

## Santa Ana Regional Water Quality Control Board

April 24, 2017

Mr. Steve Armanino  
Director of Development  
The Olson Company  
3010 Old Ranch Parkway, Ste. 100  
Seal Beach, CA 90740

**SUBJECT: DRAFT FINAL RESPONSE PLAN  
COTTONWOOD CHURCH  
3311 SAUSALITO STREET  
CITY OF LOS ALAMITOS, ORANGE COUNTY, CALIFORNIA 90720  
LUSTIS GLOBAL ID. T10000008413**

Dear Mr. Armanino:

This letter is to inform you that we have completed the review of the February 13, 2017 *Draft Final Response Plan* submitted by your consultant, Stantec Consulting Services Inc. (Stantec), for the above referenced property (Site). The 2.39-acre Site is currently occupied by the Cottonwood Church. In addition to the Cottonwood Church, there are asphalt-paved parking lots on the northern and southern portions of the Site. The Assessor Parcel Number for the Site is 242-222-13.

### Background

Historical records indicate that several companies operated at the Site from the 1940s to late 1980s before the present Cottonwood Church building was erected. Specifically, Velsicol Chemical Company (Velsicol), a manufacturing plant, operated at the Site from the 1940s to the 1960s. It is reported that the Velsicol manufactured organochlorine pesticides, chlordane, and heptachlor, polybrominated biphenyls and DDT. From the 1960s through 1980s, another manufacturing company, California Batching Equipment, also operated at the Site, fabricating construction equipment. Records indicate that more than 30 aboveground storage tanks (ASTs) were utilized for chemical and fuel storage at the Site, and in the surrounding area, during the period that Velsicol and California Batching Equipment operated at the Site.

The Olson Company is proposing to demolish the current structure (the Cottonwood Church) and construct multi-level townhomes. The Response Plan presents a proposed strategy to excavate soil in areas of the Site where concentrations of volatile organic compounds (VOCs) and methane exceed the established risk-based remedial goals. According to the Response Plan, soil vapor barriers with passive venting

systems will be installed, in order to mitigate any remaining post-remediation vapor intrusion concerns. The barriers will be placed below future residential buildings in areas that have been identified as potentially affected by VOCs and/or methane vapor intrusion, for the protection of future Site residents.

## **Historical Investigations**

Following the initial Phase I Environmental Site Assessment (ESA) in 2015, three separate Phase II ESAs were also conducted in November 2014, June 2015, and March 2016.

### **2014**

The Phase II ESA, dated November 13, 2014, included the advancement of soil, soil vapor, and groundwater borings at five separate locations. The ESA evaluated potential impacts from releases of pesticides, total petroleum hydrocarbons (TPH), and/or VOCs in the areas where the ASTs were previously located. The 2014 ESA consisted of five soil borings (SB-16 through SB-20), four soil vapor sampling locations (SB-14 through SB-17), and two grab groundwater samples obtained from borings SB-14 and SB-15.

The resulting analyses revealed the presence of elevated concentrations of total petroleum hydrocarbon as gasoline (TPH<sub>g</sub>), as diesel (TPH<sub>d</sub>), and as oil (TPH<sub>o</sub>) in the soil along the eastern boundary of the site. Concentrations of TPH<sub>d</sub> and TPH<sub>o</sub> were detected at 1,600 micrograms per kilograms (mg/kg) in SB-20, 1' (i.e. at a depth of 1 foot) and 4,700 mg/kg (SB-20,1'), respectively.

The soil vapor sampling results indicated maximum concentrations of TPH<sub>g</sub>, benzene, and ethylbenzene at 16,000 micrograms per liter (µg/L), 20 µg/L, and 40 µg/L, respectively, in boring SB-17. The detected concentrations of benzene and ethylbenzene along the eastern property line exceeded California's established health goal at that time (California Human Health Screening Levels, or CHHSLs) as well as the US EPA Regional Screening Levels (RSLs) for residential use.

Methane gas was detected at concentrations ranging from 1,300 parts per million to a maximum concentration of 120,000 parts per million by volume (ppmV) in the northeastern portion of the Site (SB-17). The peak levels of methane exceed the allowable concentration level for residential homes.

### **2015**

The June 2015 ESA included additional soil borings (12), soil vapor samples (8), and a grab groundwater sample. TPH<sub>g</sub>, TPH<sub>d</sub>, and TPH<sub>o</sub> were detected in soil samples at maximum concentrations of 311 mg/kg (SB-30, 10'), 276 mg/kg (SB-23, 1'), and 2,156 mg/kg (SB-32, 1'), respectively. Benzene, ethylbenzene, and naphthalene were reported at maximum concentrations of 2.09 mg/kg, 35.7 mg/kg, and 118 mg/kg, respectively, from sample SB-25 collected at 10'.

Due to the elevated TPH levels detected in the northeastern portion of the Site, Stantec obtained a grab groundwater sample from a temporary well casing in boring SB-33 and submitted it for analysis. The results revealed elevated concentrations of VOCs. Benzene, naphthalene, ethylbenzene, and TPH<sub>g</sub> were detected at concentrations of 1,500 µg/L, 1,600 µg/L, 880 µg/L, and 9,700 µg/L, respectively.

## **2016**

In March 2016, Stantec collected 18 soil samples from six additional soil borings and five soil vapor samples from five separate locations. Stantec also installed four groundwater monitoring wells in the northern portion of the Site. The results from analysis of the soil samples indicated elevated concentrations of TPH and VOCs in SB-34, SB-35, SB-36, SB-37 and SB-39. All other VOCs detected were observed at concentrations below their respective Environmental Screening Levels (ESLs<sup>1</sup>).

The analytical results for the soil vapor samples indicated the presence of benzene, toluene, ethyl-benzene, total xylene (BTEX) and other VOCs. The analytical results reported TPH<sub>g</sub>, TPH<sub>d</sub>, and TPH<sub>o</sub> with peak concentrations of 4,800 mg/kg, 1,200 mg/kg, and 4,800 mg/kg, respectively. Benzene was reported at concentrations of 1.10 µg/L and 0.64 µg/L in soil vapor points SV4-5 and SV5-5, respectively. These concentrations are above US EPA RSLs for soil vapor at residential properties, which is 0.36 µg/L. Methane was detected in three samples at concentrations up to 44,000 ppmv with the higher concentrations reported in the northern portion of the Site.

Groundwater was found between 12 to 14 feet below ground surface (bgs), with a northwesterly gradient. Analytical results for the groundwater samples indicated elevated TPH and VOC concentrations in all of the newly installed wells. TPH<sub>g</sub> concentrations ranged up to 6,900 µg/L in MW-1, while TPH<sub>d</sub> concentrations ranged up to 12,000 µg/L. TPH<sub>o</sub> was reported in two of the four wells, ranging up to 890 µg/L in MW-1. Benzene was reported above the ESL concentration of 0.097 µg/L for direct soil contact, ranging up to 1,200 µg/L in MW-1.

## **Proposed Remedial Goals**

The Response Plan indicates that the remedial goals for TPH in the soil are the concentrations where neither the construction workers nor the future residents of the Site will be exposed to “unacceptable risk.” Stantec proposes 4,100 mg/kg as the Site remedial goal for the upper 5 feet of soil for total TPH (combined gasoline, diesel, and oil ranges).

For the VOCs, specific US EPA screening levels have been proposed. Similar to the soil cleanup levels, Stantec indicates that the cleanup levels for the VOCs are those

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<sup>1</sup> San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels published February 2016 (Rev. 3)

values presented in the table below, at which there will be no “unacceptable risk” to construction workers and the future residents at the Site. The future residential cancer risks at or below 1E-06 is considered acceptable. Chemicals of concern (COCs) should not be present at concentrations resulting in a hazard index greater than 1. This would be unacceptable. Similarly, a cancer risk at or below 1E-05 for commercial/industrial workers is considered acceptable; with the target hazard index of 1. The proposed values are specified for the cleanup of residual soil contamination within the uppermost 5 feet of soil.

### TPH CLEANUP GOALS

Site Cleanup Goal	Guideline	Screening Level
Soil		mg/Kg
TPH <sub>(Total)</sub>	Risk-Based Cleanup	4,100

### VOC CLEANUP GOALS

Potential Chemical-of-Concern	Guideline	Screening Level
Soil		mg/Kg
Benzene	DTSC HERO <sup>2</sup> Note 3 for Residential Screening Level – June 2016	0.33
Ethylbenzene	Risk-Based Cleanup – Appendix C	6.25
Propyl benzene	US EPA RSL – November 2015	3,800
Naphthalene	Risk-Based Cleanup – Appendix C	4.67
1,2,4-Trimethylebenzene	Risk-Based Cleanup – Appendix C	150
1,3,5-Trimethylebenzene	US EPA RSL – November 2015	780

### SOIL VAPOR CLEANUP GOALS

Site Cleanup Goal	Guideline	Screening Level
Soil Vapor		µg/L
TPH <sub>g</sub>	Risk-Based Cleanup – Appendix C	TBD
Benzene	Risk-Based Cleanup – Appendix C	TBD
Ethylbenzene	Risk-Based Cleanup – Appendix C	TBD
Methane	Risk-Based Cleanup – Appendix C	TBD

<sup>2</sup> California Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA)

### **Proposed Response Action Plan for Soil**

In the Final Response Plan, dated February 13, 2017, Stantec has identified TPH<sub>g</sub>, TPH<sub>d</sub>, TPH<sub>o</sub>, benzene, ethylbenzene, propyl benzene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB as the COCs in soil at the Site. Of these chemicals, TPH<sub>g</sub>, benzene, ethylbenzene, and methane have also been identified as the COCs in soil vapor. The sources of these chemicals are believed to be related to the historical operations at the site. The TPH and VOCs in the soil vapor and groundwater have been identified in the northern portion of the Site, and along the eastern property boundary.

Our staff has requested that you perform further assessment of groundwater impacts at the Site. We have also requested that the owner of the adjacent property, Monte Collins, carry out a similar assessment. Our goal is to identify the impacts to soil and groundwater, and determine if mitigation measures will be necessary. After the impacts to the soil and groundwater have been mitigated, and when no further monitoring or remediation is required, we will make a determination regarding the closure of this Site. Our staff has established that, at a minimum, 3 years of groundwater monitoring are typically necessary, in order to establish the trends that will enable staff to draw the conclusions that would likely lead to closure. It is our understanding that The Olson Company, the purchaser (pending) of the Cottonwood Church property, is aware that they are responsible for meeting these requirements.

### **Proposed Response Action for Soil**

The proposed Final Response to remediate the soil consists of excavation and off-Site disposal of the impacted soil, described as follows:

1. The soil will be excavated to a depth of 5 feet bgs. Stantec believes that at this depth, the COCs that could be harmful to the construction workers and the future residents would be eliminated. The proposed excavation areas are illustrated on Figure 5 of the Response Plan.
2. Stantec proposes to collect soil samples every 25 feet from the sidewalls and the bottom of the remedial excavation. If sample results show concentrations above agreed remediation goals, Stantec proposes that additional excavation of soil, to depths greater than 5 feet, will be carried out. Such assessment will be conducted with excavation equipment and soil sampling to confirm vertical limits of impact, and will be subject to Regional Board staff approval.
3. The excavation will not extend beyond the eastern property boundary line. However, the excavation within the Site will continue vertically until all confirmation samples collected from the sidewalls and the bottom of the proposed excavation area indicate concentrations below remediation goals. The excavated soil will be stockpiled on-Site, and then sampled for the purposes of profiling the waste. The stockpiled soil will be removed to an off-Site approved facility. All soil samples will be analyzed for TPH<sub>g</sub>, TPH<sub>d</sub>, and TPH<sub>o</sub> using US EPA Method 8015B and for VOCs using US EPA Method 8260B.

4. If soil impacts are identified at the total depth of the planned remedial excavation, which is 5 feet bgs, further vertical assessment will be conducted to evaluate if the detected impact extends to groundwater. In the event that contamination has migrated to the groundwater, Stantec shall notify Regional Board staff, in order to develop an assessment plan to address the groundwater impacts.

### **The Excavation Areas**

Three areas have been demarcated for excavation:

1. Proposed Area 1 of the excavation is located adjacent to the eastern property line. The size of the excavation will be approximately 70 feet in width and approximately 270 feet long. According to Stantec, the excavation in Area 1 shall not go beyond the property line.
2. Proposed Area 2 will be located at the northeastern corner of the site. The proposed area of the excavation will be approximately 70 feet wide and 60 feet long. This excavation will terminate at the eastern boundary line.
3. Proposed Area 3 is located in the northwestern portion of the Site. The area proposed for this excavation will be approximately 50 feet wide and 110 feet long. According to the Plan, this excavation will terminate at the northwestern property line and will not continue onto the adjacent Coyote Creek bikeway.

### **Proposed Response Action for Soil Vapor**

During the previous assessments, there were indications that there could be soil vapor intrusion into the proposed residential homes. This vapor intrusion concern is the primary reason to remediate the impacted soils by excavation. Stantec states that confirmation sampling of post-remedial soil vapor conditions will be conducted, and any potential for rebound of soil vapor concentration shall be assessed. In the event that soil vapor intrusion remains a concern after the remedial excavation activities have been completed, a vapor barrier membrane and passive venting system(s) shall be installed before the start of residential home construction. Specifically, the Plan states that "Vapor barrier use will be based on a risk analysis and Orange County Fire Authority (OCFA) Combustible Soil Gas Hazard Mitigation requirements of detected soil vapors present after the two (2) week equilibration period."

### **Proposed Response Action for Groundwater**

Several phases of groundwater assessment and monitoring were performed at the Site. As described above, the most recent groundwater sampling events occurred in January 2017. The highest concentrations of TPH<sub>g</sub> and VOC were detected in monitoring wells MW-1 and MW-2, which are located along the eastern property line (see Table below). The groundwater gradient at the Site is toward the west.

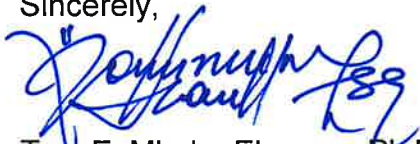
Well	TPHg µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Total Xylenes µg/L	Naphthalene µg/L
MW-1	7,700	1,800	120	1,200	510	4,500
MW-2	9,000	23	34	1,000	300	390

Previous groundwater assessments revealed a potential concern that there is a source of groundwater contamination beyond the eastern edge of the Site. Following the Site grading operation, the on-Site and off-Site groundwater monitoring wells will be reinstalled. The groundwater monitoring wells will be monitored for a minimum of 3 years.

Should the COC concentrations in groundwater increase significantly from the present levels, Stantec has proposed that additional groundwater monitoring wells will be considered. Similarly, if the impacted groundwater is found to be present in the off-Site area east of the Site after the remedial excavation activities have been completed, additional groundwater monitoring well installation will be considered. However, Stantec proposes that the exact locations of the monitoring wells will be based on the results of the confirmation soil sampling.

We concur with the Draft Final Response Plan, and request that a report of activities be submitted to this office by July 21, 2017. Please notify our staff at least 10 days in advance of commencing all field activities. If you have any questions, please contact me at (951) 320-2007, or via e-mail at [tmbeke-ekanem@waterboards.ca.gov](mailto:tmbeke-ekanem@waterboards.ca.gov).

Sincerely,



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