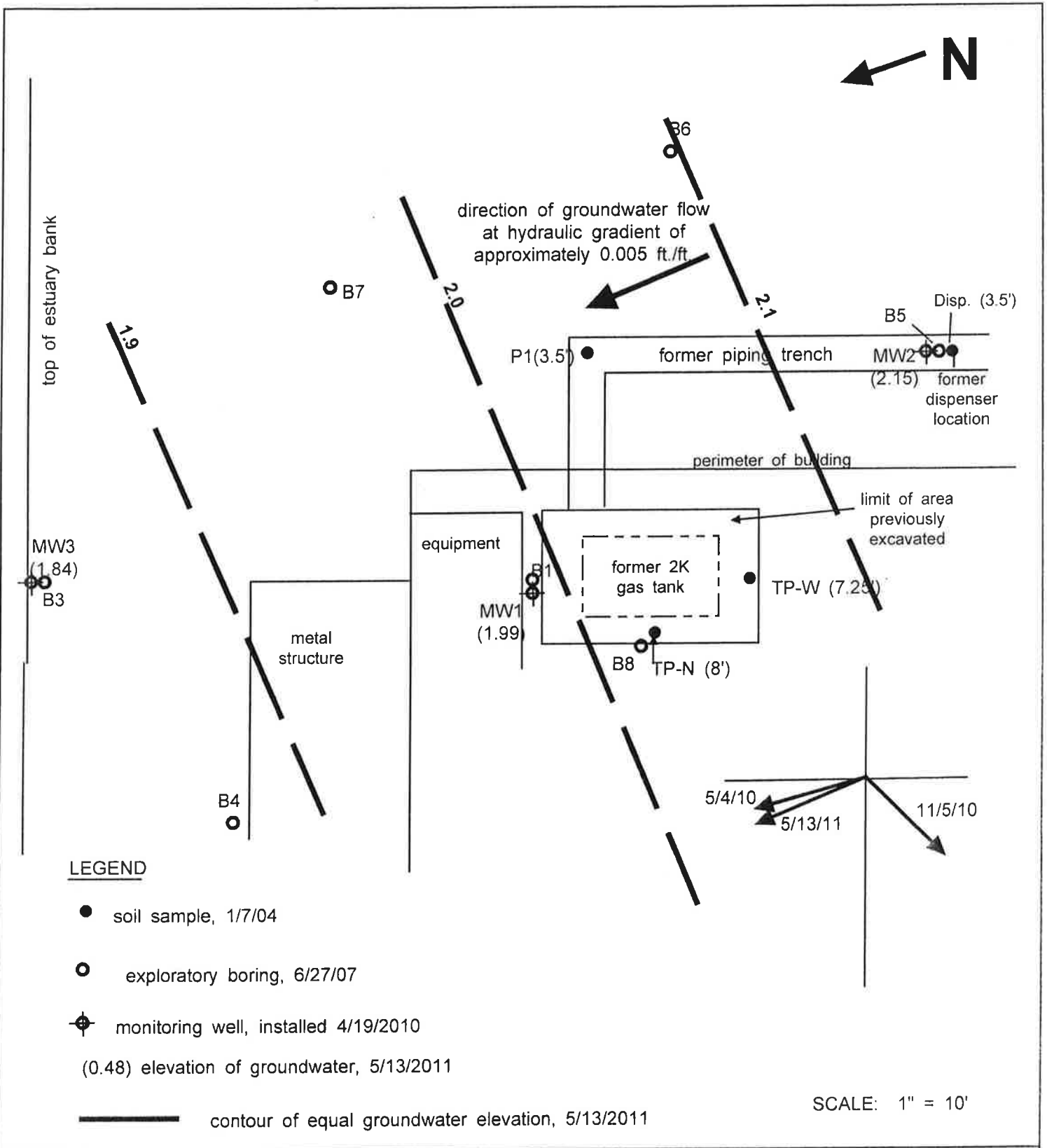
LEGEND

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

SCALE: 1" = 10'

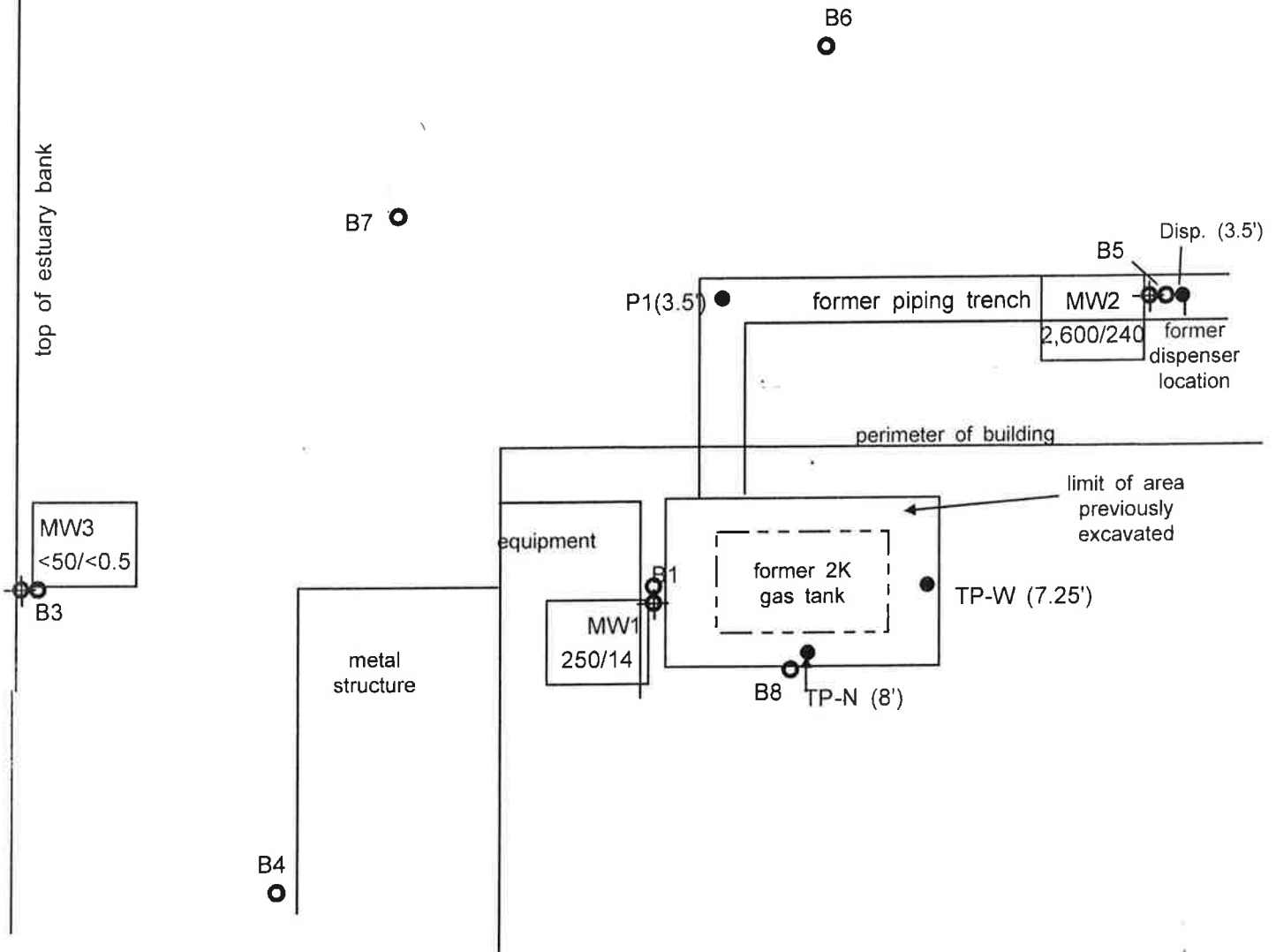
Allied Engineering & Production Co. 2421 Blanding Avenue Alameda, California	Figure No: 1	Date: May 6, 2010
		Drawn By: JG/Geo-Logic

Site Plan



Allied Engineering & Production Co. 2421 Blanding Avenue Alameda, California	Figure No: 2	Date: May 19, 2011
		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 concentration of TPH-gas/benzene in ppb, 5/13/2011
 <50/<0.5

SCALE: 1" = 10'

Allied Engineering & Production Co. 2421 Blanding Avenue Alameda, California	Figure No: 3	Date: May 26, 2011
		Drawn By: JG/Geo-Logic

Groundwater Contaminant Concentration Map

**LABORATORY
ANALYTICAL DATA**



McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mcccampbell.com E-mail: main@mcccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Geo-Logic 1140 5th Avenue Crockett, CA 94525	Client Project ID: Allied Engineering	Date Sampled: 05/13/11
		Date Received: 05/13/11
	Client Contact: Joel Gregor	Date Extracted: 05/13/11
	Client P.O.:	Date Analyzed 05/16/11

CAM / CCR 17 Metals*

Lab ID	1105397-001B	1105397-002B	1105397-003B	1105397-004A	Reporting Limit for DF = 1; ND means not detected above the reporting limit	
Client ID	MW1	MW2	MW3	Inner Harbor Channel-W		
Matrix	W	W	W	W	S	W
Extraction Type	DISS.	DISS.	DISS.	DISS.	mg/kg	µg/l.

ICP-MS Metals, Concentration*

Analytical Method: E200.8

Extraction Method: E200.8

Work Order: 1105397

Dilution Factor	1	1	1	20	1	1
Antimony	ND	ND	ND	ND<10	NA	0.5
Arsenic	18	5.7	2.7	ND<10	NA	0.5
Barium	100	62	63	ND<100	NA	5.0
Beryllium	ND	ND	ND	ND<10	NA	0.5
Cadmium	ND	ND	0.51	ND<5.0	NA	0.25
Chromium	ND	ND	ND	ND<10	NA	0.5
Cobalt	0.92	1.6	2.1	ND<10	NA	0.5
Copper	ND	ND	4.9	ND<10	NA	0.5
Lead	ND	ND	2.1	ND<10	NA	0.5
Mercury	ND	ND	ND	ND<0.50	NA	0.025
Molybdenum	2.3	0.56	6.0	ND<10	NA	0.5
Nickel	85	170	55	ND<10	NA	0.5
Selenium	ND	ND	0.70	ND<10	NA	0.5
Silver	ND	ND	ND	ND<3.8	NA	0.19
Thallium	ND	ND	ND	ND<10	NA	0.5
Vanadium	0.71	3.7	4.4	ND<10	NA	0.5
Zinc	ND	ND	ND	ND<100	NA	5.0
%SS	N/A	N/A	N/A	N/A		

Comments

a12

*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.

a12) reporting limit raised due to high non-reported metals content.



McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mcccampbell.com E-mail: main@mcccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Geo-Logic 1140 5th Avenue Crockett, CA 94525	Client Project ID: Allied Engineering	Date Sampled: 05/13/11
		Date Received: 05/13/11
	Client Contact: Joel Gregor	Date Extracted: 05/13/11
	Client P.O.:	Date Analyzed 05/16/11

CAM / CCR 17 Metals*

Lab ID	1105397-005A				Reporting Limit for DF = 1. ND means not detected above the reporting limit	
Client ID	Inner Harbor Channel-E				S	W
Matrix	W					
Extraction Type	DISS.				mg/kg	µg/L

ICP-MS Metals, Concentration*

Analytical Method: E200.8

Extraction Method: E200.8

Work Order: 1105397

Dilution Factor	20				I	I
Antimony	ND<10				NA	0.5
Arsenic	ND<10				NA	0.5
Barium	ND<100				NA	5.0
Beryllium	ND<10				NA	0.5
Cadmium	ND<5.0				NA	0.25
Chromium	ND<10				NA	0.5
Cobalt	ND<10				NA	0.5
Copper	ND<10				NA	0.5
Lead	ND<10				NA	0.5
Mercury	ND<0.50				NA	0.025
Molybdenum	ND<10				NA	0.5
Nickel	ND<10				NA	0.5
Selenium	ND<10				NA	0.5
Silver	ND<3.8				NA	0.19
Thallium	ND<10				NA	0.5
Vanadium	ND<10				NA	0.5
Zinc	ND<100				NA	5.0
%SS	N/A					

Comments

a12

*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.

a12) reporting limit raised due to high non-reported metals content.



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	Client P.O.:	Date Analyzed 05/16/11

TPH(g) by Purge & Trap and GC/MS*

Extraction method SW5030B

Analytical methods SW8260B

Work Order 1105397

Lab ID	Client ID	Matrix	TPH(g)	DF	% SS	Comments
001A	MW1	W	250	1	97	
002A	MW2	W	2600	10	104	
003A	MW3	W	ND	1	103	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

* 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; %SS = Percent Recovery of Surrogate Standard; DF = Dilution Factor

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



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	Client P.O.:	Date Analyzed: 05/16/11

Oxygenates, MBTEX & Lead Scavengers by GC/MS*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 1105397

Lab ID	1105397-001A	1105397-002A	1105397-003A		Reporting Limit for DF =1	
Client ID	MW1	MW2	MW3			
Matrix	W	W	W			
DF	1	10	1			

Compound	Concentration			ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND	ND<5.0	ND	NA	0.5
Benzene	14	240	ND	NA	0.5
t-Butyl alcohol (TBA)	ND	ND<20	ND	NA	2.0
1,2-Dibromoethane (EDB)	ND	ND<5.0	ND	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND	ND<5.0	ND	NA	0.5
Diisopropyl ether (DIPE)	ND	ND<5.0	ND	NA	0.5
Ethylbenzene	ND	57	ND	NA	0.5
Ethyl tert-butyl ether (ETBE)	ND	ND<5.0	ND	NA	0.5
Methyl-t-butyl ether (MTBE)	ND	ND<5.0	0.84	NA	0.5
Toluene	ND	ND<5.0	ND	NA	0.5
Xylenes	ND	25	ND	NA	0.5

Surrogate Recoveries (%)

%SS1:	93	95	95		
%SS2:	97	98	97		
%SS3:	91	92	93		

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: 58334

WorkOrder 1105397

EPA Method E200.8 Analyte	Extraction E200.8								Spiked Sample ID: 1105202-005A			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Antimony	ND	10	106	106	0	96.2	96.4	0.208	70 - 130	20	85 - 115	20
Arsenic	1.6	10	105	108	2.44	96.8	101	4.23	70 - 130	20	85 - 115	20
Barium	48	100	107	105	0.845	98.7	99.4	0.666	70 - 130	20	85 - 115	20
Beryllium	ND	10	95.2	95.3	0.168	96.2	93.7	2.68	70 - 130	20	85 - 115	20
Cadmium	ND	10	102	102	0	98.1	98.8	0.731	70 - 130	20	85 - 115	20
Chromium	0.54	10	108	118	8.96	107	103	3.43	70 - 130	20	85 - 115	20
Cobalt	ND	10	101	100	0.971	108	109	0.919	70 - 130	20	85 - 115	20
Copper	22	10	109	104	1.74	105	102	2.80	70 - 130	20	85 - 115	20
Lead	ND	10	103	104	1.34	101	102	0.983	70 - 130	20	85 - 115	20
Mercury	ND	0.25	86.8	92.9	6.77	87.3	85.4	2.18	70 - 130	20	85 - 115	20
Molybdenum	3.2	10	105	104	0.734	98.1	98.3	0.214	70 - 130	20	85 - 115	20
Nickel	0.97	10	102	108	4.97	102	101	1.57	70 - 130	20	85 - 115	20
Selenium	0.65	10	103	103	0	100	102	1.19	70 - 130	20	85 - 115	20
Silver	ND	10	97.5	96.9	0.617	94.6	95.9	1.37	70 - 130	20	85 - 115	20
Thallium	ND	10	96	97.4	1.47	103	105	1.54	70 - 130	20	85 - 115	20
Vanadium	2.8	10	110	109	0.728	99.4	100	1.01	70 - 130	20	85 - 115	20
Zinc	ND	100	106	107	0.272	105	106	1.22	70 - 130	20	85 - 115	20
%SS	101	750	102	100	1.54	99	100	0.201	70 - 130	20	70 - 130	20

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

BATCH 58334 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1105397-001B	05/13/11 12:44 PM	05/13/11	05/16/11 7:48 PM	1105397-002B	05/13/11 12:53 PM	05/13/11	05/16/11 7:23 PM
1105397-002B	05/13/11 12:53 PM	05/13/11	05/16/11 7:54 PM	1105397-003B	05/13/11 12:34 PM	05/13/11	05/16/11 8:00 PM
1105397-004A	05/13/11 12:28 PM	05/13/11	05/16/11 7:36 PM	1105397-005A	05/13/11 12:39 PM	05/13/11	05/16/11 7:42 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

$\% \text{ Recovery} = 100 * (\text{MS} - \text{Sample}) / (\text{Amount Spiked}); \text{RPD} = 100 * (\text{MS} - \text{MSD}) / ((\text{MS} + \text{MSD}) / 2)$

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 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.

 QA/QC Officer

QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 58348

WorkOrder 1105397

EPA Method SW8260B		Extraction SW5030B							Spiked Sample ID: 1105397-003A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	88.4	89.9	1.72	89.3	90.2	0.966	70 - 130	30	70 - 130	30
Benzene	ND	10	105	103	1.56	102	105	3.28	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	87.4	94.8	8.10	89.9	89.5	0.420	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	112	113	1.24	120	122	1.52	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	107	108	1.04	102	107	4.05	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	108	108	0	104	106	2.08	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	99.2	100	0.832	96.9	99	2.12	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	0.84	10	103	106	2.58	105	106	1.42	70 - 130	30	70 - 130	30
Toluene	ND	10	104	101	2.85	105	108	2.69	70 - 130	30	70 - 130	30
%SS1:	95	25	92	92	0	101	100	1.07	70 - 130	30	70 - 130	30
%SS2:	97	25	96	96	0	99	99	0	70 - 130	30	70 - 130	30
%SS3:	93	2.5	91	91	0	107	102	4.29	70 - 130	30	70 - 130	30

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

BATCH 58348 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1105397-001A	05/13/11 12:44 PM	05/16/11	05/16/11 4:46 PM	1105397-002A	05/13/11 12:53 PM	05/16/11	05/16/11 6:12 PM
1105397-003A	05/13/11 12:34 PM	05/16/11	05/16/11 8:59 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.



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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 effluent and "J" flag is required

Report To: JOEL GREGOR Bill To: GEO-LOGIC
 Company: GEO-LOGIC
1140 5TH AVENUE
CROCKETT CA 94525
 Tele: (510) 593-5382 E-Mail: cage@usa.com
 Project #: _____ Fax: 510 987-157
 Project Location: 2431 BLANDING AVE, ALAMEDA CA Project Name: ALLIED ENGINEERING
 Sampler Signature: [Signature] E. VASO

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX				METHOD PRESERVED				Analysis Request	Other	Comments	
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃				Other
MW1		5/13/11	1244	4	3-VOL 1-PL	X					X	X					
MW2			1253	4		X					X	X					
MW3			1234	4		X					X	X					
	<u>1000 ft Harbor Channel - W</u>		1228	1	PL	X											
	<u>in New Harbor Channel - E</u>		1239	1		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 future health endangerment as a result of brief, gloved, 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: [Signature] Date: 5/13/11 Time: 1300
 Received By: [Signature]
 Relinquished By: [Signature] Date: 5/13/11 Time: 1:41 PM
 Received By: [Signature]
 Relinquished By: _____ Date: _____ Time: _____
 Received By: _____

ICE/IF _____
 GOOD CONDITION _____
 HEAD SPACE ABSENT _____
 DECHLORINATED IN LAB _____
 APPROPRIATE CONTAINERS _____
 PRESERVED IN LAB _____
 COMMENTS: PROVIDED 3X 40ML VOA W/HCL
1X 1L PL NP
 VOAS O&G METALS OTHER
 PRESERVATION pH<2

DISSOLVED CAM 17 METALS (IL PL NP)

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

PLEASE
 FILTER W
 LAB BEFORE
 ACIDIFICATION

FIELD DATA SHEETS

FLUID-LEVEL MONITORING DATA

Project Name: _____ Date: 5-13-11 FRIDAY
 Project/Site Location: 2421 BLANNING AVE ALAMEDA CA
 Technician: RICHARD VASQUEZ Method: ELECTRONIC

Boring/Well	Depth to Water (feet)	Depth to Product (feet)	Product Thickness (feet)	Total Well Depth (feet)	Comments
MW3	7.49	DETECTED NONE	DETECTED NONE	20.03	21 ⊕ 1045
MW1	6.28	↓	↓	10.27	⊕ 1048
MW2	5.09	↓	↓	19.09	⊕ 1050 H2O IN WELL BOX ABOVE TOC

Well ID: MW1

DYSERT ENVIRONMENTAL, INC.
WELL PURGING / SAMPLING DATA

Dysert Environmental, Inc.

DATE: 5-13-11

PROJECT:

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 bladder pump peristaltic pump disposable bailer discrete sampler other
casing diameter (inches) circle one 0.75 1 1.5 2 4 6
casing volumes (gallons) circle one 0.02 0.05 0.15 0.2 0.7 1.52

WELL DATA

SAMPLER/S: R. LABOUR 2

WELL NUMBER / FIELD POINT ID: MW1

A. TOTAL WELL DEPTH: 20.27

B. DEPTH TO WATER: 6.28

C. WATER HEIGHT (A-B): 13.99

D. WELL CASING DIAMETER: 2

E. CASING VOLUME: 0.2

F. SINGLE CASE VOLUME (Cx E): 2.798

G. CASE VOLUME (s) (Cx Ex 3): 8.394

H: 80% RECHARGE LEVEL (F+B): 9.078

PURGE DATA

START TIME: 1130

FINISH TIME: 1153

RECHARGE / SAMPLE TIME

DEPTH TO WATER: 7.19 TIME MEASURED: 1242

GREATER THAN OR EQUAL TO 80% RECHARGE LEVEL (H): circle one YES NO

SAMPLE TIME: 1244 DEPTH TO WATER: 7.19

SAMPLE APPEARANCE / ODOR: CLEAR FUEL ODOR

TOTAL GALLONS PURGED: CLEAR FUEL ODOR, 9 GALLON

WELL FLUID PARAMETERS

CASE VOLUME	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5
pH	7.15	7.03	6.98	7.01	7.05	7.05	7.11	7.09
TEMP in °C	18.8	18.2	18.2	18.2	18.5	18.3	18.4	18.2
COND / SC	1400	1354	1276	1244	1210	1287	1228	1230
DTW <u>6.28</u>	6.28	8.56	9.06	9.22	9.37	9.56	9.62	9.68
Pump Depth	10FT	→ 15 FT →						
Pump Rate	<u>200 ml / min</u>							

NOTES:

Well ID: MW2

DYSERT ENVIRONMENTAL, INC.
WELL PURGING / SAMPLING DATA

Dysert Environmental, Inc.

PROJECT:

DATE: 5-13-11

SITE LOCATION:

2421 BLANDING AVE

CITY: ALAMEDA

STATE: CA

circle one submersible pump PURGE DEVICE peristaltic pump bladder pump disposable bailer

circle one bladder pump peristaltic pump SAMPLING DEVICE disposable bailer discrete sampler other

casing diameter (inches) circle one 0.75 1 1.5 2 4 6

casing volumes (gallons) circle one 0.02 0.05 0.15 0.2 0.7 1.52

WELL DATA

SAMPLER/S: R. VASQUEZ

WELL NUMBER / FIELD POINT ID: MW2

A. TOTAL WELL DEPTH: 19.07

B. DEPTH TO WATER: 5.09

C. WATER HEIGHT (A-B): 14

D. WELL CASING DIAMETER: 2

E. CASING VOLUME: 0.2

F. SINGLE CASE VOLUME (Cx E): 2.8

G. CASE VOLUME (s) (Cx Ex 3): 8.4

H: 80% RECHARGE LEVEL (F+B): 7.89

PURGE DATA

START TIME: 1156

FINISH TIME: 1216

RECHARGE / SAMPLE TIME

DEPTH TO WATER: 7.58 TIME MEASURED: 1252

GREATER THAN OR EQUAL TO 80% RECHARGE LEVEL (H): circle one YES NO

SAMPLE TIME: 1253 DEPTH TO WATER: 7.58

SAMPLE APPEARANCE / ODOR: STRONG FUEL ODOR CLEAR-

TOTAL GALLONS PURGED: 9 GALLONS

WELL FLUID PARAMETERS

CASE VOLUME	0	0.5	1.0	1.5	2.0	2.5	3.0	3-5
pH	6.97	6.94	6.97	7.03	7.07	7.08	7.09	7.10
TEMP in °C	19.5	19.4	19.4	19.6	19.5	19.5	19.4	19.4
COND / SC	711	698	682	683	668	650	648	642
DTW	5.09	7.59	8.41	8.89	9.06	9.18	9.24	9.33
Pump Depth	10FT	→ 15FT		→				
Pump Rate	200 gpm	→						

NOTES:

Well ID: MW3

DYSERT ENVIRONMENTAL, INC.
WELL PURGING / SAMPLING DATA

Dysert Environmental, Inc.
DATE: 5-13-11

PROJECT:

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 bladder pump peristaltic pump disposable bailer discrete sampler other

casing diameter (inches) circle one 0.75 1 1.5 2 4 6
casing volumes (gallons) circle one 0.02 0.05 0.15 0.2 0.7 1.52

WELL DATA

SAMPLER/S: L. VARELA

WELL NUMBER / FIELD POINT ID: MW3

A. TOTAL WELL DEPTH: 2.49 20.03

B. DEPTH TO WATER: 7.49

C. WATER HEIGHT (A-B): 12.54

D. WELL CASING DIAMETER: 2

E. CASING VOLUME: 0.2

F. SINGLE CASE VOLUME (Cx E): 2.508

G. CASE VOLUME (s) (Cx Ex 5): 7.524

H: 80% RECHARGE LEVEL (F+B): 9.998

PURGE DATA

START TIME: 1105

FINISH TIME: 1126

RECHARGE / SAMPLE TIME

DEPTH TO WATER: 8.72 TIME MEASURED: 1233

GREATER THAN OR EQUAL TO 80% RECHARGE LEVEL (H): circle one YES NO

SAMPLE TIME: 1234 DEPTH TO WATER: 8.72

SAMPLE APPEARANCE / ODOR: CLEAR NO ODOR

TOTAL GALLONS PURGED: 8 GALLONS

WELL FLUID PARAMETERS

CASE VOLUME	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5
pH	6.94	7.25	7.21	7.24	7.13	7.12	7.13	7.09
TEMP in °C	18.8	17.7	18.1	17.9	18.4	18.2	18.1	18.4
COND / SC	14.17	13.16	13.12	12.55	11.94	11.06	10.68	10.56
DTW ~	7.49	9.23	10.18	10.63	11.34	11.31	11.67	11.75
Pump Depth	10 FT	15 FT						
Pump Rate	2000 gpm							

NOTES: