Atlantic Richfield Company
(a BP affiliated company)

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16 July 2007

Re: Sensitive Receptor Survey
Former BP Station # 11124
3315 High Street
Oakland, California
ACEH Case # RO0000239

"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:

Paul Supple
Environmental Business Manger

Sensitive Receptor Survey
Former BP Station #11124
3315 High Street
Oakland, California

Prepared for

Mr. Paul Supple
Environmental Business Manager
Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583

Prepared by

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

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16 July 2007

Project No. 06-08-652

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BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

16 July 2007

Project No. 06-08-652

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

Attn.: Mr. Paul Supple

Re: Sensitive Receptor Survey, Former BP Station #11124, 3315 High Street, Oakland, California; ACEH Case # RO0000239

Dear Mr. Supple:

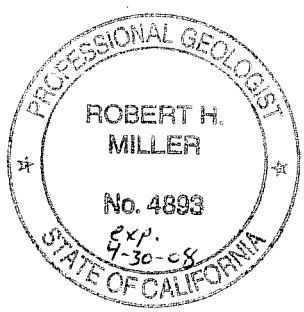
Attached is the *Sensitive Receptor Survey* for Former BP Station #11124 (herein referred to as Station #11124) located at 3315 High Street, Oakland California (Site). This report presents a summary of results from the sensitive receptor survey performed for Station #11124 in accordance with the regulatory request from Mr. Steven Plunkett of Alameda County Environmental Health (ACEH).

Should you have questions regarding the work performed or results obtained, please do not hesitate to contact us at (530) 566-1400.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, P.E.
Senior Engineer

Robert H. Miller, P.G., C.HG.
Principal Hydrogeologist



Enclosures

cc: Mr. Steven Plunkett, Alameda County Environmental Health (Submitted via ACEH ftp site)
Ms. Shelby Lathrop, ConocoPhillips (Submitted via WebXtender)
Electronic copy uploaded to GeoTracker

SENSITIVE RECEPTOR SURVEY
Former BP Station #11124
3315 High Street
Oakland, California

INTRODUCTION

On behalf of BP, Broadbent & Associates, Inc. (BAI) prepared this *Sensitive Receptor Survey* Report for the Former BP Station #11124 (herein referred to as Station #11124) located at 3315 High Street, Oakland, Alameda County, California (Site) . A Site Location Map is provided as Drawing 1. This Sensitive Receptor Survey Report was prepared in response to the original 23 December 2005 request from Mr. Don Hwang of Alameda County Environmental Health Services (ACEH), as subsequently discussed with Mr. Steven Plunkett of ACEH, the present manager of this Local Oversight Program case (Case #RO0000239).

This report presents a summary of the potential threat to downgradient and above-ground receptors. This report supplements the previously submitted *Initial Site Conceptual Model Report* for the Site (BAI, 15 May 2007). For the reader's convenience, some discussion of the Site setting is provided below. For a more developed discussion of the on-site and off-site geology, hydrogeology, release history, source zone, plume development and migration, the reader is referred to the Initial SCM Report previously provided.

SITE BACKGROUND

The Site was operated as a Mobil-brand service station prior to 1989, when it was transferred to BP. BP operated the Site as a service station until it was transferred to TOSCO in 1994, then ConocoPhillips, which operated the Site as a 76-branded service station until 2004. The Site is currently a non-operational service station. However, the current property owner is in the process of obtaining the necessary permitting to operate an independent service station on the Site.

Historically, four steel underground storage tanks (USTs) were removed from the Site and replaced in 1986: one 10,000 gallon, one 8,000 gallon, and one 6,000 gallon used for storing gasoline, and one 280 gallon waste-oil tank. Sheen was noted on the ground water present within the UST excavation. Petroleum hydrocarbons were not detected in the soil samples collected from the excavation area. In July 1990, the dispenser islands and product piping were replaced. Total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes were detected above laboratory reporting limits in the soil samples collected beneath the removed dispenser islands. On 2 December 2004, Secor observed the removal of facility structures by Fuller Excavating of Sacramento, California. According to the UST Removal and Facility Soil Sampling Report (Secor, 3 August 2005), the removed facility structures included one 12,000 gallon and two 10,000 gallon gasoline USTs, one 1,000 gallon waste-oil UST, three hydraulic lifts, one clarifier, four fuel dispensers, and product lines. The USTs and product lines appeared to be in good condition, with no holes or cracks noted during removal. Several soil and ground-water samples collected during the excavation were found to contain petroleum hydrocarbons and oxygenates.

Subsequent subsurface environmental investigations have detected soil contaminated with Total Petroleum Hydrocarbons in the Gasoline Range (TPH-G, also known as Gasoline Range Organics – GRO) up to 160 milligrams per kilogram (mg/kg), Benzene up to 0.41 mg/kg, and Methyl Tertiary Butyl Ether (MTBE) up to 0.22 mg/kg. There are currently five ground-water monitoring wells on the Site. No separate phase hydrocarbons have been reported at the Site in collected ground-water samples since sheen was observed in the open UST excavation in 1986. Since then, GRO has been detected in ground water at the Site up to 880 micrograms per liter (µg/L) and MTBE has been detected in ground water at the Site up to 1.4 µg/L.

Benzene, Toluene, Ethylbenzene, or Xylene concentrations above laboratory reporting limits have not been observed onsite within the last 15 years.

The Site is about 155 feet above mean sea level. The local topography generally slopes to the south-southwest. Sediments encountered at the Site consist primarily of clays and silts with traces of sand and gravel, extending from the ground surface to the total depth investigated, approximately 35 feet below ground surface. Ground water is typically seven to ten feet below ground surface. Historically, the ground-water gradient has ranged from 0.006 ft/ft to 0.022 ft/ft. Based on ground-water elevation data, the ground-water flow direction has varied between north and southwest to southeast, with the majority of the measurements towards the southwest.

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report* (SFRWQCB, June 1999), the majority of East Bay Plain Cities (except the City of Hayward) do not have "any plans to develop local ground-water resources for drinking water purposes, because of existing or potential saltwater intrusion, contamination, or poor or limited quantity." The San Francisco Regional Water Quality Control Board's (SFRWQCB) basin plan for the East Bay Plain ground-water basin denotes existing beneficial uses as municipal and domestic supply (MUN), industrial process supply (PROC), industrial service supply (IND), and agricultural supply (AGR).

SENSITIVE RECEPTOR SURVEY

The objective of this report was to survey for and identify potential down-gradient and above-ground risk receptors. The sensitive receptor survey process included review of requested logs and driller's well completion reports for water supply wells, identification of public and private schools, hospitals and patient-visited health care facilities, and surface water bodies within a 2,000-foot radius from the Site. Identified receptors were then evaluated (including distance and direction from the Site) for their potential to be impacted by petroleum hydrocarbon contamination from the Site.

Water Well Search

The initial stage of the sensitive receptor survey consisted of requesting to perform an authorized review of well records maintained by the California Department of Water Resources (DWR), and the Alameda County Public Works Agency (ACPWA). Mr. Steven Plunkett of the ACEH authorized the Well Completion Report Release Agreement forms and forwarded them to DWR and ACPWA. These well search records were not received in time to include within the Initial SCM Report by its due date of 15 May 2007 and were therefore provided under this separate cover.

The Well Completion Report Release Agreement forms sought records for wells within 2,000 feet of the Site address at 3315 High Street, Oakland, California. The Site address is located within Township 2 South, Range 3 West Section 4 relative to the Mount Diablo Baseline and Meridian of Northern California. The records received from DWR and ACPWA were believed to be all well records within Township 2 South, Range 3 West Section 4. The results of this search returned 56 monitoring wells (MON), three cathodic protection wells (CAT), one irrigation well (IRR), and one extraction/vapor well (EXT). When plotted, just two wells were within the 2,000-ft search radius from the Site: a CAT well for East Bay Municipal Utility District (located 885 ft northeast of the Site) and a CAT well for the Pacific Gas & Electric Company (located 1,391 ft northeast of the Site). However, these wells are located northeast of the Site, upgradient with the prevailing ground-water flow direction to the southwest. Records on file with the DWR and ACPWA indicated that there were no municipal (MUN), domestic (DOM), irrigation (IRR), or industrial process (IND) water supply wells within 2,000-foot radius of the Site.

Schools and Hospitals

A search was conducted within a 2,000-ft radius of the Site for public and private schools, pre-schools, day care facilities, hospitals and health-care facilities serving patients. Results of this search indicated there are no hospitals or health care facilities serving patients within 2,000 feet of the Site. There are two public elementary schools and one private school located within the Site vicinity but outside of the 2,000 foot receptor area. The two public schools, Maxwell Park Elementary School and Allendale Elementary School, are located approximately 2,100 feet to the south and 2,100 feet northwest of the Site, respectively. St. Lawrence O'Toole School, a private elementary school, is located approximately 2,100 feet northeast of the Site. There are two child day care facilities and one preschool within the 2,000 foot receptor area. Up and Coming Infant Development Center and Peter Pan Co-Op Nursery School are located approximately 1,060 feet to the north and 1,580 feet southwest of the Site, respectively. Loved Child Family Preschool is located approximately 1,580 feet west of the Site. Based on concentrations detected to date at the Site, this facility is likely located beyond the areal extent of the contaminated ground water associated with the Site. A summary of the schools and childcare facilities located within the vicinity of the Site is provided in Table 1.

Ecological Receptors

The Site is located within a developed portion of the City of Oakland, California. Currently, asphalt or concrete cover the Site. Unpaved portions are landscaped with small shrubs and trees. The areas surrounding the Site are also paved or occupied by buildings or houses with isolated areas of landscaping. There is no riparian habitat or surface water bodies located within a 2,000-foot radius of the Site.

DISCUSSION OF FINDINGS

The following conclusions are based on the available data at the time of this survey and BAI's knowledge of existing conditions at the Site.

- Contamination at the Site has degraded the beneficial uses of ground water;
- The search of well records found no evidence of water supply wells located within 2,000 feet at elevations equal to or down-gradient of the Site;
- The search found no hospitals and patient-visited health care facilities located within 2,000 feet of the Site;
- The search found no public or private schools within 2,000 feet of the Site;
- The search found one pre-school facility located within 2,000 feet of the Site – The Loved Child Preschool is located approximately 1,580 ft west of the Site. Based on concentrations detected to date at the Site, this facility is likely located beyond the areal extent of contaminated ground water associated with the Site;
- There are no surface water bodies, aquatic or riparian habitats within 2,000 feet of the Site.

CLOSURE

This report has been prepared for the exclusive use of Atlantic Richfield Company. The findings presented in this report are based upon the observations of our personnel and points of investigation. Our services were performed in accordance with the generally accepted standard of practice at the time this report was written. No warranty, expressed or implied, is intended. It is possible that variations in the soil or ground-water conditions could exist beyond the points explored in this investigation. Also, changes in site conditions could occur at some time in the future due to variations in rainfall, temperature, regional water usage, or other factors.

ATTACHMENTS:

Drawing 1. Site Location Map

Table 1. Summary of Schools and Day Care Facilities Within Site Vicinity

BROADBENT & ASSOCIATES, INC. ENGINEERING, WATER RESOURCES & ENVIRONMENTAL 1324 Mangrove Ave. Suite 212, Chico, California 95926 Date: 4/10/07 Project No.: 06-08-652	Former BP Service Station #11124 3315 High Street Oakland, California	Site Location Map	Drawing 1

Table 1. Schools and Daycare Facilities Within Site Vicinity
Former BP Station #11124
3315 High Street, Oakland, California

Name of Facility	Address	Approximate Distance and Direction From Site
Up & Coming Infant Development Center	4143 MacArthur Blvd	1,056 ft North
Loved Child Family Preschool	4036 Penniman Ave	1,584 ft West
Peter Pan Co-Op Nursery School	4618 Allendale Ave	1,584 ft Southwest
St. Lawrence O'Toole School	3725 High St	2,112 ft Northeast
Maxwell Park Elementary School	4730 Fleming Ave	2,112 ft South
Allendale Elementary School	3670 Penniman Ave	2,112 ft Northwest