Atlantic Richfield Company

Chuck Carmel
Remediation Management Project Manager

PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3804
Fax: (925) 275-3815
E-Mail: chuck.carmel@bp.com

October 23, 2014

Re: Second Revised Site Management Plan
Former Richfield Oil Company Station No. 472
6415 International Boulevard, Oakland, California
ACEH Case #RO0002982

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

Second Revised Site Management Plan
Former Richfield Oil Company Station No.472
aka Pluckey's Liquors
6415 International Boulevard
Oakland, California
ACEH Case No. RO0002982

Prepared for

Mr. Chuck Carmel
Operations Project Manager
Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583

Prepared by

BROADBENT
4820 Business Center Drive, Suite 110
Fairfield, California 94534
(707) 455-7290
www.broadbentinc.com

October 23, 2014

Project No. 09-88-601

BROADBENT
4820 Business Center Drive, Suite 110
Fairfield, CA 94534
[T] 707.455.7290 [F] 707.863.9046
broadbentinc.com

Creating Solutions. Building Trust.

October 23, 2014

Project No. 09-88-601

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

Attn.: Mr. Chuck Carmel

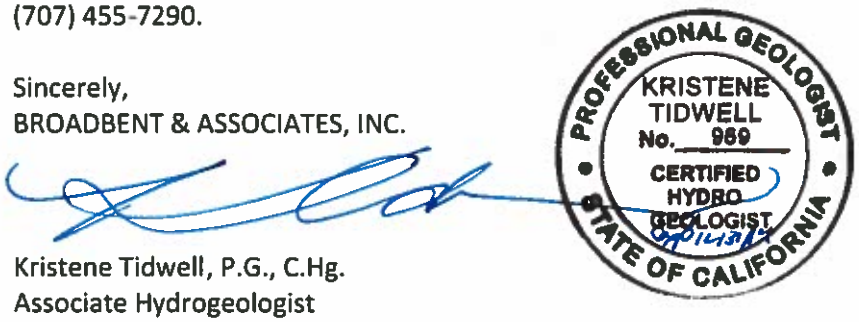
Re: Revised Site Management Plan, Former Richfield Oil Company Station No.472, 6415 International Boulevard, Oakland, California; ACEH Case No. RO0002982

Dear Mr. Carmel:

Broadbent & Associates, Inc. (Broadbent) is pleased to submit this *Site Management Plan* for Former Richfield Oil Company Station No.472 (also known as Pluckey's Liquors) located at 6415 International Boulevard, Oakland, California (Site). This document was prepared in order to govern future activities following site closure.

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.
Associate Hydrogeologist

Attachment

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

SECOND REVISED SITE MANAGEMENT PLAN
Former Richfield Company Station No. 472
6415 International Boulevard, Oakland, California
Fuel Leak Case No. RO0002982

TABLE OF CONTENTS

ATTACHMENTS

DRAWINGS

TABLES

APPENDICES

SECOND REVISED SITE MANAGEMENT PLAN
Former Richfield Company Station No. 472
6415 International Boulevard, Oakland, California
Fuel Leak Case No. RO0002982

1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company– (ARC, a BP affiliated company) Broadbent & Associates, Inc. (Broadbent) has prepared this Revised *Site Management Plan (Revsised SMP)* for the Former Richfield Oil Company (ROC) Station No.472 (also known as Pluckey's Liquors but herein referred to as Former Station No.472), located at 6415 International Boulevard, Oakland, California (Site). This Revised SMP was prepared in order to mitigate human exposure to soil and groundwater contamination following recently approved consideration for case closure by the Alameda County Environmental Health Agency. A previous Site Management Plan was submitted to the ACEH on September 19, 2014. Comments on this SMP were received from the ACEH in an email dated October 13, 2014. This Revised SMP incorporates all comments provided in the October 13, 2014 ACEH email. This Revised SMP includes discussions on the Site background and previous environmental activities, present contamination data, and handling procedures for soil and groundwater. A Site Map is included as Drawing 2.

1.1 Site Setting

The Site is currently a vacant store front. Previously, a liquor store was operated onsite, and the building from this operation is still present. The Site is generally asphalt or concrete. Alameda County Assessors records indicate the Site is located on an approximately 0.27 acre parcel of property. The Site is located in Section 16, Township 2 South, Range 3 West, relative to the Mount Diablo Baseline and Meridian of Northern California, and The Site can be located on the Oakland East, California 7½-minute topographic quadrangle map of the United States Geological Survey (USGS). A Site Location Map is presented as Drawing 1.

The Site is located in a mixed residential and commercial land-use area. The property across 64th Avenue to the northwest is a car wash. The property to the southeast is a Little Caesars restaurant. Across International Blvd. To the northeast of the Site is a McDonald's restaurant. To the southwest, and adjacent to the Site, are single-family residences.

1.2 Site Background

The Site operated as a gasoline fueling station between 1947 to at least 1971. The fueling station features including the USTs and dispensers were removed in 1976. A detailed Site history and summary of previous investigations is included in Appendix A.

1.3 Document Purpose and Organization

The purpose of this document is to outline best practices for the possible future handling of materials and outline the risks involved with conducting ground disturbance at the Site. Table 1 presents the historical contamination data obtained from groundwater analysis.

2.0 SOIL MANAGEMENT ACTIVITIES

The following sections present guidelines for parties involved in future ground disturbance activities. In the event that soil is excavated in the future at the Site, petroleum impacted soil will be anticipated to be encountered. Prior to conducting any additional exvacation or construction activities at the Site in areas with potential residual contamination, advance planning for implementation of appropriate health and safety procedures will be conducted. A summary of residual soil and groundwater impacts and potential impacts are discussed in Sections 2.1 and 2.2, respectively. Health and Safety Plan and Soil Handling Procedures are include in Sections 2.3 and 2.4. If future Site activities include a change in land use or land redevelopment, the ACEH will be notified prior to the start of these activities as required by Government Code Section 65850.2.2.

2.1 Soil

No Light Aqueous Phase Liquids (LNAPL) in soil is present at the Site. Additionally, benzene has never been reported in historical soil samples. Soil samples collected at the site within between land surface and shallow groundwater located approximately 7 feet bgs have not contained TPH as gasoline or diesel. However, no soil samples have been collected in the upper five feet at the Site and the exact location of the former source area has never been definitively established. For this reason, it is possible that residual impacts are present in shallow soil at the Site. However, based onall Site data collected to date (deeper soil samples, groundwater samples) it does not appear that this residual hydrocarbon impact in soil is significant enough to warrant additional investigation. However, the risk from potential future construction workers due to Site redevelopment may be more significant. For this reason, additional soil mitigation measures are being proposed in this document.

No BTEX has ever been detected in soil or groundwater samples at the Site with the exception of one minor groundwater detection of toluene in 2009. Minimal amounts of GRO and DRO have been detected in groundwater which indicates a low soil concentrations as well. However, more significant impacts in soil samples further from groundwater monitoring well locations are possible.

2.2 Groundwater

The most recent sampling results (September 9, 2013) indicates concentration of DRO and GRO consistent with historical ranges. No other analytes were detected in any monitoring well sample. No LNAPL in groundwater is present at the Site. Additionally, benzene has never been reported in historical groundwater samples. Groundwater monitoring laboratory analytical results are summarized in Table 1.

Hydrocarbon concentration trends appear limited in extent, as evidenced by the absence of any petroleum hydrocarbon detections in downgradient well MW-3. Due to the hydrocarbon signature in groundwater consisting of only minor sporadic detections of DRO/GRO and no select BTEX and/or fuel oxygenates (benzene has never been detected), and the age of the release; it appears that the remaining hydrocarbon plume greatly attenuated over time.

2.3 Health and Safety Plan

Prior to conducting any earthwork activities, a Site-Specific health and safety plan (HASP) shall be prepared for use by personnel implementing the work. The HASP will address the scope of work and will include a contingency plan for the possibility of encountering contaminated soil as described in Section

2.4 below. Appropriate PPE requirements will also be included in the HASP. A copy of the HASP shall be available onsite during the work. Subcontractors performing field activities will be provided with a copy of the HASP prior to initiating work. The HASP will include a comprehensive list of chemicals which may be encountered and the MSDS sheets for these chemicals.

2.4 Handling Procedures for Contaminated Soil

Because the exact source of the historic release has never been definitively established, there is a possibility that residual petroleum hydrocarbon impacts in soil may be encountered during any potential future Site redevelopment work. For that reason, soil mitigation measures will need to be followed in order to ensure safe handling of any impacted soil encountered. These mitigation measures are described below.

Proper PPE shall be used at all time as described below in the HASP. In the event that soil is excavated during future Site development activities, petroleum impacted soil will be anticipated to be encountered. If impacted soil is in fact encountered, this soil shall be segregated and profiled. Profiling will consist of sampling and tested via field methods to determine if it is considered hazardous waste. If this is the case, soil shall be transported in compliance with all state and federal regulations to a permitted disposal site and disposed of according to standard procedures. The ACEH will be notified if potentially impacted soil is encountered.

2.5 Handling Procedures for Contaminated Groundwater

With the exception of a low MTBE concentration detected in MW-1 (0.54 micrograms per liter [µg/L] on 8/25/09) and a low Toluene concentration detected in MW-3 (1.2 µg/L on 8/25/2009) BTEX and fuel oxygenates are not present. Primarily GRO and DRO have been detected in groundwater at the site with concentration from the most recent sampling event conducted on September 4, 2013 all below 200 µg/L.

Due to the sporadic nature of concentration spikes in groundwater at the site, caution shall be taken when performing any work that may put humans into direct contact with groundwater. Proper PPE shall be used at all times. Dewatered fluid shall be held in storage tanks, sampled, transported, and analyzed according to applicable laws; and disposed of according to standard procedures.

2.6 Decontamination

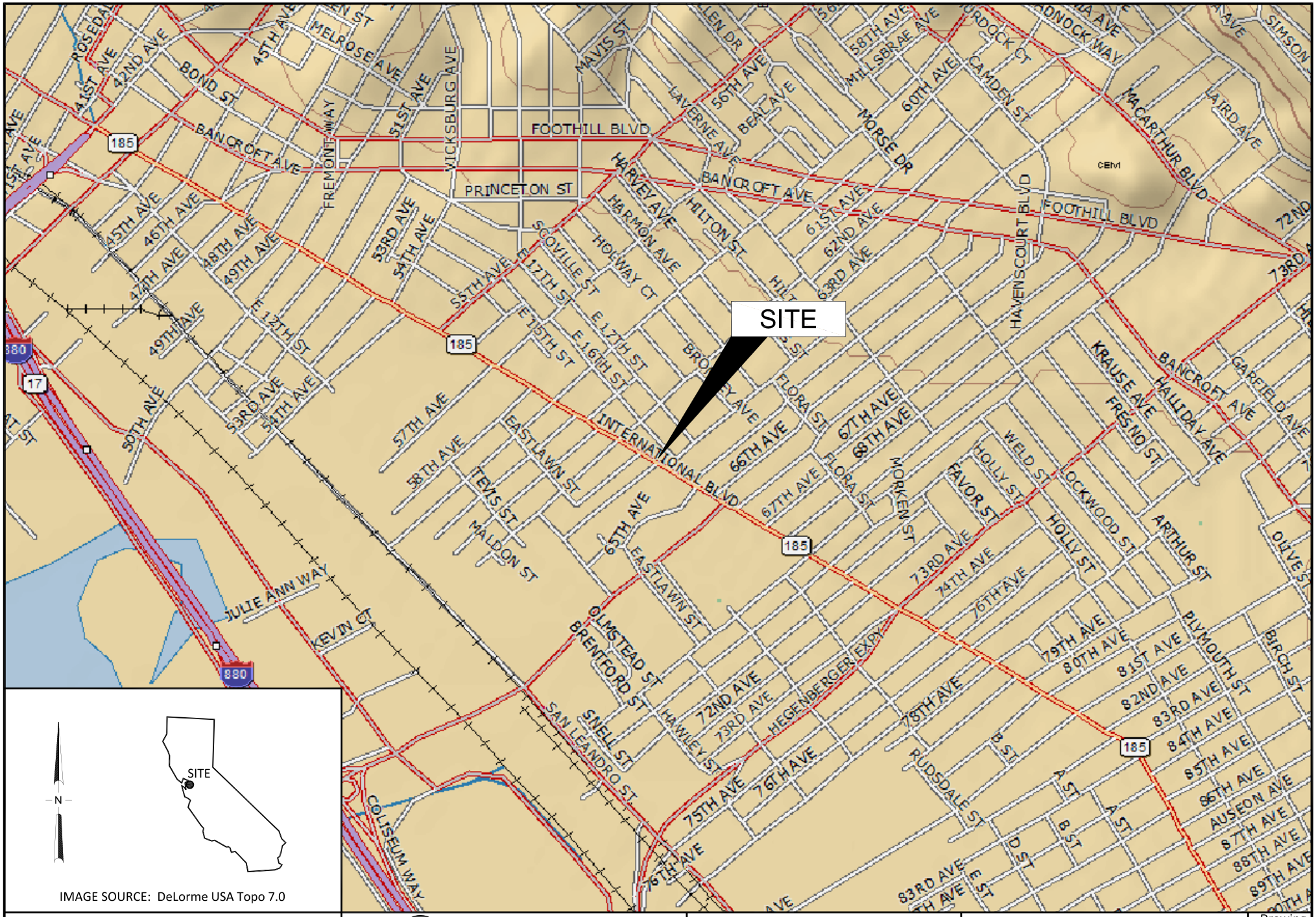
Detergents, such as alconox or bleach, shall be used on equipment that has contacted contaminated or possibly contaminated soils and/or fluids.

2.7 Implementation of Site Management Plan

This Site Management Plan shall be given as a copy to contractors that will be performing ground disturbance work at the site. Contractors are responsible to maintain safety and comply with this and any other plans pertaining to the site.

As conditions change this SMP may require modification to maintain its relevance. Conditions that may require a modification to this plan include: regulations, environmental factors, scope of work that is not addressed by this plan, presence of chemicals not addressed by this plan, etc.

Drawings

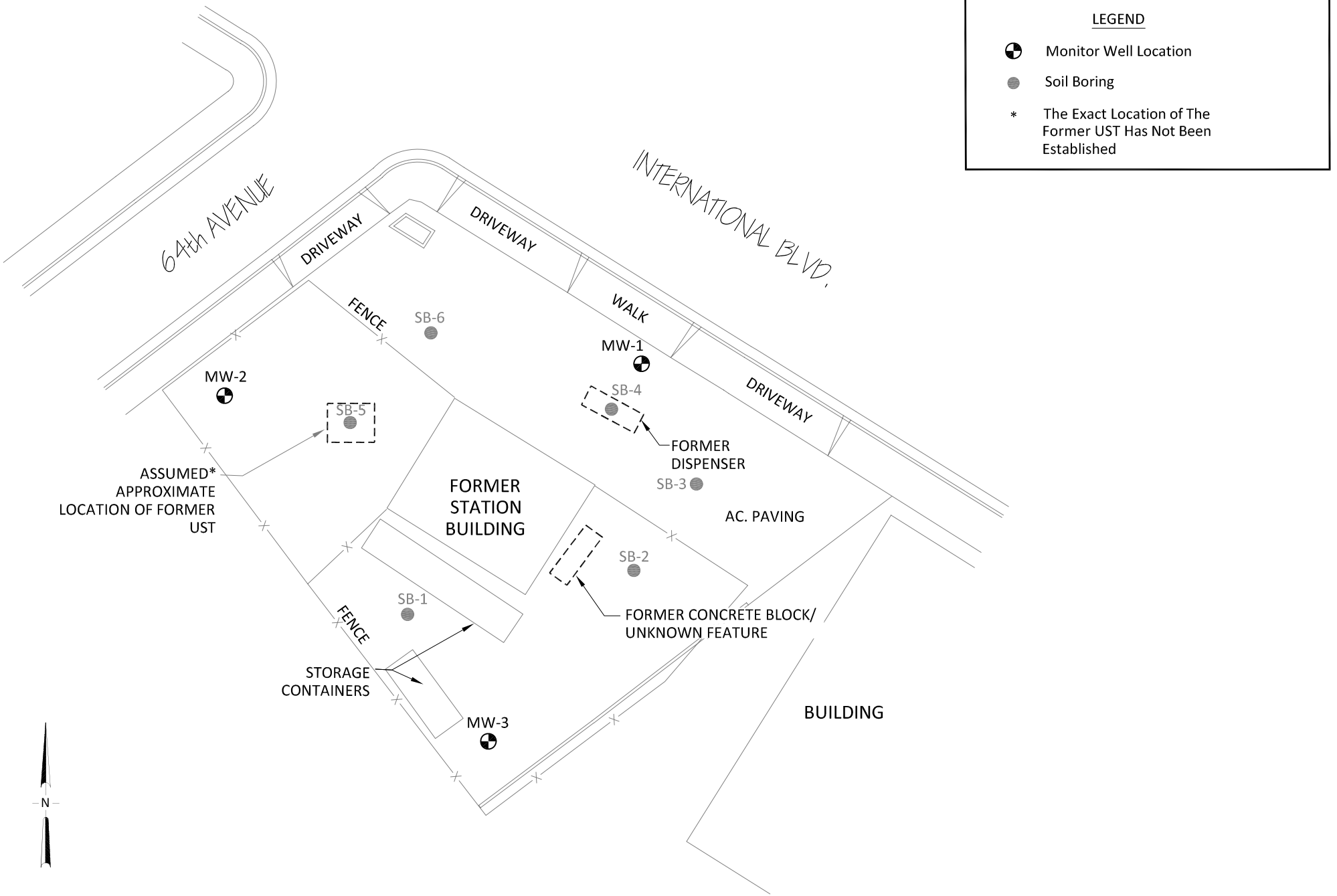


BROADBENT
1370 Ridgewood Dr., Suite 5
Chico, California 95973
Project No.: 09-88-601 Date: 4/2/2013

Former Station #472
6415 International Boulevard
Oakland, California

Site Location Map

Drawing
1



0 30 60

SCALE (ft)

BROADBENT
4820 Business Center Drive, Suite 110
Fairfield, CA 94534
Project No.: 09-88-601 Date: 10/014/2014

ARCO Former Station № 472
6415 International Boulevard
Oakland, California

Site Map With Monitoring Wells and Historic Boring Locations

Drawing
2

TABLE 1
Analytical Results

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #472, 6415 International Boulevard, Oakland, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L							DO (mg/L)	pH	Footnote
							DRO/ TPHd	GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-1																
8/25/2009	P	24.17	7.00	17.00	9.29	14.88	190	530	<0.50	<0.50	<0.50	<0.50	0.54	--	7.21	LX (DRO)
11/11/2009	NP		7.00	17.00	8.22	15.95	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	
2/17/2010	NP		7.00	17.00	7.36	16.81	70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.69	7.03	LX (DRO)
6/2/2010	NP		7.00	17.00	7.61	16.56	120	110	<0.50	<0.50	<0.50	<0.50	<0.50	1.21	7.0	LW (GRO), LX (DRO)
9/3/2010	NP		7.00	17.00	8.99	15.18	190	1,000	<0.50	<0.50	<0.50	<0.50	<0.50	0.74	7.30	LW (GRO), LX (DRO)
2/8/2011	NP		7.00	17.00	7.69	16.48	53	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.64	6.8	LX (DRO)
7/18/2011	NP		7.00	17.00	7.99	16.18	110	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.70	7.2	LX (DRO)
3/1/2012	P		7.00	17.00	8.20	15.97	140	500	<0.50	<0.50	<0.50	<0.50	<0.50	0.71	7.01	
8/15/2012	P		7.00	17.00	8.89	15.28	220	490	<0.50	<0.50	<0.50	<1.0	<0.50	8.90	7.53	
2/21/2013	P		7.00	17.00	7.63	16.54	<51	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.78	7.54	
9/4/2013	**P**		**7.00**	**17.00**	**9.40**	**14.77**	**130**	**330**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**1.48**	**7.37**	
MW-2																
8/25/2009	P	23.62	7.00	17.00	9.65	13.97	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.30	
11/11/2009	NP		7.00	17.00	8.09	15.53	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	
2/17/2010	P		7.00	17.00	6.80	16.82	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.62	7.15	
6/2/2010	NP		7.00	17.00	7.11	16.51	65	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.85	7.3	LX (DRO)
9/3/2010	NP		7.00	17.00	8.79	14.83	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.19	7.90	
2/8/2011	NP		7.00	17.00	7.21	16.41	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.15	7.0	
7/18/2011	--		7.00	17.00	--	--	--	--	--	--	--	--	--	--	--	Inaccessible
3/1/2012	P		7.00	17.00	7.41	16.21	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.89	7.34	
8/15/2012	P		7.00	17.00	8.79	14.83	<47	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.3	7.48	
2/21/2013	P		7.00	17.00	6.89	16.73	<52	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.35	7.73	
9/4/2013	**P**		**7.00**	**17.00**	**9.35**	**14.27**	**<48**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**1.21**	**7.48**	
MW-3																
8/25/2009	P	24.73	7.00	17.00	11.07	13.66	85	63	<0.50	1.2	<0.50	<0.50	<0.50	--	7.09	
11/11/2009	NP		7.00	17.00	9.56	15.17	--	88	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	LW (GRO)

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #472, 6415 International Boulevard, Oakland, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L							DO (mg/L)	pH	Footnote
							DRO/ TPHd	GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-3 Cont.																
2/17/2010	NP	24.73	7.00	17.00	8.52	16.21	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.04	7.09	
6/2/2010	NP		7.00	17.00	8.64	16.09	130	100	<0.50	<0.50	<0.50	<0.50	<0.50	1.22	7.1	LW (GRO), LX (DRO)
9/3/2010	NP		7.00	17.00	8.41	16.32	140	200	<0.50	<0.50	<0.50	<0.50	<0.50	0.87	6.9	LW (GRO), LX (DRO)
2/8/2011	NP		7.00	17.00	8.82	15.91	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.88	7.0	
7/18/2011	NP		7.00	17.00	9.20	15.53	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.93	6.9	
3/1/2012	P		7.00	17.00	9.13	15.60	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.63	6.91	
8/15/2012	P		7.00	17.00	10.45	14.28	600	<50	<0.50	<0.50	<0.50	<1.0	<0.50	2.99	7.38	*(DRO)
2/21/2013	P		7.00	17.00	8.39	16.34	95	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.30	7.76	
9/4/2013	**P**		**7.00**	**17.00**	**10.92**	**13.81**	**<48**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**0.97**	**8.01**	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #472, 6415 International Boulevard, Oakland, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L							DO (mg/L)	pH	Footnote
							DRO/ TPHd	GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			

Symbols & Abbreviations:
--- = Not analyzed/applicable/measured/available
< = Not detected at or above specified laboratory reporting limit
DO = Dissolved oxygen
DRO = Diesel range organics
DTW = Depth to water in ft bgs
GRO = Gasoline range organics
GWE = Groundwater elevation measured in ft
HVOC = Halogenated volatile organic compounds
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TOC = Top of casing measured in ft
TOG = Total oil and grease
TPH-d = Total petroleum hydrocarbons as diesel
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
CEL = CalScience Environmental Laboratories, Inc.
* = Hydrocarbon result partly due to individual peak(s) in the quantitation range

Footnotes:
LW = Quantitation of unknown hydrocarbon(s) in sample based on gasoline
LX = Quantitation of unknown hydrocarbon(s) in sample based on diesel