June 26, 2014

Ms. Kim Kruse
Division of Oil and Gas
550 West 7th Avenue, Suite 1100
Anchorage, Alaska 99501-3577

Subject: **Usibelli Coal Mine, Inc.**
Healy Basin Gas-Only Exploration License Plan of Operations
2014 - 2015 Healy Creek Exploration Project

Dear Ms. Kruse:

Usibelli Coal Mine, Inc. (Usibelli) is planning to drill a coal bed methane - gas only exploration well on their Healy Basin Gas-only Lease at the Healy Creek Exploration Site #1 (Healy Creek Prospect), and is hereby submitting this License Plan of Operations Application and attachments for Usibelli's 2014 - 2015 Healy Creek Exploration Project. Details on the overall project can be found in the attached Plan of Operations, which explains all aspects of the project.

Included with this letter, please find:

- The Healy Basin Gas-Only Exploration License Plan of Operations for 2014 - 2015 Healy Creek Exploration Project, including:
  - Appendix A - Mitigation Measures Form
  - Appendix B - Rationale for Rational for exemption for Oil Discharge Prevention and Contingency Plan
  - Appendix C - UCM's Wildlife Interaction Plan
  - Appendix D - UCM Emergency Preparedness Plan
- Support permit application packet, including:
  - ADEC Treatment and Temporary Storage of Drilling Waste Plan
  - Copy of ADNR Temporary Water Use Permit Application for Healy Creek, Cripple Creek, and Hangar Pond
  - Copies of the ADF&G Title 16 Fish Habitat Permit for Healy Creek, Cripple Creek, and Hanger Pond
  - Copy of the ADF&G Public Safety Permit Application
- A check for the $250 non-refundable application fee, payable to "The State of Alaska-Department of Revenue"

Drilling operations are scheduled to begin early to mid-August and may run as late as October 31, 2014. Should you have any questions, please contact me, Charlotte MacCay, at 907-317-9449, or via email at cmaccay@owlridgenrc.com.

Sincerely,

Charlotte L. MacCay

Charlotte MacCay
Senior Permitting Manager for Owl Ridge NRC, and
Agent for Usibelli Coal Mine, Inc.

cc:

Mitch Usibelli: musibelli@comcast.net (Usibelli Energy, Inc.)

Enclosed:

1. The Healy Basin Gas-Only Exploration License Plan of Operations for 2014 - 2015 Healy Creek Exploration Project, including:
    - Appendix A - Mitigation Measures Form
    - Appendix B - Rational for exemption for Oil Discharge Prevention and Contingency Plan
    - Appendix C - UCM's Wildlife Interaction Plan
    - Appendix D - UCM's Emergency Preparedness Plan
2. Support permit application packed, including:
    - Treatment and Temporary Storage of Drilling Waste Plan
    - Copy of Temporary Water Use Permit Application for Healy Creek, Cripple Creek, and Hangar Pond;
    - Copies of the ADF&G Title 16 Fish Habitat Permit for Healy Creek, Cripple Creek, and Hanger Pond
    - Copy of the ADF&G Public Safety Permit Application
3. A check for the $250 non-refundable application fee, payable to "The State of Alaska- Department of Revenue"

Form DOG/PCU-11
May 2011

RETURN TO: Division of Oil and Gas
550 W 7th Avenue, Suite 800
Anchorage, AK 99501-3560

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

LEASE / UNIT* PLAN OF OPERATIONS APPLICATION

Applicant: Usibelli Coal Mine, Inc. Date: 06/16/2014

Contact Person: Charlotte MacCay Telephone #: (907) 344-3448 Fax # _____

Mailing Address: 6407 Brayton Dr., Suite 204, Anchorage, AK, 99507 E-mail Address: cmaccay@owlridgenrc.com

Is this activity within a Unit? NO Unit name: _____ Operator: _____

Is any part of the proposed project or activity discussed in the approved Unit Plan of Exploration or Development filed with the Division of Oil and Gas? ■ Yes ☐ No

If no, attach a detailed explanation.

The Applicant is: ☐ Unit Operator ■ Lessee* ☐ Tract Operator ☐ Other*: _____

Project Description: UCM proposes to conduct exploration activities for natural coal bed methane gas to power the existing coal mine and possible local use.

Project Location / Facility Name: Healy Basin Gas Only Exploration License - Healy Creek Exploration

ADL # (*mandatory*): 390606 Oil and Gas Bond #: In Process

Plan of Operations require a $250.00 permit fee; payable to the State of Alaska, Department of Revenue; and *should* accompany this application.

1. Plan of Operations: Healy Gas Only Exploration Plan of Operations is attached to this application.

   (Attach extra sheets if necessary, include applicable diagrams and drawings)

2. Surface Property Owner: State of Alaska, Alaska Railroad, Municipal, University of Alaska, Alaska Mental Health Authority

3. Legal Description: Section 16, Township 12S, Range 6W, Meridian Fairbanks
   Section _____, Township _____, Range _____, Meridian _____
   Decimal Degrees, NAD 83 Latitude N63 . 52' 22.3" Longitude W148 . 43' 40.1"
   (Include all necessary maps and use http://transition.fcc.gov/mb/audio/bickel/DDDMMSS-decimal.html)

4. Site Access: Existing roads

5. Proposed Start-up Date: 08/01/2014 6. Expected Completion Date: 10/31/2015

7. Project Material: None - no pad construction 8. Material Source: _____

   a) Amount: (pad) NA cy (road) NA cy (other) NA cy

   b) Acreage Covered: (pad) 0.5 (road) NA (other) NA

9. Snow Removal Plan: Summer Operations Only. Not Applicable.

*** Unit Plan of Operations approvals are not considered complete until the consent of the Unit Operator has been obtained by the applicant.**

10. Will Any Off-road (tundra or ice) Travel be Required? No

a) Period of Off-road Travel: NA

b) Equipment to be Utilized: NA

11. Will a Temporary Water Use Permit be Required? Yes.

a) Purpose: Drilling

b) Sources: Healy Creek, Cripple Creek, Hangar Pond

c) Access: existing road d) Max. Anticipated Withdrawal: 7000gal/day 100,000/yr

12. Will Fuel or Any Other Hazardous Substances be Stored on Site? None expected-refueled by fuel truck as needed

a) Type: Small amounts of oils and diesel - most fuel will arrive daily by truck for transfer to the equipment

b) Volume: < 1320 gallons

c) Handling Technique: Fuel transfers will include placement of secondary containment or a surface liner under all tank inlet and outlet points, hose connections and hose ends.

d) Access: Existing roads

e) Duration of Storage: 3 months

13. If a Pipeline is Being Constructed, will the line be a:

☐ Common Carrier Pipeline ☐ Field Gathering Line ☐ Other: _____

a) Location / Route: NA

b) Number, Diameter and Length: NA

c) Type and Use: NA

d) Construction Access: NA

14. Plan for Rehabilitation: ☒ Upon Abandonment ☐ Specific: *see attached plan*

15. Is Any Part of this Application Confidential? No

16. How will Solid Waste be Disposed of? Taken off site - See Plan of Operations Sect. 8

17. What Infrastructure will be Used to Support the Project? Existing roads

18. Additional Comments: See Plan of Operations

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

Charlotte L. MacCay	Manager, Permitting/Owl Ridge Consultants/Agent for UCM	06/16/2014
Signature	Title	Date

Please fill out the form, print it, and sign it.

LESSEE/SURFACE-OWNER INTERACTION

Statutes and regulation are explicit about how surface and subsurface owners and lessees shall interact; the subsurface estate is controlling. We have paraphrased here the relevant portions of AS 38.05.125 and AS 38.05.130 (a photocopy of the full text may be obtained by calling 269-8775):

> ***AS 38.05.125 Reservation.*** *(a) Each contract for the sale, lease or grant of state land, and each deed . . . is subject to the following reservation:*
>
> *". . . Alaska, hereby expressly saves . . . and reserves out of the grant . . . forever, all oils, gases, coal, ores, minerals, fissionable materials, geothermal resources, and fossils of every . . . kind . . . which may be in or upon said land . . . and the right to explore the same . . ., and it expressly saves and reserves . . . the right to enter . . . upon said land, . . . at any and all times for the purpose of opening, developing, drilling, and working mines or wells . . . and taking out and removing . . . oils [and] gases . . . and to that end it further expressly reserves . . . the right to erect, construct, maintain, and use all such buildings, machinery, roads, powerlines, and railroads, sink such shafts, drill such wells, remove such soil, and to remain on said land . . . for the foregoing purposes and to occupy as much of said land as may be necessary or convenient . . . expressly reserving to itself, its lessees, successors, and assigns, . . . all rights and powers in, to, and over said land . . . reasonably necessary or convenient to render beneficial and efficient the complete enjoyment of the property and rights hereby . . . reserved."*

That language is part of each deed awarded when the state transfers the surface estate; it retains the subsurface. The reservation includes the right to use the surface to develop the subsurface as well as to use existing facilities such as roads for the benefit of the entire state. Protection from damages is afforded surface owners at AS 38.05.130:

> ***AS 38.05.130 Damages and posting of bond.*** *Rights may not be exercised by the state, its lessees, successors or assigns under the reservation . . . [AS 38.05.125] . . . until the state, its lessees, successors, or assigns make provisions to pay the owners of the land full payment for all damages sustained . . . by reason of entering upon the land. If the owner refuses . . . to settle the damages, the state, its lessees, successors, assigns . . . may enter upon the land in the exercise of the reserved rights after posting a surety bond determined by the director, after notice and an opportunity to be heard, to be sufficient as to form, amount, and security to secure . . . payments for damages, and may institute legal proceedings . . . to determine to damages which the owner may suffer.*

In addition, there are general stipulations in the regulations at 11 AAC 96.140 that address the conduct of operations. Most relevant here is (10):

> *No person may engage in mineral exploratory activity on land, the surface of which has been granted or leased by the State of Alaska . . . until good-faith attempts have been made to agree with the surface owner . . . on settlement for damages . . .. If agreement cannot be reached, . . . operation may be commenced . . . only with specific approval of the director, and after making adequate provisions for full payment of any damages . . ..*

Healy Basin Gas-Only Exploration License

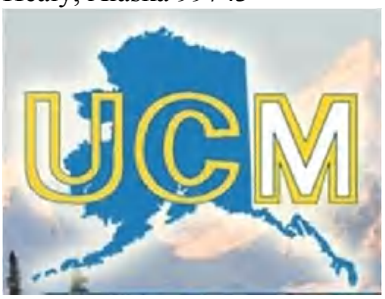
Plan of Operations for the 2014 - 2015

Healy Creek Exploration Project

June 2014

Prepared for

Usibelli Coal Mine, Inc.
P.O. Box 1000
Healy, Alaska 99743



Prepared by

Owl Ridge Natural Resource Consultants, Inc.
6407 Brayton Drive. Suite 204
Anchorage, Alaska 95507
T: 907.344.3448
F: 907.344.3445
www.owlridgenrc.com

OWL RIDGE
NATURAL RESOURCE CONSULTANTS

- Page Intentionally Left Blank -

TABLE OF CONTENTS

List of Tables

List of Figures

Appendices

- Page Intentionally Left Blank -

1. INTRODUCTION

1.1. Company Profile

Usibelli Coal Mine, Inc. (UCM), founded in 1943 by Emil Usibelli, is located in the mountains of the Alaska Range, near the town of Healy, Alaska. UCM is 115 miles south of Fairbanks and 250 miles north of Anchorage adjacent to the Parks Highway and Alaska Railroad.

UCM currently has a workforce of about 130 employees, and operates year-round. Mine production has grown from 10,000 tons in 1943 to an average above 2 million tons of coal per year. Currently, the only operational coal mine in Alaska, UCM is supported by the most modern mining equipment and state-of-the-art engineering. Today, UCM supplies coal to six Interior Alaska power plants and exports coal to Chile, South Korea and several other Pacific Rim destinations.

UCM sponsors many community events and activities, and through The Usibelli Foundation, funds numerous scholarships, and provides grants to more than 100 organizations annually.

Usibelli Energy, LLC was formed to explore and potentially produce coal bed methane (CBM) to provide energy for ongoing operations at the coal mine.

1.2. Exploration and Evaluation Program Summary

UCM is exploring for potential coal bed methane (CBM) sources to power its mining operations. CBM is a clean and efficient fuel that, if utilized by UCM, would reduce demand on the Alaska intertie power grid system. Use of this resource also provides the added benefit of capturing and utilizing methane gas that might otherwise escape to the atmosphere if or when future mining were to occur in these coal seams. If sufficient quantities are discovered to enable distribution of CBM gas to Southcentral utilities, UCM will investigate the logistical and permitting issues necessary for distribution at that time.

Actvities would consist of drilling exploration wells at a location referred to as Healy Creek Site #1. Exploration would continue for two summer seasons.The project includes all construction and other activities necessary to access, drill and flow-test one vertical exploration well, and is intended to determine the extent and magnitude of any CBM reserves present.

This proposal is in keeping with the state exploration licensing program's intent to encourage exploration in areas with relatively low or unknown hydrocarbon potential by targeting areas outside known oil and gas provinces. It is also compatible with the Tanana Basin Area Plan, which designates the license area for multiple use and allows for oil and gas leasing.

Details of the project are provided in the following sections.

1.3. Leased Property Location and Land Status

UCM proposes to conduct exploration activities for CBM on free and unencumbered state-owned mineral estates within the Fairbanks Meridian (Figures 1 and 2). The proposed exploration activities would take place on a 150 ft. by 150 ft. footprint on land located east of the Nenana River, approximately 7 miles east of the town of Healy.

1.3.1. Usibelli Gas-only License Area

The project area is a subsection of the the Usibelli gas only exploration license area that consists of 208,630 acres of land. The lands in this license area are a combination of state owned, privately owned, and municipality owned land. Only those free and unencumbered state-owned oil and gas mineral estates within the license area are actually included in the license. Some lands within the license area adjoin Denali National Park and Preserve. The Alaska Mental Health Trust Authority owns lands in the area as well, owning both the surface and mineral estates. UCM has excluded lands from the proposed project whose mineral estate is owned by the Alaska Railroad Corporation, the University of Alaska, and the Alaska Mental Health Trust Authority.

The proposed project is Healy Creek Site #1. The site is accessed by existing roads (see Figure 1). The site is within active coal UCM leases targeted for future mining.

Drill Pad Site Name	Latitude	Longitude	MTRS – Fairbanks Meridian
Healy Creek Site #1	N 63 52’ 22.3”	W 148 43’ 40.1”	T12S, R6W, Section 16

1.3.2. Tanana River Basin Plan

The Healy Basin CBM Exploration Project is entirely on state land, located within the Tanana River Basin Plan area, in the Denali Borough. The Tanana River Basin Plan defines these lands as multiple use and allow for gas and oil exploration in the area.

1.3.3. Denali Borough Ordinances

The site location meets Chapter 9.25 Denali Borough, Alaska Ordinance No. 08-07.

A. Prohibited Areas: The project is not located in any of the prohibited townships that lie west of the Parks Highway. The project is located in its entirety on the east side of the Parks Highway.

B. Setbacks: The drill pad is located approximately 3 to 4 miles from the closest private property thereby meeting the ordinance to be located at least 500 ft. from any recorded private property line. The setback for compressors to be located at least 1500 ft. from any private property line is not applicable to this project as this is strictly exploration drilling and compressors will not be operating.

C. Surface Use Agreements: This exploration project takes place on UCM coal leases. There are no surface use agreements required.

D. Regulations: The project will comply with all federal and state regulations.

1.3.4. Relative Distances of Interest

- 7.2 miles from the closest town, Healy, Alaska
- Approximately 3 – 4 miles to the closest residential land located near old Suntrana
- 6.7 miles from Golden Valley power plant (nearest Air Quality PSD facility)

- 7.9 miles from the closest boundary of Denali National Park & Preserve (nearest National Park and nearest Class I airshed)
- 6.4 miles east of the Nenana River

1.4. Topographic Features

The exploration license is located in an area with varied topography. South of Healy Creek are shallow moraine and outwash gravel terraces supporting low shrub and herbaceous tundra, backed by low foothills of the Alaska Range. To the northeast steep faces of a plateau rise above the Nenana River and Healy Creek and support coniferous and deciduous forest types alternating with large gravel slides (AIDEA 1991) Two active faults are located within the license area: the Healy fault and the Healy Creek fault (Reger *et al.* 2003). The Healy fault is approximately 7 miles from the Healy Creek site and 5.8 miles form the Cripple Creek site. The Healy Creek Fault is approximately 1.5 miles form the Healy Creek Site.

The proposed project area is underlain by discontiuous permafrost. Only minor permafrost problems have been encountered in the project area. Melting of ice pockets in soil during the relatively warm summer months has resulted in localized slumps (Merritt 1985).

1.5. Geophysical Hazards

There are no geophysical hazards in the area that are of concern to the exploration drilling.

1.6. Access

The proposed project requires no access agreements and no new road construction. The area was previously mined by UCM in the 1950s and again in the 1970s. It lies within one of the most historical and active mineral exploration and production areas in the state. Accordingly, the proposed exploration project will utilize previously disturbed lands within UCM mining leases. In particular, previously permitted coal exploration access roads and trails that lead from the town of UCM to Healy Creek Site #1 and to all proposed water withdrawal sources will be used for this project. The route avoids the town of Healy and other residential neighborhoods. While some of these roads and trails have not been used in recent years, they have been maintained for coal exploration access and will provide suitable access for this project.

Use of the existing infrastructure and the avoidance of off-road travel will minimize impacts to the environment as there will be no new ground disturbance. There is no expected off-road travel. Dust will be controlled, as needed, by watering roads.

Cross county travelers, including subsistence hunters, may travel in the general area, but the well sites will be closed to ensure public and worker safety. Signs will be posted at the well sites to alert visitors they have approached a secure work site.

2. CBM CHARACTERISTICS AND POTENTIAL

CBM is the same compound as the methane that makes up the primary component in natural gas. CBM is created by microbial action or through coalification (the thermal process where coal is exposed to increasing heat and increasing burial depth, over time). Coal seams provide both the source and reservoir (a

hydrocarbon reservoir is permeable rock that has been geologically sealed at the correct time to form a "trap.") for the methane.

Coal has a large internal surface area that allows it to store large volumes of methane-rich gas, up to 500 cubic ft per ton. This is six or seven times more gas storage capacity than a conventional natural gas reservoir of equal rock volume. To be able to collect the methane, a coal seam must have fractures that provide sufficient permeability for gas migration. Generally, a coal seam is saturated with water and water pressure that holds the methane in the coal;by removing some of the water, the formation pressure is reduced allowing the methane gas to be released.

The potential for hydrocarbons requires source rocks that are organic rich sediments such as marine shale, sandstone, or limestone, which have been buried for a sufficient time and with sufficient temperature and pressure to form hydrocarbons. The Healy Basin has high potential for shallow biogenic CBM gas. The presence of sandstones and a significant volume of subbituminous C rank coal within the license area and adjacent sedimentary basins supports the potential for CBM gas. Locally generated thermogenic methane may be located near Oligocene to Paleocene igneous intrusions. Possible, but less likely, is the presence of thermogenic natural gas that has migrated up-dip from the deeper Middle Tanana Basin into shallow stratigraphic traps within the license area. There is a low probability of the presence of oil. [footnote this whole paragraph to the Healy Basin Gas Only Exploration License, Final Finding of the Director, Alaska Department of Natural Resources Division of Oil and Gas, June 28, 2010.

The Healy Creek and the Cripple Creek sites have been chosen as exploration sites due to the presence of coal seams and accessibility.

3. SCHEDULE

2014

- The project is scheduled to begin after trail maintenance for coal exploration occurs in the spring of 2014 (with brush clearing to be completed prior to April 15 to avoid impacts on migratory birds, ravens and raptors).
- Pending construction activities, drilling will begin in early August and run through October of 2014.
- Preliminary tests for gas presence will be run on water samples from the exploration well.
- Demobilization from the 2014 season is scheduled for September to October 2014. Clean up and reclamation will be completed by October 31,2014.

2015

- During the summer of 2015, additional testing will be conducted and 1-3 additional exploration wells may be drilled, dependent on the results from the 2014 program.
- Demobilization from the 2015 season is scheduled for early September 2015.
- Clean up and reclamation will be completed by October 31, 2015.

4. ROAD AND PAD CONSTRUCTION

4.1. Preparation of Existing Main Access Road

Construction will begin after road and trail maintenance for coal exploration has been completed opening access to Healy Creek Site #1. An existing UCM Land Use permit covers road maintenance activities.

Brush removal will be conducted in accordance with U. S. Fish and Wildlife (FWS) Migratory Bird Act guidelines for the Interior Region. Clearing activities will not be conducted between May 1 and July 15,in areas of raptor and raven cliffs, clearing activities will not be conducted between April 15 and August 1. Seabird colony avoidance guidelines are only applicable to terns and gulls in this area; there are no known tern or gull colonies near the roads or exploration sites. There are no known bald eagle nests in the area. If any active nests are located, FWS National Bald Eagle Management guidelines for a buffer zone of 660 ft. will be applied around the nest between February 1 and when the birds have fledged (up to approximately October 15). Clearing activity will be avoided within the buffer zone during that time period unless it is impracticable to avoid such activity in which case UCM may apply for a takings permit.

4.2. Construction of Well Pad

The well pads for both the 2014 and 2015 programs will be staked by the project engineer on an existing fill area previously used as an airstrip within active coal UCM leases targeted for future mining. The pad will be a minimum of 500 ft from Healy and Cripple creeks. Because CBM exploration only requires drilling to shallow depths, a small drill will be used resulting in a smaller drill pad than constructed for conventional gas exploration will suffice. The finished pad dimension will be 150 ft. by 150 ft. Clearing for the pad will be minimal due to its location on a pre-existing airstrip - approximately 0.5 acres. Pad surface course will be existing gravels. A cross-section of the well pad design can be seen in Figure 3.

The completed well pad will contain: A drill rig,and associated support facilities, temporary waste storage, water tank, and parking. Figure 4 shows the well pad lay-out for a typical drilling rig.

4.3. Material Sites

No material borrow pits or land lease sales will be necessary during this project. Road and drill pads will use *in situ* materials (primarily gravel and sand) for road and pad improvements.

4.4. Staging and Parking Areas

During construction and mobilization, crews, equipment and fuel will be staged at existing pads and infrastructure.

4.5. Stream Crossings

Travel will occur on existing roads, trails, and bridges; no new stream crossings will be required.

4.6. Water Supply for Construction

Minimal water will be required for construction. If needed it will be accessed from the same permitted sources to be used for drilling operations (see Section 5.2).

4.7. Construction Equipment

TABLE 1: LIST OF CONSTRUCTION EQUIPMENT AND USES

Equipment	Units	Anticipated Use
Caterpillar 16G Grader: 54,560 lb. total weight	1	Trail and pad maintenance
Caterpillar D6 Dozer: 41,159 lb. total weight	1	Trail and pad maintenance

5. DRILLING OPERATIONS

The drilling system will either be a truck mounted rotary drill rig or a truck or skid-mounted diamond drill rig.

The rotary system will consist of a least three and up to five modules. The primary drill rig with tower setup will be accompanied by a drill rod, casing and tool truck, a mud circulation system truck and other support vehicles. Each truck module will weigh between 40 and 60,000 lbs.

The diamond drill, if used, will come in three modules: the drill rig itself which is typically skid mounted will arrive on a flatbed and be deployed within the pad by cat or loader. The drill will be accompanied by a rod sloop (or rod and casing truck). Tools, pumps and ancillary gear will arrive on a third truck. The mud system will either be included on the tool truck or be provided by a separate subcontractor. The vehicle weights will vary between 20 and 50,000 pounds.

5.1. Drilling Activity

One vertical exploration well will be drilled on an previously disturbed lands on an abandoned airstrip at Healy Creek Site #1. The drilling rig will either be a rotary system or a diamond drill. Water-based muds will be used. An additional 1 – 3 holes may be drilled on the same airstrip in 2015 based on 2014 drilling results.

5.1.1. Rotary Drill Rig System

The rig will set a 9 5/8 in. conductor to a depth of approximately 100 ft. or set a conductor through the unconsolidated overburden and 40 ft. into the underlying Tertiary sandstone. The conductor will be cemented to the surface and pressure tested. The wellhead and diverter systems, along with any other well control requirements imposed within the AOGCC Permit to Drill, will be installed and tested. The drill hole will be advanced using an 8 ¾ in. bit to a total depth (TD) of 1500 ft. The drill will stop prior to or at each coal bed, rig up for coring and core through each individual bed. Cutting samples will be collected every 10 ft. throughout the drilling process. Mud logging and gas detection will occur throughout the drilling. Samples of the coalbed core will be inserted in desorption cannisters for later analysis and water samples will be obtained. A rig geologist will log all core. After installation of 7 in.casing and cementing and testing a water pump test may be completed followed by the installation of monitoring tube(s) to the lowest coal horizon.

5.1.2. Diamond Drill Rig

A diamond drill rig will set a conductor to approximately 100 ft. as above. The conductor hole will be between 7 in. and 8.5 in. in diameter followed by installation of a 4.4 in. specified casing. The casing will be cemented and pressure tested. Wellhead and diverter systems will be installed, along with any other well control systems listed within the AOGCC Permit to Drill, and tested. Drilling will then proceed using HQ drill rod with an outside diameter of 3.5 in. producing a continuous core of all sediments of 2.5 in. in diameter. All coal beds will be continuously cored and a water sample obtained. Cutting samples will be collected every 10 ft. throughout the drilling process. All core will boxed, labelled and stored. Mud logging and gas detection will occur throughout the drilling. Samples of the coalbed core will be inserted in desorption canisters for later analysis and water samples will be obtained. A rig geologist will log all core. At TD (approximately 1500 ft.) the drill hole will be entirely plugged with Type G cement and abandoned to Alaska Oil and Gas Conservation Commission (AOGCC) specification.The well may either be plugged and abandoned at the end of the 2014 season, or the well may be completed
with casing to allow a test depressuring program in 2015. An additional 1-3 wells may also be drilled in 2015. The 2015 drilling program will be more fully determined after results from the 2014 program have been reviewed.

5.2. Water Supply

Water requirements for the exploration program will be approximately 10,000 gallons per day if a rotary drill rig is used, and approximately 7,000 gpd if a diamond drill rig is used. The heaviest water requirement during exploration will be approximately 20,000 gallons per day. Water will be provided through withdrawal of permitted surface water sources and a existing water well. See Figure 5.

Water sources for the Healy Creek Site #1 will include the following sources that are in close proximity to the project. Temporary Water Use Permits application are being submitted for these sites:

- Healy Creek
- Cripple Creek
- UCM Hangar Pond

In addition, contingency water supply sources include previously permitted sites that are currently used by UCM for the mining operations:

- UCM Camp Well
- UCM shop/office complex
- Poker Creek

Water intake pipes used to remove water from fish bearing water bodies will be surrounded by a screened enclosure to prevent fish entrainment and impingement. Screen mesh size will be no greater than 1 mm (0.04 in) unless another size has been approved by ADF&G. The maximum water velocity at the surface of the screen enclosure may be no greater than 0.1 ft per second unless an alternative velocity has been approved by ADF&G.

5.3. Drilling Equipment

Equipment	Units	Anticipated Use
Diamond Drill Rig Equipment		
Diamond Drill Rig, truck mounted, capable of PQ size drill road and casing. Includes: • Primary diesel power engine • Hydraulic power pack and pumps • Hydraulic manifold and hose layout, • Derrick and winch lines • Hydraulic power head • Foot clamps • Leveling jacks • Control panel and operator station • Optional rod handling equipment	1	CBM exploration drilling
Drill Road and Tool Truck. Includes: • 2500 ft. of HQ and/or PQ drill string • Downhole tool string including all wireline coring equipment • Regular tools • Engine lubricants • Ancillary equipment including generators, trash pumps, hose	1	Support exploration drill
Mud System – truck mounted. Includes: • Cleaning system • Temporary waste storage	1	Support exploration drill
Cement/cement pumping system – may be a separate truck or part of the mud system. Includes: • Cement and additive products • Tanks and mixing apparatus • Pumps and filtration gear	1	Support exploration drill
Mud - Rotary Drill Rig Equipment		
Drill rig on one or two trucks depending on load out and mobilization requirements: Includes: • Diesel engine power • Tower and winches with rod handling apparatus • On board hydraulic system and manifold • Compressor • Primary water pumps • Controls and operator stations	1	CBM exploration drilling
Drill rod and handling truck. Includes: • Drill rod bits and tools • Power for crane and handler	1	Support exploration drill
Casing delivery/storage truck – usually a forty ft. flatbed truck	1	Support exploration drill
Mud system truck. Includes:	1	Support exploration drill

Equipment	Units	Anticipated Use
• Pumps • Tanks • Filtration • Cleaning • Temporary storage of drill fluids and waste		
Cement truck. Includes: • Product • Pumps • Tanks • Mixing • Recirculation systems • Delivery hose • Hardware	1	Support exploration drill
Coring rig-up placed on truck or flatbed trailer. Includes: • Core inner and outer barrels with bits • Reamer • Tools • Rod grease	1	Support exploration drill
Crane Truck	1	May be used at the beginning or the end of the season for setting up or breaking down the mud rotary drill
General Equipment for Either Drill		
Pick up, Suburban, or similar vehicle	2-3	Crew transport
Grader	1	Occasional use
Front Loader	1	Occasional use
Caterpillar D-6 or similar equipment	1	Occasional use
Water storage tank	1	Support drilling operations

6. FUEL STORAGE AND HANDLING

6.1. Drilling Related Hydrocarbons

Drilling for CBM, due to its shallow depths and the associated rock formations, has negligible risk for encountering hydrocarbons that could add to fuel storage requirements.

6.2. Fuel Storage

Heavy equipment, such as trucks, tracked vehicles, and tank trucks, commonly use diesel fuel, gasoline, motor oil, hydraulic fluid, antifreeze, and other lubricants. Minimal fuel and oils will be stored at the exploration site, all vehicles will be fueled at the Usibelli Coal Mine. A fuel truck form the mine will travel to the site as needed to fuel the drill and other equipment. The Usibelli Coal Mine has an existing Spill Prevention Control and Countermeasures Plan (SPCC) that provides for appropriate storage containers and secondary containment.

If it becomes necessary to store small amounts of fuel on site, all fuel containers will be stored in secondary containment, shall be marked with the contents and the lessee's or contractor's name using paint or a permanent label. There will be less than 1320 gallons of fuel and oils stored on site.

6.3. Fuel Transfers

During fuel transfers, secondary containment or a surface liner will 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 five gallons, will be on hand during any transfer or handling of fuel or hazardous substances. Trained personnel will attend transfer operations at all times.

6.4. Spills

Spills or leaks could result from accidents or from corrosion of lines on the vehicles. UCM will provide prevention and containment measures to minimize the potential for fuel spill impacts such as routine equipment inspections and spill response kits in vehicles and equipment.

TABLE 2: STORED FUELS AND PETROLEUM FLUIDS FOR CONSTRUCTION AND EXPLORATION WELL PROGRAM.

Substance	Volume	Storage Container
Diesel Fuel	Fuel will not be stored on site. Fuel will be stored at UCM and trucked to site for refueling as needed.	See UCM SPCC
Oils, Greases etc. required for drilling rig maintenance	Varies	Hydrocarbon products stored at UCM's drill or camp sites will be stored in designated fuel storage areas with secondary containment features capable of containing 110% of the largest container.

7. HAZARDOUS SUBSTANCES

Hazardous substances stored at UCM's drill or camp sites will be stored in designated storage areas with secondary containment features capable of containing 110% of the largest container. Hazardous substances shall not be stored within 100 feet of a waterbody, or within 1,500 feet of a current surface drinking water source.

All hazardous substance containers will be stored in secondary containment, shall be marked with the contents and the lessee's or contractor's name using paint or a permanent label.

UCM will maintain Material Safety Data Sheet (MSDS) information on any hazardous substances currently used by UCM at facilities within the license area. UCM will ensure the emergency services director, and local fire service area office is provided information concerning the use or transport of any hazardous substances associated with exploration and development. UCM will post the contact name and phone number from whom interested persons can obtain information regarding any hazardous materials used at the drill site or facility. The post will be located at the Healy Creek Exploration site.

8. WASTE TYPES, SOURCES AND DISPOSAL METHODS

All contractors and personnel on the project will be required to use waste minimization and recycling practices. Environmentally friendly products will be used to reduce waste whenever practicable.

8.1. Waste Types and Sources

8.1.1. Construction Wastes

Wastes generated by construction will include:

- Woody debris and brush
- Potential for small petroleum spills from construction equipment may produce oily rags, absorbent pads and materials, and small volumes of contaminated soils

8.1.2. Drilling Wastes

Wastes generated from drilling activity will include:

- Drill Cuttings:
  - Rotary drill will generate approximately 100-400 bbls. of cuttings, possibly more if caving occurs.
  - Diamond drill will generate approximately 600 gallons (10 bbls.) of waste cuttings, the remained is permanently stored as core.
- Drilling fluids and mud –
  - Rotary drill – will generate approximately 600 bbls. of water based muds.
  - Diamond Drill – will generate approximately 200 bbls. of water based muds.
- Cement
  - Rotary Drill – will generate approximately 100 bbls. of cement, most cement will remain in the well.
  - Diamond Drill – will generate approximately 25 bbls. of cement.
- Potential for small petroleum spills from drilling equipment may produce oily rags, absorbent pads and materials, and contaminated soils

8.1.3. General Wastes

Workers will be housed in the town of Healy so general wastes will be limited to:

- Sewage
- General refuse
- Batteries
- Metal

- Wood
- Grey Water

8.2. Waste Handling and Disposal

Solid waste would be classified, segregated, and labeled as general refuse (inert wastes), Resource Conservation and Recovery Act (RCRA) exempt, or RCRA (hazardous) wastes. Waste management activities will be recorded with proper manifestation for transport and off-site disposal, as described in the following sections. Management includes keeping the appropriate state agencies informed on waste transport and off-site disposal.

8.2.1. Inert Wastes

Solid wastes will be temporarily stored in transfer storage containers on the drill pad prior to disposal. Solid, non-burnable wastes would be deposited into large dumpsters located at the drill pad. Any food wastes that could attract wildlife will be stored in enclosed containers.

Inert waste will be transported to the UCM permitted waste disposal site located on Alaska Coal Leases ADL #20633 and #21545. UCM has held a Class II monofill solid waste disposal permit for inert wastes at the Poker Flats mining area since 1980 (#0531-BA001), or another appropriate landfill.

Specific disposal may include:

- Food wastes will not be an issue for this project. There are no camp facilities. All food wastes will be stored in closed containers and removed daily
- Woody debris and brush from road clearing will either be mulched and distributed at site, stacked to the side of the road, or hauled to the UCM landfill.
- Cement will solidify at site, and then be broken into manageable pieces and hauled to the UCM landfill
- Metal, wood, paper and other general inert waste will be transported to the UCM landfill.

8.2.2. RCRA Exempt Drilling Wastes

RCRA exempt drilling wastes include formational waters, completion brines, drilling muds and cuttings. To ensure that sound oilfield practices are followed, UCM will maintain downhole mud properties and volumes, and maintain the quantities of basic mud material on site. Chemical testing will characterize the wastes in order to determine their final and appropriate disposal in accordance with an ADEC Temporary Waste Disposal Plan.

8.2.2.1. Production Water

Production water will be stored until drilling is completed and re-injected into the same formation.

8.2.2.2. Muds and Drill Cuttings

During the drilling operations, drilling fluids and mud, and drill cuttings will be circulated to the surface. Muds will be stored in vertical metal tanks, and cuttings will be stored in open topped metal boxes. Muds

will be added to the cuttings boxes for the solidification process, drilling wastes will be tested to determine the appropriate disposal location.

Muds and cuttings that have been analyzed as non-impacted by petroleum will be treated to bind the liquids as needed, and will be suitable for disposal at the UCM class II landfill. UCM will obtain a temporary treatment facility permit from ADEC prior to treatment and disposal.

Muds and cuttings that have been analyzed to be petroleum impacted will be disposed of at Organic Incineration Technology, Inc. (OIT); an ADEC-certified organic incinerator located 66 miles north of Nenana in North Pole or at the AIMM facility in Kenai. These wastes will either be hauled away in vacuum trucks, durable cuttings totes, or train cars to ADEC-approved disposal facilities. The transportation vehicles will be covered and abide by all DOT&PF requirements while traveling to existing and approved disposal facilities and will ensure that all hook-up lines are firmly secured and flow valves are fully closed during transportation of wastes.

8.2.3. RCRA Hazardous Wastes

8.2.3.1. Identification of RCRA Hazardous Wastes

For the project, hazardous materials are defined as any substance, pollutant, or contaminant listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) on 1980, and other hazardous wastes are defined as any substance listed under the RCRA of 1976. The terms do not include petroleum, including diesel oil (or any fraction thereof) that is not otherwise specifically listed or designated as a hazardous substance under CERCLA Section 101(14), 423 USC 9601(14); nor do the terms include natural gas.

Hazardous materials used, produced, transported, or stored on or within the project facilities during construction and drilling operations would be limited to batteries. Hazardous material stored on the well pad location will be placed as far removed from the drilling rig activities as practicable. They will be situated within a secondary containment diked and lined area that is capable of containing 110% cumulative stored fluid or hazardous materials should a release occur.

Hazardous materials shall be packaged and returned to the vendor for recycling. If for any reason that is not possible they will be transported to an approved disposal/treatment facility such as Emerald Alaska, Inc., OIT or other approved disposal/treatment facilities in accordance with applicable regulations.

8.2.4. Wastewater

Produced wastewater will be temporarily stored in a prefabricated 500-barrel produced water storage tank that will be located at the well site. Stored wastewater which cannot be recycled for muds, will be re-injected back into the same formation at the end of the project.

8.2.5. Summary of Waste Handling

A list of Hazardous and non-hazardous wastes complete with waste management and disposal programs is provided in Table 3.

TABLE 3: HAZARDOUS AND NON-HAZARDOUS WASTE MANAGEMENT AND DISPOSAL

Type	Source Activity	Handling	Management Notes
Hazardous Wastes			
Batteries	Construction, Drilling and Production	Separate and place in designated hazardous waste containers	Lead acid batteries are returned to vendors.
Non-Hazardous Wastes			
Metal	Construction, Drilling and Production	Segregate, package, crush, and palletize	Recycled with scrap metal. Equipment filters that are not recyclable are hot drained and crushed prior to disposal in the UCM landfill
Combustibles (paper, cardboard, wood)	Construction, Drilling and Production	Reduce volume by compacting	Package and transport to UCM Landfill
Oily Waste Rags, Spill Absorbent Pads	Construction, Drilling and Production	Separate and store in designated containers	Transport to an approved waste disposal site such as Emerald Alaska or OIC
Litter	Construction, Drilling and Production	Containerize (in sealed boxes or plastic garbage bags)	Collect litter on an as-needed basis to maintain the site in an orderly condition. Transport offsite for disposal at the UCM Landfill
Propylene glycol	Production	Store in 50-gallon drums within secondary containment	Dispose at appropriate facility or recycle for reuse
Drill Cuttings and Muds	Drilling	Muds stored in vertical metal tanks Cuttings stored in open topped metal boxes	Dispose in UCM landfill if pass analytical tests, or at the North Pole Organic Incinerator or AIMM facility in Kenai.
Production Water	Drilling	Stored in tanks	Recycled for drilling muds or dust control and/or reinjection into the formation at the end of drilling

9. CONTINGENCY PLANS

9.1. Oil Spill Prevention and Response

The exploration license is a gas only exploration license because there is little likelihood of any oil reserves in the license area. Consequently, there is little likelihood of an oil spill. ADEC administers and enforces laws and regulations related to oil spill prevention and cleanup contingency plans. To ensure that a contingency plan is not required for a well, ADEC requires AOGCC to make a determination that the exploration wells will not penetrate a formation capable of flowing oil to the ground surface (AS 46.04.050; AS 31.05.030(l)). If that determination cannot be made, the licensee is required to have an approved oil discharge prevention and contingency plan (C Plan) and determination of financial responsibility prior to commencing operations. UCM does not anticipate the need for a C-Plan, based on the shallow depth of drilling and the rock formations in the area. UCM has requested a determination of exemption from AOGCC, but will obtain an approved plan if required.

9.2. SPCC

All equipment will be fueled offsite at the Usibelli Coal Mine under UCM's existing SPCC plan. Petroleum products stored on site will be limited to oils and greases for drill maintenance. There will be less than 1320 gallons of petroleum stored at the exploration site and therefore no SPCC will be required.

9.3. Wildlife Interaction Plan

Wildlife that could be in the area during construction includes moose, caribou, Dall sheep, waterfowl, shorebirds, raptors, owls, passerines, red foxes, wolves, bears and other furbearers.

Project personnel will be instructed not to feed wildlife of any type or in any other way attempt to attract them either at the drill site or on the access road. Food will be kept inside buildings or covered containers that minimize odors. Hazardous materials will be kept in drums or other secure containers.

UCM has developed a Wildlife Avoidance and Interaction Plan to account for the above-mentioned issues and more. A copy of it is included **Appendix C**.

9.4. Emergency Preparedness

An Emergency Preparedness Plan is provided as an appendix to the Lease Plan of Operations.

Emergency Contacts are:

- GM Alan Renshaw 907 322-5587
- Safety Dave Talerico 907 750-1698
- VP Eng. Fred Wallis 907 460-4092
- Prod. Manager Roger Speer 907 978-1364
- Maintenance Manager Bill Graham 907 460-2044

Roads to the site will allow access of emergency equipment –Emergency Equipment available includes the Tri-Valley Volunteer Fire Department: Fire and the UCM Recue team and equipment.

9.5. Construction & Operations Personnel Accommodations

9.5.1. Personnel Housing

The drill rig crew (approximately eight to 12 persons) and other associated personell will be lodged at near-by hotels. No camp will be used for this project.

9.6. Drinking Water

Drinking water will be brought in tanks from a commercial source in the town of Healy or from the Usibelli Coal Mine operations. Bottled drinking water may also be provided throughout construction and exploration activities.

9.7. Grey Water and Sewage

Sewage and grey water will be transported off site to an appropriate disposal facility.

9.8. Employee Access

All personnel and equipment transfers will occur using the proposed road access. Employees will be transported to work in a company truck, suburban, or similar vehicle. It is not anticipated that the use of any aircraft will be needed to support the construction or operation of the project.

9.9. Local Hire

UCM, its contractors, and subcontractors will work with the Denali Borough communities in identifying qualified individuals interested in working on this project.

10.COMMUNITY RELATIONS

10.1. Public Communications

Public meetings and/or public notices will be used to present the Plan of Operations for the exploratory drilling project to affected stakeholders. Additional information regarding updates, changes, or modifications to the project will be provided in a timely manner. Effective communication will limit risk and build good relationships within the project area, the Denali Borough and statewide.

UCM has informed the Denali Borough Mayor, Clay Walker, and the Denali Borough Assembly about the Healy Creek Coal Bed Methane Exploration Project. Assembly meeting and public presentations are under consideration for scheduling.

The ADNR Lease Plan of Operations and land use permits will also include a public review period to allow the community opportunity to review and comment on the exploration project.

10.2. Training

As required by the borough mitigation measures, a training program for all project personnel, including contractors and subcontractors will address environmental, social, and cultural concerns that relate to that person's job. The program will use methods to ensure that personnel understand and use techniques necessary to preserve geological, archeological, and biological resources. The program will be designed to help personnel increase their sensitivity and understanding of community values, customs, and lifestyles in areas where they will be operating; due to the location on historical and active mining leases the training will focus on subsistence and recreational use within the area.

The UCM training program includes UCM safety training, and wildlife interaction and avoidance training.

11.SITE CLOSURE, RESTORATION AND MONITORING

The closure and reclamation plans for the facilities constructed in association with the project are dependent upon the testing results, and economic viability of the exploratory wells.

Should results obtained from the testing of the well indicate that a well is viable for economic profitability; the appropriate regulatory permit submissions for development and operations will be completed.

If results of well testing deem otherwise, then development activities are not necessary and UCM will reclaim infrastructure at the well pad after discussions with ADNR are conducted and restoration activities prescribed. Site reclamation would occur to the satisfaction of the lead regulatory body.

12. PERMIT REQUIREMENTS

The project will require numerous federal, state, and local permits, plans and approvals from the following agencies/organizations.

TABLE 4: UCM CBM EXPLORATION PERMITS AND APPROVALS

Agency	Permit	Direct Use	Regulation
Alaska Oil and Gas Conservation Commission (AOGCC)	Permit to Drill	Drilling of two exploratory wells	Before drilling a well, re-drilling a well, or re-entering an abandoned well a Permit To Drill or Sundry Notice must be approved.
Alaska Department of Fish and Game (ADF&G)	Title 16 Fish Habitat & Special Areas Permit	Water for drilling, dust control	Permits are required water withdrawal from fish-bearing streams.
	Public Safety Permit	Potential need to haze fox near camp facilities	Permit is required for hazing brown bears using non-lethal means and for hazing of red foxes and arctic foxes using lethal & non-lethal means.
	Wildlife Interaction Plan	Drill site	Avoidance, hazing, disposal of carcasses at drilling operations
Alaska Department of Natural Resources (ADNR) Division of Oil and GAS	Authorization to Conduct Activities (Plan of Operation Approval)	All exploration activity	A Plan of Operations that describes proposed exploration activities must be submitted and approved to authorize activities. Also includes a Plan of Operations application and a Mitigation Measure Analysis.
	Statewide Oil & Gas Bond	Covers the E&E program	A bond must be posted before exploring or developing a state oil and gas lease.
Alaska Department of Natural Resources (ADNR) Division of Mining, Land, and Water	Temporary Water Use Permit	Water for drilling, dust control	Required to withdraw water on a temporary (up to 5 years) basis.
Alaska Department of Environmental Conservation (ADEC)	Temporary Treatment and Storage of Drilling Waste	Production of drill muds, cuttings, and wastewater	Allows temporary on-site storage of drilling waste for treatment and final disposal in existing North Slope facilities
	Air Quality Minor Permit (MG1)	Drill air emissions	Permit required for minor air emissions associated with portable oil and gas units.
	Exemption for Oil Discharge Prevention and Contingency Plan	Fuel storage in addition to drill operations	ODPCP/C-Plan is required to drill into sub-surface structures potentially containing hydrocarbons. Obtain exemption for coal bed methane drilling

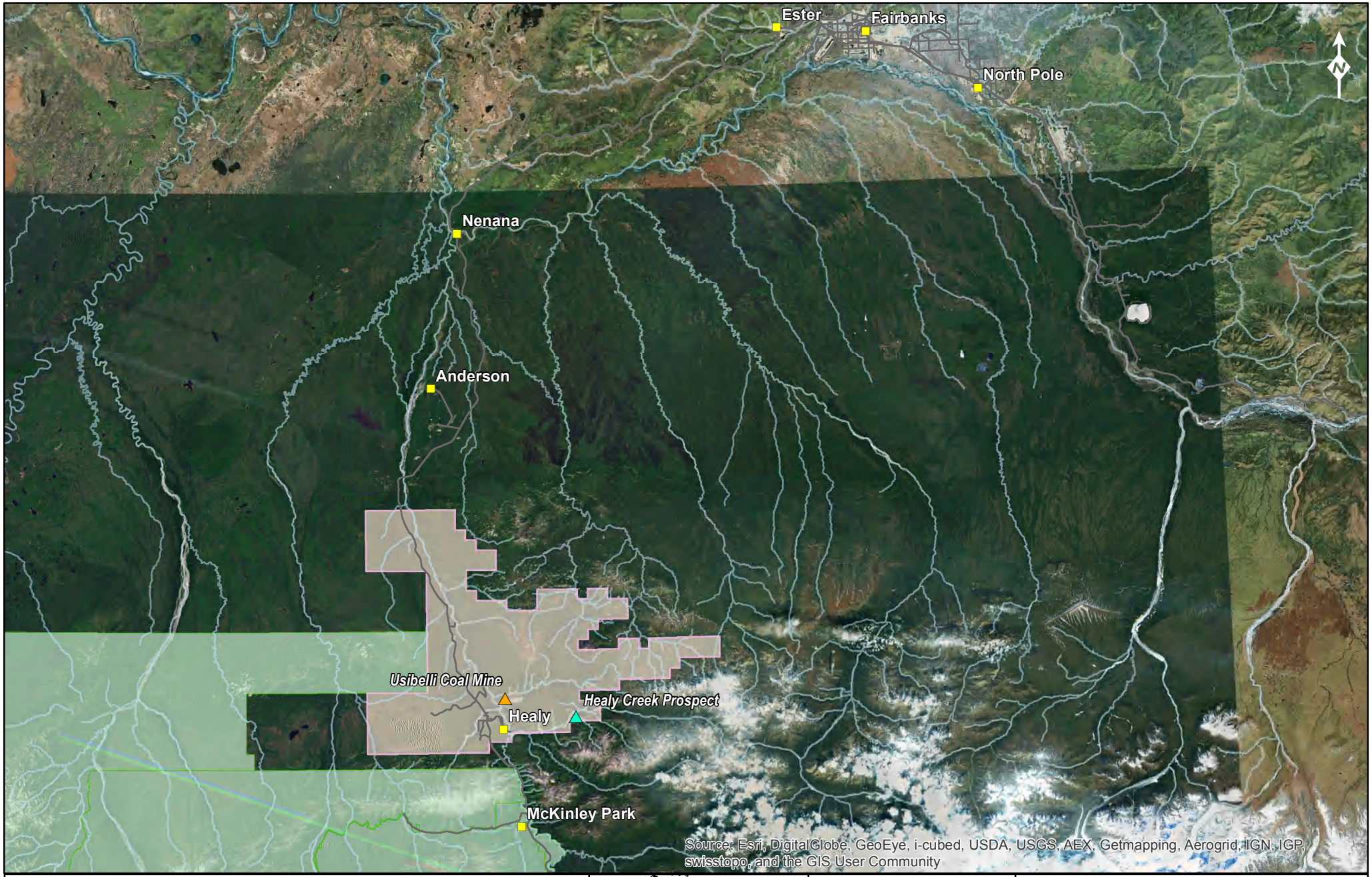
13.RESPONSIBLE PARTIES

TABLE 5: RESPONSIBLE PARTIES FOR THE DEVELOPMENT OF 2014 HEALY CREEK EXPLORATION PROJECT.

Name	Company	Responsibility	Contact
Mitch Usibelli	Usibelli Coal Mine P.O. Box 1000 Healy, Alaska 99743	Operations and Reporting	Phone:
Charlotte MacCay	Owl Ridge Natural Resource Consultants, Inc. 6407 Brayton Dr., Suite 400 Anchorage, Alaska 99507	Permitting	Phone: (907)344-3448 cmaccay@owlridgenrc.com

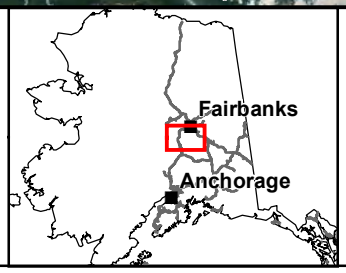
FIGURES

- Page Intentionally Left Blank -



Legend

- Healy Creek Prospect
- Usibelli Coal Mine
- Towns
- Roads
- Healy Lease Area
- Denali National Park



Usibelli Coal Mine, Inc

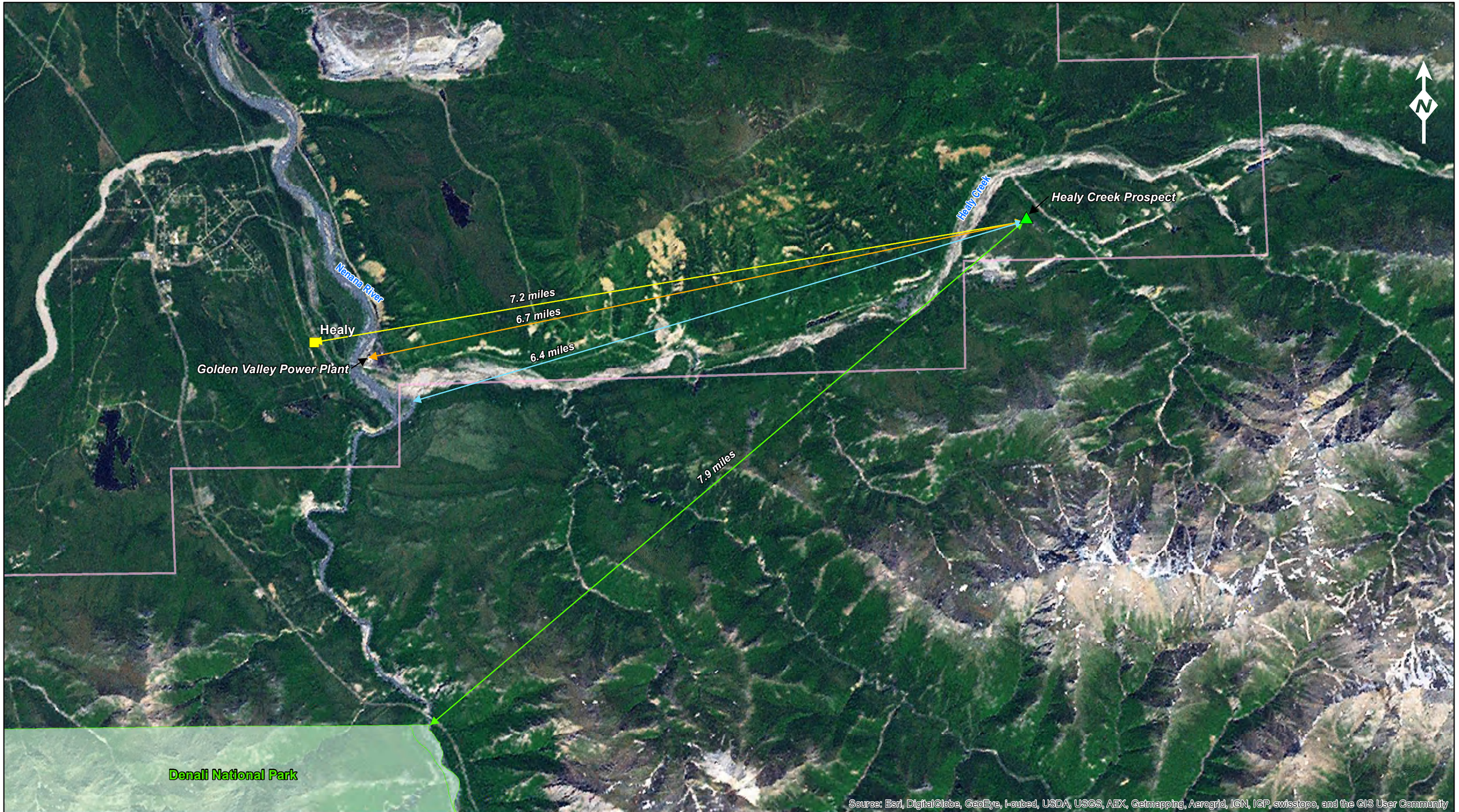
Healy Basin
Gas-Only Exploration License
Healy Creek Exploration Project
Plan of Operations for 2014/2015

0 5 10 20 Miles
0 5 10 20 Kilometers

Figure #: **1**

USIBELLI: USI001, 06/23/14, R05

- Page Intentionally Left Blank -



Legend

- Healy Creek Prospect
- Towns
- Healy Lease Area
- Denali National Park

Distance From Prospect

- Healy
- Golden Valley Power Plant
- Nenana River
- Denali National Park

Usibelli Coal Mine, Inc.

Healy Basin
Gas-Only Exploration License
Healy Creek Exploration Project
Plan of Operations for 2014/2015

Healy Creek Prospect Distances

0 0.35 0.7 1.4 Miles
0 0.475 0.95 1.9 Kilometers

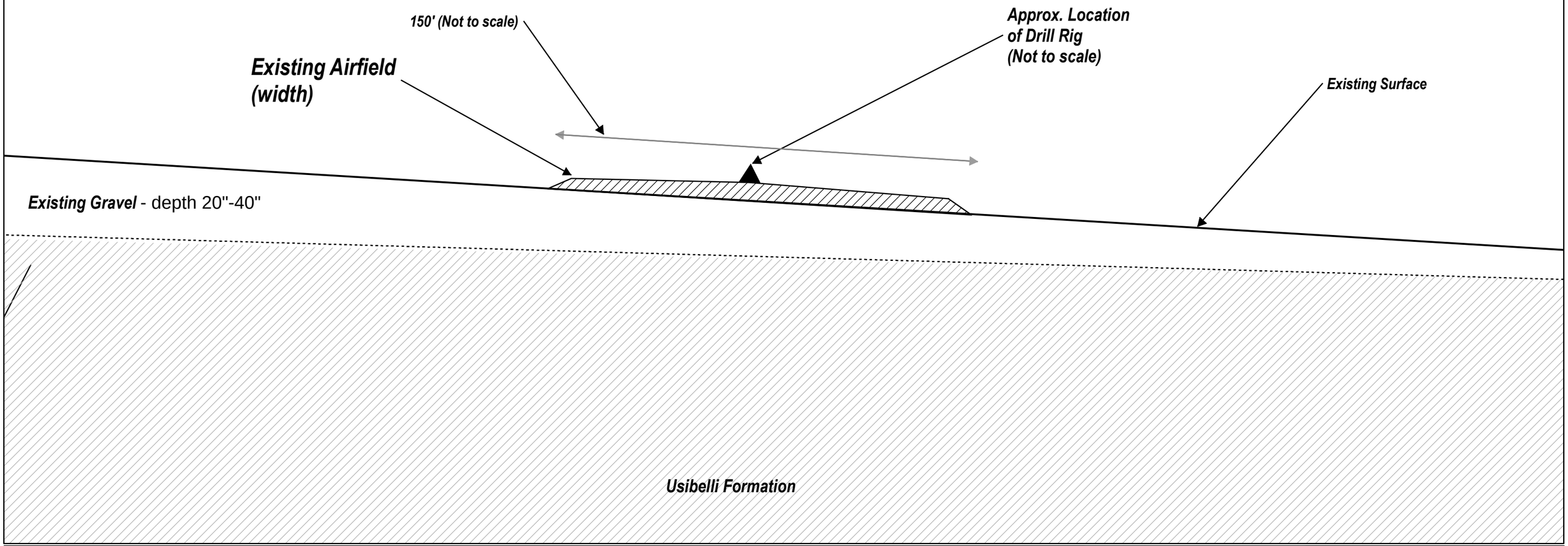
Figure #: **2**

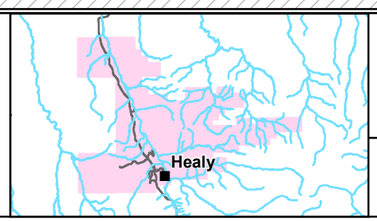
USIBELLI: USI004, 06/23/14, R03

- Page Intentionally Left Blank -

South

North





Usibelli Coal Mine, Inc.

Healy Basin Gas-Only License
Healy Creek Exploration Project
Drill Rig Pad Cross Section

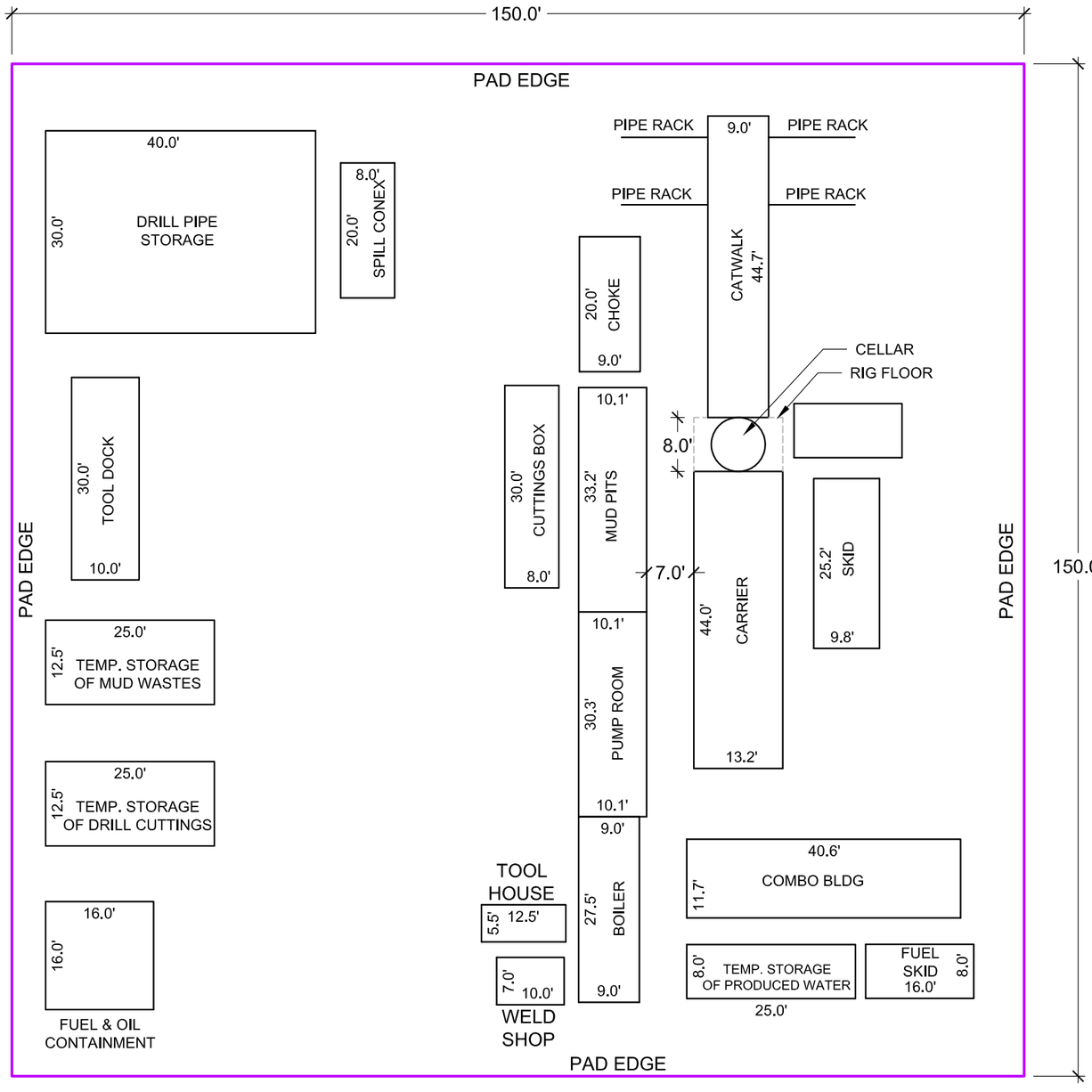
Figure #: **3**

- Page Intentionally Left Blank -

SCALE

0 20 40

FEET



REV	DATE	DESCRIPTION	BY
1	6/2014	SUBMITTAL	BGB

USIBELLI COAL MINE, INC.
HEALY BASIN GAS-ONLY LICENSE
HEALY CREEK EXPLORATION PROGRAM

JOB NO. 143087

FIELD BOOK NO. -

FIELD WORK DATE: -

McLANE Consulting Inc

ENGINEERING - TESTING
SURVEYING - MAPPING
P.O. BOX 468
SOLDOTNA, AK. 99669
VOICE: (907) 283-4218
FAX: (907) 283-3265
WWW.MCLANECG.COM

DRAWN BY: BGB

CHECKED BY: SAM

HORZ. SCALE: 1" = 20'

VERT. SCALE: -

SHEET: 4

- Page Intentionally Left Blank -

F011S007W31 F011S007W32 F011S007W33 F011S007W34 F011S007W35 F011S007W36 F011S006W31 F011S006W32 F011S006W33 F011S006W34

Hoseanna Creek

UCM Shop/Office Complex Wells

F012S007W06 F012S007W05 F012S007W04 F012S007W03 F012S007W02 F012S007W01 F012S006W06 F012S006W05 F012S006W04 F012S006W03

Poker Creek

F012S007W07 F012S007W08 F012S007W09 F012S007W10 F012S007W11 F012S007W12 F012S006W07 F012S006W08 F012S006W09 F012S006W10

Cripple Creek

Healy Creek Prospect

F012S007W18 F012S007W17 F012S007W16 F012S007W15 F012S007W14 F012S007W13 F012S006W18 F012S006W17 F012S006W16 F012S006W15

Nenana River
(COD#: 334-40-11000-2490-3200)

Nenana River

Healy Creek

F012S007W19 F012S007W20 F012S007W21 F012S007W22 F012S007W23 F012S007W24 F012S006W19 F012S006W20 F012S006W21 F012S006W22

Hanger Pond

UCM Camp

Healy

Healy Creek

F012S007W26 F012S007W25 F012S006W30 F012S006W29 F012S006W28 F012S006W27

Healy Creek
(COD#: 334-40-11000-2490-4091)

Moody Creek
(COD#: 334-40-11000-2490-3200-4091-5102)

F012S007W30 F012S007W29 F012S007W28 F012S007W27 F012S007W35 F012S006W32 F012S006W33 F012S006W34

Legend

- Towns
- Water Transport Routes
- Healy Lease Area
- Anadromous Streams

Water Sources

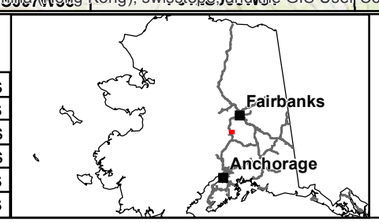
- Proposed
- Permitted

Water Use Locations

- Potential CBM Drill Site

Water Transport Distances to Healy Creek Prospect

Cripple Creek	0.63 miles
Healy Creek	1.25 miles
UCM Camp	2.07 miles
Hanger Pond	2.58 miles
Poker Creek	9.95 miles
UCM Shop/Office	11.23 miles



Usibelli Coal Mine, Inc.

Healy Basin
Gas-Only Exploration License
Healy Creek Exploration Project
Plan of Operations for 2014/2015
Healy Creek Potential Water Source Locations

0 0.225 0.45 0.9 Miles
0 0.3 0.6 1.2 Kilometers

Figure #: 5

USIBELLI: USI009, 06/23/14, R03

- Page Intentionally Left Blank -

APPENDIX A

Mitigation Measures Form

- Page Intentionally Left Blank -

Alaska Department of Natural Resources
Division of Oil & Gas
550 W 7th Ave. Suite 800
Anchorage, Alaska 99501

Revised: February 11, 2014

MITIGATION MEASURE ANALYSIS: HEALY BASIN

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.

HEALY BASIN A. Mitigation Measures 1. Facilities and Operations	Company Response
a. A plan of operations must describe the licensee's plans to minimize impacts on residential, commercial, and recreational areas. At the time of application, licensees must submit a copy of the proposed plan of operations to all surface owners whose property will be entered, and to all owners of surface lands within ½-mile of the proposed work site who can be reasonably identified and located based on records at the state Recorder's office and the borough tax records. A plan of operations application must include several elements, in addition to those required per regulation, as described below: i. Identification of any geophysical hazards in the area of operations, and related siting, design, and construction measures for minimizing damage and promoting safety. ii. Analysis of road and access issues associated with site development, including, at a minimum: • The adequacy of existing access to the site; • Route plans for heavy equipment and trucks to avoid rural residences and other sensitive areas to the greatest extent possible; • Whether dust control measures are necessary. In such instances, the use of non-toxic dust control measures will be used; • The estimated number of site visits by vehicle; • Measures to minimize damage to the surface for approved off-road access, including limiting use during inclement weather and wet ground conditions;	A.1.a. **Mitigation Measure Satisfied**: A Plan of Operations has been developed. The plan will be submitted to all surface owner within ½ mile of proposed work. A.1.a.i. **Mitigation Measure Not Applicable** There are no geophysical hazards identified fort his area A.1.a.ii **Mitigation Measure Satisfied** • Existing mining roads and trail are adequate to provide access to the site. • The route avoids the town of Healy and any residential neighborhoods. • If dust control is needed, roads will be treated by spraying them with water. • Estimated number of site visits by vehicle are less than 20 per day. • There is no expected off-road travel

• Measures to minimize the need for new road development, and to ensure that construction of new roads minimizes surface impacts by following existing grades, minimizing cuts and fills, and minimizing habitat fragmentation; • Measures to allow for access by emergency response personnel; and, • Consideration of public access granted under RS 2477 and other established rights-of-way. iii. Measures to control soil erosion and sedimentation during all activities associated with exploration and development.	• New road development should not be necessary. • Emergency response vehicles will be able to access the site using the existing roads. • Right-of-way rights will be considered if applicable. A1.a.iii. **Mitigation Measure Satisfied** By using pre-existing roads and pads, and by placing the pad the project is not disturbing new land or creating conditions that increase erosion. The pad will be placed at least 500 ft. from Heal and Cripple creeks to prevent sedimentation.
iv. An emergency preparedness and response plan which addresses explosions, fires, gas, or water pipeline leaks or ruptures, earthquake or flood events, or hazardous material spills. The plan must include, at a minimum: • Contact names and phone numbers of at least two persons responsible for emergency field operations; • Plans for annual or periodic training/drills for response personnel; • Annual review for necessary updates; • A copy of the plan will be provided to the area's emergency responders.	A.1.a.iv. **Mitigation Measure Satisfied** An Emergency Preparedness Plan is provided as an appendix to the Lease Plan of Operations. Emergency Contacts are: • GM Alan Renshaw 907 322-5587 • Safety Dave Talerico 907 750-1698 • VP Eng. Fred Wallis 907 460-4092 • Prod. Mgr. Roger Speer 907 978-1364 • Mtce. Mgr. Bill Graham 907 460-2044 Roads to the site will allow access of emergency equipment –Emergency Equipment available includes the Tri-Valley Volunteer Fire Department –

	14 pieces of equipment – 16 volunteers: Fire, EMS, Rescue for the Denali Borough and UCM Recue team and equipment
v. A monitoring plan will be tailored to the specific situation and potential impacts of proposed activities. In approving a monitoring plan, ADNR will consider the following factors: • Whether the activities are for exploration or development; • Potential impacts to water quality and quantity; • Potential noise or visual impacts; • Magnitude of proposed ground disturbance; • Proximity to sensitive habitats or use areas; and, • Potential impact to fish or wildlife populations.	A.1.a.v. **Mitigation Measure Not Applicable** UCM proposed that a monitoring plan is not necessary. There are no new ground disturbances, surface discharges, or disposal of muds or cuttings at the site. This is a single exploration well, being drilled on leased mining lands approximately 6.5 miles from the closest town The project does not threaten the surrounding water quality, fish, or wildlife, nor should it present noise or visual impacts to the public.
vi. Identification of the components in any hydraulic fracturing materials to be used, the volume and depths at which such materials are expected to be used, and the volume capacity of the vessels to be used to store such materials. No diesel-based fracturing materials may be used.	A.1.a.vi. **Mitigation Measure Not Applicable** There are no proposed hydraulic fracturing activities for this project.
vii. If surface disposal of produced water is proposed, a water management plan providing detailed information on the location, amounts, and potential impacts associated with the disposal is required. Surface disposal of produced water will not be allowed unless ADEC determines that the discharge will meet state water quality standards and the director has approved the water management plan.	A.1.a.vii. **Mitigation Measure Not Applicable** There is no surface discharge of produced water. Produced water will be stored until the end of operations and then re-injected into the same formation.
b. Facilities must be designed and operated to minimize sight and sound impacts in areas of residential, commercial, recreational, and subsistence uses; Native allotments; 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. Operators must meet the following standards for specific activities:	A.1.b. **Mitigation Measure Not Applicable**. Drilling activity will be taking place on existing coal mining leases approximately 6.5 miles from the closest town, Healy. There are no residential neighborhoods nearby. There

i. The operator will construct drill pads at least 500 feet, and compressor stations at least 1,500 feet, from any occupied residential structure, community or institutional building. An exception may be granted from this requirement if the operator obtains the consent of the owner of the residential structure, or demonstrates that the drill pad and/or compressor station will be substantially hidden from view, and that the noise levels experienced will not exceed ambient noise levels. ii. Measures to be used to mitigate visual impacts associated with facilities may include, but are not limited to: • Minimizing the size of structures; • Minimizing damage to vegetation and the use of vegetation to buffer visual impacts; • Minimizing work pad size to that area necessary to provide a safe work area; • Locating facilities away from prominent features, hilltops and ridges; • Locating facilities at the base of slopes; • Painting permanent facilities in uniform, non-contrasting, non-reflective color slightly darker than the adjacent landscape; • Directing exterior lighting, when required, away from residential areas, or effectively • shielding the light from such areas; • Applying one or more of the following landscape practices for permanent facilities: o Establishing berms, ground covers, shrubs and trees; o Placing vegetation clusters 10-15 feet apart along the edge of the permanent pad site in residential areas, using native species; o When clearing trees and vegetation for construction of facilities, feather and thin edges of the clearing; o Shaping cuts and fills to appear as natural forms; o Cutting rock areas to appear as natural forms; o Designing the facility to utilize natural screens; and, o Constructing fences, such as woven wood or rock, for use with landscaping.	are no Native allotments in the nearby vicinity. Drilling will be a short term, temporary activity. A.1.b.i. **Mitigation Measure Satisfied**. There are no occupied residential structures, communities or institutional buildings within 500 ft. of the Healy Creek drill site. There are no compressor stations associated with this activity. A.1.b.ii. **Mitigation Measure Satisfied**. Appropriate measures will be used to mitigate visual impacts associated with facilities. • Structures and pad size have been minimized by locating camp facilities offsite in the town of Healy, and by staging fuel offsite. • Damage to vegetation has been minimized by using previously disturbed lands. • The site is located approximately 6.5 miles from the nearest town, Healy, or any residential neighborhood.

iii. Measures to be used to mitigate potential noise impacts associated with facilities and compressor stations will be considered on a site-specific basis. The operator will provide an analysis of the noise impacts on residential and commercial users of the proposed project area, and sensitive public facilities including community or institutional buildings. Measures to mitigate noise impacts may include but are not limited to: • Venting exhaust in a direction away from the closest existing residences of a platted subdivision; • Using quiet design mufflers on non-electric motors; • Limiting the hours of noise-generating operation to daytime hours; • Using sound insulating enclosures where facilities would otherwise create noise impacts because of proximity, population density, and other adjacent land uses sensitive to adverse impacts from noise; and, • Siting facilities and compressor stations in locations that use geographic features to buffer noise.	A.1.b.iii. **Mitigation Measure Not Applicable** • The exploration site is approximately 6.5 miles from the nearest town, Healy, or residential neighborhood. • There are no compressors associated with the proposed program.
iv. Operators are required to make contact with the surface owner of lands upon which activities are proposed, and make good faith efforts to negotiate a surface use agreement. If agreement cannot be reached, ADNR may initiate bond proceedings pursuant to AS 38.05.130, but only if the operator demonstrates that a reasonable period of time has passed from the initial contact between the surface owner and operator, and the operator has made a good faith effort to reach an agreement. When determining the damage bond amount under AS 38.05.130, ADNR shall consider the current market value of the property, the potential duration of operations, the loss of use of the property during operations, potential cost of damage to existing surface improvements, crops, and timber. In addition, the bond terms will include provisions to ensure that any bond with a potential duration of greater than two years is periodically reviewed to ensure it remains set at a sufficient amount.	A.1.b.iv. **Mitigation Measure Not Applicable** The surface owner is the state of Alaska. UCM is currently operating under a pre-existing ADNR mining lease for these lands.
v. Timber harvested as part of exploration and development activities (including right-of-way and pad clearing) will be processed and disposed in a manner approved by the Division of Forestry.	A.1.b.v. **Mitigation Measure Not Applicable**. No timber is expected to be harvested as part of the proposed project.

c. Permanent facilities shall not be constructed during the exploration phase. Exploration activities must be supported by air service, an existing road system, ice roads, or by off-road vehicles that do not cause significant damage to the ground surface or vegetation. Construction of temporary drill pads, airstrips, and roads may be allowed.	A.1.c. **Mitigation Measure Satisfied**. No permanent facilities will be constructed during the exploration phase of the project. Activities will be supported by an existing road system.
d. The siting of temporary and permanent facilities other than docks, roads, and utility and pipeline crossings, will be prohibited within ½ mile of the banks of the Nenana and Savage Rivers, except where land use plans classify an area for industrial use, or established usage and use history show industrial use. Temporary and permanent facilities other than docks, roads, and utility and pipeline crossings will also be prohibited within 500 feet of all fish bearing water bodies and 1,500 ft of all current surface drinking water sources. Facilities may be sited within these buffers if the licensee 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.	A.1.d. **Mitigation Measure Satisfied**. No temporary or permanent facilities will be constructed within ½ mile of the Nenana and Savage Rivers. No temporary or permanent facility will be constructed within 500 feet of any fish bearing water bodies and 1,500 ft of any current surface drinking water sources. No new road, utility or pipeline crossings are proposed for this project.
e. Impacts to identified wetlands must be minimized to the satisfaction of the director, in consultation with ADF&G. 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 (see Licensee Advisories).	A.1.e. **Mitigation Measure Satisfied**. The project is not taking place on wetland, but on previously established roads and a previously established airstrip. Water withdrawal is the only activity related to waters of the U.S. Water withdrawal will be conducted in accordance with ADNR and ADF&G requirements.
f. The operator will minimize disturbance of vegetation within rights-of-way during construction, maintenance, and operational activities.	A.1.f. **Mitigation Measure Satisfied**. Access will be by existing roads. Disturbance of vegetation is not expected.
g. Pipelines must utilize existing transportation corridors and be buried where conditions permit. In areas with above ground placement, they must be designed, sited, and constructed to allow for the free movement of wildlife. Pipeline gravel pads must be designed to facilitate the containment and cleanup of spilled fluids. Pipelines must be designed and constructed to assure integrity against climatic conditions and geophysical hazards.	A.1.g. **Mitigation Measure Not Applicable.** No pipelines will be used for this project.

h. Gravel mining within an active floodplain is prohibited, unless the director, in consultation with ADF&G, determines that a floodplain mine site would enhance fish and wildlife habitat upon site closure and reclamation. Gravel mining in upland sites will be restricted to the minimum area necessary to develop the field in an efficient manner.	A.1.h. **Mitigation Measure Not Applicable.** There will be no gravel mining. Gravel for the pad will be obtained from existing UCM mines.
i. Upon abandonment of material sites, drilling sites, roads, buildings or other facilities, such facilities must be removed and the site rehabilitated to the satisfaction of the director, unless the director, in consultation with DMLW, ADF&G, ADEC, the local borough, and any non-state surface owner determines that such removal and rehabilitation is not in the state's interest.	A.1.i. **Mitigation Measure Satisfied**. The closure and reclamation plans for the facilities constructed in association with the project are dependent upon the testing results, and economic viability of the exploratory wells. Should results obtained from the testing of the well indicate that a well is viable for economic profitability; the appropriate regulatory permits submissions for development and operations will be completed and reclamation plans will be developed for the next phase. If results of well testing deem otherwise, then development activities are not necessary and UCM will reclaim the infrastructure at the well pad after discussions with ADNR are conducted. There should be minimum reclamation required from the exploration project. The only infrastructure that is not temporary and mobile is the drill pad which will be located on top of a previously established airstrip. There are no land disturbances and no new roads or stream crossings associated with this project.
2. Fish and Wildlife Habitat	
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.	A.2.a. **Mitigation Measure Not Applicable.** No explosives will be used during this project.

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&G and are available from ADF&G upon request. The location of known fish bearing waters within the project area can be obtained from ADF&G.	
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 or snow bridges may be required. See Licensee Advisory B(2).	A.2.b. **Mitigation Measure Not Applicable.** The project will occur during the summer months, no snow removal will occur.
c. Water intake pipes used to remove water from fish bearing water bodies 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 in) unless another size has been approved by ADF&G. The maximum water velocity at the surface of the screen enclosure may be no greater than 0.1 ft per second unless an alternative velocity has been approved by ADF&G.	A.2.c. **Mitigation Measure is Satisfied**. UCM will obtain Fish Habitat Permits from Alaska Department of Fish and Game (ADF&G) for water withdrawal from fish-bearing water bodies. UCM will adhere to water intake stipulations, including screen size and velocity requirements.
d. Pipelines that must cross fish bearing streams will be constructed beneath those streams using directional drilling techniques, unless the director, in consultation with ADF&G, approves an alternative method.	A.2.d. **Mitigation Measure Not Applicable.** No pipeline will be constructed during this project.
e. Licensees 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: i. minimize attraction of bears to facility sites, including garbage and food waste;	A.2.e. **Mitigation Measure Satisfied**. UCM has an approved Wildlife Interaction Plan that covers bear safety. A.2.e.i. Addressed in the plan – there is no camp facility minimizing the attraction of bears. Food and garbage will be contained and removed daily

ii. organize layout of buildings and work areas to minimize interactions between humans and bears such as including the use of electric fencing; iii. warn personnel of bears near or on facilities and the proper actions to take; iv. if authorized, deter bears from the drill site; v. provide contingencies in the event bears do not leave the site; vi. provide for proper storage and disposal of materials that may be toxic to bears; and vii. document and communicate the sighting of bears onsite or in the immediate area to all shift employees.	A.2.e.ii. NA – there are no buildings and structures – just a drill and tanks A.2.e.iii. Addressed in plan –designate someone to scan for bears, use the buddy system A.2.e.iv. Hazing Permit application submitted A.2.e.v.Addressed in Plan. Enter vehicle and leave work site if necessary A.2.e.vi. Addressed in Plan. Store hazardous materials in secure containers. Minimal hazardous materials at site: batteries and methanol. A.2.e.vii. Addressed in Plan. Report encounters to fellow workers at site and to the Project Manager.
f. Before commencement of any activities, licensees shall consult with ADF&G to identify the locations of known bear den sites that are occupied in the season of the proposed activities. Exploration and development activities started between October 15 and April 30 may not be conducted within ½-mile of known occupied brown bear dens, unless alternative mitigation measures, as described in a bear-human interaction plan (see Mitigation Measure A(2)(e)), are approved by the director in consultation with ADF&G. Discovery of an occupied bear den not previously identified by ADF&G must be reported to the Division of Wildlife Conservation, ADF&G, within 24 hours (Fairbanks, 907-459-7233). Mobile activities shall avoid such discovered occupied dens by ½-mile unless alternative mitigation measures, as described in a bear-human interaction plan (see Mitigation Measure A(2)(e)), are approved by the director in consultation with ADF&G. Non-mobile facilities will not be required to be relocated.	A.2.f. **Mitigation Measure Not Applicable**. No work will be started between October 15th and April 30.

g. The director, in consultation with ADF&G, may impose seasonal restrictions on activities located in, or requiring travel through or overflight of, important moose and caribou calving and wintering areas.	A.2.g. **Mitigation Measure is Satisfied**. UCM will consult with Alaska Department of Fish and Game (ADF&G) prior to commencement of activities. UCM will adhere to seasonal restrictions on activities located in important moose and caribou calving areas. There will be no winter work during this project, therefore, moose and caribou wintering areas will not be affected.
h. The director, in consultation with ADF&G, may impose seasonal restrictions on activities located in important waterfowl habitat during the plan of operations approval stage.	A.2.h. **Mitigation Measure is Satisfied**. UCM will consult with Alaska Department of Fish and Game (ADF&G) prior to commencement of activities. UCM will adhere to seasonal restrictions on activities located in important waterfowl habitat. Activities are expected to commence in August and are not expected to impact waterfowl habitat. All activities use established roads and the pad will be located on an existing air strip. There is no work occurring within wetlands or waters of the US except for water withdrawal from nearby creeks.
3. Subsistence, Commercial and Sport Harvest Activities	

a. License-related use will be restricted when the Commissioner determines it is necessary to prevent unreasonable conflicts with local subsistence, commercial and sport harvest activities. In enforcing this term DO&G, during review of plans of operation or development, will work with other agencies and the public to identify and avoid potential conflicts. In order to avoid conflicts with subsistence, commercial and sport harvest activities, and restrictions may include alternative site selection, directional drilling, seasonal drilling restrictions, and other technologies deemed appropriate by the Commissioner.	A.3.a. **Mitigation Measure Satisfied**. Exploration activities associated with the proposed project are limited to one well and approximately 15 days of active drilling activity. All activity will occur within the UCM coal lease area on existing roads and an existing airstrip. There is no commercial harvest activity presently occurring within this area. There is minimal, if any, sports fishing and subsistence that would be impacted near the project site. Cross county travelers, including subsistence hunters, may travel in the general area, but the well sites will be closed to ensure public and worker safety. Public notice will be used to present the Plan of Operations for the exploratory drilling project to obtain review and comment by affected stake holders. Additional information regarding updates, changes, or modifications to the project will be provided in a timely manner. A list of potential stakeholders and parties of interest and their contact information has been developed and will be amended throughout the life of the project which identifies key stakeholders and potential parties of interest.
4. Fuel, Hazardous Substances and Waste	
a. Secondary containment (see definitions) shall be provided for the storage of fuel or hazardous substances.	A.4.a. **Mitigation Measure Satisfied**. Any fuel or hazardous substances stored at UCM's drill or camp sites will be stored in designated fuel storage areas with secondary containment features capable of containing 110% of the largest container. Fuel storage will be less than 1320 gallons.
b. Containers with 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 Satisfied**. 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.

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 Satisfied**. Equipment will be stored at UCM and routine maintenance will occur at the UCM shop. When on-site maintenance is necessary, UCM will use drip pans to prevent leaking or dripping of fuel and hazardous substances from vehicles or equipment.
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 five 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 Satisfied**. During fuel or hazardous substance transfer, secondary containment or a surface liner will 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 five gallons, will be on hand during any transfer or handling of fuel or hazardous substances. Trained personnel will attend transfer operations at all times.
e. All independent fuel and hazardous substance containers shall be marked with the contents and the lessee's or the contractor's name using paint or a permanent label.	A.4.e. **Mitigation Measure Satisfied**. All fuel and hazardous substance containers will be stored in secondary containment, shall be marked with the contents and the lessee's or contractor's name using paint or a permanent label.
f. The operator will maintain Material Safety Data Sheet (MSDS) information on any hazardous substances currently used by the operator at facilities within the license area. The operator will ensure the emergency services director, and local fire service area office is provided information concerning the use or transport of any hazardous substances associated with exploration and development. The operator will post at each drill site and facility the contact name and phone number from whom interested persons can obtain information regarding any hazardous materials used at the drill site or facility.	A.4.f. **Mitigation Measure Satisfied**. UCM will maintain Material Safety Data Sheet (MSDS) information on any hazardous substances currently used by UCM at facilities within the license area. UCM will ensure the emergency services director, and local fire service area office is provided information concerning the use or transport of any hazardous substances associated with exploration and development. UCM will post the contact name and phone number from whom interested persons can obtain information regarding any hazardous materials used at the drill site or facility. The post will be located at the Healy Creek Exploration site.
g. Vehicle refueling shall not occur within the annual floodplain, except as addressed and approved in the plan of operations.	A.4.g. **Mitigation Measure Satisfied**. No fueling will be conducted within the annual floodplain.

5. Waste Disposal	
a. Waste from operations must be reduced, reused, or recycled to the maximum extent practicable. Garbage and domestic combustibles remaining after reuse or recycling must be incinerated whenever possible or disposed at an approved site in accordance with ADEC regulations.	A.5.a. **Mitigation Measure Satisfied**. All contractors and personnel on the project will be required to use waste minimization and recycling practices. Environmentally friendly products will be used to reduce waste where practicable. Garbage and domestic combustibles will be stored in transfer storage containers and transported to an approved landfill. Waste from the proposed project will be placed in the UCM class II landfill for inert wastes at the Poker Flats mining area (permit #0531-BA001). The solid waste disposal site is located on Alaska Coal Leases ADL #20633 and #21545.
b. On-site temporary storage of waste will not be permitted for longer than six months; the operator will exclude people, domestic animals and wildlife from solid waste disposal areas using fencing or other barriers approved by DO&G. Open pit solid waste storage is not allowed in residential areas. In these areas, solid waste must be stored in a closed container.	A.5.b. **Mitigation Measure Satisfied**. Wastes will not be stored on site in excess of six months. Wastes will be temporarily stored in transfer storage containers. Wastes will be segregated and food wastes will be contained in closed containers. See Plan of Operations, Section 8.
c. New solid waste disposal sites, other than for drilling waste, will not be approved or located on state property during the exploration phase of license activities. Disposal sites may be provided	A.5.c. **Mitigation Measure Satisfied**. No new solid waste disposal sites are being requested in relation to this project. UCM will use their existing

for drilling waste if no practicable alternative exists, and the facility complies with ADEC regulations.	landfill at Poker Flats or other approved commercial facilities. See Section 8 of the Plan of Operations.
d. 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. Drilling muds and cuttings may not be discharged into lakes, streams, rivers, or wetlands. On-pad temporary cuttings storage will be allowed. Impermeable lining and diking, or equivalent measures, will be required for reserve pits.	A.5.d. **Mitigation Measure Satisfied**. During the drilling operations, drilling mud and drill cuttings will be circulated to the surface and temporarily stored on the well pad. Cuttings and fluids will be solidified and analyzed for proper disposal. Drilling wastes may be treated to reduce liquids under an ADEC temporary treatment facility permit and then transported for disposal at the UCM class II landfill at Poker Flats. Drilling wastes that are analyzed as petroleum impacted will be disposed of at an approved facility in accordance with the ADEC Temporary Waste Storage Plan. Chemical testing will characterize the wastes in order to determine their final and appropriate disposition. Prior to disposal, muds will be temporarily stored in metal tanks, and cuttings will be temporarily stored in open topped metal boxes.
6. Access	
a. Public access to, or use of, the license 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. 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.6.a. **Mitigation Measure Satisfied**. Cross county travelers, including subsistence hunters, may travel in the general area, but the well sites will be closed to ensure public and worker safety. Signs will be posted at the well sites to alert visitors they have approached a secure work site.
7. Prehistoric, Historic, and Archeological Sites	

a. Before the construction or placement of any gravel or other structure, road, or facility resulting from exploration, development, or production activities, the licensee 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 nearby communities, Native organizations, 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.7.a. **Mitigation Measure Not Applicable**. Proposed exploration activities occur on pre-existing roads and a pre-existing air strip. There is no ground disturbance to require resource surveys associated with this project.
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 local borough government for review and comment. If a prehistoric, historic, or archeological site or area could be adversely affected by an activity, the director, after consultation with DPOR Office of History and Archaeology, will direct the licensee as to the course of action to take to avoid or minimize adverse effects.	A.7.b. **Mitigation Measure Not Applicable**. Proposed exploration activities occur on pre-existing roads and a pre-existing air strip. There is no ground disturbance to require resource surveys associated with this project. The requirement to submit an inventory of prehistoric, historic, and archeological sites does not apply to this project.
c. If a site, structure, or object of prehistoric, historic, or archaeological significance is discovered during license operations, the licensee must report the discovery to the director as soon as possible. The licensee must make reasonable efforts to preserve and protect the discovered site, structure, or object from damage until the director, after consultation with the DPOR Office of History and Archaeology, has directed the licensee as to the course of action to take for its preservation.	A.7.c.**Mitigation Measure Not Applicable**. Proposed exploration activities occur on pre-existing roads and a pre-existing air strip. There is no ground disturbance associated with this project that are likely to expose cultural or archeological resources.
8. Local Hire, Communication, and Training	
a. The licensee is encouraged to employ local and Alaska residents and contractors for work performed in the license area to the extent they are available and qualified. Licensees shall submit, as part of the plan of operations, a proposal detailing the means by which the licensee will comply with this measure. The proposal must include a description of the operator's plans for partnering with local communities to recruit, train, and hire local and Alaska residents and contractors. In formulating this proposal, the licensee is encouraged to coordinate with employment services	A.8.a. **Mitigation Measure Satisfied**. UCM, its contractors, and subcontractors will work with the Denali Borough communities in identifying qualified individuals interested in working on this project.

offered by the State of Alaska and local communities and to recruit employees from local communities.	
b. A plan of operations application must describe the licensee's past and prospective efforts to communicate with local communities and interested local community groups.	A.8.b. Covered in the Plan of Operations. UCM has been in contact with the borough mayor and the borough assembly.
c. A plan of operations application must include a training program for all project 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.8.c.UCM will conduct safety and environmental training and it will address subsistence and recreational use in the area. The exploration site is in a historical and active mining lease area with no nearby residents. There will be little community interaction with this project.