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Alameda County
Environmental Health

Quarterly Summary Report – Fourth Quarter 2009
76 Service Station No. 5760
376 Lewelling Boulevard
San Lorenzo, California

ACEHS File No.:
RO0000344

Stantec Project No.:
211402275

Submitted to:
Ms. Barbara Jakub
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Oakland, California 94502

(Sent Via Electronic Upload to Alameda ftp)

Submitted by:
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3017 Kilgore Road, Suite 100
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Prepared on behalf of:
ConocoPhillips Company
Mr. Ted Moise
Site Manager
76 Broadway
Sacramento, California 95818

December 18, 2009

INTRODUCTION

On behalf of ConocoPhillips, Stantec Consulting Corporation (Stantec), has prepared this quarterly summary report for 76 Service Station No. 5760, located at 376 Lewelling Boulevard, San Lorenzo, California (Figure 1). Based on an Alameda County Environmental Health Services (ACEHS) letter dated July 24, 2009, the site is currently monitored and sampled on a semi-annually during the first and third quarter of each year. Accordingly, groundwater monitoring and sampling activities were not performed during fourth quarter 2009.

SITE DESCRIPTION

The site is currently an active 76-branded gasoline service station and auto repair shop located on the southeast corner of the intersection of Lewelling Boulevard and Usher Street in San Lorenzo, California. Site facilities include two underground storage tanks (USTs) used for gasoline storage and associated piping and fuel dispensers. A station building containing two mechanic's service bays, as well as a waste-oil UST are also present at the site. A detailed site plan is included as Figure 2.

SITE GEOLOGY AND HYDROGEOLOGY

The site is located on the East Bay Plain, which gently slopes westward from the foothills to the east towards the San Francisco Bay. The area is underlain by Holocene-age alluvial deposits. Sand and gravel stream channel deposits are mapped along the alignment of San Lorenzo Creek, which is located approximately 500 feet south of the site. Based on assessment activities performed by various consultants, the subsurface generally consists of highly permeable soils to depths of 15 to 20 feet below ground surface (bgs). Underlying these soils are low permeability soils with occasional sand lenses to the maximum depth explored of approximately 30 feet bgs.

As outlined in the California Department of Water Resources 2003 *California Groundwater: Bulletin 118*, the site lies within the East Bay Plain Subbasin of the Santa Clara Valley Groundwater Basin. The East Bay Plain Subbasin is a northwest trending alluvial plain of Quaternary Age, bounded on the north by San Pablo Bay, on the east by the contact with Franciscan Basement rocks, on the south by the Niles Cone Groundwater Basin. The East Bay Plain Subbasin extends beneath San Francisco Bay to the west.

A soil sieve/hydrometer sample and permeability test was performed in August 1990 by GeoStrategies Incorporated (GSI) on a soil sample collected from boring U-2 at a depth of 30 feet bgs. In the associated boring log, the soil was classified as a clay; the laboratory determined the soil to have a permeability of 6.0×10^{-8} centimeters per second.

A three-hour step-drawdown and 24-hour constant-rate discharge test were performed utilizing well U-1 in February 1994. The step-drawdown test indicated a sustainable yield of 2 gallons per minute. Hydraulic conductivity calculated during the constant-rate discharge test ranged from 175.4 gallons per day per square foot (gpd/ft²) to 350 gpd/ft², a value consistent with that of a clean sand.

PREVIOUS ASSESSMENT

In November 1987, Woodward-Clyde Consultants (WCC) oversaw the removal of the former USTs, and the installation of the current USTs. Based on petroleum hydrocarbon impact observed during UST replacement, groundwater monitoring well U-1 was installed. Well installation activities are documented in WCC's *Well Installation Report* dated March 25, 1988.

In August 1990, GSI oversaw the installation of monitoring wells U-2 through U-4. Well installation activities are documented in GSI's *Monitoring Well Installation Report*, dated November 16, 1990.

In March 1992, GSI oversaw the installation of monitoring wells U-5 through U-8 to delineate impact off-site. Well installation activities are documented in GSI's *Well Installation Report*, dated August 9, 1993.

In November 2003, Delta oversaw the advancement of five direct push soil borings, GP-1 through GP-5, to a maximum depth of 20 feet bgs. Hydrocarbon impact was observed in the soil sample collected from GP-4 at a depth of 19 feet bgs; TPHg, ethylbenzene, and total xylenes were detected at concentrations of 1,600, 26, and 130 milligrams per kilogram, respectively. A soil sample collected from GP-4 at a depth of 12 feet bgs was "non-detect" for all analyzed constituents. Site assessment activities are documented in Delta's *Baseline Assessment Report*, dated December 10, 2003.

In July 2007, Delta abandoned monitoring wells U-1 and U-3 and installed replacement wells U-1R and U-3R. Wells U-1 and U-3 were destroyed because Delta believed that hydrocarbon impacts observed in the wells originated at the surface and migrating down the well boring through poor surface seals. Well destruction and abandonment activities are documented in Delta's *Monitoring Well Abandonment and Replacement Report*, dated August 27, 2007.

SENSITIVE RECEPTORS

In 1992, GSI contacted the Alameda County Flood Control and Water Conservation District (ADFCWD) to identify water supply wells located within 0.5 mile of the site. Of the six wells identified (all being classified as irrigation wells) as being located within 0.5 mile of the site, five of the wells were determined to be located hydraulically up-gradient of the site, while one well was determined to be located hydraulically cross-gradient of the site. Of the up-gradient wells, one (identified in GSI's *Well Installation Report*, dated June 15, 1992 as well #1) appears to be located immediately east of the site.

In 2006, Delta reviewed California Department of Water Resources (DWR) well completion logs to identify all wells located within 1 mile of the site. Based on a review of Delta's reports, Delta appears to have identified 39 wells within 1 mile of the site. The six wells identified by GSI in 1992 were not located during the 2006 review of DWR files.

In 2006, Delta mailed a Public Health Assessment Questionnaire to all properties, and owners of properties, located within 1,000 feet of the site. Of the 164 questionnaires sent out, Delta received 13 responses and four returned by the United States Postal Service due to invalid addresses. Of the 13 responses, none of the respondents indicated the presence of a sump on their properties.

Based on the U.S. Geological Survey Topographic Map for the area (San Leandro quadrangle, 1980), the nearest surface water body is the San Lorenzo Creek, located approximately 500 feet southeast to southwest (down-gradient) of the site. In the vicinity of the site, San Lorenzo Creek is a concrete-lined channel.

MONITORING AND SAMPLING

The site has been monitored and sampled since the first quarter 1988. Groundwater monitoring and sampling activities are currently being performed by TRC Solutions (TRC). Currently, nine wells are monitored semi-annually (U-1R, U-2, U-3R, and U-4 through U-9). Samples are collected from wells U-1R, U-3R and U-6 through U-8 during the first and third quarter of each year, and from wells U-5 and U-9 during the first quarter of each year. Wells U-2 and U-4 are not sampled. Collected groundwater samples are analyzed for TPPH, BTEX, and fuel oxygenates MTBE and ethanol by EPA Method 8260B. Selected groundwater samples are also analyzed for TBA, DIPE, ETBE, and TAME, as well as EDB and 1,2-DCA by EPA Method 8260B. No groundwater monitoring or sampling was performed during the fourth quarter 2009.

During the previous sampling event (third quarter 2009), depth to groundwater ranged between 14.90 and 18.08 feet below top of casing (TOC), an average decrease of 0.50 foot from the previous quarter. The direction of groundwater flow was toward the southwest at a gradient of 0.003 foot/foot. Being as groundwater flow has consistently been towards the southwest during monitoring events, a rose diagram showing groundwater flow directions was omitted from TRC's groundwater monitoring report.

The highest concentration of TPPH continued to be detected in on-site well U-1R. TPPH were reported in wells U-1R and U-6 at 21,000 µg/L and 100 µg/L, respectively. Ethylbenzene and total xylenes were detected in well U-1R at concentrations of 1,800 ug/L and 3,500 ug/L, respectively. No other analytes were detected at concentrations exceeding their respective analytical method detection limits. Detected hydrocarbon concentrations in well U-1R were consistent with those observed during the second quarter 2009.

CHARACTERIZATION STATUS

The highest concentration of residual hydrocarbon impact is on-site in the vicinity of well U-1R. The down-gradient/cross-gradient extent of the dissolved-phase hydrocarbon plume is well defined by the existing monitoring well network. Additional assessment immediately down-gradient of the dispenser islands appears warranted to verify that dissolved phase impact is not also originating from the dispenser pump island.

Delta prepared a work plan dated December 1, 2008 proposing additional site assessment. A regulatory letter from ACEHS approved the proposed scope of work, pending modifications. Stantec has reviewed Delta's work plan and based on a telephone conversation between Mr. Benjamin Chevlen of Stantec and Ms. Barbara Jakub of ACEHS on April 7, 2009, Stantec prepared and submitted a *Revised Work Plan for Additional Site Assessment*, dated April 27, 2009. A figure showing the locations of the borings proposed by Stantec is included as Figure 2. Stantec has yet to receive a response from the ACEHS.

REMEDIATION STATUS

In August 1994, Pacific Environmental Group performed a 5-day soil vapor extraction (SVE) feasibility test at the site. Results of the test indicated that SVE was an effective remedial technology for the site.

In October 1995, an SVE and groundwater treatment system was started up at the site. The system was subsequently operated continuously until February 1997, when the system was shut-down due to diminishing remedial benefits.

Active remediation is not currently being performed at the site.

CURRENT ASSESSMENT ACTIVITIES

No assessment activities were performed during fourth quarter 2009.

RECENT SUBMITTALS/CORRESPONDENCE

Received by Stantec – ACEHS letter dated July 24, 2009 requesting a decrease in the frequency of groundwater monitoring and sampling.

Submitted by Stantec – *Quarterly Summary Report – Third Quarter 2009*, dated September 8, 2009.

WASTE DISPOSAL SUMMARY

No waste was generated during fourth quarter 2009.

THIS QUARTER ACTIVITIES (Fourth Quarter 2009)

1. Stantec prepared and submitted a quarterly summary and monitoring report.

NEXT QUARTER ACTIVITIES (First Quarter 2010)

1. Stantec to prepare and submit a quarterly summary and monitoring report.
2. TRC to perform a semi-annual groundwater monitoring and sampling event.
3. Stantec to initiate additional site assessment activities, pending regulatory approval.

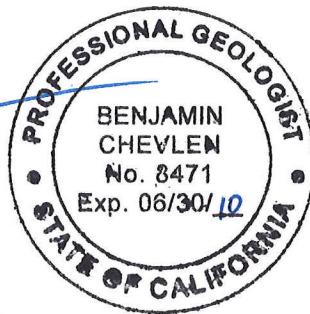
LIMITATIONS


This report presents our understanding of existing conditions at the subject site located at 376 Lewelling Boulevard, San Lorenzo, California. Evaluations of the geologic conditions at the site for the purposes of this investigation are inherently limited due to the number of observation points. There are no representations, warranties, or guarantees that the points selected for sampling are representative of the entire site. Data from this report reflects the conditions at specific locations at a specific point in time. Stantec assumes no responsibility for work reported or performed by other consultants or contractors. No other interpretation, representations, warranties, guarantees, express or implied, are included or intended in the report findings.

Sincerely,

Stantec Consulting Corporation


Benjamin Chevlen, P.G.
Senior Geologist




Ed Simonis, P.G.
Senior Geologist

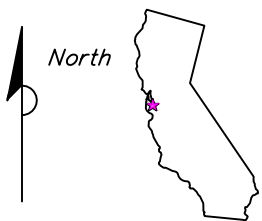
Attachments:

Figure 1 – Site Location Map

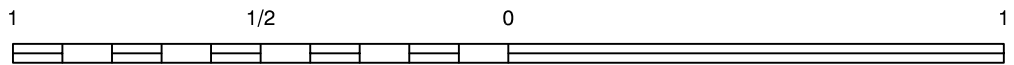
Figure 2 – Site Plan with Proposed Boring Locations

cc: Mr. Ted Moise, ConocoPhillips (via electronic upload to Livelink only)

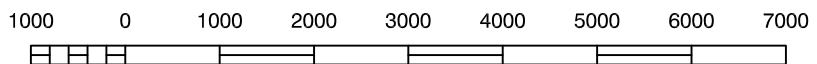
FIGURES



CALIFORNIA



SCALE (MILES)



SCALE (FEET)

REFERENCE: USGS 7.5 MINUTE QUADRANGLE, SAN LORENZO, CALIFORNIA



Stantec

FOR:
76 SERVICE STATION #5760
376 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

SITE LOCATION MAP

FIGURE:

1

JOB NUMBER:
211402275

DRAWN BY:
CM






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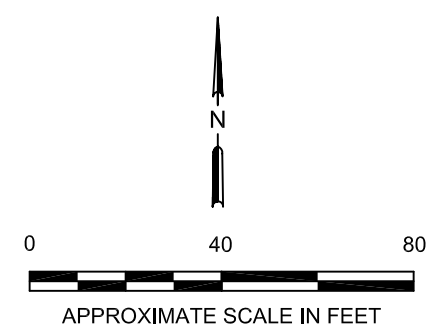
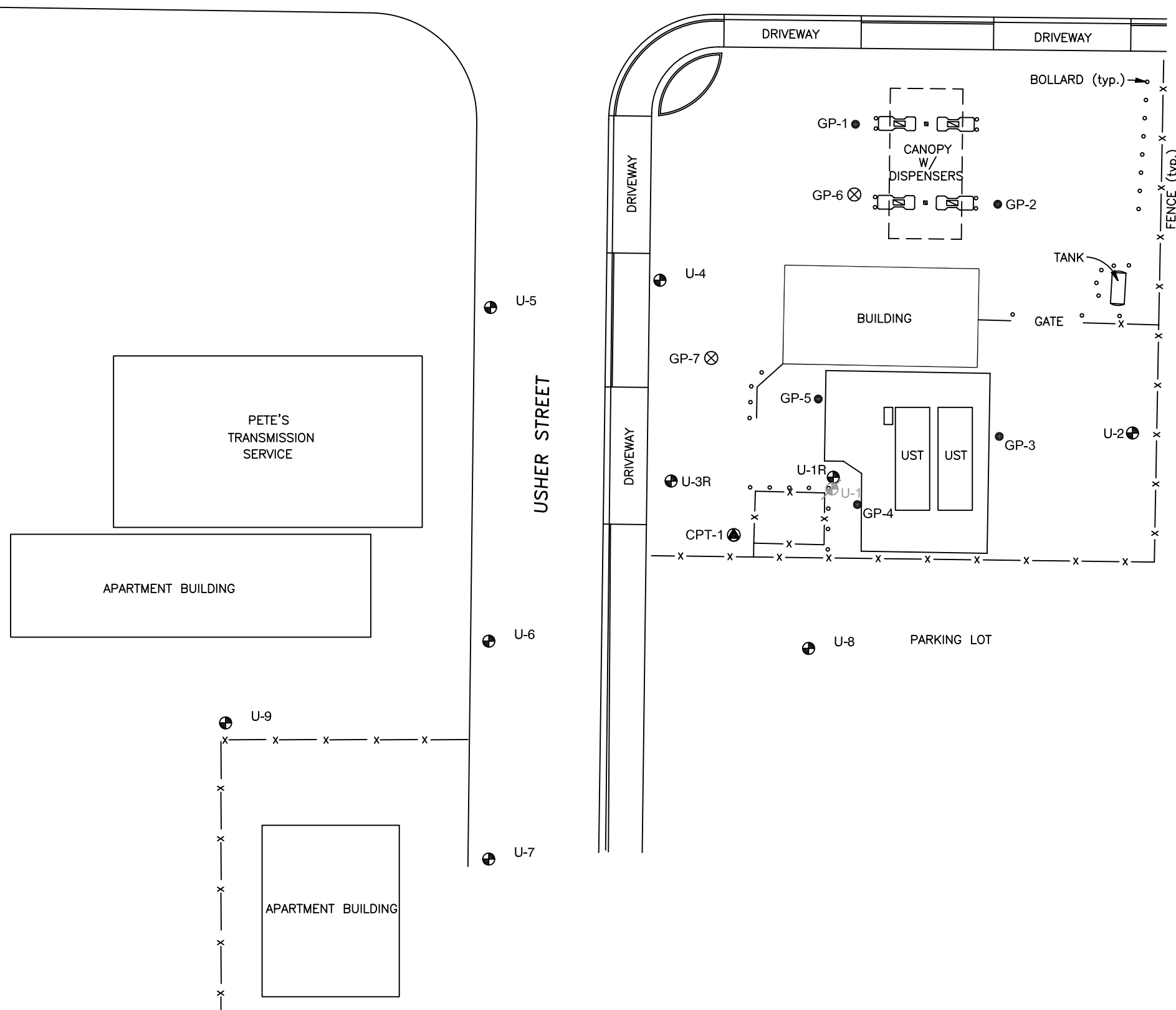
APPROVED BY:
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DATE:
04/13/09

LEWELLING BOULEVARD


LEGEND:

- U-2  GROUNDWATER MONITORING WELL LOCATION
- U-1  DESTROYED MONITORING WELL LOCATION
- GP-1  GEOPROBE SOIL BORING LOCATION
- GP-9  PROPOSED GEOPROBE SOIL BORING LOCATION
- CPT-1  PROPOSED CPT LOCATION



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REFERENCE: SITE PLAN BASED ON FIGURE PROVIDED BY DELTA

	FOR: 76 SERVICE STATION #5760 376 LEWELLING BOULEVARD SAN LORENZO, CALIFORNIA		SITE PLAN WITH PROPOSED BORING LOCATIONS		FIGURE: 2
	JOB NUMBER: 211402275	DRAWN BY: CM	CHECKED BY: BC	APPROVED BY: --	DATE: 04/13/09