



November 1, 2021

SPECIAL AREA PERMIT FH 21-SPO-044-SA

ISSUED: November 1, 2021
EXPIRES: Lifetime of Structure
/Completion of Restoration

Enric Fernandez
Donlin Gold
2525 C Street
Anchorage, AK 99503

RE: Compressor Station
Susitna Flats State Game Refuge
Pipeline Milepost 0.4
Sections 28, T 14 N, R 9 W, SM
Location: 61.2726 N, -150.9065 W

Dear Mr. Fernandez:

Pursuant to AS 16.20.036, AS 16.20.050, AS 16.20.060, and 5 AAC 95.400-.440, 5 AAC 95.510-.515, and 5 AAC 95.700-.990, the Alaska Department of Fish and Game (ADF&G), Habitat Section has reviewed your proposal for a natural gas compressor station within the Susitna Flats State Game Refuge (SFSGR).

Background Information

Donlin Gold, LLC (Donlin Gold) has proposed the construction of a 14-inch natural gas pipeline and fiber optic cable in conjunction with the Donlin Gold mine project in Southwest Alaska. The natural gas pipeline will connect to the existing ENSTAR 20-inch Beluga natural gas pipeline (BPL) within the SFSGR (point of origin) (Figure 1). From there it is routed west for approximately 315.9 miles to the proposed mine site. Donlin Gold has a separate natural gas pipeline right-of-way (ROW) lease (ADL 231908), which includes the footprint of this proposed

compressor station, and fiber optic cable easement (ADL 232368) for the portion of the project located on State of Alaska lands including within the SFSGR.

The pipeline is designed to operate at a maximum allowable operating pressure (MAOP) of 1,480 pounds per square inch gauge (psig) with a maximum throughput of approximately 76 million standard cubic feet per day (MMscfd) of natural gas (2.2 million normal cubic meters per day [Nm3pd]).

The pipeline will be regulated by the Pipeline and Hazardous Materials Safety Administration (PHMSA) of the U.S. Department of Transportation (DOT) under Title 49 of the Code of Federal Regulations, Part 192 – Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standards (49 CFR 192). The pipeline has been designed and will be constructed and operated in accordance with the applicable requirements of 49 CFR 192 and will incorporate launching and receiving facilities for in-line maintenance and inspection tools, main line valves, cathodic protection, leak detection, and a supervisory control and data acquisition (SCADA) system. A fiber optic cable will be installed along the pipeline route to the mine. The point of origin of the fiber optic cable and the requirement for, and location of a repeater station, will be determined during final engineering design and may require a separate Special Area Permit. The engineering design life of the proposed pipeline is 30 years.

Project Description

The proposed project includes the construction, operation and maintenance, and termination and final reclamation, of a granular fill structural foundation pad and compressor station within the SFSGR:

- The compressor station would be located at MP 0.4 on previously disturbed uplands adjacent to the existing Pretty Creek Road, which would provide access to the compressor station site (Figure 1).
- The compressor station site would be initially cleared and graded to establish a 2.65-acre area to support the compressor station construction (work pad). The cleared and graded area would be used to store construction equipment and materials, and for other construction-related activities as needed (Figure 2 & Figure 3).
- The compressor station facility would be constructed on a gravel pad approximately 150 feet by 450 feet (~ 1.61 acres), by 3 feet thick, located within the compressor station site. A 10-foot (3 meter) high chain link fence would surround the site for security purposes. Figure 2 and Figure 3 show the conceptual compressor station site plan, subject to final engineering design.

The compressor station will have two main components: natural gas compression machinery with after-coolers to reduce gas temperature following the compression process, and power generation machinery. Additional equipment necessary to support the compression process include systems to prevent overpressure and to provide rate, temperature, and pressure control, trouble alarms, emergency shutdown (ESD) systems, and fire and gas detection systems.

- In general, the compressor station will be comprised of:
 - Three (3) electric powered compressors (3 x 1,000 horsepower).
 - Three (3) fin-fan aftercoolers to reduce gas temperature following the compression process.
 - Power distribution center (PDC) module
 - Two (2) microturbine generators for power generation (a 100% unit with a 100% backup) for the compressor and metering operations, yard lighting, emergency lighting, and to provide for emergency uninterrupted power.
 - Fuel gas conditioning module.
 - Produced liquids handling module.
 - Additional equipment necessary to support the compression process include systems to prevent overpressure and to provide rate, temperature, and pressure control, trouble alarms, emergency shut down valves, and fire and gas detection systems.
 - Shop/warehouse building.
 - Pig launcher and receiver skids.

- The shop/warehouse building will be approximately a 20-foot by 25-foot, pre-engineered metal building on slab on grade, comprised of insulated metal panel walls and a roof. The building is intended to provide a nominal amount of storage for spare parts, tools, and other supplies for use in regular maintenance or making repairs to the mechanical equipment. There will also be sufficient workspace to allow maintenance personnel to perform repairs in an enclosed environment separate from the compressor and power distribution center modules. For efficiency, the shop/warehouse needs to be collocated on the compressor station pad.

- Facilities will be sited on the pad to comply with code-required occupancy separation and provide access to equipment within the buildings or modules. Snow drifting, snow removal, and emergency vehicle access will also be considered in the pad layout. A 20-foot buffer space will be maintained between the fence line and the outer wall of any building or module to provide vehicle access to the entire pad and to all sides of the facilities.

- Adequate drainage to prevent any flooding or standing water.

- An appropriate number and locations of light fixtures to illuminate all working areas of the yard. Where practicable, fully shielded light fixtures would be used to reduce potential light attraction to migratory birds.

- Compressor station components may be modularized to minimize onsite construction and commissioning work in remote locations. To accommodate environmental conditions, the generators and compressors will be placed inside buildings or modules to protect the units from the elements and to attenuate compressor noise. The foundations for the compressor station modules may include reinforced concrete slab on grade and/or steel piles having a minimum diameter of 12 inches and a minimum set depth of 25 feet.

- The fiber-optic communications cable would be routed to the compressor station along with the buried pipeline and continue to the Donlin Gold mine site with the pipeline.
- No provisions would be made for short- or long-term human occupancy at the compressor station site. The compressor station would be unmanned, with fully automated equipment operated by a remote-control system.
- Other design features include:
 - Siting of the compressor station site to allow access to an existing game/hunter trail on the northwest edge of the work pad. Public parking would be available along the northwest side of the compressor station.

Construction Activities

Overall Project Construction Schedule

Major activities by project year as defined in the Pipeline Construction Execution Plan include:

- Year 1 – Project sanction by owners, detailed engineering, award construction contracts, and place procurement orders for line pipe and other long lead materials.
- Year 2 – Pipe and contractor logistics. Mobilize and stage pipe and equipment in Bethel and Anchorage.
- Year 3 – Mobilize civil contractors. Begin clearing and grading ROW and compressor station site.
- Year 4 – Mobilize pipeline contractors. Begin laying pipeline and complete installation of compressor station.
- Year 5 – Complete pipeline construction and compressor and metering stations and pipeline testing and commissioning.
- Year 6+ – Complete ROW stabilization for operations phase.

Compressor Station Project Schedule

Compressor station construction activities would start during the spring and summer of Year 3 and be completed in Year 4. Pipeline fill and commissioning would occur in Year 5.

Year 3: Site preparation for the work pad would commence, including survey and staking, foreign utility line locates, and vegetation clearing. Ground disturbing activities would then proceed with grading and placement of granular fill to establish the work pad. Once established, the work pad would be used to store construction equipment and supplies. Off-site fabrication of compressor station modules would begin.

Year 4: Onsite construction of the compressor station is estimated to occur between September of Year 3 and July of Year 5.

Anticipated construction schedules may change if the design basis changes from modular to non-modular built.

Civil Works

Civil works for site preparation include vegetation clearing, organic layer stripping (where necessary), grading, and temporary erosion control.

Civil works for construction of the compressor station include transport and placement of fill material, grading, compacting, installation of building foundations and structures, erosion control, and restoration of cleared areas no longer needed.

Fill material to construct the compressor station pad would be sourced at material sites outside the SFSGR. Construction of the gravel pad would be followed by installation of foundations for the compressor station buildings or modules.

Facility Works

The current facility design includes modules placed on 12-inch-diameter piles, with a 0.5 inch-wall-thickness. The compressor station modules would be transported by truck, set on the installed piles, and secured into place. If the modular design concept is included in the final design, compressor building modules may be shipped in halves and spliced together at the site. The compressor skids will be transported separately and slid into the erected modules through an end door or panel. All piping spools will be shop-fabricated and will be field-fitted and welded into place on-site.

Construction equipment includes typical wheeled and track earth moving equipment (i.e., dozers, excavators), articulated trucks for civil work, pile drivers, and cranes.

Operation and Maintenance Activities

Personnel visits to the compressor station will occur as needed: site visits may range from weekly to monthly depending on activity. The compressor station site will be accessed via the existing Pretty Creek Road. However, access to the site by helicopter or snow machine may occasionally be required depending on weather and road conditions. Helicopter landings in the SFSGR require a separate Special Area Permit. No provisions will be made for short or long-term human occupancy at the site. The unmanned compressor station will be fully automated and controlled from a remote location. All operational and control parameter data will be transmitted to a control center. Exterior lighting would be on whenever ambient light levels fall below a predetermined limit. Exterior lighting will be supplied on the pad as required to provide minimum illumination for security monitoring using CCTV cameras, emergency egress, and general lighting when the pad is occupied. All exterior lighting will be connected to a lighting control panel interfaced for automatic control from a photocell, motion sensors, the PLC control cabinet for remote manual control, and an HOA (hand, off, and automatic- switch) for local manual control. All exterior lights will be directed downward with shielding to limit the amount of light being shed outside the compressor station footprint. Design lighting level for exterior lighting is 5 foot-candles.

Noise

The compressor station would be powered by natural gas combustion. Per your application, Mullins Acoustics (2013) found combustion compressors typically operate at about 87 decibels (acoustic) (dBA) at 100 feet. However, these noise levels would be abated by enclosing the compressors within a building structure, which would reduce predicted noise levels (at 100 feet)

to 48 dBA. The fin-fan coolers (not the enclosed compressors) would be the loudest noise source, with noise levels estimated to be 58 dBA at 100 feet, which would attenuate to 45 dBA at about 400 feet (Mullins Acoustics 2013).

The current compressor station layout includes two Capstone C200 microgenerators. These units are rated at 200 kilowatts (kW) with nominal acoustic emission ratings of 65 dBA at full output at a distance of 33 feet. These units are currently planned to be installed outside with no additional noise attenuation. Methods of noise attenuation, such as installation within a structure, could be considered as the design progresses.

Termination and Final Reclamation

A detailed Pipeline Abandonment Plan and Procedures would be developed prior to termination of pipeline operations. The Abandonment Plan and Procedures would be based on applicable regulatory requirements at the time and would be designed to minimize impacts to public and private property in coordination with the appropriate agencies and landowners unless required otherwise. The following are termination and final reclamation measures applicable to the portions of the compressor station site:

- The compressor modules, PDC module, fin-fan cooling skid, and transformers located at the compressor station site would be dismantled to units that are transportable and then trucked and barged to Anchorage where they would be further dismantled for salvage, recycling, or disposal as appropriate. All above grade pipeline structural facilities would be removed (e.g., block valves).
- All signs and markers would be removed.
- All fencing around facilities would be removed and transported off the refuge.

Previously disturbed areas will be reclaimed to the satisfaction of the Habitat Section.

A Special Area Permit for Termination and Final Reclamation activities will be applied for under a separate Special Area Permit Application.

Analysis

The Susitna Flats State Game Refuge was established pursuant to AS 16.20.036 to protect:

- (1) fish and wildlife habitat and populations, particularly waterfowl nesting, feeding and migration areas; moose calving areas; spring and fall bear feeding areas; salmon spawning and rearing habitats; and
- (2) public uses of fish and wildlife and their habitat, particularly waterfowl, moose and bear hunting; viewing; photography; and general public recreation in a high-quality environment.

AS 16.20.036, 5 AAC 95. 515, and the SFSGR Management Plan, adopted by reference in 5 AAC 95.510, allow for multiple land use activities within the refuge to be authorized by Special Area Permit if the activity provides for the proper protection of fish and wildlife resources.

5 AAC 95.430 provides that:

If the procedural requirements of 5 AAC 95.700 - 5 AAC 95.760 are met, the commissioner will permit a use or activity listed in 5 AAC 95.420 that meets or can be conditioned to meet the following standards:

- (1) the use or activity is consistent with the protection of fish and wildlife and their use, protection of fish and wildlife habitat, and the purpose for which the special area was established; and
- (2) the use or activity does not unduly restrict or interfere with the public use and enjoyment of the resource values for which the special area was established; and
- (3) any adverse effect upon fish and wildlife, and their habitats, and any restriction or interference with public use, is mitigated in accordance with 5 AAC 95.900.

Similarly, with respect to new utilities, the SFSGR management plan states: “New utilities may be allowed to cross the refuge where there is no feasible off-refuge alternative, using existing corridors wherever possible, consistent with refuge goals and objectives.”

Thus, for the compressor station facility to be located within the SFSGR, the project must meet these three criteria:

1. There is no feasible (practical) off-refuge alternative.
2. Project should use existing corridors wherever possible.
3. Project needs to be consistent with the refuge goals and objectives.

Based upon pre-application discussions, meetings, site visits, the permit application, and on a technical memorandum submitted on compressor station siting tradeoffs, ADF&G determines that this project meets these three criteria.

There is no feasible (practical) off-refuge alternative

Rationale for ADF&G determination that an off-refuge site is not practical include:

- A compressor station needs to be located near the pipeline point of origin which is in the SFSGR to provide enough pressure to get the gas to the mine site.
- There is no road leading outside of the SFSGR along the proposed pipeline route thus a compressor station off the SFSGR would require regular helicopter flights or snow machine trips across the SFSGR for regular maintenance and equipment replacement which could impact wildlife.
- Current proposed site in the SFSGR is in a previously disturbed abandoned material site. A compressor station outside the SFSGR would need to be adjacent to the SFSGR and in an undisturbed pristine location.
- Costs would be significantly higher to operate and maintain a compressor station outside of the SFSGR.

Project should use existing corridors wherever possible.

The project meets this criterion since it is located along Pretty Creek Road in a previously disturbed abandoned material site.

Project needs to be consistent with the refuge goals and objectives

ADF&G finds that the proposed project is consistent with the protection of fish and wildlife and their use, protection of fish and wildlife habitat, and is not expected to unduly restrict or interfere with the public use and enjoyment of the resource values for which the SFSGR was established.

Rationale includes:

- It is a relatively small footprint located in a previously disturbed abandoned material site
- It is located adjacent to wooded uplands a significant distance from ponds and waterfowl nesting and feeding habitat
- Noise and light mitigation measures are incorporated in the design
- Parking and access will be provided for an existing trail near the project site

The proposed project is not expected to adversely impact habitat values or fish and wildlife populations provided the project is built in accordance with submitted plans and specifications and the stipulations contained herein are strictly adhered to.

Pursuant to 5 AAC 95.710, your project is approved subject to the project description, the following stipulations, and the permit terms:

1. At this stage of design, a pipeline ROW Lease has been issued by DNR; however, detailed engineered drawings have not been completed and construction plans have not been finalized. Detailed engineered drawings must be developed, submitted and agreed upon with ADF&G in writing before any construction begins. We reserve the right to require additional mitigation depending on the specifics of the final scope. We encourage Donlin Gold to continue to involve ADF&G in the development process to ensure concurrence with the final scope and to continue to find ways to minimize the project footprint in SFSGR lands.
2. All construction activities within the SFSGR shall be confined to the natural gas pipeline right-of-way (ROW) lease (ADL 231908) and fiber optic cable easement (ADL 232368).
3. Except as needed during construction for safety of workers and the public, the authorized activity shall not unreasonably restrict or interfere with public access to or across state land, or to fish and wildlife resources.
4. Harassment of wildlife is prohibited.
5. Impacts to fish, wildlife, and their habitats shall be avoided and minimized to the maximum extent practicable.
6. No material shall be disposed of within the SFSGR.
7. No equipment leaking fuels, oils, hydraulic or cooling fluids shall be operated within the SFSGR.

Permit Terms

This letter constitutes a permit issued under the authority of AS 16.20.060 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Habitat Section; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Habitat Section and obtain written approval in the form of a permit amendment in accordance with 5 AAC 95.740 before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any provision contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Habitat Section. Therefore, we recommend you consult the Habitat Section immediately before considering any deviation from the approved plan.

You shall give an authorized representative of the state free and unobstructed access to the permit site, at safe and reasonable times, for the purpose of inspecting or monitoring compliance with any provision of this permit. You shall furnish whatever assistance and information the authorized representative reasonably requires for monitoring and inspection purposes.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. You shall mitigate any adverse effect upon fish or wildlife, their habitats, or any restriction or interference with public use that the commissioner determines was a direct result of your failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

Sincerely,

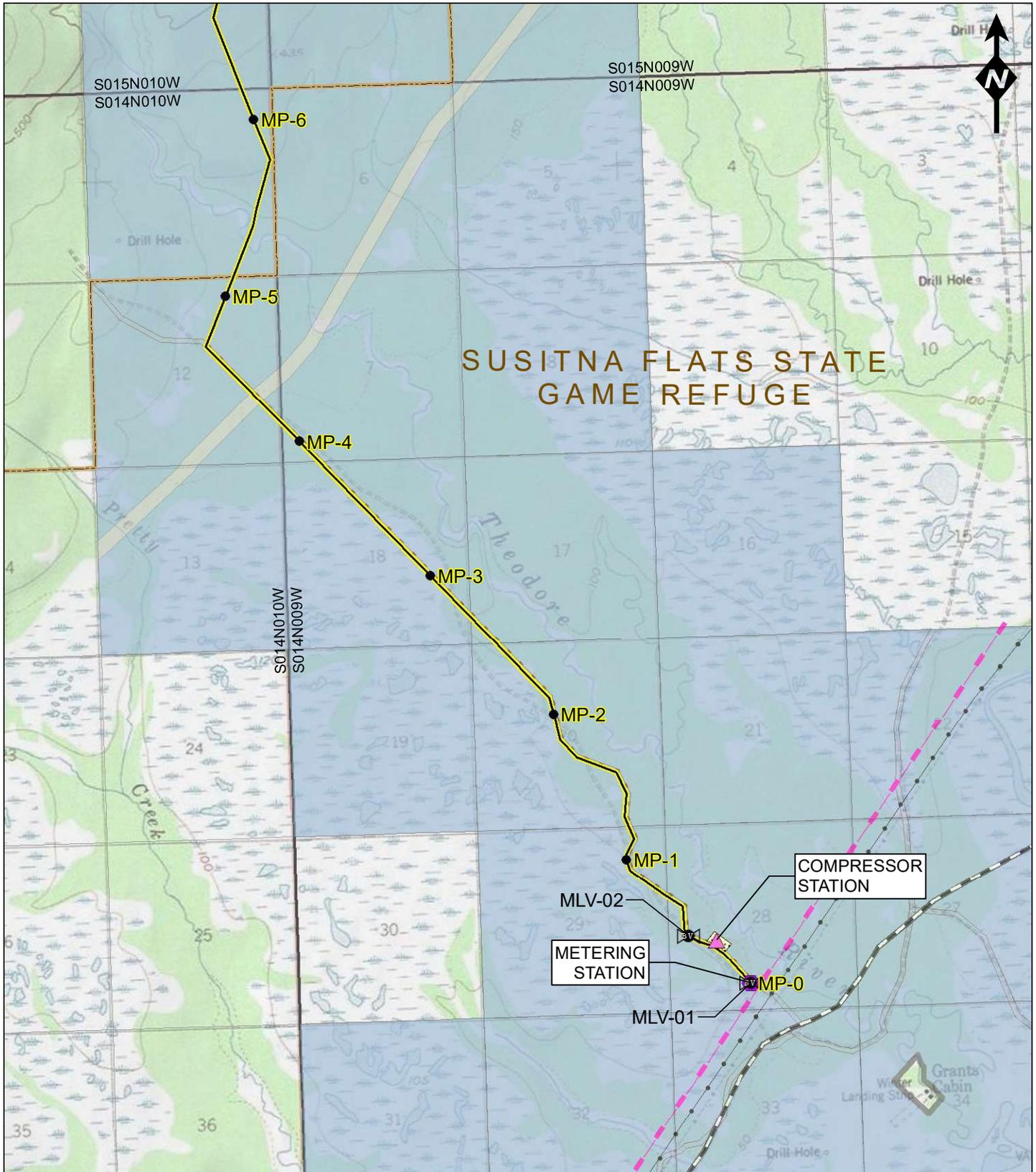
Doug Vincent-Lang
Commissioner



By: Lee McKinley
Habitat Biologist
ADF&G, Habitat Section
(907) 269-6411

Enclosures (3)

ecc: A. Strupulis, SPCS/ADNR
H. Lescanec, SPCS/ADNR
T. Sparks, BLM
K. Farley, SPCS/ADNR
J. Murrell, SPCS/ADNR
C. Heroy, OPMP/ADNR
A. Ott, ADF&G/Habitat
S. Myers, ADF&G/Habitat
R. Benkert, ADF&G/Habitat
A. Brase, ADF&G/Habitat
M. Wessel, ADF&G/Habitat
J. Meehan, ADF&G/WC
D. Hill, ADF&G/WC
D. Dahl, AWT
R. Lysdahl, AWT
T. Peltier, ADF&G/WC
S. Ivey, ADF&G/SF
M. Carter, ADF&G/WC



Legend

- Block Valve
- Compressor Station
- Metering Station
- Proposed Milepost (MP-)
- Proposed Natural Gas Pipeline Alignment
- Work Pad

- Beluga Gas Line, Alaska Pipeline Company
- Chugach Electric Assn. Inc. (Two transmission lines)
- Private Easement Application (20' wide, Cook Inlet Energy, LLC)
- Private Access Easement (20' wide, Hilcorp Alaska, LLC.)
- State-Identified RS 2477 Public Right-of-Way (Non-section line)

- Administrative Boundaries**
- Susitna Flats SGR
 - State-Owned,
 - Tentatively Approved (TA) or Patented Land



SUSITNA FLATS STATE GAME REFUGE PLANNED PIPELINE INFRASTRUCTURE
DONLIN GOLD PROJECT

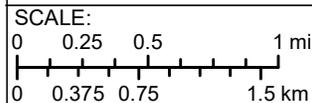


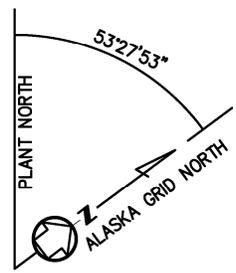
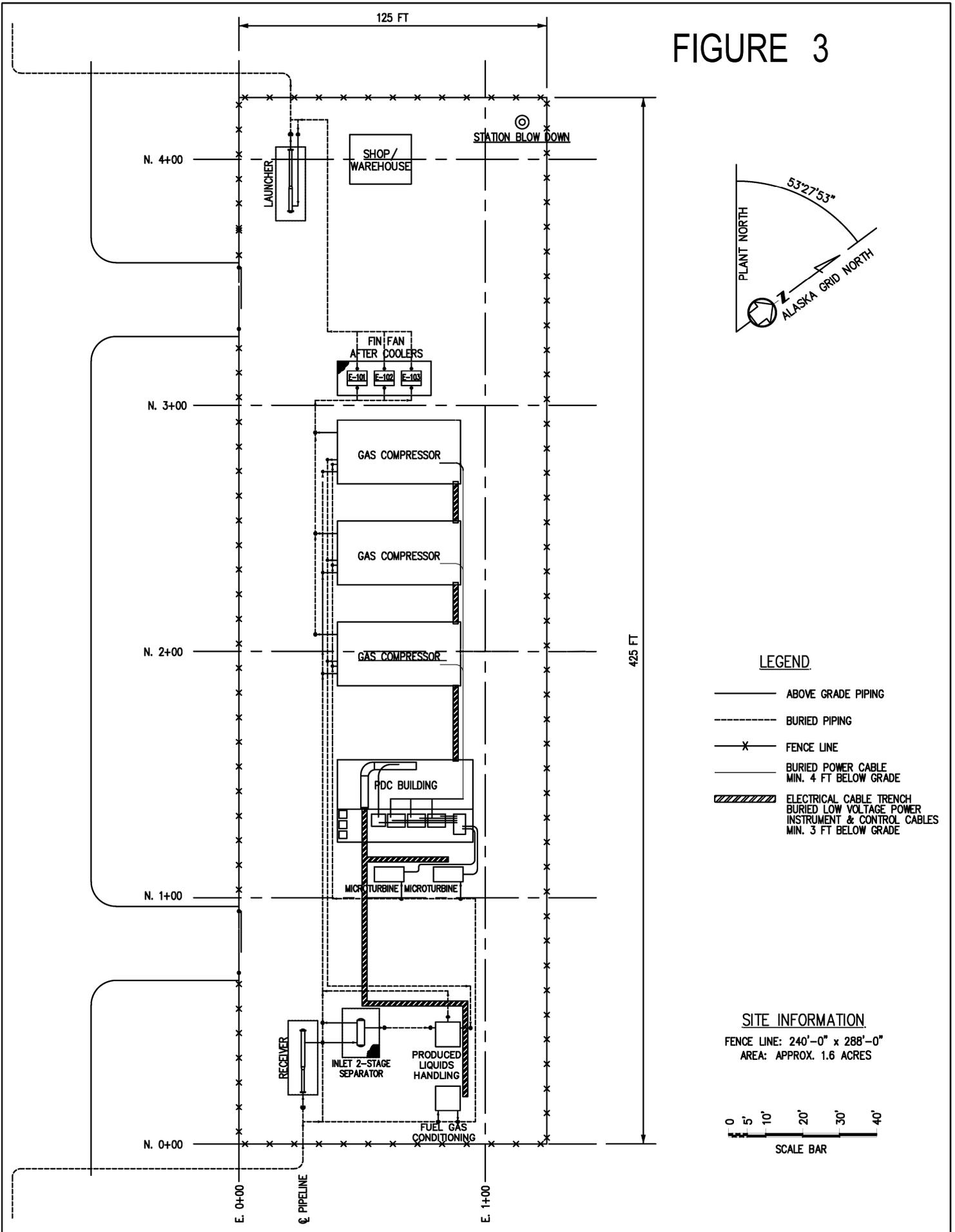
FIGURE:
1

CS: UTM Zone 5 NAD83



		<h3>Proposed Compressor Station Location</h3> <p>SEC 28, T14N, R9W, SM Theodore River Watershed (HUC10) DONLIN GOLD PROJECT</p>	
<p>SCALE:</p>		<p>FIGURE: Figure 2</p>	
<p>Proposed Compressor Station Layout</p> <ul style="list-style-type: none"> Milepost Proposed Pipeline and Fiber Optic Cable Alignment Countour 10-ft Wetland Mapping Extent Wetlands and Other Waters of the U.S. Estimated Clearing Limit 		<ul style="list-style-type: none"> Access Feature Compressor Coolers Fuel Gas Conditioning Receiver Launcher 	
<ul style="list-style-type: none"> Microturbine PDC Building Produced Liquid Supply Separator Shop/Warehouse Proposed Gravel Footprint 		<ul style="list-style-type: none"> Elevation Station Piping Pipeline Gate Fence 	

FIGURE 3



LEGEND

- ABOVE GRADE PIPING
- - - BURIED PIPING
- x FENCE LINE
- BURIED POWER CABLE
MIN. 4 FT BELOW GRADE
- ▨ ELECTRICAL CABLE TRENCH
BURIED LOW VOLTAGE POWER
INSTRUMENT & CONTROL CABLES
MIN. 3 FT BELOW GRADE

SITE INFORMATION

FENCE LINE: 240'-0" x 288'-0"
 AREA: APPROX. 1.6 ACRES

