

State Water Resources Control Board

July 13, 2017

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 PROPOSED AQUIFER EXEMPTION, CANTLEBERRY SAND MEMBER, VEDDER FORMATION, JASMIN OIL FIELD, KERN COUNTY

Dear Mr. Harris:

State Water Resources Control Board (State Water Board) staff, in consultation with Central Valley Regional Water Quality Control Board staff (collectively Water Boards staff), have reviewed the proposal provided by the Division of Oil, Gas and Geothermal Resources (DOGGR) on September 29, 2016 for the expansion of the aquifer exemption for the Cantleberry Sand Member of the Vedder Formation (Cantleberry Sands) in the Jasmin Oil Field. Water Boards staff assessed whether the proposal meets the criteria set forth in California Public Resources Code (PRC) section (§) 3131 and § 146.4 of Title 40 of the Code of Federal Regulations (CFR) and considered comments received during the public comment process. Based on this review, State Water Board staff concur with the exemption proposal. In conjunction with the evaluation of current and future Class II underground injection control (UIC) projects in the proposed exempted area, DOGGR and Water Boards staff will consider incorporating conditions, described below, into UIC project approvals.

Public Comment Process

On February 8, 2017, State Water Board staff preliminarily concurred with the exemption proposal pending the State's public comment process. On March 20, 2017, 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 comments on the exemption proposal on April 19, 2017. The comment period closed on April 19, 2017. DOGGR and the State Water Board have reviewed and responded in writing to the comments received during the comment period and public hearing.

State and Federal Exemption Criteria

As required by PRC § 3131(a)(1) and 40 CFR § 146.4(a), the portion of the Cantleberry Sands proposed for exemption does not currently serve as a source of drinking water. No water supply

wells were identified within the proposed area as being completed within the Cantleberry Sands. Water supply wells identified in proximity to the proposed area are all completed in shallower formations. At least 1,200 feet of vertical separation exists between the bottom of the identified water supply wells and the top of the Cantleberry Sands within the proposed area.

Consistent with 40 CFR § 146.4(b)(1), the proposed exempted area will not in the future serve as a source of drinking water because it is hydrocarbon producing. 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 use because (1) the groundwater contained in the proposed exempted area is not expected to be put to beneficial use because it contains petroleum hydrocarbons and because of the availability of high quality groundwater in shallower geologic zones, and (2) the injected fluids are expected to remain in the proposed exempted area.

The requirement of PRC § 3131(a)(3) is satisfied because, after a detailed review, the technical data have demonstrated 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 exempted area is delineated by geologic features and the lateral extent of the oil-water contact (along the western boundary). The geologic features that form the lateral containment boundaries include a stratigraphic pinch-out (barrier) of the Cantleberry Sands on the east and an unnamed group of east-to-west-trending faults on the north and south. The proposed exempted area is also overlain by a bentonite claystone of lower permeability, which ranges in thickness from 2 to 35 feet at the base of the Cantleberry Sands. The geologic feature that underlies the proposed exempted area includes a lower permeability, laterally continuous confining claystone, mudstone, or siltstone, which ranges in thickness from 12 to 41 feet at the base of the Cantleberry Sands. Injected fluids in the proposed exempted area are expected to be contained hydraulically, both vertically and laterally, due to the inward hydraulic gradient created by oilfield dewatering activities.

Conditions on UIC Projects

Approval of UIC projects involves a joint review by DOGGR and Water Boards staff. DOGGR and Water Boards staff will consider incorporating conditions into approvals of Class II injection projects in the proposed exempted area. Potential conditions include, but are not limited to, the following:

- 1) Collecting groundwater samples from proposed injection project wells 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; and
- 3) Requiring monitoring to validate that injected fluids remain in the proposed exempted area.

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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