

STATE OF ALASKA
ALASKA OIL AND GAS CONSERVATION COMMISSION
3001 Porcupine Drive
Anchorage, Alaska 99501-3192

Re: THE REQUEST of CONOCO INC) Area Injection Order No. 10
for an Area Injection Order for)
the Milne Point Unit.) Milne Point Unit
) Kuparuk River field

September 19, 1986
Amended May 3, 1994

IT APPEARING THAT:

1. Conoco Inc (Conoco) requested the Alaska Oil and Gas Conservation Commission to issue an Area Injection Order permitting the underground injection of fluids within the Milne Point Unit for purposes of enhanced hydrocarbon recovery. By letter and documents dated September 3, 1991, Conoco sought to amend Area Injection Order No. 10 to include enhanced recovery operations for the Schrader Bluff Oil Pool of the Milne Point Unit.
2. Notice was published in the Anchorage Daily News on August 15, 1986 of an opportunity for a public hearing on September 15, 1986, and an opportunity for a public hearing on October 22, 1991 in the Anchorage Times and the Anchorage Daily News on September 21, 1991.
3. On August 22, 1986, the Commission received a letter from J. Lindauer, Publisher, Barrow Sun Newspaper, protesting the granting of subject order and requested that a public hearing be held on the matter. No protests were filed regarding the September 3, 1991 application by Conoco to amend Area Injection Order No. 10.
4. On September 15, 1986, the Commission held a hearing as noticed and requested. The hearing record was closed upon adjournment.
5. On January 1, 1994, BP Exploration (Alaska), Inc. became sole operator of the Milne Point Unit.
6. By letter dated April 20, 1994, BP Exploration requested expansion of the affected area and revision of Finding 3 to reflect the change in operatorship of the Milne Point Unit.

FINDINGS:

1. There was no substantive protest to issuance of the requested area injection order.

2. An order permitting the underground injection of fluids on an area basis, rather than for each injection well individually, provides for efficiencies in the administration and surveillance of underground fluid injection operations. 20 AAC 25.460 provides the Commission with the authority to issue an order governing underground injection operations on an area basis.
3. The Schrader Bluff Oil Pool and t[T]he portion of the Kuparuk River Oil Pool underlying the Milne Point Unit constitute[s] a compact "project area" which can readily be described by governmental subdivisions. As of January 1, 1994 BP Exploration (Alaska), Inc. [Conoco] is the sole operator of underground injection activities in the Project Area.
4. The Project Area includes all existing injection wells and injection well sites planned for enhanced recovery of oil from that portion of the Kuparuk River Oil Pool and the Schrader Bluff Oil Pool.
5. The vertical limits of injection strata and confining formations may be defined in the ARCO Alaska, Inc West Sak River State well No. 1 and the Conoco Milne Point Unit A-1 well.
6. The strata into which fluids are to be injected will accept fluids at injection pressures which are less than the fracture pressure of the injection strata and their confining formations.
7. Statewide regulations and conservation orders govern field operations except as modified by this order.
8. To ensure that fluids injected are confined to injection strata, the mechanical integrity of injection wells should be demonstrated periodically and monitored routinely for disclosure of possible abnormalities in operating conditions.
9. Injection wells existing on the date of this order were constructed and completed in accordance with regulations which conform to the requirement of 20 AAC 25.412.
10. The operator has requested a variance to 20 AAC 25.030(g)(3) which requires running a CBL in injection wells. Since the CBL is the main method of establishing MIT Part II, the requested variance is not acceptable.

NOW, THEREFORE, IT IS ORDERED THAT the rules hereinafter set forth govern Class II underground injection operations in the following described area referred to in this order as the affected area:

UMIAT MERIDIAN

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| T13N | R9E | Sections 13, 14, 23 & 24. |
| T13N | R10E | All Sections. |
| T13N | R11E | Sections 5, 6, 7, 8, 15, 16, 17, 18, 19, 20, 21, 22, 29, 30, 31 & 32. |
| <u>T14N</u> | <u>R9E</u> | <u>Sections 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, & 36</u> |
| <u>T14N</u> | <u>R10E</u> | <u>Sections 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34, & 35</u> |

Rule 1 Authorized Injection Strata for Enhanced Recovery

Within the affected area, non-hazardous fluids may be injected for purposes of pressure maintenance and enhanced oil recovery into strata defined as those strata which correlate with the strata found in the Conoco Milne Point Unit well No. A-1 between the measured depths of 4,174 feet and 4,800 feet and the ARCO Alaska, Inc West Sak River State well No. 1 between the measured depths of 6,474 feet and 6,880 feet.

Rule 2 Fluid Injection Wells

The underground injection of fluids must be: 1) through a well permitted for drilling as a service well for injection in conformance with 20 AAC 25.005; 2) through a well approved for conversion to a service well for injection in conformance with 20 AAC 25.280; or 3) through a well that existed as a service well for injection purposes on the date of this order.

Rule 3 Monitoring the Tubing/Casing Annulus Pressures

The tubing/casing annulus pressure of each injection well must be checked weekly to ensure there is no leakage. The tubing/casing annulus must not be allowed to exceed a pressure which will subject the casing to a hoop stress greater than 70% of the casing's minimum yield strength.

Rule 4 Reporting the Tubing/Casing Annulus Pressure Variations

Tubing/casing annulus pressure variations of more than 200 psi between consecutive pressure readings made when injecting under steady state conditions of fluid temperature, rate, and pressure, must be reported to the Commission on the first working day following the observation.

Rule 5 Demonstration of Tubing/Casing Annulus Mechanical Integrity

A schedule must be developed and coordinated with the Commission which ensures that the tubing/casing annulus for each injection well is pressure tested prior to initiating injection and at least once every four years thereafter. A test surface pressure of 1500 psi, or, [assuming a 0.465 psi/ft geo-pressure gradient, a surface pressure that imposes a differential pressure gradient across the casing of] 0.25 psi/ft [at] multiplied by the vertical depth of the packer, whichever is greater; but not to exceed a hoop stress greater than 70% of the casing's minimum yield strength. The test pressure must be held on the tubing/casing for 30 minutes with no more than a 10% decline. Alternative EPA approved methods may also be used, with Commission approval; including but not necessarily limited to timed-run radioactive tracer surveys (RTS), oxygen activation logs (OAL), temperature logs (TL) and noise logs (NL). Wells with tubing-to-casing communication must be surveyed or logged every other year and wells which demonstrate mechanical integrity every fourth year. The Commission must be notified at least 24 hours in advance to enable a representative to witness pressure tests or the application of alternative methods.

Rule 6 Well Integrity Failure

Whenever operating pressure observations or pressure tests indicate pressure communication or leakage of any casing, tubing or packer, the operator must immediately cease injection, notify the Commission, and obtain approval for corrective action.

Rule 7 Plugging and Abandonment of Fluid Injection Wells

An injection well located within the affected area must not be plugged or abandoned unless approved by the Commission in accordance with 20 AAC 25.105.

Rule 8 Administrative Action

Upon request, the Commission may administratively amend any rule stated above as long as the operator demonstrates to the Commission's satisfaction that sound engineering practices are maintained and the amendment will not result in an increased risk of fluid movement into an underground source of drinking water.

DONE at Anchorage, Alaska and dated September 19, 1986;
First Amendment December 30, 1991;
Second Amendment May 3, 1994.

David W. Johnston, Chairman
Alaska Oil and Gas Conservation Commission

Russell A. Douglass, Commissioner
Alaska Oil and Gas Conservation Commission

Tuckerman Babcock, Commissioner
Alaska Oil and Gas Conservation Commission

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).

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