KELLY-MOORE PAINTS™

RECEIVED

10:12 am, Dec 04, 2009

Alameda County
Environmental Health

December 2, 2009

ACHCSA-EHS
1131 Harbor Bay Parkway, Suite 250
Alameda, CA. 94502-6577

Re: Groundwater Monitoring Report – September 2009
969 San Pablo Avenue, Albany, CA. 94706
ProTech Project # 599-OH09

To Whom It May Concern:

Attached is the Professional Certification – Report for Groundwater Monitoring, Kelly-Moore Paint Company, 969 San Pablo Avenue, Albany, CA, September 2009 report that Kelly-Moore Paint Company received December 1, 2009 for groundwater monitoring for 969 San Pablo Avenue, Albany, California. This report was prepared by ProTech Consulting & Engineering to evaluate groundwater at this site as required by ACHCSA-EHS. Kelly-Moore Paint Company is aware of the content of this report. If you have questions, I can be reached at my office telephone at (650)610-4314

Sincerely,

Robert Stetson
Director of Risk Management

1 Attachment: Report for Groundwater Monitoring, Kelly-Moore Paint Company, 969 San Pablo Avenue, Albany CA. – September 2009

Kelly-Moore Paint Company, Inc.
987 Commercial St.
San Carlos, CA. 94070
rstetson@kellymoore.com

ProTech Consulting & Engineering
1208 Main Street, Redwood City, CA 94063
Tele: 650.569.4020 / Fax: 650.569.4023

1 December 2009

Mr. Robert Stetson
Kelly-Moore Paint Company
PO Box 3016
San Carlos, CA 94070

Re: Groundwater Monitoring Report – Sept 2009
969 San Pablo Avenue, Albany, CA
ProTech Project # 599-OH09

Dear Mr. Stetson:

This document describes the events that took place during the groundwater monitoring at the subject site during the month of September 2009. The document recommends that monitoring and documentation for the next two semi-annual events (March 2010 and September 2010) is undertaken to establish a basis for evaluating the site with closure as the ultimate goal.

We will provide the Kelly-Moore Paint Company (KMPC) and the Alameda County Health Care Services Agency –Environmental Health Services (ACHCSA-EHS) with an electronic version of the report. A certification letter (on KMPC letterhead, signed by you) goes in front of this document to the agencies. Your production of this letter is required prior to submittal to ACHCSA-EHS.

Please review this information and let us know if you have any questions or comments.

Sincerely,
PROTECH CONSULTING & ENGINEERING

Glen Koutz
President

Distribution:

Mark E. Detterman
ACHCSA-EHS
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Project File
GeoTracker

SITE INFORMATION

Site Name:	969 San Pablo
Site Address:	969 San Pablo Avenue, Albany, CA
Owner:	Kelly-Moore Paints P.O. Box 3016, San Carlos, CA 94070
Owner's Representative:	Robert Stetson Director of Risk Management Tele: 650.592.8337x 4314 Mobile: 650.222.6023
Consultant:	ProTech Consulting & Engineering 1208 Main Street, Redwood City, CA 94063 Tele: 650.569.4020
Project Manager:	Sherwood Lovejoy, Jr. Tele: 415.381.2560 Mobile: 650.714.4200
Regulator	Mark E. Detterman Hazardous Materials Specialist ACHCSA-EHS 1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502-6577 Tele: 510.567.6876

PROFESSIONAL CERTIFICATION

REPORT FOR GROUNDWATER MONITORING
KELLY MOORE PAINTS, 969 SAN PABLO AVENUE, ALBANY, CA
Oct 2009

This report has been prepared by the staff of ProTech Consulting & Engineering (ProTech) under the supervision of our registered engineer whose stamp and signature appear below.

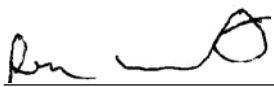
This report has been prepared by ProTech for the exclusive use of ProTech and Kelly Moore Paints (client) and not for use by any other party. Any use by a third party of any of the information contained in this report shall be at their own risk and shall constitute a release and an agreement to defend and indemnify ProTech from and against any and all liability in connection therewith whether arising out of ProTech's negligence or otherwise.

All interpretations, conclusions, and recommendations are based solely on information gathered during this investigative stage and on no other unspecified information. This report is prepared as a tool for the client to use in determining the condition of the site. This report makes no certification, either implied or otherwise, that the site is free from pollution; it simply reports the findings of the study. Water sampling, while being less sample-specific than soil sampling, is still area-specific and if contaminants are not found in a sample it does not universally suggest that there are none of these contaminants present in that area or at the site.

The results and findings contained in this report are based on certain information from sources outside the control of ProTech. While exercising all reasonable diligence in the acceptance and use of information provided, ProTech does not warrant or guarantee the accuracy thereof. The report was developed specifically for this project (969 San Pablo, Albany, California) and should not be used for any other site.

Dr. C. Hugh Thompson, P.E.
Civil Engineer

Sherwood Lovejoy, Jr., REA
Environmental Assessor



Ryan Cozart
Geologist

ABBREVIATIONS

ACHCSA = Alameda County Health Care Services Agency
Aromatics = Benzene, Toluene, Ethyl-Benzene, and Xylenes (BTEX)
EHS = Environmental Health Services
FOx = Fuel Oxygenates
KMPC = Kelly Moore Paint Company
MTBE = Methyl tert-Butyl Ether
ND = Not Detected
ProTech = ProTech Consulting & Engineering
PHCs = Petroleum Hydrocarbons
rESL = residential Environmental Screening Level
RL = Reporting Limit
TA = Test America, Inc.
TEPH-d = Total Extractable Petroleum Hydrocarbons, as diesel
TPH-g = Total Petroleum Hydrocarbons, as gasoline
VOCs = Volatile Organic Compounds

1.0 - PROJECT BACKGROUND

1.1 - INTRODUCTION

ProTech Consulting & Engineering, Inc. (ProTech) was retained by Kelly-Moore Paint Company (KMPC) to perform Semi-annual groundwater monitoring and reporting at 969 San Pablo Avenue, Albany, California (site). ProTech has performed multiple tasks on this site, including: Phase I - Environmental Site Assessment, hydraulic lift removal, soil boring and groundwater monitor well installation, and groundwater monitoring. The last groundwater monitoring was performed in March 2000. The work reported here was recently[1] required by the Alameda County Health Care Services Agency – Environmental Health Services (ACHCSA-EHS). Beyond requesting monitoring, the ACHCSA-EHS requested that KMPC claim the GeoTracker site. They did not request anything else or allude to closure in the future.

1.2 - SITE DESCRIPTION

The site is located in Albany, at the junction of San Pablo Avenue and Buchanan Street (Figure 1). A commercial building was converted from a vehicle maintenance operation to a retail paint store. The site consists of one building that is L-shaped and parking lots both in front and along the side of the building (Figure 2). The existing groundwater monitor wells are located along the west side (front) and on the north side (end) of the building, along San Pablo Avenue (Figure 2).

1.3 - SITE BACKGROUND

The site is a former vehicle repair facility which was operated by Firestone Tire and Rubber until the early 1990 when it was sold to Super Shops, Inc. that operated it as vehicle repair and modification shop. Firestone operated a waste oil tank on the site until they removed it in May 1990 (ERM, 1990a).

Initially, chemicals of concern included: [total extractible petroleum hydrocarbons, characterized as diesel (TEPH-d); oil and grease (O&G); benzene, toluene, ethyl-benzene, and Xylenes (BTEX); 1,2-dichloroethane (1,2-DCA), 1,1-dichloroethane (1,1-DCA), 1,1,1-trichloroethane

[1] 07/24/09 letter: "The California State Water Resources Control Board (State Water Board) has approved Resolution No. 2009-0042 (Actions to Improve Administration of the UST Cleanup Fund and UST Cleanup Program). Resolution No. 2009-0042 states that, "Regional Water Board and LOP agencies shall reduce quarterly groundwater monitoring requirements to semiannual or less frequent monitoring at all site unless site-specific needs warrant otherwise and shall notify all responsible parties of the new requirements no later than August 1, 2009. The groundwater monitoring wells at your site have not been monitored since September 2000. In accordance with Resolution No. 2009-0042, groundwater monitoring for your site is to be conducted on a semiannual basis unless site-specific needs warrant otherwise. The semiannual monitoring is to be conducted during the first and third quarters. Please present results from the semiannual groundwater monitoring in groundwater monitoring reports no later than 60 days following the groundwater sampling event."

(1,1,1-TCA), and Tetrachloroethylene (PCE); chromium Cr), lead (Pb), and nickel (Ni)] were found during the tank removal (ERM, 1990a).

Well MW-4, and to a lesser extent well MW-5 have consistently shown constituents of potential concern (COPC) during the monitoring from 1998 to 2000. The other wells have either not shown COPCs (MW-2) or sporadic detections (MW-3 and MW-6) during this period.

1.4 - ACHCSA-EHS CONCERNS

The ACHCSA-EHS reviewed ProTech's reports from April 1998 and March 1999 and prepared a comment letter. In this letter, they expressed concern about:

- The concentrations of the VOCs that exceed California MCLs.
- The status of well MW-2, and
- The limits of the former waste oil tank excavation with regard to wells MW-5 and MW-6.

They directed KMPC to:

- Continue quarterly groundwater monitoring, with approval to remove TPH-g, TEPH-d, BTEX, and MTBE from the analyte list;
- Locate MW-2 or its remnants prior to resurfacing of the parking lot; and
- Plot the limits of the excavation on the site plan (ACHCSA-EHS, 1999b).

ProTech requested in a letter that the drill cuttings be used on-site as fill material due to the lack of compounds of concern (ProTech, 1999c). ACHCSA-EHS agreed to allow this re-use of soil cuttings (ACHCSA-EHS, 1999b).

The second quarter of groundwater monitoring was performed on 16 June 1999. During reconnaissance and setup for sampling the four wells (MW-3, MW-4, MW-5, and MW-6) we discovered well MW-2. It had been buried under the planter along the north end of the building. We sampled all five wells. Well MW-2 did not contain any of the compounds tested. The other four wells (MW-3, MW-4, MW-5, and MW-6) all contained 1,1-DCA, and PCE, while wells MW-5 and MW-6 contained chloroform and TCE also. Well MW-4 also contained 1,1-DCE, cis-1,2-DCE, and vinyl chloride. California MCLs continued to be exceeded in well MW-4 for 1,1-DCA, cis-1,2-DCE, PCE, TCE and vinyl chloride, and in well MW-5 for 1,1-DCA. Well MW-2 was surveyed for TOC elevation. ProTech requested verbally that SVOCs be removed from the analyte list for quarterly monitoring since they had not been detected in previous monitoring events (ProTech, 1999c).

The County reviewed the ProTech QMR, including a proposed risk management assessment to close the site, and prepared a comment letter (ACHCSA-EHS, 1999c). In this letter, they expressed concern that:

- "Risk Management Plan (RMP) may essentially allow for a reduced frequency in groundwater monitoring, however it would not include closure for the site" based on fact that concentrations of VOCs continue to exceed California MCLs.

- "analysis for SVOCs may be discontinued due to Non Detect results from past sampling event. It appears that you have already taken the initiative to discontinue the analysis for SVOCs, based on the fact that this monitoring event did not include the analysis for these constituents";
- "future groundwater monitoring reports, and any additional reports or Workplans, shall include an attached cover letter, signed by a representative of your company (KMPC) acknowledging that the company has read the report and agrees to any recommendations or proposals"; and
- "future groundwater monitoring reports include copies of field data sheets showing levels of turbidity, noting odors, percent recharge in wells when samples were collected, pH, temperature, etc."

The third quarter of groundwater monitoring was performed on 15 September1999. We sampled all five wells. Well MW-2 did not contain any of the compounds tested. The other four wells (MW-3, MW-4, MW-5, and MW-6) contained 1,1-DCA, PCE, and TCE, while MW-4 also contained 1,1-DCE, cis-1,2-DCE, and vinyl chloride. California MCLs continue to be exceeded in well MW-4 for 1,1-DCA, cis-1,2-DCE, PCE, and vinyl chloride, while in well MW-5 1,1-DCA is above its MCL, and in well MW-6 PCE is above its MCL (ProTech, 1999d).

The County did not prepare a response letter to the third quarter monitoring report.

The fourth quarter of groundwater monitoring was performed on 15 December 1999. We sampled all five wells. Well MW-2 did not contain any of the compounds tested. The other four wells (MW-3, MW-4, MW-5, and MW-6) contained 1,1-DCA, PCE, and TCE, while MW-4 also contained cis-1,2-DCE. California MCLs continue to be exceeded in well MW-4 for 1,1-DCA, cis-1,2-DCE, and PCE, while in well MW-5 1,1-DCA is above its MCL, and in well MW-6 PCE is above its MCL (ProTech, 2000a).

The County did not prepare a response letter to the fourth quarter monitoring report. We contacted the County a week before the March 2000 monitoring was scheduled and learned that the case officer had changed for this project. During this teleconference, and several more over the next week, we also negotiated the method of purging that we could use, as had been requested in the fourth quarter 1999 monitoring report. The negotiated method was a slow purge effort ensuring the wells were not dewatered during the removal of one wellbore volume from each well.

The nine-year hiatus in monitoring was because the ACHCSA-EHS was not responsive to repeated questions about the site.

This report presents the results of the first semi-annual groundwater monitoring for 2009 (25 September 2009) as requested by ACHCSA-EHS.

2.0 - GROUNDWATER MONITORING – SEPTEMBER 2009

2.1 - INTRODUCTION

On 25 September 2009, ProTech performed the first 2009 GWM at 969 San Pablo Avenue, Albany, CA (first in a series of two GWMs), at the request of ACHCSA-EHS. The scope-of-work for this GWM is outlined below:

1. Measure the depth-to-groundwater (DTW) and total depth (TD) in each of the groundwater monitor wells;
2. Purge each well prior to collecting a groundwater sample for analysis;
3. Analyze each of the groundwater samples for Halogenated Hydrocarbons by EPA Method 8260 with EPA 8010 list
4. Prepare a groundwater monitoring report that includes the results of DTW measurements, and groundwater sample analysis. The report will include:
   - Tables showing tabulated DTW, development and purge parameters, groundwater elevations, and analytical results;
   - Figures illustrating groundwater flow direction; and
   - Appendix that includes laboratory reported results and chain-of-custody (COC) forms.

The fieldwork and laboratory analysis tasks are completed. This document represents the report task of the project.

2.2 - ELEVATION MEASUREMENTS

DTW and TD measurements for each monitoring well were recorded by ProTech on 25 September 2009. The locations of the wells are shown on Figure 2[2]. During this monitoring event, DTW was measured between 8.35 (MW-2) and 9.89 (MW-5) feet below the top of the monitor well casings (TOC) with the corresponding elevations being 33.79 feet above mean sea level (ft-amsl) [MW-2] and 31.82 ft-amsl [MW-5]. Groundwater level data for the site are included in Table 1.

The groundwater elevation measurements recorded for this monitoring event were used to construct an inferred groundwater flow direction map with gradient included as Figure 3. Figure 4 represents the groundwater elevation contour map. According to the EPA On-line Tools for Site Assessment Calculation[3], the average hydraulic gradient for this site is 0.04188 and the flow direction was 211° of north.

[2] Well MW-6 was not located during this event. Further reconnaissance will be undertaken prior to the next GWM.
[3] http://www.epa.gov/athens/learn2model/part-two/onsite/index.html

2.3 - GROUNDWATER WELL PURGING & SAMPLING

We calculated the total wellbore water volume using the DTW and TD measurements to determine the volume of groundwater removal from each well[4]. Usually, at least three wellbore volumes are removed, unless the wells are low-flow wells. These calculations are shown in Table 2.

ProTech purged the wells using a 2-stage purge/sampling pump. We dedicated the down-hole tubing to each well so it does not need cleaning, thus preventing cross-contamination. We cleaned the purge/sampling pump, using a triple-rinse setup[5], between wells[6]. This system has been proven to produce ND results when there are no pollutants. Once purged, ProTech sampled groundwater in the appropriate sample containers (3 - 40-ml VOA vials). We sealed the containers, checked for bubbles, labeled, and placed them on ice pending transport to the laboratory. No wells dewatered during this monitoring event. The purge volume and parameters are in Tables 2 and 3, respectively.

2.3.1 – MW-2

We removed approximately 6 gallons (~1.5 wellbore volumes) from this well during purging. The well dewatered at 4 gallons. The pump was turned on and left running until the well dewatered. The water did not clear up and cloudy/silty samples were collected. The purge water was placed in a 55-gallon drum on-site and there were no bubbles in the unpreserved VOA vials.

2.3.2 – MW-3

We removed approximately 4 gallons (~1.5 wellbore volumes) from this well during purging. The well dewatered at 4 gallons. The pump was turned on and left running until the well dewatered. The water did not clear up and cloudy/silty samples were collected. The purge water was placed in a 55-gallon drum on-site and there were no bubbles in the unpreserved VOA vials.

---

[4] We determine the volume of groundwater that needs removal from each well by finding the water column height (WCH) using [DTW-TD=WCH], then determine the cubic feet (ft^3) using [$WCH*\Pi*r^2$], and then convert ft^3 to gallons using [$ft^3 * 7.48$].

[5] A triple-rinse setup is three buckets, the first with water and TSP, the second with water, and the third with DI water. The pump is soaked and scrubbed with a scrub brush in the first bucket to remove contaminants. We rinse the pump vigorously in the second bucket, and again in the third bucket. TCG rinses the buckets and refills them after each decontamination event.

[6] During purging, we measure the parameters: pH, conductivity, and temperature, while we observe clarity or turbidity of water. We monitor parameters a few gallons after commencement of pumping, at the mid-point, and at the end-point of pumping.

2.3.3 – MW-4

We removed approximately 4 gallons (~1.5 wellbore volumes) from this well during purging. The well dewatered at 4 gallons. The pump was turned on and left running until the well dewatered. The water did clear up and clear samples were collected. The purge water was placed in a 55-gallon drum on-site and there were no bubbles in the unpreserved VOA vials.

2.3.4 – MW-5

We removed approximately 20 gallons (~3 wellbore volumes) from this well during purging. The well did not dewater. The pump was turned on and left running the entire time. At the start of pumping, some fine sand was removed. The water did not clear up and cloudy/silty samples were collected. The purge water was placed in a 55-gallon drum on-site and there were no bubbles in the unpreserved VOA vials.

2.3.5 – MW-6

Well MW-6 was not located during this GWM event. Much of the shrubbery has grown during the last 9 years and we were not prepared to search for the well the way we will be during the spring of 2010.

2.4 - ANALYTICAL RESULTS

A courier from Test America (TA), the California-certified laboratory met ProTech at the site to pick up the samples for delivery, under COC protocols, to TA's Pleasanton laboratory for analysis. TA analyzed the groundwater samples for Halogenated Hydrocarbons by EPA 8260 and reported the EPA 8010 list. The results are discussed below and tabulated in Table 1. The Laboratory Results and COC form are included in Appendix 1.[7]

2.4.1 – MW-2

The results of analysis indicate that all compounds tested were below their Reporting Limits (RLs).

2.4.2 – MW-3

[7] In Appendix 1, detected results are either **red** (≥ rESL), or not (< rESL or not established [NE]).

The results of analysis indicate that all compounds tested were below their RLs.

2.4.3 – MW-4

The results of analysis indicate that:

- 1,1-DCA was detected at 33 ug/L with an RL of 0.50 ug/L,
- cis-1,2-Dichloroethene was detected at 12 ug/L with an RL of 0.50 ug/L,
- TCE was detected at 6.7 ug/L with an RL of 0.50 ug/L, and
- PCE was detected at 15 ug/L with an RL of 0.50 ug/L.

All other compounds tested were below their RLs.

2.4.4 – MW-5

The results of analysis indicate that:

- 1,1-DCA was detected at 4.6 ug/L with an RL of 0.50 ug/L,
- cis-1,2-Dichloroethene was detected at 0.76 ug/L with an RL of 0.50 ug/L,
- TCE was detected at 0.88 ug/L with an RL of 0.50 ug/L, and
- PCE was detected at 2.7 ug/L with an RL of 0.50 ug/L.

All other compounds tested were below their RLs.

2.4.5 – MW-6

MW-6 was not located during this GWM event.

2.5 - RESIDENTIAL ENVIRONMENTAL SCREENING LEVEL COMPARISON

Below is a table showing the detected results, by well, and the Residential Environmental Screening Levels (rESLs) for those compounds[8]. The ESLs are not regulatory limits nor are they policy limits. These optional guidance values may be used by the discharger as standards, but are subject to the approval of the overseeing regulatory agency case manager. From common practice, they have become similar to "default cleanup standards for both soil and groundwater". When a constituent is detected in more than one analysis, then the highest result is used for comparison.

[8] *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater* (November 2007), San Francisco Bay Regional Water Quality Control Board, California EPA.

COMPARISON OF RESULTS TO RESIDENTIAL ENVIRONMENTAL SCREENING LEVELS (rESLs)					
Constituent	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**rESL[1]**
1,1-DCA	ND	ND	***33***	**4.8**	5
1,1-DCE	ND	ND	ND	ND	6
cis-1,2-DCE	ND	ND	***12***	**0.76**	6
PCE	ND	ND	***15***	**2.7**	5
TCE	ND	ND	***6.7***	**0.88**	5
VC	ND	ND	ND	ND	0.5

Notes:
[1] = MCL-priority
Results in ug/L, ESLs in ug/L
Bold = Detected
Bold Italics = ≥ rESL
Citation: *Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater* (November 2007), San Francisco Bay Regional Water Quality Control Board, California EPA, http://www.waterboards.ca.gov/sanfranciscobay/esl.htm (updated: May 2008).

As illustrated in the above table, 1,1-DCA, cis-1,2-DCE, TCE, and PCE all exceed their rESLs in MW-4. MW-5 had detections of 1,1-DCE, cis-1,2-DCE, TCE, and PCE, but all are below their ESLs.

The following Table shows the detected result, the corresponding rESL, and the multiple of the rESL.

Analytical Results Multiple Over (Under) rESLs				
Well #	**Constituent**	**Analytical Result**	**rESL***	**X rESL**
MW-4	1,1-DCA	33	5	6.60
	cis-1,2-DCE	12	6	2.00
	PCE	15	5	3.00
	TCE	6.7	5	1.34

Notes:
* = MCL-Priority
X rESL = Analytical Result multiple of rESL

3.0 – OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

3.1 - OBSERVATIONS

The results of groundwater analysis indicate that MW-4 and MW-5 show consistent pollution but only MW-4 shows levels above the ESLs. MW-4 contained 1,1-DCA at 33 ug/L, c-1,2-DCE at 12 ug/L, PCE at 15 ug/L, and TCE at 6.7 ug/L (all above their respective ESLs). MW-5 contained 1,1-DCA at 4.8 ug/L, c-1,2-DCE at 0.76 ug/L, PCE at 2.7 ug/L, and TCE at 0.88 ug/L. MW-2 and MW-3 were ND for all compounds analyzed and MW-6 was not found during this GWM event.

Table 2 shows calculations and observations of ProTech's well purging practice. The parameters of pH, conductivity, and temperature were measured during purging (Table 3) and indicate that, there is some stabilization before sampling. A parameter comparison table is included as Table 4. The samples were consistent with the Chain-of-Custody (COC). There were no bubbles were reported in the TA checklist.

The on-site inferred groundwater flow direction and gradient, according to EPA On-line Tools for Site Assessment Calculation, is towards the southeast (211° of north), with an average hydraulic gradient of 0.04188 (Table 5).

Monitor well MW-6 was not located during this GWM.

3.2 - CONCLUSIONS

From the above observations, and our history with the site, we formed the following conclusions:

1. There is no threat to public health from drinking water, as shallow groundwater (<50 fbg) is not allowed for consumptive use, is too shallow due to normal sanitation hazards and the area has municipal water service,
2. Natural attenuation and degradation of constituents, already accepted by California Regulatory Agencies at other sites, has been recommended by Senate Bill 1764 Advisory Committee Recommendations Report.[9],
3. Figures 5 and 6 show the historic concentrations of 1,1-DCA, c1,2-DCE, PCE, TCE, and VC. All of these constituents, except PCE are trending downward (near or at their lows in the most recent sampling) from all the data collected since 1998,
4. PCE is at the top of the degradation sequence, not at the bottom, indicating that there may be another source of at least PCE, on- or off-site, other than the waste oil tank that was removed.
5. Given the groundwater flow direction and the results of wells MW-2, MW-3, and MW-5, it is not unreasonable to consider a source just down-gradient of MW-4 such as the

[9] Section 8 – Beneficial Use Designations and Water Quality Objectives, pp 12.

concrete sewer that is probably leaking.

3.3 - RECOMMENDATIONS

1. Continue the GWM for the next two semi-annual periods (March 2010 and September 2010) with an evaluation of site conditions and requirements after each event,
2. Come up with reasons why MW-4 is so much higher than the other site wells, like nearby potential sources off the property,
3. Begin process of preparing Site Conceptual Model (SCM) in advance of requesting closure.

_____, 1999b, Groundwater Monitoring Report – June 1999, 969 San Pablo Avenue, Albany, California.

_____, 1999c, Groundwater Monitoring Report – September 1999, 969 San Pablo Avenue, Albany, California.

_____, 1999d, Groundwater Monitoring Report – December 1999, 969 San Pablo Avenue, Albany, California.

_____, 2001a, Groundwater Monitoring Report – March 2000, 969 San Pablo Avenue, Albany, California.

Senate Bill 1764 Advisory Committee Recommendations Report Regarding California's Underground Storage Tank Program, 31 May 1996.

State Water Resources Control Board, 1995, Letter regarding Lawrence Livermore National Laboratory (LLNL) Report on Leaking Underground Storage Tank (UST) Cleanup, 8 December 1995.

J. L. Wilson, S. H. Conrad, W.R. Mason, W. Peplinski, and E. Hagan, 1990, Laboratory Investigation of Residual Liquid Organics, United States Environmental Protection Agency, EPA 600/6-90/004.

TABLES

Table 1 - Groundwater Elevation Measurement and Analytical Results
Kelly-Moore Paint Company
969 San Pablo Avenue, Albany, CA
ProTech Project #599-OH09

WELL #	DATE	TOC	DTW	GW-ELEV	Δ-Elev	Chlfrm	1,1-DCA	1,1-DCE	c1,2-DCE	PCE	TCE	VC	TPH-g	TEPH-d	Ben	Tol	E-Ben	Xyl	MTBE
MW-2	06/16/99	42.14	8.36	33.78		ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
	09/15/99	42.14	9.25	32.89	0.89	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
	12/15/99	42.14	8.36	33.78	(0.89)	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
	03/16/00	42.14	5.18	36.96	(3.18)	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
	09/25/09	42.14	8.35	33.79	3.17	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
MW-3	04/21/98	41.49	7.33	34.16		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	03/29/99	41.49	5.60	35.89	(1.73)	ND	1.20	ND	ND	1.70	1.60	ND	ND	ND	ND	ND	ND	ND	ND
	06/16/99	41.49	7.95	33.54	2.35	ND	1.30	ND	ND	1.70	2.30	ND	NA	NA	NA	NA	NA	NA	NA
	09/15/99	41.49	8.73	32.76	0.78	ND	1.40	ND	ND	1.60	1.90	ND	NA	NA	NA	NA	NA	NA	NA
	12/15/99	41.49	8.36	33.13	(0.37)	ND	0.97	ND	ND	1.00	0.98	ND	NA	NA	NA	NA	NA	NA	NA
	03/16/00	41.49	5.05	36.44	(3.31)	ND	1.20	ND	ND	1.60	2.00	ND	NA	NA	NA	NA	NA	NA	NA
	09/25/09	41.49	8.80	32.69	3.75	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
MW-4	04/21/98	41.15	7.52	33.63		ND	**34.00**	ND	5.30	3.60	ND	ND	ND	ND	ND	ND	ND	ND	ND
	03/29/99	41.15	7.50	33.65	(0.02)	ND	**84.00**	1.50	**25.00**	**18.00**	**6.50**	**3.10**	ND	ND	ND	ND	ND	ND	ND
	06/16/99	41.15	8.73	32.42	1.23	ND	**76.00**	1.30	**23.00**	**20.00**	**6.40**	**2.40**	NA	NA	NA	NA	NA	NA	NA
	09/15/99	41.15	9.18	31.97	0.45	ND	**61.00**	0.74	**18.00**	**16.00**	4.40	**0.91**	NA	NA	NA	NA	NA	NA	NA
	12/15/99	41.15	8.95	32.20	(0.23)	ND	**37.00**	ND	**11.00**	**5.70**	2.50	ND	NA	NA	NA	NA	NA	NA	NA
	03/16/00	41.15	8.80	32.35	(0.15)	ND	**58.00**	0.84	**18.00**	**10.00**	**44.00**	**1.20**	NA	NA	NA	NA	NA	NA	NA
	09/25/09	41.15	9.30	31.85	0.50	ND	**33.00**	ND	**12.00**	**15.00**	**6.70**	ND	NA	NA	NA	NA	NA	NA	NA
MW-5	03/29/99	41.71	8.14	33.57		0.97	**5.30**	ND	ND	1.60	1.60	ND	ND	ND	ND	ND	ND	ND	ND
	06/16/99	41.71	8.91	32.80	0.77	0.63	4.80	ND	ND	1.50	1.80	ND	NA	NA	NA	NA	NA	NA	NA
	09/15/99	41.71	9.20	32.51	0.29	ND	**6.40**	ND	ND	1.80	1.80	ND	NA	NA	NA	NA	NA	NA	NA
	12/15/99	41.71	8.86	32.85	(0.34)	ND	**6.70**	ND	ND	1.50	1.40	ND	NA	NA	NA	NA	NA	NA	NA
	03/16/00	41.71	8.30	33.41	(0.56)	0.61	**5.30**	ND	ND	1.30	1.10	ND	NA	NA	NA	NA	NA	NA	NA
	09/25/09	41.71	9.89	31.82	1.59	ND	4.80	ND	0.76	2.70	0.88	ND	NA	NA	NA	NA	NA	NA	NA
MW-6	03/29/99	42.04	7.74	34.30		0.78	1.40	ND	ND	**6.80**	0.80	ND	ND	ND	ND	ND	ND	ND	ND
	06/16/99	42.04	9.25	32.79	1.51	ND	1.40	ND	ND	**5.30**	0.80	ND	NA	NA	NA	NA	NA	NA	NA
	09/15/99	42.04	9.71	32.33	0.46	ND	1.80	ND	ND	**6.20**	0.87	ND	NA	NA	NA	NA	NA	NA	NA
	12/15/99	42.04	9.00	33.04	(0.71)	ND	1.20	ND	ND	4.80	0.56	ND	NA	NA	NA	NA	NA	NA	NA
	03/16/00	42.04	7.38	34.66	(1.62)	ND	1.30	ND	ND	**5.60**	0.74	ND	NA	NA	NA	NA	NA	NA	NA
	09/25/09	42.04	NM	NM		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
TOC = top of casing elevation (ft above mean sea level - [ft-amsl])
DTW = depth to water (ft below TOC)
GW-ELEV = groundwater elevation (ft-amsl)
D-Elev = change in elevation (ft) from one GWM to the next
All results reported in parts-per-billion (ppb)
MCL = maximum contaminant level (EPA and California cited)
Chlfrm = Chloroform (RL-0.5 ppb) (MCL-80 ppb)
1,1-DCA = 1,1-dichloroethane (RL-0.5 ppb) (MCL-5 ppb [California])
1,1-DCE = 1,1-dichloroethene (RL-0.5 ppb) (MCL-7 ppb [EPA] 6 ppb [California])
c1,2-DCE = cis 1,2-dichloroethene (RL-0.5 ppb) (MCL-70 ppb [EPA] 6 ppb [California])
PCE = tetrachloroethene (RL-0.5 ppb) (MCL-5 ppb [EPA & California])
TCE = trichloroethene (RL-0.5 ppb) (MCL-5 ppb [EPA & California)
VC = vinyl chloride (RL-0.5 ppb) (MCL-2 ppb [EPA] 0.5 ppb [California])
NA = not analyzed for
NM = not measured
ND = not detected above method detection limit
Bold =greater than California MCL

TPH-g = total petroleum hydrocarbons, as gasoline (MDL-50 ppb)
TEPH-d = total extractible petroleum hydrocarbons, as diesel (MDL-50 ppb)
Ben = benzene (MDL-0.5 ppb)
Tol = toluene (MDL-0.5 ppb)
E-Ben = ethyl-benzene (MDL-0.5 ppb)
Xyl = xylenes (o, m, p) (MDL-0.5 ppb)
MTBE = methyl tert butyl ether (MDL-5 ppb)

4.0 - REFERENCES

California Code of Regulations, Title 8; Department of Industrial Relations - California Occupational Safety and Health Regulations (Title 8).

California Code of Regulations, Title 22: Social Security; Division 4: Environmental Health and Division 4.5: Chapter 11: Identification of Hazardous Waste; article 3: Characterization of Hazardous Waste (Title 22).

California State Water Resources Control Board, 1989, Leaking Underground Fuel Tanks Manual (LUFT Manual).

California Department of Water Resources, California Well Standards, Bulletins 74-90 and 74-81.

Code of Federal Regulations, Title 29; part 1910: Occupational Safety and Health Standards (29 CFR).

Code of Federal Regulations, Title 40; part 261; subpart B - Criteria for identifying the Characteristics of Hazardous Waste and for Listing Hazardous Waste, and subpart C - Characteristics of Hazardous Waste (40 CFR).

Division of Toxic Substances Control (DTSC), 1986, California Site Mitigation Decision Tree, Chapter 3.

Designated Level Methodology for Waste Classification and Cleanup Level Determination; California Regional Water Quality Control Board; Central Valley Region (Marshack Document), 1986.

Lawrence Livermore National Laboratory, 1995, Recommendations To improve the Cleanup Process for California's Leaking Underground Fuels Tanks (LUFTs), LLNL, 16 October, 1995.

_____, 1995, California Leaking Underground Fuel Tank (LUFT) Historical Case Analyses LLNL, 16 November 1995.

Nielsen, David M., 1991, Practical Handbook of Ground-Water Monitoring, Lewis Publishers.

_____, 1998a, Groundwater Monitoring Report – April 1998, 969 San Pablo Avenue, Albany, California.

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Table 2 - Wellbore Volume Calculations
Kelly-Moore Paint company
969 San Pablo Avenue, Albany, CA
ProTech Project #124-OH00

Sampling Date: **09/25/09**

Well #	DTW	TD	DH	Well R	Well R2	WV (ft3)	WV (gal)	VR (g)	TWV
MW-2	8.35	14.55	6.20	0.17	0.03	0.54	4.05	6.00	1.48
MW-3	8.80	14.32	5.52	0.17	0.03	0.48	3.60	6.00	1.67
MW-4	9.30	14.69	5.39	0.17	0.03	0.47	3.52	4.00	1.14
MW-5	9.89	20.08	10.19	0.17	0.03	0.89	6.65	8.00	1.20
MW-6	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Wellbore volume formula used - PR2H; where H is DH
DTW = depth-to water (ft below grade)
TD = total depth of well
ΔH = water column thickness (ft)
Well R = well radius (ft)
Well R^2 = well radius squared (ft^2)
WV (ft^3) = wellbore volume (ft3)
WV (gal) = wellbore volume (gallons); where 1 ft3 = 7.48 gallons
VR (gal) = volume removed during purging (gallons)
TWV = total wellbore volumes removed during purging

Table 3 - Parameter Testing Results
Kelly-Moore Paint company
969 San Pablo Avenue, Albany, CA
ProTech Project #124-OH00

Sampling Date: **9/25/09**

Well #	Interval(1)	~Gals	pH	Cond	Temp
MW-2	Start	3.00	7.20	2.63	67.30
	End	6.00	7.10	2.94	66.00
MW-3	Start	3.00	7.20	4.85	69.70
	End	4.00	7.10	5.01	68.40
MW-4	Start	3.00	6.30	7.20	71.20
	End	4.00	6.30	7.10	67.80
MW-5	Start	5.00	6.70	7.47	69.20
	Middle	10.00	6.50	6.93	69.40
	End	18.00	6.60	7.35	67.40
MW-6	Start	NA	NA	NA	NA
	Middle	NA	NA	NA	NA
	End	NA	NA	NA	NA

Notes:
~Gals = approximate gallons removed at time of measurement
pH in standard units
Cond = Conductivity (µmho/cm)
Temp = temperature (º F)
(1) = wells dewatered during pumping, were then allowed to recover for sampling

Table 4 - Comparison of Parameter Testing Results
Kelly-Moore Paint company
969 San Pablo Avenue, Albany, CA
ProTech Project #599-OH09

Well #	GR	Date	pH	ΔpH	Cond	ΔCond	Temp	ΔTemp
MW-2	0.00	06/16/99	6.88		1.26		62.30	
	5.00		6.94	0.06	1.28	0.02	63.00	0.70
	6.00		6.78	0.16	1.30	0.02	62.30	0.70
	0.00	09/15/99	7.56		1.44		63.50	
	4.00		7.52	0.04	1.44	0.00	63.00	0.50
	0.00	12/15/99	7.66		1.27		60.10	
	4.00		7.58	0.08	1.29	0.02	59.90	0.20
	0.00	03/16/00	8.29		1.32		60.70	
	3.00		8.15	0.14	1.36	0.04	60.50	0.20
	6.00		7.95	0.20	1.37	0.01	60.50	0.00
	3.00	09/25/09	7.20		2.63		67.30	
	6.00		7.10	0.10	2.94	0.31	66.00	1.30
MW-3	0.00	03/29/99	6.97		1.32		58.40	
	5.00		6.95	0.02	1.33	0.01	57.40	1.00
	7.00		6.81	0.14	1.34	0.01	58.00	0.60
	0.00	06/16/99	6.68		1.27		62.80	
	5.00		6.88	0.20	1.37	0.10	63.90	1.10
	7.00		6.96	0.08	1.35	0.02	64.00	0.10
	0.00	09/15/99	7.88		1.43		64.90	
	4.50		7.34	0.54	1.40	0.03	65.00	0.10
	0.00	12/15/99	7.79		1.22		56.90	
	4.00		7.55	0.24	1.29	0.07	61.10	4.20
	0.00	03/16/00	8.22		1.28		62.50	
	3.00		7.57	0.65	1.29	0.01	60.50	2.00
	6.00		7.58	0.01	1.30	0.01	61.20	0.70
	3.00	09/25/09	7.20		4.85		69.70	
	4.00		7.10	0.10	5.01	0.16	68.40	1.30

Table 4 - Comparison of Parameter Testing Results
Kelly-Moore Paint company
969 San Pablo Avenue, Albany, CA
ProTech Project #599-OH09

Well #	GR	Date	pH	ΔpH	Cond	ΔCond	Temp	ΔTemp
MW-4	0.00	03/29/99	6.40		1.35		58.40	
	5.00		6.41	0.01	1.34	0.01	59.40	1.00
	6.00		6.38	0.03	1.34	0.00	60.00	0.60
	0.00	06/16/99	6.34		1.26		62.00	
	5.00		6.54	0.20	1.27	0.01	63.40	1.40
	6.00		6.39	0.15	1.28	0.01	64.20	0.80
	0.00	09/15/99	7.45		1.41		64.20	
	5.00		7.42	0.03	1.38	0.03	64.60	0.40
	0.00	12/15/99	6.81		1.57		57.60	
	4.00		6.75	0.06	1.67	0.10	58.00	0.40
	0.00	03/16/00	7.59		1.46		60.50	
	2.00		7.56	0.03	1.52	0.06	61.20	0.70
	4.00		7.28	0.28	1.55	0.03	61.50	0.30
	3.00	09/25/09	6.30		7.20		71.20	
	4.00		6.30	0.00	7.10	0.10	67.80	3.40
MW-5	0.00	03/29/99	6.89		1.38		62.50	
	8.00		6.90	0.01	1.30	0.08	66.00	3.50
	15.00		6.70	0.20	1.39	0.09	66.40	0.40
	25.00		6.75	0.05	1.38	0.01	66.70	0.30
	0.00	06/16/99	7.14		1.27		61.50	
	17.00		6.85	0.29	1.44	0.17	62.30	0.80
	25.00		6.86	0.01	1.31	0.13	62.90	0.60
	31.00		6.84	0.02	1.32	0.01	62.60	0.30
	0.00	09/15/99	7.35		1.41		65.80	
	12.00		7.24	0.11	1.42	0.01	65.70	0.10
	0.00	12/15/99	7.47		2.00		58.10	
	7.00		7.54	0.07	1.52	0.48	61.60	3.50
	15.00		7.46	0.08	1.54	0.02	62.20	0.60

Table 4 - Comparison of Parameter Testing Results
Kelly-Moore Paint company
969 San Pablo Avenue, Albany, CA
ProTech Project #599-OH09

Well #	GR	Date	pH	ΔpH	Cond	ΔCond	Temp	ΔTemp
	0.00	03/16/00	7.51		1.59		61.00	
	4.00		7.49	0.02	1.56	0.03	62.40	1.40
	8.00		7.49	0.00	1.54	0.02	62.40	0.00
	5.00	09/25/09	6.70		7.47		69.20	
	10.00		6.50	0.20	6.93	0.54	69.40	0.20
	18.00		6.60	0.10	7.35	0.42	67.40	2.00
MW-6	0.00	03/29/99	7.24		1.19		66.40	
	8.00		7.32	0.08	1.30	0.11	63.80	2.60
	17.00		7.31	0.01	1.27	0.03	63.20	0.60
	28.00		7.36	0.05	1.26	0.01	63.60	0.40
	0.00	06/16/99	7.29		1.28		62.20	
	14.00		7.55	0.26	1.26	0.02	61.80	0.40
	29.00		7.48	0.07	1.29	0.03	63.00	1.20
	0.00	09/15/99	7.40		1.34		63.40	
	13.00		7.73	0.33	1.31	0.03	64.20	0.80
	0.00	12/15/99	7.59		1.69		57.80	
	7.00		7.51	0.08	1.60	0.09	60.80	3.00
	13.00		7.47	0.04	1.34	0.26	61.00	0.20
	0.00	03/16/00	7.65		1.58		61.60	
	4.00		7.64	0.01	1.60	0.02	61.40	0.20
	8.00		7.58	0.06	1.61	0.01	61.20	0.20
	NF	09/25/09	NF					

Notes:
GR = approximate gallons removed at time of measurement
pH in standard units
Cond = Conductivity (µmho/cm)
Temp = temperature (º F)
NF = not found

Table 5 - Groundwater Flow Direction and Gradient Calculations (25 September 2009)

http://www.epa.gov/athens/learn2model/part-two/onsite/gradient4plus-ns.html

EPA On-line Tools for Site Assessment Calculation

Module Home Objectives Table of Contents Previous < Next >

Hydraulic Gradient

Gradient Calculation from fitting a plane to as many as fifteen points

$a x_1 + b y_1 + c = h_1$
$a x_2 + b y_2 + c = h_2$
$a x_3 + b y_3 + c = h_3$
. . .
$a x_{15} + b y_{15} + c = h_{15}$

where (x_i,y_i) are the coordinates of the well and
h_i is the head

i = 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15
The coefficients a, b, and c are calculated by a least-squares fitting of the the data to a plane

The gradient is calculated from the square root of $(a^2 + b^2)$ and the angle from the arctangent of a/b or b/a depending on the quadrant

Example Data Set 1 | Example Data Set 2 | Calculate | Clear
Save Data | Recall Data | Go Back

Site Name: Kelly Moore
Date: 9/25/2009 Current Date
Calculation basis: Head
Coordinates: ft

I.D.	x-coordinate	y-coordinate	head ft
MW-2	130	53	33.79
MW-3	11	70	32.69
MW-4	0	0	31.85
MW-5	76	-25	31.82

Number of Points Used in Calculation	4
Max. Difference Between Head Values	0.6005
Gradient Magnitude (i)	0.01795
Flow direction as degrees from North (positive y axis)	211.4
Coefficient of Determination (R^2)	0.963

Previous Top ^ Next

FIGURES

Site 12.73 mi

Site 3144 ft

Site 810 ft

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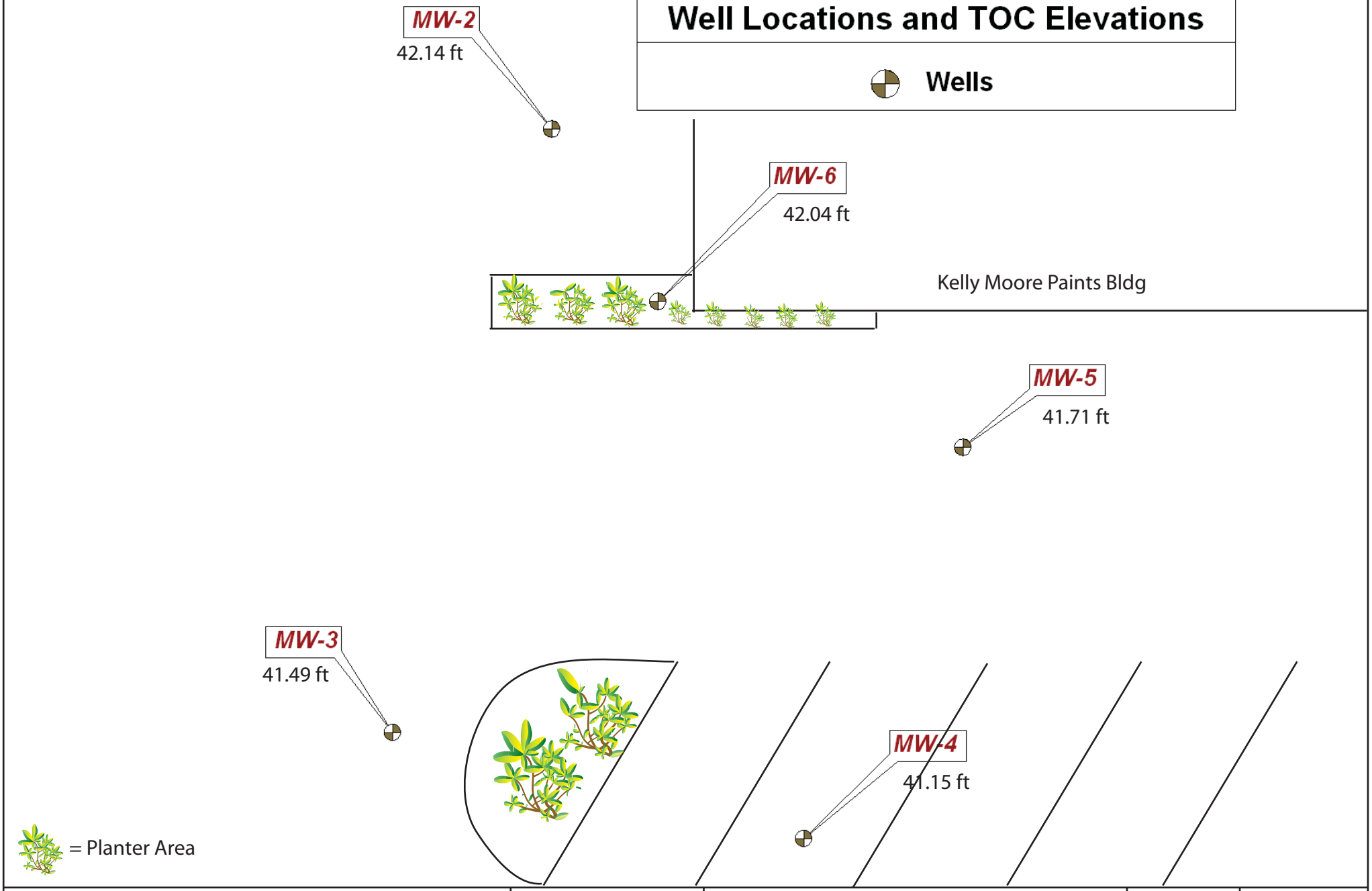
Well Locations and TOC Elevations

Wells



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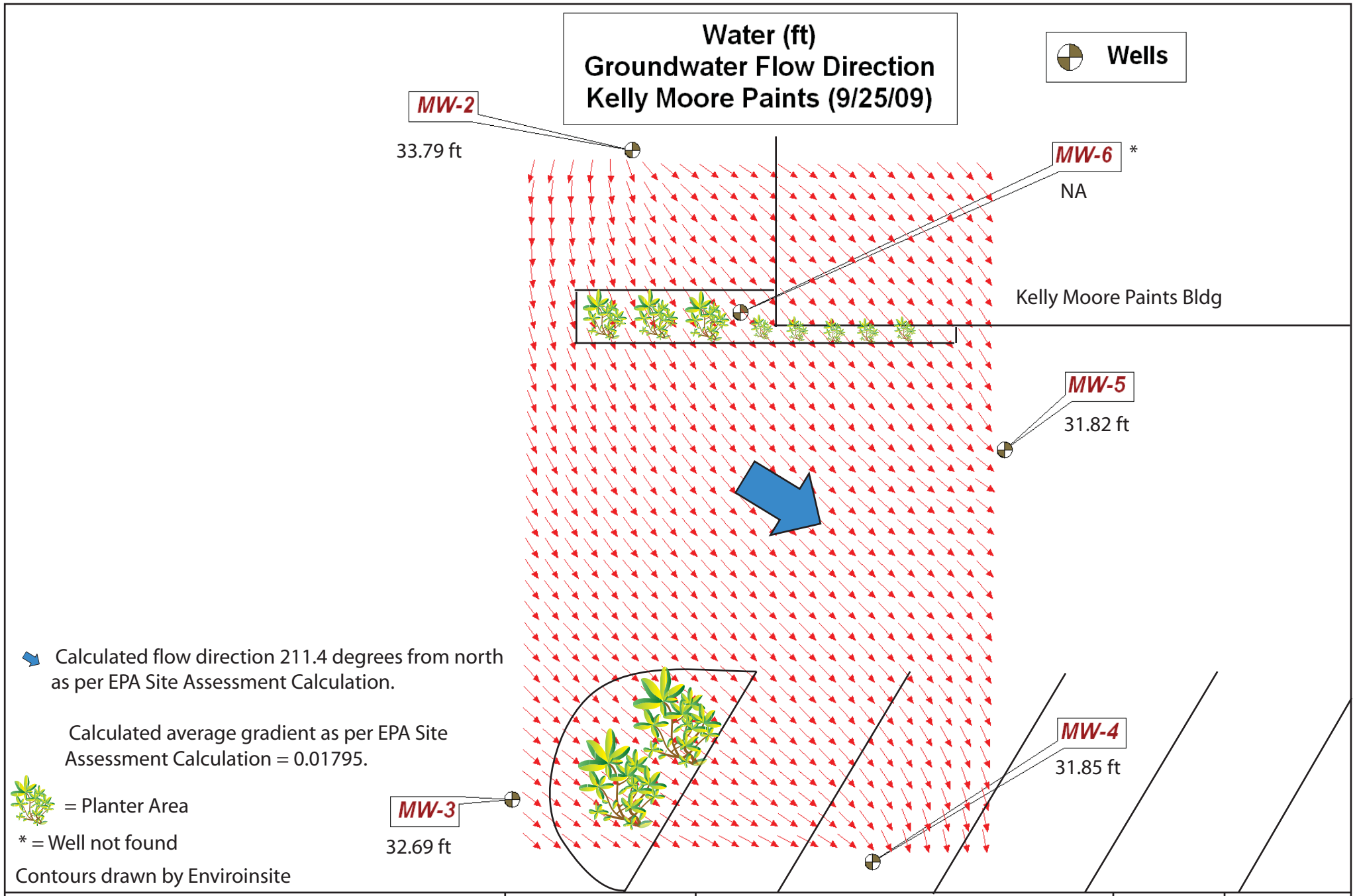
TOC Elevations (ft)
Kelly-Moore Paint Company
696 San Pablo Avenue, Albany, CA
for: W.E. Berry
P.O. Box 3016, San Carlos, CA 94070

Project

N

Figure
2



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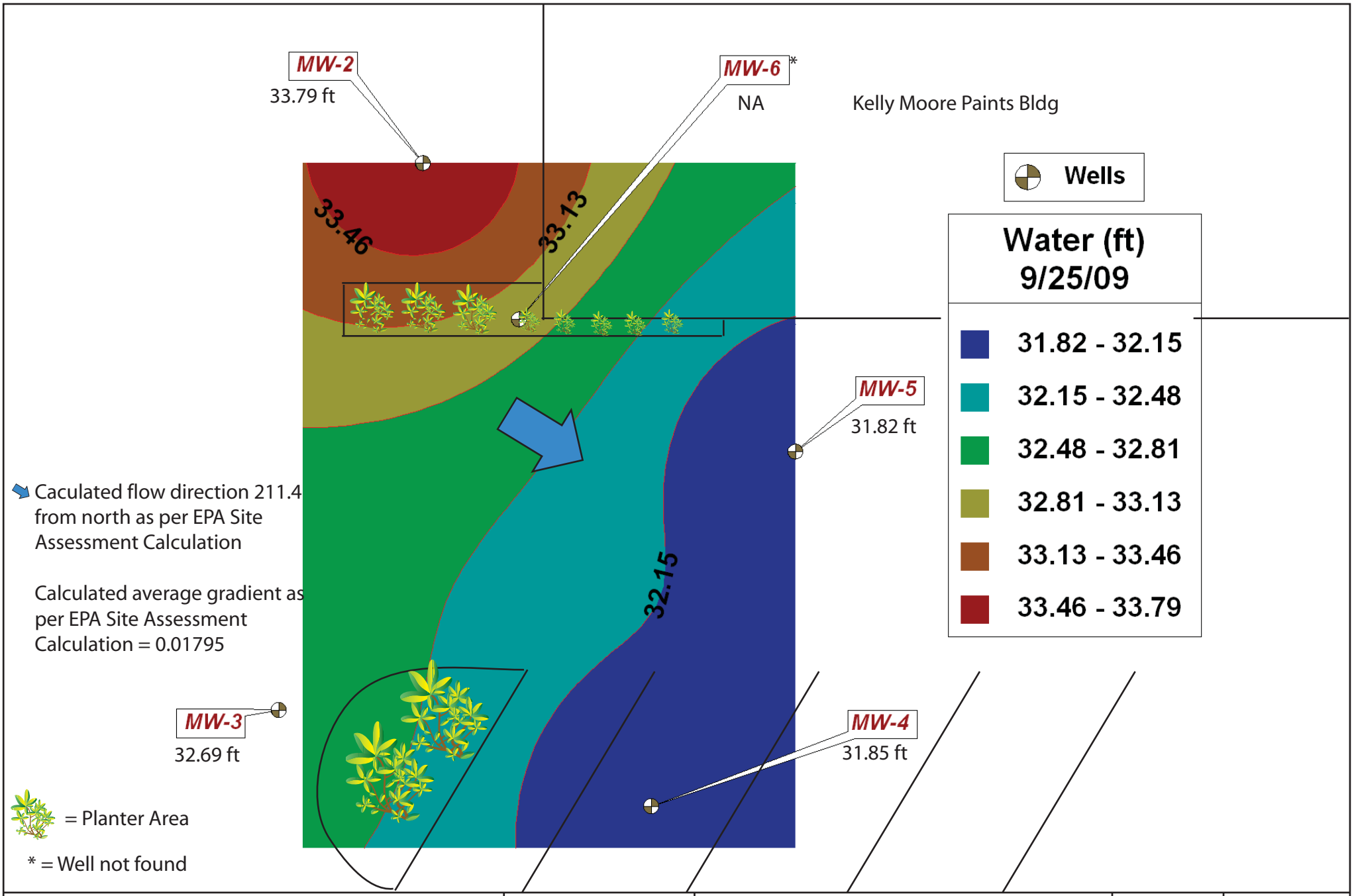
Groundwater Flow Direction
Kelly-Moore Paint Company
696 San Pablo Avenue, Albany, CA
for: W.E. Berry
P.O. Box 3016, San Carlos, CA 94070

Project

N

Figure
3



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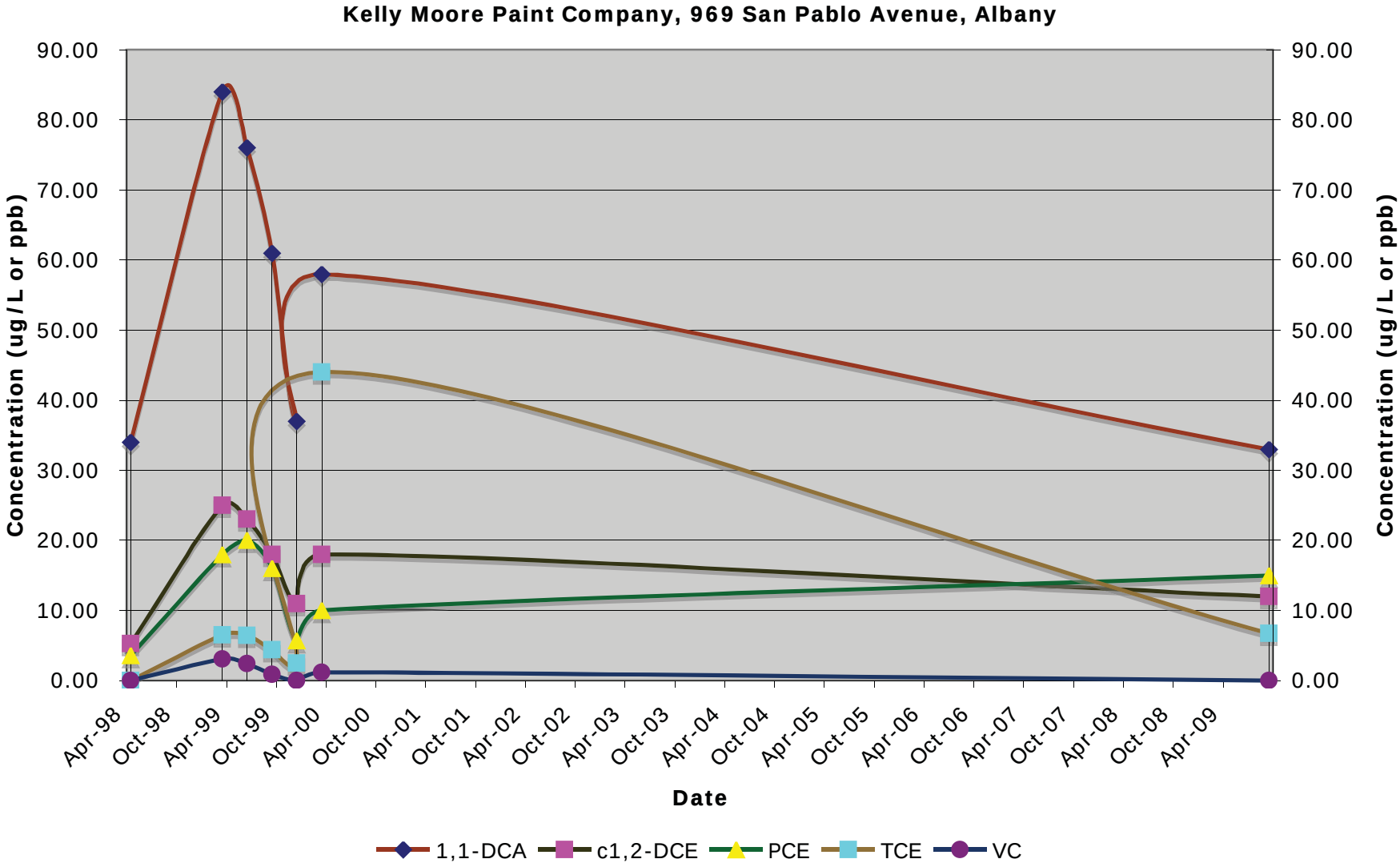
Groundwater Elevation Contour
Project
Kelly-Moore Paint Company
696 San Pablo Avenue, Albany, CA
for: W.E. Berry
P.O. Box 3016, San Carlos, CA 94070

N

Figure
4

MW-4 Historical Chemical Concentrations



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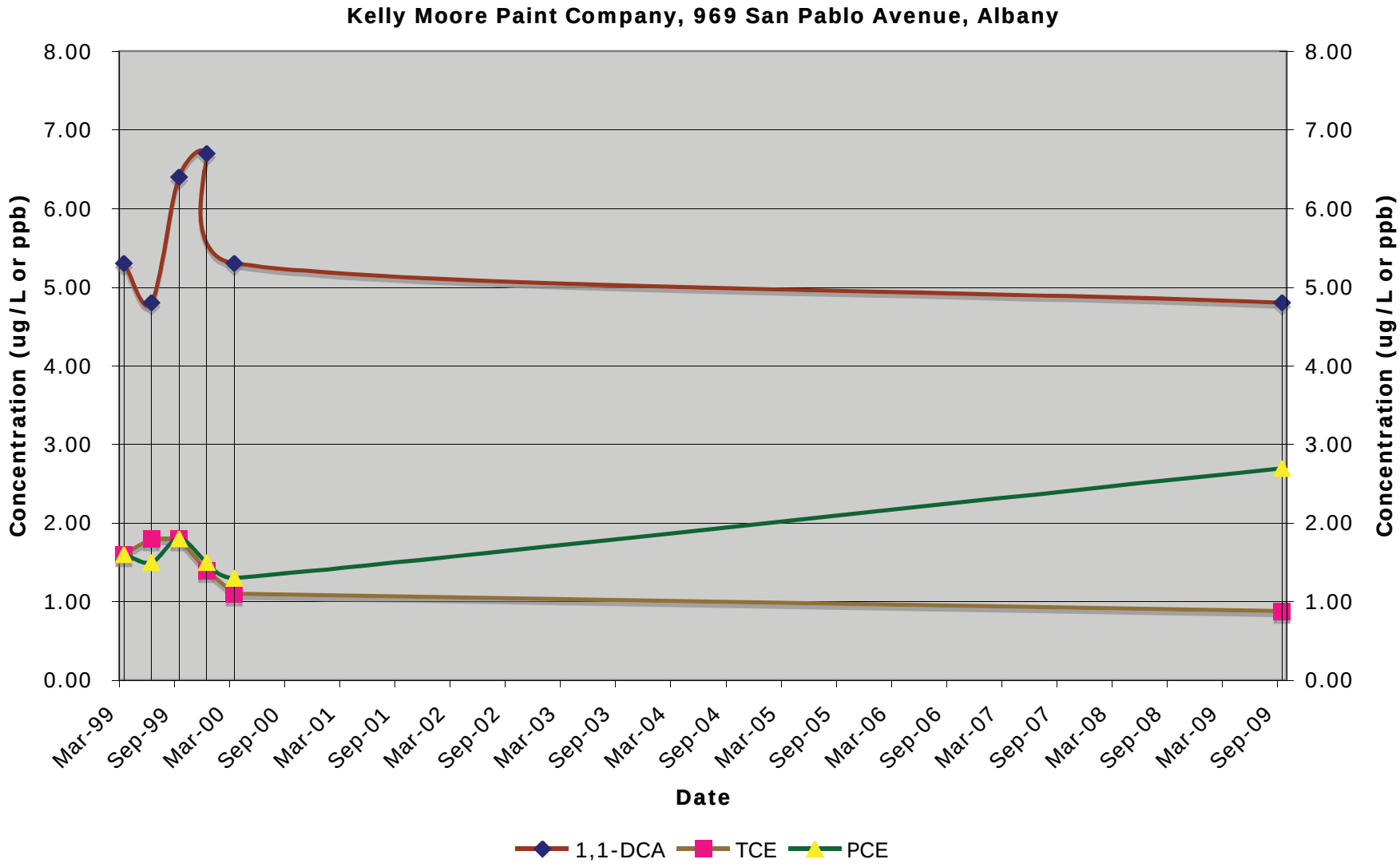
Historical MW-4 Concentrations
Project
Kelly-Moore Paint Company
696 San Pablo Avenue, Albany, CA
for: W.E. Berry
P.O. Box 3016, San Carlos, CA 94070

N

Figure
5

MW-5 Historic Chemical Concentrations



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Date	25 September 2009
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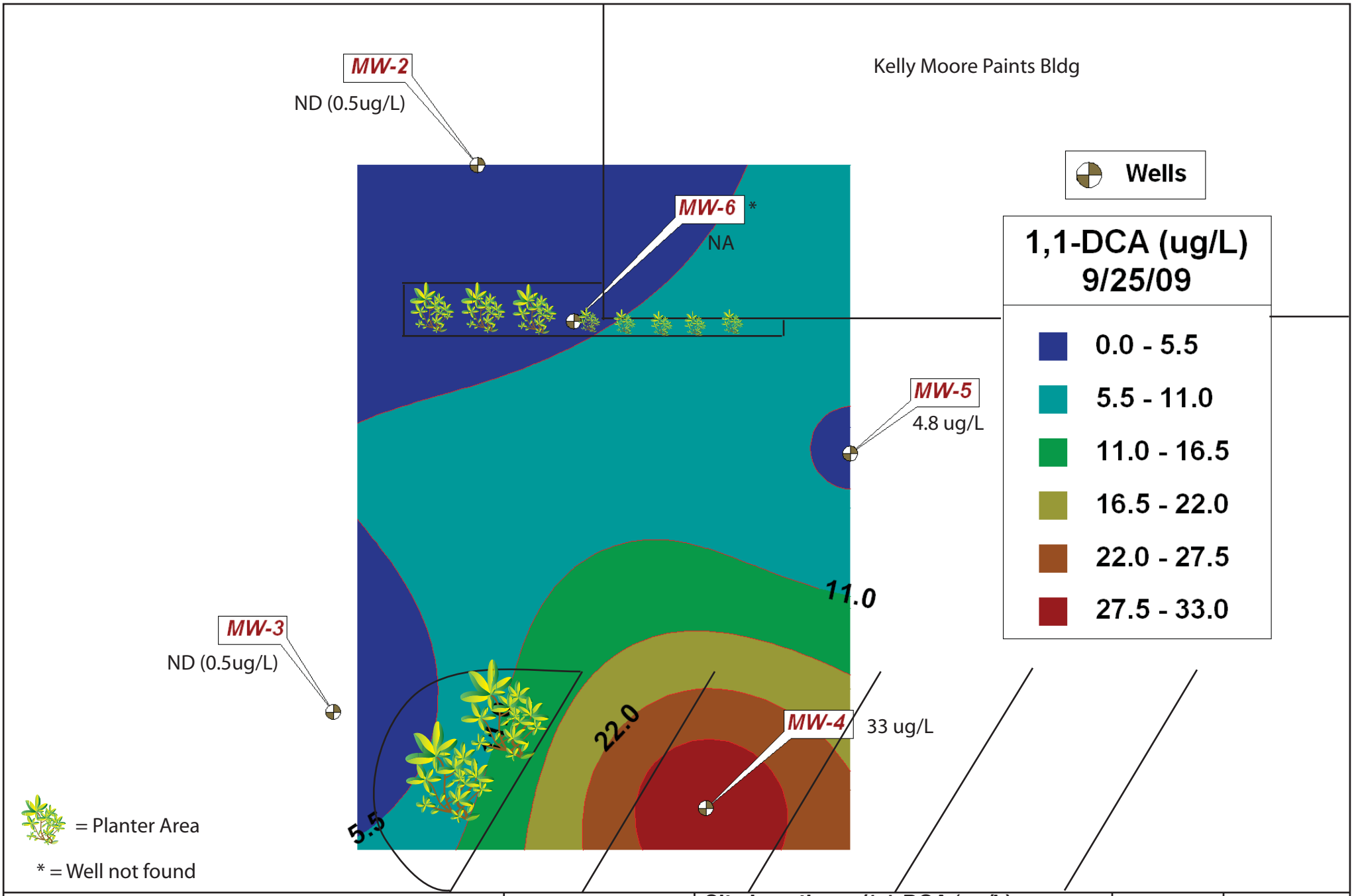
Rev	SL
Apprvd	SL

Historical MW-5 Concentrations
Project
Kelly-Moore Paint Company
696 San Pablo Avenue, Albany, CA
for: W.E. Berry
P.O. Box 3016, San Carlos, CA 94070

N

Figure
6



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Rev	SL
Apprvd	SL

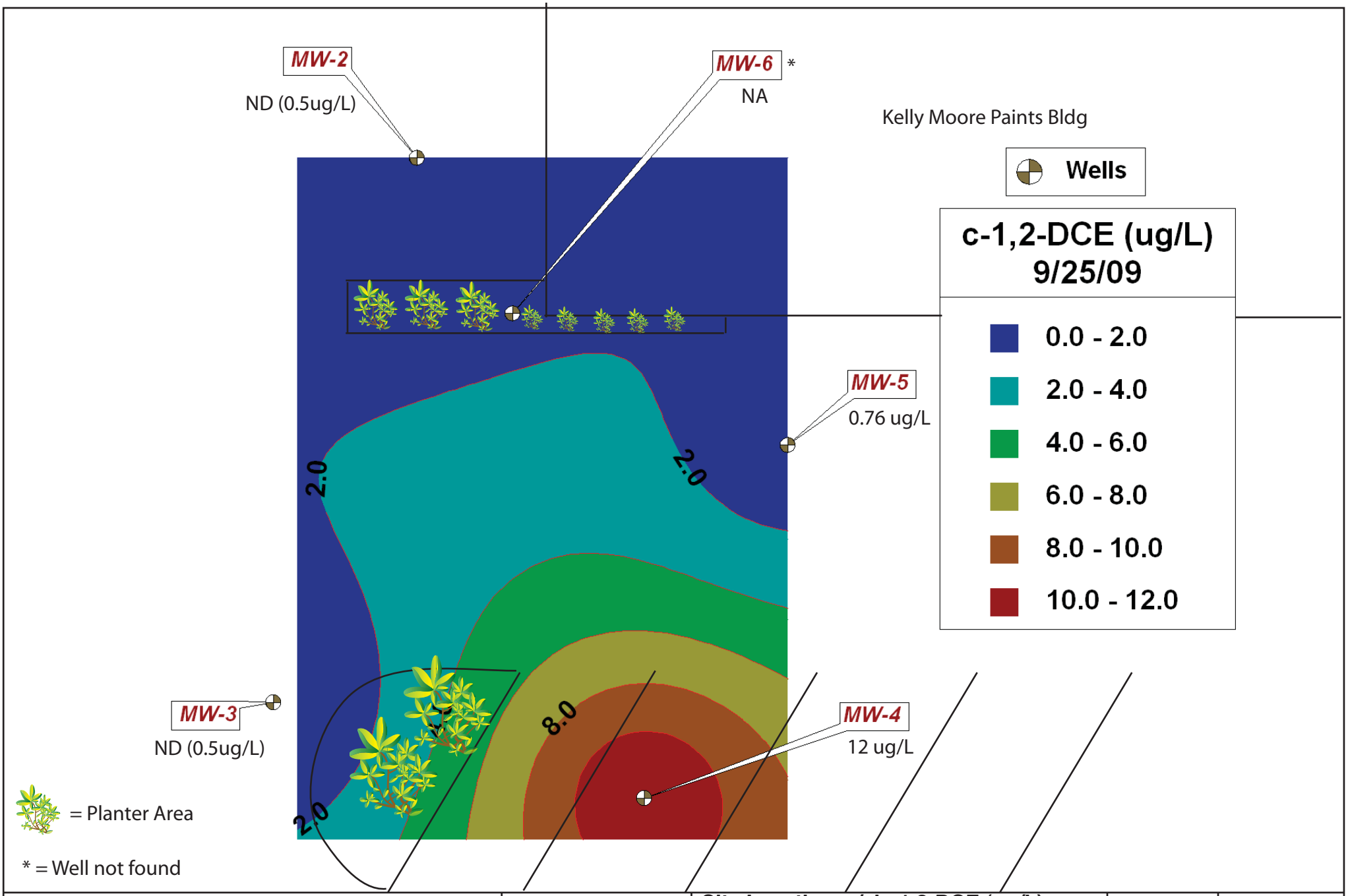
Site Location w/1,1-DCA (ug/L) Results and Contours (9/25/2009)

Project

Kelly-Moore Paint Company
696 San Pablo Avenue, Albany, CA
for: W.E. Berry
P.O. Box 3016, San Carlos, CA 94070

N

Figure **7**



ProTech Consulting & Engineering
1208 Main Street, Redwood City, CA 94063
Tele: 650.569.4020 / Fax: 650.569.4023

Job No.	599-OH09
Date	25 September 2009
Drawn by	RC
Rev	SL
Apprvd	SL

Site Location w/cis-1,2-DCE (ug/L) Results and Contours (9/25/2009)

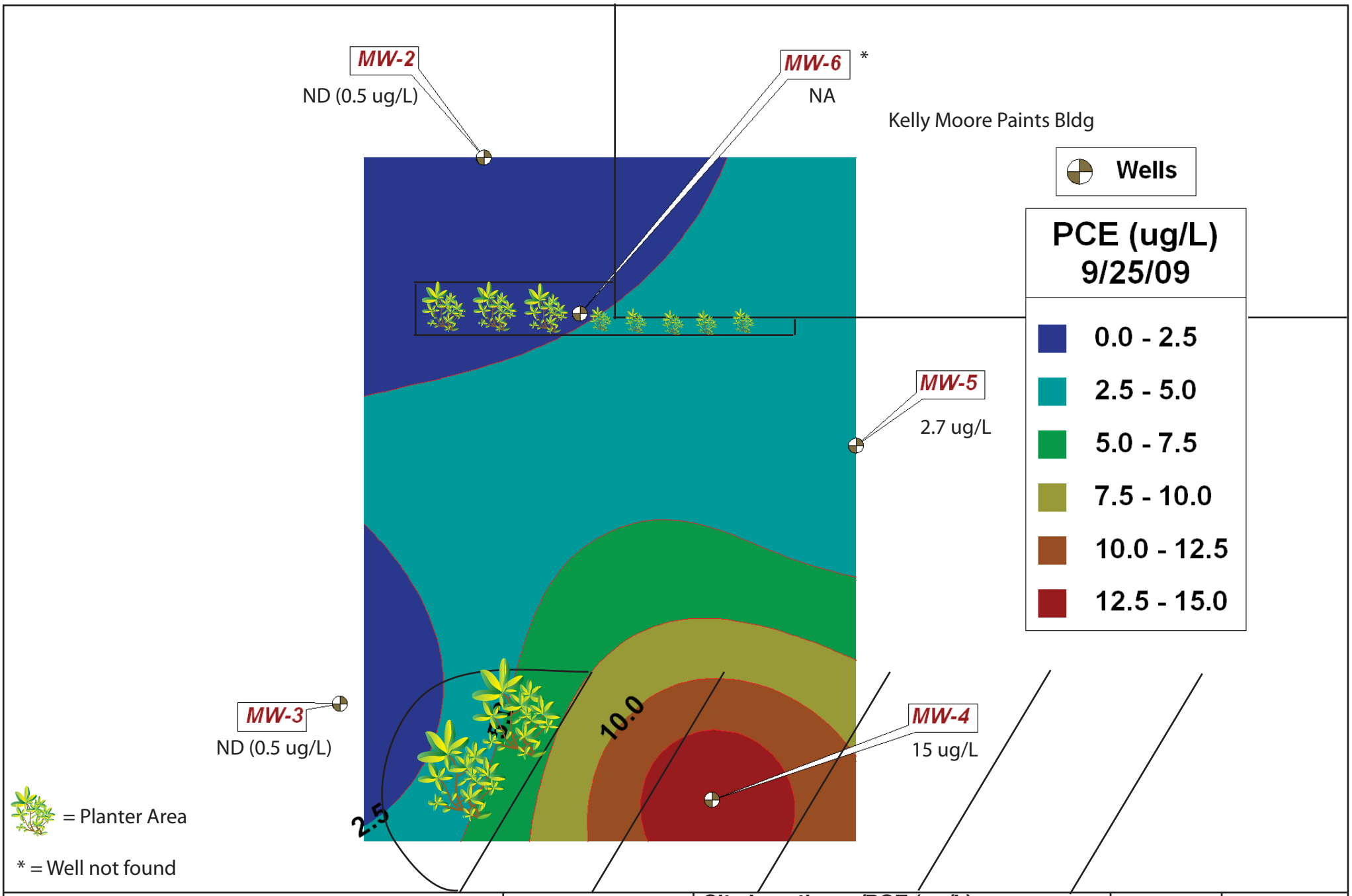
Project

Kelly-Moore Paint Company
696 San Pablo Avenue, Albany, CA
for: W.E. Berry
P.O. Box 3016, San Carlos, CA 94070

N

Figure

8



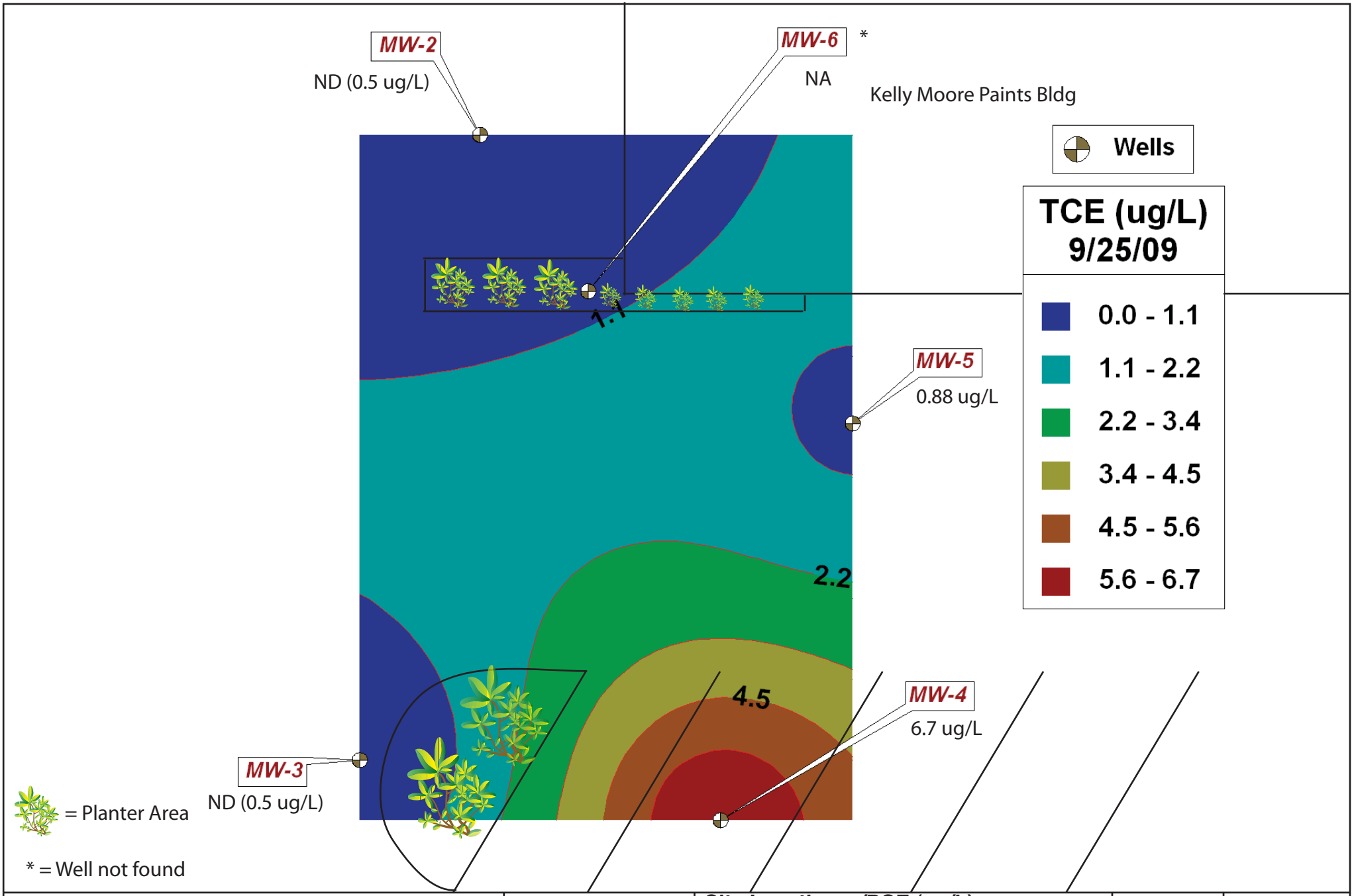
ProTech Consulting & Engineering
1208 Main Street, Redwood City, CA 94063
Tele: 650.569.4020 / Fax: 650.569.4023

Job No.	599-OH09
Date	25 September 2009
Drawn by	RC
Rev	SL
Apprvd	SL

Site Location w/PCE (ug/L) Results and Contours (9/25/2009)
Project
Kelly-Moore Paint Company
696 San Pablo Avenue, Albany, CA
for: W.E. Berry
P.O. Box 3016, San Carlos, CA 94070

N

Figure
9



ProTech Consulting & Engineering
1208 Main Street, Redwood City, CA 94063
Tele: 650.569.4020 / Fax: 650.569.4023

Job No.	599-OH09
Date	25 September 2009
Drawn by	RC
Rev	SL
Apprvd	SL

Site Location w/PCE (ug/L) Results and Contours (9/25/2009)

Project

Kelly-Moore Paint Company
696 San Pablo Avenue, Albany, CA
for: W.E. Berry
P.O. Box 3016, San Carlos, CA 94070

N

Figure **10**

APPENDIX 1 – LABORATORY REPORTS AND COC FORMS

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 720-22848-1

Job Description: KM-Albany-GWM

For:
ProTech Consulting and Engineering
1208 Main Street
Redwood City, CA 94063

Attention: Mr. Woody Lovejoy

Surinder Sidhu

Approved for release.
Surinder Sidhu
Customer Service Manager
10/1/2009 4:09 PM

Surinder Sidhu
Customer Service Manager
surinder.sidhu@testamericainc.com
10/01/2009

CA ELAP Certification # 2496
The Chain(s) of Custody are included and are an integral part of this report.

A trip blank is required to be provided for volatile analyses. If trip blank results are not included in the report, either the trip blank was not submitted or requested to be analyzed.

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

EXECUTIVE SUMMARY - Detections

Client: ProTech Consulting and Engineering Job Number: 720-22848-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-22848-3	**MW-4**				
1,1-Dichloroethane		33	0.50	ug/L	8260B
cis-1,2-Dichloroethene		12	0.50	ug/L	8260B
Trichloroethene		6.7	0.50	ug/L	8260B
Tetrachloroethene		15	0.50	ug/L	8260B
720-22848-4	**MW-5**				
1,1-Dichloroethane		4.8	0.50	ug/L	8260B
cis-1,2-Dichloroethene		0.76	0.50	ug/L	8260B
Trichloroethene		0.88	0.50	ug/L	8260B
Tetrachloroethene		2.7	0.50	ug/L	8260B

METHOD SUMMARY

Client: ProTech Consulting and Engineering Job Number: 720-22848-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL SF	SW846 8260B	
Purge and Trap	TAL SF		SW846 5030B

Lab References:

TAL SF = TestAmerica San Francisco

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: ProTech Consulting and Engineering Job Number: 720-22848-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-22848-1	MW-2	Water	09/25/2009 1240	09/25/2009 1448
720-22848-2	MW-3	Water	09/25/2009 1105	09/25/2009 1448
720-22848-3	MW-4	Water	09/25/2009 1147	09/25/2009 1448
720-22848-4	MW-5	Water	09/25/2009 1215	09/25/2009 1448

Client: ProTech Consulting and Engineering | Job Number: 720-22848-1

Client Sample ID: **MW-2**

Lab Sample ID: 720-22848-1 | Date Sampled: 09/25/2009 1240
Client Matrix: Water | Date Received: 09/25/2009 1448

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-58686	Instrument ID:	SAT2K3	
Preparation:	5030B		Lab File ID:	d:\data\200909\09290	
Dilution:	1.0		Initial Weight/Volume:	40	mL
Date Analyzed:	09/29/2009 2136		Final Weight/Volume:	40	mL
Date Prepared:	09/29/2009 2136				

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	ND		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	ND		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	ND		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	ND		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	108		70 - 130
4-Bromofluorobenzene	125		67 - 130
1,2-Dichloroethane-d4 (Surr)	118		67 - 130

Client: ProTech Consulting and Engineering | Job Number: 720-22848-1

Client Sample ID: **MW-3**

Lab Sample ID: 720-22848-2 | Date Sampled: 09/25/2009 1105
Client Matrix: Water | Date Received: 09/25/2009 1448

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-58745	Instrument ID: SAT2K3
Preparation:	5030B		Lab File ID: d:\data\200909\09300
Dilution:	1.0		Initial Weight/Volume: 40 mL
Date Analyzed:	09/30/2009 1636		Final Weight/Volume: 40 mL
Date Prepared:	09/30/2009 1636		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	ND		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	ND		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	ND		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	ND		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	114		70 - 130
4-Bromofluorobenzene	123		67 - 130
1,2-Dichloroethane-d4 (Surr)	121		67 - 130

Client: ProTech Consulting and Engineering | Job Number: 720-22848-1

Client Sample ID: **MW-4**

Lab Sample ID: 720-22848-3 | Date Sampled: 09/25/2009 1147
Client Matrix: Water | Date Received: 09/25/2009 1448

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-58686	Instrument ID:	SAT2K3
Preparation:	5030B		Lab File ID:	d:\data\200909\09290
Dilution:	1.0		Initial Weight/Volume:	40 mL
Date Analyzed:	09/29/2009 2239		Final Weight/Volume:	40 mL
Date Prepared:	09/29/2009 2239			

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	33		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	12		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	6.7		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	15		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	102		70 - 130
4-Bromofluorobenzene	120		67 - 130
1,2-Dichloroethane-d4 (Surr)	114		67 - 130

Client: ProTech Consulting and Engineering | Job Number: 720-22848-1

Client Sample ID: **MW-5**

Lab Sample ID: 720-22848-4 | Date Sampled: 09/25/2009 1215
Client Matrix: Water | Date Received: 09/25/2009 1448

8260B Volatile Organic Compounds (GC/MS)

Method:	8260B	Analysis Batch: 720-58745	Instrument ID: SAT2K3
Preparation:	5030B		Lab File ID: d:\data\200909\09300
Dilution:	1.0		Initial Weight/Volume: 40 mL
Date Analyzed:	09/30/2009 1708		Final Weight/Volume: 40 mL
Date Prepared:	09/30/2009 1708		

Analyte	Result (ug/L)	Qualifier	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	4.8		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	0.76		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	0.88		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	2.7		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	108		70 - 130
4-Bromofluorobenzene	118		67 - 130
1,2-Dichloroethane-d4 (Surr)	113		67 - 130

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

Client: ProTech Consulting and Engineering Job Number: 720-22848-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-58686					
LCS 720-58686/3	Lab Control Sample	T	Water	8260B	
LCSD 720-58686/2	Lab Control Sample Duplicate	T	Water	8260B	
MB 720-58686/5	Method Blank	T	Water	8260B	
720-22848-1	MW-2	T	Water	8260B	
720-22848-3	MW-4	T	Water	8260B	
Analysis Batch:720-58745					
LCS 720-58745/4	Lab Control Sample	T	Water	8260B	
LCSD 720-58745/3	Lab Control Sample Duplicate	T	Water	8260B	
MB 720-58745/6	Method Blank	T	Water	8260B	
720-22848-2	MW-3	T	Water	8260B	
720-22848-4	MW-5	T	Water	8260B	

Report Basis
T = Total

Client: ProTech Consulting and Engineering

Job Number: 720-22848-1

Method Blank - Batch: 720-58686

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-58686/5
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/29/2009 1250
Date Prepared: 09/29/2009 1250

Analysis Batch: 720-58686
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\092909\mb-wa
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

Analyte	Result	Qual	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	ND		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	ND		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	ND		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	ND		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		1.0

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	113	70 - 130
4-Bromofluorobenzene	128	67 - 130
1,2-Dichloroethane-d4 (Surr)	117	67 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: ProTech Consulting and Engineering

Job Number: 720-22848-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-58686

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-58686/3	Analysis Batch:	720-58686	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200909\092909\LS-W/
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	09/29/2009 1322			Final Weight/Volume:	40 mL
Date Prepared:	09/29/2009 1322				

LCSD Lab Sample ID:	LCSD 720-58686/2	Analysis Batch:	720-58686	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200909\092909\LD-WA
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	09/29/2009 1354			Final Weight/Volume:	40 mL
Date Prepared:	09/29/2009 1354				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,1-Dichloroethene	97	109	76 - 128	11	20		
1,1-Dichloroethane	91	101	80 - 126	11	20		
Dichlorodifluoromethane	102	102	38 - 142	1	20		
Vinyl chloride	92	90	58 - 147	2	20		
Chloroethane	97	101	51 - 149	4	20		
Trichlorofluoromethane	97	100	62 - 136	4	20		
Methylene Chloride	99	107	71 - 127	8	20		
trans-1,2-Dichloroethene	92	102	80 - 125	10	20		
cis-1,2-Dichloroethene	97	99	80 - 136	2	20		
Chloroform	95	101	78 - 129	6	20		
1,1,1-Trichloroethane	96	101	74 - 135	5	20		
Carbon tetrachloride	96	103	69 - 136	7	20		
1,2-Dichloroethane	98	104	70 - 133	6	20		
Trichloroethene	90	97	72 - 138	7	20		
1,2-Dichloropropane	95	101	75 - 138	6	20		
Dichlorobromomethane	94	103	74 - 140	9	20		
trans-1,3-Dichloropropene	82	87	74 - 137	5	20		
cis-1,3-Dichloropropene	97	102	72 - 148	5	20		
1,1,2-Trichloroethane	94	97	67 - 151	2	20		
Tetrachloroethene	93	96	80 - 134	3	20		
Chlorodibromomethane	103	110	68 - 137	7	20		
Chlorobenzene	104	114	80 - 122	9	20		
Bromoform	108	108	56 - 144	1	20		
1,1,2,2-Tetrachloroethane	107	107	72 - 146	0	20		
1,3-Dichlorobenzene	104	112	80 - 128	7	20		
1,4-Dichlorobenzene	102	108	80 - 122	6	20		
1,2-Dichlorobenzene	105	111	80 - 127	5	20		
Chloromethane	95	103	52 - 136	8	20		
Bromomethane	85	96	23 - 171	13	20		
1,1,2-Trichloro-1,2,2-trifluoroethane	91	96	66 - 132	6	20		
EDB	100	97	70 - 143	2	20		
1,2,4-Trichlorobenzene	115	125	70 - 143	8	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: ProTech Consulting and Engineering Job Number: 720-22848-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-58686

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-58686/3	Analysis Batch:	720-58686	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200909\092909\LS-W/
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	09/29/2009 1322			Final Weight/Volume:	40 mL
Date Prepared:	09/29/2009 1322				

LCSD Lab Sample ID:	LCSD 720-58686/2	Analysis Batch:	720-58686	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200909\092909\LD-WA
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	09/29/2009 1354			Final Weight/Volume:	40 mL
Date Prepared:	09/29/2009 1354				

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	111	111	70 - 130
4-Bromofluorobenzene	124	116	67 - 130
1,2-Dichloroethane-d4 (Surr)	111	113	67 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: ProTech Consulting and Engineering

Job Number: 720-22848-1

Method Blank - Batch: 720-58745

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-58745/6
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/30/2009 1425
Date Prepared: 09/30/2009 1425

Analysis Batch: 720-58745
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\093009\MB-W
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

Analyte	Result	Qual	RL
1,1-Dichloroethene	ND		0.50
1,1-Dichloroethane	ND		0.50
Dichlorodifluoromethane	ND		0.50
Vinyl chloride	ND		0.50
Chloroethane	ND		1.0
Trichlorofluoromethane	ND		1.0
Methylene Chloride	ND		5.0
trans-1,2-Dichloroethene	ND		0.50
cis-1,2-Dichloroethene	ND		0.50
Chloroform	ND		1.0
1,1,1-Trichloroethane	ND		0.50
Carbon tetrachloride	ND		0.50
1,2-Dichloroethane	ND		0.50
Trichloroethene	ND		0.50
1,2-Dichloropropane	ND		0.50
Dichlorobromomethane	ND		0.50
trans-1,3-Dichloropropene	ND		0.50
cis-1,3-Dichloropropene	ND		0.50
1,1,2-Trichloroethane	ND		0.50
Tetrachloroethene	ND		0.50
Chlorodibromomethane	ND		0.50
Chlorobenzene	ND		0.50
Bromoform	ND		1.0
1,1,2,2-Tetrachloroethane	ND		0.50
1,3-Dichlorobenzene	ND		0.50
1,4-Dichlorobenzene	ND		0.50
1,2-Dichlorobenzene	ND		0.50
Chloromethane	ND		1.0
Bromomethane	ND		1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50
EDB	ND		0.50
1,2,4-Trichlorobenzene	ND		1.0

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	108	70 - 130
4-Bromofluorobenzene	122	67 - 130
1,2-Dichloroethane-d4 (Surr)	115	67 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: ProTech Consulting and Engineering

Job Number: 720-22848-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-58745

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID: LCS 720-58745/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/30/2009 1457
Date Prepared: 09/30/2009 1457

Analysis Batch: 720-58745
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\093009\LS-W/
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

LCSD Lab Sample ID: LCSD 720-58745/3
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/30/2009 1529
Date Prepared: 09/30/2009 1529

Analysis Batch: 720-58745
Prep Batch: N/A
Units: ug/L

Instrument ID: Saturn 2K3
Lab File ID: d:\data\200909\093009\LD-WA
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,1-Dichloroethene	100	102	76 - 128	2	20		
1,1-Dichloroethane	97	99	80 - 126	2	20		
Dichlorodifluoromethane	77	78	38 - 142	2	20		
Vinyl chloride	97	87	58 - 147	11	20		
Chloroethane	96	99	51 - 149	3	20		
Trichlorofluoromethane	92	98	62 - 136	5	20		
Methylene Chloride	96	99	71 - 127	3	20		
trans-1,2-Dichloroethene	96	99	80 - 125	3	20		
cis-1,2-Dichloroethene	97	99	80 - 136	2	20		
Chloroform	95	99	78 - 129	4	20		
1,1,1-Trichloroethane	92	93	74 - 135	1	20		
Carbon tetrachloride	96	98	69 - 136	2	20		
1,2-Dichloroethane	93	96	70 - 133	4	20		
Trichloroethene	87	94	72 - 138	7	20		
1,2-Dichloropropane	91	96	75 - 138	5	20		
Dichlorobromomethane	94	98	74 - 140	4	20		
trans-1,3-Dichloropropene	81	86	74 - 137	6	20		
cis-1,3-Dichloropropene	95	96	72 - 148	1	20		
1,1,2-Trichloroethane	98	94	67 - 151	3	20		
Tetrachloroethene	95	97	80 - 134	2	20		
Chlorodibromomethane	101	103	68 - 137	1	20		
Chlorobenzene	104	109	80 - 122	5	20		
Bromoform	107	107	56 - 144	1	20		
1,1,2,2-Tetrachloroethane	102	105	72 - 146	2	20		
1,3-Dichlorobenzene	103	104	80 - 128	1	20		
1,4-Dichlorobenzene	101	99	80 - 122	2	20		
1,2-Dichlorobenzene	97	102	80 - 127	4	20		
Chloromethane	90	90	52 - 136	1	20		
Bromomethane	90	100	23 - 171	11	20		
1,1,2-Trichloro-1,2,2-trifluoroethane	95	96	66 - 132	0	20		
EDB	89	90	70 - 143	2	20		
1,2,4-Trichlorobenzene	119	118	70 - 143	1	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: ProTech Consulting and Engineering Job Number: 720-22848-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-58745

Method: 8260B
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-58745/4	Analysis Batch:	720-58745	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200909\093009\LS-W/
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	09/30/2009 1457			Final Weight/Volume:	40 mL
Date Prepared:	09/30/2009 1457				

LCSD Lab Sample ID:	LCSD 720-58745/3	Analysis Batch:	720-58745	Instrument ID:	Saturn 2K3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	d:\data\200909\093009\LD-WA
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	40 mL
Date Analyzed:	09/30/2009 1529			Final Weight/Volume:	40 mL
Date Prepared:	09/30/2009 1529				

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	103	107	70 - 130
4-Bromofluorobenzene	111	113	67 - 130
1,2-Dichloroethane-d4 (Surr)	108	103	67 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

720-22848

ProTech Consulting & Engineering

Chain of Custody

1755 East Bayshore Road, Suite 14B
Redwood City, California 94063
Phone: 415.381.2560 ● Fax: 415.981.1741
Email: protech@tcg-international.com

Reference #: 119289

Date: 09/25/09 Page 1 of 1

ProTech Personnel

Project Manager: **Woody Lovejoy– 650.714.4200**

Sampler: **Ryan Cozart – 650.280.9056**

Client Information

Client: **Kelly Moore** **San Carlos, CA**

Tele: **650.610.4314** Project Manager: **Robert S.**

Fax: Cell: **650.222.6023**

Analysis Request

Sample ID	Date	Time	Matrix	Pres	TPH ☒ 8015/8021 ☐ 8260B ☒ Gas w/ ☒ BTEX ☒ MTBE	Purgeable Aromatics BTEX EPA - ☐ 8021 ☐ 8260B	TEPH 8015M ☒ Silica Gel ☒ Diesel ☒ Motor Oil ☐ Other:	Fuel Tests 8260B: ☐ Gas ☐ BTEX ☐ Five Oxy ☐ DCA, EDB ☐ Ethanol	Purgeable Halocarbons (HVOCs) EPA 8021	Volatile Organics GC/MS (VOCs) ☒ EPA 8260B ☐ 624	Semivolatiles GC/MS ☒ EPA 8270 ☐ 625	Oil and Grease ☐ Petroleum (EPA 1664) ☐ Total	Pesticides ☒ EPA 8081 ☐ 608 PCBs ☒ EPA 8082 ☐ 608	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (6010/7470/1)	Metals: ☐ Lead ☒ LUFT ☐ RCRA ☐ Other:	☐ W.E.T (STLC) ☐ TCLP	☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O)	☐ Spec Cond. ☐ Alkalinity ☐ TSS ☐ TDS	Anions : ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4	Aroclor 1260 / 1268	RCI		Number of Containers
MW-2	09/25/09	12:40	L	N						X														3
MW-3	09/25/09	11:05	L	N						X														3
MW-4	09/25/09	11:47	L	N						X														3
MW-5	09/25/09	12:15	L	N						X														3
MW-6	09/25/09		L	N						X														3

Page 18 of 19

Project Info.

Project Name: **KM-Albany-GWM**

Project#: **599-OH09**

PO#:

Credit Card#:

TAT: 5 Day | 72h | 48h | 24h

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund

EDF Special Instructions / Comments: ☐ Global ID, Log Code:

Bill ProTech
Email TCG

Report the 8010 Compounds List

Sample Receipt

of Containers: 33

Head Space: NO

Temp: 3.7°

Conforms to record:

Other:

1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Signature: [signature] Time: 1305	Signature: [signature] Time: 1448	Signature: Time:
Printed Name: Ryan Cozart Date: 09/25/09	Printed Name: Fulcher Date: 9/25/09	Printed Name: Date:
Company: ProTech	Company: TASF	Company:

1) Received by:	2) Received by:	3) Received by:
Signature: [signature] Time: 1315	Signature: [signature] Time: 1448	Signature: Time:
Printed Name: Fulcher Date: 9/25/09	Printed Name: Mullen Date: 9-25-09	Printed Name: Date:
Company: TASF	Company: test America	Company: Rev 01/02

Login Sample Receipt Check List

Client: ProTech Consulting and Engineering

Job Number: 720-22848-1

Login Number: 22848

List Source: TestAmerica San Francisco

Creator: Mullen, Joan

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

APPENDIX 2 – PROTECH HISTORICAL MONITORING

Four groundwater monitor wells (MW-1, MW-2, MW-3, and MW-4) were installed to monitor groundwater conditions. The soil samples from the boring for MW-1 contained TEPH-d in the three samples collected between 5.5 ft and 10.5 ft below grade (fbg). The 10.5 fbg sample also contained Benzene, Xylenes, 1,1-DCA, 1,2-DCA, 1,1,1-TCA, and PCE. The soil sample collected 16 fbg in the boring for MW-2 contained Ethyl-Benzene and Xylenes. Soil samples from the other two soil borings for monitor wells MW-3 and MW-4 were below method detection limits (MDLs) for the compounds tested. The groundwater sample from monitor well MW-1 contained Benzene, 1,1-DCA, 1,1,1-TCA, Trichloroethylene (TCE), and PCE, while the groundwater samples from MW-2 and MW-3 were below method detection limits (MDLs) for all compounds tested. The groundwater sample from monitor well MW-4 contained TCE (ERM, 1990a). ERM reported an apparent mounding of groundwater near the former tankpit. They attributed this mounding to infiltration of surface water through the tankpit backfill.

Based on the results of soil sampling and groundwater results, Firestone decided to remove additional soil from the excavation in an attempt to remove the source of contamination. During this removal, monitor well MW-1 was destroyed. Results of confirmatory soil sampling indicated that TEPH-d was only detected in one of the sidewall samples (CS-3) at eight fbg at 3.8 ppm (ERM, 1990b).

Recommendations were made to perform quarterly groundwater monitoring for one year and then to re-evaluate the site conditions (ERM, 1990b). According to County personnel (Susan Hugo)[10] this work was never done.

ProTech performed a Phase I - Environmental Site Assessment (Phase I) in April 1998 on the property for K/M prior to their purchase of the property. During this task, ProTech located two of the three remaining groundwater monitor wells (MW-3 and MW-4), while well MW-2 was not evident during site reconnaissance activities. ProTech also identified five hydraulic lifts (Figure 2) that were present in the garage portion of the building (ProTech, 1998a).

After review of the Phase I report, K/M instructed ProTech to develop and sample the two-groundwater monitor wells (MW-3 and MW-4). In April 1998, ProTech developed the two groundwater monitor wells and collected groundwater samples for analysis for total petroleum hydrocarbons, characterized as gasoline (TPH-g), TEPH-d, TEPH, characterized as kerosene (TEPH-k), TEPH, characterized as motor oil (TEPH-mo), BTEX, O&G, and volatile organic compounds (VOCs). Results of the groundwater analyses (Figure 3) indicated that monitor well MW-3 was below MDLs for the compounds tested for, while monitor well MW-4 contained 1,1-DCA, cis-1,2-Dichloroethylene (cis-1,2-DCE), and PCE (ProTech, 1998b) at levels of interest. With the Phase I report and these groundwater results in-hand, K/M purchased the property.

In September 1998, K/M began removal of the five hydraulic lifts. ProTech witnessed the removal of all five lifts and collected soil samples from three of the pits (Pit #s 1, 4, and 5) where the rams were compromised and/or soil staining was evident. The soil samples were collected after soil was excavated to a point where contamination was no longer evident. The analyses,

[10] Personal communication with Susan Hugo, June 1998.

which were specified by ACHA, were for total extractable petroleum hydrocarbons, characterized as hydraulic oil (TEPH-ho), VOCs, and LUFT Manual metals. Results from two of the pits (Pit #s 4, and 5) were below the MDLs of the analyses or present below regulated concentrations. Results from the third pit (Pit #1) indicated that TEPH-ho was detected at 500 ppm. Additional soil was excavated from this pit (approximately 3 ft below the groundwater table) and a second soil sample was collected for analysis. Results (Figure 2) indicated that TEPH-ho was still present at 1,400 ppm (ProTech, 1998c).

Results of soil samples were collected from "likely dirty" stockpiled soil indicated that petroleum hydrocarbons (TEPH-ho) required regulated disposal. This stockpiled soil was disposed of as a Class II - designated waste at Forward Landfill (ProTech, 1998c).

ACHCSA-EHS agreed that the "likely clean" soil, which came from the upper 3 feet of material in each pit and exhibited no evidence of contamination, could be re-used on-site as backfill above the water table. They further agreed that further assessment of the site would be through groundwater monitoring and the installation of two additional groundwater monitor wells (ACHCSA-EHS, 1999).

ProTech prepared a Workplan for the installation of the two additional groundwater monitor wells that the County requested plus a survey for top-of-casing (TOC) elevations of the new and existing wells (ProTech, 1999a).

Two groundwater monitor wells (MW-5 and MW-6) were installed March 1999. Soil samples were collected from the two soil borings for analysis for petroleum products, aromatic hydrocarbons, the fuel additive: methyl tert-butyl ether (MTBE), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). The results indicated that only the soil samples from the boring for well MW-6 contained any compounds analyzed for above their method detection limits (MDLs). The only compound found was TEPH-d at 1.9 ppm (8 fbg) and 3.8 ppm (18 fbg). The two new wells (MW-5 and MW-6) were developed and purged, and the existing two wells (MW-3 and MW-4) were purged prior to collecting groundwater samples. The results of groundwater sampling indicate that none of the wells contains measurable petroleum hydrocarbons (TPH-g or TEPH-d), aromatic hydrocarbons (BTEX), MTBE, or SVOCs. All four wells contained 1,1-DCA, and PCE, while wells MW-5 and MW-6 also contained chloroform, and TCE, and well MW-4 also contained 1,1-DCE, cis-1,2-DCE, and vinyl chloride.[11] California maximum contaminant levels (MCLs) have been exceeded for 1,1-DCA, cis-1,2-DCE, PCE, and vinyl chloride. The four monitor wells (MW3 through MW-6 were surveyed TOC elevations. Monitor well MW-2 was not located during this field effort. ProTech recommended that the TPH-g, TEPH-d, BTEX, and MTBE, be removed from the analyte list for quarterly monitoring (ProTech, 1999b).

[11] 1,1-DCA was improperly reported as 1,2-DCA in the April 1999 well installation report. All data tables have been corrected for this report. 1,2-DCA has not been detected by ProTech in its three sampling efforts, while 1,1-DCA has.

APPENDIX 3 – STANDARD OPERATING PROCEDURES

SOP-4 - GROUNDWATER DEVELOPMENT PURGING AND SAMPLING

Well Development

Prior to water sampling, 72 hrs after well development, each well is purged by evacuating a minimum of three well-casing volumes of groundwater or until the one or more of parameters: temperature, conductivity, and pH of the discharge water stabilize. If a well is purged dry before three casing volumes have been removed, the sample will be taken after the well has recovered to within 80 percent of the static water level. Purged water is drummed so that it can be profiled and disposed of appropriately.

Well Purging

A well is purged the wells using a 2-stage purge/sampling pump. We dedicate the down-hole tubing for the wells to avoid the introduction of foreign material thus preventing cross-contamination. We cleaned the purge/sampling pump, using a triple-rinse setup[12], between wells. During purging, we measured the parameters: pH, conductivity, and temperature, while we observed clarity and/or turbidity of water. We monitored the parameters after a few gallons have been removed, at the mid-point of pumping, and at the end of pumping. Sampling of groundwater proceeded once purging was complete.

Well Sampling

Forty-milliliter (ml) glass volatile-organic-analysis (VOA) vials, with Teflon septa, are used as sample containers for volatile organic compounds (VOC) analysis. For other analyses, the appropriate EPA-approved sampling containers are used. The groundwater sample is decanted into each VOA vial in such a manner that there is a meniscus at the top of the vial. The cap is quickly placed over the top of the vial and securely tightened. The VOA vial is then inverted and tapped to see if air bubbles are present. If none are present, the sample is labeled and refrigerated for delivery under chain-of-custody to the laboratory. Label information should include a sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

For quality control purposes, a duplicate water sample can be collected from at least one well. This sample is put on hold at the laboratory. A trip blank is prepared at the office and placed in the transport cooler. It remains in the cooler during the entire sample transport process. The trip blank is placed on hold pending any anomalous results. A field blank is prepared in the field when sampling equipment is not dedicated. The field blank is prepared after a bladder pump or bailer is cleaned following its use in a well, prior to its use in a second well, and is analyzed along with the other samples. The field blank demonstrates the quality of in-field cleaning procedures to prevent cross-contamination.

To minimize the potential for cross-contamination between wells, all the well purging and water sampling equipment that is not dedicated to a well is triple-rinsed between each well. As a secondary precaution, wells are sampled in order of least to highest concentrations as established by previous analyses.

[12] A triple-rinse setup is three buckets, the first with water and TSP, the second with water, and the third with DI water. The pump is soaked and scrubbed with a scrub brush in the first bucket to remove contaminants from the outside and we run the pump to clean the inside. We rinse the pump vigorously in the second bucket, and rinse again in the third bucket. We run the pump at each stage to the flush the inside. The order in which we purge the wells is cleanest to dirtiest.

SOP-8 - LIQUID LEVEL GAUGING USING WATER LEVEL METER OR INTERFACE PROBE

The complete list of field equipment for liquid level gauging is assembled in the Technical office prior to departure to the field. This includes the probe(s), light filter(s), and product bailer(s) to be used for liquid levels (tested in test well before departure). The field kit also includes cleaning supplies (buckets, TSP, spray bottles, and deionized water) to clean the equipment between gauging wells.

When using the water level probe to gauge liquid levels, the probe tip is lowered into the well until the unit sounds. The top-of-casing (TOC) point is determined. This point is marked with a dot, or a groove, or is the obvious high point on the casing on the north side. The place on the probe-cord that corresponds with this TOC point is marked and an engineer's tape is used to measure the distance between the probe end and marking on the cord. This measurement is then recorded on the liquid level data sheet as depth to water (DTW).[13]

When using the interface probe to gauge liquid levels, clamping it to the metal stovepipe or another metal object nearby first grounds the probe. When no ground is available, reproducible measurements can be obtained by clipping the ground lead to the handle of the interface probe case. After grounding the probe, the top of the well casing is fitted with a light filter to insure that sunlight does not interfere with the operation of the probe's optical mechanisms. The probe tip is then lowered into the well and submerged in the groundwater. An oscillating (beeping) tone indicates that the probe is in water. The probe is slowly raised until either the oscillating tone ceases or becomes a solid tone. In either case, this is the depth-to-groundwater (DTW) measurement. The solid tone indicates that floating hydrocarbons are present on top of the groundwater. To determine the thickness of the floating hydrocarbons, the probe is slowly raised until the solid tone ceases. This is the depth-to-floating hydrocarbon (DTFH) measurement. To determine the thickness of the sinking hydrocarbons, the probe is slowly raised, from the bottom, until the solid tone turns into an oscillating tone. This is the depth-to-sinking hydrocarbon (DTSH) measurement. The process of lowering and raising the probe must be repeated several times to insure accurate measurements. DTW and DTFH or DTSH measurements are recorded in hundredths of feet on the liquid level data sheet. Liquid hydrocarbon thickness (PT) is calculated by difference Depth-to-Product (DTP) and the DTW. This measurement is recorded on the data sheet as liquid hydrocarbon thickness (PT). When floating hydrocarbons are found in a well, a bottom-loading product bailer may be lowered partially through the water/liquid hydrocarbon interface to confirm the thickness of floating hydrocarbons on the water surface. When sinking hydrocarbons are found a product bailer may be lowered through the water/liquid hydrocarbon interface, at the bottom of the well, to confirm the thickness of sinking hydrocarbons beneath the water.

In order to avoid cross contamination of wells during the liquid level gauging process, wells are gauged in a clean to dirty order (where this information is available). In addition, any gauging equipment is cleaned with TSP and water and thoroughly rinsed with deionized water before daily use, before gauging another well on a site, and at the completion of daily use.

[13] [13] The volume of groundwater that needs removal from each well is determined by calculating the water column height (WCH), using [DTW-TD=WCH], then determining the cubic feet (ft^3), using [$WCH*\Pi*r^2$], where r = radius of the well casing, and then converting ft^3 to gallons, using [$ft^3 * 7.48$].

SOP-10 - SAMPLE LABELING & CHAIN-OF-CUSTODY

To ensure correct analysis and integrity of any sample, correct sample labeling and the accompaniment of a chain-of-custody (COC) form with all samples from the field to the designated analytic laboratory is mandatory. The label of a sample must include, at a minimum, the following items:

- Sample identification number
- Location of sample collection
- Date and time of sample collection
- Name of company collecting sample
- Preserved or not

Once this data has been put on the sample container, it must be transferred to the COC. A COC accompanies every shipment of samples and establishes the documentation necessary to trace sample possession, as well as evidence of collection, shipment, laboratory receipt, analysis requested and laboratory custody until the time of disposal. The COC form must include, at a minimum, the following items:

- Sample identification number
- Location of sample collection
- Date and time of sample collection
- Analysis required
- Sample type
- Preservative used, if any
- Names of all samplers
- Signatures of personnel relinquishing and receiving samples
- Laboratory sample number and log number (recorded by laboratory personnel)
- Company contact name and project number (recorded by laboratory personnel)
- Sample condition and temperature (recorded by laboratory personnel)

Sample transfer and shipment is always accompanied by a COC. The initial preparation of the COC occurs in the office and completed in the field by the personnel collecting the samples. Each sample is assigned a unique identification number that represents the specific sampling location. The identification numbers are entered on the COC accompanied by the requested analysis, preservative used, if any, type of sample collected, and type of sample container. Any special instructions are included here.

If the field personnel deliver the samples to the laboratory, they will at that time sign the COC form and relinquish the samples. At this point, the Quality Control Coordinator, or the representative for the laboratory, will check to make sure all samples are present and note the condition and integrity of each sample. After all samples have been documented as received by the laboratory personnel, they will sign the COC form and issue the delivering personnel a copy. The laboratory with the analytic data report should also return a copy of the signed COC form.

If the samples are delivered by courier, or other commercial carrier, the container of samples shall be sealed, and a custody tape will be applied to the container to seal it and to signal any tampering with the container. The courier will sign the COC taking ownership of the samples that the samplers have relinquished by also signing the COC. The receipt form the courier will be attached to the COC copy retained by the relinquishing personnel and serve as an extension of the COC.

Any changes to a COC must be initialed and copies of the revised COC must be distributed to all appropriate personnel.

APPENDIX 4 – SUMMARY RESUMES

Dr. C. Hugh Thompson, P.E., DEE
Principal Consulting Environmental Engineer

Years of Experience with This Firm: 9 **with Other Firms:** 31

Education: Degree(s)/ Year/ Specialization:

- ScD, 1968, Environmental Engineering, Washington University, St. Louis, MO
- M.S., 1965, Civil Engineering – Water Resources, New Mexico State University
- B.S., 1964, Civil Engineering – Sanitary, New Mexico State University

Active Registrations:

- Professional Engineer # 35856, State of California
- Professional Engineer # 17893, State of Michigan
- Professional Engineer # 8298, State of Virginia
- Professional Engineer State of Arizona, (pending)
- Professional Engineer State of Nevada, (pending)
- General Engineering Contractor (Class A) California (inactive)
- 40 hours OSHA Management Training
- Diplomat # 92-20070 American Academy of Environmental Engineers

Experience and Qualifications:

-1997 – Present - Principal Environmental Engineering Consultant, TCG/ProTech/HTA
-1985 – 1997 - Officer in 3 national environmental consulting firms: URS Corp., Roy F. Weston, Law Engineering, and Environmental
-1980 – 1985 - Corporate Director of Environmental Affairs and Operations, Aerojet General Corporation
-1978 – 1980 - Director Office of Hazardous Materials Research, Battelle Memorial Institute
-1970 – 1978 - US Government: Director Office of Hazardous and Toxic Substances, USEPA

- Industrial Environmental Issue Definition and Strategic Planning and Resolution
- Pollution Prevention/Waste Minimization Plans
- Site and Building Investigations, Mitigation Design and Implementation
- Risk Management and Large Program Management
- Corporate Compliance Program Design and Implementation
- Industrial Waste Treatment Design and Pilot Studies
- Treatment Technology Development and Applications
- SPCC and Spill Response Plans
- Environmental and OSHA Training
- International Pollution Agreement Technical Support
- Installation Restoration Programs
- Municipal Waste Treatment Operation and Design

Dr. Thompson heads up the engineering group. Clients are well represented by Dr. Thompson's wealth of experience in site investigation and assessment, remedial design and implementation. Dr. Thompson also provides expert witness services to clients on a myriad of engineering disciplines.

SHERWOOD LOVEJOY, JR., P.G., R.E.A., C.E.I., C.E.C., C.M.A., C.M.I.
PRINCIPAL CONSULTING HYDROGEOLOGIST / REGISTERED ENVIRONMENTAL ASSESSOR

Years of Experience with This Firm: 16 **with Other Firms:** 8

Education: Degree(s) / Year / Specialization:

- M.S., 1993, Environmental Science and Management, University of San Francisco
- B.A., 1982, Geology, University of Rhode Island, Kingston, Rhode Island
- B.S., 1981, Zoology, University of Rhode Island, Kingston, Rhode Island
- Graduate Studies, 1982 - 1983 Hydrology, Geophysics, Advanced Structural Geology and Geochemistry, University of Maryland, College Park, Maryland

Active Registrations:

- Professional Geologist #TN-1566, State of Tennessee
- Professional Geologist #PG-2166, State of Wyoming
- Registered Environmental Assessor # REA (I)-03171, State of California
- General Engineering Contractor's (Class A) #540389, State of California
- Class A - Hazardous Waste Removal Certification #540389, State of California
- Well Driller License (C-57), #540389, State of California
- Certified Environmental Inspector #6331, National Registration for EAA,
- Certified Environmental Consultant, #6331, National Registration for EAA
- Certified Mold Assessor, #6331, National Registration for EAA
- Certified Mold Inspector, #6331, National Registration for EAA
- 40 Hour OSHA and 8 Hour OSHA Management Training

Experience and Qualifications:

- 1991-Present - Principal Consulting Hydrogeologist, TCG/ProTech/HTA
- 1994 -1995 - President/Principal Hydrogeologist, MRD - Environmental Services, Inc.
- 1990 -1991 - President/CEO/Principal Hydrogeologist, Hawaiian Geologic Resources, Inc.
- 1988 -1991 - President/CEO/Principal Hydrogeologist, Western Geologic Resources, Inc.

- Environmental Site Investigation & Assessment
- Remediation Strategy Development
- Facility Demolition/Plant Reclamation Strategy Development and Oversight
- Underground Tank Compliance & Soil Remediation of Fuel Contamination
- Demolition/Reconstruction Management and Oversight
- Hydrogeological Assessment and Modeling
- Groundwater Monitor Well Installation, Sampling, and Monitoring
- Chemical Stabilization of Metals and pH in Soil
- Mine Audits, Investigations, Reclamation Studies, and Reclamation Design
- Regulatory Liaison, Negotiation, and Site Closure
- Construction Management and Contractor Oversight

The surface and subsurface contamination investigation and remediation program is headed by Mr. Lovejoy. Clients are well represented by Mr. Lovejoy's extensive experience and expertise in the latest soil and groundwater investigation and remediation techniques and methods. In addition, clients benefit as they are skillfully represented during regulatory agency interaction, negotiation and permitting.

Ryan Cozart
Geologist/Environmental Assessor/Asbestos & Lead Technician

Years of Experience with This Firm: 5 with Other Firms: 2

Education: Degrees / Year / Specialization:
- B.S., 1998, Geology, California State – Hayward

Active Registrations:
- 40 Hour OSHA Training

Experience and Qualifications:
- 2001 – Present - Geologist/Environmental Assessor/Asbestos & Lead Technician, TCG/ProTech/HTA
- 2000 – 2001 – Polarized Light Microscope Analyst, EMSL
- 1998 – 2000 – Geologist, Burns and McDonnell

- Environmental Site Investigation & Assessment
- Facility Demolition/ Oversight
- Underground Storage Tank Compliance
- Groundwater Monitor Well Installation, Sampling, and Monitoring
- Chemical Stabilization of Metals and pH in Soil
- Construction Management and Contractor Oversight
- Asbestos and lead building Surveys
- Asbestos/lead air monitoring and analysis

Field geologic operations are well handled by Mr. Cozart. Clients are well represented by Mr. Cozart's experience in the latest soil and groundwater investigation techniques and methods. In addition, clients benefit as they are skillfully represented in the field.