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**ORANGE COUNTY WATER DISTRICT**  
ORANGE COUNTY'S GROUNDWATER AUTHORITY

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February 7, 2014

Andrew Cooper  
State Water Resources Control Board  
1001 I Street, 16<sup>th</sup> Floor; P.O. Box 2231  
Sacramento, California 95814

Subject: State Water Resources Control Board – Closure Notice  
Case No 89UT028  
Chevron Station #5568  
12541 Seal Beach Boulevard  
Seal Beach, California

The Orange County Water District (District) manages the large groundwater basin that provides reliable, high quality groundwater to 19 municipal and special water districts that serve 2.4 million customers in north and central Orange County. The District is responding to the State Water Resources Control Board's (SWRCB) Notice of Opportunity for Public Comment concerning the SWRCB's Underground Storage Tank (UST) Cleanup Fund Case Closure Recommendation pursuant to the Health and Safety Code Sect. 25299.39.2 and the SWRCB's Low-Threat UST Case Closure Policy (LTCP) for the claim number 4861: 12451 Seal Beach Boulevard in Seal Beach. This site is also known in the SWRCB's Geotraker database as Chevron Station #5568 (site).

The SWRCB published a Notice for Opportunity for Public Comment for Chevron #5568, which is signed and dated October 30, 2013. However, the notice was not provided to the District, and the District did not learn of the SWRCB's recommendation to close the site until February 4, 2014. The SWRCB's notice states the deadline for written comments is January 3, 2014. However, the SWRCB's website that lists proposed closure of UST cases ([www.waterboards.ca.gov/water\\_issues/programs/ustcf/prop\\_closure\\_cases.shtml](http://www.waterboards.ca.gov/water_issues/programs/ustcf/prop_closure_cases.shtml)) identifies the deadline to receive comments as 12 noon, 02/10/14. Because the District learned of the SWRCB's recommendation to close Chevron #5568 from the SWRCB's website, the District is relying on the comment deadline posted on the SWRCB's website.

The District concurs with Orange County Health Care Agency's (OCHCA) concerns regarding a site closure notice for the Chevron #5568 and opposes closing the site at this time. Based on data and information generated for this site and contained in the SWRCB's Geotracker database, the groundwater contamination that has emanated from Chevron 5568 has not been delineated laterally or vertically. Because the contamination has not been delineated, the contaminant



plume cannot be said to be stable or decreasing in aerial extent. Therefore, Chevron #5568 does not meet the media-specific criterion for groundwater and is not eligible for closure under the LTCP. In addition, the undelineated groundwater contamination threatens downgradient production wells. Additional investigation is needed to delineate the groundwater contamination and determine the degree of threat to the production wells.

Groundwater Contamination Has Not Been Delineated:

Based on documents in the SWRCB's Geotracker database that are associated with Chevron 5568, data and information indicates that groundwater contamination that originated from the Chevron site has not been delineated vertically or laterally. Groundwater within the interval investigated beneath Chevron #5568 flows in a southeasterly direction with partial south and east gradients. Elevated concentrations of the worst offending contaminant compounds based on mobility, solubility, and toxicity, namely methyl tertiary butyl ether (MTBE) and tertiary butyl alcohol (TBA), were detected in the downgradient wells at the site margins. Although contaminant compounds were detected at reduced concentrations in several off-site wells (i.e.: MW-08, MW-09, MW-10 and MW-11), these off-site wells were installed at the same shallow depths as the on-site wells. The potential for a diving contaminant plume was not investigated.

MTBE and TBA detections in site margin wells from northeast to south are as follows:

- **MW-02A** (completed 1995) on site at the northeast margin:
  - deepest groundwater sample at 31.5 ft bgs.
  - MTBE was detected in groundwater at up to 10,540 ug/L (1999).
  - TBA was detected in groundwater at up to 2,440 ug/L (2001).
  
- **MW-05** (completed 1992) on site at the south-southeast margin:
  - deepest groundwater sample at 35 ft bgs.
  - MTBE was detected in groundwater at up to 1,200 ug/L.
  - TBA was detected in groundwater at up to 200 ug/L.
  
- **MW-06** (completed 1992) on site at the south margin:
  - deepest groundwater sample at 35 ft bgs.
  - MTBE was detected in groundwater at up to 1,500 ug/L.
  - TBA was not detected in groundwater.

Chevron's consultant, SAIC, acknowledges in their Site Conceptual Model Report (SAIC, 6/18/08; Section 3.1 – Cleanup Criteria, pg 14) that the site fails to meet the criteria for applying low-risk threshold levels (LRTLs) and, therefore, "... MCLs appear to be the more appropriate cleanup standard for groundwater at this site." SAIC goes on to say that the dissolved plume appears to be stable, plume mobility does not appear to be an issue, and the Semi-perched Aquifer is discontinuous. But SAIC provides no clear basis for a stable, non-mobile contaminant plume. To the contrary, alluvial sediments beneath the site that include interbedded silts and sands suggest that plume mobility is more likely than not. Cross-section B-B' from the Site Conceptual Model report (Plate No. 7) shows sand in the bottom of well RW-1 and is labeled "lower coarse-grained unit." The sand unit identified in the bottom of RW-1 was neither tested



for contaminant compounds nor investigated for extent, leaving an open question as to whether Chevron's contaminant plume is diving and continuing to spread.

#### Groundwater Contamination Threatens Downgradient Production Wells:

Based on documents contained in Geotracker, the OCHCA objected to closing Chevron #5568 on prior occasions. OCHCA objected to closing the site because petroleum compounds were released from Chevron #5568 that contaminated groundwater beneath the site and likely migrated off site toward an irrigation well (well BXBY-SB; State ID #18094; State Well No. 04S/11W-31R02) about 900 feet directly downgradient from the site.

BXBY-SB pumps groundwater from a 140-foot perforated zone, the top of which is 150 below ground surface (bgs), or only about 120 feet below the maximum depths investigated for the Chevron site, which, except for RW-1, was 30 to 35 feet bgs. As discussed above, the worst offending compounds, MTBE and TBA, were detected in the deepest interval investigated at Chevron 5568 at up to 10,540 ug/L and 2,440 ug/L, respectively (site monitoring well MW-02A). The MTBE concentration is more than 800 times the maximum contaminant level (MCL) for MTBE (13 ug/L), and more than 2,000 times the secondary taste and odor threshold (5 ug/L). The TBA concentration is more than 200 times the action level for TBA (12 ug/L).

There are also three high-producing, large system production wells in proximity to, and downgradient from, the Chevron 5568 site that could become impacted by Chevron's groundwater contamination. The wells are:

- SCWC-LAYT; State ID #938; State Well No. 04S/11W-31P01; ~1,900 feet from the site; screened 250 to 800 feet bgs; pumps at 750;
- SB-BEV; State ID #1282; State Well No. 05S/12W-01A04; ~2,750 feet from the site; screened 400 to 800 feet bgs; pumps at 2,400 gallons per minute (gpm); and
- SB-LEI; State ID #1280; State Well No. 05S/12W-01A03; ~3,250 feet from the site; screened 420 to 840 feet bgs; pumps at 2,400 gpm.

OCHCA requested that the responsible party install two additional depth-discrete monitoring wells to determine whether the Chevron 5568 contaminant plume is a diving plume between the site and downgradient wells. The District believes OCHCA's concern about the threat from Chevron's contamination is justified and that the request for additional depth-discrete wells is reasonable in light of the uninvestigated sand unit identified in the bottom of well RW-1 and the corresponding threat to drinking water supplies.

#### Summary:

Chevron 5568 is a source of petroleum hydrocarbon, including MTBE and TBA impacts to soil and groundwater. MTBE was detected at more than 800 times the MCL (13 ug/L) and more than 2,000 times the taste and odor threshold (5 ug/L); and TBA was detected at more than 200 times the action level (12 ug/L) in an on-site well (MW-02A) installed to 31.5 feet bgs near the east site margin. A permeable sand unit was identified at less than 10 feet below MW-02A in another on-site well (RW-1) that is directly downgradient of the USTs, pump islands, and piping; and which might be a path for a diving plume. But the RW-1 wells screen was installed above that

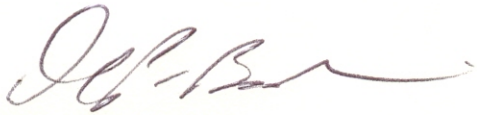


sand unit, and the sand was never tested for petroleum compounds. Therefore, the contaminant plume remains undelineated vertically.

The subsurface geology that was investigated on site and off site was limited to 30 to 35 feet bgs. The sand unit identified in RW-1 might be a potential migration path for a diving plume. Because there is a potential migration path that is within reach of the subsurface contamination and is below the maximum depths investigated, the contamination is considered undelineated laterally and a threat to production wells that are as close as 900 feet downgradient of the site.

The OCHCA opposed closing the site and requested that additional discrete-depth wells be installed to test for a diving plume to determine the extent of contamination. However, no additional wells were installed. The District believes that based on the occurrence of groundwater contamination and the risk of a diving plume, additional depth-discrete wells are warranted and necessary to characterize the threat to the nearby production wells and drinking water supplies. Until the plume is fully investigated, it cannot be stated that the plume is stable or is decreasing in extent. Therefore, the Chevron site does not meet the Low-Threat UST Case Closure Policy criteria and should not be closed.

Please contact the District at (714) 378-3200 if you would like to discuss this matter further. Thank you.



David Bolin, PG, CHg  
Orange County Water District

CC. Orange County Health Care Agency  
Regional Water Quality Control Board