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May 31, 2017

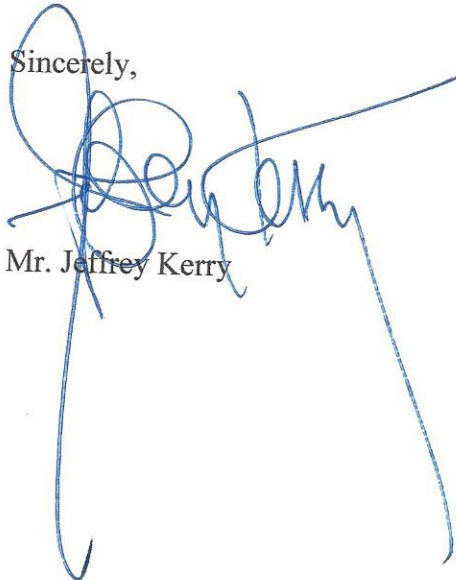
Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

**Re: Kerry & Associates – Palace Garage
14336 Washington Avenue
San Leandro, California
ACEH Case No. RO0000208**

Dear Mr. Detterman,

I declare, under penalty of perjury, that the information and/or recommendations contained in the **Sensitive Receptive Survey** is true and correct to the best of my knowledge.

Sincerely,



Mr. Jeffrey Kerry



May 31, 2017

Mr. Mark Detterman
Alameda County Environmental Health
1311 Harbor Bay Parkway
Alameda, CA 94502

**RE: SENSITIVE RECEPTOR SURVEY
Kerry & Associates – Palace Garage
14336 Washington Avenue
San Leandro, California
ACDEH Case No. RO0000208
SFRWQCB LUFT Case No. 01-1133**

Dear Mr. Detterman,

On behalf of Kerry & Associates, Innovex Environmental Management Inc. (INNOVEX) has prepared this *Sensitive Receptor Survey* (Survey) for the Palace Garage site located at 14336 Washington Avenue, San Leandro, California (the Site, Figure 1). In a letter dated January 9, 2017, Alameda County Department of Environmental Health (ACDEH) stated that based on a review of the case file, the Site is nearing closure, but fails to meet the State Water Resource Control Board's (SWRCB's) Low Threat Underground Storage Tank Case Closure Policy (LTCP) Media-Specific Criteria for Groundwater. To provide sufficient data to support the requisite characteristics of plume stability and plume classification, the ACDEH requested preparation of this Survey, along with a figure depicting the average, 90th percentile, and maximum plume lengths for total petroleum hydrocarbons as gasoline (TPHg) and benzene in the downgradient groundwater flow direction. The ACDEH directed performance of the Survey using the estimated plume lengths to conduct a search for sensitive receptors within 1,000 feet of the areas defined by the potential plume lengths. A copy of the January 9, 2017 ACDEH directive letter is included as Attachment A.

The following sections provide details of the Site location and setting, a summary of previous environmental work conducted to date, an estimate of the distal extent of the hydrocarbon plume associated with the Site, groundwater depth and flow direction, sensitive receptor survey methods and results, local potential sources, and our conclusions and recommendations.

1.0 BACKGROUND INFORMATION

1.1 SITE LOCATION AND SETTING

The Site is located on Washington Avenue in San Leandro, California (Figures 1 and 2). Land use in the vicinity of the Site is primarily industrial/commercial. The Site formerly operated as an automotive repair and towing service facility from 1967 through 1990.

ACDEH records indicate one 550-gallon underground storage tank (UST) was removed from the Site in 1991.

1.2 SUMMARY OF PREVIOUS ENVIRONMENTAL WORK

After removal of the 550-gallon UST in 1991, preliminary investigations included the installation of three monitoring wells (MW-1 through MW-3) and the advancement of 15 borings (B-1 through B-15). Based on data obtained from the wells and borings, impacted unsaturated-zone soil appeared to be confined to the area of the former dispenser pad and UST.

In December 2002, Professional Service Industries, Inc. (PSI) conducted an additional soil and groundwater investigation to evaluate the lateral extent of petroleum hydrocarbons in the soil and groundwater at the Site. Borings B-16 and B-17 were advanced, and boring B-16 was converted into monitoring well MW-4. Concentrations of TPHg and gasoline-related contaminants were detected only in soil samples from boring B-17 and groundwater samples from wells MW-1 and MW-2.

Closure Solutions, Inc. (Closure Solutions, presently INNOVEX) conducted a Sensitive Receptor Survey in 2008 to identify all water supply wells and sensitive receptors within a 2,000-foot radius of the Site. Results of the survey were presented in the *Sensitive Receptor Survey* report dated August 27, 2008. The closest water supply wells identified were two industrial wells located approximately 450 feet northwest (cross-gradient) of the Site. The closest domestic well was identified approximately 1,500 feet southeast (cross-gradient) of the Site. The closest downgradient well was an irrigation well located approximately 1,400 feet southwest of the Site. No surface water bodies were identified within a 2,000-foot radius of the Site.

Closure Solutions prepared and submitted a *Site Conceptual Model* (SCM) dated September 30, 2008 for the Site. ACDEH requested the preparation of the SCM in their letter dated September 2, 2008.

On October 15, 2009, Closure Solutions discussed the Site status with ACDEH. Data gaps identified in the SCM and other information that ACDEH would require for Site closure were identified. Closure Solutions submitted the November 13, 2009 *Soil Vapor Probe and Additional Assessment Work Plan* to address the work necessary to move the Site toward closure.

On July 26, 2010, Closure Solutions installed and sampled three temporary soil vapor probes (SV-1 through SV-3) and advanced one downgradient soil boring (SB-18). A *Soil Vapor Testing and Additional Assessment Report* describing field activities and discussing soil and soil vapor analytical results was submitted to the ACDEH on August 30, 2010.

On January 24, 2012, Closure Solutions supervised the advancement of two soil borings, collection of additional soil and groundwater data, and installation of wells MW-5 and MW-6. A discussion of analytical results was presented in the *Groundwater Monitoring Well Installation Report* submitted on March 30, 2012.

After completing the monitoring well installations, a dual-phase extraction (DPE) pilot test was performed between February 21 and 25, 2012. The pilot test was conducted to evaluate whether DPE would be a viable technology to remediate soil and groundwater beneath the Site. High groundwater extraction rates were encountered during pilot testing conducted from MW-1. As a result, subsurface soils could not be effectively dewatered to allow remediation via vapor extraction. Pilot testing from well MW-6 produced average groundwater extraction rates that were roughly two-thirds less than those observed during testing from MW-1. Subsequently, the technology was successful in lowering the groundwater table near well MW-6 and exposing the capillary fringe or “smear” zone. Based on the results of testing performed from MW-6, DPE appeared to be a viable option for Site remediation. Results of the DPE test were presented in Closure Solutions’ April 13, 2012 *Dual-Phase Extraction Pilot Test Report*.

On April 10, 2013, Closure Solutions submitted a *Revised Draft Corrective Action Plan Addendum* (Draft CAP Addendum) to the ACDEH that presented an evaluation of hydrocarbon impacts to soil and groundwater beneath the Site and evaluated and compared remedial alternatives to address cleanup of the impacts. DPE was selected as the most effective remedial alternative. Details and procedures for the installation, operation, and evaluation of a temporary DPE system were included in the Draft CAP Addendum.

On May 29, 2013, the ACDEH issued a letter requesting a *Data Gap Investigation Work Plan and Focused Site Conceptual Model* (Work Plan). The Work Plan was requested to address data gaps identified during an ACDEH review of the environmental case under the State Water Resource Control Board’s Low Threat Underground Storage Tank Case Closure Policy (LTCP).

On November 22, 2013, INNOVEX submitted a *Data Gap Investigation Report* that described investigation activities, evaluated data, and provided conclusions and recommendations. Based on soil data collected from zero to 10 feet bgs, concentrations of TPHg and naphthalene near the former dispenser island appear to increase with depth; however, BTEX concentrations were consistently low. A review of benzene, ethylbenzene, and naphthalene concentrations against LTCP criteria for vapor intrusion to indoor air indicated the constituents exceed their associated screening criteria for a commercial land use scenario with no bioattenuation zone. Additionally, soil data from zero to 10 feet bgs indicated benzene, ethylbenzene, and naphthalene are below the LTCP established criteria for direct contact and volatilization to outdoor air in commercial/industrial land use and utility worker scenarios.

On January 21, 2014, the ACDEH issued a letter directing preparation of a revised Draft Corrective Action Plan (CAP) and Fact Sheet for public notification of the Draft CAP based on results of the November 2013 investigation. A completion date of March 28, 2014 for submittal of the Draft CAP was established by ACDEH. However, due to budget constraints and the denial of a budget increase change order request for fiscal year 2013/2014 by the State Underground Storage Tank Cleanup Fund, the ACDEH approved an extension on the Draft CAP submittal date with a new submittal date of September 2, 2014.

After receiving approval for the budget change order in May 2014, Closure Solutions prepared and submitted the *Interim Remedial Action Plan* (IRAP) on June 30, 2014. Closure Solutions re-evaluated remedial options proposed in the February 28, 2013 *Revised Draft Corrective Action Plan*. The data review and re-evaluation of remedial options indicated excavation of the Site versus previously proposed DPE would likely be more effective in reducing hydrocarbon impacts in a shorter time period and at a lower overall cost, thereby more rapidly satisfying the LTCP closure criteria in a more cost-effective manner. ACDEH staff approved the IRAP with some modifications on August 14, 2014.

Between May 15 and 29, 2015, interim remedial field activities were conducted at the Site to remove the secondary source of hydrocarbon-impacted soil remaining in the vicinity of the former UST location via excavation. Field activities consisted of excavating hydrocarbon-impacted soil to the extent practicable within pre-defined limits to a depth of approximately 16 feet bgs. Details of the remedial excavation activities and associated confirmation sampling were presented in INNOVEX's July 31, 2015 *Interim Remedial Action Report*.

On September 24, 2015 and October 23, 2015, the ACDEH issued letters directing semi-annual post-interim remedial action groundwater monitoring for a period of one year to verify effective removal of the majority of contaminated soil.

On November 11, 2015, a Semi-Annual groundwater monitoring event was performed at the Site and groundwater samples were collected for the first time after soil excavation activities took place. Hydrocarbon concentrations were detected in well MW-1, the remaining source area well. However, samples from downgradient well MW-2 contained concentrations below laboratory reporting limits for the first time since sampling began in 2002.

In March 2016, installation and sampling of two new sub-slab soil vapor probes within the building was completed in to directly measure vapor intrusion to the building. Soil vapor concentrations were below the associated LTCP screening criteria for vapor intrusion to indoor air in a commercial/industrial land use.

On May 5, 2016, an additional Semi-Annual groundwater monitoring event was performed at the Site. Sample results indicated that hydrocarbon concentrations in all wells increased from the November 2015 event.

On June 30, 2016, the ACDEH issued a letter acknowledging that based on the results of the sub-slab vapor sampling, soil vapor intrusion does not appear to be a concern at the Site. The ACDEH recognized that the increased hydrocarbon concentrations observed in the May 2016 Semi-Annual sampling event may have been influenced by the May 2015 remedial excavation activities and/or the rise in groundwater elevations of 3.5 to 4.5 feet above the depths noted during the November 2015 monitoring event.

At the request of ACDEH, INNOVEX performed two additional quarterly monitoring events on August 17, 2016 and October 27, 2016. The results were presented in the October 5, 2016 *Third Quarter 2016 Groundwater Monitoring Report* and the November 17, 2016

Fourth Quarter 2016 Groundwater Monitoring Report, respectively. INNOVEX concluded that the hydrocarbon plume had stabilized, residual hydrocarbon concentrations remaining in soil and groundwater will continue to attenuate within a reasonable period of time, and additional verification monitoring of groundwater at the Site was not necessary. INNOVEX requested that ACDEH grant closure for the environmental case associated with the Site.

On January 9, 2017, ACDEH responded to the November 2016 closure request by acknowledging the Site is nearing closure, but currently fails to meet the State Water Resource Control Board's Low Threat Underground Storage Tank Case Closure Policy (LTCP) Media-Specific Criteria for Groundwater because the distal end of the plume is not defined based on recent significant hydrocarbon concentration increases observed during periods of shallow groundwater (rises in groundwater elevations). ACDEH indicated that the groundwater contaminant concentration trend at the Site is either stable or declining but the distal extent of the contaminant plume remained undefined based on the recent increase in aqueous-phase hydrocarbon concentrations observed in the October 2016 sampling event. Therefore, to meet the LTCP criteria, ACDEH directed performance of at least one more verification groundwater monitoring event and preparation of a Sensitive Receptor Survey and Focused Site Conceptual Model.

On January 31, 2017, INNOVEX completed an additional verification monitoring event and the results were presented in the February 28, 2017 *First Quarter 2017 Groundwater Monitoring Report*. Groundwater levels measured in Site wells increased approximately 0.6 feet higher than the levels measured during the previous monitoring event conducted in October 2016 and were at the highest levels since monitoring was initiated at the Site in December 2002. The highest hydrocarbon concentrations were found in MW-2. When compared to the Fourth Quarter 2016 analytical results, TPHg concentrations in MW-2 remained unchanged at 1,700 µg/L and benzene concentrations increased slightly from 31 µg/L to 44 µg/L. Concentrations of TPHg in up-gradient well MW-1 increased from 290 µg/L to 980 µg/L, and benzene concentrations slightly decreased from 10 µg/L to 9.8 µg/L. TPHg concentrations in well MW-5, located approximately 30 feet downgradient from MW-2, decreased from 240 µg/L to below laboratory detection limits, and benzene concentrations decreased from 15 µg/L to 1.9 µg/L. TPHg concentrations in cross-gradient well MW-3 decreased from 300 µg/L to 120 µg/L, and benzene concentrations decreased from 23 µg/L to 2.5 µg/L. TPHg and benzene concentrations in cross-gradient well MW-4 were below laboratory detection limits.

1.3 DISTAL EXTENT OF PLUME

Since the downgradient extent of the contaminant plume appears to be undefined in the existing well network during periods of shallow groundwater that were observed in Site wells in 2016, ACDEH requested that worst-case groundwater concentrations be used to perform an evaluation utilizing tools contained in the LTCP to define the worst-case plume lengths downgradient of the source area. The SWRCB LTCP references *Technical Justification for Groundwater Media Specific Criteria* (2012), which is used to supplement and provide technical justification for defining the extent of a plume. According to this document, researchers recognized three constituents as key indicators of plume stability based on the facts that: 1) benzene has the greatest toxicity of the soluble petroleum constituents, 2)

MTBE typically has the greatest plume lengths, and 3) TPHg represents the additional dissolved hydrocarbons that may be present resulting from typical petroleum release. Table 1 in the *Technical Justification for Groundwater Media Specific Criteria* report provides the Average, 90th Percentile, and Maximum Plume lengths for TPHg, benzene. Figures 2, and 3 present the LTCPs Table 1: Plume Characteristics for TPHg and benzene, respectively. Below is a reproduction of Table 1 showing the measured distance from the source plume length:

Constituent (and plume limit concentrations)	Average Plume Length (feet)	90 th Percentile Plume Length (feet)	Maximum Plume Length (feet)
TPHg (100 µ/L)	248	413	855
Benzene (5 µ/L)	198	350	554

Historically, concentrations of MTBE have not been detected at the Site; therefore, MTBE is not a chemical of concern and not included in the table. Using MW-1 from the Site as the petroleum hydrocarbon source, it appears unlikely that any of the theoretical distal plume lengths would come into contact with any potential sensitive receptors.

Utilizing the LTCP theoretical distal plume lengths, ACDEH requested a sensitive receptor survey of properties for an additional 1,000 feet downgradient of the area defined by the TPHg Maximum Plume Length (855 feet from source) for a Potential Plume Length of 1,855 feet, as shown on Figure 4. ACDEH requested that the sensitive receptor survey include older, privately owned water supply wells that may not be known to the DWR, but are well documented in the San Leandro and San Lorenzo area. ACDEH also requested inclusion of the results of a search for potential receptors, including basements with sump pumps which have the capacity to extract groundwater and discharge it as storm drainage at street level, within the plume lengths, and within 1,000 feet of the TPHg Maximum Plume Length. To obtain information on older privately-owned water supply wells that may not be known to the DWR, as well as the presence of basements with sump pumps, a public survey questionnaire was drafted and a copy was submitted to ACDEH for comment and distribution on ACDEH letterhead to those identified residences within the Potential Plume Length area. After further review of the search area, ACDEH recommended that the survey area be expanded approximately 150 feet beyond the edge of the Potential Plume Length as an added margin of safety. Details of the Sensitive Receptor Survey methods and results are presented in the following section.

2.0 SENSITIVE RECEPTOR SURVEY

2.1 GROUNDWATER DEPTH AND FLOW DIRECTION

Historically, groundwater levels beneath the Site have ranged from a high of 7.5 feet bgs to a low of 17.97 feet bgs. The primary groundwater flow direction is toward the southwest. A Rose Diagram showing historical groundwater flow direction between February 19, 2000 and January 31, 2017 is presented in Attachment B.

3.0 SENSITIVE RECEPTORS

No surface water bodies were identified within a 2,000-foot radius of the Site. The nearest surface water body is San Francisco Bay, located approximately 2.5 miles west of the Site.

4.0 WELL SURVEY METHOD

To obtain information on the type and location of wells within a 2,000-foot radius of the Site, INNOVEX obtained a signed authorization form from the ACDEH to access confidential well information. The signed authorization was then provided to the Department of Water Resources (DWR) and Alameda County Public Works Agency (ACPWA) for access to all available well completion reports for wells installed in the vicinity of the Site. INNOVEX also reviewed available groundwater monitoring reports on the Water Board's GeoTracker database for additional wells located within the 2,000-foot radius of the Site. Data from the 2008 receptor survey performed by Closure Solutions was also reviewed and incorporated into this current survey.

To assemble the survey information, INNOVEX grouped the reports into the following categories:

- Reports that referenced well locations by current street addresses that could be verified using online resources (Google Earth or equivalent);
- Reports that referenced well locations by distance from a current street, intersection, or other known location such as a creek or park;
- Reports that referenced well locations by distance from a corner of a map Section; and
- Reports that referenced well locations by outdated street addresses, route numbers, or street names/intersections that were changed/no longer existed;

Well locations referenced by current street addresses or by distances from a known location or street intersection were verified on a map to obtain distance from the Site. If the well location was within 2,000 feet of the Site, the well location was plotted on the map.

5.0 RECEPTOR SEARCH RESULTS

As previously described, INNOVEX conducted a sensitive receptor survey that consisted of evaluating available well completion reports for wells located within a 2,000-foot radius of the Site obtained from the DWR, ACPWA, and on the Water Board's GeoTracker database. The available well data was reviewed to identify all active, inactive, standby, decommissioned (sealed with concrete), and abandoned (improperly decommissioned or lost) wells including irrigation, water supply, industrial, livestock, dewatering, and cathodic protection wells.

ACPWA and DWR well record logs were reviewed to determine the location of any water supply wells within the survey area. Using ACPWA records, a total of eighty wells were identified within the survey area. Of these eighty wells, forty-nine were identified as test or monitoring wells, seven were identified as being abandoned or destroyed, and twenty-six

were identified as being water supply wells. Of the twenty-six water supply wells three are domestic, twenty are irrigational, and three are industrial wells.

Using DWR records, a total of seventy-six wells were identified within the survey area. Of these seventy-six wells, fifty-three were identified as test or monitoring wells, nine were identified as being abandoned or destroyed, and fourteen were identified as being water supply wells. Of the fourteen water supply wells one is domestic, eleven are irrigational, and two are industrial wells.

The closest water supply wells are two industrial wells approximately 450 feet northwest (up-gradient) of the Site. The closest domestic wells is approximately 1,500 feet southeast (cross-gradient) of the Site. The closest downgradient well is an irrigational well approximately 1,400 feet southwest of the Site. The approximate locations of wells identified within a 2,000-foot radius of the Site are presented on Figure 5. Please note that for the purposes of this well survey, cathodic protection wells and wells associated with environmental cases are not included in the results. All reported active well information including map ID, approximate distance and direction from the Site, well type, and installation date (if available) is summarized in Table 1. Due to privacy concerns, the DWR well completion reports are not included in any copy of this document.

6.0 WELL AND BASEMENT SURVEY QUESTIONNAIRE

On February 7, 2017, INNOVEX mailed 98 questionnaires with a postage paid return envelope to property owners located within and around the perimeter extent of the Potential Plume Length area southwest of the Site as identified in Figure 4 in an effort to identify domestic wells and basements in the residential community downgradient of the Site. Of the 98 questionnaires mailed, nineteen responses were received, with eight indicating that they have an irrigation well, and one with a well that is used for drinking water (identified as #24 on Figure 5) on their property. No basements were identified by those property owners that responded to the questionnaires. Due to privacy concerns, completed questionnaires with information regarding wells are not included with this document; however, a blank example questionnaire is provided in Attachment C.

The closest domestic well downgradient of the Site (identified as #24 on Figure 5) is a domestic well located approximately 1,030 feet to the southwest. On May 15, 2017, INNOVEX personnel visited the residence in an attempt to confirm the use of the domestic well with the property owner. No one was home at the time of our visit; therefore, the well location and use could not be confirmed. The approximate locations of the nine wells referred to above are presented on Figure 5 and listed in Table 1.

7.0 LOCAL POTENTIAL SOURCES

According to GeoTracker, nine Leaking Underground Storage Tank (LUST) properties with related petroleum releases are within a 2,000-foot radius of the Site. Eight are closed cases and one is an active case, as follows:

- Steelform Contracting Company located on the adjacent property to the east and cross-gradient of the Site. Closed case.

- Morgan Brothers Patios located approximately 400 ft. west (cross- and slightly downgradient) of the Site. Closed case.
- San Leandro Rental located approximately 530 ft. northwest (cross-gradient) of the Site. Closed case.
- Rogers Trucking located approximately 585 ft. south (downgradient) of the Site. Closed case.
- Larson Brothers Lumber located approximately 690 ft. north-northwest (up-gradient and slightly cross-gradient) of the Site. Closed case.
- Parkside Commons Apartments located approximately 860 ft. north-northeast (up-gradient) of the Site. Closed case.
- Cintas Corporation located approximately 1,055 ft. north-northwest (up-gradient and slightly cross-gradient) of the Site. Active case.
- S&S Building Supply located approximately 1,150 ft. west-southwest (cross- and slightly downgradient) of the Site. Closed case.
- Amaral Sausage located approximately 1,320 ft. west-southwest (cross- and slightly downgradient) of the Site. Closed case.

According to GeoTracker, the City of San Leandro operates a Public Works Service Center (City) at 14200 Chapman Road, approximately 620 feet west-southwest (down- and slightly cross-gradient) of the Site. According to ACDEH (email correspondence), the Public Works Service Center has four Permitted USTs (two 20,000-gallon gasoline, one 12,000-gallon gasoline, and one 12,000-gallon diesel) that are used for fueling maintenance vehicles and equipment. Furthermore, the City does not have any groundwater wells (supply or monitoring) on this property.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Using MW-1 from the Site as the petroleum hydrocarbon source, it is unlikely that any of the theoretical distal plume lengths would come into contact with any potential sensitive receptors. With the additional 1,000-foot extension to the LTCP Maximum Plume Length that ACDEH requested, potential receptors have been identified. However, the results from the most recent (January 2017) groundwater sampling event indicate that the hydrocarbon concentrations in source wells MW-1 and MW-2 are stable and cross- and downgradient wells MW-3, MW-4, and MW-5 are decreasing. Furthermore, the Site is not the closest potential source of hydrocarbon contamination to residential wells downgradient of the Site. Therefore, if those residential wells were to be sampled, and the samples contained hydrocarbon concentrations, the source of contamination would be inconclusive.

As request in ACDEH's January 19, 2017 directive letter, INNOVEX will update and submit a Focused Site Conceptual Model under a separate cover.

9.0 LIMITATIONS

This report is based on Site conditions, data, and other information available as of the date of the report, and the conclusions and recommendations herein are applicable only to the

time frame in which the report was prepared. Background information used to prepare this report including, but not limited to, previous field measurements, analytical results, Site plans and other data have been furnished to INNOVEX by Kerry & Associates and as available on the GeoTracker database. INNOVEX has relied on this information as furnished, and is neither responsible for nor has confirmed the accuracy of this information.

If you have any questions regarding this submission, please feel free to contact Mr. Tom Sparrowe at (925) 566-8567 (tom.sparrowe@innovex.net).

Sincerely,
INNOVEX Environmental Management, Inc.



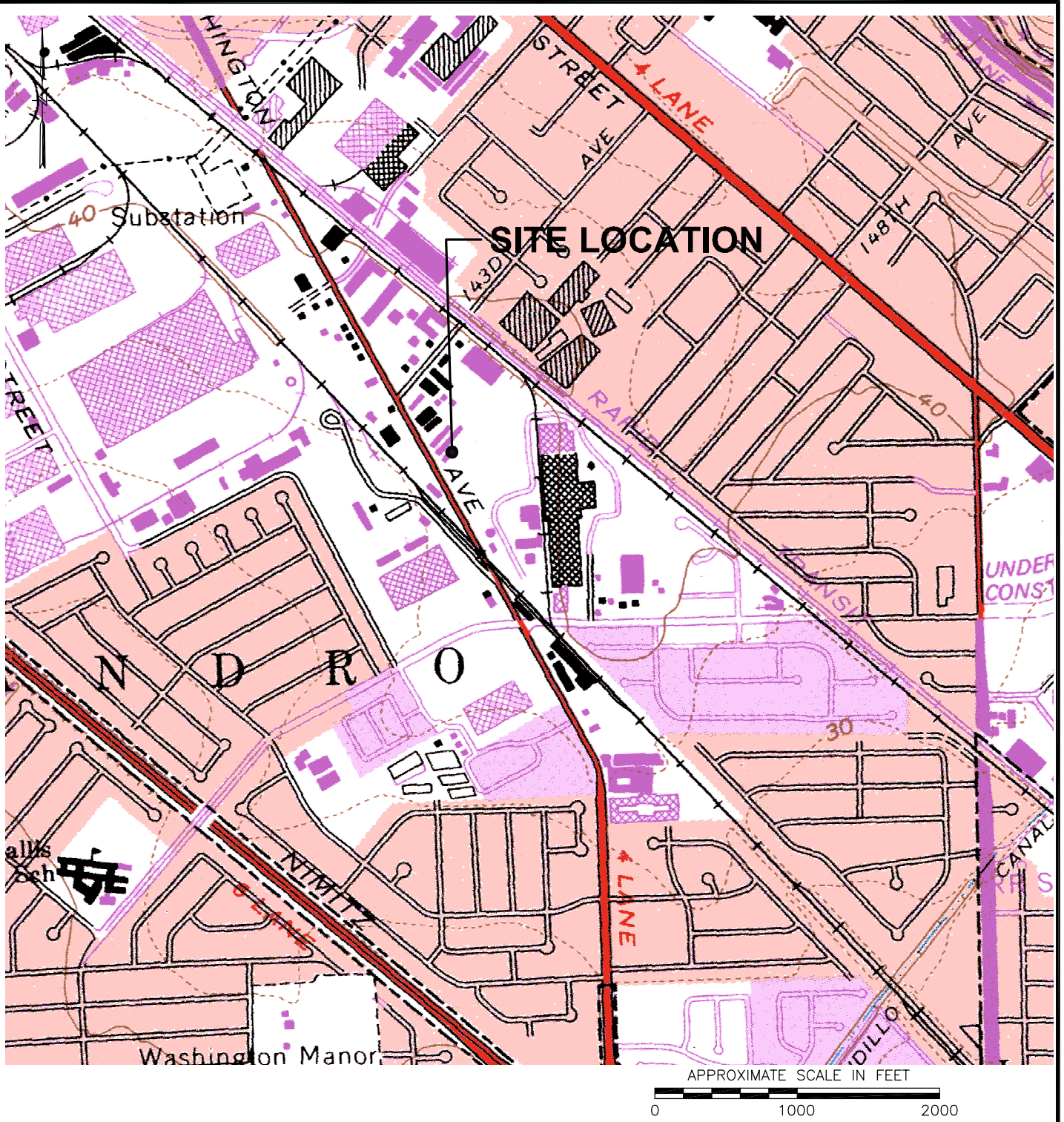
Thomas A. Sparrowe, PG
Principal Geologist



Attachments:

- | | |
|--------------|---|
| Figure 1 | Site Location Map |
| Figure 2 | Potential TPHg Plume Lengths Based on LTCP Technical Justification |
| Figure 3 | Potential Benzene Plume Lengths Based on LTCP Technical Justification |
| Figure 4 | Worst Case Scenario, Well & Sensitive Receptor Survey Search Area |
| Figure 5 | Well & Sensitive Receptor Survey Results |
| Table 1 | Water Supply Wells on Map |
| Attachment A | ACDEH Correspondence |
| Attachment B | Rose Diagram |
| Attachment C | Local Vicinity Domestic Well Inventory Questionnaire (Sample) |
- cc: Mr. Jeff Kerry, Kerry & Associates
Mr. Gerald Donnelly

FIGURES



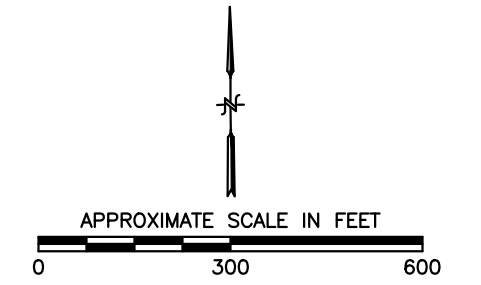
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REFERENCE:
 USGS 7.5 MIN QUAD MAP TITLED: SAN LEANDRO, CALIFORNIA DATED: 1959 REV: 1980

FIGURE 1 SITE LOCATION MAP

PALACE GARAGE
 14336 WASHINGTON AVENUE
 SAN LEANDRO, CALIFORNIA


INNOVEX
 ENVIRONMENTAL MANAGEMENT, INC.
 3900 Lennane Drive • Suite 130
 Sacramento • California • 95834
 Phone: (800) 988-7880



LEGEND:





-  ACTIVE GROUNDWATER MONITORING WELL LOCATION
-  AVERAGE PLUME LENGTH (100mg/L)
-  90TH PERCENTILE PLUME LENGTH (100mg/L)
-  MAXIMUM PLUME LENGTH (100mg/L)

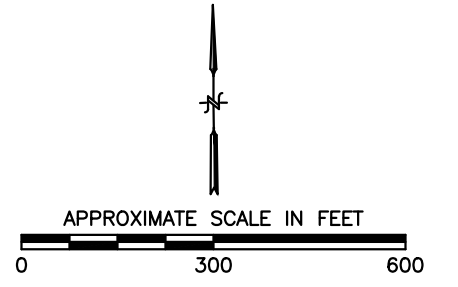
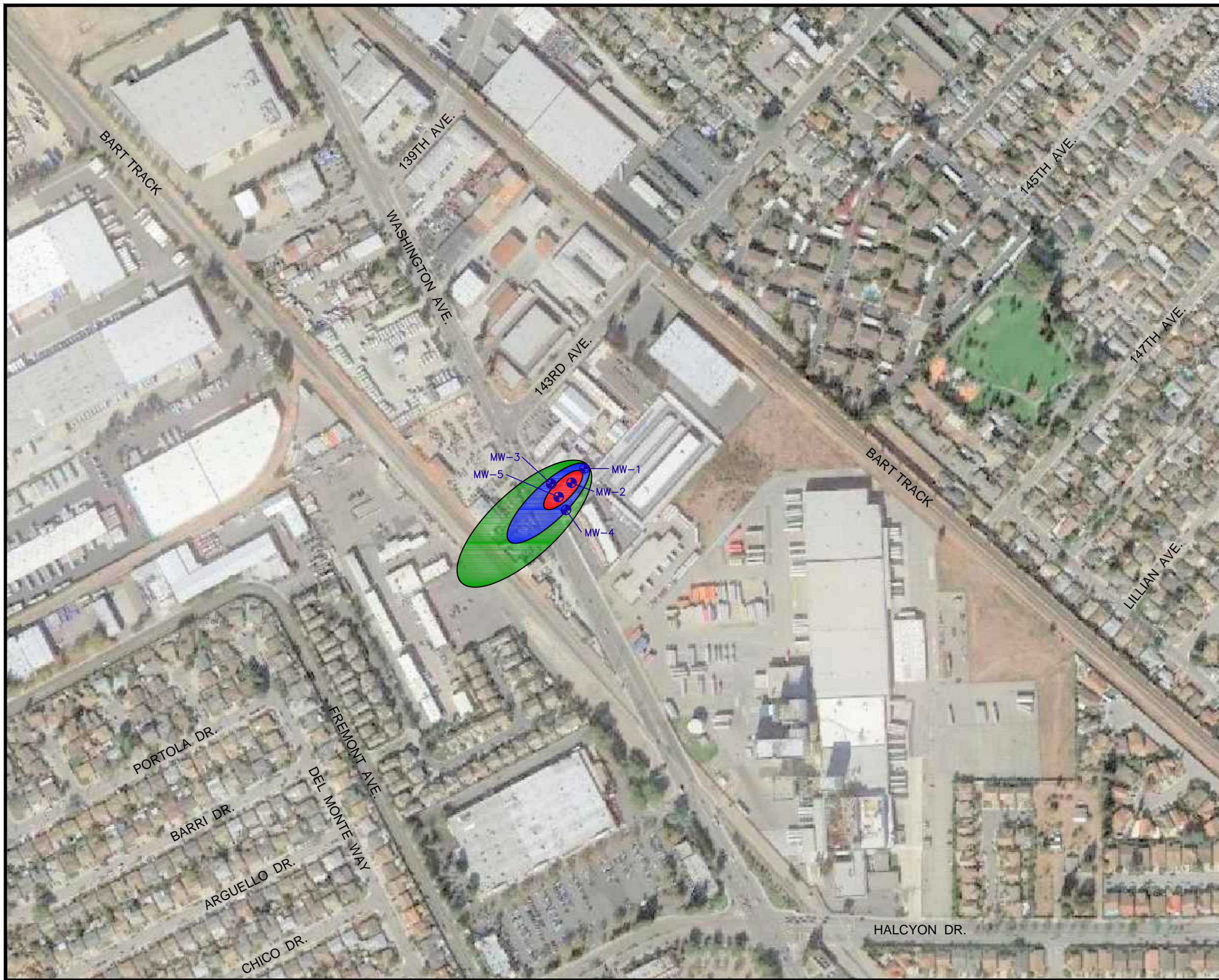
FIGURE 2

**POTENTIAL TPHg PLUME LENGTHS
BASED ON LTCP
TECHNICAL JUSTIFICATION**

PALACE GARAGE
14336 WASHINGTON AVENUE
SAN LEANDRO, CALIFORNIA



INNOVEX
ENVIRONMENTAL MANAGEMENT, INC.
2300 Clayton Road • Suite 1435
Concord • California • 94520
Phone: (800) 988-7880



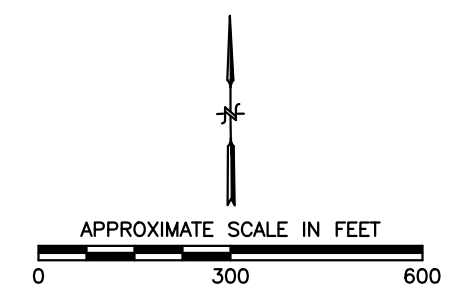
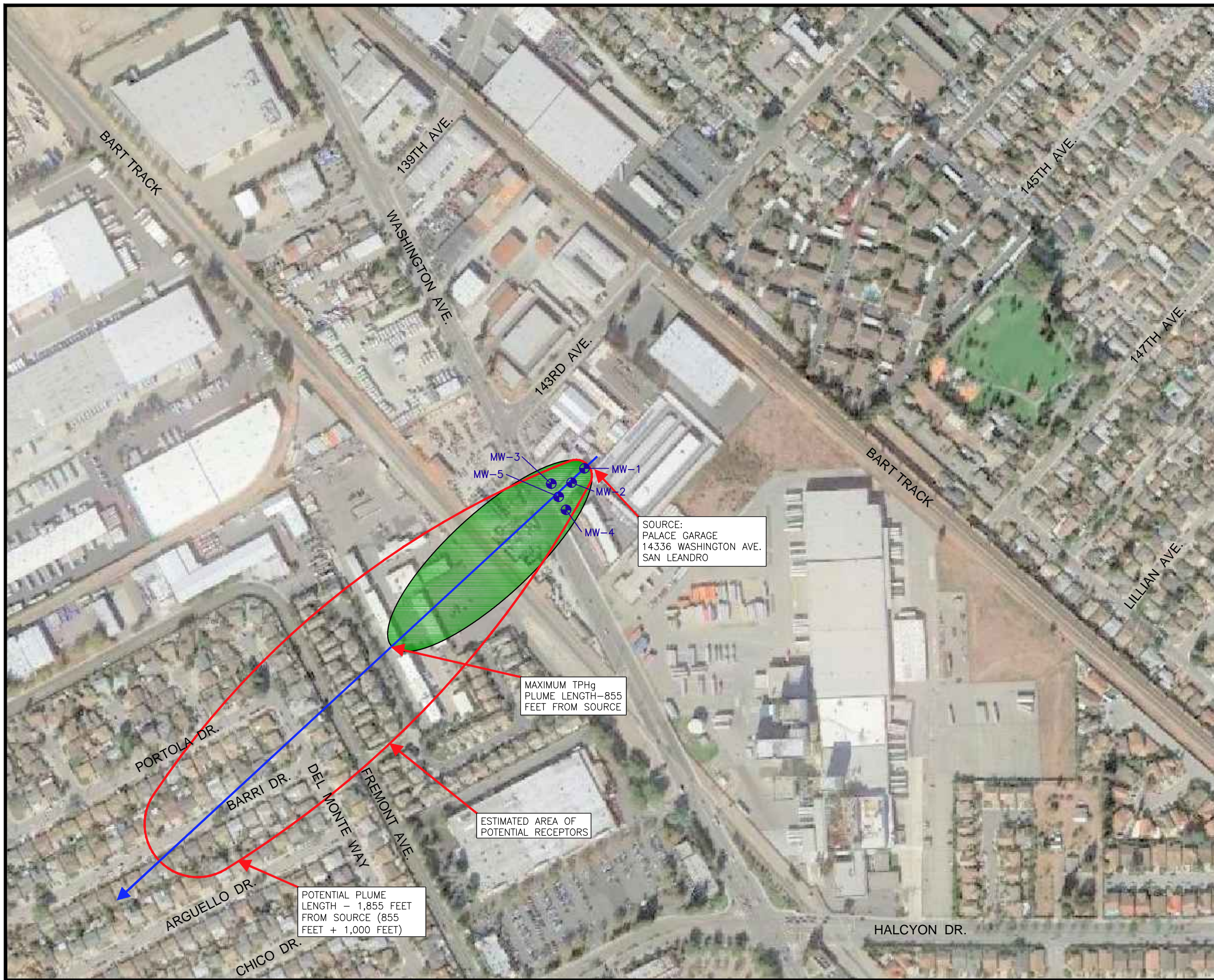
- LEGEND:**
- ACTIVE GROUNDWATER MONITORING WELL LOCATION
 - AVERAGE PLUME LENGTH (5mg/L)
 - 90TH PERCENTILE PLUME LENGTH (5mg/L)
 - MAXIMUM PLUME LENGTH (5mg/L)

FIGURE 3

**POTENTIAL BENZENE PLUME LENGTHS
BASED ON LTCP
TECHNICAL JUSTIFICATION**

PALACE GARAGE
14336 WASHINGTON AVENUE
SAN LEANDRO, CALIFORNIA

INNOVEX
ENVIRONMENTAL MANAGEMENT, INC.
2300 Clayton Road • Suite 1435
Concord • California • 94520
Phone: (800) 988-7880



- LEGEND:**
- ACTIVE GROUNDWATER MONITORING WELL LOCATION
 - PREDOMINATE GROUNDWATER FLOW DIRECTION

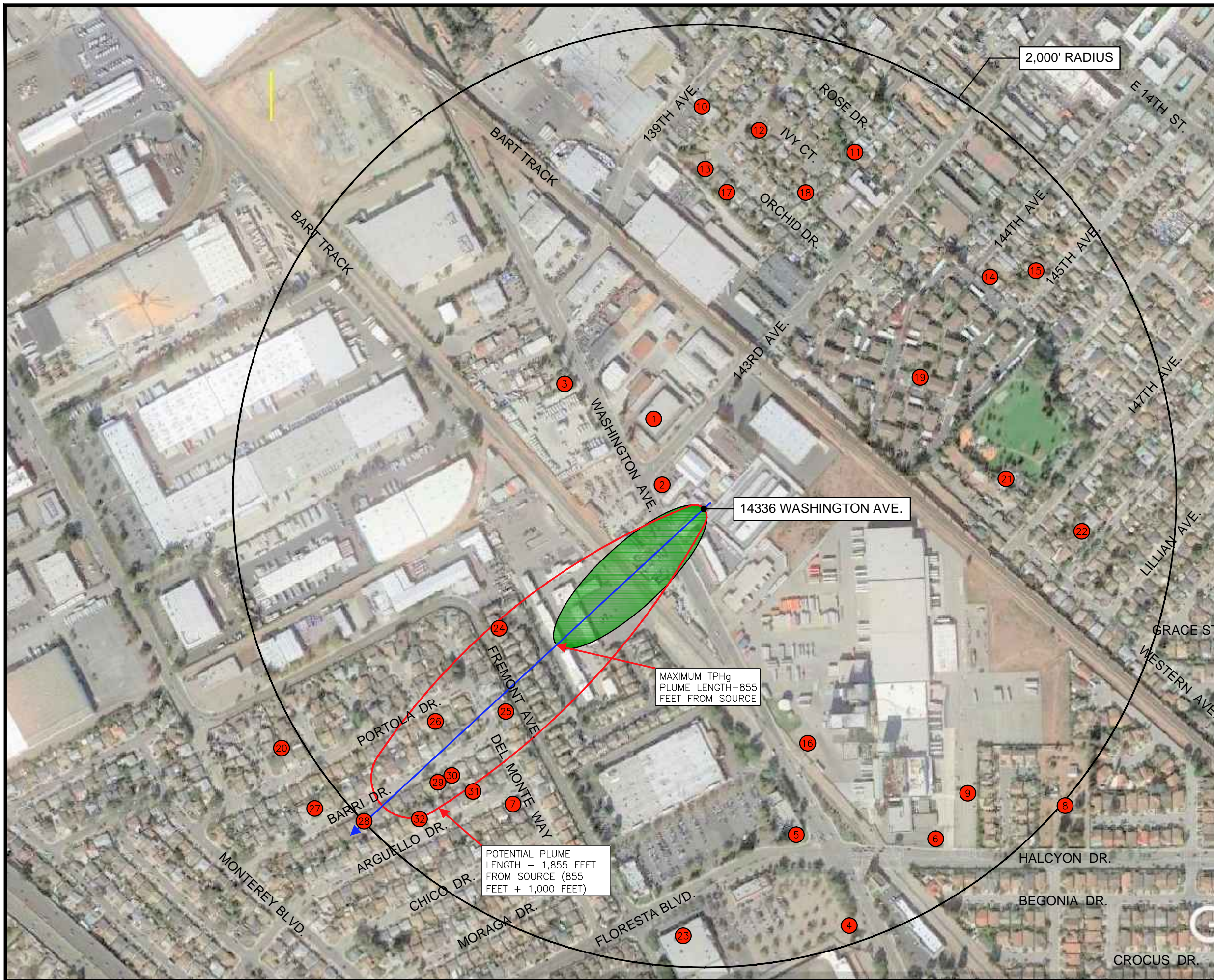
FIGURE 4

WORST CASE SCENARIO

WELL & SENSITIVE RECEPTOR SURVEY SEARCH AREA

PALACE GARAGE
14336 WASHINGTON AVENUE
SAN LEANDRO, CALIFORNIA

INNOVEX
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2300 Clayton Road • Suite 1435
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Phone: (800) 988-7880

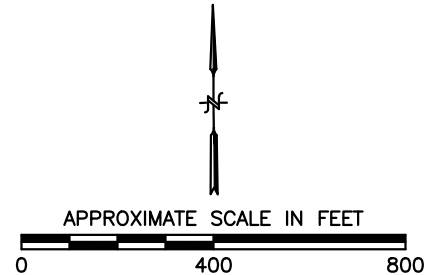


2,000' RADIUS

14336 WASHINGTON AVE.

MAXIMUM TPHg
PLUME LENGTH—855
FEET FROM SOURCE

POTENTIAL PLUME
LENGTH - 1,855 FEET
FROM SOURCE (855
FEET + 1,000 FEET)



- LEGEND:**
- 1 PROPERTIES WITH WELLS, TABLE 1.
(SOURCES: DWR, ACPWD, MAIL SURVEY)
 - PREDOMINATE GROUNDWATER FLOW DIRECTION

FIGURE 5

**WELL & SENSITIVE
RECEPTOR SURVEY
RESULTS**

PALACE GARAGE
14336 WASHINGTON AVENUE
SAN LEANDRO, CALIFORNIA

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TABLES

Table 1

Water Supply Wells on Map

14336 Washington Avenue
San Leandro, CA

Map Symbol	Address	City	Owner/Site Name	Total Depth (feet)	Water Depth (feet)	Diameter (inches)	Use	Approximate Distance/Direction		Source
								From Site		
1	501 143 Avenue	San Leandro	H. Mello	64	0	8	IRR	500 NNW		ACPWA
2	14300 Washington Avenue	San Leandro	Stefanovic Miiivoje	100	0	10	IND	450 WNW		ACPWA & DWR
2	14300 Washington Avenue	San Leandro	Rhodes & Jamieson	253	20	12	IND	450 WNW		ACPWA
3	14143 Washington Avenue	San Leandro	Earl Bolton	65	0	6	IRR	1,000 NW		ACPWA
4	14441 Washington Avenue	San Leandro	Avansino Mortensen Nursery	135	38	8	IRR	1,700 NW		ACPWA & DWR
4	14441 Washington Avenue	San Leandro	Avansino Mortensen Nursery	235	0	12	IRR	1,700 NW		ACPWA
4	14441 Washington Avenue	San Leandro	Avansino Mortensen Nursery	254	0	12	IRR	1,700 NW		ACPWA
4	14441 Washington Avenue	San Leandro	Avansino Mortensen Nursery	215	35	12	IRR	1,700 NW		ACPWA
4	14441 Washington Avenue	San Leandro	Avansino Mortensen Nursery	235	0	12	IRR	1,700 NW		ACPWA
5	Washington/ Floresta	San Leandro	Pacific Development Gp	185	65	6	IRR	1,600 SSE		ACPWA
6	291 Halcyon Drive	San Leandro	Thomas Cambron	0	0	0	IRR	2,000 SE		ACPWA
7	3607 Del Monte Way	San Leandro	George Ervin	35	15	4	IRR	1,400 SW		ACPWA & DWR
8	2824 Halcyon Drive	San Leandro	Malcom Storm	125	0	6	IRR	1,900 SE		ACPWA
9	2780 Halcyon Drive	San Leandro	Robert Hauskins	96	0	0	DOM	1,500 SE		ACPWA
10	1124 139th Avenue	San Leandro	Bill McMahon	80	25	8	IND	1,700 N		ACPWA & DWR
11	14245 Rose Drive	San Leandro	Edwin Menze	43	15	4	IRR	1,700 NNE		ACPWA & DWR
12	13221 Ivy Court	San Leandro	Ferris Griffin	62	0	6	DOM	1,600 N		ACPWA
13	14201 Orchid Drive	San Leandro	Mrs. Williams	72	22	6	IRR	1,500 N		ACPWA & DWR
14	1200 144th Avenue	San Leandro	Merchora Lamas	58	18	6	IRR	1,500 NE		ACPWA & DWR
15	1245 145th Avenue	San Leandro	Robert Matthews	61	21	6	IRR	1,800 NE		ACPWA & DWR
15	1236 145th Avenue	San Leandro	Sam Alcantara	53	20.5	6	IRR	1,800 NE		DWR
16	Washington Avenue	San Leandro	E. F. Winter	152	21	8	IRR	1,000 SSE		ACPWA
17	14221 Orchid Drive	San Leandro	Yren Steblina	60	26	0	IRR	1,500 N		ACPWA & DWR
18	14252 Orchid Drive	San Leandro	C.L. Smith	35	12	4	IRR	1,500 N		ACPWA & DWR
19	906 143rd Avenue	San Leandro	Nakashima Nursery	152	14	8	IRR	1,000 NE		ACPWA & DWR
19	906 143rd Avenue	San Leandro	Nakashima Nursery	289	0	12	IRR	800 NE		ACPWA
20	3420 Del Mar Circle	San Leandro	Edward Hunt	23	11	6	DOM	2,150 SW		ACPWA & DWR
20	3410 Del Mar Circle	San Leandro	John B. Harrison	28.5	11.5	4	IRR	2,150 SW		ACPWA & DWR
20	3404 Del Mar Circle	San Leandro	Mike Sanchez	25	0	4	IRR	2,150 SW		ACPWA
21	1211 147th Street	San Leandro	Justino	65	0	8	IRR	1,400 E		ACPWA
22	1227 148th Avenue	San Leandro	John Tenente	61	0	0	IRR	1,800 E		ACPWA
23	300 Floresta Boulevard	San Leandro	Ole's Home Centers	700	0	0	IRR	2,000 S		ACPWA
24	3411 Monogram St	San Leandro	Mun H. Yee	Unk	Unk	Unk	DOM	1,030 SW		Mail Survey
25	3548 Del Monte Way	San Leandro	Alfredo & Maria Cardoso	Unk	Unk	Unk	IRR	1,230 SW		Mail Survey
26	724 Portola Dr	San Leandro	Joe A. Kozel	Unk	Unk	Unk	IRR	1,540 SW		Mail Survey
27	851 Barri Dr	San Leandro	Manuel & Veronica Silveira	Unk	Unk	Unk	IRR	2,120 SW		Mail Survey
28	826 Barri Dr	San Leandro	D. Steele	Unk	Unk	Unk	IRR	2,050 SW		Mail Survey
29	730 Barri Dr	San Leandro	Blair & Janet Phillips	Unk	Unk	Unk	IRR	1,700 SW		Mail Survey
30	724 Barri Dr	San Leandro	Bo Kuang	Unk	Unk	Unk	IRR	1,650 SW		Mail Survey
31	727 Arguello Dr	San Leandro	Lester & Jean Kiing	Unk	Unk	Unk	IRR	1,580 SW		Mail Survey
32	785 Arguello Dr	San Leandro	Trung Chau	Unk	Unk	Unk	IRR	1,880 SW		Mail Survey

LEGEND:

IRR = Irrigational Well
 IND = Industrial Well
 DOM = Domestic Well
 ACPWA = Alameda County Public Works Agency
 DWR = Department of Water Resources

Attachment A
ACDEH Correspondence

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY

REBECCA GEBHART, Interim Director



DEPARTMENT OF ENVIRONMENTAL HEALTH
LOCAL OVERSIGHT PROGRAM (LOP)
For Hazardous Materials Releases
1131 HARBOR BAY PARKWAY, SUITE 250
ALAMEDA, CA 94502
(510) 567-6700
FAX (510) 337-9335

January 9, 2017

Mr. Jeff Kerry
Kerry & Associates
151 Callan Avenue, Suite 300
San Leandro, CA 94577
(Sent via electronic mail to:
djkerry1@aol.com)

Mr. Jeffery Kerry
Jeffery & Dolores Kerry Trust & Jame Donnelley et. al.
19655 North Ripon Road
Ripon, CA 95366

Subject: Request for Closure Response; Fuel Leak Case No. RO00000208; Palace Garage (Global ID #T0600101043), 14336 Washington Avenue, San Leandro, CA 94578

Dear Mr. Kerry:

Alameda County Department of Environmental Health (ACDEH) staff has reviewed the case file including the *Fourth Quarter 2016 Groundwater Monitoring Report – Palace Garage*, dated November 17, 2016. The report was submitted on your behalf by Innovex Environmental Solutions, Inc (Innovex). Thank you for submitting the groundwater monitoring report. Based on the decreases in groundwater concentrations documented in the referenced report, INNOVEX requested closure for the site.

ACDEH has evaluated the data and recommendations presented in the above-mentioned reports, in conjunction with the case files, to determine if the site is eligible for closure as a low risk site under the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP). Based on ACDEH staff review, we have determined that the site is nearing closure, but fails to meet the LTCP Media-Specific Criteria for Groundwater. See Geotracker for a copy and below for further details.

Based on ACDEH staff review of the case file, we request that you address the following technical comments and send us the reports described below.

TECHNICAL COMMENTS

1. **LTCP Media Specific Criteria for Groundwater** – To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed in the policy.

Our review of the case files indicates that insufficient data collection and analysis has been presented to support the requisite characteristics of plume stability or plume classification as follows:

- a. **Undefined Downgradient Extent** – As commented in previous letters, a review of groundwater concentrations at the site indicates that significant concentration increases are observed during periods of shallow groundwater. For example at well MW-1, elevated groundwater concentrations were present when depth to groundwater is shallower than approximately 14 ft below grade surface (bgs). Depths to groundwater were very similar during multiple monitoring events between September 2006 with groundwater at 13.33 ft bgs, and May 2016 with groundwater at 13.40 bgs. During the September 2006 event 44,000 micrograms per liter ($\mu\text{g/l}$) Total Petroleum Hydrocarbons as gasoline (TPHg) and 870 $\mu\text{g/l}$ benzene were documented. During the May 2016 event 24,000 $\mu\text{g/l}$ TPHg and 100 $\mu\text{g/l}$ benzene were documented. Groundwater concentrations immediately before and after high groundwater levels were significantly less. Similar shallow groundwater and concentrations increases and rapid declines were present in February 2008, May 2010, and May 2012.

A similar, but less accentuated trend is also present in the most downgradient well MW-5 at the site. Thus the downgradient extent of the groundwater plume is undefined during periods of high groundwater.

ACDEH notes that the shallow groundwater depth and the concurrent high contaminant concentration increase observed in May 2015 occurred **before** removal actions were undertaken at the site, and was not produced as a result of these actions. Thus ACDEH is not convinced recent concentration decreases can be attributed entirely to the removal actions conducted in May 2015, but anticipates that drought conditions which have been generally observed in the region since 2008 likely contribute to lower groundwater levels and thus lower groundwater concentrations. However in general, based on this data review, ACDEH considers the contaminant concentration trend at the site to be either stable or declining.

Therefore, to ensure that worst-case groundwater concentrations, which may return when the region exits drought-like conditions, it appears appropriate to utilize tools contained in the LTCP to define worst-case plume lengths downgradient of well MW-5. Based on a literature review by the State Water Board (SWB), Table 1 of the *Technical Justification for Groundwater Media-Specific Criteria* (SWB, April 24, 2012) provides the Average, 90th Percentile, and Maximum Plume lengths for TPHg, benzene, and methyl tert butyl ether (MTBE). ACDEH requests the generation of a figure depicting the average, 90th percentile, and maximum plume lengths for TPHg and benzene (the site has been shown not to contain significant MTBE concentrations in groundwater) in the downgradient groundwater flow direction.

Subsequently, consistent with the LTCP, the utilization of these estimated plume lengths to conduct a search for sensitive receptors within 1,000 feet of the areas defined by the potential plume lengths. This is requested to include older privately owned water supply wells that may not be known to the State, but are well documented in San Leandro and San Lorenzo (see attached Figure 5 from the *Groundwater Study and Water Supply History of the East Bay Plain, Alameda and Contra Costa Counties, CA*, The Friends of the San Francisco Bay Estuary, Norfleet Consultants, June 15, 1998). ACDEH also requests inclusion of the results of a search for potential receptors, including basements with sump pumps which have the capacity to extract groundwater and discharge it as storm drainage at street level, within the anticipated plume lengths, and within 1,000 feet of the potential length.

This will likely require a door to door survey or the mailing of a public survey flyer to addresses within the area defined by the potential LTCP plume areas, plus potential receptors within 1,000 feet of the predicted plume lengths. At an appropriate time please request examples of public survey flyers from ACDEH and submit a draft copy of the flyer to ACDEH for comment and distribution on ACDEH letterhead. Additionally, a search for addresses with two EBMUD water supply utility boxes, indicating the presence of municipal water supply and anti-siphon connections for private water wells, can be fruitful. Not all addresses participated in the anti-siphon device installation program, so not all addresses with wells will have two boxes.

ACDEH requests that a plume delineation and sensitive receptor report be submitted by the date identified below. Please include a Focused Site Conceptual Model (SCM; see Attachment A) summarizing site data, indicating tabulated soil analytical samples that have been removed from the site by excavation or other means (indicated by legible strike out, fade out, or other means), comparing vapor data to appropriate identified goals (LTCP or updated appropriate commercial Environmental Screening Levels [ESLs]), and evaluating the site against LTCP General or Media-Specific Criteria, or updated ESLs, where appropriate. Please include the results of this effort in the report to be generated for the following technical comment.

- 2. Quarterly Verification Groundwater Monitoring** – Please conduct a minimum of one additional quarterly groundwater monitoring event, in order to determine groundwater concentrations in the near future when depth to groundwater may be shallower as discussed above. This is requested in an effort

to verify the affect of groundwater elevations on contaminant concentrations at the site. Please include this data in the report requested above.

SUBMITTAL ACKNOWLEDGEMENT STATEMENT

Please note that ACDEH has updated Attachment 1 with regard to report submittals to ACDEH. ACDEH will now be requiring a Submittal Acknowledgement Statement, replacing the Perjury Statement, as a cover letter signed by the Responsible Party (RP). The language for the Submittal Acknowledgement Statement is as follows:

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's Geotracker Website.

Please make this change to your submittals to ACDEH.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with Attachment 1 and the following specified file naming convention and schedule:

- **March 31, 2017** – Focused Site Conceptual Model, Sensitive Receptor Survey, and First Quarter 2017 Groundwater Monitoring Report
File to be named: RO208_SWI_R_yyyy-mm-dd

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Online case files are available for review at the following website: <http://www.acgov.org/aceh/index.htm>.

If you have any questions, please call me at (510) 567-6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,



Digitally signed by Mark Detterman
DN: cn=Mark Detterman, o=ACEH, ou=ACEH,
email=mark.detterman@acgov.org, c=US
Date: 2017.01.09 17:09:01 -08'00'

Mark E. Detterman, PG, CEG
Senior Hazardous Materials Specialist

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations and Electronic Report Upload (ftp) Instructions

Attachment A -- Site Conceptual Model Requisite Elements

Figure 5 *Groundwater Study and Water Supply History of the East Bay Plain, Alameda and Contra Costa Counties, CA*, The Friends of the San Francisco Bay Estuary, Norfleet Consultants, June 15, 1998

cc: Rick Marment, 9748 Weddington Circle, Granite Bay, CA 95746, (Sent via electronic mail to: r.mar@shorewest.net)

Mr. Jeff Kerry
RO000208
January 9, 2017, Page 4

Thomas Sparrowe, Closure Solutions, Inc, 4600 Northgate Blvd, Suite 230, Sacramento, CA 95834
(Sent via electronic mail to: tsparrowe@innovex.net)

Dilan Roe, ACDEH, (Sent via electronic mail to: dilan.roe@acgov.org)

Paresh Khatri, ACDEH; (Sent via electronic mail to: paresh.khatri@acgov.org)

Mark Detterman, ACDEH, (Sent via electronic mail to: mark.detterman@acgov.org)

Electronic File; GeoTracker

**Attachment B
Rose Diagram**

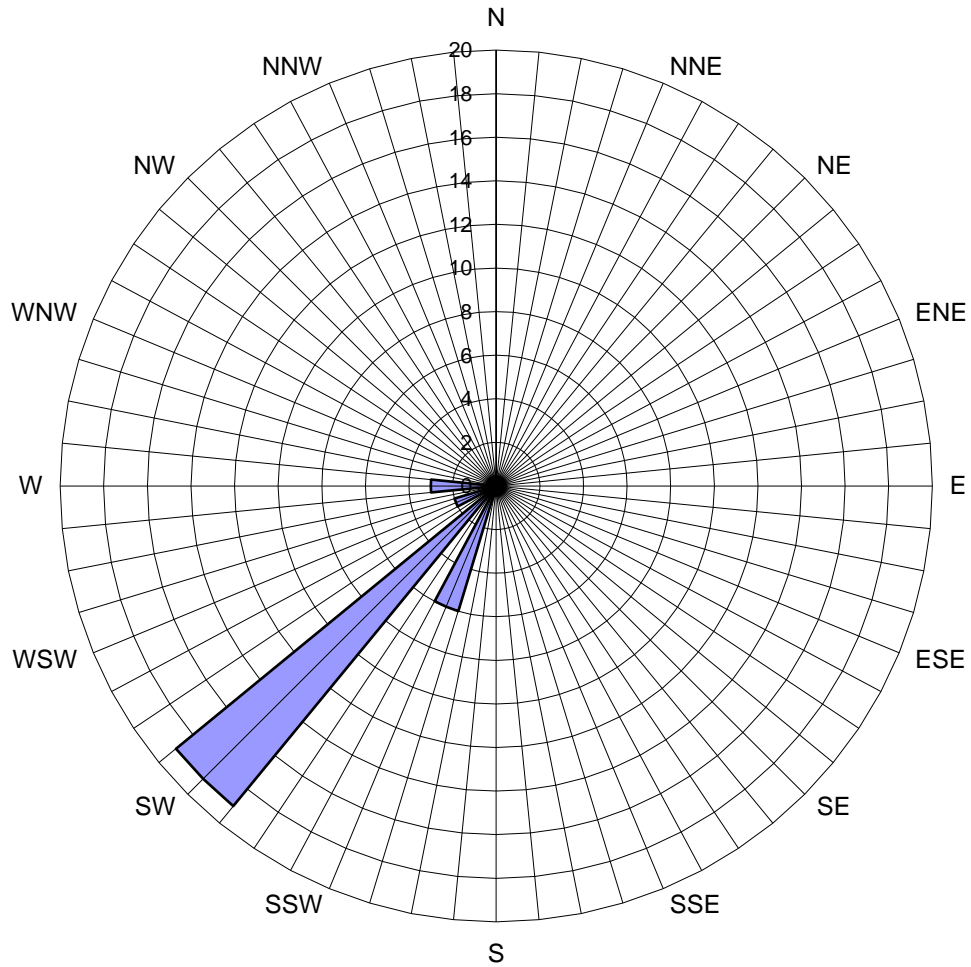
Historical Groundwater Flow Direction Rose Diagram

Feb 19, 2000 to January 31, 2017

Palace Garage

14336 Washington Avenue

San Leandro, CA



■ Groundwater Flow Direction

Attachment C
Local Vicinity Domestic Well
Inventory Questionnaire (Sample)



February 2, 2017

**SUBJECT: Local Vicinity Domestic Well Inventory
Former Palace Garage
14336 Washington Avenue
San Leandro, California 94578**

Dear Property Owner or Occupant:

The Alameda County Department of Environmental Health (ACDEH) has requested that INNOVEX Environmental Management, Inc., conduct a neighborhood water well survey with the goal to identify any domestic or agricultural wells and homes with basements in San Leandro within the approximate search boundaries of Washington Ave on the east, the southern side of Portola Drive on the north, the northern side of Arguello Drive on the south, and east of Monterey Boulevard on the west.

ACDEH is attempting to determine if groundwater contamination from a local fuel leak site has extended off site and whether this contamination might be affecting local water wells or basements. Since your property is located within the designated survey boundaries, we are inquiring about the possible existence of a water well or basement on this property.

Please contact us if you have any information regarding a water well or basement on this property or nearby properties so that our survey can be as effective and complete as possible. We have included a brief questionnaire and a stamped envelope addressed to our office. Please complete the survey and mail it to us at the soonest convenient time, as we hope to present the results of the survey in less than two weeks.

Should you have any questions, please contact INNOVEX case manager Tom Sparrowe at (925) 566-8567 or ACDEH case manager Mark Detterman at (510) 567-6876. You can also send him an email message at mark.detterman@acgov.org.

Tom Sparrowe, PG
Principal Geologist
INNOVEX Environmental Management, Inc.
2300 Clayton Road, Suite 1435
Concord, CA 94520

Mark Detterman, PG, CEG
Senior Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

QUESTIONNAIRE

Today's Date: _____

Property Address: _____

- 1) Is there a water well on your property: Yes / No
- 2) If yes, what is the water used for? Drinking Water / Irrigation / Not Used / Other _____
- 3) If a water well existed, but has been destroyed or sealed, please indicate the year destroyed. _____
- 4) Is drinking water at the property supplied either by a municipal provider such as a village, city, or county water department, or by a private water company?

Answer: _____

- 5) Do you know of a water well on any nearby properties? Yes / No
- 6) Does your house have a basement? Yes / No
- 7) If it has a basement, how deep is the basement? (Full story or partial?): -----
- 8) If yes, is it equipped with a sump pump to remove water? Yes / No

Comments: _____

Signature of Property
Owner or Manager: _____ Date: _____