

STATE OF ALASKA
ALASKA OIL AND GAS CONSERVATION COMMISSION
333 West 7th Avenue, Suite 100
Anchorage Alaska 99501

Re: **THE APPLICATION OF**) **Aquifer Exemption Order No. 6**
UNOCAL Corporation for a)
Freshwater Aquifer Exemption Order) **Ivan River Field**
to allow disposal of Class II oil field) Upper Sterling Formation
wastes by underground injection into)
Glacial and Upper Sterling) July 23, 2001
Formations, Ivan River Unit Well)
IRU 14-31, Section 1, T13N, R9W,
Seward Meridian

IT APPEARING THAT:

1. Unocal Corporation (“Unocal”) submitted an application, dated April 26, 2001, requesting that the Alaska Oil and Gas Conservation Commission (“Commission”) issue a freshwater aquifer exemption for purposes of Class II disposal in the Ivan River IRU 14-31 well.
2. Additional information supporting the request for the freshwater aquifer exemption and Class II disposal in Well IRU 14-31 was received by correspondence dated June 22, 2001 and by sundry notice and reports dated June 13, 2001.
3. Notice of opportunity for public hearing was published in the Anchorage Daily News and Peninsula Clarion on May 14, 2001 in accordance with 20 AAC 25.540.
4. The Commission has jurisdiction in this matter under AS 31.05.030(h), 20 AAC25.440, and 40 CFR 147, Subpart C – Alaska.
5. The Commission did not receive any protest or a request for a public hearing.
6. The Commission submitted a copy of Unocal’s aquifer exemption application to the U.S. Environmental Protection Agency Region 10 (“EPA Region 10”) on May 10, 2001 and a copy of the proposed order on July 17, 2001, in accordance with Section 14 of the November 22, 1991 Memorandum of Agreement between EPA Region 10 and the Commission.

7. EPA Region 10 did not object to the Aquifer Exemption Order for the Ivan River IRU 14-31 well.

FINDINGS:

1. By correspondence dated May 16, 2001 Unocal requested authorization from the Commission to dispose of Class II oil field waste fluids by underground injection into Upper Sterling Formation sandstones and conglomerates in well IRU 14-31, located in the Ivan River Field, Matanuska-Susitna Borough, Alaska.
2. Unocal is the operator of the Ivan River Field. There are no other operators within a ½ mile radius of the proposed disposal injection well.
3. Unocal proposes to conduct disposal operations in the Well IRU 14-31 between 3145' and 3420' measured depth (MD).
4. In order to accommodate the proposed Ivan River Field disposal injection operations Unocal has requested exemption of all fresh water aquifers within a ½ mile radius and below 2500' MD in well IRU 14-31.
5. Wireline log analytical techniques, which comply with EPA recommended methods as described in "Survey of Methods to Determine Total Dissolved Solids Concentrations", (KEDA Project No. 30-956), were used to characterize formation water total dissolved solids content in the IRU 14-31 well.
6. Wireline log analysis of the IRU 14-31 well demonstrates that the water total dissolved solids content in the aquifers requested for exemption by Unocal are all greater than 4,000 parts per million from 2500' to 3420' MD.
7. Ivan River Unit is located in the Susitna Flats State Game Refuge where there are no permanent residences.
8. With the present completion in IRU 14-31, a cement retainer and cement plug restricts access to depths deeper than 3225'MD. Current perforations for planned disposal are between 3189' and 3209' MD. Should additional perforated intervals become necessary, Unocal will seek additional authorizations from the Commission.
9. Unocal requests an exemption for ½ mi. radius surrounding the IRU 14-31 wellbore. Unocal requests a ½ mile radius to allow for the possible permitting of a second disposal well near the IRU 14-31 surface location.
10. IRU 14-31 was drilled to a depth of 10,958' MD. IRU 14-31 includes 20" casing to 401' MD, 10 ¾" casing to 2018' MD, and 7" casing to 7018' MD. The well

- was suspended on August 18, 1975 as 7" casing and drill string was cemented in place with cement extending from 3510' to 9937' MD. A cement plug was placed from 3350-3508' MD with a retainer set at 3225' MD. In 1993 Unocal received Commission approval to run 2 7/8" tubing to 2982' MD with an isolation packer at 2903' MD.
11. The nearest drinking water wells are two freshwater wells completed at approximately 200' MD on the Ivan River production pad.
 12. A segmented cement bond log was run in the 7" of IRU 14-31 on Jan 31, 1993. This log shows adequate cement to prevent movement of fluids above the proposed injection intervals.
 13. The wells within ½ mile perimeter were reviewed for mechanical integrity. Unocal submitted records of cementing and mechanical details for these wells. All wells appear to be sufficiently cased/cemented, although IRU 13-31 will require additional monitoring due to its close proximity to the proposed injector.
 14. Operations will be manned during injection into IRU 14-31. All annulus pressures of wells within the ½ mile radius will be checked and recorded prior to and after each injection cycle. The existing IRU 13-31 Glycol High Level Alarm will also alarm at the injection pump so that the injection pump operator can immediately shut down the pump in the event that communication developed to IRU 13-31. In that event, injection would not be re-initiated until it was determined that safe operations could continue and with Commission approval.
 15. The Commission's authority to act in this matter is embodied in 40 CFR 147 Subpart C, the Alaska Oil and Gas Conservation Act (AS 31.05), and the Alaska Administrative Code (20 AAC 25.005 through 20 AAC 25.990).
 16. Aquifer exemptions exist at similar depths in the Lewis River Unit to the north and at Beluga River Unit and North Cook Inlet Units to the south. Freshwater used at Beluga River also comes from shallow wells completed at depths of approximately 200' MD.

CONCLUSIONS:

1. Those portions of freshwater aquifers occurring within a ½ mile radius and between 2500' and 3420' MD in the IRU 14-31 well do not currently serve as a source of drinking water.
2. Sources of drinking water exist at shallow intervals in the area.

3. The total dissolved solids content of the water occurring within a ½ mile radius and between 2500' and 3420' MD in the IRU 14-31 well is greater than 3000 parts per million and is not reasonably expected to supply a public water system.
4. Those portions of freshwater aquifers occurring within a ½ mile radius and between 2500' and 3420' MD in the IRU 14-31 well is not reasonably expected to serve as an underground source of drinking water.
5. Those freshwater aquifers occurring within a ½ mile radius and between 2500' and 3420' MD in the IRU 14-31 well qualify for designation as exempt freshwater aquifers under 20 AAC 25.440.
6. The stratigraphic sequence present in Ivan River and maintenance of mechanical integrity of the IRU 14-31 well will prevent movement of fluids into underground sources of drinking water.

NOW, THEREFORE, IT IS ORDERED THAT the portions of freshwater aquifers lying between 2500' and 3420' MD in Unocal's Ivan River well IRU 14-31 and within a one-half (½) mile radius of the well are exempt for purposes of Class II underground injection activities.

DONE at Anchorage, Alaska and dated July 23, 2001.

Cammy Oechsli Taylor, Chair

Julie M. Heusser, Commissioner

AS 31.05.080 provides that within 20 days after receipt of written notice of the entry of an order, a person affected by it may file with the Commission an application for rehearing. A request for rehearing must be received by 4:30 PM on the 23rd day following the date of the order, or next working day if a holiday or weekend, to be timely filed. The Commission shall grant or refuse the application in whole or in part within 10 days. The Commission can refuse an application by not acting on it within the 10-day period. An affected person has 30 days from the date the Commission refuses the application or mails (or otherwise distributes) an order upon rehearing, both being the final order of the Commission, to appeal the decision to Superior Court. Where a request for rehearing is denied by nonaction of the Commission, the 30-day period for appeal to Superior Court runs from the date on which the request is deemed denied (i.e., 10th day after the application for rehearing was filed).