

ADMINISTRATIVE APPROVAL NO. AIO 10-A.001

Alison Cooke
Air/Waste/Water Compliance
BP Exploration Alaska, Inc.
PO Box 196612
Anchorage, Alaska 99519-6612

Re: Injection of Treated Wastewater
Effluent into MPU EOR Wells

Dear Ms. Cooke:

Per your E-mail to Jane Williamson dated December 12, 2001, BP requested an administrative approval to authorize injection of treated effluent from the Milne Point Wastewater Treatment Plant down EOR wells. The original Area Injection Order (AIO 10) was issued September 19, 1986 and amended May 3, 1994 and allowed that "non-hazardous fluids may be injected for purposes of pressure maintenance and enhanced oil recovery". Initial application by then Operator Conoco requested approval for injection of miscellaneous water including non-hazardous surface water and associated surfactants/solvents used in the washing and cleaning. It was anticipated at that time, that 10 BBL/D would be injected. While no direct mention was provided in the rules specifying surface water as an authorized fluid for EOR purposes, it appears that the intent at that time was to allow for this. As such, under this original authorization, Milne Point has been injecting wastewater. The Commission recently issued on October 29, 2001 AIO 10-A, which supersedes AIO 10. AIO 10-A specifically addressed fluids allowed for injection into the formation. The application from BP and the subsequent AIO 10-A order did not include treated wastewater effluent as an authorized fluid for injection.

Per your documentation maximum effluent is estimated at 14,710 gal/day, assuming all potable water goes into the waste water system. BP plans the addition of a new system backwash, up to 700 gal/day (with water softening), which will be routed to the wastewater. This wastewater effluent is pumped into a header that discharges into the water injection surge drum, and is mixed with produced water, source water and water from de-watering activities. Water collected from reserve pits, well house cellars and any standing ponds on the pads is pumped is either commingled with source water at A Pad or runs back through the production process and becomes part of the produced water stream. This pit water is filtered (300 micron). Based on Milne Point EOR operating experience, the low volume of wastewater effluent (less than 1% of total EOR water flow), and a review of the analysis of a limited number of samples, the waste water effluent water appears compatible with the other EOR waters. It is understood that trace chemicals are required in the treatment of the water as outlined by e-mail from Tom Simpson to Jane Williamson dated December 14, 2001.

The Commission approves BP's request to allow for wastewater effluent to be injected for EOR application. Accordingly, the following Part A(2) and Part B(2) of Rule 1 of AIO 10-A are revised as follows:

AIO 10-A

Rule 1 Part A (2)

2) **Kuparuk River Oil Pool - Authorized Injection Fluids:**

The following fluids are approved for injection into the KROP within the MPU:

- a. produced water and gas from Milne Point Unit production for purposes of pressure maintenance and enhanced recovery;
- b. source water from the Prince Creek Formation;
- c. seawater to thermally fracture gas injection wells;
- d. tracer survey fluid to monitor reservoir performance;
- e. fluids injected for the purposes of stimulation per 20 AAC 24.280(2);
- f. miscible gas injectant (including NGL's imported from the Prudhoe Bay Unit) for purposes of pressure maintenance and enhanced recovery); and
- g. non-hazardous treated wastewater from the Milne Point Wastewater Treatment Plant and non-hazardous water collected from MPU reserve pits, well house cellars and standing ponds.

Rule 1 Part B (2)

2) **Shrader Bluff Oil Pool - Authorized Injection Fluids:**

The following fluids are approved for injection into the SRP within the MPU:

- a. produced water from Milne Point Unit production for purposes of pressure maintenance and enhanced recovery;
- b. source water from the Prince Creek Formation;
- c. seawater to thermally fracture gas injection wells;
- d. tracer survey fluid to monitor reservoir performance;
- e. fluids injected for the purposes of stimulation per 20 AAC 24.280(2); and
- f. non-hazardous treated wastewater from the Milne Point Wastewater Treatment Plant and non-hazardous water collected from MPU reserve pits well house cellars and standing ponds.

Cammy Oechsli Taylor
Chair

Daniel T. Seamount, Jr.
Commissioner

Julie M. Heusser
Commissioner

BY ORDER OF THE COMMISSION