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By Alameda County Environmental Health at 3:13 pm, Oct 10, 2013

Atlantic Richfield Company

Chuck Carmel
Remediation Management Project Manager

PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3804
Mobile: (510) 798-8314
E-Mail: Chuck.Carmel@bp.com

October 8, 2013

Re: Conceptual Site Model and Case Closure Request Addendum
Atlantic Richfield Company Station #472
6415 International Boulevard, Oakland, California
ACEH Case #RO00002982

"I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct."

Submitted by,

Chuck Carmel
Remediation Management Project Manager

Attachment

BROADBENT
875 Cotting Ln., Suite G, Vacaville, CA 95688
[T] 707-455-7290 [F] 707-455-7295
broadbentinc.com

October 8, 2013 Project No. 09-88-601

Atlantic Richfield Company
P.O. Box 1257
San Ramon, CA 94583
Submitted via ENFOS

Attn.: Mr. Chuck Carmel

Re: Conceptual Site Model and Case Closure Request Addendum, Former Richfield Oil Company Station No.472, 6415 International Boulevard, Oakland, California; ACEH Case No. RO0002982

Dear Mr. Carmel

Broadbent & Associates, Inc. (Broadbent) is pleased to submit this *Conceptual Site Model and Case Closure Request Addendum* for Former Richfield Oil Company Station No.472 (also known as Pluckey's Liquors) located at 6415 International Boulevard, Oakland, California (Site). The preceding document entitled *Conceptual Site Model and Case Closure Request* (Closure Request) was submitted to the Alameda County Environmental Health Agency (ACEH) on June 19, 2013. This Closure Request was prepared in order to evaluate this Site for case closure under the recently-approved *Low Threat Underground Storage Tank Case Closure Policy* (Low Threat UST Closure Policy; CSWRCB, 2012). The Closure Request was discussed at a meeting with the ACEH on September 11, 2013. During this meeting, the ACEH identified certain aspects of the Closure Request that required clarification. This Addendum is intended to clarify how the Site meets the Low Threat UST Closure Policy and ultimately obtain Site closure. After completion of the Conceptual Site Model and this Addendum and comparing the current Site conditions to the Low Threat UST Closure Policy, case closure is recommended.

During the September 11, 2013 meeting, four items from the Closure Request were identified and discussed that needed additional clarification to ensure the Site understanding and conceptual site model (CSM) was sufficient to allow Site closure. These items included:

- Depiction and/or description of an additional potential former dispenser identified in a historical Site report on the Site Map
- Clarification on the location in relation to source areas of well MW-2
- Clarification of hydrocarbon concentration trends based on the prepared graphs
- Summary of the sampling method that was used in 2008 to collect grab-groundwater samples and how that relates to the conceptual model and current hydrocarbon concentrations in groundwater.

Each of these items is discussed in detail below. A Site Location Map is included as Drawing 1.

Potential Additional Former Dispenser

A Site historical report entitled *Limited Soil and Grab-Groundwater Sampling Report* dated May 7, 2008 (Geocon, 2008) shows two former dispensers were identified on the Site Map. However, only one former dispenser was noted on the previous Phase I report Site Map (AAI, 2007). A 'concrete block' is depicted on the Phase I Site Map where Geocon indicated the location of this former dispenser. No additional description in the text of the 2008 Geocon report was provided regarding additional research and/or information pertaining to the addition of this former dispenser. Additionally, Site photographs from BP records were reviewed and these photos indicate that there was not an additional dispenser in the side of the building as indicated in this historical report. A copy of one of these photographs is attached. Based on this research , the existence of this former dispenser is unlikely. This feature has been noted on Site Map as a 'former concrete block/unknown feature' (Drawing 2). If this feature was a former dispenser despite the evidence gathered, characterization in its vicinity is adequate for the understanding of the CSM.

Well MW-2 Description

In the Closure Request, well MW-2 was described as a source area well. While this well is the nearest well to the former USTs, it is located upgradient of this source area. Therefore, it is more appropriate to refer to this well as an upgradient well rather than a source area well.

Hydrocarbon Trend Graphs

The Closure Request noted that the extent of DRO and GRO detected at the Site is small and well defined, and appears to be stable to decreasing. The graphs, however, show that DRO and GRO are detected sporadically and do not immediately appear to indicate stable trends. However, the specific concentrations for GRO in wells MW-1 and MW-3 have not exceeded approximately 500 µg/L since 2010, and have only sporadically been detected between reporting limits and 500 micrograms per liter (µg/l). While it is difficult to establish a trend for data that is sporadic in nature and is limited sampling events, it appears that GRO is stable in that it is largely not detected with sporadic, relatively low concentrations detected. Trends are similar for DRO, with one concentration of 600 µg/l that has recently been reported. However, DRO is not consistently detected and when detected, concentrations are relatively low (not exceeding 600 µg/l). Furthermore, the overall absence of benzene, toluene, ethylbenzene, xylenes (BTEX), methyl tert butyl ether (MTBE) and other compounds in all soil and groundwater collected to date further indicates the degraded nature of the hydrocarbon plume, supports that degradation will continue to occur, and the plume will continue to shrink over time. For these reasons, hydrocarbon trends are sufficient for understanding of the CSM. Copies of the graphs for wells MW-1 and MW-3 are attached. No graph for MW-2 was created because no hydrocarbons have ever been detected in this well.

2008 Grab-Groundwater Samples

The Closure Request and CSM indicated that grab-groundwater samples were collected in 2008 from four soil borings. The locations of these soil borings are presented in Drawing 2. In regards to boring SB-3, the groundwater collection depth was noted as 26 feet bgs, and it was unclear if the current monitoring well network was appropriate to capture this contaminant zone, as existing wells are screened from 7 to 17 feet bgs. Upon further review of the 2008 Geocon report documenting this former subsurface investigation, all grab-groundwater samples were collected as 'open-hole' samples,

indicating borings SB-1 through SB-6 were advanced to total depth and groundwater was sampled from what accumulated in the bottom of these boreholes. As such, all grab-groundwater samples collected during this 2008 investigation are representative of first-encountered groundwater, which the current well network monitors. Therefore, hydrocarbons detected in these grab-groundwater are in the same hydrogeologic groundwater zone as water collected from monitoring wells MW-1 through MW-3. Therefore, the monitoring well network is sufficient for understanding of Site groundwater conditions and for understanding for the CSM.

Closing

The data and site evaluation presented in this Addendum as well as the Closure Request indicate that this Site meets the criteria of the Low Threat Closure UST Policy. Residual impacts in groundwater beneath the Site have degraded since the station was in operation several decades ago, and the most toxic compounds (BTEX) are not currently present in groundwater or soil at the Site. We recommend that a No Further Action Letter be issued for this Site. Well decommissioning and final closure activities will be coordinated upon concurrence with the Closure Request and this Addendum from the ACEH.

Should you have questions or require additional information, please do not hesitate to contact us at (707) 455-7290.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Kristene Tidwell, P.G., C.Hg.
Senior Geologist

Attachment

Drawing 1:	Site Location Map
Drawing 2:	Site Map with Monitoring Well and Historic Boring Locations
Appendix A:	Site Photograph of Former Station - 1966
Appendix B:	DRO, GRO, Benzene, and MTBE Concentration Trend Graphs

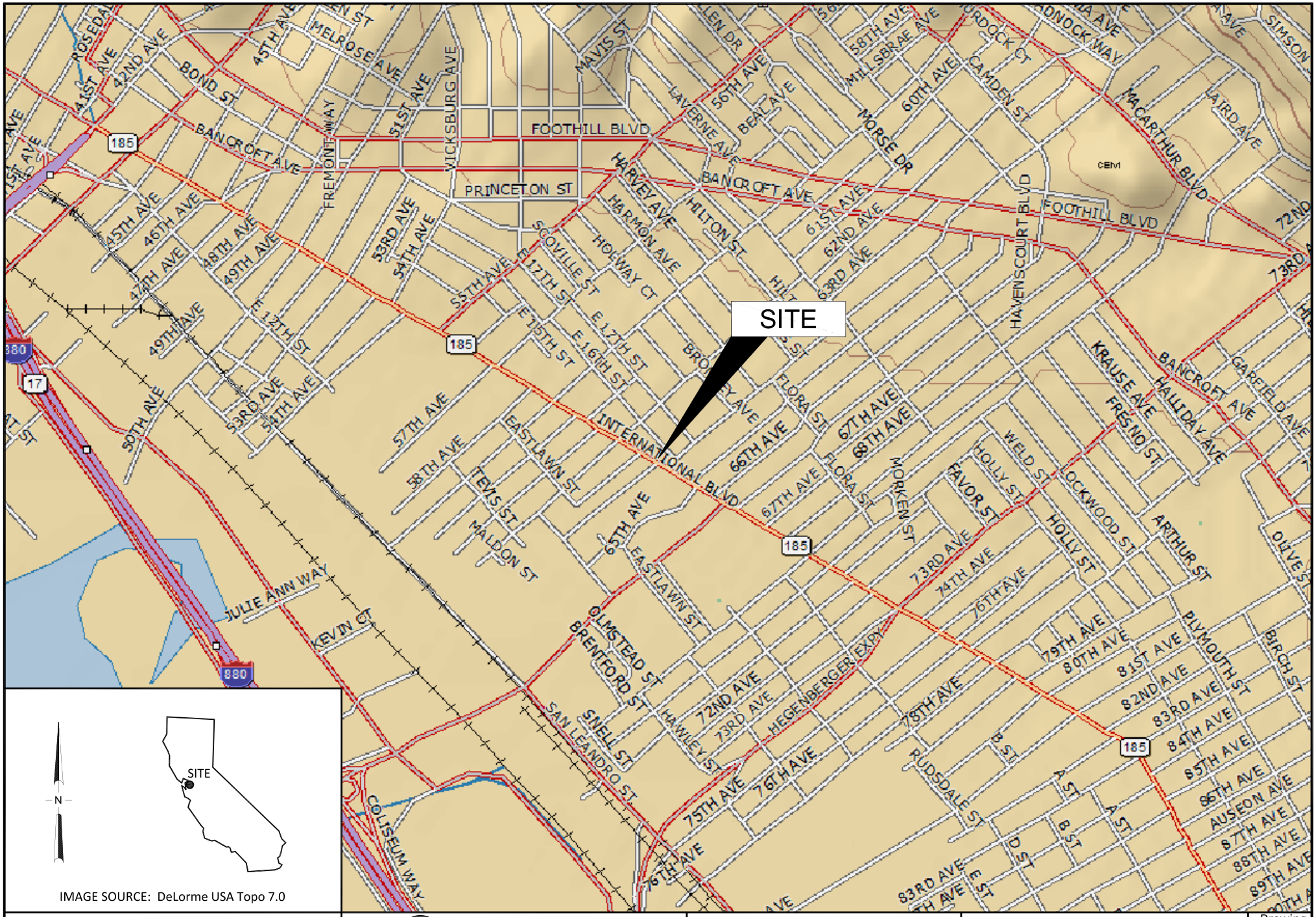
cc: Ms. Dilan Roe, PE, Alameda County Environmental Health (Submitted via ACEH ftp site)
Mr. Mahmud Ghanem, 6207 International Boulevard, Oakland, CA 94621
Electronic copy uploaded to GeoTracker

References

State Water Resources Control Board (SWRCB), 2012. Low-Threat Underground Storage Tank Case Closure Policy, August 17.

All Appropriate Inquiries Environmental Corporation (AAI), 2007. Report For Phase I Site Assessment. May 9.

Geocon Consultants , Inc. (Geocon), 2008. Limited Soil and Grab Groundwater Sampling Report. May 7.

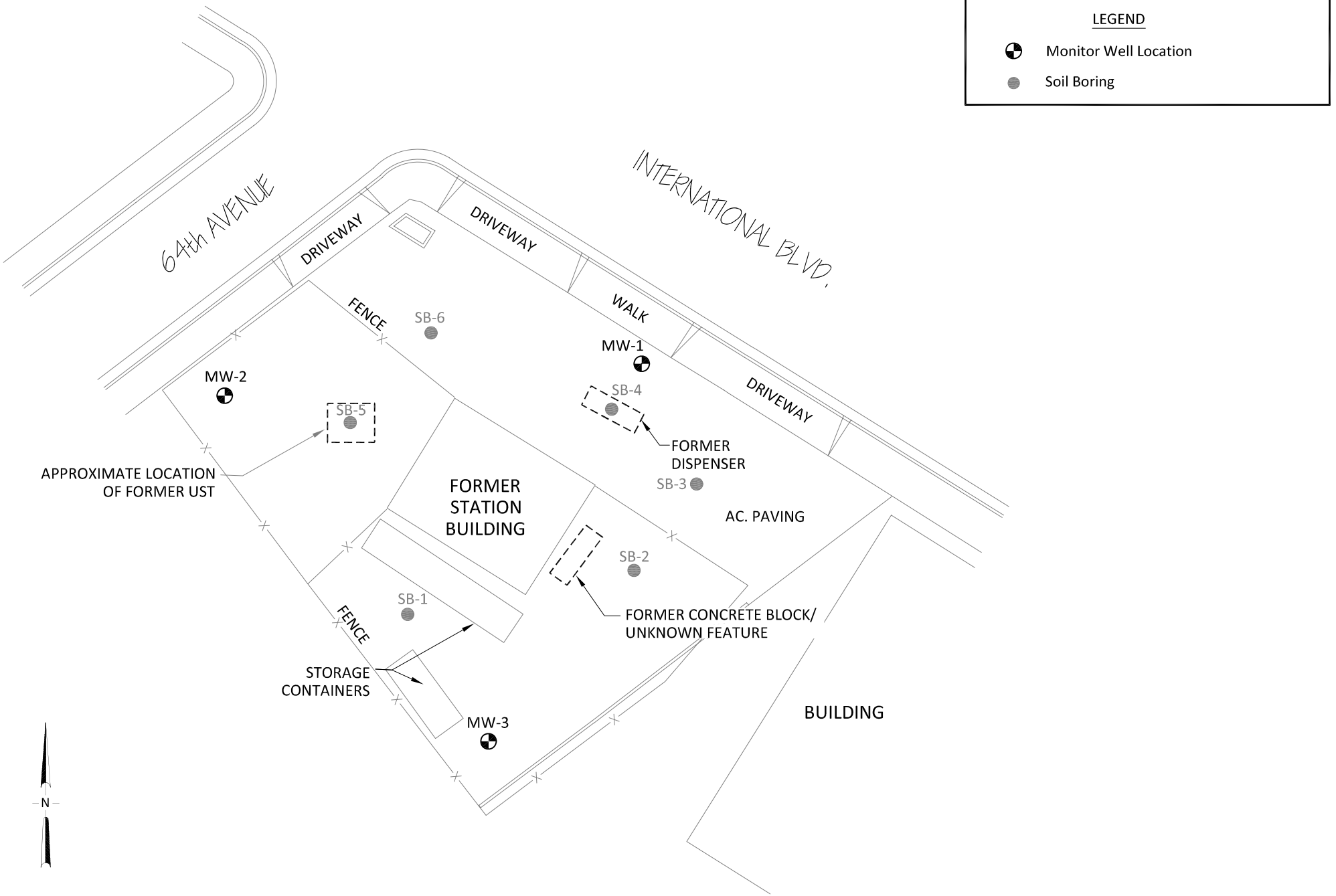


BROADBENT
1370 Ridgewood Dr., Suite 5
Chico, California 95973
Project No.: 09-88-601 Date: 4/2/2013

Former Station #472
6415 International Boulevard
Oakland, California

Site Location Map

Drawing
1



0 30 60

SCALE (ft)

BROADBENT
875 Cotting Lane, Suite G
Vacaville, California 95688
Project No.: 09-88-601 Date: 10/01/2013

ARCO Former Station № 472
6415 International Boulevard
Oakland, California

Site Map With Monitoring Wells and Historic Boring Locations

Drawing
2

APPENDIX A
Site Photograph of Former Station - 1966

SS #472-A — 64TH & E. 14TH ST. — OAKLAND, CALIF.

Feb 1966

FROM IN FRONT OF STATION, SHOWING PUMP-ISLAND AREA AND SIDE OF BLDG. WHERE RESTROOMS ARE LOCATED

FROM APPRX. 1 BLOCK NORTH OF STATION ON E. 14TH ST., SHOWING PARTIALLY OBSCURED ID SIGN FOR APPROACHING TRAFFIC

SS #472-A — 64TH & E. 14TH ST. — OAKLAND, CALIF.

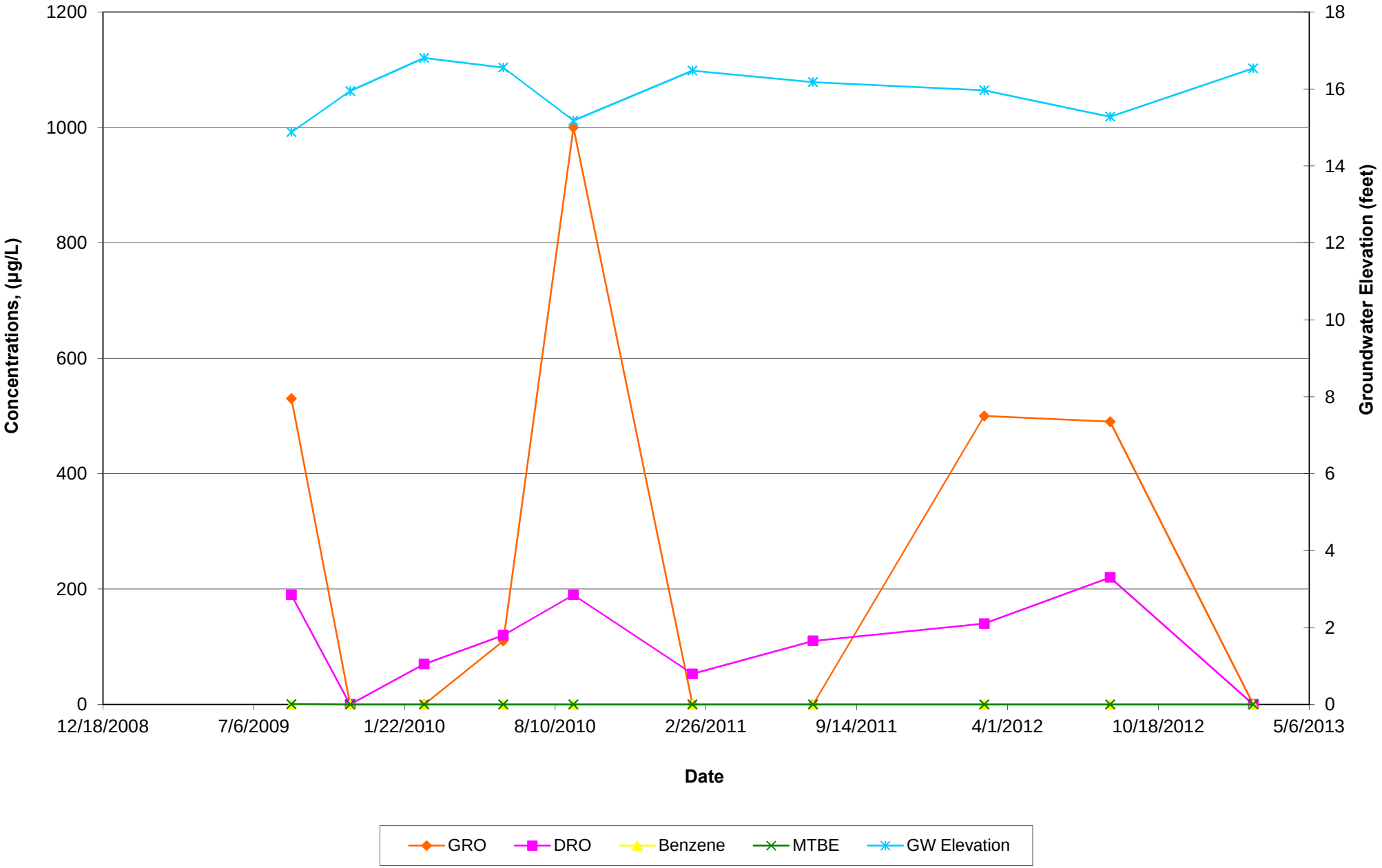
Feb 1966

FROM IN FRONT OF STATION, SHOWING PUMP-ISLAND AREA AND SIDE OF BLDG. WHERE RESTROOMS ARE LOCATED

FROM APPRX. 1 BLOCK NORTH OF STATION ON E. 14TH ST., SHOWING PARTIALLY OBSCURED ID SIGN FOR APPROACHING TRAFFIC

Appendix B
DRO, GRO, Benzene, and MTBE Concentration Trend Graphs

MW-1 Concentrations and Groundwater Elevation vs Time
Former Richfield Oil Company Station #472
6415 International Boulevard, Oakland, CA



MW-3 Concentrations and Groundwater Elevation vs Time
Former Richfield Oil Company Station #472
6415 International Boulevard, Oakland, CA