

**STATE OF ALASKA  
ALASKA OIL AND GAS CONSERVATION COMMISSION  
333 West 7<sup>th</sup> Avenue, Suite 100  
Anchorage Alaska 99501**

**Re: AMENDMENT of the order ) Area Injection Order 24B  
allowing underground injection of ) Prudhoe Bay Field, Borealis Oil Pool  
fluids for enhanced oil recovery in )  
Borealis Oil Pool, Prudhoe Bay ) January 30, 2008  
Field, North Slope, Alaska**

**IT APPEARING THAT:**

1. On its own motion the Commission proposed to amend the rules addressing mechanical integrity in all existing orders authorizing underground injection. The Commission published notice of opportunity for public hearing on the proposal in the Anchorage Daily News on October 3, 2004 to consider amendment of underground injection orders to incorporate consistent language addressing the mechanical integrity of injection wells. A hearing was tentatively scheduled for November 4, 2004.
2. By e-mail dated October 15, 2004, BPXA suggested edits to the Commission's proposed language addressing the mechanical integrity of injection wells.
3. No protests to the Commission's proposal or requests for hearing were received, and the scheduled hearing was vacated.
4. All orders authorizing injection in Prudhoe Bay Unit oil pools, with the exception of Area Injection Orders 22C (Aurora Oil Pool) and 24A (Borealis Oil Pool) include specific instructions for well integrity failures.
5. Area Injection Order 24A rules governing well mechanical integrity are inconsistent with other orders issued for underground injection operations in the State of Alaska.
6. The Commission published notice of opportunity for public hearing on the proposed amendments to Area Injection Order 24A in the Anchorage Daily News on December 20, 2007. A hearing was tentatively scheduled for January 31, 2008.
7. No protests to the Commission's proposal or requests for hearing were received, and the scheduled hearing was vacated.

**CONCLUSIONS:**

1. The exclusion of a rule addressing well integrity failure appears to have been an oversight by the Commission in the writing of Area Injection Order No. 24A.

2. Requirements for the demonstration of mechanical integrity are unclear as written in Area Injection Order 24A, specifically regarding the testing frequency.
3. It is appropriate both to amend Area Injection Order No. 24A to include requirements governing an injection well integrity failure, and to clarify the mechanical integrity demonstration requirements to be consistent with other injection orders issued by the Commission.

**NOW, THEREFORE, IT IS ORDERED:**

In addition to statewide requirements under 20 AAC 25 (to the extent not superseded by these rules), the following rules govern Class II injection operations in the affected area described below and supersede and replace the rules adopted in Area Injection Order No. 24A dated April 22, 2005:

Umiat Meridian

- T12N-R10E: ADL 25637 Sec 13, 24
- T12N-R11E: ADL 47447 Sec 16 (SW/4 and W/2 NW/4 and W/2 SE/4), 21,  
22 SW/4 and W/2 NW/4 and S/2 SE/4  
ADL 47446 Sec 17, 18, 19, 20  
ADL 28238 Sec 26 S/2 and W/2 NW/4 and SE/4 NW/4, 35, 36  
ADL 28239 Sec 27, 28, 33, 34  
ADL 47449 Sec 29, 30, 32
- T11N-R11E: ADL 28240 Sec 1, 2, 11, 12  
ADL 28241 Sec 3, 4, 9, 10  
ADL 28245 Sec 13, 14, 24  
ADL 28244 Sec 15  
ADL 28246 Sec 25
- T11N-R12E: ADL 28261 Sec 9 W/2  
ADL 47450 Sec 5 S/2, 6 S/2 and NW/4 and W/2 NE/4, 7, 8  
ADL 28263 Sec 16 W/2, 21 W/2  
ADL 28262 Sec 17, 18, 19, 20  
ADL 47452 Sec 28 W/2, 33 W/2  
ADL 47453 Sec 29, 30, 31, 32
- T12N-R12E: ADL 28259 Sec 31 W/2 and W/2 SE/4

### **Rule 1 Authorized Injection Strata for Enhanced Recovery**

Injection of authorized fluids for purposes of pressure maintenance and enhanced recovery is permitted into strata that are common to, and correlate with, the interval between 6534' and 6952' MD in the West Kuparuk State #1 well in the Prudhoe Bay Field.

### **Rule 2 Authorized Injection Fluids**

Fluids authorized for injection within the affected area are:

- a. produced water from Borealis Oil Pool or Prudhoe Bay Unit production facilities for the purposes of pressure maintenance and enhanced recovery;
- b. non-hazardous water collected from Borealis well house cellars and standing ponds;
- c. tracer survey fluid to monitor reservoir performance;
- d. source water from a seawater treatment plant;
- e. enriched hydrocarbon gas from the Prudhoe Bay Unit processing facilities, with the condition that the average Borealis Oil Pool reservoir pressure must be maintained above the minimum miscibility of the injectant; and
- f. source water from the Prince Creek Formation.

### **Rule 3 Fluid Injection Wells**

The underground injection of fluids must be through a well that has been permitted for drilling as a service well for injection in conformance with 20 AAC 25.005, or through a well approved for conversion to a service well for injection in conformance with 20 AAC 25.280 and 20 AAC 25.412.

The application to drill or convert a well for injection must be accompanied by sufficient information to verify the mechanical condition of wells within one-quarter mile radius. The information must include cementing records, cement quality log or formation integrity test records.

### **Rule 4 Monitoring the Tubing-Casing Annulus Pressure Variations**

The tubing by casing annulus pressure and injection rate of each injection well must be checked at least weekly to confirm continued mechanical integrity.

### **Rule 5 Demonstration of Tubing-Casing Annulus Mechanical Integrity**

The mechanical integrity of an injection well must be demonstrated before injection begins, and before returning a well to service following a workover affecting mechanical integrity. A Commission-witnessed mechanical integrity test must be performed after injection is commenced for the first time in a well, to be scheduled when injection conditions (temperature, pressure, rate, etc.) have stabilized. Subsequent tests must be performed at least once every four years thereafter (except at least once every two years

in the case of a slurry injection well). The Commission must be notified at least 24 hours in advance to enable a representative to witness mechanical integrity tests. Unless an alternate means is approved by the Commission, mechanical integrity must be demonstrated by a tubing by casing annulus pressure test using a surface pressure of 1500 psi or 0.25 psi/ft multiplied by the vertical depth of the packer, whichever is greater, that shows stabilizing pressure and does not change more than 10 percent during a 30-minute period. Results of mechanical integrity tests must be readily available for Commission inspection.

#### **Rule 6 Well Integrity Failure**

Whenever any pressure communication, leakage or lack of injection zone isolation is indicated by injection rate, operating pressure observation, test, survey, log, or other evidence, the Operator shall notify the Commission by the next business day and submit a plan of corrective action on a Form 10-403 for Commission approval. The Operator shall immediately shut in the well if continued operation would be unsafe or would threaten contamination of freshwater, or if so directed by the Commission. A monthly report of daily tubing and casing annuli pressures and injection rates must be provided to the Commission for all injection wells indicating well integrity failure or lack of injection zone isolation.

#### **Rule 7 Notification of Improper Class II Injection**

Injection of fluids other than those listed in Rule 2 without prior authorization is considered improper Class II injection. Upon discovery of such an event, the operator must immediately notify the Commission, provide details of the operation, and propose actions to prevent recurrence. Additionally, notification requirements of any other State or Federal agency remain the operator's responsibility.

#### **Rule 8 Other conditions**

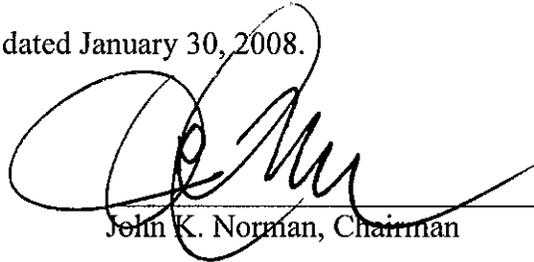
- a. It is a condition of this authorization that the operator complies with all applicable Commission regulations.
- b. The Commission may immediately suspend, revoke, or modify this authorization if injected fluids fail to be confined within the designated injection strata.

**Rule 9 Administrative Action**

Unless notice and public hearing is otherwise required, the Commission may administratively waive the requirements of any rule stated above or administratively amend any rule as long as the change does not promote waste or jeopardize correlative rights, is based on sound engineering and geoscience principles, and will not result in an increased risk of fluid movement into freshwater.

**DONE** at Anchorage, Alaska, and dated January 30, 2008.



  
\_\_\_\_\_  
John K. Norman, Chairman

  
\_\_\_\_\_  
Cathy P. Foerster, 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 reconsideration. A request for reconsideration 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 reconsideration, both being the final order of the Commission, to appeal the decision to Superior Court. Where a request for reconsideration 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 reconsideration was filed).