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ORANGE COUNTY'S GROUNDWATER AUTHORITY

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September 30, 2019

RE: Update on Orange County Groundwater Basin Cleanup Projects

Dear Community Stakeholder:

The following is an update regarding the Orange County Water District's (OCWD; the District) groundwater cleanup efforts in both the North and South Basin areas. Orange County enjoys clean and plentiful water from a large underground aquifer system that extends from the Santa Ana Canyon where the river cuts through the gap between the Santa Ana Mountains and the Chino Hills all the way to the ocean at Seal Beach. These aquifers provide 77% of the water for the 2.5 million residents of the Orange County Water District.

While it is true that the underground water is clean and plentiful, we cannot say that it is without issues. In different parts of the basin, there are three water quality concerns that have called the OCWD to action. The most notable is the threat of seawater intrusion along the coast. The District has been actively managing that issue since the early 1970s and has protected the inland aquifers from seawater intrusion by use of an active freshwater barrier recharged through hundreds of injection wells. The other two areas of activity are the subject of this update.

The North and South Basin plumes are areas where industrial solvents have been spilled onto the ground and seeped into the underlying water. The resulting plumes of contamination from those sites have impacted some drinking water wells, and, if left unabated, will certainly affect others.

North Basin [Fullerton, Anaheim, & Placentia areas]

Following requests from both OCWD and state agencies, the Environmental Protection Agency (EPA) has assumed lead regulatory status in a multi-agency effort to oversee the groundwater characterization and restoration in the North Basin. They now focus on the larger areas of the comingled plume while the Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB) continue with their focus on the source-site cleanup activities. OCWD's role is to perform National Contingency Plan (NCP)-compliant groundwater studies, including the evaluation of alternatives for a phased groundwater remedy. The remedy will be designed to capture the comingled plumes as they emerge from the many source sites. This work is an

interim phase; responsibility for the final remedy is yet to be determined through legal settlements and regulatory enforcement.

The current scope of work at the North Basin includes the investigation of subsurface conditions in the areas surrounding the many sources of industrial contamination. This work supplements the many studies that have come before. Important data will be gathered from soil borings and wells, which will provide important geological stratigraphic information and show distribution of contaminants in the soil and groundwater. The idea is to fill in existing data gaps with additional monitoring wells located between and outside the many existing monitoring wells and to create and calibrate a sophisticated computer model of groundwater flow. The computerized analytical tool will be used to evaluate the feasibility of alternative remedies and to optimize a design once that remedy is selected for plume capture, control, and contaminant removal. Following implementation of the interim remedy, these wells and the computer model will be used to verify cleanup effectiveness over the ensuing decades of operation.

It is expected that the remedial investigation and feasibility study (RI/FS) will be completed by the end of 2020. Based on that schedule, remedial actions could commence in 2021. It is noteworthy that OCWD has moved ahead of the RI/FS schedule and put into operation Extraction Well 1 (EW-1). That well has been operational since September of 2017. The water discharged by EW-1 is sent into a sanitary sewer of the Orange County Sanitation District (OCSD), where it is treated and then sent through the Groundwater Replenishment System advanced purification process. The purified water is then recharged into the groundwater basin for subsequent reuse.

South Basin [Irvine, Santa Ana, & Tustin areas]

In the South Basin, OCWD is also proceeding with an areawide RI/FS much like that being done in the North with the same objectives in mind. While the mass of contaminant release in the South Basin is on par with the North Basin, the geology is different and likely will require a different cleanup approach. The South Basin plume has spread two miles long and one mile wide. In this area, the two state agencies, DTSC and RWQCB, will oversee both the source-site cleanups as well as the comingled downgradient plumes.

The RI/FS work continues at the South Basin with the recent completion of additional monitoring wells. This work, like that in the north, supplements many years of study already performed in the industrial South Basin area, most of which was done on the private properties that have known releases of contaminants going back at least to the 1950s and possibly longer. Since completion of the drilling activities, the focus has shifted to work on developing a computer model for use in the upcoming feasibility study and remedy implementation. This project, like the North Basin, is partially supported by grant funding from the State Water Resources Control Board's Prop 1 program. It is expected that the RI/FS work will be completed in 2020, after which a remedy selection will be made in collaboration with the state agencies and with input from the public as

called for in grant funding requirements of the California Environmental Quality Act and the NCP protocols.

Staff will continue its commitment to regularly scheduled open session updates at board meetings, regular publications in OCWD's newsletter and monthly updates at groundwater producer meetings. In the meantime, questions can be directed to William Hunt at whunt@ocwd.com or (714) 378-8229.

