**Response to Comments received from Orange County Water District dated October 5, 2018 Regarding the Closure Recommendation for**

**Tustin Auto Wash, 535 Main, Tustin, 92780**

**Claim 14847**

Summary

The site, Tustin Auto Wash, was a former car wash and commercial petroleum fueling facility and is currently developed as a retail building. An unauthorized release was reported in August 1999 following the removal of two gasoline underground storage tanks (USTs). Dual-phase extraction (DPE) was conducted between June and August 2007. Soil vapor extraction (SVE) was conducted between December 2007 and May 2008. Approximately 1,935 pounds of total petroleum hydrocarbons as gasoline (TPHg) were removed using DPE and SVE. Groundwater extraction (GWE) was conducted intermittently between December 2007 and September 2009, which reportedly removed 657,000 gallons of petroleum-contaminated groundwater. Between June 2012 and January 2013, GWE activities reportedly removed 238,087 gallons of petroleum-contaminated groundwater, and between May 2015 and January 2016 reportedly removed 1,223 gallons of petroleum-contaminated groundwater

Three production wells, Tustin Main Street Well #2 (T-MS2), Tustin Main Street Well #3 (T‑MS3) and Tustin Main Street Well #4 (T‑MS4) are located to the west and downgradient of the Site. The nearest well, T‑MS4, is located approximately 450 feet west of the defined petroleum hydrocarbon plume boundary. Wells T-MS2 and T‑MS3 are both located approximately 700 feet west of the defined petroleum hydrocarbon plume boundary; T-MS2 is inactive and has not been sampled since 1999. There is one onsite monitoring well cluster (MW-6, MW-6M, MW-6D) and one offsite monitoring well cluster (MW-11M, MW-11D) located between the petroleum hydrocarbon plume boundary and the three production wells.

In 2017 discussions with Orange County Health Care Agency (OCHCA), the lead regulatory agency for the site, OCHCA stated that they would not object if State Water Board staff recommended closure for the site. State Water Board staff posted a Notice of Opportunity for Public Comment on August 2, 2018 which requested a response by October 5, 2018.

Mr. David Bolin of the Orange County Water District (District) submitted an email response on October 5, 2018. The key comments from the email dated October 5, 2018 are presented below in italics, with a response from State Water Board staff.

*Comment 1: Tustin Auto Wash Site groundwater contamination has not been delineated.*

Response: Since 2001, 19 groundwater monitoring wells (12 onsite and 7 offsite) have been installed and regularly monitored to evaluate the magnitude and extent of the petroleum hydrocarbon plume that resulted from the release from the USTs. The petroleum hydrocarbon constituents detected in groundwater at the Site included total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene and xylene (BTEX), methyl tertiary butyl ether (MTBE) and tertiary butyl alcohol (TBA). The data show that since groundwater monitoring began at the Site in 2001, BTEX concentrations were detected only in one monitoring well, MW-10, in the former UST area, and only until 2008. Since 2008 (10 years) BTEX concentrations have not been detected in MW-10 or any Site wells. Therefore, the following discussion will focus on the remaining contaminants of concern, MTBE and its breakdown product, TBA.

The District letter referenced contaminant concentrations from monitoring events conducted between May 2002 and December 2009, which are not representative of current groundwater conditions, and expressed concern about the potential for a diving contaminant plume. An on-going release of petroleum hydrocarbons or an unmitigated source (no remediation) could potentially develop a sustained contaminant plume that could dive, but those conditions are not present at the site. The USTs that were the source of the release were removed in 1999. Remedial activities including DPE and SVE were conducted between June 2007 and September 2009. Additional remediation was performed in 2012 to 2013, and in 2015 to 2016. There is neither an on-going release nor an unmitigated source at the Site, so the conditions to sustain a potential diving plume are not present.

Since 2008, detectable concentrations of MTBE and TBA have been limited to the onsite wells in the former UST area (MW-2, MW-3 and MW-10). In these three wells the MTBE concentrations have decreased and the TBA concentrations initially increased and then decreased. These trends indicate that remediation was effective in reducing the MTBE and TBA concentrations. The trends also indicate that breakdown of MTBE to TBA has occurred in groundwater beneath the site. Onsite well clusters MW-5, MW-5M and MW-5D and MW-6, MW-6M and MW-6D indicated relatively minor concentrations of MTBE and TBA prior to remediation, and nondetect MTBE and TBA concentrations since 2009. The data from these two well clusters demonstrate that the lateral extent of the plume onsite was reduced as a result of remediation. Offsite wells MW-7, MW-8 and MW-9 have indicated no detectable MTBE or TBA since their installation in 2002, and offsite well clusters MW-8M, MW-8D, and MW-11M, MW-11D have indicated no detectable MTBE or TBA since their installation in 2015. The data from these offsite wells demonstrate that either the petroleum hydrocarbon release was not large enough to cause offsite migration of MTBE and TBA or the remediation was effective in preventing offsite migration of MTBE and TBA concentrations. In addition, the data demonstrate that the lateral extent of the plume has been delineated to nondetectable levels and verified by years of nondetect sampling results.

The data also demonstrate that the vertical extent of the plume has been delineated. Onsite well clusters MW-5, MW-5M and MW-5D and MW-6, MW-6M and MW-6D, and offsite well clusters MW-8M, MW-8D and MW-11M and MW-11D were screened in three general depth intervals: 45 to 80 feet below ground surface (bgs), 95 to 98 feet bgs, and 115 to 118 feet bgs. The deep-zone onsite wells, screened from 115 to 118 feet bgs (MW-5D and MW-6D), have indicated nondetect MTBE and TBA concentrations since 2009. The mid-zone onsite wells screened from 95 to 98 feet bgs (MW-5M and MW-6M) have indicated nondetect MTBE and TBA concentrations since 2008. Only two shallow-zone onsite wells contain detectable MTBE. During the most recent sampling event in March 2017, shallow-zone onsite wells MW-2 and MW-12 indicated an MTBE concentration of 4.2 micrograms per liter (µg/l) and 3.4 µg/l, respectively. The data from the two onsite well clusters described above confirm that the vertical extent of the plume has been delineated onsite. The offsite shallow-zone wells (MW-7, MW-8, MW-9) have not contained detectable MTBE or TBA since their installation in 2002. Offsite well clusters MW-8M, MW-8D and MW-11M, MW-11D have not detected MTBE or TBA in mid-zone or deep-zone wells since their installation in 2015. Monitoring data from multiple wells over multiple years demonstrate that MTBE and TBA concentrations are not present in the deeper wells. The vertical extent of the MTBE and TBA concentrations has been delineated.

The Low Threat UST Case Closure Policy (Policy) requires plume delineation to water quality objectives (WQOs). For this claim the plume has been delineated to nondetect levels, which meets and exceeds the requirements of the Policy.

*Comment 2: One or more nearby drinking water production wells are vulnerable to ground surface sources of VOCs* [volatile organic compounds].

Response 2: For the production wells to be vulnerable to contamination from the Site, there must be a mechanism to move contaminated groundwater from the Site to the area of the intake of production wells T‑MS3 and T‑MS4. The District letter stated there was a MTBE detection of 0.04 µg/l in production well T‑MS4 on November 17, 2008; however, GeoTracker and the State Division of Drinking Water Electronic Data Transfer (EDT) Library (an online database populated by public water suppliers) do not show that well T‑MS4 was sampled for MTBE on that date. Based on information available in GeoTracker and the EDT Library, production well T‑MS3 has indicated nondetect concentrations of MTBE for 42 sampling events conducted since 1996, and T‑MS4 has indicated nondetect concentrations of MTBE for 30 sampling events conducted since 2000. Both production wells have indicated nondetect concentrations of TBA since TBA reporting was initiated in 2001.

It is our understanding that both wells T‑MS3 and T‑MS4 have been actively pumped since 1996 and 2000, respectively. These production wells were pumping prior to, during and after the discovery of the petroleum hydrocarbon release at the Site, its delineation and remediation, yet since at least 2000 (and as far back as 1996) no MTBE or TBA have been detected in the production wells. When MTBE and TBA concentrations were at their highest, prior to remediation, no MTBE or TBA were detected in the production wells. Now that the remaining MTBE concentrations in onsite wells are below its water quality objective and TBA is not detected, it is highly unlikely that MTBE originating from the Site will ever be detected in the production wells. As previously discussed, there have been no detections of MTBE or TBA concentrations in the offsite wells, therefore there is no evidence that MTBE or TBA are migrating offsite toward the production wells.

The decrease in lateral and vertical extent of the plume since 2008 is evidence that the source of MTBE and TBA is depleted and demonstrates that at present the rate of natural attenuation exceeds the rate of groundwater movement both vertically and laterally. The remaining petroleum hydrocarbon plume which is limited to onsite wells will continue to attenuate and MTBE and TBA concentrations will continue to decrease. The contaminant plume is shrinking at a rate faster than the groundwater that contains the contaminants is moving toward the production wells. Therefore, production wells T‑MS3 and T‑MS4 are not vulnerable to contamination from the Site. The Site meets the criteria for closure under the Policy.