
State Water Resources Control Board

December 7, 2018

Kenneth A. Harris Jr., State Oil & Gas Supervisor
Department of Conservation
Division of Oil, Gas & Geothermal Resources
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PRELIMINARY CONCURRENCE ON THE AQUIFER EXEMPTION PROPOSAL, VACA TAR SANDS, OXNARD OIL FIELD, VENTURA COUNTY

Dear Mr. Harris:

State Water Resources Control Board staff, in consultation with Los Angeles Regional Water Quality Control Board staff (collectively Water Boards staff), have reviewed the proposal provided on February 2, 2017 by the Division of Oil, Gas and Geothermal Resources (DOGGR) to expand the aquifer exemption for the Vaca Tar Sands located within the Santa Barbara and Pico formations (including the Lower Tar Sands within the Modelo Formation) of the Oxnard 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).

Preliminary Concurrence with Limitations on Underground Injection Control (UIC) Projects

Pending the public comment process, State Water Board staff preliminarily concur with the exemption proposal for the Vaca Tar Sands. However, to ensure injected fluids do not affect the quality of water that is, or may reasonably be, used for any beneficial use, and remain in the proposed exempted area, the following limitations shall be incorporated in UIC project approvals:

- Injected fluids must be of similar or better quality than the existing groundwater in the Grimes Canyon Aquifer, as determined by Water Boards staff; and
- Fluids may only be injected into the Vaca Tar Sands (including the Lower Tar Sands).

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. No water supply wells were identified within the proposed exempted area. Water supply wells identified in proximity to the proposed exempted area are completed in the shallower alluvium, Saugus, San Pedro, and Santa Barbara Formations and are not hydrologically connected to the proposed exempted area. The deepest water supply well in the area is vertically separated from the proposed exempted area by more than 380 feet.

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 with oil saturations as high as 80 percent, (2) higher quality groundwater is available in shallower geologic zones, and (3) 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 review has demonstrated that the injected fluids are expected to remain in the proposed exempted area due to a combination of geologic conditions and operational controls. Vertical containment for the proposed exempted area is provided by silty clays and shale beds, the high viscosity and immobile tar-saturated sands of the Vaca Tar Sands, operational controls, and the underlying low permeability Miocene Formations. Lateral containment in the proposed exempted area will be maintained by a production-induced inward hydraulic gradient and by the high viscosity and immobile nature of the tar in the Vaca Tar Sands.

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. Potential conditions include, but are not limited to:

1. Verifying the presence of the Vaca Tar Sands and demonstrating that the project's perforation intervals are within the Vaca Tar Sands if injection is proposed into an area where oil production has not been established;
2. Ensuring that thermal enhanced oil recovery operations (e.g., cyclic steaming and steam flooding) do not compromise the containment capabilities of the tar along the boundaries of the proposed exempted area; and
3. Monitoring to demonstrate that injected fluids remain in the exempted area. If a groundwater monitoring requirement is incorporated in a UIC project approval, the operator must submit a work plan to the Los Angeles Regional Water Quality Control Board for review.

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Jon Bishop".

Jonathan Bishop
Chief Deputy Director

cc: Renee Purdy
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