

STATE OF ALASKA

SARAH PALIN, GOVERNOR

ALASKA OIL AND GAS CONSERVATION COMMISSION

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ADMINISTRATIVE APPROVAL AIO 33.002 ADMINISTRATIVE APPROVAL AIO 34.002

Mr. Dale Hoffman
Pioneer Natural Resources Alaska
700 G Street, Suite 600
Anchorage, AK 99501

RE: Application to Amend Rule 3 of Area Injection Orders Nos. 33 and 34,
Oooguruk-Kuparuk and Oooguruk-Nuiqsut Oil Pools, Oooguruk Unit

Dear Mr. Hoffman:

In accordance with Rule 10 of Area Injection Order (AIO) 33, Oooguruk-Kuparuk Oil Pool, and Rule 10 of AIO 34, Oooguruk-Nuiqsut Oil Pool, the Alaska Oil and Gas Conservation Commission (Commission) grants the request of Pioneer Natural Resources Alaska (Pioneer) for administrative approval to use additional fluids for enhanced recovery.

By application, dated March 11, 2009, and received on March 13, 2009, Pioneer requests that the Commission approve the use of three additional sources of water for enhanced recovery injection purposes at the Oooguruk Unit. Due to circumstances beyond Pioneer's control, the sources of water authorized for enhanced recovery injection under Rule 3 of AIOs 33 and 34 will not be available for at least several additional weeks. Simulation results indicate that delaying water injection will adversely impact reservoir pressure and the producing gas-oil ratio and thus could reduce the near- and long-term recovery of hydrocarbons from the two pools. Accordingly, Pioneer has identified three possible additional water sources. The first source is Harrison Bay sea water, which is used to mix drilling mud for Oooguruk drilling operations. The second is the shallow source water wells, which are used to feed the reverse osmosis (RO) unit that produces potable water for the Oooguruk camp. These two sources would be treated with biocide and oxygen scavengers prior to injection. The third potential water source is effluent from the RO unit. On March 13, 2009, the Commission issued AIOs 33.001 and 34.001 approving the injection of seawater from Harrison Bay and water from the shallow source water wells at the Oooguruk Drill Site (ODS).

The RO effluent has significantly more total dissolved solids than the water from the other sources approved for injection in the Oooguruk Unit (*i.e.*, up to 100,000 mg/l versus 40,000 to 70,000 mg/l). The RO effluent is more saline than the water from the other approved sources (*i.e.*, up to 80,000 mg/l versus 20,000 to 35,000 mg/l). Pioneer conducted core flood testing to evaluate potential formation damage due to injection water salinity and determined that waters measuring 100,000 mg/l or less would not damage the formation. In the context of continuing production, Pioneer has presented reservoir simulation results that demonstrate water injection, including the use of RO

effluent, will have a significant impact on the producing gas-oil ratio, reservoir pressure, and recovery efficiency.

Therefore, because the information available indicates that injecting RO effluent will improve recovery and will not damage the reservoirs, it is appropriate to permit injection of RO effluent into the Oooguruk-Kuparuk and Oooguruk-Nuiqsut Oil Pools for enhanced recovery purposes.

Accordingly, pursuant to Rule 10 of AIOs 33 and 34, the Commission administratively amends AIOs 33 and 34 to allow for the injection of RO effluent for enhanced recovery purposes. Rule 3 of AIO 33 is amended to read:

Rule 3 Authorized Fluids for Enhanced Recovery

Fluids authorized for injection are:

- a. source water from the Kuparuk sea water treatment plant;
- b. injection water provided by the Kuparuk Field;
- c. produced water from the Oooguruk-Kuparuk and Oooguruk-Nuiqsut Oil Pools;
- d. tracer survey liquid to monitor reservoir performance;
- e. biocide-treated and oxygen-scavenged sea water extracted from Harrison Bay, adjacent to the Oooguruk Drill Site (ODS);
- f. biocide-treated and oxygen-scavenged water from the ODS shallow water source wells;
- g. biocide-treated and oxygen-scavenged effluent from the ODS reverse osmosis unit; and
- h. mixtures of the fluids described in (e), (f) and (g) above.

The injection of any other fluids, or mixtures of the above fluids, shall be approved by separate administrative action.

Rule 3 of AIO 34 is amended to read:

Rule 3 Authorized Fluids for Enhanced Recovery

Fluids authorized for injection are:

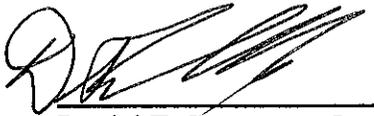
- a. source water from the Kuparuk sea water treatment plant;
- b. injection water provided by the Kuparuk Field;
- c. produced water from the Oooguruk-Kuparuk and Oooguruk-Nuiqsut Oil Pools;
- d. tracer survey liquid to monitor reservoir performance;

- e. biocide-treated and oxygen-scavenged sea water extracted from Harrison Bay, adjacent to the Oooguruk Drill Site (ODS);
- f. biocide-treated and oxygen-scavenged water from the ODS shallow water source wells;
- g. biocide-treated and oxygen-scavenged effluent from the ODS reverse osmosis unit;
- h. mixtures of the fluids described in (e), (f) and (g) above; and
- i. natural gas provided by the KRU CPF-3.

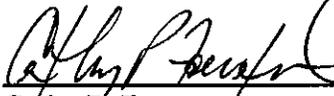
The injection of any other fluids, or mixtures of the above fluids, shall be approved by separate administrative action.

This administrative approval does not exempt you from obtaining additional permits or approvals required by law from other governmental agencies.

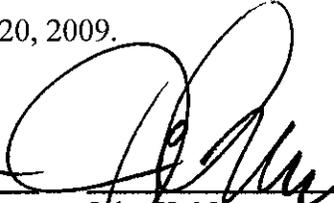
ENTERED at Anchorage, Alaska, and dated March 20, 2009.



Daniel T. Seamount, Jr.
Chair



Cathy F. Foerster
Commissioner



John K. Norman
Commissioner



RECONSIDERATION AND APPEAL NOTICE

As provided in AS 31.05.080(a), within 20 days after written notice of the entry of this order or decision, or such further time as the Commission grants for good cause shown, a person affected by it may file with the Commission an application for reconsideration of the matter determined by it. If the notice was mailed, then the period of time shall be 23 days. An application for reconsideration must set out the respect in which the order or decision is believed to be erroneous.

The Commission shall grant or refuse the application for reconsideration in whole or in part within 10 days after it is filed. Failure to act on it within 10-days is a denial of reconsideration. If the Commission denies reconsideration, upon denial, this order or decision and the denial of reconsideration are FINAL and may be appealed to superior court. The appeal MUST be filed within 33 days after the date on which the Commission mails, OR 30 days if the Commission otherwise distributes, the order or decision denying reconsideration, UNLESS the denial is by inaction, in which case the appeal MUST be filed within 40 days after the date on which the application for reconsideration was filed.

If the Commission grants an application for reconsideration, this order or decision does not become final. Rather, the order or decision on reconsideration will be the FINAL order or decision of the Commission, and it may be appealed to superior court. That appeal MUST be filed within 33 days after the date on which the Commission mails, OR 30 days if the Commission otherwise distributes, the order or decision on reconsideration. As provided in AS 31.05.080(b), "[t]he questions reviewed on appeal are limited to the questions presented to the Commission by the application for reconsideration."

In computing a period of time above, the date of the event or default after which the designated period begins to run is not included in the period; the last day of the period is included, unless it falls on a weekend or state holiday, in which event the period runs until 5:00 p.m. on the next day that does not fall on a weekend or state holiday.