United States Department of the Interior
BUREAU OF OCEAN ENERGY MANAGEMENT
Alaska OCS Region
3801 Centerpoint Drive, Suite 500
Anchorage, Alaska 99503-5823

October 17, 2018

Kate Kaufman, Regulatory Lead
Hilcorp Alaska, LLC
3800 Centerpoint Drive, Suite 1400
Anchorage, Alaska 99503

Dear Ms. Kaufman:

The Bureau of Ocean Energy Management (BOEM) has reviewed the Hilcorp Alaska LLC (HAK) Liberty Amended Development and Production Plan (Liberty DPP) for Outer Continental Shelf (OCS) blocks OCS-Y-1650, OCS-Y-1886 and OCS-Y-1585.

In accordance with 43 U.S.C. § 1351 and 30 C.F.R. § 550.270, BOEM hereby approves the Liberty DPP subject to the conditions below:

1. HAK must conduct all activities in accordance with all Federal laws and regulations, the requirements of any permits/approvals, lease stipulations, and the DPP. HAK must receive all required permits/approvals including, but not limited to, the following:

   - Prior to construction of the pipeline, HAK must obtain both a ROW lease and written permission to construct from the State of Alaska, Department of Natural Resources, and DOT PHMSA, respectively.
   - Prior to commencement of Liberty Project pipeline trenching and construction activities on state lands under the Corps of Engineers 404 permit, HAK must obtain from the State of Alaska, Department of Environmental Conservation (ADEC) a Clean Water Act, Section 401 Water Quality Certification ("401 Certification" or "Certification of Reasonable Assurance") and submit a copy of ADEC's 401 Certification to the Corps of Engineers.
   - Prior to operation of crude oil pipelines associated with the Liberty Project, HAK must obtain State of Alaska, Department of Environmental Conservation approval of an Oil Discharge Prevention and Contingency Plan (ODPCP) for the new pipeline and revisions to the Badami Pipeline ODPCP for the Liberty pipeline tie-in.
   - HAK must abide by any measures, terms, and conditions specified in the Biological Opinions issued by NMFS and USFWS.
   - HAK must obtain Letters of Authorization (LOAs) from NMFS and USFWS prior to commencing operations.

2. Reservoir drilling is authorized only during times of solid ice conditions. For the purposes of this condition, "reservoir drilling" is defined to include initial development drilling (as opposed to workovers, recompletions, and other such well operations subsequently conducted

on existing wells) beyond the shoe (base) of the last casing string above the Kekiktuk Formation (i.e. drilling that exposes the Kekiktuk Formation to an open, uncased wellbore). "Solid ice conditions" is defined as at least 18 inches of ice in all areas within 500 feet of the Liberty Development Production Island (LDPI).

3. To reduce potential disturbance to Cross Island subsistence whaling activities, the following activities are prohibited from August 1 through the end of the hunt (or until the quota has been met):

    - Pipe-/pile-driving activities at the LDPI, and
    - Marine vessel traffic seaward of the barrier islands.

    These activities can resume after the Nuiqsut bowhead whale quota has been met or after the Cross Island-based whalers officially end their whaling activities for the season. In the event that Nuiqsut whalers communicate an intent to conduct subsistence whaling activities south of Narwhal Island, HAK must make all reasonable efforts to minimize conflicts between operations (including marine vessel traffic) and subsistence hunting activities.

4. HAK will complete development on a number of work plans including wildlife interaction plans, bird lighting plans, and others. The intent of the plans is to ensure that the project is conducted in an environmentally sound manner. HAK must provide BOEM copies of all plans as soon as they are developed and no later than three months before project initiation. Where safety allows, the plans must incorporate the following:

    - Exterior lights on buildings on the LDPI must be reduced and down-shielded.
    - Black-out curtains must be used on exterior windows.
    - Green or blue exterior lights on buildings must be used instead of white lights.
    - A strobe-based light-repellant system, similar to that used at Northstar, must be designed and implemented.
    - Buildings must be painted light tan rather than white or very dark colors.
    - Equipment that is not being used (e.g. equipment that has not been used for a year), and that poses a bird strike hazard, must be stored/moved to an off-site location and/or altered to reduce the risk of bird strikes.
    - If practicable, given safety and other operational considerations, flare booms must be placed at a height of at least 20 meters.
    - All bird mortalities, collisions, and strandings must be recorded on a daily basis for the life of the project, and must include bird species and circumstances of their stranding/death. A report must be submitted annually, in an electronic format, to the RSLP. HAK must schedule a meeting with BOEM annually to discuss report results. HAK must take corrective actions to address activities that are continually resulting in bird strikes/deaths.
    - Steps must be taken to minimize destruction of bird nests and harm to nesting birds during ground clearing activities (e.g., for the land-based pipeline and gravel mine). Such steps include clearing the area in winter prior to the arrival of spring migrants, staging

mechanized equipment in winter to deter ground-nesting birds, and/or other measures that achieve the stated goal.

- HAK must minimize attracting or feeding predators through the following means: employing strict food waste control measures (e.g., animal-proof containers); providing education/training to staff/contractors to discourage feeding wildlife; incorporating design features that discourage avian nesting; monitoring to detect initiation of bird nests on towers/structures and to detect construction of fox dens; and removing nests and/or dens, eggs, and/or young as appropriate and consistent with federal and state laws.
- Vessels traveling between West Dock/Endicott and Foggy Island Bay must not exceed speeds of 10 knots in order to reduce the potential for whale strikes.
- Aircraft must adhere to a minimum altitude of 1,500 feet AGL (above ground level), as safety allows, to minimize disturbance to marine mammals and other wildlife.

5. HAK must develop, in conjunction with NMFS, a Hazard Analysis and Critical Control Point (HACCP) Plan, or similar plan, for prevention and response to marine invasive species associated with operation of the LDPI. The HACCP Plan or similar plan shall be provided to BOEM and NMFS as soon as it is developed or no later than three months before project initiation. At minimum, the plan must include a monitoring program to help provide for early detection and rapid response if invasive species are found.

6. HAK must submit to BOEM or BSEE, as indicated, the following information for each hydrocarbon-bearing reservoir that is penetrated by a well that would meet the producibility requirements of 30 C.F.R. § 550.115. HAK must provide this information so that BOEM can monitor reservoir performance and ensure resource conservation. To prevent duplicative submissions, HAK may make reference to any data on this list that was previously submitted to BOEM or BSEE at an earlier date.

   a. *Reservoir management reports.* In accordance with 30 CFR § 250.1166, Hilcorp must submit an annual reservoir management report to the Bureau of Safety and Environmental Enforcement (BSEE) that discusses the actions taken by Hilcorp during the previous year (i.e., the reporting year) to prevent waste and ensure a greater ultimate recovery of oil and gas and describe the reservoir development strategies Hilcorp anticipates undertaking during the coming year. In addition to whatever information BSEE may require, the reservoir management report must include the total volume of oil and gas produced and the total volume of EOR fluids injected into the reservoir for the reporting year, as well as the overall reservoir pressure at the beginning and end of the reporting year. The report must also include a list of all well tests, logs, reservoir analysis, new and reprocessed seismic data, new and reprocessed geophysical data, and other information collected or conducted by Hilcorp during the reporting year.

      Under § 550.115(b), BOEM Form 0127 must be submitted to BOEM no later than March 30 each year.

      Hilcorp must also meet quarterly with BOEM and BSEE to discuss the progress on field development and provide details on activities completed during the previous quarter and

planned activities for the upcoming quarter. The quarterly meetings are to be held no later than May 1 for Quarter 1 (January 1 to March 31), August 1 for Quarter 2 (April 1 to June 30), November 1 for Quarter 3 (July 1 to September 30), and February 1 for Quarter 4 (October 1 to December 31). The Regional Supervisor, Leasing and Plans (RSLP) may waive or modify the requirement for quarterly meetings after the Liberty reservoir reaches full field development.

b. *Log, survey, and test data.* No later than 30 days after each new well is drilled and/or completed, or after an existing well is recompleted, Hilcorp must submit to BOEM summary spreadsheets of well log data and reservoir parameters (i.e., sand tops and bases, fluid contacts, net pay with cut-off parameters identified, porosity, permeability, water saturations, reservoir formation pressures, and fluid properties such as API gravity, solution gas-oil ratio, viscosity, and formation volume factor).

   In accordance with BSEE NTL 2016-N07, Hilcorp must submit to BSEE copies of any of the following data collected for each well:

   i. Digital well log (i.e., gamma ray, resistivity, neutron, density, sonic, caliper) curves in an acceptable digital media type (i.e., flash drive or CD); well log sections should indicate tops and bottoms of the reservoirs and existing perforations.
   ii. Mudlogs and hydrocarbon show reports.
   iii. Wireline formation test logs.
   iv. Drill stem tests to include pressure buildup charts.
   v. Directional surveys of wells with NAD83, UTM zone xx coordinates (specify whether coordinates are true north or grid north referenced).
   vi. Velocity surveys (time/depth pairs).

   Hilcorp must submit to BOEM processed or re-processed geophysical data (when applicable) in SEGY format with appropriate metadata as defined by BOEM no later than 30 days after Hilcorp's receipt of this data. Hilcorp must submit geophysical acquisition and processing reports no later than 30 days after completion.[1]

c. *Production and injection reports.* HAK must comply with the production reporting requirements of the Office of Natural Resource Revenue (https://www.onrr.gov/), the Bureau of Safety and Environmental Enforcement (https://www.bsee.gov/), and the Bureau of Ocean Energy Management (https://www.boem.gov/).

d. *Maps.* Except for maps/plats required by BSEE under 30 C.F.R. Part 250, HAK must consult with BOEM before submitting other supplemental maps to ensure appropriate scale, geographic coordinate system (e.g., NAD83), and projection (e.g., UTM) are used. For all maps, include both a verbal or fractional scale and a visual scale, as well as time

[1] If any of this data has already been submitted to BOEM, Hilcorp may reference it (e.g. pressure surveys submitted in Form-0140, Bottomhole Pressure Report, per 30 CFR § 550.1153). If any of the information is changed after submission, submit any updated spreadsheets and corrected logs, surveys, and tests in a timely manner. All data and information must include all relevant metadata and in a geographic projection as defined by BOEM.

and depth grids used to generate the maps, and associated FGDC-compliant metadata including grid-cell size and gridding methodology.

7. HAK must maintain records of the monthly fuel consumption (in gallons) or hours of operation for each emission unit described in the Liberty Drilling and Production Island Emission Unit Inventory (Table 9-8 of the DPP), and submit emissions information monthly in a report to BOEM in accordance with 30 C.F.R. 550.303(k). Include in the report sulfur content of diesel fuel delivered to the island and the BTU value of the natural gas used as fuel. The emissions reports must be submitted to the RSLP by the end of the following month. If an emission unit was not operated during the reporting month, provide a statement to that effect on the monthly report.

As provided by 30 C.F.R. 550.284, BOEM will periodically conduct a review of the activities conducted under the conditionally approved Liberty DPP and may require HAK to submit updated information or revise the Liberty DPP. BOEM anticipates conducting such reviews on an annual basis during the construction and initial development phases of the conditionally approved DPP.

If you have questions, please contact William Ingersoll, Chief of Plans Section, at (907) 334-5224 or by email at william.ingersoll@boem.gov.

Sincerely,

David Johnston
Regional Supervisor, Leasing and Plans
Bureau of Ocean Energy Management – Alaska Region

I approve of the decision of the Regional Supervisor:

Date 10/17/18

Joseph R. Balash
Assistant Secretary
Land and Minerals Management
Department of the Interior

cc: Governor Walker
Senator Murkowski
Senator Sullivan
Congressman Young

Kevin Pendergast, Bureau of Safety and Environmental Enforcement, Alaska Region
Eric Miller, OSPD, Bureau of Safety and Environmental Enforcement
Greg Siekaniec, U.S. Fish and Wildlife Service, Alaska Region
James W. Balsiger, U.S. National Marine Fisheries Service, Alaska Region
Dianne Soderlund, U.S. Environmental Protection Agency, Region 10, Alaska Operations Office
Mayor Harry Brower, Jr., North Slope Borough
Mayor Fannie Suvlu, Utqiagvik
Mayor Nora Jane Burns, Kaktovik
Mayor Thomas Napageak, Jr., Nuiqsut
Charles DN Brower President, Native Village of Barrow
Mr. Matthew Rexford, Tribal Administrator, Native Village of Kaktovik
Ms. Margaret Pardue, President, Native Village of Nuiqsut
Mr. George Edwardson, President, Inupiat Community of the Arctic Slope
Mr. John Hopson, Jr., Chair, Alaska Eskimo Whaling Commission
Mr. Rex Rock, Sr., President, Arctic Slope Regional Corporation
Mr. Lanston Chinn, CEO, Kuukpik Corporation