THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Alaska Oil and Gas Conservation Commission

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ADMINISTRATIVE APPROVAL
AREA INJECTION ORDER NO. 31.001 AMENDED

Ms. Alison Cooke
UIC Compliance Advisor
BP Exploration (Alaska) Inc.
P.O. Box 196612
Anchorage, AK 99519-6612

RE: Authorized Fluids for EOR and Pressure Maintenance for the Raven Oil Pool

Dear Ms. Cooke:

The Alaska Oil and Gas Conservation Commission has amended the Administrative Approval to correct an error in the description of non-hazardous water based fluids. The correction occurs in two locations and is shown in underlined text below.

By letter dated April 30, 2012, BP Exploration (Alaska) Inc. (BPXA) requested that the Alaska Oil and Gas Conservation Commission (AOGCC) administratively amend the following Area Injection Orders (AIO): 3A, 4E, 14A, 20, 22E, 24B, 25A, 26B and 31. BPXA requested the amendments in an effort to standardize the fluids authorized for injection for enhanced recovery and pressure maintenance for the oil pools in the Prudhoe Bay Field. BPXA requested the standardization due to the complexity of managing injection operations for multiple pools, with different lists of authorized fluids, which are served by common production facilities. In accordance with terms set forth below, **BPXA's request is partially APPROVED, with a minor change to the wording proposed by BPXA. BPXA's request to inject produced gas and enriched hydrocarbon gas is hereby DENIED.**

BPXA proposes that AIO No. 31 be modified to approve the following for EOR and pressure maintenance injection.

- Produced water and gas;
- Enriched hydrocarbon gas;
- Non-hazardous water and water based fluids – (includes seawater, source water, freshwater, domestic wastewater, equipment washwater, sump fluids, hydrotest fluids, firewater, and water with trace chemicals, and other water based fluids with a <u>pH greater than 2 and less than 12.5 and flashpoint greater than 140 degrees F</u>);
- Fluids introduced to production facilities for the purpose of oil production, plant operations, plant/piping integrity or well maintenance that become entrained in the

produced water stream after oil, gas, and water separation in the facility. Includes but not limited to:
  - Freeze protection fluids;
  - Fluids in mixtures of oil sent for hydrocarbon recycle;
  - Corrosion/scale inhibitor fluids;
  - Anti-foams/emulsion breakers;
  - Glycols
- Non-hazardous glycols and glycol mixtures;
- Fluids that are used for their intended purpose within the oil production process. Includes:
  - Scavengers;
  - Biocides
- Fluids to monitor or enhance reservoir performance. Includes:
  - Tracer survey fluids;
  - Well stimulation fluids;
  - Reservoir profile modification fluids.

As shown above, the list of fluids for which BPXA seeks approval uses the terms "includes" and "includes but not limited to." Words such as "includes" and "including" along with phrases such as "includes but is not limited to" inappropriately delegate to BPXA the authority to determine what additional fluids are approved. Therefore, this approval modifies BPXA's proposal to delete the use of any such language as set forth below.

In support of its application, BPXA submitted a fluid compatibility review based on previous orders and laboratory testing. This review showed that the proper handling and treating, including the use of scale inhibitors, of the injection fluids as well as the proper operation and maintenance, including the pumping of scale remover and acid treatments, of the injection wells will prevent or counteract incompatibility effects. Thus there are no operational risks associated with injection of the proposed fluids in this pool.

It has not been demonstrated that the injection of produced gas or enriched hydrocarbon gas will enhance recovery from this pool. Therefore, BPXA's request to allow gas injection in this pool is denied.

The change proposed by BPXA will result in increased production, is based on sound engineering and geotechnical reasons, does not promote waste or jeopardize correlative rights, and will not result in increased risk of fluid movement into freshwater. Correlative rights are protected because all lands subject to these orders have been unitized. Freshwater is protected by the proper design and completion of the wells, ongoing/periodic mechanical integrity evaluation required for all injection wells and review of the offset wells to ensure that they won't act as conduits to fluid movement.

NOW THEREFORE IT IS ORDERED THAT:

Rule 3 of AIO 31 is repealed and replaced by the following:

Rule 3: Authorized Fluids for enhanced Recovery

Fluids authorized for injection are:

a) Produced water from Prudhoe Bay Unit processing facilities;
b) Non-hazardous water and water based fluids – (specifically seawater, source water, freshwater, domestic wastewater, equipment washwater, sump fluids, hydrotest fluids, firewater, and water with trace chemicals, and other water based fluids with a pH greater than 2 and less than 12.5 and flashpoint greater than 140 degrees F);
c) Fluids introduced to production facilities for the purpose of oil production, plant operations, plant/piping integrity or well maintenance that become entrained in the produced water stream after oil, gas, and water separation in the facility. Specifically:
   i. Freeze protection fluids;
   ii. Fluids in mixtures of oil sent for hydrocarbon recycle;
   iii. Corrosion/scale inhibitor fluids;
   iv. Anti-foams/emulsion breakers;
   v. Glycols
d) Non-hazardous glycols and glycol mixtures;
e) Fluids that are used for their intended purpose within the oil production process. Specifically:
   i. Scavengers;
   ii. Biocides
f) Fluids to monitor or enhance reservoir performance. Specifically:
   i. Tracer survey fluids;
   ii. Well stimulation fluids;
   iii. Reservoir profile modification fluids.

NUNC PRO TUNC September 4, 2012
DONE at Anchorage, Alaska and dated October 9, 2012.

Daniel T. Seamount, Jr.
Commissioner

John K. Norman
Commissioner

ALASKA OIL AND GAS CONSERVATION COMMISSION

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 AOGCC grants for good cause shown, a person affected by it may file with the AOGCC 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 AOGCC 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 AOGCC 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 AOGCC mails, **OR 30** days if the AOGCC 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 AOGCC 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 AOGCC, and it may be appealed to superior court. That appeal **MUST** be filed within **33** days after the date on which the AOGCC mails, **OR 30** days if the AOGCC 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 AOGCC 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.