
State Water Resources Control Board

October 19, 2018

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 PHASE 1 AQUIFER EXEMPTION PROPOSAL, TULARE FORMATION, LOST HILLS 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 Phase 1 proposal provided by the Division of Oil, Gas and Geothermal Resources (DOGGR) on January 23, 2017 to expand the aquifer exemption for the Tulare Formation in the northern portion of the Lost Hills 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.

Public Comment Process

On March 19, 2018, State Water Board staff preliminarily concurred with the proposal to expand the exemption of the Tulare Formation pending the State's public comment process. On May 18, 2018, DOGGR published notice of the exemption proposal and opened a public comment period. DOGGR and State Water Board staff held a joint public hearing to receive comments on the exemption proposal on June 19, 2018. The comment period closed on June 19, 2018. DOGGR and State Water Board staff have reviewed and responded in writing to the comments received during the comment period and public hearing.

Concurrence with Limitation on Underground Injection Control (UIC) Projects

State Water Board staff concur with the proposal to expand the exemption of the Tulare Formation. In order to ensure that injected fluids remain in the proposed exempted area, the following limitation shall be applied to injection activities in the Tulare Formation:

- The volume of fluid injected in the Tulare Formation, including existing exempted areas, may not exceed the volume of fluid extracted as measured over a five-year period. Operators with injection activities in the Tulare Formation will collectively provide an annual report to the Water Boards and DOGGR on fluid balance data (comparing injection and extraction volumes) for the preceding five years. If injection or production wells are screened across the Tulare Formation and another formation(s), operators will specify the volume of fluid injected into and extracted from the Tulare Formation and provide the basis (e.g., data, calculations) for this determination.

In conjunction with the evaluation of current and future Class II UIC projects in the proposed exempted area, DOGGR and Water Boards staff will consider incorporating conditions, described below, into UIC project approvals.

State and Federal Exemption Criteria

As required by PRC § 3131(a)(1) and 40 CFR § 146.4(a) the proposed exempted area does not currently serve as a source of drinking water. Only oilfield-related water source wells, historically used for oil production, have been identified within the proposed exempted area. No other water supply wells have been identified in the Tulare Formation within one mile of the proposed exempted 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 currently hydrocarbon energy 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 also contains constituents such as boron and total dissolved solids at concentrations that limit its suitability for agricultural, domestic, and other beneficial uses, 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 the injected fluids are expected to remain in the proposed exempted area due to a combination of geologic conditions and operational controls. The portion of the Tulare Formation proposed for exemption is comprised of interbedded sequences of poorly consolidated conglomerate, sandstone, siltstone, mudstone, and gypsum cemented mudstone. The distribution of interbedded, discontinuous, low permeability silts and mudstones restrict vertical fluid migration. The underlying, lower permeability San Joaquin-Etchegoin Formation marine diatomaceous mudstone/sandstone/siltstone provides containment below the Tulare Formation. Lateral containment is provided by alluvial fan and delta plain mudstones and gypsum cemented silt and mudstone to the west, lacustrine mudstones to the east, and a production-induced inward hydraulic gradient.

Conditions on UIC Projects

Approval of Class II 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. Monitoring to demonstrate an inward hydraulic gradient in the Tulare Formation; and

2. Groundwater monitoring to demonstrate that injected fluids remain in the exempted area (e.g., sentinel well monitoring). If a monitoring requirement is incorporated in a project approval, the operator must submit a plan to the Central Valley Regional Water Quality Control Board for consideration.

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: Patrick Pulupa
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