

State Water Resources Control Board

November 30, 2016

Kenneth A. Harris Jr., State Oil & Gas Supervisor
Department of Conservation
Division of Oil, Gas & Geothermal Resources
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FINAL CONCURRENCE ON THE EXPANSION OF THE EXISTING AQUIFER EXEMPTION, TRANSITION ZONE, WESTERN AREA TEJON OIL FIELD, KERN COUNTY

Dear Mr. Harris:

State Water Resources Control Board staff, in consultation with Central Valley Regional Water Quality Control Board staff (collectively Water Boards staff), have reviewed the aquifer exemption proposal provided by the Division of Oil, Gas and Geothermal Resources (DOGGR) on March 28, 2016 for the expansion of the aquifer exemption for the Transition Zone in the Western Area Tejon Oil Field. Pursuant to California Public Resources Code (PRC) section (§) 3131, Water Boards staff assessed whether the proposal conforms to the criteria set forth in § 146.4 of Title 40 of the Code of Federal Regulations (CFR) and other criteria set forth in PRC § 3131. Based on this review, State Water Board staff concur with the exemption proposal. In conjunction with the evaluation of current and future underground injection control (UIC) projects in the proposed exempted area, DOGGR and Water Boards staff will consider incorporating conditions, described below, into project approvals.

On July 22, 2016, State Water Board staff preliminarily concurred with the exemption proposal pending the State's public comment process. On August 12, 2016, DOGGR published notice of the exemption proposal and opened a public comment period. DOGGR and the State Water Board held a joint public hearing to receive public comments on the exemption proposal on September 12, 2016. The comment period closed on September 26, 2016. DOGGR and the State Water Board have reviewed and responded in writing to the comments received during the comment period and public hearing.

As required by PRC § 3131(a)(1) and 40 CFR §146.4, the portion of the Transition Zone proposed for exemption does not currently serve as a source of drinking water and will not in the future serve as a source of drinking water because it is currently hydrocarbon energy producing and is expected to produce commercial quantities of hydrocarbons in the future. In addition, as per PRC § 3131(a)(2), the injected fluids are not expected to affect the quality of water that is, or may reasonably be, used for any beneficial because (1) the injected fluids must be of equal or better water quality than baseline groundwater quality established prior to new injection activity,

in accordance with conditions to be incorporated into project approvals, and (2) the injected fluids are expected to remain in the proposed exempted area.

The requirement of PRC § 3131(a)(3) is also satisfied because a detailed technical demonstration has been made that the injected fluids are expected to remain in the proposed exempted area due to a combination of geologic conditions and hydraulic controls. The proposed lateral boundaries are determined by the presence of geologic features that either (1) have historically prevented the migration of fluids, based on oil-saturated lithology separated from non-saturated lithology across faults, or (2) are unlikely to allow fluid migration beyond the flanks of the dome-shaped structure (i.e., oil traps). In addition, oil production operations have resulted in an inwardly-directed pressure gradient (i.e. engineered hydraulic pressure control). The geologic features that represent the lateral containment boundaries include unnamed faults along the western and eastern boundaries and the flanks of the domed structure on the northern and southern boundaries that extend to a depth of 1690 feet below mean sea level. The geologic feature that overlies the proposed exempted area and provides vertical containment is a laterally continuous, low permeable, fine-grained unit (i.e. cap rock) known as the "Lower Chanac" that averages 235 feet thick.

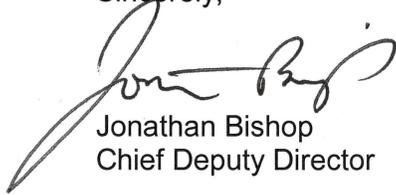
No water supply wells were identified within the proposed exempted area as being completed within the Transition Zone aquifer. Water supply wells identified in proximity to the proposed area were all completed within the upper 1,520 feet of the primary drinking water aquifer system. The Lower Chanac cap rock unit separates the overlying drinking water aquifer and the Transition Zone. An approximate 1,150 feet of vertical separation exists between the bottom of the deepest identified water supply well and the top of the Transition Zone within the proposed area.

Approval of UIC projects will involve a joint review by DOGGR and Water Boards staff. DOGGR and Water Boards staff will consider including conditions in future injection project approvals. Potential conditions include, but are not limited to, the following:

- 1) Collecting groundwater sample(s) from proposed injection project well(s) that are completed in the portion of the exempted formation proposed for injection to establish baseline groundwater quality prior to fluid injection;
- 2) Requiring that injected fluids be of equal or better water quality than the baseline groundwater quality established from the analysis of groundwater samples collected in the portion of the exempted formation proposed for injection; and
- 3) Monitoring the portion of the exempted formation receiving injected fluids to confirm the presence of an inwardly-directed hydraulic gradient and to verify that the fluids will remain in the portion of the aquifer that is exempted.

If you have any questions regarding this matter, please contact Mr. John Borkovich at (916) 341-5779 or john.borkovich@waterboards.ca.gov.

Sincerely,



Jonathan Bishop
Chief Deputy Director

cc: Pamela Creedon
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