



# United States Department of the Interior



BUREAU OF LAND MANAGEMENT  
Anchorage Field Office  
4700 BLM Road  
Anchorage, Alaska 99507-2591  
<http://www.blm.gov/ak>

Beaver Creek Unit Natural Gas Wells/Permit to Drill  
Environmental Assessment, DOI-BLM-AK-A010-2014-0013-EA

Case File: A-028118  
A-028083

## **DECISION RECORD**

### **Background**

The Bureau of Land Management has conducted an environmental analysis (DOI-BLM-AK A010-2014-0013-EA) to evaluate the effects on the implementation of Hilcorp Alaska LLC's proposed plan to drill four new natural gas wells in a federally administered oil and gas unit, Beaver Creek Unit. The proposed action would continue the exploration for and development of natural gas within the producing Beaver Creek Unit and Cook Inlet. The Proposed Action is in accordance with the terms and conditions of the federal lease and unit agreement.

### **Decision**

The proposed action would approve the drilling of four new natural gas wells. These wells will be drilled on existing pads, as now configured, using a closed-loop system, which is a system where produced fluids are mixed downhole. Pad 3 is located on federal lease A028083 and Pad 7 on federal lease A028118. Existing gravel roads will provide access to the drilling sites as well as Marathon Road, the main road leading into the field. These roads are suitable for transportation of the drilling rig and support equipment. The four new natural gas wells are planned to a depth of approximately 11,000 feet. Production of gas is expected in the Sterling and Beluga formations. All drilling activities will be conducted strictly in accordance with State and Federal spill prevention and contingency plans. Drilling waste and fluids will be properly disposed of in Alaska Oil and Gas Conservation Commission approved disposal facilities and injection wells. Production will be tied into the existing field gathering system. The installation of any additional production facilities will be installed directly on the drilling pads.

The Bureau of Land Management has reviewed the environmental assessment and identified specific mitigation measures to avoid or minimize surface impacts resulting from implementation of the project. The proposed action is in conformance with the Ring of Fire RMP/EIS and its Record of Decision (March 2008) and conforms to the land-use planning terms and conditions required under 43 CFR 1610.5.

Based upon the analysis provided, Alternative 2, the Proposed Action, is approved as described in the attached Environmental Assessment.

- Alternative 2 – Proposed Action
- Alternative 2 does not result in any further undue or unnecessary environmental degradation.
- Complying with Best Management Practices, Mitigation Measures, and Conditions of Approval will alleviate or minimize environment impacts.

### **Rationale for the Decision**

The Decision to allow the proposed action does not result in any undue or unnecessary environmental degradation of the public lands. An oil and gas lease grants the right and privilege to drill for, mine, extract, and remove and dispose of all the oil and gas deposits in the leased lands, subject to the terms and conditions incorporated in the lease. The denial of the right to drill would void the lessee's contractual rights unless the lease itself reserved the right to implement the denial of such activity.

### **Laws, Authorities, and Land Use Plan Conformance**

The EA and supporting documentation have been prepared consistent with the requirements of various statutes and regulations, including but not limited to:

- Mineral Leasing Act (1920) (30 U.S.C. 181-263, as amended)
- Mining and Minerals Policy Act, (1970) (30 U.S.C. 21)
- Federal Onshore Oil and Gas Leasing Reform Act of 1987 (43 CFR 3162)
- Energy Policy and Conservation Act (EPCA) of 2000 (43 U.S.C. 6361)
- Energy Policy Act of 2005 (43 U.S.C. 6361)
- Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S.C. 1701 t seq., as amended)
- 43 CFR 3160
- Onshore Oil and Gas Order No. 1, Approval of Operations
- Onshore Oil and Gas Order No. 2, Drilling
- National Historic Preservation Act of 1966, P.L. 89-655, 80 Stat 915, 16 USC 470, 1966 U.S. Code Cong. And Ad. News 3855; amended; P.L.s 91-243, 93-54, 94-422, 94-458, 96-244 and 96-515
- Ring of Fire Record of Decision and Approved Management Plan. March 2008.

### **Public Involvement, Consultation, and Coordination**

The Notices of Staking were posted for public inspection in the Alaska BLM public room and on the Alaska BLM webpage for the 30-day posting requirement per 43 CFR 3162.3-1(g). No comments were received on the proposed wells during the 30-day posting period.

### **Appeal Opportunities**

This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR § 4. To appeal you must file a notice of appeal at the BLM Anchorage Field Office, 4700 BLM Road, Anchorage, Alaska 99507, within

30 days from receipt of this decision. The appeal must be in writing and delivered in person, via the United States Postal Service mail system, or other common carrier, to the Anchorage Field Office as noted above. *The BLM does not accept appeals by facsimile, email, or other electronic means.* The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition pursuant to regulation 43 CFR § 4.21 (58 FR 4939, January 19, 1993) for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. Except as otherwise provided by law or other pertinent regulation, a petition for a stay of decision pending appeal shall show sufficient justification based on the following standards: (a) The relative harm to the parties if the stay is granted or denied, (b) The likelihood of the appellant's success on the merits, (c) The likelihood of immediate and irreparable harm if the stay is not granted, and (d) Whether the public interest favors granting the stay.

Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the Office of the Solicitor (see 43 CFR § 4.413); Office of the Regional Solicitor, Alaska Region, U.S. Department of the Interior, 4230 University Drive, Suite 300, Anchorage, Alaska 99508; at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

*/s/ Alan Bittner*

*July 22, 2014*

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Alan Bittner  
Anchorage Field Manager

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Date



# United States Department of the Interior



BUREAU OF LAND MANAGEMENT  
Anchorage Field Office  
4700 BLM Road  
Anchorage, Alaska 99507-2591  
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## **Beaver Creek Unit Natural Gas Wells / Permit to Drill** Environmental Assessment, DOI-BLM-AK-A010-2014-0013-EA

Case File, A-028118  
A-028083

### **FINDING OF NO SIGNIFICANT IMPACT**

#### **Background**

The Bureau of Land Management has conducted an environmental analysis (DOI-BLM-AK A010-2014-0013-EA) to evaluate the effects on implementation of Hilcorp Alaska LLC's proposed plan to drill four new natural gas wells in a federally administered oil and gas unit, Beaver Creek Unit. The proposed action would continue the exploration for and development of natural gas within the producing Beaver Creek Unit and Cook Inlet. The Proposed Action is in accordance with the terms and conditions of the federal lease and unit agreement.

#### **Decision**

I have reviewed the Environmental Assessment and based on the analysis of the potential environmental impacts of the proposed action, I have determined that Alternative 2, the Proposed Action, is not expected to have any significant direct, indirect, or cumulative impacts on the environment and will not cause undue or unnecessary degradation to public lands. I have determined that the proposed action is in conformance with the Ring of Fire Record of Decision and Approved Resource Management Plan 2008, the existing land use plan for the area.

The Applications for Permit to Drill for the four new natural gas wells will be approved under the authority of 43 CFR 3160. The applicant shall be subject to applicable stipulations; lease stipulations, mitigating measures incorporated into the applicant's Plan of Operations, as well as regulations contained in 43 CFR 3160 through 3163, Oil and Gas Onshore Orders, and Notices to Lessees.

## **Finding of No Significant Impact**

This action and its effects have been evaluated consistent with the Council on Environmental Quality regulations for determining *significance*. Per 40 CFR § 1508.27, a determination of *significance* requires consideration of both context and intensity. The former refers to the relative context in which the action would occur such as society as a whole, affected region, affected interests, etc. The latter refers to the severity of the impact.

## **Conclusion**

Therefore, on the basis of the information contained in the Environmental Assessment, DOI-BLM-AK-A010-2014-0013-EA, and all other information available to me, it is my determination that:

1. None of the environmental effects identified meet the definition of significance as defined by context and intensity considerations at 40 CFR § 1508.27;
2. The alternatives are in conformance with the Ring of Fire Record of Decision and Approved Resource Management Plan 2008; and
3. The Proposed Action and alternatives do not constitute a major federal action having a significant effect on the human environment.

Therefore, neither an Environmental Impact Statement nor a supplement to the existing EA is necessary and neither will be prepared.

*/s/ Alan Bittner*

*July 22, 2014*

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Alan Bittner  
Anchorage Field Manager

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Date

**U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

Anchorage Field Office  
4700 BLM Road  
Anchorage, Alaska 99507

**Beaver Creek Unit Natural Gas Wells / Permit to Drill**

**Decision Record  
Finding of No Significant Impact  
Environmental Assessment  
DOI-BLM-AK-A010-2014-0013-EA**

Applicant: Hilcorp Alaska LLC  
Case File: A-028118  
A-028083

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### ATTACHMENTS

### ACRONYMS

ADEC.....	Alaska Department of Environmental Conservation
AFMSS.....	Automated Fluid Minerals Support System
ANILCA.....	Alaska National Interest Land Conservation Act
AOGCC.....	Alaska Oil and Gas Conservation Commission
BLM.....	Bureau of Land Management
EA.....	Environmental Assessment
H <sub>2</sub> S.....	Hydrogen sulfide
I&E.....	Inspection and Enforcement
KNWR.....	Kenai National Wildlife Refuge
NAAQS.....	National Ambient Air Quality Standards
NEPA.....	National Environmental Policy Act
NOS.....	Notice of Staking
P&A.....	Plug and Abandonment
TPY.....	Tons per Year
USFWS.....	United States Fish & Wildlife Service

## 1.0 INTRODUCTION

### 1.1 Summary of Proposed Project

This Environmental Assessment (EA) has been prepared to evaluate Hilcorp Alaska LLC's (Hilcorp) request to drill four (4) new natural gas wells in a federally administered oil and gas unit, Beaver Creek Unit. The proposed project constitutes a Federal action that is subject to evaluation by the Bureau of Land Management (BLM) under the National Environmental Policy Act (NEPA).

### 1.2 Location

#### Legal Description of Proposed Wells (Seward Meridian)

Well Name	Pad	Township	Range	Section	Aliquot	Case File	Latitude	Longitude
Beaver Creek 21	7	6N	10W	4	SWNE	A028118	60.64190 9	151.040049
Beaver Creek 22	7	6N	10W	4	SWNE	A028118	60.641599	151.040401
Beaver Creek 23	3	7N	10W	34	NENW	A028083	60.657965	151.019368
Beaver Creek 24	3	7N	10W	34	NENW	A028083	60.657680	151.019620

### 1.3 Background

Hilcorp submitted four (4) Notices of Staking to the Alaska State Office to develop potential natural gas resources on their federal oil and gas leases, A028083 and A028118, within the federally managed oil and gas unit, Beaver Creek Unit. Kenai, Alaska is the nearest town to the site and is approximately 10 miles west of the proposed well site. This location is within the boundaries of the Kenai National Wildlife Refuge (KNWR).

The project would continue exploration for and development of natural gas within the producing Beaver Creek Unit. Federal leases, A028083 and A028118, were issued in 1958, prior to the National Environmental Protection Act of 1969. Gas was discovered in the Beaver Creek Unit in February 1967 and oil was discovered in December 1972. The field was unitized in 1967 and expanded in 1977.

### 1.4 Purpose and Need

The purpose and need for this project is to allow for additional private exploration and production of natural gas from a federal oil and gas lease within the currently producing Beaver Creek Unit of the Sterling and Beluga formations. The proposed wells are necessary to further develop federal minerals and ensure maximum and efficient recovery of reserves in producing commercial quantities. The project is in accordance with the terms and conditions of the federal lease and unit agreement.

### **1.4.1 Decision to be Made**

The Decision to be made by the BLM is whether or not to approve private exploration and production from a federal oil and gas lease, specifically four (4) new natural gas wells in the Beaver Creek Unit on the Kenai National Wildlife Refuge. Beaver Creek Unit drill pads #3 and #7 are already constructed and there would be two new wells drilled on each, as displayed on the As Staked Surface Location Figures (attached).

BLM will consider approval of the proposed drilling in a manner that avoids or reduces impact on resources and activities identified in the Ring of Fire RMP/EIS, will be consistent with the lease rights granted to the applicant, and prevents unnecessary or undue degradation of the public lands.

### **1.5 Land Use Plan Conformance**

The Ring of Fire RMP/EIS approved in March 2008, which provides management direction for the leased area, recognizes oil and gas exploration and development as an appropriate use of public lands. The proposed action is in conformance with the Ring of Fire RMP/EIS. Specifically, the management decision for Minerals-Fluid Leasable, on page 12 of the Ring of Fire Approved Plan:

#### **J-1: Goal**

Maintain or enhance opportunity for mineral exploration and development while maintaining other resource values. Public lands and the Federal mineral estate will be made available for orderly and efficient exploration, development, and production unless withdrawal or other administrative action is justified in the national interest.

#### **J-1a: Allocations**

- Land encumbered with selections by the ANCSA Corporations and the State is segregated from mineral leasing and not available for leasing.
- All leases will be subject to Required Operating Procedures, Stipulations and Standard Lease Terms as described in Appendix D of the PRMP/FEIS.
- Make 486,000 acres of unencumbered lands available for mineral leasing.
- Make the 740,000 acres of selected lands available for mineral leasing upon the relinquishment or rejection of the selection.

### **1.6 Other Applicable Laws, Regulations, Policies, etc.**

This project is an integral part of BLM's oil and gas leasing program under authority of the Mineral Leasing Act of 1920, the Federal Land Policy and Management Act of 1976, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987.

Drilling operations on federal leases cannot be commenced without prior authorization of the BLM. This proposal to drill on public land will be consistent with BLM policy and other Federal, State, and local laws, regulation and plans, including:

- Mineral Leasing Act (1920) (30 U.S.C. 181-263, as amended) – Authorizes the Secretary of the Interior to issue leases for the extraction of certain minerals, including oil and gas.
- Mining and Minerals Policy Act, (1970) (30 U.S.C. 21) – emphasizes the need for ongoing development of stable domestic mining and minerals industries.
- Federal Onshore Oil and Gas Leasing Reform Act of 1987 (43 CFR 3162) – Amends the Mineral Leasing Act to require BLM to lease lands known or believed to contain oil or gas deposits under a competitive oral bidding system and governs the procedures for site specific oil and gas permitting...
- Energy Policy and Conservation Act (EPCA) of 2000 (43 U.S.C. 6361) - Outlines the following principles to be factored in to enhance energy development:
  - Environmental protection and energy production are both desirable and necessary objectives of sound land management practices;
  - Ensure the appropriate amount of accessibility to energy resources necessary for the Nation’s security while recognizing that special and unique non-energy resources can be preserved;
  - Sound planning must weigh the relative resource values consistent with existing legislation; and
  - All resource impacts must be mitigated to prevent undue or unnecessary degradation.
- Energy Policy Act of 2005 (43 U.S.C. 6361) – States environmental protection and energy production are both desirable and necessary objectives of sound land management practices.
- Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S.C. 1701 t seq., as amended) – States the BLM shall consider multiple uses for the lands it administers. FLPMA specifies that the BLM shall consider the land’s inherent natural resources as well as its mineral resources when making land management decisions.
- 43 CFR 3160 – Regulations for conducting oil and gas operations on federal lands.
- Onshore Oil and Gas Order No. 1, Approval of Operations – This Order provides procedures for submitting an APD and all required approvals of subsequent well operations and other lease operations.
- Onshore Oil and Gas Order No. 2, Drilling - This Order provides requirements and standards for drilling and abandonment.
- National Historic Preservation Act of 1966, P.L. 89-655, 80 Stat 915, 16 USC 470, 1966 U.S. Code Cong. And Ad. News 3855; amended; P.L.s 91-243, 93-54, 94-422, 94-458, 96-244 and 96-515

## **1.7 Summary of Public Involvement**

The Notices of Staking were posted for public inspection in the Alaska BLM public room and on the Alaska BLM webpage for the 30-day posting requirement per 43 CFR 3162.3-1(g). No comments were received on the proposed wells during the 30-day posting period.

## **1.8 Issues Identified / Issues Eliminated from Further Analysis**

Onsite inspections were conducted per Onshore Oil and Gas Order No. 1 to evaluate any conditions or concerns related to the staked location of the proposed wells.

- April 24, 2014 for Beaver Creek 21
- May 12, 2014 for Beaver Creek 22
- July 2, 2014 for Beaver Creek 23 and Beaver Creek 24

Representatives from Hilcorp, USFWS and BLM evaluated the location and surrounding area. No changes were required to the proposed action.

The following issues were identified for potential further analysis:

- Air quality
- Cultural and Paleontological Resources
- Groundwater/Soils
- Hydrology
- Noise
- Subsistence
- Socioeconomic Impacts
- Vegetation
- Waste, Hazardous or Solid
- Weeds/Invasive Plants
- Wildlife

**The following issues were eliminated from further analysis:**

**Cultural and Paleontological Resources:** Because the project will only take place on the previously disturbed surfaces of existing non-historic well pads and access roads, the project is unlikely to affect any known or unknown cultural or paleontological resources. Therefore, according to the *Protocol for Managing Cultural Resources on Lands Administered by the Bureau of Land Management in Alaska*, signed on February 5th, 2014, this undertaking is exempt from further review under Sect. 106 of the National Historic Preservation Act. Since the project is unlikely to affect any cultural or paleontological resources, this issue will not be analyzed further in this document.

**Hydrology:** Pad 3 is approximately 0.9 miles from Beaver Creek and Pad 7 is approximately 0.2 miles from the Beaver Creek. The threat of drainage or runoff from drilling operations into Beaver Creek is improbable. The chance of any fluid breaching the mandatory 3 foot parameter berms on each pad is highly unlikely.

The drilling rig and associated equipment are well within the weight limit of the bridge over the Beaver Creek along the access road to Pad 7.

**Subsistence:** Due to the economic development of the Kenai Peninsula, the Alaska Natural Interest Lands Conservation Act of 1980 did not provide for subsistence uses in the KNWR. Therefore, subsistence uses by local residents does not exist in the area of the proposed action and the proposed action will have no impact on subsistence use.

**Weeds/Invasive Plants:** The managing surface agency, USFWS, and Hilcorp, the field operator, have collaborated in implementing a program to eradicate weeds and invasive plants throughout the Beaver Creek Unit.

If gravel is needed to level the pads or restore access roads, any fill brought in must be free of weeds and/or any potential for other invasive species. The KNWR reserves the right to refuse any contaminated or other potentially hazardous fill material from being brought into the Refuge.

## **2.0 ALTERNATIVES**

### **2.1 Alternative 1 – No Action Alternative**

Alternative 1 is to take no action. Although the “no action” alternative would allow continued production from the operator’s leases from other wells previously drilled, NEPA requires that a “no action” alternative be considered in all environmental documents. For these wells, the “no action” alternative would preclude drilling of these four potential development wells. If this alternative is selected, the approval of drilling these specific four new wells and any activities associated with these wells would not be performed. Currently, there are 15 wells capable of production and one waste disposal well within the boundaries of this unit.

Analysis of the “no action” alternative must include an examination of the relevant oil and gas lease before the alternative can be considered. An oil and gas lease grants the right and privilege to drill for, mine, extract, and remove and dispose of all the oil and gas deposits in the leased lands, subject to the terms and conditions incorporated in the lease. The denial of the right to drill would void the lessee’s contractual rights unless the lease itself reserved the right to implement the denial of such activity.

### **2.2 Alternative 2 – Proposed Action Alternative**

The proposed action would approve the drilling of four (4) new natural gas wells. These wells will be drilled on existing pads, as now configured. Pad 3 is located on federal lease A028083 and Pad 7 on federal lease A028118.

Applications for permit to drill are approved under the authority of 43 CFR 3160 by the authorized officer. The applicant, Hilcorp Alaska LLC, shall be subject to lease stipulations, mitigating measures incorporated into the applicant’s Plan of Operations, as well as regulations contained in 43 CFR 3160 through 3163, Oil and Gas Onshore Orders, and Notices to Lessees.

### **Roads**

Approval of the proposed action will result in the use of the existing access road as well as Marathon Road, the main road leading into the field. These roads are suitable for transportation of the drilling rig and support equipment. Upgrading of these roads will not be required. This project will not require special road maintenance except for periodic spraying with water to control dust, if needed.

Trucks and other heavy equipment will be used to move the drilling rig, tanks, casing, tubing, cement, drilling mud and other equipment/supplies to the drill site on the pad. Truck traffic will be continuous during rig-up and rig-down operations but will reduce to several trips per day during the actual drilling operations. Additional road traffic will include shift changes for the drilling crews, inspections by Federal and State representatives and work related visits by service contractors. Drilling operations will be continuous, 24 hours a day, and will begin when all equipment is in place. Estimated duration for drilling each well is 45 days.

### **Well Pad Design**

The proposed action would not alter Pad 3, which is a previously disturbed drilling pad, located off an existing access road. Pad 3 measures 285 feet by 455 feet and is completely enclosed by a 3 foot berm. It is clear of all vegetation and has been graded level. There is not a reserve pit at this site and one will not be constructed during the drilling operation. There are nine (9) wells currently on this pad and various production facilities.

The proposed action would not alter Pad 7, which is a previously disturbed drilling pad, located off an existing access road. Pad 7 measures 305 feet wide by 450 feet long and is completely enclosed by a 3 foot berm. It is clear of all vegetation and has been graded level. There is not a reserve pit at this site and one will not be constructed during the drilling operation. There is one existing well, Beaver Creek Unit 7, on this pad.

Vehicle parking areas, as well as other areas on both pads where equipment will be setup and operating, will be lined with an impervious liner to contain spills.

A trailer will be staged on each pad to house various supervisory personnel and a minimum number of operations and support personnel. The remainder of the drilling crew will be housed in the Kenai area and transported to the location in a crew van.

### **Spills**

The drilling activities are conducted in accordance with State and Federal spill prevention and contingency plans. Spill prevention practices such as daily visual inspections of tanks, lines and secondary containment areas, certified inspections of regulated tanks, and spill prevention and response training for personnel, are conducted for all drilling operations. All liquid mud product drums will be stored at the drill site in a lined, bermed secondary containment area and will be visually inspected on a daily basis. Spill response material such as sorbents and oily waste bags will be available on location at all times.

### **Drilling Procedure**

Actual drilling operations will begin when the rotary drilling rig and associated equipment are transported and set up. The Saxon Rig 3169 will be used to drill and partially complete the wellbore followed by the Moncla Rig to perforate the liner and run 3½ inch production tubing.

Drilling will be accomplished through the use of a rotary drill rig with capability matched to the depth requirements of the proposed wells. These wells will be drilled to target the Sterling and Beluga formations. The proposed drilling operation includes a closed-loop system for drilling fluids, which is a system where produced fluids are mixed downhole. Drilling fluid or mud will

be circulated through the drill pipe to the bottom of the hole, through the bit, up the bore of the well, and finally to the surface. When mud emerges from the hole, it would pass through a series of equipment used to screen and remove drill cuttings and small granular solids. When the solids have been removed, the mud will be placed into holding tanks and pumped back into the well. The mud will be maintained at a specific weight and viscosity to cool the bit, seal off any porous zones, control subsurface pressure, lubricate the drill string, clean the bottom of the hole and bring the drill cutting to the surface. Hilcorp proposes to use a water based mud.

### **Drilling Wastes**

*Drilling muds and cuttings:* Once drilling is completed, excess mud and cuttings will be hauled from the rig pit system to the Kenai Gas Field Grind and Inject Facility. Wastes will be disposed of in Alaska Oil and Gas Conservation Commission (AOGCC) approved well KU 12-17. If this disposal option becomes unavailable due to an operational shut down of the grind and inject facility, drilling cuttings will be hauled to the approved waste disposal contractor Emerald in Kenai.

*Brines and Completion Fluids:* Eligible fluids will be hauled to a permitted Class II disposal well in the Kenai Gas Field for disposal. If this disposal option becomes unavailable, fluids will be hauled to the approved waste disposal contractor Emerald in Kenai.

### **Water Supply**

Existing Alaska Department of Natural Resources permitted water sources in the Beaver Creek Unit will be utilized to support drilling operations. All water used will be tracked in compliance with applicable permits. Water will be transported via vacuum truck from the water wells to the rig location. Potable water to supply office trailers on location will be hauled from an approved water source outside the field.

### **Garbage**

All household and approved industrial garbage will be segregated and transported to the Kenai Borough Central Peninsula Landfill for disposal. All sanitary waste will be contained on-site and hauled off-site by a designated contractor.

### **Production Plan of Operations**

If the wells prove capable of producing commercial quantities, production from this operation will be tied into the existing field gathering system. Additional production facilities required on Pad 3 are two (2) new TPAKs (line heater with separator and choke assembly), additional 4 inch gas flowlines and electrical, instrument air and communication lines. Additional production facilities will also be required on Pad 7. Facility upgrades will include the installation of two (2) new TPAKs, electrical building and wiring, and a 200 bbl water tank to separate produced water and solids. Additional pipeline installation will include a 4 inch flowline from the conductor to the TPAK, a 2 inch produced water line and a 4 inch gas line. Since the additional production facilities will be installed directly on Pad 3 and Pad 7, the analysis and implementation of these additional production facilities are covered under this EA.

## **Reclamation**

When a well is not developed into a producing well or is no longer commercially productive, the well will be plugged as specified by Federal and State regulations and witnessed by a certified BLM Petroleum Engineer. The well pad and associated access road will be reclaimed. The surface on which these wells will be drilled is within the KNWR and managed by USFWS. All surface reclamation will be done in accordance with the terms of the USFWS. All equipment and gravel will be removed from the site, the disturbed area will be recontoured and the area will be fertilized and reseeded.

Oil and gas leases, A028118 and A028083, contain various stipulations indicating the lessee take such reasonable steps as may be needed to prevent operations from unnecessarily: (1) damaging improvements, timber crops, and wildlife cover, (2) damaging wildlife, (3) scarring or eroding the land, or (4) polluting the water resources and damaging the watershed. Within 60 days after the completion of drilling, the lessee is required to remove derricks, dikes, equipment, and structures not required in producing operations. The lessee is further required to fill all sump holes, ditches, and other excavations or cover all debris, and so far as reasonably possible, restore the surface of the leased lands to their former condition and when required to bury all pipelines below plow depth; and do all in his power to prevent and suppress forest, brush, or grass fires and to require his employees, contractors, subcontractors and employees of contractors or subcontractors to do likewise.

### **3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

#### **3.1.1 Affected Environment**

BLM interdisciplinary specialists reviewed the proposed project to identify potentially affected resources and land uses. Aspects of the affected environment described in this section focus on relevant resources and issues.

- Air
- Groundwater/Soils
- Noise
- Socioeconomic Impacts
- Vegetation
- Waste, Hazardous or Solid
- Wildlife

#### **3.1.2 DIRECT AND INDIRECT EFFECTS FROM ALTERNATIVE 1 – NO ACTION**

Under the No Action Alternative, the BLM would deny the proposed action. By denying permission to drill these four wells, no direct or indirect effects would occur.

#### **3.1.3 DIRECT AND INDIRECT EFFECTS FROM ALTERNATIVE 2 - PROPOSED ACTION**

##### **Air**

Areas where air pollution levels persistently exceed the National Ambient Air Quality Standards (NAAQS) are designated as nonattainment. The Kenai Peninsula Borough meets the NAAQS

and is designated as an attainment area. The Kenai Peninsula Borough has been classified by the Alaska Department of Environmental Conservation (ADEC) as Class II airshed. Class II airsheds are generally pollution free and allow some industrial development.

An increase in traffic, ranging from automobiles to heavy equipment, will be prevalent during rig setup, drilling, and rigging down, which will result in an increase in emissions around the drilling site and near existing roads used for access to the sites. Air emissions will be localized, intermittent, and short term.

Drilling rigs operating in the Beaver Creek Unit are authorized under the ADEC Title V Air Quality Operating Permit No. AQ0070TVP02 and subject to ADEC regulations. The Beaver Creek Production Facility Title V Permit, revised Off-Permit Change, includes use of the Saxon 169 Rig, which is significantly less than that of the approved Glacier Rig, used as a model to assess air quality impacts. Any rig proposed for use in the field will be evaluated in advance to ensure the overall rated capacity of the rig engines does not exceed that of the Glacier Rig. Hilcorp intends to operate the Saxon 169 drilling rig in the Beaver Creek Unit. The Saxon Rig 169 has a total engine capacity significantly less than the Glacier Rig.

Drilling operations are temporary in nature and operating hours are limited by the Title V Operating Permit. Drilling and completion of the wells are expected to take up to 60 days. Rig engine operating hours are monitored and reported to ADEC on a semi-annual basis. All drilling rig engines combust only ultra-low sulfur diesel and operating hours are reported in accordance with 49 CFR 98, EPA regulations on Greenhouse Gas reporting.

Anticipated emissions from Saxon Rig 169 are noted below. TPY (tons per year) is based on 24 hour day, 7 days a week so actual emissions will be less.

<b>Pollutant</b>	<b>Emissions</b>
NO <sub>x</sub>	4.5 tpy
CO	1.1 tpy
PM-10	0.4 tpy
PM-2.5	0.4 tpy
SO <sub>2</sub>	0 tpy
VOC	0.1 tpy

No air quality impacts associated with a blowout are anticipated. Blowout prevention equipment will be installed and tested prior to drilling out the surface casing shoe. This equipment will be used in the unlikely event of blowout. If an upset in the well occurred, the equipment would seal the hole and contain the gas and liquids until the mud could be weighted up and circulated through the system to relieve the pressure. The proposed mud weight is adequate to contain the known pressures within the field and an upset of the well is not likely.

Presence of H<sub>2</sub>S, hydrogen sulfide, should not be encountered.

## **Groundwater/Soils**

The proposed wells are located on the western portion of the Kenai Peninsula in an area characterized as the Kenai lowlands, within the Cook Inlet Sedimentary Basin and mantled by glacial deposits overlain by well-drained to poorly drained silt loams.

The four (4) grassroots wells are planned to a depth of 11,000 feet. Gas is expected in the Sterling and Beluga formations, four (4) gas sands within the Sterling Formation and ten (10) gas sands within the Beluga Formation. The shallowest gas sand is expected at a depth of 3,028 feet and the deepest gas sand expected at a depth of 8,715 feet. Potable water is generally encountered between the surface and 150 feet.

The use of a closed-loop system and closed tanks eliminates seepage of drilling fluids into the soil and eventually reaching groundwater. Casing and cementing requirements imposed on wells eliminates the potential for groundwater contamination from drilling muds and other surface sources. No groundwater contamination or other subsurface problems are anticipated as a result of this action.

## **Noise**

The drilling and operation phase of the proposed project will generate localized, short-term increase in noise levels.

## **Socioeconomic Impacts**

The proposed well sites are located within the confines of the KNWR and use is primarily determined by the policies of the KNWR. Oil and gas leasing, exploration, drilling, and production are permitted activities within the KNWR on a site-specific basis subject to regulation.

The KNWR exists within the larger confines of the socioeconomic environment of the Kenai Peninsula, one of the most heavily used recreational areas in the state. Recreational uses include fishing, hunting, camping, hiking and canoeing.

Motor vehicle use access to the area surrounding the proposed action is restricted to field use only and the activities associated with the proposed action are not anticipated to impact recreational activities.

Kenai Borough residents have a long history of association with oil and gas exploration and development, which is a primary source of revenue and employment. Production of gas will generate revenue to local, state and federal governments. A potential benefit to the Kenai Peninsula Borough from oil and gas production is jobs created, in both direct production activities and associate services. Currently the oil and gas activity in the area of the proposed well has increased and shows signs of continual growth.

If the proposed well is successful, servicing and operation of the well could provide employment over the life of the well and would have positive impacts on the local economy. The estimated cost to drill a single well in the proposed area is \$7,200,000.00. The drilling and completion of an oil well requires full time crewmembers and several service and supply companies, as well as

purchases of equipment and materials, lodging and meals. The total increase in local economic conditions due to oil and gas activity is greater than the direct gain in the industry as a result of local spending by industry for goods and services and the spending of wages by the industry employees.

### **Vegetation**

The proposed action will occur on existing gravel pads with access from existing maintained gravel roads that are free from any vegetation. There is a slight chance of fuel and lubricant spills on or near the site, which most likely would occur on the gravel pad and not contact adjacent vegetation. Should any spill occur, the work crew will be instructed in the use of the proper equipment to contain and clean up the spilled material and any contaminated soils.

Vegetation adjacent to the roads may be affected by fugitive dust but measures will be taken to reduce this impact by spraying the road with water.

Following field abandonment, the wells will be plugged with cement, the equipment removed and the pad reclaimed. These areas will then be reseeded with native vegetation. Depending on the decision of the KNWR, some buildings and roads may remain for recreation or research after the field is abandoned.

### **Wildlife**

The KNWR includes a variety of wildlife habitats and species. At least 200 species of amphibians, birds, and mammals permanently reside in, seasonally use, or are casual or rare visitors to the wildlife habitats on the KNWR.

Moose, brown bear and black bear are the largest mammals found in the area. Moose are the most common. The successional vegetation provides plentiful moose browse. The area supports numerous black bears and it is likely they den in the area. Brown bears are less numerous.

The area supports two known wolf packs, with the potential of a third pack.

Other mammals known to inhabit the area include lynx, caribou, coyote, red-backed vole, red squirrel, beaver, muskrat, porcupine, and snowshoe hare.

The Kenai lowlands support many species of birds and waterfowl. Bald eagles are known to nest in the KNWR.

Any alteration to the migratory habits of wildlife distribution in the area would have resulted from the existing facilities within the Beaver Creek Unit and other human activity occurring in the refuge. The area of the proposed action is not known for its wildlife concentration compared to the rest of the KNWR. Moose, black bear, smaller mammals, and birds are often observed but no endangered species are known to exist in the area. The drilling operation will not alter the migratory habits or cause any significant decrease in the population of wildlife.

The drilling and operation phase of the proposed project will generate localized, short-term increase in noise levels. The increase in human activity and noise around the proposed drill site

may temporarily displace existing wildlife in the immediate area. While these animals have become accustomed to the level of human activity associated with production operations, the increase activity associated with drilling operations may keep them away from the drill site.

Protective measures will be taken by the operator to properly isolate and dispose of the waste products to diminish the opportunity for wildlife to come in contact with the products.

### **Wastes – Hazardous or Solid**

Hazardous materials that would be produced, used, stored, transported, or disposed of as a result of a proposed project may come from drilling materials, cementing and plugging materials, fracturing materials, production products, fuels and lubricants, pipeline materials, and miscellaneous materials.

Drilling wastes will be hauled from the rig pit system to the Kenai Gas Field Grind and Inject Facility or injected into the permitted Class II injection well in the Kenai Unit. If this disposal option becomes unavailable due to an operational shut down of the grind and inject facility, drilling wastes will be hauled to the approved waste disposal contractor Emerald in Kenai.

### **3.1.4 CUMULATIVE EFFECTS**

Analysis of cumulative impacts for reasonably foreseeable development of oil and gas in Southcentral Alaska was analyzed in the Ring of Fire RMP/EIS. Potential development of all available federal minerals, including the proposed project area, was included as part of the analysis.

Development in the Beaver Creek Unit has been occurring since 1967, which has resulted in an extensive infrastructure of existing pads, roads, pipelines, and facilities. At present, this field encompasses 129 acres, with 18 wellbores, 5 pads, numerous production buildings and facilities, and power and pipeline corridors throughout the entire field. Impacts would remain until final abandonment and reclamation of facilities occurs.

The USFWS is committed to preserving as much of the land within the Beaver Creek Unit as possible by discouraging any additional surface disturbances for new access roads and well pads and encouraging permanent plugging of wells and reclamation of associated pad and access roads.

### **3.1.5 MONITORING and/or COMPLIANCE**

The well sites will be monitored and documented in official oil and gas well files and BLM's database, Automated Fluid Mineral Support System (AFMSS). The drilling and/or plugging of oil and gas wells are high priority in BLM's annual Oil and Gas Inspection and Enforcement Strategy Plans (I&E). BLM inspectors typically witness all operations that involve the cementing of surface or production casing. In the event that the well is produced, the production operations will be monitored for compliance as provided in the 43 CFR 3160 regulations and the annual I&E Strategy Plans. If incidents of noncompliance are found, enforcement actions will be implemented to restore compliance.

### **3.1.6 RECOMMENDED MITIGATION**

#### **Wildlife**

Leave areas of operations clean and free of all debris and take all reasonable and feasible precautions to avoid attracting wildlife to food and garbage.

Feeding of wildlife is prohibited and will be subject to noncompliance regulations.

#### **Wastes**

All Federal and State laws will be followed regarding use, storage and disposal of hazardous materials and solid wastes.

No produced water or other fluids will be disposed of on the well pads or roads.

#### **Dust**

Fugitive road dust will be controlled during construction and drilling operations by spraying fresh water on all roads being used to access the well and on the well pad as needed. Speed control measures on all roads shall be required and enforced.

#### **Construction**

All construction and related operations and activities will be in accordance with the approved permit to drill and Conditions of Approval and surface owner agreements.

No construction, dirt work or surface disturbance is approved or allowed beyond the limits of the existing surface disturbance, unless prior approval is obtained from the BLM Authorized Officer.

#### **Drilling and Production Operations**

All drilling, completion and production operations and activities will be in accordance with the approved permit to drill and Conditions of Approval, and surface owner agreement.

### **4.0 CONSULTATION AND COORDINATION**

Kenai National Wildlife Refuge  
Hilcorp Alaska LLC

### **5.0 LIST OF PREPARERS**

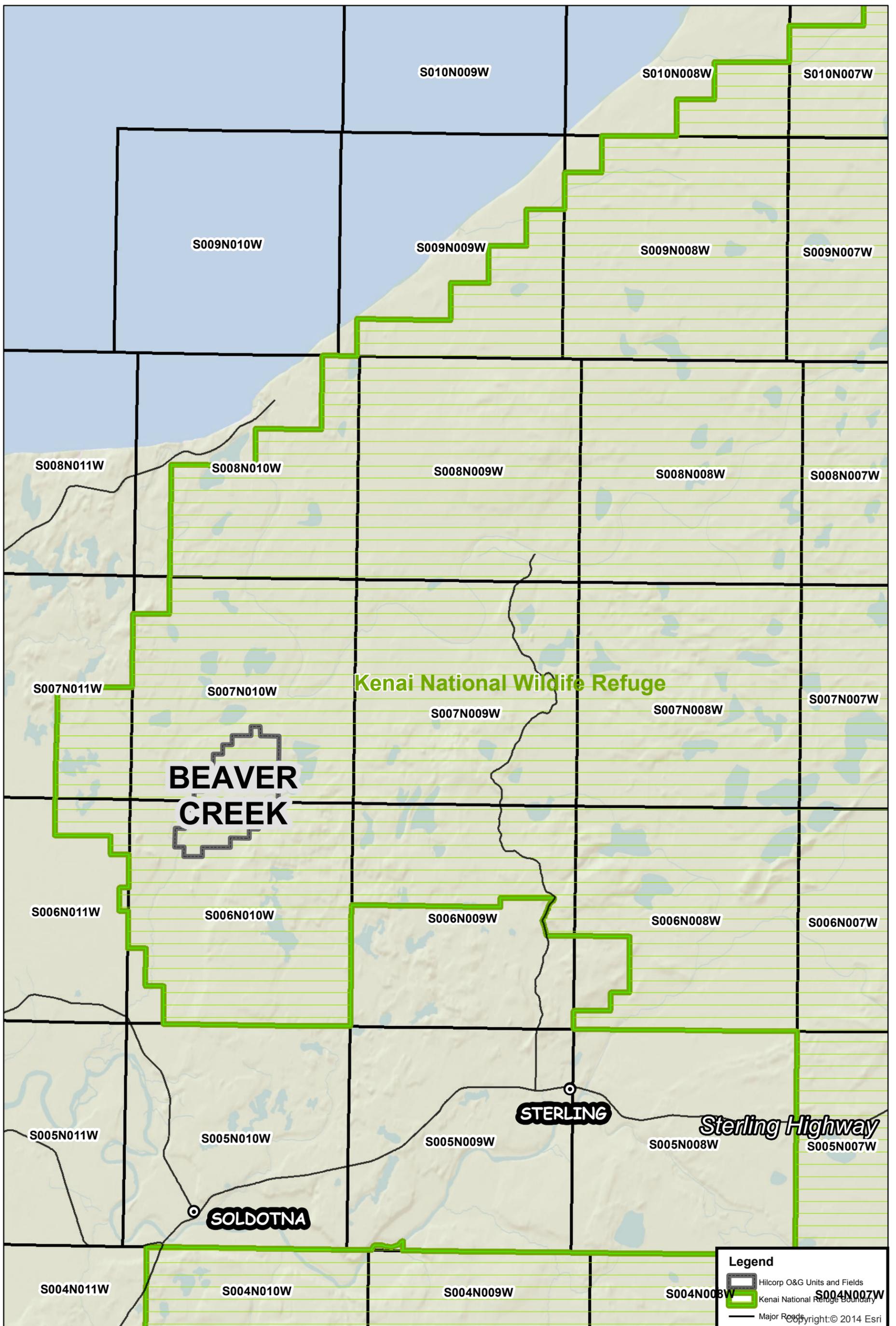
Merben Cebrian, BLM Subsistence Biologist  
John Jangala, BLM Archaeologist  
Bruce Seppi, BLM Wildlife Biologist  
Mike Sondergaard, BLM Water Quality Specialist  
Laurie Thorpe, BLM Natural Resources Specialist  
Sharon Yarawsky, BLM Mineral Law Specialist

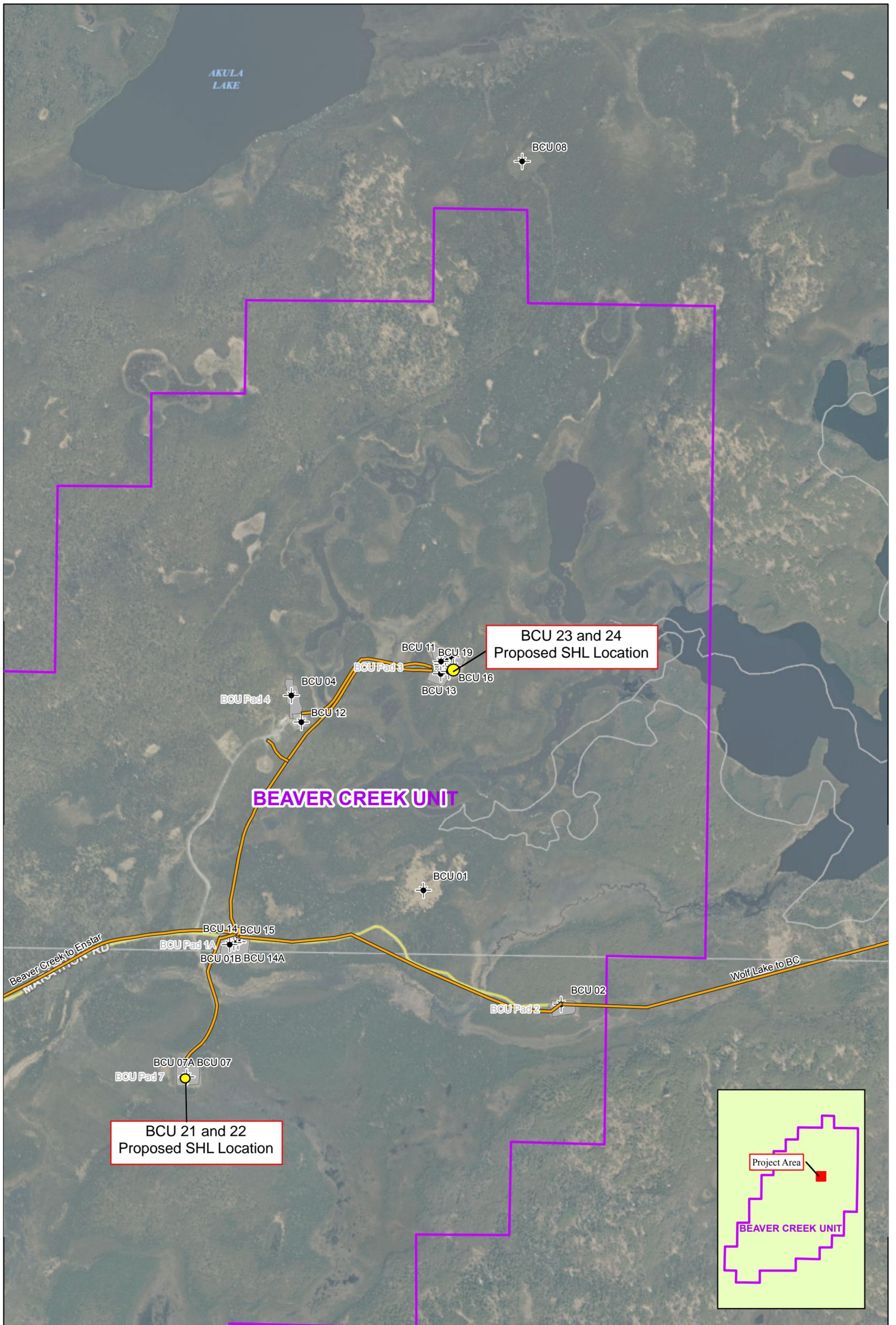
## **6.0 REFERENCES CITED**

BLM. Onshore Oil and Gas Order No. 1, Approval of Operations

BLM. 2008. Ring of Fire Record of Decision and Approved Management Plan. March 2008.

## **ATTACHMENTS**





SECTION 33 T7N R10W  
SECTION 4 T6N R10W

BCU  
PAD No. 1-A

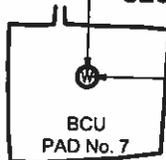
33:34  
N:2429689.90 413  
E:1455781.83

### NOTES

- 1) BASIS OF GEODETIC CONTROL AND NAD83 POSITION (EPOCH 2003) IS AN OPUS SOLUTION FROM NGS COORDINATES STATIONS "KEN1 CORS ARP", "TLKA TALKEETNA CORS ARP", AND "POT3 POTATO POINT 3 ARP" TO ESTABLISH THE POSITION OF MCI BC1. THE GEODETIC POSITION OF BC1 WAS DETERMINED TO HAVE A LATITUDE OF 60°38'50.02777"N AND A LONGITUDE OF 151°02'22.30311"W. THE ALASKA STATE PLANE COORDINATES (ASP) ZONE 4 ARE  
N=2429933.534  
E=1453863.065  
ELEV. 131.31' (NAVD88)
- 2) BASIS OF VERTICAL CONTROL IS NGS BM V80 PID TT0508 LOCATED WITHIN THE KENAI SPUR HIGHWAY RIGHT OF WAY AT MILE POST 3.75 HAVING AN ELEVATION OF 164.55 FEET NAVD 88 ACCORDING TO NGS PUBLISHED DATA.

1731'  
FNL

AS-BUILT WELL  
BCU 21  
N:2427990.367'  
E:1453738.912'  
LAT: 60° 38' 30.871"N  
LONG: -151° 02' 24.176"W  
ASP ZONE 4 NAD83  
FEL = 2019'  
FNL = 1731'  
ELEV = 127.24' (NAVD88)  
SECTION 4, T6N, R10W, SM, AK



SECTION 4 T6N R10W S.M., AK

2019'  
FEL

SECTION 4 T6N R10W  
SECTION 3 T6N R10W



## BCU #21 WELL AS-STAKED SURFACE LOCATION (NAD83) BEAVER CREEK UNIT PAD 7



Hilcorp Alaska, LLC



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SOLDOTNA, AK. 99669  
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WWW.MCLANECG.COM

LOCATION: SECTION 4, TOWNSHIP 6 NORTH,  
RANGE 10 WEST, SEWARD MERIDIAN ALASKA

JOB NO. 143060

DRAWN BY  
BGB

DATE: 4/30/14

**FIGURE: 1**

SECTION 33 T7N R10W  
SECTION 4 T6N R10W

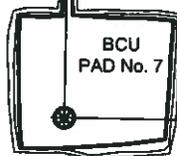
BCU  
PAD No. 1-A

33 34  
N:2429689.90 473  
E:1455781.83

**NOTES**

- 1) BASIS OF GEODETIC CONTROL AND NAD83 POSITION (EPOCH 2003) IS AN OPUS SOLUTION FROM NGS COORDINATES STATIONS "KEN1 CORS ARP", "TLKA TALKEETNA CORS ARP", AND "POT3 POTATO POINT 3 ARP" TO ESTABLISH THE POSITION OF MCI BC1. THE GEODETIC POSITION OF BC1 WAS DETERMINED TO HAVE A LATITUDE OF 60°38'50.02777"N AND A LONGITUDE OF 151°02'22.30311"W. THE ALASKA STATE PLANE COORDINATES (ASP) ZONE 4 ARE  
N=2429933.534  
E=1453863.065  
ELEV. 131.31' (NAVD88)
- 2) BASIS OF VERTICAL CONTROL IS NGS BM V80 PID TT0508 LOCATED WITHIN THE KENAI SPUR HIGHWAY RIGHT OF WAY AT MILE POST 3.75 HAVING AN ELEVATION OF 164.55 FEET NAVD 88 ACCORDING TO NGS PUBLISHED DATA.

1844' FNL  
AS-STAKED WELL  
BCU 22  
N:2427878.000'  
E:1453674.000'  
LAT: 60° 38' 29.755"N  
LONG: -151° 02' 25.442"W  
ASP ZONE 4 NAD83  
FEL = 2082'  
FNL = 1844'  
ELEV = 127' (NAVD88)  
SECTION 4, T6N, R10W, SM, AK



SECTION 4 T6N R10W S.M., AK

2082'  
FEL

SECTION 4 T6N R10W  
SECTION 3 T6N R10W



**BCU #22 WELL AS-STAKED SURFACE LOCATION  
(NAD83) BEAVER CREEK UNIT PAD 7**



Hilcorp Alaska, LLC



McLANE  
Consulting Inc

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LOCATION: SECTION 4, TOWNSHIP 6 NORTH,  
RANGE 10 WEST, SEWARD MERIDIAN ALASKA

JOB NO. 143061

DRAWN BY  
BGB

DATE: 4/30/14

**FIGURE: 1**

N 2434969.10  
E 1455856.60

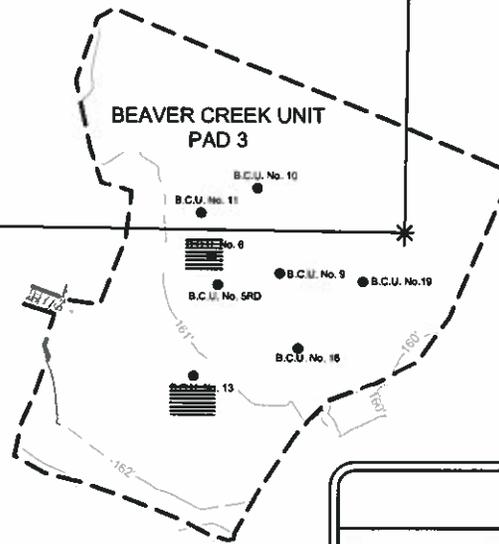
SECTION LINE NOT TO SCALE

SECTION LINE NOT TO SCALE

SECTION 34 T7N R10W SM, AK

1142' FNL

1702' FWL



**B.C.U. NO. 23**  
**AS-STAKED**  
 N: 2433800.77  
 E: 1457541.73  
 LAT: 60°39'28.674" N  
 LONG: -151°01'09.725" W  
 NAD83 ASP Zone 4  
 ELEV: 160.5'  
 NAVD88  
 1702' FWL  
 1142' FNL

### NOTES

- 1) BASIS OF GEODETIC CONTROL AND NAD83 POSITION (EPOCH 2003) IS AN OPUS SOLUTION FROM NGS COORDINATES STATIONS "KEN1 CORS ARP", "TLKA TALKEETNA CORS ARP", AND "POT3 POTATO POINT 3 ARP" TO ESTABLISH THE POSITION OF MCI BC1. THE GEODETIC POSITION OF BC1 WAS DETERMINED TO HAVE A LATITUDE OF 60°38'50.02777"N AND A LONGITUDE OF 151°02'22.30311"W. THE ALASKA STATE PLANE COORDINATES (ASP) ZONE 4 ARE  
 N=2429933.534  
 E=1453863.065  
 ELEV. 131.31' (NAVD88)
- 2) BASIS OF VERTICAL CONTROL IS NGS BM V80 PID TT0508 LOCATED WITHIN THE KENAI SPUR HIGHWAY RIGHT OF WAY AT MILE POST 3.75 HAVING AN ELEVATION OF 164.55 FEET NAVD 88 ACCORDING TO NGS PUBLISHED DATA.



## BCU #23 WELL AS-STAKED SURFACE LOCATION (NAD83) BEAVER CREEK UNIT PAD 3



Hilcorp Alaska, LLC



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LOCATION: SECTION 34, TOWNSHIP 7 NORTH,  
 RANGE 10 WEST, SEWARD MERIDIAN ALASKA

JOB NO. 143081

DRAWN BY  
BGB

DATE: 6/26/14

FIGURE: 1

N 2434969.10  
E 1455856.60

SECTION LINE NOT TO SCALE

SECTION LINE NOT TO SCALE

SECTION 34 T7N R10W SM, AK

1246' FNL

BEAVER CREEK UNIT  
PAD 3

B.C.U. No. 10

B.C.U. No. 11

No. 5

B.C.U. No. 9

B.C.U. No. 19

B.C.U. No. 18

No. 13

1656' FWL

B.C.U. NO. 24  
AS-STAKED  
N: 2433697.18  
E: 1457494.99  
LAT: 60°39'27.647" N  
LONG: -151°01'10.631"W  
NAD83 ASP Zone 4  
ELEV: 160.5'  
NAVD88  
1656' FWL  
1246' FNL

### NOTES

- 1) BASIS OF GEODETIC CONTROL AND NAD83 POSITION (EPOCH 2003) IS AN OPLUS SOLUTION FROM NGS COORDINATES STATIONS "KEN1 CORS ARP", "TLKA TALKETNA CORS ARP", AND "POT3 POTATO POINT 3 ARP" TO ESTABLISH THE POSITION OF MCI BC1. THE GEODETIC POSITION OF BC1 WAS DETERMINED TO HAVE A LATITUDE OF 60°38'50.02777"N AND A LONGITUDE OF 151°02'22.30311"W. THE ALASKA STATE PLANE COORDINATES (ASP) ZONE 4 ARE  
N=2429933.534  
E=1453863.065  
ELEV. 131.31' (NAVD88)
- 2) BASIS OF VERTICAL CONTROL IS NGS BM V80 PID TT0508 LOCATED WITHIN THE KENAI SPUR HIGHWAY RIGHT OF WAY AT MILE POST 3.75 HAVING AN ELEVATION OF 164.55 FEET NAVD 88 ACCORDING TO NGS PUBLISHED DATA.



## BCU #24 WELL AS-STAKED SURFACE LOCATION (NAD83) BEAVER CREEK UNIT PAD 3



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LOCATION: SECTION 34, TOWNSHIP 7 NORTH,  
RANGE 10 WEST, SEWARD MERIDIAN ALASKA

JOB NO. 143082

DRAWN BY  
BGB

DATE: 6/26/14



Hilcorp Alaska, LLC

FIGURE: 1