

## The seal of the Alaska Department of Natural Resources is a circular emblem. It features a large green spruce tree in the foreground, a winding blue river, and a range of grey mountains in the background. A red sun is positioned behind the mountains on the right side. The words "ALASKA DEPARTMENT OF NATURAL RESOURCES" are inscribed around the perimeter of the seal.

Department of Natural Resources, Division of Oil & Gas  
550 W. 7th Ave, Suite 1100, Anchorage, AK 99501-3563  
Phone: 907-269-8800 Fax: 907-269-8943  
Permitting Email: [dog.permitting@alaska.gov](mailto:dog.permitting@alaska.gov)

Lease Plan of Operations Application  
Revised 06/01/2015



oil drilling and processing; natural gas drilling and production activities may be eventually conducted at some later date. This aspect of the project has not yet been engineered or sanctioned and is not covered as part of the oil development project. The oil development activities for the Cosmopolitan Project will occur on a production pad that is approximately 35 acres in area and is situated north of Anchor Point Alaska. These activities will include drilling up to 33 wells from the pad. All drilling and production operations for oil development will be conducted on the onshore pad and are planned to start in early 2015 and continue for about 5 years. Crude oil production will increase from about 5,000 bopd during the first year up to a maximum of 17,000 bopd at the end of 5 years. The expected commercial life of the oil production operations will be approximately 30 years. Oil wells will flow around 200 psig at the wellhead. From the wellhead, production will go through a separation and conditioning process. After oil has been treated, it will be stored in heated tanks (kept at 130°F) until loaded into insulated trucks for transport to the Tesoro refinery located approximately 72 miles from the facility. The point of custody transfer for the processed oil will occur at the Cosmopolitan Production Pad, and the truck transport operations which will be conducted by another party are not included in this plan of operations. The oil operation for the Cosmopolitan Project also includes drilling exploration/delineation wells offshore under an approved Plan of Operations (LOCI 12-006).

## SECTION V: LAND STATUS

### 1. State Mineral Estate:

Are supplemental pages for land status included in Appendix C? ☐ Yes ☒ No

Affected ADL: 384403 Date Effective: 1/1/1995 Date Assigned: 1/1/2014

Oil And Gas Lessee(s): BlueCrest Energy Inc

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: None identified. Offshore

Jointly Managed Lands: None identified.

Other Considerations: This ADL will be access from onshore facilities.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Well bores	Seward, T3S, R15W, Sec 20, 21, 28, 29, 32,33	N/A
Click here to enter text.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.

Affected ADL: 391903 Date Effective: 9/1/2011 Date Assigned: 1/1/2014

Oil And Gas Lessee(s): BlueCrest Energy Inc

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: None identified. Offshore

Jointly Managed Lands: None identified.

Other Considerations: This ADL will be access from onshore facilities.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Well bores	Seward, T3S, R15W, Sec 22, 23, 26, 27	N/A
Click here to enter text.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.

Affected ADL: 391904 Date Effective: 9/1/2011 Date Assigned: Enter Date.

Oil And Gas Lessee(s): BlueCrest Energy Inc

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: None identified. Offshore

Jointly Managed Lands: None identified.

Other Considerations: This ADL will be access from onshore facilities

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Wellbores	Seward, T4S, R15W, Sec 5, 6, 7, 8, 9, 16, 17, 18	N/A



Click here to enter text.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.
Affected ADL: 18790      Date Effective: 9/1/1962      Date Assigned: Enter Date. Oil And Gas Lessee(s): BlueCrest Energy Inc Surface Ownership: State of Alaska Do you have, or anticipate having an Access Agreement: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Special Use Lands: None identified. Offshore Jointly Managed Lands: None identified Other Considerations: This ADL will be access from onshore facilities		
Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Well bores	Seward, T3S, R15W, Sec 3; T4S, R15W, Sec2, 3, 4, 10, 11	N/A
Injection wells	Seward, T3S,R15W,Sec 35; Seward, T4S, R15W, Sec 2	N/A
Seawater intake structure	Seward, T4S, R15W, Sec2, 3, 10	N/A
Affected ADL: N/A      Date Effective: Enter Date.      Date Assigned: Enter Date. Oil And Gas Lessee(s): Click here to enter text. Surface Ownership: Click here to enter text. Do you have, or anticipate having an Access Agreement: <input type="checkbox"/> Yes <input type="checkbox"/> No Special Use Lands: Click here to enter text. Jointly Managed Lands: Click here to enter text. Other Considerations: Click here to enter text.		
Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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Click here to enter text.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.
<b>2. State of Alaska Surface Lands:</b>		
Are supplemental pages for land status included in Appendix C? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Oil And Gas Mineral Estate Owner: N/A Access Authorization(s): Special Use Lands: Jointly Managed Lands: Other Considerations:		
Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
		Click here to enter text.
		Click here to enter text.
Oil And Gas Mineral Estate Owner: Click here to enter text. Access Authorization(s): Click here to enter text. Special Use Lands: Click here to enter text. Jointly Managed Lands: Click here to enter text. Other Considerations: Click here to enter text.		
Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates



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Click here to enter text.	Click here to enter text.	Click here to enter text.

Oil And Gas Mineral Estate Owner: Click here to enter text.

Access Authorization(s): Click here to enter text.

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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**3. Private Lands:**

Are supplemental pages for land status included in Appendix C? ☐ Yes ☒ No

Oil And Gas Mineral Estate Owner: Hansen John & Viola Joint Revocable Trust

Surface Ownership And Access Agreement(s): Hansen John & Viola Joint Revocable Trust originally leased site to Pioneer in agreement dated 6/13/2005 and authorized oil and gas drilling and production on the site. Agreement was amended on 10/2/2014 and authorized BlueCrest to conduct all necessary oil and gas drilling and production operations within the lease boundary as indicated on Figure IV-2.

Special Use Lands: None identified

Jointly Managed Lands: Leased to BlueCrest

Other Considerations: None identified

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Pad/ Drilling operations/ Oil production operations	Seward, T4S, R15W, Sec 2	59° 51'29.25" N 151° 48'10.98" W
Access roads	Seward, T4S, R15W, Sec 2	N/A
Utilities	Seward, T4S, R15W, Sec 2	N/A

Oil And Gas Mineral Estate Owner: Unknown: no activities proposed in the mineral estate.

Surface Ownership And Access Agreement(s): COLASCO KPB Parcel 16501129 (see Figure V-2)

Special Use Lands: None identified

Jointly Managed Lands: ROW to BlueCrest

Other Considerations: Mostly inside gravel pit

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Access roads	Seward, T4S, R15W, Sec2, 11, 12	N/A
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Oil And Gas Mineral Estate Owner: Click here to enter text.

Surface Ownership And Access Agreement(s): Click here to enter text.

Special Use Lands: Click here to enter text.

Jointly Managed Lands: Click here to enter text.

Other Considerations: Click here to enter text.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
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SECTION VI: BOND INFORMATION			
Bonded Company: BlueCrest Energy Inc.			
Type: Certificate of Deposit	Number: 5511251562	Amount: \$500,000	
Bonding Company: Wells Fargo Bank, N.A			
Mailing Address: 1500 W Benson Blvd			
City: Anchorage	State: AK	Zip Code: 99503	
Phone: 907-257-3205	Fax: N/A	Email: N/A	

SECTION VII: SEQUENCE AND SCHEDULE OF OPERATIONS			
Project Milestone #	Project Milestone	Proposed Start Date	Proposed End Date
1.	Project planning and design	1/1/2014	3/1/2015
2.	Project Permitting	1/1/2014	6/1/2015
3.	Pad grading	9/28/2014	12/1/2014
4.	Facility construction and startup	3/1/2015	6/1/2016
5.	Drilling operations	6/1/2015	12/31/2020
6.	Facility operation	3/1/2016	2046
7.	Enter Milestone.	Enter Date.	Enter Date.
8.	Enter Milestone.	Enter Date.	Enter Date.
9.	Enter Milestone.	Enter Date.	Enter Date.
10.	Enter Milestone.	Enter Date.	Enter Date.

SECTION VIII: PROJECTED USE REQUIREMENTS
1. Describe the proposed operations, including the location and design, of <b>Well Sites</b> :
<p>The Cosmopolitan Project Site is located about 6 miles north of Anchor Point, Alaska and about 10 miles from south of Ninilchik, Alaska(see Figure IV-1). It is located near the top of 150ft high bluff along the eastern shore of Cook Inlet. The site currently has a gravel pad and most of the adjacent areas to the south have undergone gravel mining operations. Figure IV-2 shows a survey plat of the location with the current condition of the onshore site as it existed when BlueCrest obtained the site. The current site was partially developed with a rectangular pad area that is located on the western side of the proposed pad. The eastern part of the site was largely undeveloped with the exception of a circular access road system with the remnants of an area that was previously used to extract gravel for previous construction activities at the site. A previously drilled oil well is located in the southeast quadrant of the rectangular pad (the well house for that well that is identified in Figure IV-2).The 35 acre site is located in the Kenai Peninsula Borough Parcel 16501105 in Section 2, Township 4 South, Range 15 West, Seward Meridian. The site has a relatively thin layer of overburden over gravel. Little grading will be required to make the site suitable for use. The site is currently accessible to the Sterling Highway via a one mile gravel road. Surface and subsurface ownership within Parcel 16501105 is owned by John and Viola Hansen and surface and subsurface use of the site is accessed through a lease between the owners and BlueCrest. Drilling operations will be conducted from an existing gravel pad located in the parcel. Drilling in areas beyond the parcel are into leases held by State of Alaska Department of Natural Resources. Site access is readily available from anywhere in Alaska via the all season highway system and an existing one mile gravel access road. Fixed wing aviation support would be based out of either Homer or Kenai. Helicopter support would typically not be required for operations at the onshore production pad. Construction materials and supplies would normally be trucked directly to the site. Housing for construction and operation personnel would typically be provided onsite or at nearby locations. The project location is such that many workers may actually commute from nearby residences. All new onshore drilling operations are planned using the Parker Rig 267 {or equivalent unit}. The oil wells will be directional wells with a measured depth of about 18,000 to 24,000 feet and a true vertical depth of approximately 6,000 to 8,000 feet. The planned well design will be similar to that employed in previous Cook Inlet exploration wells and in accordance with a Permit to Drill from the Alaska Oil and Gas Conservation Commission (AOGCC). Nearly all information regarding the downhole aspects of the well is confidential. As discussed there will be approximately 33 wells drilled. Drilling operations will be conducted on the western side of the production pad, and the surface location for all wells is as shown on Figure VIII-1 in Appendix A.</p>
2. Describe the proposed operations, including the location and design, of <b>Buildings</b> :



The operations will include buildings for the production equipment, offices, warm and cold storage areas, and maintenance buildings. Much of the sensitive production equipment will be placed inside heated prefabricated structures erected on the site. Onshore Living Quarters - Onshore living quarters will be designed to house 50 people during normal operation. The quarters' facilities will have required potable water treatment, sewage systems, galley, and workspace. Operational permits for these facilities will be obtained by the provider of these structures. Provisions will be made to house up to 100 additional personnel during onshore drilling operations and up to 300 persons during site construction. These requirements will be met by temporary camps. Most of these facilities may be located off the production pad at a location yet to be determined. Offices with a control room and warehousing will also be provided onsite for continuing operations and maintenance of the facilities. Most buildings will be located on the central and southeastern corner of the production pad as shown on Figure VIII-1 in Appendix A. Some of the buildings supporting drilling and construction operations may need to be located at an onshore location. Communications systems will be installed in the office building.

### 3. Describe the proposed operations, including the location and design, of **Fuel and Hazardous Substances**:

The drilling and production operations require a number of plans as indicated below in order to comply with State and Federal regulations. Specific details of the facilities, spill risks and potential impacts are provided in the various plans. The largest spill sources will be from the two main 15,000 bbl crude tanks, two main 750 bbl diesel tanks, and from a well blowout of up to 1,500 bopd (per the ADEC C-Plan). Primary, Secondary and Tertiary Spill containment - Primary containment includes process skid drains and lined berms around all tanks. Secondary containment includes sump collection system and tertiary containment berms to protect perimeter of the facility.

### 4. Describe the proposed operations, including the location and design, of **Solid Waste Sites**:

An estimated 2,000 bbl of water based drilling mud and cuttings per well may be generated from the operations. Waste drilling effluents will be stored onsite in accordance with a temporary storage permit from the ADEC until they are processed or disposed of. Most wastes are expected to be processed/treated in a grind and inject facility and then disposed of in a Class 1 Non-hazardous waste disposal wells located on the production pad. Approved offsite disposal facilities may also be used prior to construction of the treatment facility and disposal well. Solid, non-burnable waste will be deposited in dumpsters located at the site. These containers will be hauled to local landfills for disposal. The food waste that could attract wildlife either will be stored in enclosed containers awaiting periodic hauling, or such wastes will be hauled each day to an approved disposal center. To reduce the amount of trash that must be hauled from the drilling location, all solid, burnable waste may be incinerated at the location in accordance with 18 AAC 50. The ash will be hauled to the existing landfills.

### 5. Describe the proposed operations, including the location and design, of **Water Supplies**:

A water intake structure is planned 2,300 ft offshore to obtain up to 420,000 gpd of sea water for use for pressure maintenance in the oil formation. A permit was originally issued to Pioneer Natural Resources, Inc. (Pioneer) and is currently being transferred to BlueCrest. Figures VIII-2 through VIII-6 in Appendix A show the details of the project. Two shallow water wells (<200 ft in depth) are planned to be drilled on the production pad (location currently being finalized) to provide freshwater to support drilling operations. The wells are expected to produce a combined volume of up to 10,000 gpd. Wells are initially intended to be permitted as under a Temporary Water Use Permit but will be ultimately covered under water rights.

### 6. Describe the proposed operations, including the location and design, of **Utilities**:

Electrical power will be provided by Homer Electric Association (HEA). There is currently HEA power to the production site. Natural gas will be provided to the site by Enstar Natural Gas Company (Enstar). Enstar will be responsible for installing an approximately 1 mile long natural gas line from their existing pipeline along the Sterling Highway. Initially the pipeline will provide natural gas for various onsite equipment, but if appreciable quantities of natural gas are ever developed as part of a natural gas project, the pipeline may be used to transport sales gas from the site.

### 7. Describe the proposed operations, including the location and design, of **Material Sites**:

Not required-excavating down to gravel base.

### 8. Describe the proposed operations, including the location and design, of **Roads**:

The onshore project site is located approximately one mile from the Sterling Highway, which is the major highway for the general vicinity. There are



existing roads from the highway directly to the production pad. A small portion of the road is located on the Hansen property for which BlueCrest has a lease that allows use. The remainder of the access road is located on a large parcel owned by COLASKA; BlueCrest currently uses a ROW provided to ConocoPhillips and their successors. BlueCrest is currently renegotiating the ROW with COLASKA for improving the road system through their lands. Specific permits are not required for this effort. BlueCrest will also be reviewing the design of the access road where it enters the Sterling Highway. It is expected that some road changes may be required on the Sterling Highway and permits will be required to make the requisite modifications at this intersection.

**9. Describe the proposed operations, including the location and design, of Airstrips:**

An airstrip is not required as part of this operation, but an obstruction notification/analysis is requested by the FAA in order to identify possible obstructions to aviation resulting from the presence of drilling rig or other possible obstruction at the location.

**10. Describe the proposed operations, including the location and design, of All Other Facilities and Equipment:**

Figure VIII-1 provides the planned site layout and Figure VIII-2 provides a schematic of the oil production operations. Specific components of the process are described here: Production Manifold (not shown) - Flow lines from each oil well are sent into the manifold. The manifold will send production to the production trains. Initially only one production train will be installed with additional trains added as production increases. Periodically each well will be sent to a multiphase flow meter (MPFM) for well allocation and metering. Multi-Phase Flow Meter - The MPFM will analyze the process stream for a single well and allocate individual well production. After flowing through the MPFM, fluids will recombine with production stream from the Production Manifold for processing. HP (High Pressure) Separator - The HP Separator is the first vessel in the production train and separates the gas, "free" water, and solids from the oil. The vessel will operate around 200 psig and 110°F. Separation is achieved by slowing the velocity of liquids and allowing the water, oil and gas to separate through retention time. After flowing through the HP Separator, oil will flow through a series of heaters and to the LP Separator. Cross Heat Exchanger - The Cross Heat Exchanger will take oil from the HP Separator and cross exchange with oil from the Oil Treater. This is achieved through a shell and tube design where hot oil runs across tubes containing cooler oil from the HP Separator. This pre-heats the oil going into the LP Separator and cools the liquid from the Oil Treater before it enters the Crude Oil Storage Tanks. Indirect Fired Line Heater - Following the Heat Exchanger, the Line Heater will heat the oil stream before it enters the Oil Treater. It heats the oil stream through a water bath that is heated by a fired tube. The line heater will take the oil to 180°F. Oil Treater - The Oil Treater includes a separator that is designed to separate any additional gas and water. It also includes an Electrostatic Oil Treater that assists in separating out any emulsified water in the oil stream by flowing the oil across an electrostatically charged grid. This results in attraction between water particles separating it from the oil before oil is sent to a crude oil storage tanks. Compressors - Gas will be compressed in two stages. The first compressor will increase the pressure from about 200 psig to about 1,305psig. The second will further increase the pressure to about 2,500 psig. Crude Oil Storage Tanks - The Crude Oil Storage Tanks are designed to hold 15,000 BOPD. Crude Oil Tanks will be heated and insulated to keep crude at 130°F. Truck Loading Station - Crude will be pumped from tanks into insulated tanker trucks. The crude will flow through LACT metering skids (Lease Acquisition & Custody Transfer) before entering trucks to verify oil is up to specification and determine how much oil is being shipped. The truck loading station will accommodate up to 6 trucks at a time to accommodate increased production throughout later stages of the project life.

**11. If another permit(s) is required for the above described Projected Use Requirements, provide the following information:**

Agency	Permit Type	Permit Number	Application Status	Projected Use Requirement(s)
DOG	Lease Plan of Operations	LOCI 14-007	Applied	All
AOGCC	Permit to Drill	TBD	Preparing	1
Fire Marshall	Fire Permit	TBD	Preparing	2
ADEC	ODPCP Exploration	14-CP-5230	Approved	3
ADEC	ODPCP Production	TBD	Preparing	3
USDOI BSEE	Oil Spill Contingency Plan	TBD	Preparing	3
USEPA	SPCC Plan	TBD	Preparing	3
USEPA	Facility Response Plan	TBD	Preparing	3
ADEC	Temporary Drilling Waste Storage Permit	TBD	Preparing	4
ADEC	Treatment Facility Permit	TBD	Preparing	4



USEPA	Aquifer Exemption	N/A	Approved	4
USEPA	Class 1 Non-hazardous Waste Disposal Well	TBD	Preparing	4
USACE	Section 10 Water Intake Structure	POA-2008-2011	Issued	5
DMLW	Temporary Water Use Permit	TBD	Preparing	5
DOT&PF	Highway Approach Permit	TBD	Preparation pending on completion of design efforts	8
FAA	Obstruction Analysis	TBD	Preparing	9
ADEC	Minor Air Quality Permit	TBD	Preparing	10
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).

### SECTION IX: REHABILITATION PLAN

#### 1. Proposed Level of Infrastructure, Facilities and Equipment Removal:

The production pad is located on private lands and the level of infrastructure removal will be primarily determined by terms of BlueCrest's lease with the private landowner and discussions with the land owner at the time of abandonment of the facility.

#### 2. Description of Restoration and Rehabilitation Activities for Vegetation, Habitat, Impacted Wildlife, and Other Applicable Resources:

The production pad is located on private lands and the restoration activities will be primarily determined by terms of BlueCrest's lease with the private land owner and discussions with the land owner at the time of dismantling and abandonment of the facility. In anticipation of possible restoration of the site, BlueCrest (at the request of the land owner) will stockpile as much overburden in perimeter berms on around the margins of the production pad and this material will be available for site restoration. Some overburden may be either disposed of or stored offsite.

### SECTION X: OPERATING PROCEDURES DESIGNED TO MINIMIZE ADVERSE EFFECTS

Describe operating procedures designed to prevent or minimize adverse effects on other natural resources and other uses of the Lease area and adjacent areas including:

**Fish and Wildlife Habitats:** Primary, Secondary and Tertiary Spill Containment - Primary containment includes process skid drains and lined berms around all tanks. Secondary containment includes sump collection system and tertiary containment berms to protect perimeter of the facility. Avoidance of incursions into a 500 ft buffer zone along the Stariski Creek that are within BlueCrest's production pad area. Avoidance of all wetland areas. Avoid any use of any surface explosives. Disposal of drilling fluids and other appropriate wastes into an approved disposal well. Onshore Emissions - All gas from tanks and low pressure equipment to be recovered by a Vapor Recovery Unit (VRU). The VRU allows the gas to be captured, compressed, and sold. Emergency gas releases will be flared to reduce emissions.

**Historic and Archeological Sites:** N/A

**Public Use Areas:** Use of existing access road routes to the location and planned modifications of the highway access to minimize impacts from truck onto or off of the highway. Construction of barrier berms for visual and sound barriers for the public and local residents.

**Other Uses:** Process Safety System - Redundant programmable logic controller based system that monitors process safety devices and initiates isolated equipment shutdowns and process emergency shutdowns. Fire and Gas Protection - All enclosures will have gas detection. Fire suppression will be installed as required via a non-hazardous suppression agent.

### SECTION XI: GLOSSARY OF TERMS

Term #	Term	Term Definition
1.	ADEC	Alaska Department of Environmental Conservation
2.	ADNR	Alaska Department of Natural Resources
3.	Alaska DOT/PF	Alaska Department of Transportation and Public Facilities
4.	BSEE	Bureau of Safety and Environmental Enforcement



5.	bopd	Barrels of oil per day
6.	DW	Disposal Well
7.	FAA	Federal Aviation Administration
8.	gpd	gallons per day
9.	HDO	Horizontal Direction Drilling
10.	KPB	Kenai Peninsula Borough

**SECTION XII: CONFIDENTIALITY**

The undersigned hereby requests that each page/section of this application marked confidential be held confidential under AS 38.05.035(a)(8).

APPLICANT CONTACT:

N/A	Enter Name.	Enter Title.	Enter Date.
Signature	Name	Title	Date



**APPENDIX A: MAPS**

Include maps here.



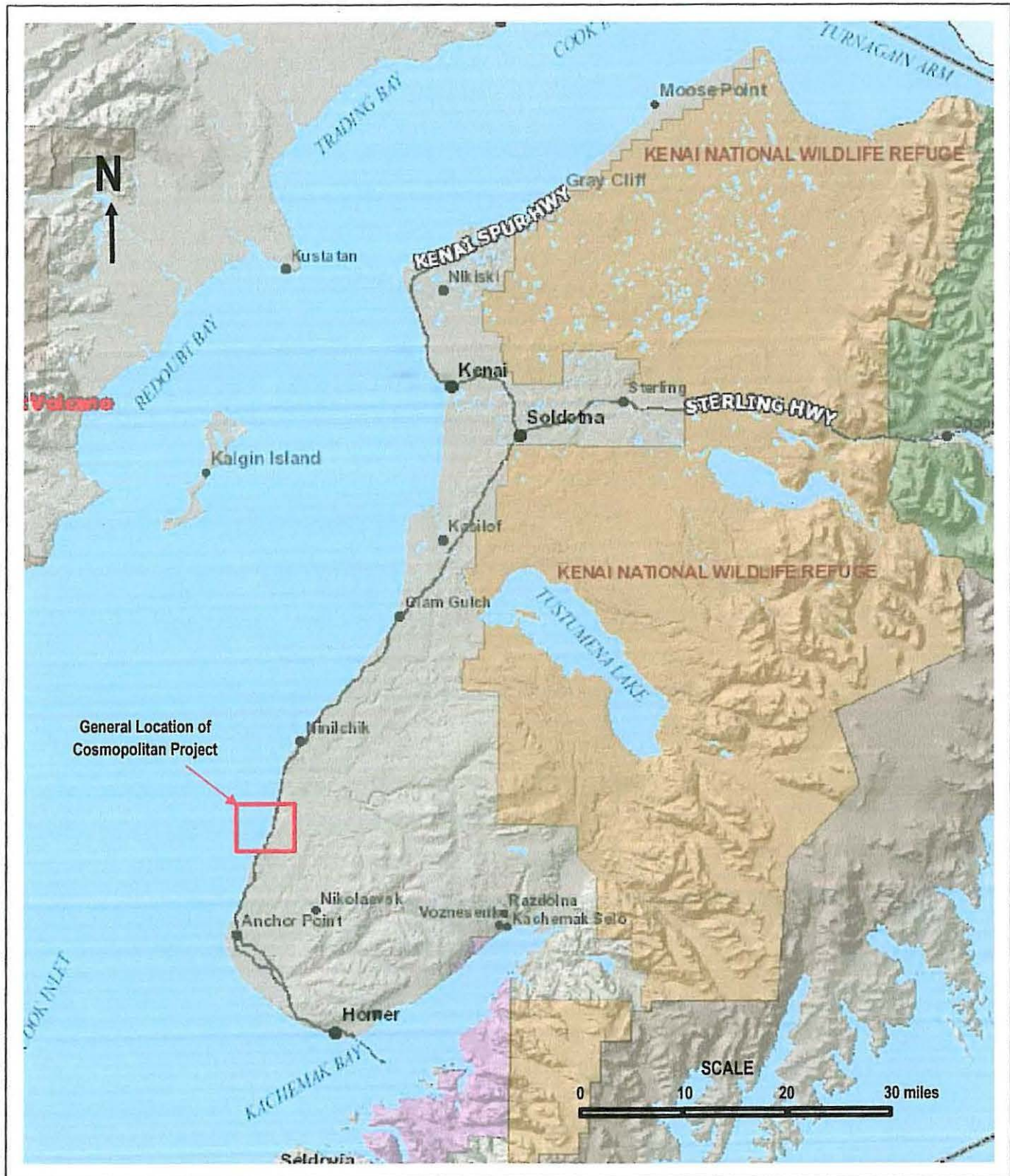
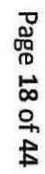


Figure IV-1 General Vicinity Map





**Figure IV-2. Configuration of Existing Pad Showing Current Lease Boundaries.**



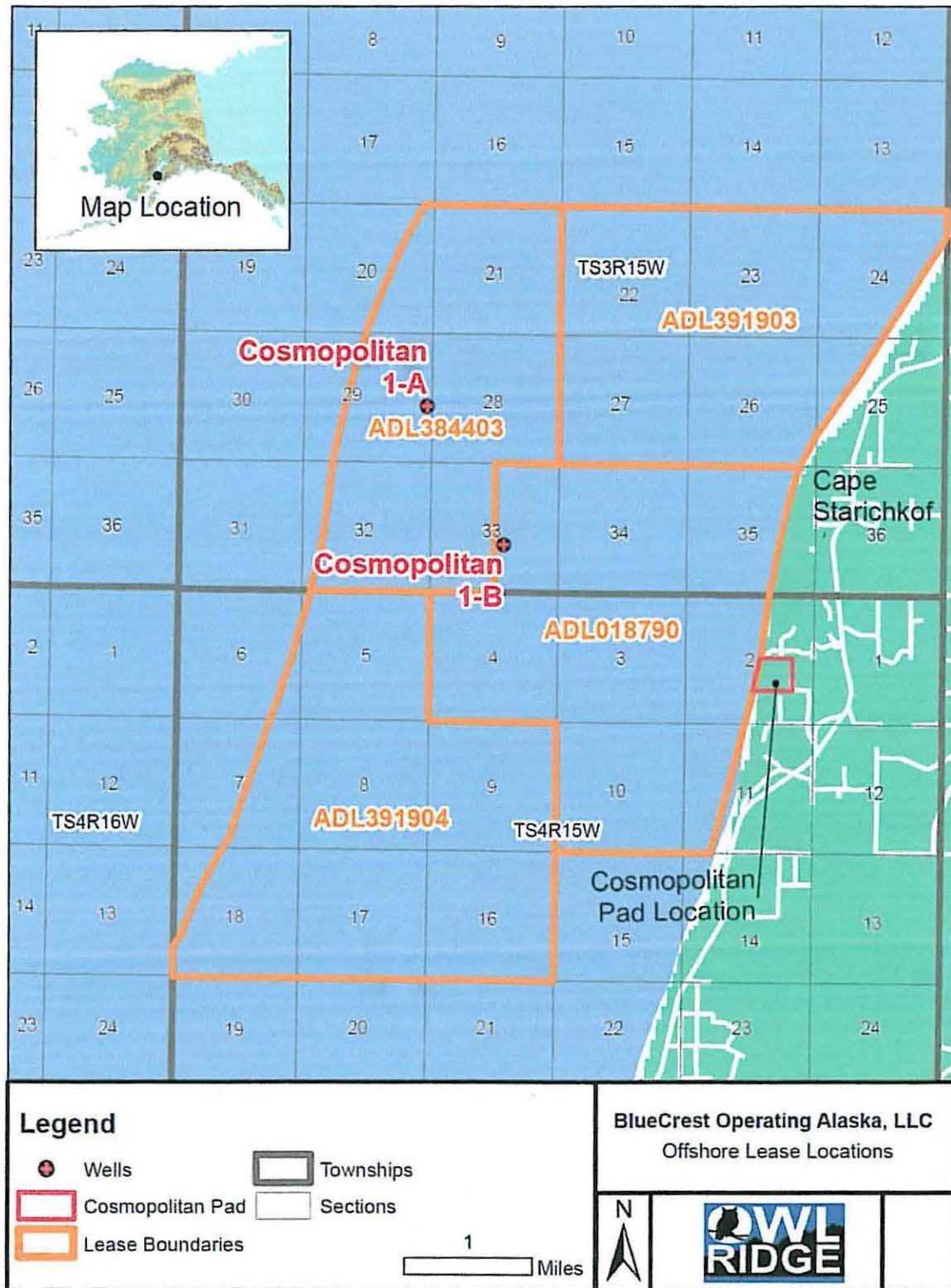


Figure V-1. Offshore Lease Locations.



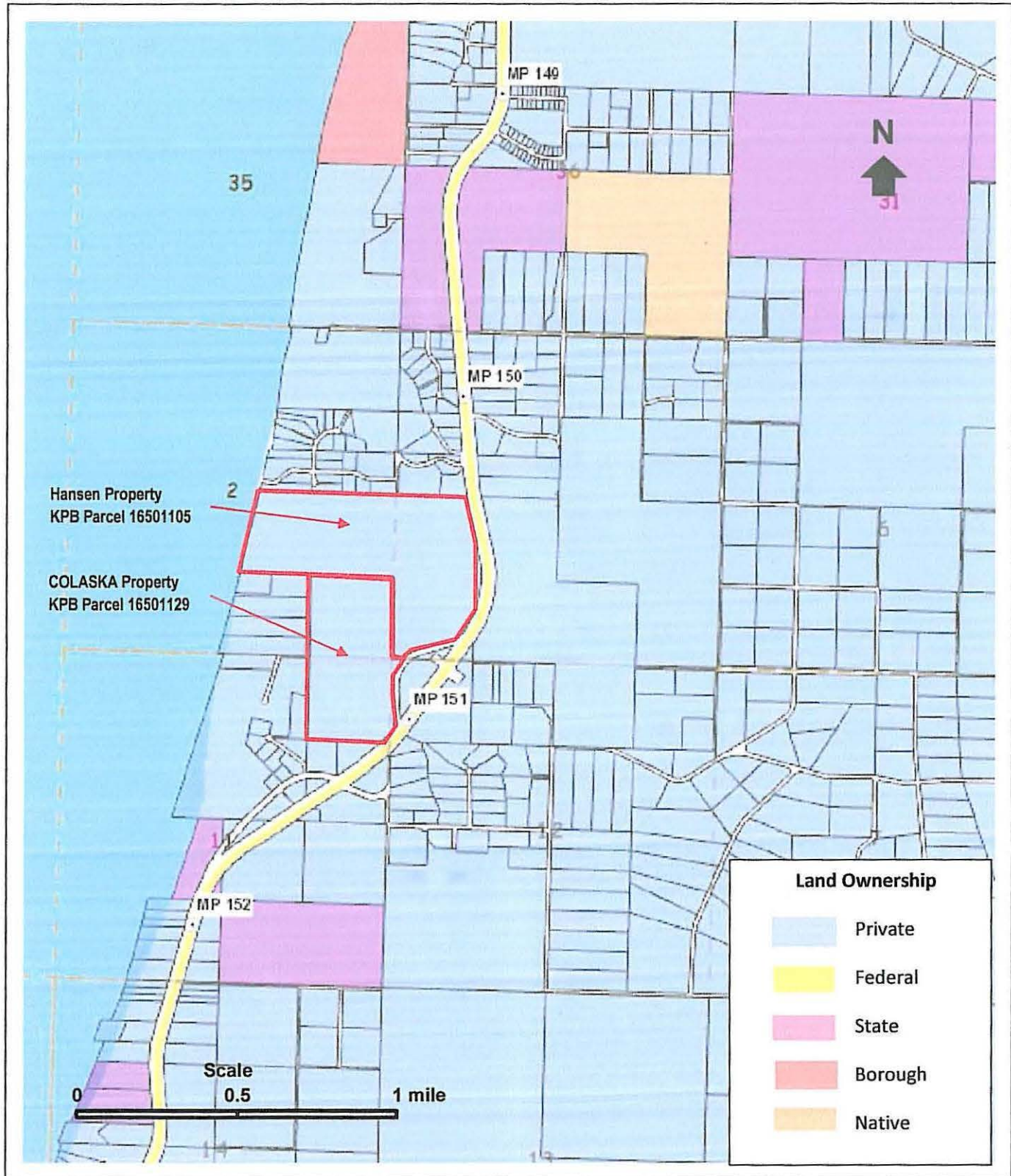


Figure V-2. Onshore Land Ownership (KPB GIS).



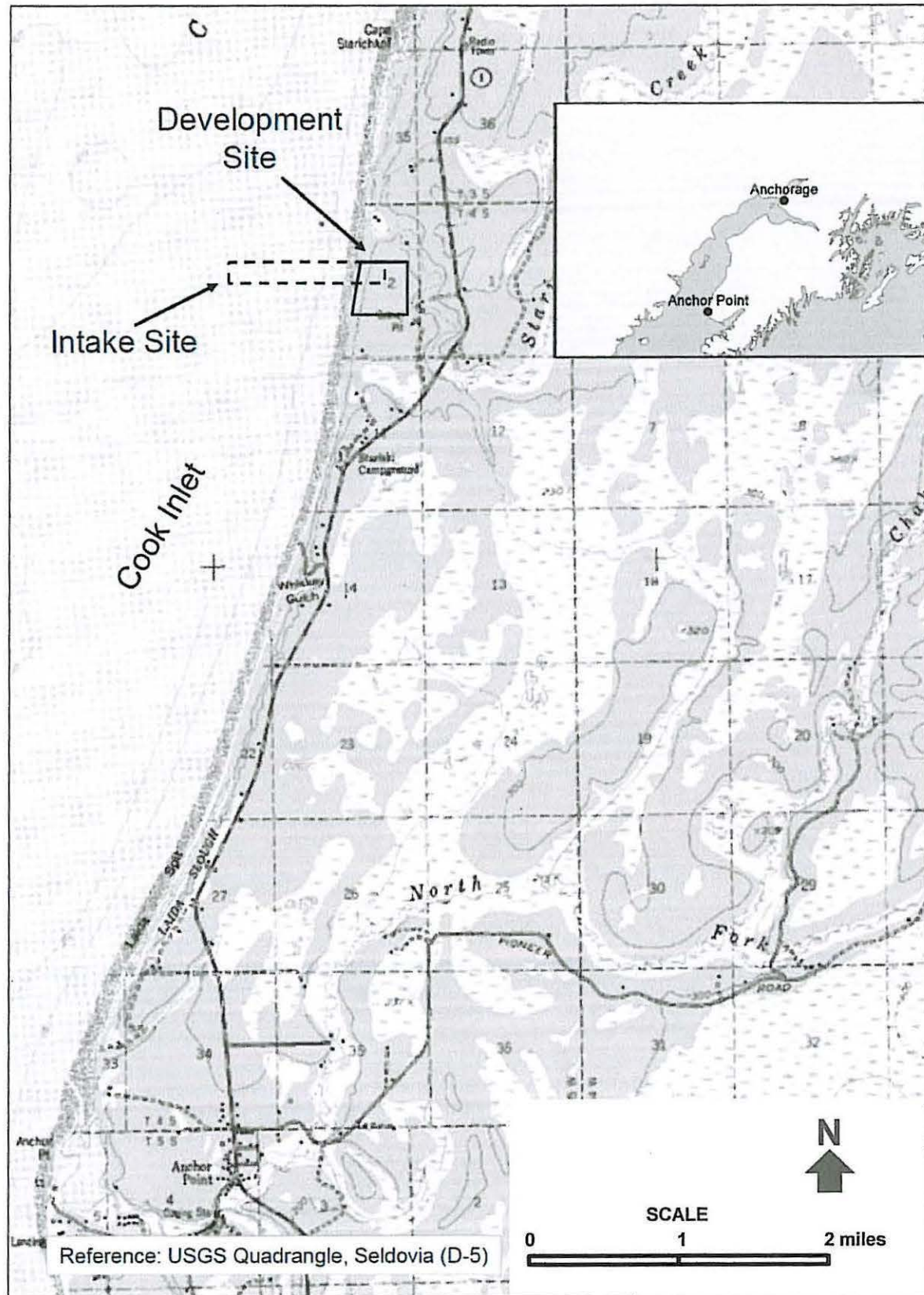


Figure V-3. Location Map for Seawater Intake.



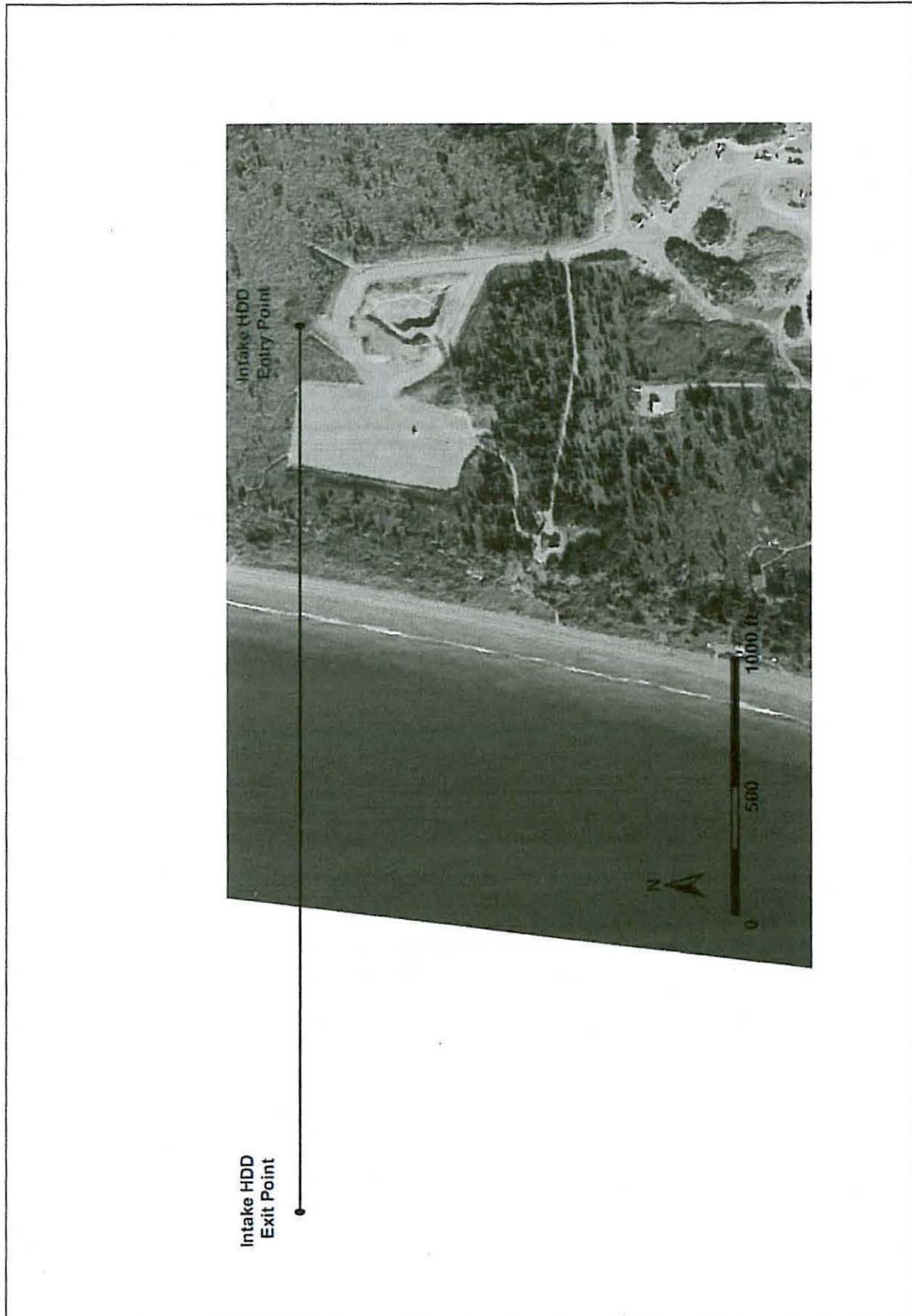


Figure V-4. Plan View of Seawater Intake HDD Pipeline and Intake Structure.



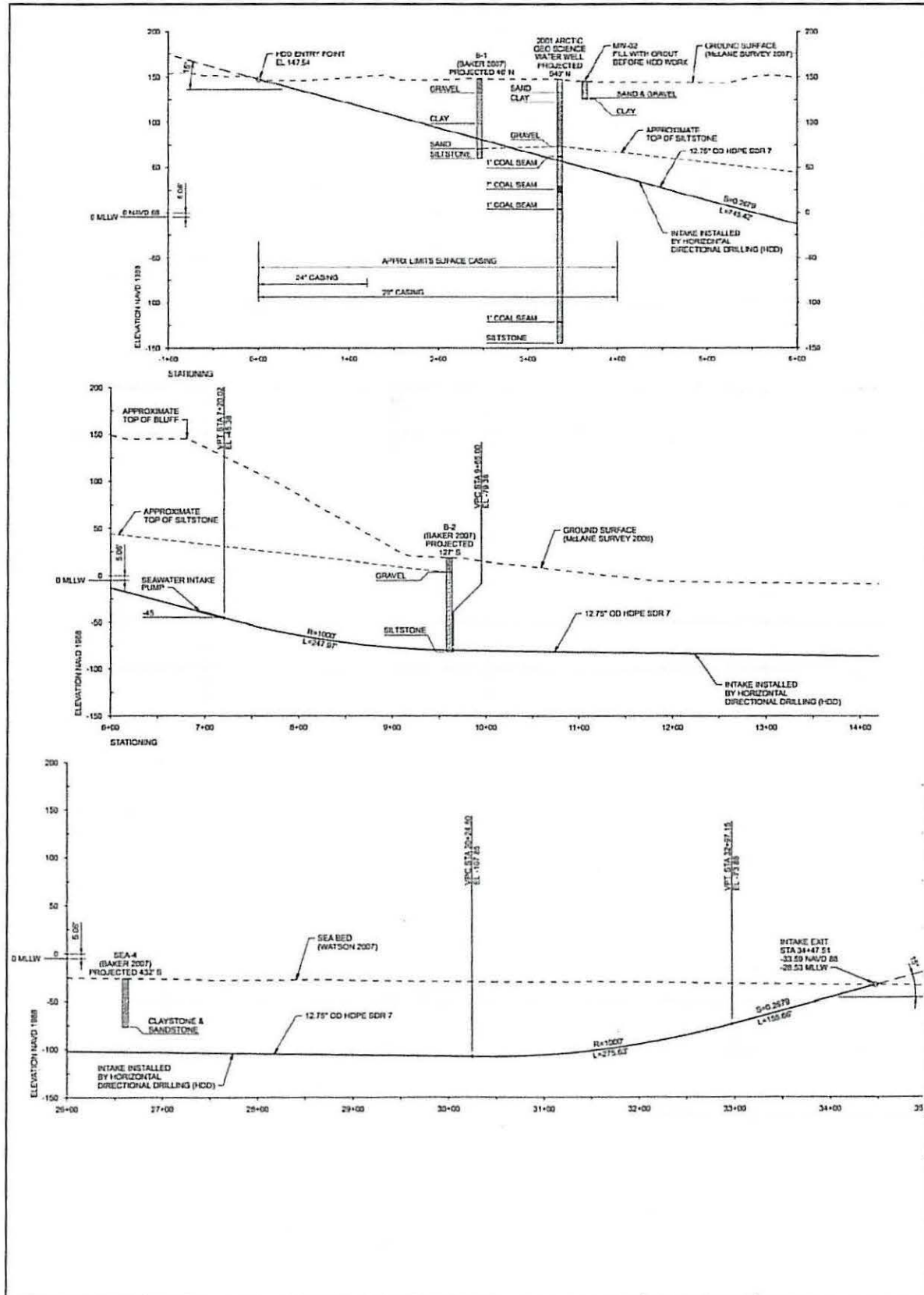


Figure V-5. Profile of HDD Pipeline for Seawater Intake Structure.



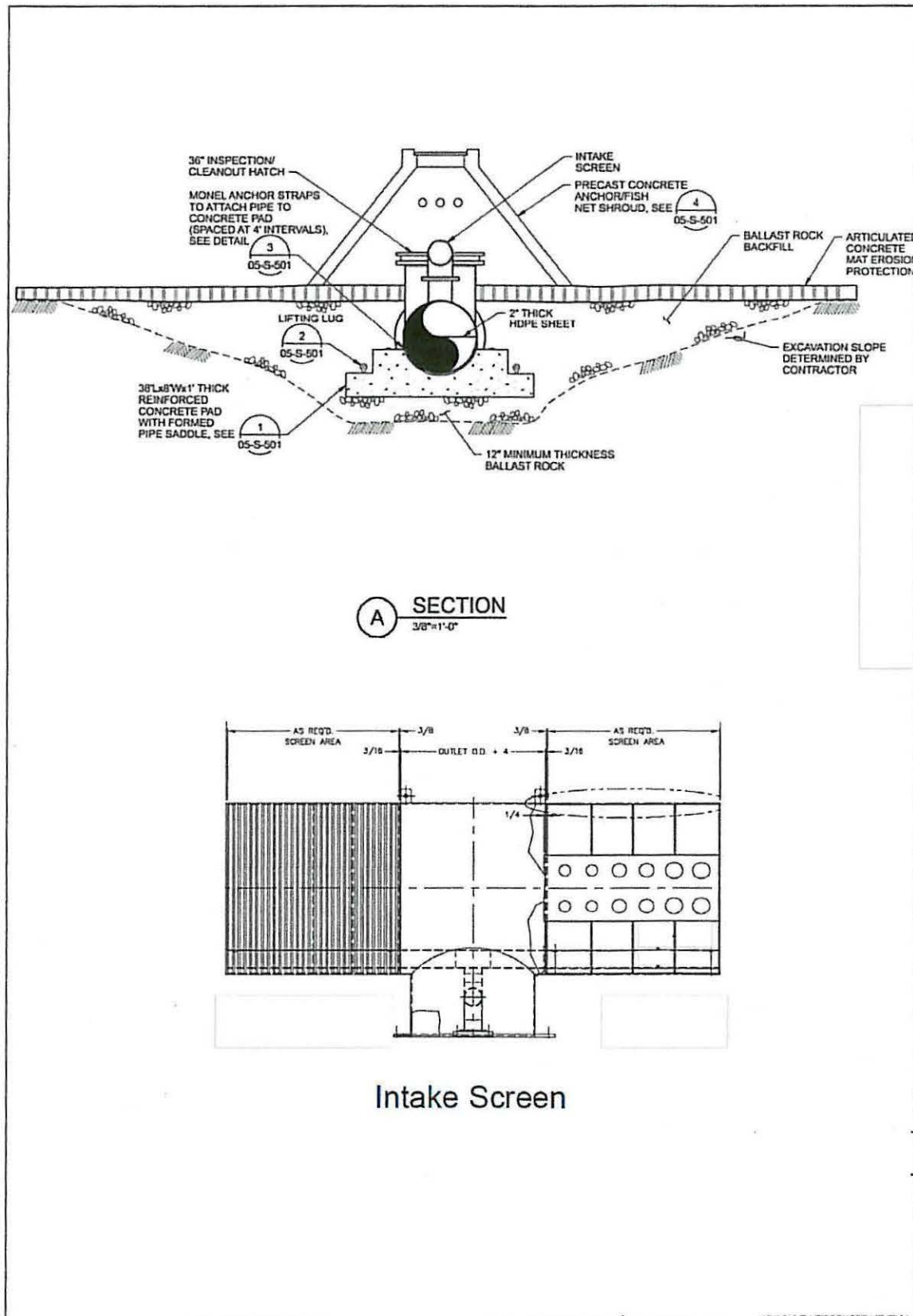


Figure V-6. End View of Seawater intake Structure.



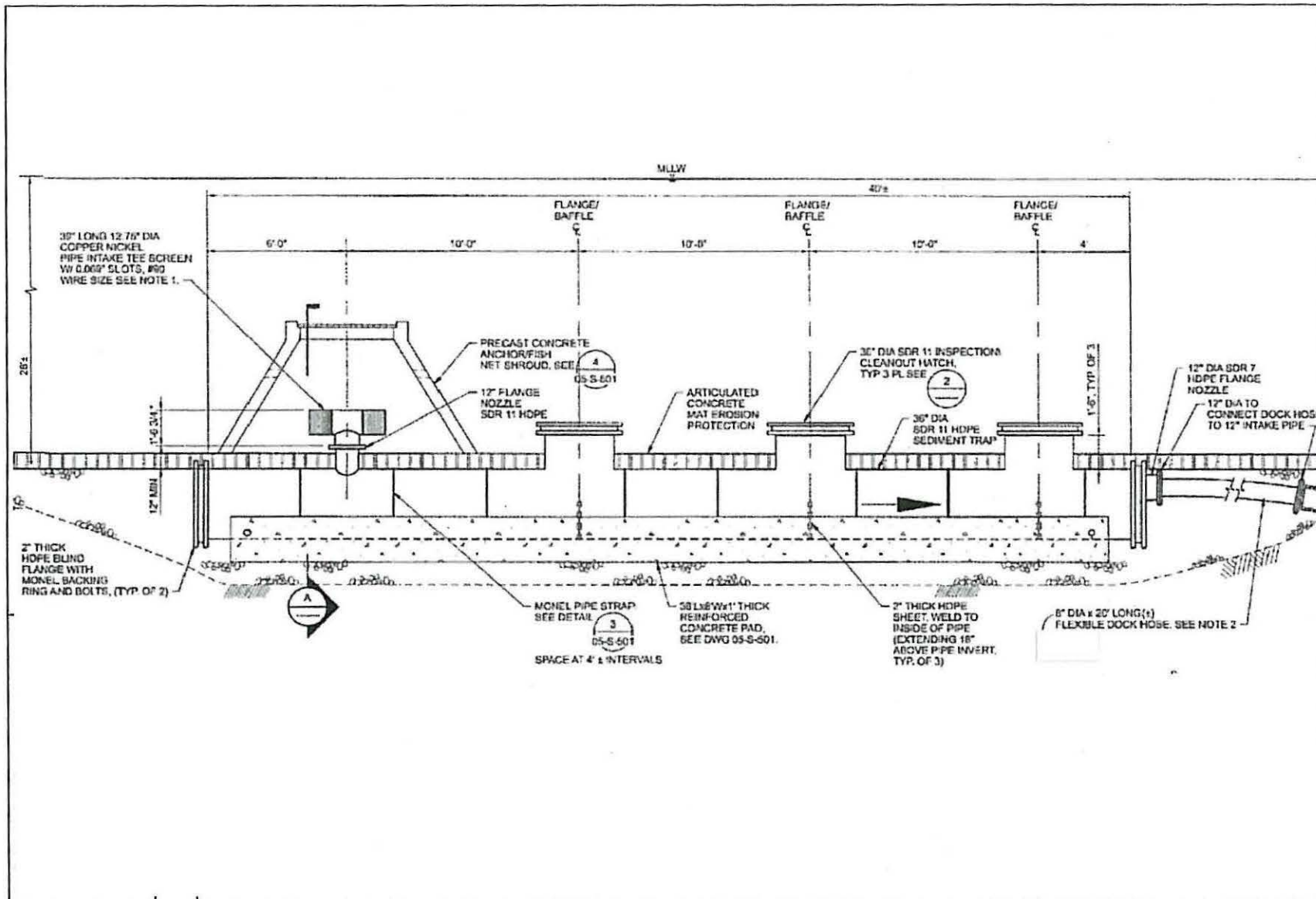


Figure V-7. Side View of Seawater Intake Structure.



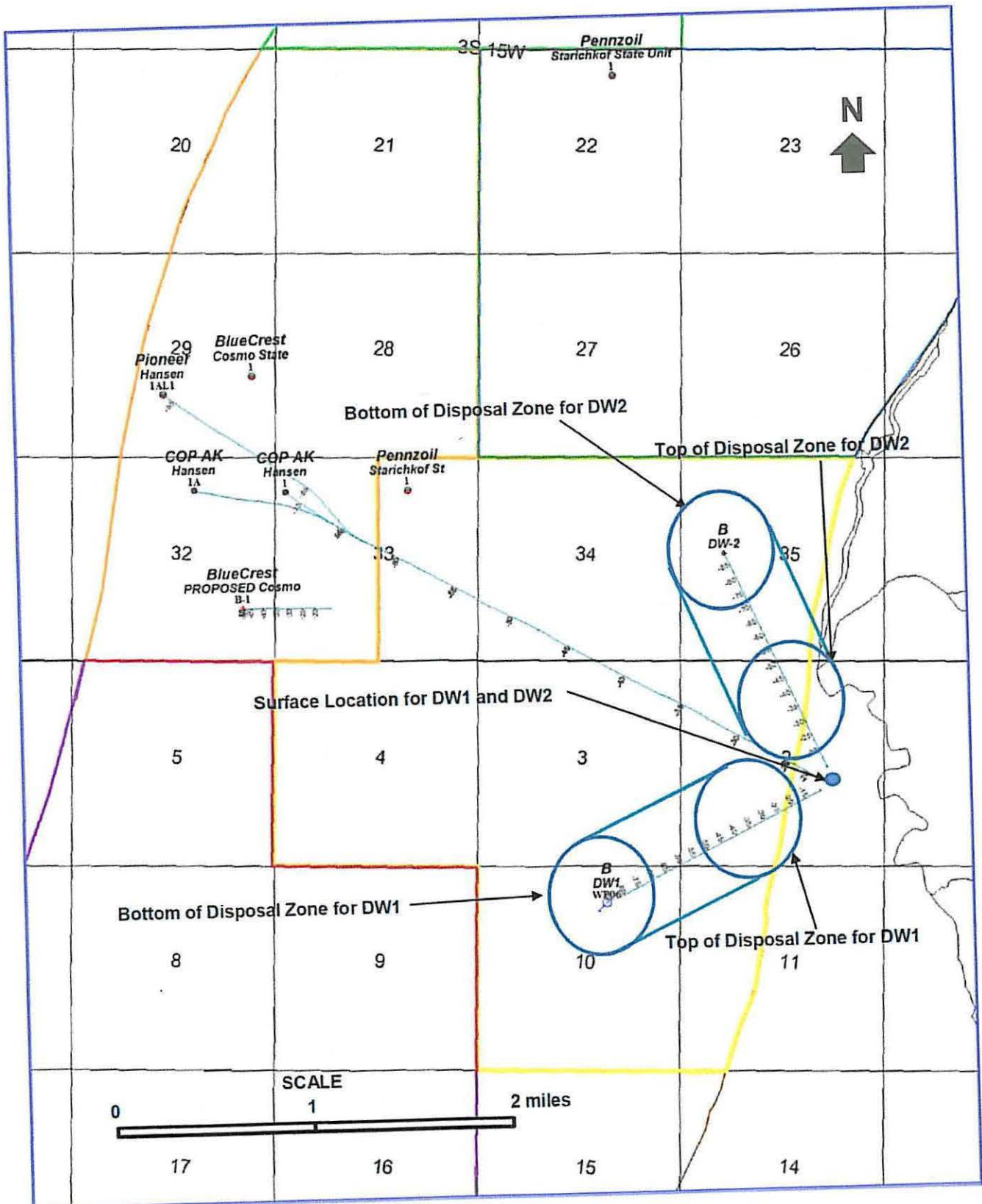


Figure V-8. Injection Wells Injection Areas.



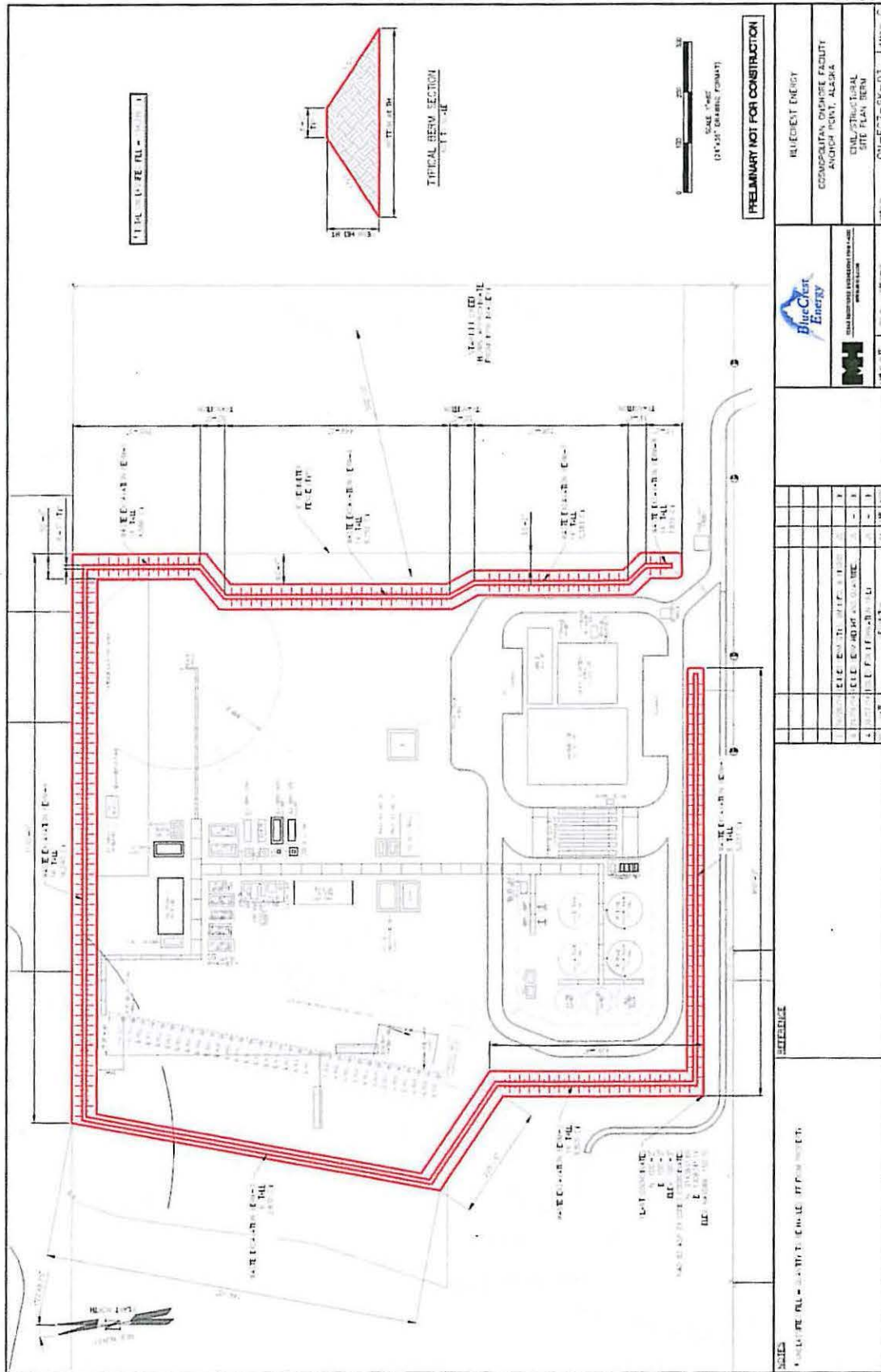
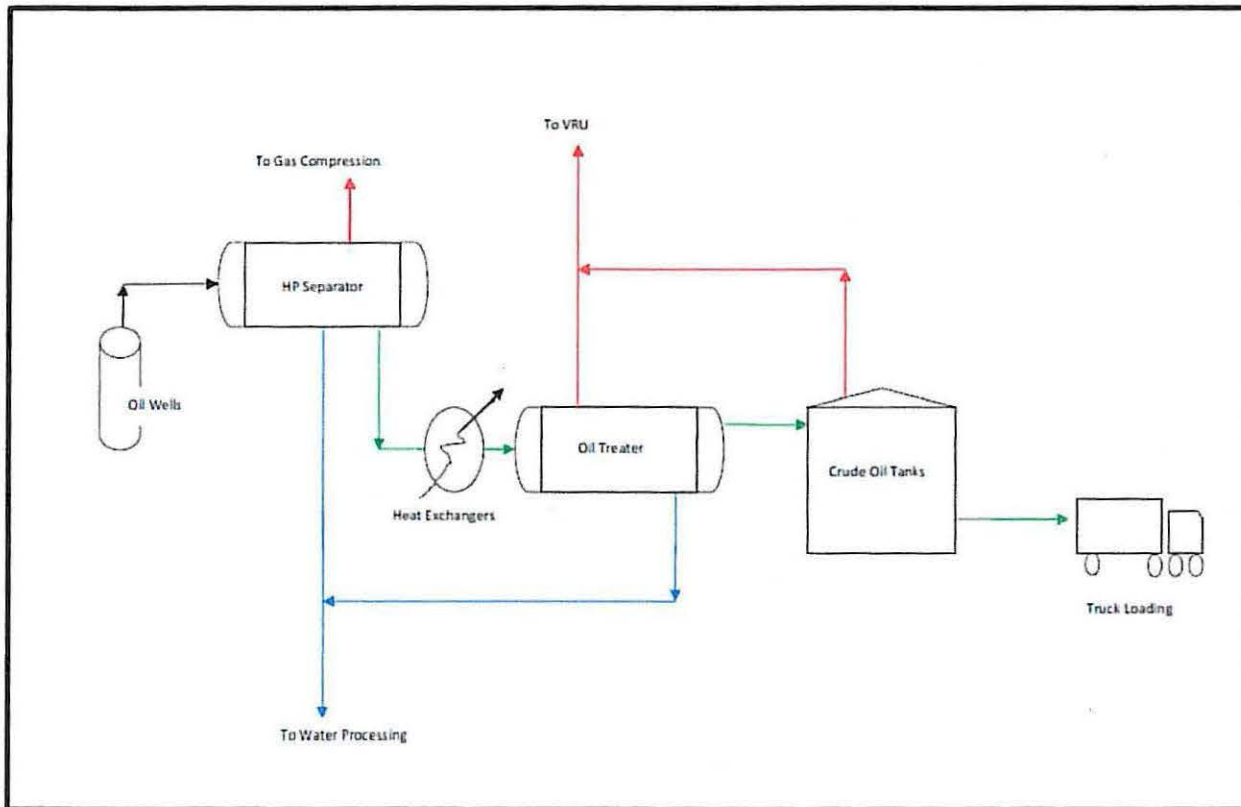


Figure VIII-1. Production Pad Site Layout.





**Figure VIII-2 Oil Process Model**





## UNIT PLAN OF OPERATIONS APPLICATION

State of Alaska  
Department of Natural Resources, Division of Oil & Gas  
550 W. 7th Ave, Suite 1100, Anchorage, AK 99501-3563  
Phone: 907-269-8800 Fax: 907-269-8943  
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### APPENDIX B: MITIGATION MEASURES

See attached



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## MITIGATION MEASURE ANALYSIS: COOK INLET

The following instructions are provided for guidance to adequately complete the Mitigation Measure Analysis form.

1. The applicant shall respond to each Mitigation Measure, and all subsets of mitigation measures; i.e. A.2.d.i should be addressed and A.2.d.ii, and so forth.
2. The applicant's response shall begin by clearly indicating if the mitigation measure is satisfied, a waiver is requested, or if the mitigation measure is not applicable.
3. The applicants' response shall then address how the proposed project clearly satisfies the mitigation measure, meets the intent of the mitigation measure, is not practicable, or is not applicable.
4. The applicant shall verify working 'in consultation with' parties other than Department of Natural Resources (DNR), Division of Oil and Gas (DO&G) by reporting meeting dates and parties present for Mitigation Measures which require consultation with parties other than DNR, DO&G; i.e. Mitigation Measure 1.b.

Please note that this form, along with the Plan of Operations Application form and the Plan of Operations, must be adequately completed before DNR DO&G will review an application for potential approval.



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Cook Inlet	Company Response
A. Mitigation Measures	
1. Facilities and Operations	
<p>a. A plan of operations must be submitted and approved before conducting exploration, development or production activities, and must describe the lessee's efforts to minimize impacts on residential, commercial, and recreational areas, Native allotments and subsistence use areas, and adjacent private lands. At the time of application, lessee must submit a copy of the proposed plan of operations to all surface owners whose property will be entered.</p>	<p>A.1.a. Mitigation measure is satisfied. A Plan of Operations is being submitted with this analysis.</p>
<p>b. Facilities must be designed and operated to minimize sight and sound impacts in areas of high residential, commercial, recreational, and subsistence use and important wildlife habitat. Methods may include providing natural buffers and screening to conceal facilities, sound insulation of facilities, or by using alternative means approved by the director, in consultation with ADF&amp;G.</p>	<p>A.1.b. Mitigation measure is satisfied. Soil berms are planned for all sides of the production pad. The berms will be up to 14 ft high along the eastern, northern, and southwestern side of the production pad. The berms to the south will be 8 ft high and the berm to the west will be 6 ft high. The berms will be vegetated to prevent erosion and trees may be added in some berm areas yet to be determined..</p>
<p>c. The siting of onshore facilities, other than roads, docks, utility or pipeline corridors, or terminal facilities will be prohibited within one-half mile of the mean high water of Cook Inlet, except where land use plans classify an area for development, or established usage and use history show development. The siting of facilities other than docks, roads, utility, and pipeline crossings will also be prohibited within 500 feet of all fish bearing streams and waterbodies and 1,500 feet of all current surface drinking water sources. Additionally, to the extent practicable, the siting of facilities will be prohibited within one-half mile of the banks of the main channel of the Harriet, Alexander, Lake, Deep, and Stariski creeks, and the Drift, Big, Kustatan, McArthur, Chuitna, Lewis, Theodore, Beluga, Susitna, Little Susitna, Kenai, Kaslof, Ninilchik, and Anchor rivers. Facilities may be sited within these buffers if the lessee demonstrates to the satisfaction of the director, in consultation with ADF&amp;G, that site locations outside these buffers are not practicable or that a location inside the buffer is environmentally preferred. Road, utility, and pipeline crossings must be consolidated and aligned perpendicular or near perpendicular to watercourses.</p>	<p>A.1.c. Mitigation measure is satisfied</p> <p>The ½ mile buffer requirement is not applicable as the proposed site has historically been constructed as a previous drilling location. The proposed site has been proposed by Phillips (2003), Pioneer (2010), Buccaneer (2013) and now by BlueCrest as a site for the oil drilling and oil and gas production operations for the Cosmopolitan Development. Plans of Operation have previously approved by ADNDR-DOG for conducting production operations at the location.</p> <p>The side of the edge of the proposed site borders the 500 ft buffer zone for a fish bearing stream (Stariski Creek). Up to 50 ft intrusion into the BlueCrest leased area, but activities in this area have been avoided.</p>



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Cook Inlet	Company Response
A. Mitigation Measures	
1. Facilities and Operations	
a. A plan of operations must be submitted and approved before conducting exploration, development or production activities, and must describe the lessee's efforts to minimize impacts on residential, commercial, and recreational areas, Native allotments and subsistence use areas, and adjacent private lands. At the time of application, lessee must submit a copy of the proposed plan of operations to all surface owners whose property will be entered.	A.1.a. Mitigation measure is satisfied. A Plan of Operations is being submitted with this analysis.
b. Facilities must be designed and operated to minimize sight and sound impacts in areas of high residential, commercial, recreational, and subsistence use and important wildlife habitat. Methods may include providing natural buffers and screening to conceal facilities, sound insulation of facilities, or by using alternative means approved by the director, in consultation with ADF&G.	A.1.b. Mitigation measure is satisfied. Soil berms are planned for all sides of the production pad. The berms will be up to 14 ft high along the eastern, northern, and southwestern side of the production pad. The berms to the south will be 8 ft high and the berm to the west will be 6 ft high. The berms will be vegetated to prevent erosion and trees may be added in some berm areas yet to be determined..
c. The siting of onshore facilities, other than roads, docks, utility or pipeline corridors, or terminal facilities will be prohibited within one-half mile of the mean high water of Cook Inlet, except where land use plans classify an area for development, or established usage and use history show development. The siting of facilities other than docks, roads, utility, and pipeline crossings will also be prohibited within 500 feet of all fish bearing streams and waterbodies and 1,500 feet of all current surface drinking water sources. Additionally, to the extent practicable, the siting of facilities will be prohibited within one-half mile of the banks of the main channel of the Harriet, Alexander, Lake, Deep, and Stariski creeks, and the Drift, Big, Kustatan, McArthur, Chuitna, Lewis, Theodore, Beluga, Susitna, Little Susitna, Kenai, Kasilof, Ninilchik, and Anchor rivers. Facilities may be sited within these buffers if the lessee demonstrates to the satisfaction of the director, in consultation with ADF&G, that site locations outside these buffers are not practicable or that a location inside the buffer is environmentally preferred. Road, utility, and pipeline crossings must be consolidated and aligned perpendicular or near perpendicular to watercourses.	<p>A.1.c. Mitigation measure is partially satisfied but a waiver is requested to possibly occupy portion of the 500 ft buffer zone to the east.</p> <p>The ½ mile buffer requirement is not applicable as the proposed site has historically been constructed as a previous drilling location. The proposed site has been proposed by Phillips (2003, Pioneer (2010), Buccaneer (2013) and now by BlueCrest as a site for the oil drilling and oil and gas production operations for the Cosmopolitan Development. Plans of Operation have previously approved by ADNDR-DOG for conducting production operations at the location.</p> <p>The side of the edge of the proposed site borders the 500 ft buffer zone for a fish bearing stream (Stariski Creek). Up to 50 ft intrusion into this buffer zone is requested in order to place a soil berm for mitigation of visual and noise impact towards the east of the project.</p>



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d. Impacts to identified wetlands must be minimized to the satisfaction of the director, in consultation with ADF&G and ADEC. The director will consider whether facilities are sited in the least sensitive areas. Further, all activities within wetlands require permission from the U.S. Army Corps of Engineers.	A.1.d. Mitigation measure is satisfied. A water intake structure for the site was authorized by the USACE and would be located in navigable waters. Various surveys have been conducted for the onshore site and access and there are no wetlands impacted by the proposed onshore project.
e. Exploration activities must be supported by air service, an existing road system or port facility, ice roads, or by off-road vehicles that do not cause significant damage to the vegetation or ground surface. Construction of temporary drill pads, airstrips, and roads may be allowed. Construction of permanent roads may be allowed upon approval by the director. Unrestricted surface travel may be permitted by the director and DMLW, if an emergency condition exists.	A.1.e. Mitigation measure is satisfied. The site is accessible by existing road systems. Use of new dedicated air service facilities, port facilities, and off-road vehicles is not required for the operation of the facilities.
f. With the exception of drill pads, airstrips, and roads permitted under A1e, exploration facilities must be consolidated, temporary, and must not be constructed of gravel. Use of abandoned gravel structures may be permitted on a case-by-case basis.	A.1.f. Not applicable as the project is for production operations.
g. Pipelines must utilize existing transportation corridors and be buried where conditions permit. Pipelines and gravel pads must be designed to facilitate the containment and cleanup of spilled fluids. Pipelines, flowlines, and gathering lines must be designed and constructed to assure integrity against climatic conditions and geologic hazards.  In areas with above ground placement, pipelines must be designed, sited, and constructed to allow for the free movement of wildlife. Where practicable, pipelines must be located on the upslope side of roadways and construction pads, unless DMLW determines that an alternative site is environmentally acceptable.	A.1.g. Mitigation measure is satisfied. At this time, a one mile long natural gas pipeline will be required to transport natural gas to an existing natural gas transmission system. The proposed one mile long pipeline will be constructed and owned/operated by Enstar Natural Gas Company.



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<p>h. Pipelines that must cross marine waters will be constructed beneath the marine waters using directional drilling techniques, unless the director, in consultation with ADF&amp;G and the local borough and Coastal Resource Service Areas, approves an alternative method based on technical, environmental, and economic justification. Offshore pipelines must be located and constructed to prevent obstruction to marine navigation and fishing operations.</p>	<p>A.1.h. Mitigation measure is satisfied. The pipeline from the seawater intake structure to the production pad will be installed using horizontal directional drilling techniques.</p>
<p>i. Gravel mining sites required for exploration and development activities will be restricted to the minimum necessary to develop the field efficiently and to minimize environmental damage. Gravel mine sites required for exploration activities must not be located within an active floodplain of a watercourse unless DMLW, after consultation with ADF&amp;G, determines that there is no practicable alternative, or that a floodplain site would be compatible with fish and wildlife habitat after mining operations are completed and the site is closed.</p>	<p>A.1.i. Mitigation measure is not applicable. The production pad will be constructed on top of existing gravel deposits. Overburden removed to access the gravel deposits will be used in part to construct the barrier berms around the pad. It should be noted that there is an existing gravel pit located immediately south of the proposed production pad.</p>
<p><b>2. Habitat, Fish, and Wildlife</b></p>	
<p>a. Detonation of explosives will be prohibited in open water areas of fish bearing streams and lakes. Explosives must not be detonated beneath, or in close proximity to, fish-bearing streams and lakes if the detonation of the explosive produces a pressure rise in the water body of greater than 2.7 pounds per-square-inch, or unless the water body, including its substrate, is solidly frozen. Detonation of explosives within or in close proximity to a fish spawning bed during the early stages of egg incubation must not produce a peak particle velocity greater than 0.5 inches per second. Blasting criteria have been developed by ADF&amp;G and are available from ADF&amp;G upon request. The location of known fish bearing waters within the project area can be obtained from ADF&amp;G.</p>	<p>A.2.a. Not applicable as use of surface explosive will not be required.</p>
<p>b. Compaction or removal of snow cover overlying fish bearing water bodies is prohibited except for approved crossings. If ice thickness is not sufficient to facilitate a crossing, ice and/or snow bridges may be required.</p>	<p>A.2.b. Not applicable as crossings of fish bearing water bodies is not required.</p>



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<p>c. Removal of water from fishbearing rivers, streams and natural lakes shall be subject to prior written approval by DMLW and ADF&amp;G. Water intake pipes used to remove water from fish bearing waterbodies must be surrounded by a screened enclosure to prevent fish entrainment and impingement. Screen mesh size shall be no greater than 1 mm (0.04 inches), unless another size has been approved by ADF&amp;G. The maximum water velocity at the surface of the screen enclosure may be no greater than 0.4 feet per second, unless an alternative velocity has been approved by ADF&amp;G. Screen material must be corrosion resistant, and must be adequately supported to prevent excessive sagging which could result in unusable intake surface. The intake structure must be designed and installed to avoid excessive fouling from floating debris, and a minimum of eight square feet of effective wetted screen surface must be provided for each multiple of a 450-gallon per minute (one cubic foot per second) pumping rate. The pump intake opening must be placed equidistant from all effective wetted screen surfaces.</p>	<p>A.2.c. Mitigation measure is not applicable. Removal of water from fishbearing rivers, streams and natural lakes is not proposed by the applicant.</p>
<p>d. Surface entry will be prohibited in parcels that are within the Kenai River Special Management Area.</p> <p>Surface entry, other than access, will be prohibited on state lands within the Kenai National Wildlife refuge.</p> <p>Lessees are prohibited from placing drilling rigs and lease-related facilities and structures within an area near the Kenai River composed of: all land within Section 36 in T6N, R11W that is located south of a line drawn from the protracted NE corner to the protracted SW corner of the section; all land within the western half of Section 31 in T6N, R10W and Section 6 in T5N, R10W; and all land within Section 1 in T5N, R11W.</p>	<p>A.2.d. Not applicable as activities will not occur in these areas.</p>
<p>e. Surface entry into the critical waterfowl habitat along the Kaslof River is prohibited. Directional drilling from adjacent sites may be allowed.</p>	<p>A.2.e. Not applicable as activities will not occur in this area.</p>



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<p>f. Surface entry will be prohibited within one-quarter mile of trumpeter swan nesting sites between April 1 and August 31. The siting of permanent facilities, including roads, material sites, storage areas, powerlines, and above ground pipelines will be prohibited within one-quarter mile of known nesting sites. Trumpeter swan nesting sites will be identified by ADF&amp;G at the request of the lessee.</p>	<p>A.2.f. Not applicable as there are no known trumpeter swan nesting areas in the area.</p>
<p>g. The director, in consultation with ADF&amp;G, shall restrict or modify lease related activities if scientific evidence documents the presence of Steller's eiders from the Alaska breeding population in the lease area and it is determined that oil and gas exploration and development will impact them or their over-wintering habitat in the near-shore waters of Cook Inlet.</p>	<p>A.2.g. Mitigation measure is satisfied. This has been addressed with the USFWS and they have agreed there is no impact.</p>
<p>h. The director, in consultation with ADF&amp;G, may impose seasonal restrictions on activities located in and adjacent to important waterfowl and shorebird habitat during the plan of operations approval stage.</p>	<p>A.2.h. Mitigation measure is satisfied. There are no known important waterfowl or shorebird habitat in the immediate area.</p>
<p>Bears:</p> <p>i. Lessees are required to prepare and implement a human-bear interaction plan designed to minimize conflicts between bears and humans. The plan shall include measures to:</p> <ul style="list-style-type: none"> <li>i. minimize attraction of bears to facility sites, including garbage and food waste;</li> <li>ii. organize layout of buildings and work areas to minimize interactions between humans and bears such as including the use of electric fencing;</li> <li>iii. warn personnel of bears near or on facilities and the proper actions to take;</li> <li>iv. if authorized, deter bears from the drill site;</li> <li>v. provide contingencies in the event bears do not leave the site;</li> </ul>	<p>A.2.i. Mitigation measure is satisfied. A Bear Interaction Plan has been prepared</p> <p>A.2.i.i. Mitigation measure is satisfied.</p> <p>A.2.i.ii. Mitigation measure is satisfied.</p> <p>A.2.i.iii. Mitigation measure is satisfied.</p> <p>A.2.i.iv. Mitigation measure is satisfied.</p> <p>A.2.i.v. Mitigation measure is satisfied.</p> <p>A.2.i.vi. Mitigation measure is satisfied.</p> <p>A.2.i.vii. Mitigation measure is satisfied.</p>



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<p>vi. provide for proper storage and disposal of materials that may be toxic to bears; and</p> <p>vii. document and communicate the sighting of bears onsite or in the immediate area to all shift employees.</p>	
<p>j. Before commencement of any activities, lessees shall consult with ADF&amp;G to identify the locations of known bear den sites that are occupied in the season of proposed activities. Exploration and development activities started between November 15 and March 31 may not be conducted within one-half mile of known occupied brown bear dens, unless alternative mitigation measures are approved by the ADF&amp;G. A lessee who encounters an occupied den not previously identified by ADF&amp;G must report it to the Division of Wildlife Conservation, ADF&amp;G, within 24 hours. Mobile activities shall avoid such discovered occupied dens by one-half mile unless alternative mitigation measures are approved by DO&amp;G with concurrence from ADF&amp;G. Non-mobile facilities will not be required to be relocated.</p>	<p>A.2.j. Mitigation measure is satisfied.</p>
<p>k. Recognizing the importance of sufficient vegetative cover and access by Kenai Peninsula brown bears feeding at streams, the director, in consultation with ADF&amp;G, may require lessees to locate exploration and development facilities beyond the 500-foot buffer along anadromous streams during the plan of operations approval stage, except as provided in A1c.</p>	<p>A.2.k. Mitigation measure is satisfied.</p>
<p>Caribou:</p> <p>l. Surface entry within the core calving area of the Kenai Lowlands Caribou Herd is prohibited, except that surface entry for seismic exploration will be allowed from October 16 to March 31.</p>	<p>A.2.l. Not applicable as the production site is not within the core calving area of the Kenai Lowlands Caribou Herd.</p>
<p>m. Exploration and development activities will be restricted or prohibited between April 1 and October 15 within the core summer habitat of the Kenai Lowlands Caribou Herd, except that maintenance and operation of production wells will be allowed year-round. Permanent roads, or facilities other than production wells, will also be restricted or prohibited within this area. Facilities within the core summer habitat of the Kenai Lowlands Caribou Herd that require year-round access must be located in forested areas, where practical.</p>	<p>A.2.m. Not applicable as the production site is not within the summer habitat area of the Kenai Lowlands Caribou Herd.</p>



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n. Pipelines must be buried within the core summer habitat of the Kenai Lowlands Caribou Herd.	A.2.n. Not applicable as pipelines not within the core calving area of the Kenai Lowlands Caribou Herd.
o. The director, in consultation with ADF&G, may impose seasonal restrictions on activities located in, or requiring travel through or overflight of, important moose or caribou calving and wintering areas during the plan of operations approval stage.	A.2.o. Not applicable as the operations are not located in important moose or caribou calving and wintering areas.
<p>Beluga Whales:</p> <p>p. No permanent or temporary oil and gas exploration or development may occur within High Value/High Sensitivity (Type 1) beluga whale habitat areas, unless it occurs on upland areas (above Mean Higher Water datum). Type 1 habitat areas include the following tracts: 320-334, 391-409, 410, 462, 464-475, 476-481, 483, 484, 485, 486, 493, 494, 497, 498, 522, 524-537, 538, 539, 540, 541, 542, 543, 544, 547-552, 559, 575-577, 579, 581, 582, 585, 586, 590, 593, 594, 598, 616-618, 620-623, 627, 655-658, and 662.</p>	A.2.p. Not applicable as activities will not occur within High Value/High Sensitivity beluga whale habitat areas.
q. The director will assess oil and gas-related activities within all High Value (Type 2) beluga whale habitat areas on a case-by-case basis. No permanent surface entry or structures are allowed, and temporary activities and structures, for example exploration drilling, will only be allowed between November 1 and April 1 of each year, unless it occurs on upland areas, within the following tracts: 021, 022, 126, 127, 129-132, 161, 162, 175, 177, 211, 218, 257, 301, 302, 373, 376, 377, and 384.	A.2.q. Not applicable as activities will not occur within High Value/High Sensitivity beluga whale habitat areas.
r. The director will assess oil and gas-related activities within the remaining tracts (Type 3 habitat areas) on a case-by-case basis.	A.2.r. Comment is noted.



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<b>3. Subsistence, and Other Fish and Wildlife Uses</b>	
a. Lease-related use will be restricted when DO&G determines it is necessary to prevent unreasonable conflicts between lease-related activities and subsistence, and commercial, sport, personal use, and educational harvest activities. In enforcing this term DO&G, during review of plans of operation, will consult with other agencies, the affected local borough(s) and the public to identify and avoid potential conflicts. In order to avoid conflicts with subsistence, commercial, sport and educational harvest activities, restrictions may include alternative site selection, requiring directional drilling, seasonal drilling restrictions, and other technologies deemed appropriate by DO&G.	A.3.a. Mitigation measure is satisfied.
<b>4. Fuel, Hazardous Substances, and Waste</b>	
a. Secondary containment (see definitions) shall be provided for the storage of fuel or hazardous substances.	A.4.a. Mitigation measure is satisfied. All operations will be conducted in accordance with an ADEC approved Oil Discharge Prevention & Contingency Plan (C-Plan) and Spill Prevention Control & Countermeasure Plan (SPCC Plan) per Federal Regulations.
b. Containers with an aggregate storage capacity of greater than 55 gallons which contain fuel or hazardous substances shall not be stored within 100 feet of a waterbody, or within 1,500 feet of a current surface drinking water source.	A.4.b. Mitigation measure is satisfied. All operations will be conducted in accordance with an ADEC approved C-Plan and SPCC Plan per Federal Regulations.
c. During equipment storage or maintenance, the site shall be protected from leaking or dripping fuel and hazardous substances by the placement of drip pans or other surface liners designed to catch and hold fluids under the equipment, or by creating an area for storage or maintenance using an impermeable liner or other suitable containment mechanism.	A.4.c. Mitigation measure is satisfied. All operations will be conducted in accordance with an ADEC approved C-Plan and SPCC Plan per Federal Regulations.



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d. During fuel or hazardous substance transfer, secondary containment or a surface liner must be placed under all container or vehicle fuel tank inlet and outlet points, hose connections, and hose ends. Appropriate spill response equipment, sufficient to respond to a spill of up to 5 gallons, must be on hand during any transfer or handling of fuel or hazardous substances. Trained personnel shall attend transfer operations at all times.	A.4.d. Mitigation measure is satisfied. All operations will be conducted in accordance with an ADEC approved C-Plan and SPCC Plan per Federal Regulations.
e. Vehicle refueling shall not occur within the annual floodplain, except as addressed and approved in the plan of operations. This measure does not apply to water-borne vessels.	A.4.e. Mitigation measure is satisfied. All operations will be conducted in accordance with an ADEC approved C-Plan and SPCC Plan per Federal Regulations.
f. All independent fuel and hazardous substance containers shall be marked with the contents and the lessee's or contractor's name using paint or a permanent label.	A.4.f. Mitigation measure is satisfied. All operations will be conducted in accordance with an ADEC approved C-Plan and SPCC Plan per Federal Regulations.
g. A freshwater aquifer monitoring well, and quarterly water quality monitoring, may be required down gradient of a permanent above-ground liquid hydrocarbon storage facility.	A.4.g. Mitigation measure is satisfied.
h. Waste from operations must be reduced, reused, or recycled to the maximum extent practicable. Garbage and domestic combustibles must be incinerated or disposed of at an approved site in accordance with 18 AAC 60. (See also Section B2, below.)	A.4.h. Mitigation measure is satisfied.
i. New solid waste disposal sites will not be approved or located on state property during the exploratory phase. Exceptions may be provided for drilling waste if the facility will comply with the applicable provisions of 18 AAC 60.	A.4.i. Mitigation measure is satisfied. Drilling waste storage and operation of a solid waste treatment facility will occur at the production site that will comply with provisions of 18 AAC 60.
j. Wherever practicable, the preferred method for disposal of muds and cuttings from oil and gas activities is by underground injection. Other methods of disposal shall be allowed only upon approval by the director, in consultation with ADEC and ADF&G.	A.4.j. Mitigation measure is satisfied. Underground injection is proposed for the operations.



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<b>5. Access</b>	
a. Public access to, or use of, the lease area may not be restricted except within the immediate vicinity of drill sites, buildings, and other related facilities. Areas of restricted access must be identified in the plan of operations. Lease facilities and operations shall not be located so as to block access to or along navigable or public waters as defined in AS 38.05.965.	A.5.a. Mitigation measure is satisfied. The production site is located on private lands and will be restricted for public access and use. There will be no blocked access to or along public waters.
<b>6. Prehistoric, Historic, and Archaeological Sites</b>	
a. Before the construction or placement of any gravel, or other structure, road, or facility resulting from exploration, development, or production activities, the lessee must conduct an inventory of prehistoric, historic, and archeological sites within the area affected by an activity. The inventory must include consideration of literature provided by the affected borough and local residents; documentation of oral history regarding prehistoric and historic uses of such sites; evidence of consultation with the Alaska Heritage Resources Survey and the National Register of Historic Places; and site surveys. The inventory must also include a detailed analysis of the effects that might result from the activity.	A.6.a. Mitigation measure is satisfied. All areas of the production pad have been cleared by a certified archaeologist. One site was identified a 2007 survey of the pad and that was inadvertently destroyed during the original pad construction (constructed by another operator). Additional surveys were conducted of the pad area in 2013 and 2014 and no new sites were identified..
b. The inventory of prehistoric, historic, and archeological sites must be submitted to the director, and to DPOR Office of History and Archaeology, who will coordinate with the affected borough for review and comment. If a prehistoric, historic, or archeological site or area could be adversely affected by a lease activity, the director, after consultation with DPOR Office of History and Archaeology and the affected borough, will direct the lessee as to the course of action to take to avoid or minimize adverse effects.	A.6.b. Mitigation measure is satisfied. The location details of the destroyed site were submitted to the Office of History and Archaeology. No new sites have been identified since that original report.
c. If a site, structure, or object of prehistoric, historic, or archaeological significance is discovered during lease operations, the lessee must report the discovery to the director as soon as possible. The lessee must make reasonable efforts to preserve and protect the discovered site, structure, or object from damage until the director, after consultation with DPOR Office of History and Archaeology and the affected borough, has directed the lessee as to the course of action to take for its preservation.	A.6.c. Mitigation measure is satisfied.



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7. Local Hire, Communication, and Training	
a. Lessees are encouraged to employ local and Alaska residents and contractors, to the extent they are available and qualified, for work performed in the lease area. Lessees shall submit, as part of the plan of operations, a proposal detailing the means by which the lessee will comply with the measure. The proposal must include a description of the operator's plans for partnering with local communities to recruit, hire, and train local and Alaska residents and contractors. The lessee is encouraged, in formulating this proposal, to coordinate with employment and training services offered by the State of Alaska and local communities to train and recruit employees from local communities.	A.7.a. Mitigation measure is satisfied. See Section XI.1 in the Application.
b. A plan of operations application must describe the lessee's past and prospective efforts to communicate with local communities and interested local community groups.	A.7.b. Mitigation measure is satisfied. See Section XI.2 in the Application.
c. A plan of operations application must include a training program for all personnel including contractors and subcontractors. The program must be designed to inform each person working on the project of environmental, social, and cultural concerns that relate to that person's job. The program must use methods to ensure that personnel understand and use techniques necessary to preserve geological, archeological, and biological resources. In addition, the program must be designed to help personnel increase their sensitivity and understanding of community values, customs, and lifestyles in areas where they will be operating.	A.7.c. Mitigation measure is satisfied. See Section XI.3 in the Application.



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## 8. Definitions

Facilities means any structure, equipment, or improvement to the surface, whether temporary or permanent, including, but not limited to, roads, pads, pits, pipelines, power lines, generators, utilities, airstrips, wells, compressors, drill rigs, camps and buildings.

Hazardous substance means: (A) an element or compound that, when it enters into or on the surface or subsurface land or water of the state, presents an imminent and substantial danger to the public health or welfare, or to fish, animals, vegetation, or any part of the natural habitat in which fish, animals, or wildlife may be found; or (B) a substance defined as a hazardous substance under 42 U.S.C. 9601 - 9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980); "hazardous substance" does not include uncontaminated crude oil or uncontaminated refined oil; (AS 46.09.900).

Identified wetlands are those areas that have been identified as wetlands by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.<sup>1</sup>

Minimize means to reduce adverse impacts to the smallest amount, extent, duration, size, or degree reasonable in light of the environmental, social, or economic costs of further reduction.

Plan of operations means a lease Plan of operations under 11 AAC 83.158 and a unit Plan of operations under 11 AAC 83.346.

Practicable means feasible in light of overall project purposes after considering cost, existing technology, and logistics of compliance with the standard.

Secondary containment means an impermeable diked area or portable impermeable containment structure capable of containing 110 percent of the volume of the largest independent container. Double walled tanks do not qualify as Secondary Containment unless an exception is granted for a particular tank.

Temporary means no more than 12 months.

<sup>1</sup> Wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR Parts 122.2, 230.3, and 232.2).





## UNIT PLAN OF OPERATIONS APPLICATION

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### APPENDIX C: OTHER

No other information is attached