

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

Re: THE REQUEST OF STANDARD ) Area Injection Order No. 1  
ALASKA PRODUCTION COMPANY for )  
an Area Injection Order for the ) Duck Island Unit  
Endicott Field. ) Endicott Participating Area

May 30, 1986

IT APPEARING THAT:

1. Standard Alaska Production Company requested the Alaska Oil and Gas Conservation Commission to issue an Area Injection Order permitting the underground injection of fluids within the Duck Island Unit, Endicott Participating Area boundary for purposes of enhanced hydrocarbon recovery and the disposal of non-hazardous oil field waste fluids.
2. Notice of an opportunity for a public hearing on May 28, 1986 was published in the Anchorage Times on April 25, 1986.
3. No protest or request for a public hearing was timely filed. Accordingly, the Commission will, in its discretion, issue an order without a public hearing.

FINDINGS:

1. 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.
2. The Endicott Participating Area encompasses the entire Endicott Oil Pool, and all well sites planned for injection operations. The Endicott Participating Area is operated by a single operator.

3. Injection of non-hazardous oil field fluids is planned into the Endicott Oil Pool for enhanced hydrocarbon recovery and into Cretaceous and Tertiary strata for disposal.
4. Injection into, through, or above a fresh water aquifer or underground source of drinking water will not occur.
5. The vertical limits of the injection formations and the confining strata may be defined in the Standard Alaska Production Company Sag Delta No. 4 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. Less stringent requirements for well construction, monitoring and reporting of injection operations may be appropriate than would be required when injection occurs into, through or above fresh water aquifer.
8. Statewide regulations and conservation orders govern field operations except as modified by this order.
9. To ensure that fluids injected are confined to Injection Strata, the mechanical integrity of an injection well should be demonstrated periodically and monitored routinely for disclosure of possible abnormalities in operating conditions.

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

T11N	R16E	Section 1, Section 2: NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ and
T11N	R17E	Section 12: N $\frac{1}{2}$ NE $\frac{1}{4}$ . Sections 3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16 and 17.
T12N	R16E	Sections 25, 26, 27, Section 34: NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$ , Sections 35 and 36.

That portion of those lands in the  $S\frac{1}{2}$   $S\frac{1}{2}$   $NW\frac{1}{4}$  of Block 653 lying north of the south boundary of Sections 22, 23 and 24, T12N, R16E, U.M., AK. (being identical with line 6-7 on Block 653) and those lands in the  $S\frac{1}{2}$   $SW\frac{1}{4}$   $NE\frac{1}{4}$  of Block 653 lying north of the south boundary of Section 24, T12N, R16E, U.M., AK. and east of the west boundary of Section 30, T12N, R17E, U.M., AK. and those lands in the  $SW\frac{1}{4}$   $SE\frac{1}{4}$   $NE\frac{1}{4}$  of Block 653 and those lands in the  $SE\frac{1}{4}$  of Block 653 lying east of the west boundary of Sections 30 and 31, T12N, R17E, U.M., AK. and those lands in the  $SW\frac{1}{4}$   $SW\frac{1}{4}$  of Block 654 and those lands in the  $SW\frac{1}{4}$   $NW\frac{1}{4}$   $SW\frac{1}{4}$  of Block 654 and those lands in the  $SW\frac{1}{4}$   $SE\frac{1}{4}$   $SW\frac{1}{4}$  of Block 654 and those lands in Block 697 lying in T12N, R17E, U.M., AK. being the northeast portion of Block 697 and those lands in the  $NW\frac{1}{4}$  of Block 698 lying north of the south boundary of Sections 31, 32 and 33, T12N, R17E, U.M., AK. and those lands in  $NW\frac{1}{4}$   $NW\frac{1}{4}$   $NE\frac{1}{4}$  of Block 698 lying north of the south boundary of Sections 33 and 34, T12N, R17E, U.M., AK. which are within the offshore three-mile arc lines and which are all listed as state area on the "Supplemental Official O.C.S. Block Diagram" approved October 19, 1979 and December 9, 1979 respectively.

That portion of those lands in the  $S\frac{1}{2}$  and  $S\frac{1}{2}$   $N\frac{1}{2}$  of Block 698 lying east of the west boundary of Sections 2 and 11, T11N, R17E, U.M., AK. (being identical with line 4-5 Block 698) and lying north of the south boundary of Section 11, T11N, R17E, U.M., AK. (being identical with line 5-6 in Block 698) and the  $SW\frac{1}{4}$   $NW\frac{1}{4}$  of Block 699 and those lands in the  $SW\frac{1}{4}$  of Block 699 lying north of the south boundary of Sections 11 and 12, T11N, R17E, U.M., AK. and those lands in the  $SW\frac{1}{4}$   $NW\frac{1}{4}$   $SE\frac{1}{4}$  of Block 699 and those lands in the  $SW\frac{1}{4}$   $SE\frac{1}{4}$  of Block 699 lying north of the south boundary of Section 12, T11N, R17E, U.M., AK. and east of the west boundary of Sections 7 and 18, T11N R18E, U.M., AK. which are within the offshore three-mile arc lines and which are all listed as state area on the "Supplemental Official O.C.S. Block Diagram" approved October 4, 1979 and December 9, 1979 respectively.

Rule 1 Authorized Injection Strata for Enhanced Recovery.

Within the affected area, non-hazardous fluids may be injected into the Endicott Oil Pool, defined as those strata which correlate with the strata found in Standard Alaska Production Company well Sag Delta No. 4 between the measured depths of 11,496 and 12,812 feet, for the purposes of pressure maintenance and enhanced oil recovery.

Rule 2 Authorized Injection Strata for Disposal.

Within the affected area, non-hazardous fluids may be injected into strata defined and those strata which correlate with strata found in Standard Alaska Production Company well Sag Delta No. 4 between the measured depths of 3480 and 7500 feet, for the purpose of fluid disposal.

Rule 3 Fluid Injection Wells.

Fluids may not be injected underground except through a new well that has been permitted for drilling as a service well for injection in conformance with 20 AAC 25.005 or through an existing well that has been approved for conversion to a service well for injection in conformance with 20 AAC 25.280.

Rule 4 Monitoring The Tubing/Casing Annulus Pressures.

The tubing/casing annulus pressure of each injection well must be checked weekly, as a routine duty, to ensure there is no leakage and that it does not exceed a pressure that will subject the casing to a hoop stress greater than 70% of the casing's minimum yield strength.

Rule 5 Reporting The Tubing/Casing Annulus Pressures.

Tubing/casing annulus pressure variations between consecutive observations need not be reported to the Commission.

Rule 6 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 0.25 psi/ft multiplied by the vertical depth of the packer, whichever is greater, must be held for 30 minutes with no more than a 10 percent decline. The Commission must be notified at least 24 hours in advance to enable a representative to witness pressure tests.

Rule 7 Well Integrity Failure.

Whenever operating pressure observances 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 8 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 9 Administrative Relief.

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 May 30, 1986.



C. V. Chatterton, Chairman  
Alaska Oil and Gas Conservation Commission

Lonnie C. Smith, Commissioner  
Alaska Oil and Gas Conservation Commission