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2:29 pm, Jun 01, 2009

Alameda County  
Environmental Health

Ms. Barbara Jakub  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway  
Alameda, CA 9502-6577

Subject: Former Val Strough Chevrolet Site  
327 34<sup>th</sup> Street, Oakland, CA  
Site ID #3035, RO#0000134


Dear Ms. Jakub:

This letter is to accompany the *Addendum to the IRAP* for the above-referenced site prepared by LRM Consulting, Inc. of Burlingame, CA.

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.

If you have any questions, please contact Mr. Mehrdad Javaherian of LRM Consulting, Inc. at 650-343-4633.

Sincerely,

A handwritten signature in black ink, appearing to read 'Linda L. Strough', with a large, stylized flourish extending to the right.

Linda L. Strough, Trustee

cc: Mehrdad Javaherian, LRM Consulting, Inc.  
534 Plaza Lane, #145, Burlingame, CA 94010

Greggory Brandt, Wendel Rosen Black & Dean  
1111 Broadway, 24<sup>th</sup> Floor, Oakland, CA 94607

**ADDENDUM TO  
INTERIM REMEDIAL ACTION PLAN**

Former Val Strough Chevrolet Site  
327 34<sup>th</sup> Street, Oakland, California  
Fuel Leak Case No. RO0000134

Prepared by  
**LRM Consulting, Inc.**  
**1534 Plaza Lane, #145**  
**Burlingame, CA 94010**

May 2009

May 25, 2009

## **MEMORANDUM**

**To:** Ms. Barbara Jakub, P.G.  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway  
Alameda, California 94502-6577

**From:** Mehrdad Javaherian and Ramkishore Rao  
LRM Consulting, Inc.

**Re:** **Addendum to Interim Remedial Action Plan**  
Former Val Strough Chevrolet  
327 34<sup>th</sup> Street, Oakland, California  
Site ID #3035, RO #0000134

This Memorandum serves as an addendum to the Interim Remedial Action Plan (IRAP) for the above-referenced site prepared by LRM Consulting, Inc. (LRM) in August 2008. The revisions to the IRAP outlined in this addendum stem from comments provided by the Alameda County Health Care Services Agency (Alameda County) via a letter dated May 8, 2009, and a follow-up telephone conversation with Ms. Barbara Jakub of Alameda County on May 15, 2009.

Based on the comment letter and discussions with Alameda County, the sole revision deemed necessary to the IRAP centers around the need for installation of additional monitoring wells to accompany the existing wells identified in the IRAP for monitoring of the proposed in-situ oxygen curtain (ISOC) technology pilot testing outlined in the IRAP. The details for installation of a nested monitoring well are summarized herein. It should be noted that if the pilot testing of the ISOC technology proposed in the IRAP prove effective, additional ISOC injection and related performance monitoring wells will be proposed for review by Alameda County; LRM recognizes that this may require a formal Corrective Action Plan (CAP) process.

### **Installation of Additional Monitoring Well**

ISOC well O-1 was recently installed immediately adjacent to well MW-2, which has consistently contained the highest hydrocarbon concentrations at the site and is conceptualized to be located at the center residual source area. Hence, this location was identified in the IRAP for ISOC pilot testing via well O-1. With an estimated 15 to 20-foot radius of influence associated with ISOC activities at well O-1, MW-2 was identified in the IRAP as one of the monitoring wells for conducting pilot test performance monitoring. In addition, the IRAP identified downgradient well MW-3 as a second well within the performance monitoring network for the pilot test. With well MW-2 located slightly upgradient of the ISOC well and MW-3 located

more than 25 feet downgradient of the ISOC well, Alameda County identified the need for additional monitoring locations between the injection well and MW-3.

In response to the Alameda County's comments, a nested monitoring well pair to be screened at two distinct depths and identified as MW-9A and MW-9B, is proposed to supplement performance monitoring at MW-2 and MW-3 (see Figure 1.) The location of MW-9A/9B corresponds to the approximate mid-point of the distance between ISOC injection well O-1 and existing downgradient monitoring well MW-3. The pilot test sampling approach for this nested well pair will follow those previously outlined in the IRAP and approved by Alameda County for wells MW-2 and MW-3.

Pre-field activities related to installation of MW9A/9B will include marking of a boring location and contacting Underground Service Alert (USA) in accordance with local notification requirements. The borings will be cleared by hand auger, shovel, or posthole digger to the full diameter of downhole equipment to at least 4 feet below ground surface.

Drilling permits will be acquired from the Alameda County Department of Public Works. In addition, prior to conducting the planned field activities, a comprehensive site health and safety plan (HSP) will be prepared, and a copy of the HSP will be kept on site during scheduled field activities. Lastly, downhole equipment, including drive casing, sample barrels, surge blocks and tools, will be detergent-washed using Alconox or equivalent, or steam-cleaned prior to and following drilling activities at each boring.

A California "C-57-licensed" contractor will install the well using a drill rig under supervision of LRM's Professional Geologist. A 12-inch boring will be advanced to an approximate depth of 40 feet bgs. Lithologic information obtained during drilling will be recorded on a soil boring log and will contain pertinent information for each boring. After the desired depth is reached, a nested well utilizing two 2-inch-diameter, Schedule 40, polyvinyl chloride (PVC) casings will be placed in the borehole.

MW-9A will correspond to the shallower of the two screened intervals, occurring from approximately 15 to 25 feet bgs; this screen interval corresponds to the shallower hydrocarbon impacted zones encountered in shallow borings and monitored by well MW-2 screened from 18 to 33 feet bgs (see Figure 2); it also corresponds to the top 10 feet of the well screen in ISOC well O-1, which is screened from 15 to 40 feet bgs (see Figure 2). MW-9B will be screened from 30 to 40 feet bgs, corresponding to the deeper hydrocarbon impacted zones observed in borings; this depth interval also matches the bottom 10 feet of well screen in ISOC well O-1 (see Figure 2). Combined, these two screen intervals will allow for monitoring of the effects of ISOC activities within the entire hydrocarbon-impacted profile encountered during the recent IRAP soil and groundwater field investigation activities.

The 10-foot long well screens will be 0.020-inch-slotted PVC casing. Blank PVC casing will be installed from the top of the screened interval to the ground surface and in between the two screened intervals of the well.

After the well casings have been placed inside the augers, the well annulus materials (sand, bentonite, and grout) will be added. The well annulus opposite the screened intervals will be backfilled with No. 3 sand to a height of approximately of approximately 1 to 2 feet above the top of the well screens. Approximately 2 feet of bentonite chips will be placed above the sand packs and hydrated to isolate the screened intervals from material above and prevent the entrance of grout into the sand packs. After the bentonite seals have hydrated, a neat cement grout mix will then be placed in the annular space above the bentonite seal to the ground surface for the upper screened interval (MW9A), and to 25 feet below grade for the lower screened interval (MW9B), to seal the remainder of the borehole.

Alameda County will be notified before the well is grouted so that a field inspector may witness the grouting activity, if required. Well MW9 will be developed a minimum of 24 hours after installation by bailing, surging, and/or pumping to remove sediment left in the well during construction and to enhance the hydraulic communication between the well and surrounding sediments. Observations of pH, temperature, specific conductance, quantity, and clarity of water withdrawn will be recorded after each casing volume has been purged during development. The well will be developed until approximately 3 to 10 casing volumes are removed or until monitored parameters stabilize and relatively sediment-free water is produced. After the well is completed, the top of casing will be surveyed to the nearest 0.01 foot and tied into the elevations of the existing wells by a licensed surveyor.

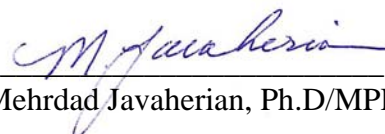
Investigation-derived wastewater and waste soil generated during field activities will be stored in properly labeled 55-gallon drums and placed in a designated, secure location. Wastewater will be transported by a licensed hauler for appropriate treatment and disposal at a recycling facility. Waste soil will be characterized and transported by a licensed hauler to an appropriate landfill for disposal.

## CLOSING

We appreciate your assistance with this project. If you have any questions or require further information, please contact Mehrdad Javaherian of LRM Consulting, Inc. at 415-706-8935 or at [mjavaherian@lrm-consulting.com](mailto:mjavaherian@lrm-consulting.com).



Ram Rao, PE,



Mehrdad Javaherian, Ph.D/MPH(candidate)

## **ATTACHMENTS**

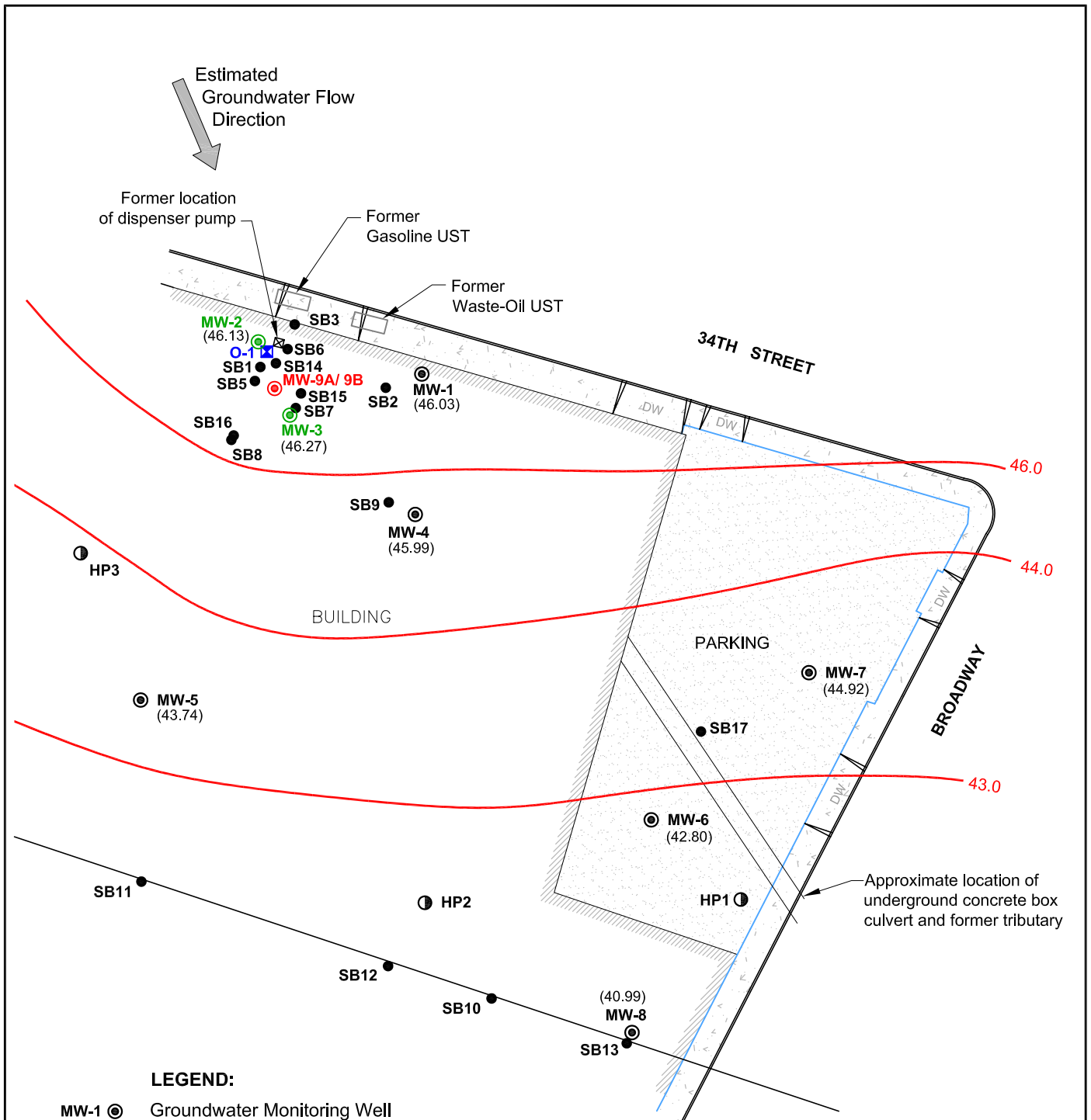
Figure 1 –Proposed Pilot Test Monitoring Network

Figure 2 –Geologic Cross-Section A-A' - Historical Hydrocarbons Concentrations in  
Groundwater

cc: Gregory Brandt, Esq., Wendel, Rosen, Black & Dean, 1111 Broadway, 24th Floor,  
Oakland, California 94607

Strough Family Trust of 1983, 2 Sea View Avenue, Piedmont, California 94611

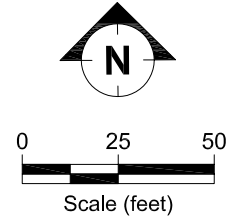
## **FIGURES**



**LEGEND:**

- MW-1 ● Groundwater Monitoring Well
- MW-2 ● Existing Groundwater Monitoring Well used for ISOC Monitoring
- MW-9A/ 9B ● Proposed Groundwater Monitoring Well for ISOC Monitoring
- SB-1 ● Soil Boring
- HP1 ● Grab groundwater Sampling Location
- O-1 ■ Oxygen Injection Well
- (46.03) Groundwater Elevation (feet above mean sea level, March 2009)
- 46.0 Groundwater Elevation Contour (feet above mean sea level)

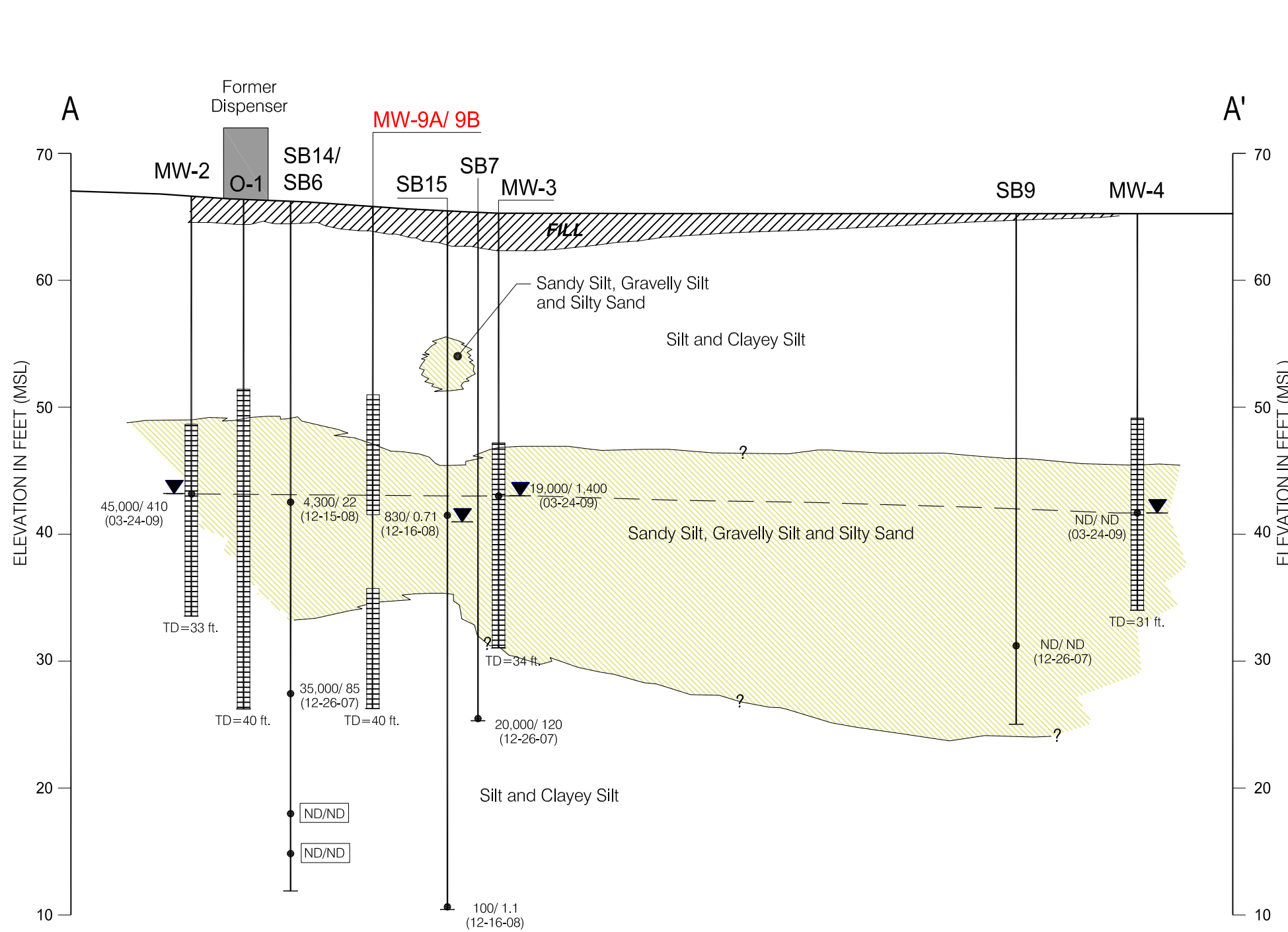
Base Map: Virgil Chavez Land Surveying, dated January 2009.



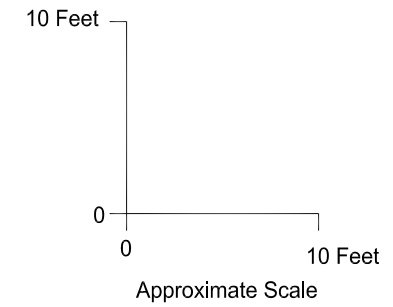
**PROPOSED ISOC PILOT TEST MONITORING NETWORK**  
 FORMER VAL STROUGH CHEVROLET  
 327 34TH STREET, OAKLAND, CALIFORNIA  
 MAY 2009

FIGURE:  
1





- LEGEND**
- ▼ Potentiometric surface (12-29-08)
  - Groundwater sample (date shown)
  - 1,800/ 0.75 Concentrations of TPHg/ Benzene in groundwater ( $\mu\text{g/L}$ )
  - ND/ND Concentrations of TPHg and benzene in soil
  - ND Not detected
  - MSL Mean Sea Level
  - TD Total depth
  - MW-9A/ 9B** Proposed ISOC Pilot Test Monitoring Well



|  |                    |                     |
|--|--------------------|---------------------|
| <b>GEOLOGIC CROSS-SECTION A-A'</b>                                     |                    |                     |
| <b>HISTORICAL HYDROCARBON CONCENTRATIONS IN GROUNDWATER</b>            |                    |                     |
| FORMER VAL STROUGH CHEVROLET<br>327 34TH STREET<br>OAKLAND, CALIFORNIA |                    |                     |
|  | Date:<br>5/26/2009 | Figure:<br><b>2</b> |