August 29, 2011

Russell Kirkham,
Manager Coal Regulatory Program
550 W 7th Ave., Suite 920
Anchorage, AK 99501-3577

Dear Mr. Kirkham,

Please find attached Linc Energy Operations' response to your review of our exploration permit applications for the Tyonek and Kenai license area as well as the Healy license area dated August 23, 2011. Included in our response are the following:

- Replies to your comments on your permit checklist for each application;
- A revision of the body of the application addressing your comments;
- Applications for permits to drill; and
- MSDS for drilling mud.

Please contact me should you need any further information.

Sincerely,

Bartly Kleven,
Environmental Permitting Manager

Linc Energy Operations, Inc.
3000 C St.
Suite 103
Anchorage, AK 99503
P 907 868 8660
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Linc Energy Tyonek Exploration E-1401

Permit Checklist

page #	INTITAL	Comment	Reply
General Requirements			
Part A: General information, Ownership and Control			
Part B: Notice of Intent to explore			
Part C: Exploration Application			
Section 7.0 Exploration Area Description			References have been added.
	RK	No list of references for the information listed in section 7.	
	LJ	7.6, Cultural and Archeological Res. We need a map submitted showing where the two historic sites are, especially in relation to how close planned drill holes are in the area. GPS Coordinates would be helpful.	OHA does not release this information, as it is considered confidential. They have reviewed the locations and have advised we are not in the near vicinity of any known resources.
Section 8.0 Exploration and Reclamation Methods			

Linc Energy Tyonek Exploration E-1401

Permit Checklist

page #	INTITAL	Comment	Reply
	LJ	Firstly, 1-7 pages--> then maps with page 45,46,47--> 49 and 50; then Figure 1 and Figure 2; flowing page starting with page 11, ending with page 23. The Page 20 is blank . Compiling the application file and put page numbers in order.	Done.
	LJ	8.2.4 Drill Sites. Equipment layout at drill sites showing water storage, mud pump, mud products storage , tool storage, fuel tank and drilling rig needs to be submitted .	Please see attached application for permit to drill showing this information.
	RK	8.2.4 Drill Sites: What is the appoximate area to be disturbed as part of the drilling operations.	Approximately 30'x40'.
	LJ	8.2.5 It is mandatory that Linc energy should provide Material Safety Data Sheets for potential drilling fluids.	Attached
	LJ	8.2 e To submit earth or debris disposal control measures to DNR	Please see this section in the attached revision.
	LJ	8.2.5 as a safety precauation, a gas tester will be present on the rig, what's the procedure for conducting a gas test?	Please see this section in the attached application for permit to drill showing this information.
	RK	8.2.5 General Drilling Operations: does this section mean that it is expected that a maximum of 20,000 gallons of water will be used a day but will more likely be 4,000? Please clarify.	Please see this section in the attached revision.
	LJ	8.2.5 General Drilling Operations, ""Water usage at the drill site will be up to 20,000gallons, average water usage on the order of 4,000gallons." If water circulation is frequently lost due to intersection of faults, fractures voids.,this could raise more than 20, 000 gallons per day.we would like to know water tank capacity at drilling site and how to manage water resource.	This section has been revised. Two 1,000 gallon water tanks will be onsite.
	LJ	8.2.5 … All cores will be retained at a designated area for future testing and reference. Where is a desigated area ?	Cores will be stored in the Linc storage area in Anchorage.

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page #	INITAL	Comment	Reply
	LJ	8.2.7 Prior to summer revegetation efforts, Description of sedimentation control measures used. How about fertilizer? How to determine the exact seeding mix appropriate for the Best Management Practices of disturbed area.To meet the requiremnents of 11 AAC 90.453 , the DNR encourages company to get seed mix appropriate recommendations from Alaska Plant Material Center, Palmer.	This section has been revised. Stoney Wright of the Plant Material Center has been contacted.
	RK	8.2.7 Revegetation; the Plant Material center has made significant changes to what they would approve for a seed mix. Many of the species used in the past have been put on the invasive or noxious weeds list. We need a list of what seed will be used on site for reclamation.	This section has been revised. Stoney Wright of the Plant Material Center has been contacted.
	LJ	8.2.5. Will there be a storage facility constructed for core?	Cores will be stored in the Linc storage area in Anchorage.
	RK	Timetable for 2012 drilling activities (does not have to be exact and can be revised).	It is expected each hole will take 30-45 days to drill. At this time, Linc is expecting to start drilling on the Kenai license area wells then move to Tyonek. Should drilling commence in early October, it is expected we will be done in January or early February 2012.
21	RK	From the amout of time needed to seal each drill hole (16 hours/hole) three hours of helicopter time is not enough. Helicopter time for direct cost should be buggeted for a minimum of three days.	Please see this section in the attached revision.

Linc Energy Tyonek Exploration E-1401

Permit Checklist

page #	INTITAL	Comment	Reply
Part D: Exploration on Lands Unsuitable			
		N/A	
Other Comments			

Linc Energy Tyonek Exploration E-1401

Permit Checklist

page #	INTITAL	Comment	Reply
	LJ	An annual report needs to be submitted to DNR by January 31th each year. This report willl discuss the types of exploration activities performed during the previous year and will include a map depicting the location of any new accesss trails and completed drill holes.	Agreed.

Technical Issues

(Headings correspond to those found in the Alaska Department of Natural Resources Exploration Permit Application.)

Part A – GENERAL INFORMATION

1.0 APPLICANT INFORMATION – see application form.

2.0 LOCATION OF THE EXPLORATION

Exact siting of drillhole locations will be dependent upon ongoing seismic exploration results. No less than 30 days prior to drilling, Linc Energy Operations, Inc. (Linc) will submit exact locations to ADNR for each drill hole.

2.1 Legal Description

Combined Tyonek and Kenai Underground Coal Gasification (UCG) Exploration License Areas – 107,497 acres

Tyonek Underground Coal Gasification (UCG) Exploration License Area (25, 374.88 acres)

T.013 N., R.011 W., Seward Meridian

Section 4: All
Section 5: All
Section 6: All
Section 7: All
Section 8: All
Section 9: All
Section 16: All
Section 17: All
Section 18: All
Section 19: All
Section 20: All
Section 21: All
Section 24: All Excluding Bed of Beluga River
Section 25: All

Section 28: All
Section 29: All Excluding USS3964
Section 30: All Excluding USS3964
Section 31: All Excluding USS3964
Section 32: All Excluding USS3964
Section 33: All
Section 36: All

T.013 N., R.010 W., Seward Meridian

Section 19: All
Section 20: All
Section 21: All
Section 28: All N1/2, SW1/4, NW1/4SE1/4
Section 29: All
Section 30: All
Section 31: All
Section 32: All
Section 33: W1/2; S1/2SE1/4

T.012 N., R.012 W., Seward Meridian

Section 1: All
Section 11: All
Section 12: All
Section 13: All
Section 14: All
Section 21: S1/2
Section 22: SW1/4, the E1/2 Excluding USS1865 and the NE1/4NE1/4 Lying North of USS1865 and North of the Chuitna River
Section 23: All Excluding USS1865
Section 24: All Excluding USS1865 and bed of the Chuitna River
Section 27: All Excluding USS1865
Section 28: All
Section 33: Tracts A, B, C, D
Section 34: All Excluding USS1865

<u>Kenai Underground Coal Gasification (UCG) Exploration License Area (82,123 acres)</u>

T.014 N., R.013 W., Seward Meridian

Section 1: That portion within Tract C
Section 2: That portion within Tract C
Section 3: That portion within Tract C
Section 10: That portion within Tract C
Section 11: That portion within Tract C
Section 12: That portion within Tract C
Section 13: That portion within Tract C
Section 14: That portion within Tract C
Section 15: That portion within Tract C
Section 22: That portion within Tract C
Section 23: That portion within Tract C
Section 24: That portion within Tract C
Section 25: That portion within Tract C
Section 26: That portion within Tract C
Section 27: That portion within Tract C
Section 34: That portion within Tract C
Section 35: That portion within Tract C
Section 36: That portion within Tract C

T.014 N., R.012 W., Seward Meridian

Section 1: That portion within Tract B
Section 2: That portion within Tract B
Section 3: That portion within Tract B
Section 4: That portion within Tract B
Section 5: That portion within Tract B
Section 6: That portion within Tract B
Section 7: That portion within Tract B
Section 8: That portion within Tract B
Section 9: That portion within Tract B
Section 10: That portion within Tract B
Section 11: That portion within Tract B
Section 12: That portion within Tract B
Section 13: That portion within Tract B
Section 14: That portion within Tract B
Section 15: That portion within Tract B
Section 16: That portion within Tract B
Section 17: That portion within Tract B
Section 18: That portion within Tract B

Section 19: That portion within Tract B
Section 20: That portion within Tract B
Section 21: That portion within Tract B
Section 22: That portion within Tract B
Section 23: That portion within Tract B
Section 24: That portion within Tract B
Section 25: That portion within Tract B
Section 26: That portion within Tract B
Section 27: That portion within Tract B
Section 34: That portion within Tract B
Section 35: That portion within Tract B
Section 36: That portion within Tract B

T.013 N., R.013 W., Seward Meridian

Section 1: All
Section 2: All
Section 3: All
Section 4: All
Section 5: All
Section 6: All
Section 7: All
Section 8: All
Section 9: All
Section 10: All
Section 11: All
Section 12: All
Section 13: All
Section 14: All
Section 15: All
Section 16: All
Section 17: All
Section 18: All
Section 19: All
Section 20: All
Section 21: All
Section 22: N1/2NE1/4, NW1/4, NW1/4SW1/4
Section 29: N1/2NW1/4
Section 30: N1/2,SW1/4, W1/2SE1/4
Section 31: All
Section 32: SW1/4NE1/4,S1/2NW1/4,SW1/4,W1/2SE1/4

T.013 N., R.012 W., Seward Meridian

Section 4: SW1/4
Section 5: S1/2
Section 6: All
Section 7: All
Section 8: All
Section 9: All
Section 10: S1/2
Section 11: S1/2
Section 12: SW1/4
Section 13: NW1/4
Section 14: All
Section 15: All
Section 16: All
Section 17: All
Section 18: All
Section 19: All
Section 20: All
Section 21: All
Section 22: All
Section 23: All
Section 24: S1/2
Section 25: All
Section 26: All
Section 27: All
Section 28: All
Section 34: All
Section 35: All
Section 36: All

T.008 N., R.011 W., Seward Meridian

Section 20: S1/2NE1/4, SE1/4NW1/4, W1/2SW1/4NE1/4SW1/4
Section 32: SW1/4NW1/4, NW1/4SW1/4

Section 23: Lot 5
Section 23: NW1/4SE1/4 excluding AKSLS15-75; AKSLS75-75
Section 24: Lot 5
Section 25: Lot 16

Section 26: Lots 24 and 29, S1/2NE1/4SW1/4NE1/4, N1/2NE1/4SW1/4NE1/4
Section 28: Lots 11-19 inclusive and N1/2SW1/4,NW1/4SW1/4SW1/4, NE1/4SE1/4SW1/4
Section 34: Lots 17, 20, 22, 35, 36, 37 and E1/2SW1/4SW1/4NE1/4, SE1/4SW1/4NE1/4, E1/2NW1/4SE1/4, NW1/4NE1/4SE1/4

T.007 N., R.011 W., Seward Meridian

Section 1: Lot 3
Section 4: Lot 9
Section 6: Lot 8, NE1/4SE1/4
Section 7: Lots 1 and 6
Section 9: Lots 9 and 10
Section 14: Lots 3, 5, 6 and E1/2SW1/4
Section 15: W1/2 Excluding BLM AA008262
Section 16: Lot 3 Excluding BLM AA008238, Lot 10 Excluding BLM AA008297, SE1/4NE1/4 Excluding BLM AA008238, E1/2SW1/4NE1/4 Excluding BLM A050290, NW1/4SW1/4NE1/4, N1/2SW1/4SW1/4NE1/4, N1/2S1/2NW1/4, N1/2S1/2S1/2NW1/4
Section 21: Lot 8 and 10 and W1/2SE1/4
Section 28: Lot 5 and 6 and N1/2NE1/4

Section 22: Lots 1 and 4
Section 27: Lots 1, 7, and 8 and NW1/4SW1/4, SE1/4NE1/4, SE1/4SW1/4, SW1/4SE1/4, E1/2SE1/4.
Section 33: E1/2NE1/4
Section 34: N1/2

Section 19: Lot 1, S1/2NE1/4, E1/2SW1/4, SE1/4
Section 20: Lots 1-5 inclusive, S1/2NW1/4, SE1/4SW1/4, E1/2SE1/4, E1/2NW1/4SE1/4, SW1/4SE1/4
Section 30: Lots 1-3 inclusive, N1/2NE1/4, NE1/4NW1/4
Section 31: E1/2SE1/4, SW1/4NW1/4NE1/4, W1/2SW1/4NE1/4, SE1/4NE1/4NW1/4, SW1/4NE1/4NW1/4
Section 32: W1/2SW1/4
Section 21: Lot 12

T.006 N., R.011 W., Seward Meridian

Section 3: S1/2S1/2
Section 4: S1/2SE1/4

Section 9: E1/SW1/4, S1/2SW1/4, W1/2SE1/4
Section 10: N1/2, N1/2S1/2, SE1/4SE1/4
Section 15: E1/2E1/W1/4, S1/2NW1/4SE1/4, S1/2SW1/4, S1/2NW1/4SE1/4, SW1/4SE1/4
Section 16: W1/2E1/2NE1/4, W1/2NE1/4, W1/2, SE1/4
Section 17: E1/2
Section 20: E1/2
Section 21: NW1/4
Section 29: NW1/4NE1/4
Section 5: Lots 3 and 4 and SW1/4NE1/4, S1/2NW1/4, N1/2SW1/4, SW1/4SW1/4
Section 6: Lot 3, 6 and 7 and SE1/4NW1/4, E1/2SW1/4, SE1/4
Section 7: Lots 1 and 2 and N1/2NE1/4, E1/2NW1/4

2.2 See Application
2.3 See Application
2.4 See Application
2.5 See Application
2.6 See Attached Figures

3.0 PERIOD OF EXPLORATION

3.1 See Application
3.2 See Application

4.0 OWNERSHIP OF SURFACE/SUBSURFACE MINERAL ESTATE

4.1 See Application
4.2 See Application
4.3 See Application
4.4 See Application
4.5 See Application
4.6 Right to Enter

Linc Energy holds Underground Coal Gasification Exploration Licenses MHT No. 9400461 and 940062 and is authorized to enter upon and explore for lands within its license area in accordance with applicable law. The proposed drilling will be performed by Linc contractors under the direction of Linc employees.

PART C – EXPLORATION PERMIT APPLICTON

7.0 Exploration Area Description

7.1 Surface Disturbance:

Surface disturbances will be limited to core drilling and surface activities associated with small diameter core drilling. These surface activities will include the drill rig pad and staging area.

7.2 Map:

See Figures.

7.3 Area Description:

7.3.1 Borough – Both exploration areas lie within the Kenai Peninsula Borough.

7.3.2 Land Use – The Tyonek and a portion of the Kenai License Areas fall within Regions 11D and 11E of the Kenai Area Plan. Near developed areas where the exploration area is located, most of the sate-owned parcels have been designated to recognize a variety of uses, included development related to coal, oil, and gas. Primary use of the land is subsistence. Recreational uses exist but are limited due to access issues (Chuitna SEIS, 2006).

The remainder of the Kenai License Area lies within Region 5 of the Kenai Area Plan. At this time there is no exploration drill holes planned for this area.

7.3.3 Surface Topography – The topography of the Tyonek/Kenai Exploration Area consists of flat to undulating hills and ridges with small streams, ponds and muskeg.

7.3.4 Access – Access to both Exploration Areas is limited. Proposed exploration activities will make use of existing roads and trails to the extent practicable. Helicopter support will also be utilized.

7.3.5 Geology – The exploration license areas lie within the confines of the Cook Inlet Basin. The Cook Inlet basin is a northeast trending basin located between the Chugach and Kenai Mountains on the southeast and the Alaska Range and Aleutian volcanic arc to the north and west. Partially filling the basin and exposed on the east and west sides of

the basin is a sequence of largely continental Tertiary deposits that attain a thickness of as much as 26,000 feet. Unconsolidated glacial and fluvial Quaternary sediments cap these Tertiary rocks which unconformably overlie Mesozoic basement rocks. The Tertiary sedimentary rocks belonging to the Kenai Group host the coal seams of potential UCG interest, of this group the Tyonek Formation appears to hold the most promise for UCG development. The structural geology of the area is very complex. Several faults are believed to control and displace the coal bearing Tertiary strata in the license area.

7.3.6 Surface Waters - The portion of the Tyonek license area where the exploration wells are proposed is located within in the Beluga and Chuitna River basins. Surface water resources in the license area include glacial and non-glacial rivers, perennial streams, and a number of lakes and ponds. The Beluga River basin is largely influenced by the Beluga and Chichantna Rivers, which are located north and east of the proposed license area. The Chichantna River flows east, originating as outwash from the Capps Glacier, before turning north and draining into Beluga Lake. The Beluga River flows from Beluga Lake southeast into Lower Beluga Lake and then continues flowing southeast ultimately draining into the north side of Cook Inlet. The section of the Beluga River near the proposed exploration area is characterized with a moderate gradient and steep canyons. Tributaries of the Beluga River within in the license area include Bishop Creek, Scarp Creek, Drill Creek, Coffee Creek and several unnamed creeks. The small tributaries appear to have relatively low gradients with occasional cutbanks ranging to 50 feet high. Available flow information for the Beluga River is limited.
The Chuitna River Basin is largely influenced by the Chuitna River and its tributaries. The Chuitna River flows southeast from the headwaters into the north side of Cook Inlet. The Chuitna River is also characterized by sharp canyons with a moderate gradient. A baseline study conducted at the neighboring Chuitna Coal Project provides some data collected from the Chuitna River drainage. According to the 2007 *Hydrologic Component Baseline Study report*, surface water discharge information based on two years of record indicates that downstream of tributary 2005, the Chuitna River has a mean flow of 200 cubic feet per second (cfs) with a daily flow ranging from 27 to 2,940 cfs. The referenced Chuitna River gaging station drains an area of approximately 71 square miles. The gaging station includes the flow from ungaged tributaries including Stream 2005 (which has an approximate 8 square mile drainage area), and an unnamed stream that merges with the Chuitna River in Section 27.

Exact groundwater elevations in the license area are unknown. The shallow groundwater in the proposed exploration areas is anticipated to occur within the top 20 feet of unconsolidated surface material.

The northern section of the Kenai license area is largely positioned in the Chuitna River basin with portions extending south into the Chakachatna River basin. The Chuitna River flows east-southeast from the headwaters into the north side of Cook Inlet. The Chuitna River is characterized by sharp canyons with a moderate gradient. Tributaries of the Chuitna River in the license area include Chuit Creek, Wolverine Fork, Lone Creek and several other unnamed creeks. The southern section of the license area is located in the Chakachatna River basin and is situated northeast of Nicolai Creek, which flows to the southeast and drains into Trading Bay and Cook Inlet.

A baseline study conducted at the neighboring Chuitna Coal Project provides limited data collected from the Chuitna River drainage. According to the 2007 *Hydrologic Component Baseline Study Report*, surface water discharge information based on two years of record indicates that downstream of tributary 2005, the Chuitna River has a mean flow of 200 cubic feet per second (cfs) with a daily flow ranging from 27 to 2,940 cfs. The referenced gaging station drains an area of 71 square miles. The gaging station includes the flow from ungaged tributaries including Stream 2005 (7.7 square mile drainage area), and an unnamed stream that merges with the Chuitna River in Section 27.

7.3.8 Soils – Cryaquand soils and Histic soils were both found in poorly drained areas. Sand loams and silty loams were well drained glacial outwash or till soils overlain by differing thicknesses of topsoil. These drier soils with forest grown are found on elevated ridges. Exploration activities will focus on those areas where the better drained soils are anticipated to occur.

7.4 Vegetation and Habitat:

7.4.1 Vegetation – Forests are predominantly a mixed woodland of spruce and paper birch. Dominant shrubs are highbush cranberry, tall blueberry willow, Sitka alder, early blueberry and white spruce saplings. Understory species include blue join reed grass, lady fern, willow weed, oak fern, horsetail and bunchberry. Scrublands are a combination of tall alder and open low scrub bog vegetation types. Dominant understory species include devils club, American red currant, blue joint reed grass, lady fern and horsetail. The open low muskegs contain sweet gale and dwarf arctic birch , spike rush, blue joint reed grass, crowberry, cloud berry and cinquefoil. Dense mats of sphagnum cover much of the ground. (Vegetation documented in nearby Diamond Chuitna coal exploration project).

7.4.2 Terrestrial Wildlife – The west side of the Cook Inlet has brown bear, black bear, caribou, moose, sheep, wolf and wolverine (ERT, 1983). Small furbearers and a wide

variety of birds and waterfowl live in or migrate through the area on a seasonal basis. Subsistence and sport hunting occur within the area.

7.4.3 Aquatic Wildlife –The small lakes, ponds and wetlands in the exploration area a home to grayling, arctic char, northern pike, rainbow trout and both landlocked and sea-going salmon species. During the exploration project a temporary water use permit will be obtained. The pump intakes will be screened to prevent small fish from being sucked into the pumps.

7.5 Threatened or Endangered Species – No threatened or endangered species reside in the exploration area. Bald eagles and swans are present in the region in the summer and fall. Nests will not be disturbed if encountered.

7.6 Cultural and Archeological Resources – Historic sites exist within the Tyonek and Kenai License Exploration Areas. Joan Dale of the Alaska Department of Natural Resources Office of History and Archeology reviewed the UCG tracts for the License Areas. She called out two areas containing known historic sites: one located within 008N011W, Seward Meridian and one more area within 005N008W. No drill holes proposed for 2011 are in this vicinity.

Should any historic sites be encountered during field work, they will be reported.

8.0 EXPLORATION/RECLAMATION METHODS

8.1 Exploration Area Map and Drill Hole Location Maps

The attached figures depict the UCG Exploration License Areas as well as the 2011 proposed drillhole locations.

8.2 Project Description:

8.2.1 Surface Drilling Program – The Drilling program in the Tyonek/Kenai license area for this planning period is estimated to be up to a total of 9 site characterization holes with maximum estimated depth of 3500' each. At a minimum 3 holes will be cored and all associated samples, tests and physical information necessary to evaluate it will be obtained. The Tyonek/Kenai UCG Exploration Area has a total of two drillholes planned for 2011. KEEX01 and KEEX02 located in the Kenai Exploration License Area, and TYEX01, located in the Tyonek License Exploration Area will be drilled to approximately 3,000 feet. The drilling and coring will be accomplished with a core drilling rig with the capabilities of reaching the previously noted depth and obtain a core with an outside diameter of approximately 2.5 inches. Based on geophysical data that has not yet been obtained and analyzed, surface casing depths, core drilling and rotary drilling depths will be determined. Important physical, chemical and geotechnical data is needed to evaluate the coals, overburden, and underburden for future UCG development. It is estimated at this time that exploratory drilling will commence on September 30, 2011 and continue as deemed necessary throughout the license area year.

Due to the difficulties and costs associated with drilling through unconsolidated surface sediments, it would be advantageous to perform coring operations in lieu of a rotary pilot hole provided that the coal-bearing strata depth is known with reasonable accuracy from the geophysical work. For planning purposes, one hole per site is envisioned. However, the complexity of the structure will likely dictate the final adopted drilling procedure. Additional holes may be drilled at the site if borehole conditions or coal core recovery issues arise requiring re-drilling of the original hole.

A summary exploration report outlining the methods and results of the drilling program will be prepared. A file will be created for each hole and will include all data pertinent to the hole.

8.2.2 Equipment and Equipment Use – Drilling operations will be conducted with a Boart Longyear LY50 that is helicopter transportable. The LY50 drill uses a wireline core system and is unable to perform rotary drilling. Borehole specifics are as follows: surface to approximately 100 feet bgs will be PQ (5" diameter). Approximately 100 feet bgs to TD will be HQ (3.895" diameter). If necessary, it will telescope to NQ (3.032"

diameter). Because this drill uses a wireline core system, no pilot hole will be drilled. Only a single core hole will be advanced at each selected location, until a second corehole is warranted.

8.2.3 Access – Due to the lack of existing roads in the license areas, a helicopter supported drilling project is planned. However, if existing roads are found that can be used to access drilling sites they will be used. For helicopter support sites, support services would include air transport for personnel, equipment and fuel; barge costs for moving equipment from Anchorage, Kenai or Homer to the north side of Cook Inlet; camp management and support services including miscellaneous rentals including ATV's, satellite phone, handheld radios, radio base station, light plants and generators. .

8.2.4 Drill Sites - Drill pad construction would be limited to the smallest possible size necessary to support safe, efficient drilling operations at each location. For helicopter supported sites, a portable excavator may be transported to the site to remove brush and level the ground for a safe work area. It would also be used in excavation of the pit that would contain the drill cuttings and fluids.

During pad construction the topsoil will be retained for future reclamation. The overburden in many of these areas is very porous and should provide ample capacity for infiltration of stormwater. However, to ensure that any runoff does not impact surrounding water bodies, stormwater runoff will be managed through Best Management Practices such as gravel or vegetative filters. Slash and brush removed during drill pad construction will be used to filter stormwater.

No acidic or toxic drainage is anticipated from surface runoff from drill cuttings that may be deposited on the surface during drilling.

8.2.5 General Drilling Operations – Local services and lodging will be used. Crews will be housed locally and transported to the site daily.

Due to the softness of the Tertiary coal-bearing strata, drilling fluid that would create a mud cake along the annulus of the hole may be needed to assure an open hole suitable for geophysical logging. All mud products used on site will be fresh-water based and biodegradable.

If water is required, it is expected the average water required each day will be 2,000 to 4,000 gallons per day. This source will be identified prior to mobilization to the field. A temporary water use permit will be obtained for each drillhole location. Proper screening will be employed to inhibit the intake of aquatic species.

Numerous types of analyses are required to characterize the coal, overburden and underburden therefore high core recovery of the coal seam is paramount. A double or triple tube core barrel assembly is desirable for generation of the best geotechnical descriptions and samples for geotechnical testing.

A wellsite geologist will be onsite to describe drill cuttings and core during the program. Drill cuttings will be obtained by the drilling contractor at the designated depth interval. The cuttings will be washed, fully described, and a dry sample of the cuttings will be retained for later use. It is possible that chip samples may be collected for overburden geochemical analysis. All cores will be cleaned of drilling fluids and debris, measured, photographed, described both lithologically and geotechnically, labeled, sampled, and placed in heavy mill plastic sleeves and boxed. Core sample selection for geotechnical testing may either be completed by the geologist and/or a geotechnical engineer. All cores will be retained for future testing and reference at a Linc property in Anchorage.

Holes drilled within the Tyonek/Kenai license area will require a diverter. Smoking will be banned within the perimeter of each drill site and welding will require gas tests prior to and during the work. As a safety precaution, a gas tester will be present on the rig. Gas desorption and analytical testing of the gas is planned for the target coal seams. All Linc personnel and subcontractors working on the drill site will be trained in all health and safety procedures prior to work.

Pending hole conditions, geophysical wireline logging is planned for all holes. A standard coal suite of logs will be run down the entire length of the hole. The typical log suite will likely include gamma, compensated density, caliper and resistivity. Sonic, high resolution density and verticality logs may also be included. It may be necessary to log the hole through the drill pipe therefore the wireline service contractor will need to plan for an additional smaller diameter gamma tool for inner pipe clearance.

A summary exploration report outlining the methods and results of the drilling program will be prepared. A file will be created for each hole and will include all data pertinent to the hole.

An updated cost estimate and a list of contractors will be provided prior to the commencement of drilling when final bids are received.

8.2.6 Drillhole Plugging and Reclamation - Upon completion of drilling a determination would be made as to whether the drillhole is suitable for a groundwater monitoring well conversion. If a well is not needed, the entire drillhole will be backfilled

with cement. By cementing the entire stratigraphic column, all potential interaction of groundwater between formations, either from permeable coal seams, porous sandstones, unconfined surface deposits and/or faults will be eliminated.

None of the Beluga or Tyonek Formation strata have toxic or acid-forming characteristics. This is shown in extensive overburden and coal characteristic studies and water quality sampling conducted in the area by various companies studying the area. Studies at that location also indicate that groundwater aquifers tend to travel along coal-bearing intervals and faults. It is these locations, therefore, where any potential groundwater contamination from drilling could occur.

Cement used for plugging the wells will weigh a minimum of 10 lbs. per gallon and will be comprised of a typical Portland cement mixed on site within the mud tanks. Cuttings collected during the drilling and present in the mud tanks will be combined with the cement and sent down the wellbore. The cement will be pumped down the well through the drill rods in approximately 5 feet lifts from bottom to top.

Excess cuttings not sent down the drillhole with the cement will be spread over the site prior to topsoil placement. There are no metal-bearing cuttings within the Beluga or Tyonek Formations or in the surficial gravels that might prove to be toxic to vegetation.

After the pad has been determined to be no longer needed for the exploration program the site will be graded to original contour, topsoil will be spread, and the site seeded.

8.2.7 Revegetation – After the completion of the drillholes topsoil will be redistributed to the original contour. It is the intention that the drill sites be fully reclaimed at the end of the drilling program. Seeding will take place in the summer months and will likely be done by hand. The seed mix will be selected upon recommendation of the Plant Material Center in Palmer, Alaska. It will consist of mostly grasses to encourage quick cover and soil amendment until natural reinvasion of local woody species is established.

Due to the small areas disturbed no planting of woody species or fertilization is proposed.

8.2.8 Hydrologic Balance Control Measures - Data collected during the hydrologic characterization of the license area will be used to determine if the site is suitable for UCG selection. The hydrologic characterization will begin with a desktop study of available surface hydrologic data. Regional watershed maps (1:250K) along with watershed and discharge information collected from available state, academic and private sources will be evaluated. A desktop study of nearby wells and other available groundwater information will be conducted to evaluate potential groundwater conditions

in preparation of exploration activities and to evaluate the site for preliminary characterization.

During exploration activities, the groundwater characterization effort will be performed on selected intervals in the borehole with an emphasis on the target coal, immediate overburden and underburden intervals. The characterization will be based on information collected during core-logging, open-hole geophysical logging, drill stem testing, and potential water quality sampling. Following completion of the borehole, an open-hole geophysical logging suite will be equipment and acquire data from the borehole. The logging types will depend on tool availability and borehole configuration and may include: natural gamma, SP, resistivity, neutron porosity, sonic, PEF, and acoustics. The borehole will be logged from the surface to total depth to determine the lithology, water bearing formations, formation water salinity, porosity and other relevant formation features.

Pending evaluation of the core logs and geophysical logging results, the borehole may be selected for further evaluation of groundwater conditions. Groundwater flow and pressure information may be collected at selected lithologic units. Drill stem testing methods will be performed by a contractor to acquire the data. Drill stem testing of the selected intervals, including the target coals, overburden and underburden materials, will include hydraulic conductivity and hydraulic head measurements. Groundwater samples from selected units may be collected and submitted to an analytical laboratory for evaluation if borehole conditions allow.

8.2.9 Removal of Facilities and Equipment – At the conclusion of exploration drilling, all facilities and equipment will be promptly removed. Demobilization will occur via the same routs and landing areas that were used to bring the equipment in.

8.3 Schedule

Exploration efforts are anticipated to commence in September of 2011 for the first two drill holes. It is expected that each well will take two months to drill. Reclamation for wells drilled in 2011 will take place in June of 2012.

8.4 Quantity of Coal Removed

Only coal associated with the cores will be removed.

8.5 Reclamation Costs For 2011

DIRECT COSTS
DRILLHOLE CLOSURE COSTS

Drillhole Closure Costs
Cement = 1.19 CF/bag

0' – 100'	PQ – 5" diameter	14 bags
100' – 3000'	HQ – 3.895" diameter	202 bags

(216 bags of cement/hole) ($13.00/bag) (3holes) =	$8,424.00
Labor	
(16 hours/hole)($97/hr./driller+$52/hr./helper)(3 holes) =	$7,152.00
Helicopter	
Four day minimum	$20,000.00
Total Drillhole Closure Cost	**$35,576.00**

FACILITY REMOVAL

Labor	
(8 hours/hole)(($97/hr./driller+($52/hr./helper)(2 helpers))(3 holes) =	$4,824.00
Helicopter	
4 days	$20,000.00
Disposal	$3,000.00
Total Removal Cost	**$27,824.00**

REVEGETATION

Grass Seed	
(1200sf/pad)(3 pads) (4lb/1000sf)($2.04/lb.)=	$29.38

Labor	
(2 laborers)(12 hrs. total)($44.54/hr.)=	$1,068.96
Helicopter	
Three hour minimum	$3,315.00
Total Revegetation Cost	**$4,383.96**
TOTAL DIRECT RECLAMATION COST:	**$67,783.96**

INDIRECT COSTS

Mobilization/Demobilization@10%	**$6778.39**
Contingency@10%	**$6778.39**
Contractor Profit/Overhead@15%	**$10,167.59**
Project Management Fee@4%	**$2,711.36**
Engineering Redesign Fee@ 5%	**$3,389.20**
Total Indirect Costs	**$29,824.93**

GRAND TOTAL – 2011 RECLAMATION BOND	**$97,608.89**

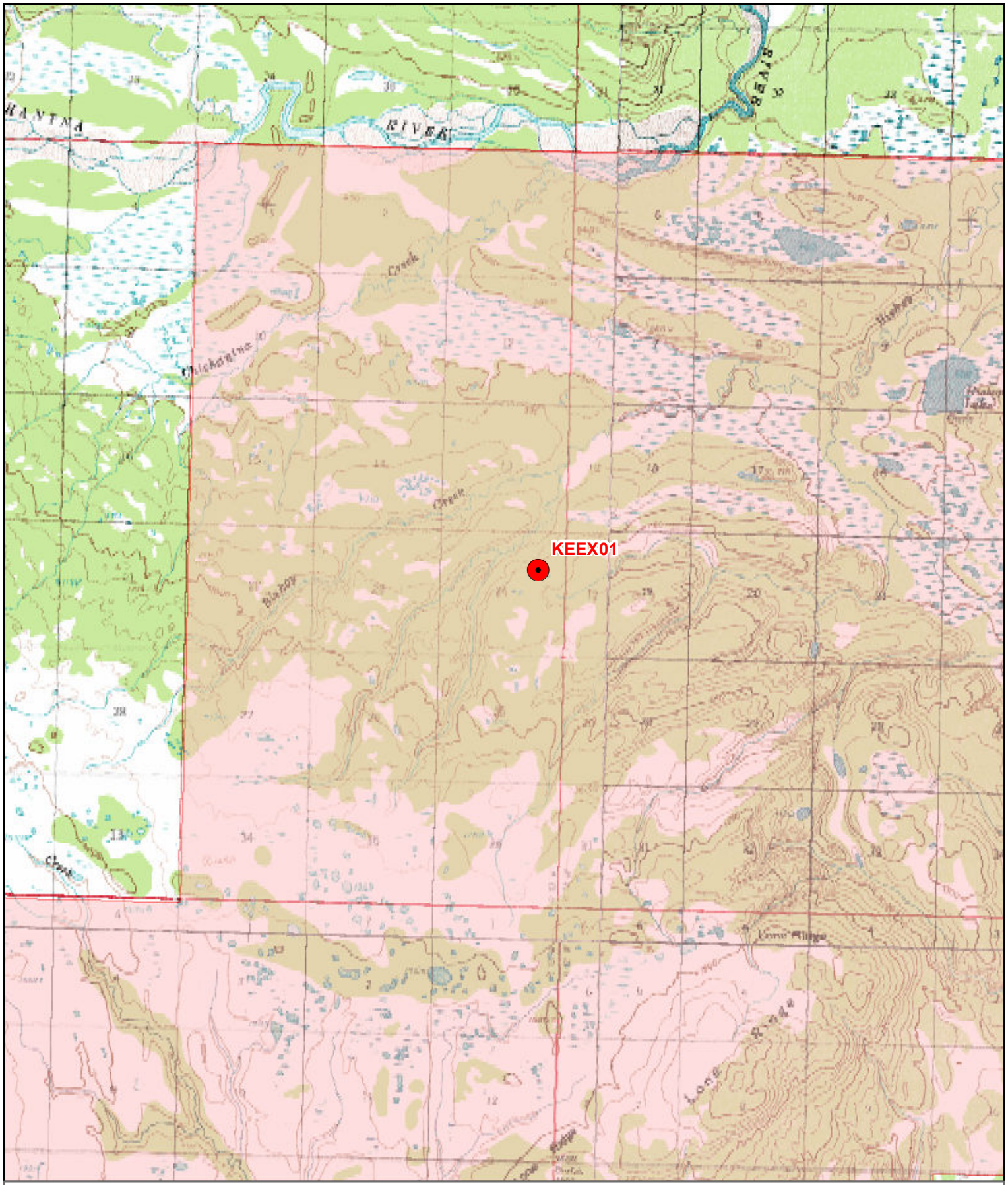
PART D – EXPLORATION ON LANDS UNSUITABLE FOR MINING

9.1 Not applicable
9.2 Not applicable
9.3 Not applicable

PART E – APPLICANT NAME AND SIGNATURES

See Application

Figures



Exploration Holes

License Areas

Alaska State Plane Zone 4, NAD27

N

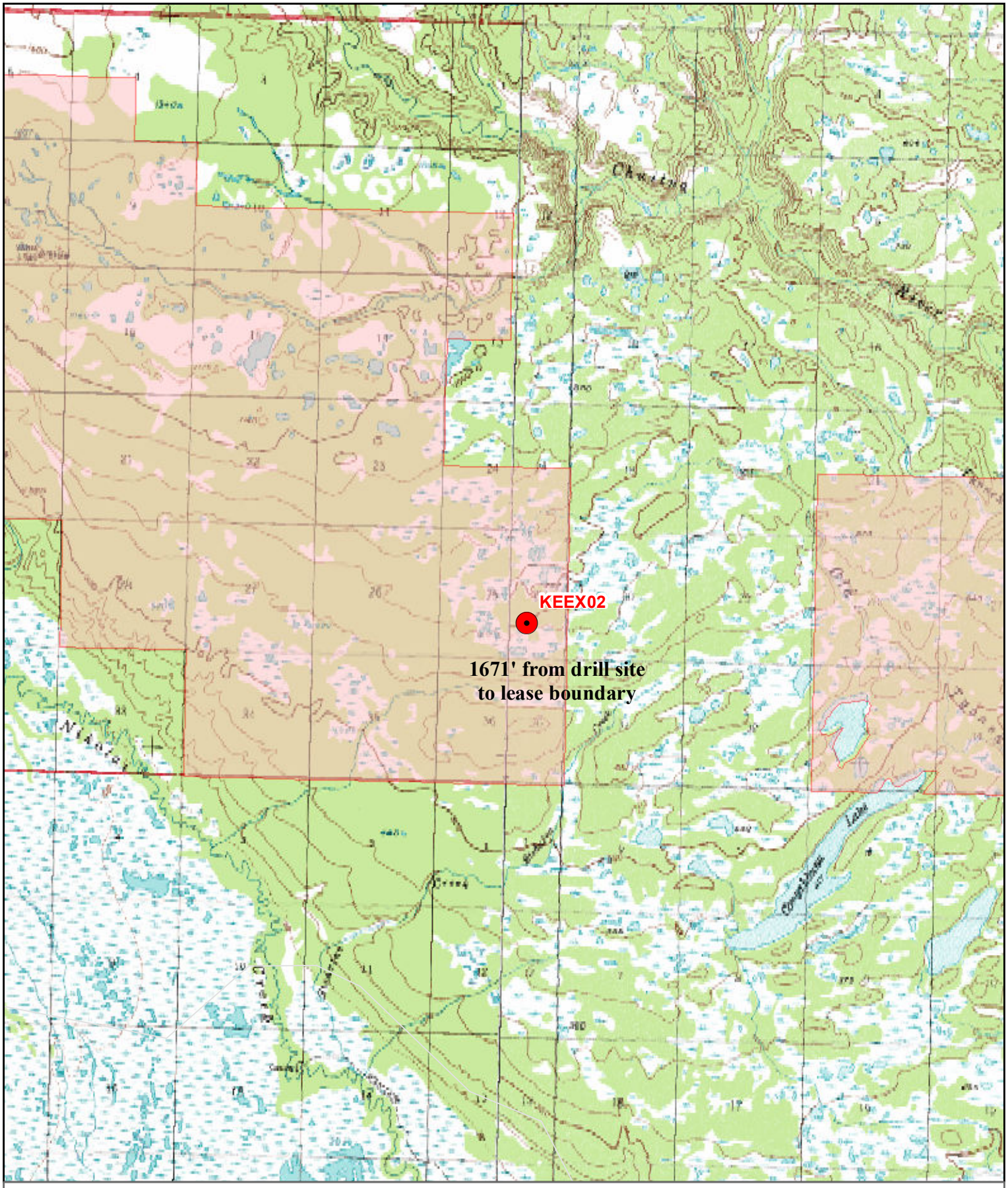
UCG Exploration License Areas

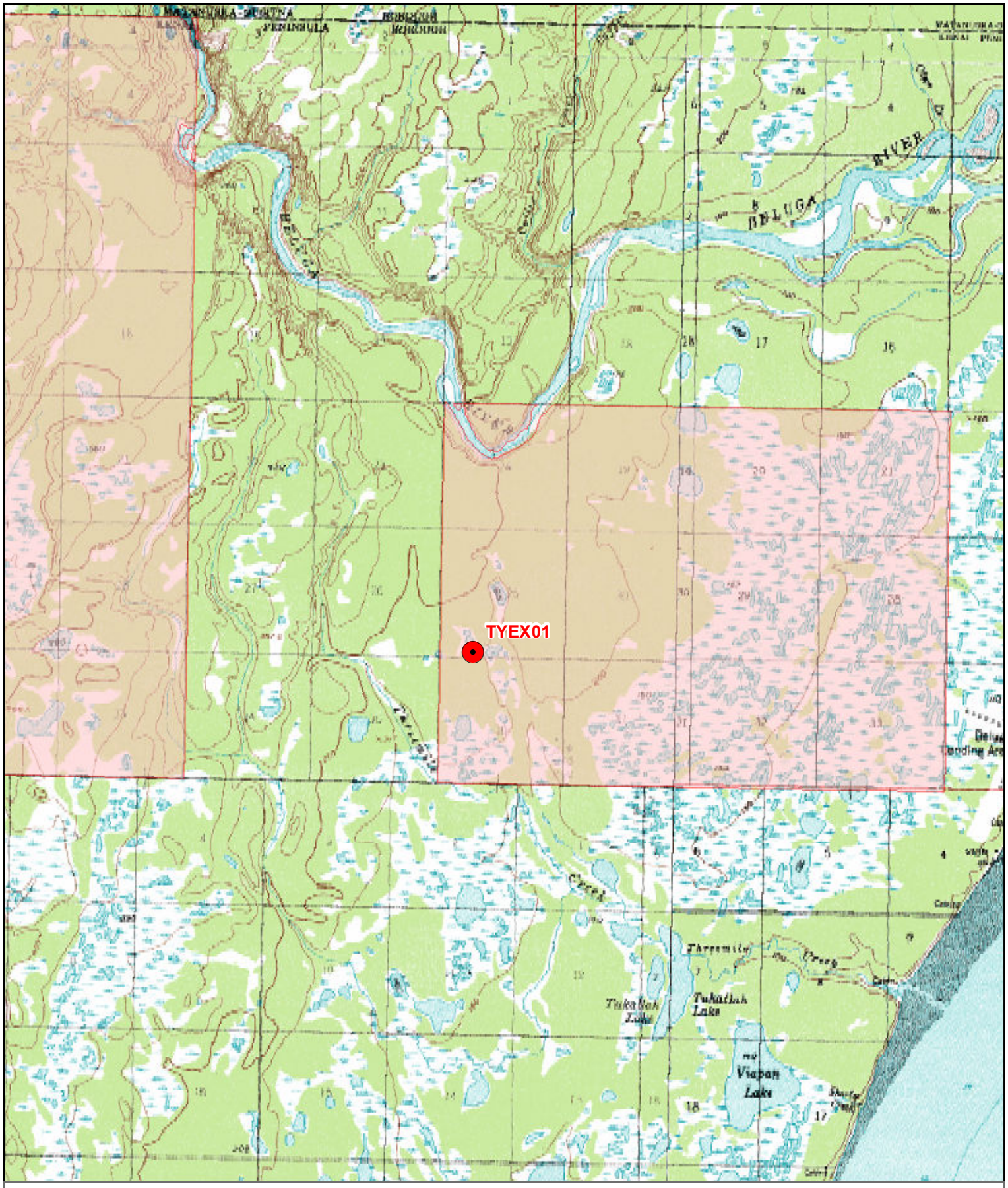
KEEX01

1 0.5 0 1 Mile

LINC ENERGY

Site_Locations.mxd


KEEX02
1671' from drill site
to lease boundary
Exploration Holes
License Areas
N
UCG Exploration License Areas
KEEX02
1 0.5 0 1
Mile
Alaska State Plane Zone 4, NAD27
LINC ENERGY
Site_Locations.mxd



Exploration Holes

License Areas

Alaska State Plane Zone 4, NAD27

N

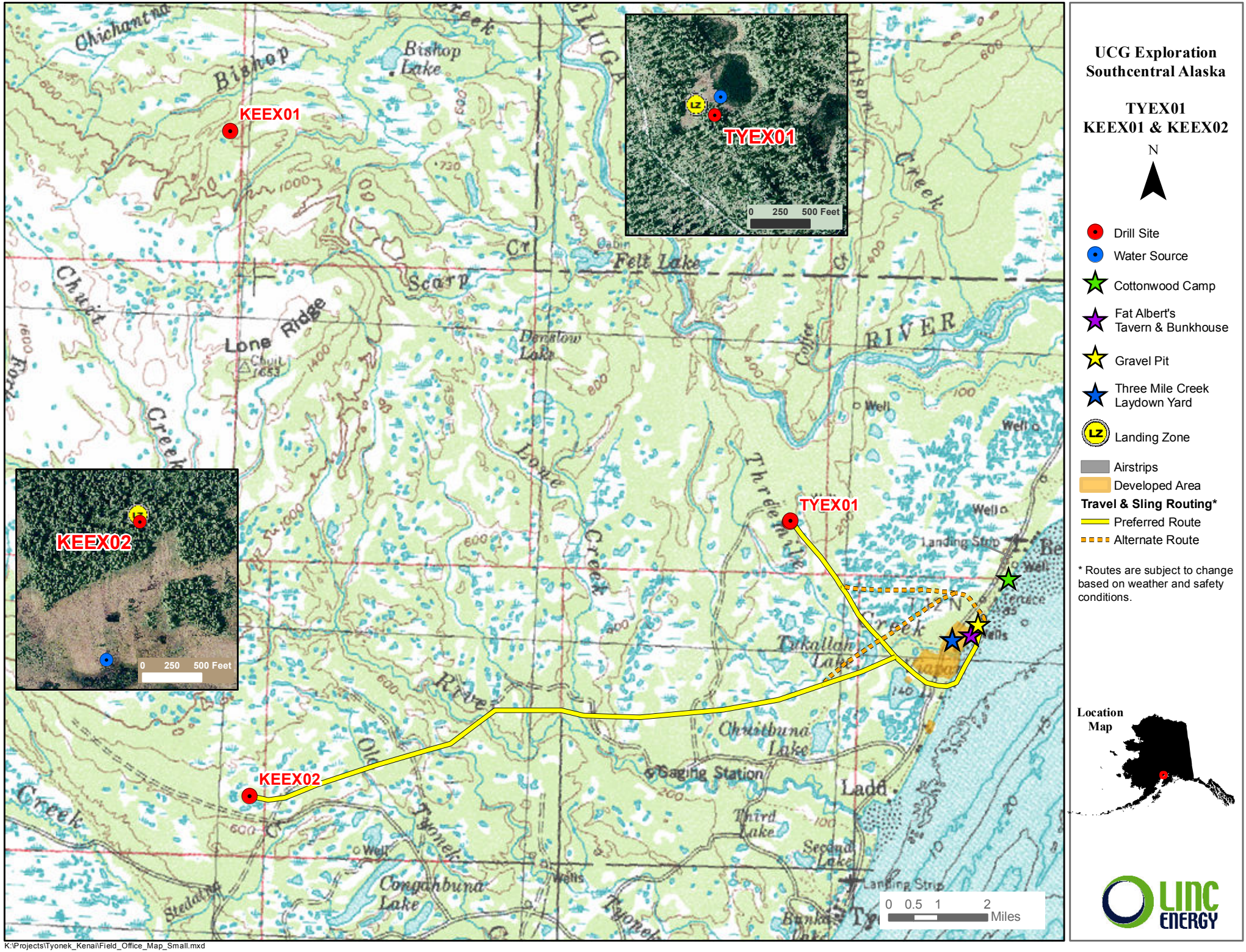
UCG Exploration License Areas

TYEX01

1 0.5 0 1 Mile

LINC ENERGY

Site_Locations.mxd



UCG Exploration
Southcentral Alaska

TYEX01
KEEX01 & KEEX02

N

- Drill Site
- Water Source
- Cottonwood Camp
- Fat Albert's Tavern & Bunkhouse
- Gravel Pit
- Three Mile Creek Laydown Yard
- Landing Zone
- Airstrips
- Developed Area

Travel & Sling Routing*

- Preferred Route
- Alternate Route

* Routes are subject to change based on weather and safety conditions.

Location Map

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K:\Projects\Tyonek_Kenai\Field_Office_Map_Small.mxd

ID	Lat	Long	AKSP4NAD27_Lat	AKSP4NAD27_Long	MTRS	LatDMS	LongDMS	ID	Elev (ft)*
KEEX01	61.29175	-151.519194	2667204.783	232827.34	S014N013W24	61° 17' 30.3"	-151° 31' 9.10"	KEEX01	810
KEEX02	61.097982	-151.498327	2596246.121	234817.43	S012N013W25	61° 5' 52.73"	-151° 29' 53.98"	KEEX02	750
TYEX01	61.181144	-151.175518	2625497.893	292749.63	S013N011W25	61° 10' 52.12"	-151° 10' 31.86"	TYEX01	205

Note: All State Plane coordinates are AK State Plane Zone 4, NAD27.

* Elevations are approximate as derived from USGS topographic maps.

Reset Form

Permit # / Notice # E-1401

ALASKA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING LAND & WATER
COAL EXPLORATION
Notice of Intent to Explore
and
Exploration Application

Notice of Intent

The Alaska Surface Coal Mining Control and Reclamation Act requires that any person who intends to conduct coal exploration which **will not** substantially disturb the natural land surface complete and file with the Department of Natural Resources a notice of intent to explore. **The completion of Parts A (including submission of the required permit fee), B, D, and E of this form will meet these requirements.** This form must be received at least thirty (30) days prior to commencement of the exploration.

The Act requires that any person who intends to conduct coal exploration which **will** substantially disturb the natural land surface must file a complete application for exploration. **The completion of Parts A (including submission of the required permit fee), C, D, and E of this form will meet the applicant's submission requirements.** The application should be submitted approximately three months prior to the anticipated commencement of exploration.

Substantial disturbance means an impact on land, water, or air resources by activities such as blasting; mechanical excavation (excluding the use of light, portable field equipment); drilling or enlarging coal or water exploratory holes or wells; and construction of roads, structures, trails, aircraft landing and marine docking areas.

Please submit one hard copy and one electronic copy of all application materials as specified by the Department.

Reference: Alaska Statute 27.21.200; 11 AAC 90.161 to 11 AAC 90.167.

PART A: GENERAL INFORMATION Ref: 11 AAC90.161; 11 AAC 90.163

1.1 Name of Applicant: Linc Energy Operations, Inc.

Contact: Bartly Kleven

1.2 Address of Applicant: 3000 C Street, Suite 103, Anchorage, AK 99503

1.3 Telephone Number: (907) 230-9410

1.4 If applicable, provide the following information for the representative who will be present and responsible for the exploration activities.

1.5 Name of Representative: Corri Feige

1.6 Address of Representative: 3000 C Street, Suite 103, Anchorage, AK 99503

1.7 Telephone Number: (907) 868-8660

1.8 Email Address: corri.feige@lincenergy.com

2.0 Location of the Exploration

2.1 Legal Description (attach additional pages as needed):

See Attached - Tyonek/Kenai License Areas

Township	Range	Section	Aliquot Part	Meridian	Acres
Township	Range	Section	Aliquot Part	Meridian	Acres

2.2 Number of Acres in Exploration Area: 107,497

RECEIVED
JUN 28 2011
July 1, 2011

Permit # / Notice # _____

2.3 Number of Acres of Federal Land (if applicable): N/A

2.4 USGS 1:250,000 or 1:63,360 Quadrangle Names: Tyonek

2.5 Distance and Direction to Nearest Community (in miles): Seven Miles N

2.6 Attach map of exploration site and adjacent area.

3.0 Period of Exploration

3.1 Begin (Month/Day/Year): August 15, 2011

3.2 End (Month/Day/Year): August 15, 2013

4.0 Ownership of Surface/Subsurface Mineral Estate

If the surface or the mineral estate is owned or leased by someone other than the applicant, answer 4.1 - 4.5, as appropriate (**attach additional pages as needed**).

4.1 Surface Owner

Name: Alaska Mental Health Trust Authority - Trust Land Office
Address: 718 L Street, Suite 202, Anchorage, AK 99501
Telephone Number: (907) 269-7960

4.2 Mineral Estate Owner

Name: Alaska Mental Health Trust Authority - Trust Land Office
Address: 718 L Street, Suite 202, Anchorage, AK 99501
Telephone Number: (907) 269-7960

4.3 Surface Land Leaseholder

Lease #: N/A
Name: _____
Address: _____
Telephone Number: _____

4.4 Mineral Estate Leaseholder

Lease #: N/A
Name: _____
Address: _____
Telephone Number: _____

4.5 Adjacent Surface & Mineral Estate Leaseholders

Lease #: N/A
Name: _____
Address: _____
Telephone Number: _____

4.6 Right to Enter: Provide a statement describing the basis by which the applicant claims the right to enter the land for the purposes of conductil1g exploration and reclamation, Reference relevant federal, state, and local government prospecting permits or lease documents. Attach copies of supporting documents, as appropriate.

Permit # / Notice # _____

5.0 Fees — Ref: 11 AAC 90.011

5.1 Permit Fee $500.00 Attach receipt. (Refer to fee schedule below)

Exploration - notice of intent $100
Exploration· substantial disturbance $500 + cost of all public notices

PART B: NOTICE OF INTENT TO EXPLORE — Ref: 11 AAC 90.161

6.0 Intention to Explore

6.1 Describe intended exploration activities, including major' pieces of equipment and their use.

6.2 Will exploration activities substantially disturb the natural surface of the land?

☑ YES ☐ NO

If yes, proceed to Part C; if no, answer 6.3 and proceed to Part D. (See definition on page 1 of this form.)

6.3 Describe practices to be used to protect the environment from adverse impacts resulting from exploration activities.

PART C: EXPLORATION PERMIT APPLICATION — Ref: 11 AAC 90.163; 11 AAC 90.167

7.0 Exploration Area Description

Note: all technical data in this application must be accompanied by:
1) names of persons and organizations who gathered and analyzed data;
2) dates of data collections and analysis;
3) description of procedures used; and
4) names, addresses and positions of officials of each agency consulted.

7.1 Indicate type(s) of surface disturbance: ☐ blasting. ☑ mechanical excavation ☑ Drilling, altering coal or water exploration holes and wells, ☑ road or trail construction or modification ☐ aircraft landing construction/modification ☐ marine docking facility construction/modification ☐ construction of structures ☐ placement of excavated material or debris on surface ☐ other, specify _____

7.2 Provide a map of at least a scale of 1:63,360 enlarged 2.5 times (~1:25000), showing the following existing surface features:

a. existing roads and trails;

b. occupied dwellings and other structures;

c. pipelines, airfields and marine docking facilities;

d. bodies of water; .

e. historic, archeological and cultural features;

f. topographic and drainage features; and

g. habitats of endangered or threatened species.

7.3 Using existing information, briefly describe, with cross references to the map in 7.2, the surface topography, geology, surface waters, predominant land use, and other physical features.

7.4 Using existing information, briefly describe, with cross references to the map in 7.2, vegetation cover and important habitats of fish, wildlife and plants.

7.5 Does the exploration area include critical habitat of threatened or endangered species; or species such as eagles, migratory birds or other animals protected by state or federal law; or habitats of unusually high value for fish and wildlife?

☐ YES ☑ NO

If yes, describe impact, control measures, management techniques and monitoring methods to be utilized to protect these species and habitats.

7.6 Does the exploration area include known archeological resources; or districts, sites, structures or objects listed on the National Register of Historic Places?

☐ YES ☑ NO

If yes, identify and describe, and describe protection measures to be implemented.

8.0 Exploration and Reclamation Methods

8.1 Provide a map of at least a scale of 1:63,360 enlarged 2.5 times, showing the following exploration and reclamation features (if appropriate, this may be combined with the map required under 7.2):

a. the area to be disturbed by exploration and reclamation; .
b. access routes, including new roads, trails or other transportation facilities to be constructed, and existing facilities to be used or modified;
c. proposed excavations and trenches;
d. water or coal exploratory holes t6 be drilled or altered;
e. earth or debris disposal areas; f. sediment control measures, such as sediment ponds and structures for diverting overland flow, if required; and
g. other exploration or reclamation features.

8.2 Provide a description of exploration and reclamation methods and a discussion of how the exploration will comply with the performance standards in 11 AAC 90.167. Cross-referencing the map in 8.1, describe, at a minimum, the following:

a. types and uses of equipment;
b. design, construction, maintenance and removal of any proposed new roads, trails or other transportation facilities;
c. alteration and restoration of existing transportation facilities;
d. blasting procedures;
e. earth or debris disposal;
f. backfilling and regrading of all excavations, artificial flat areas, embankments or other disturbed areas to their approximate original contour;
g. topsoil removal, storage and redistribution;
h. seed mix, application rates, seeding method and other procedures to be implemented in the establishment of a vegetative cover on all disturbed areas;
i. procedures for plugging and abandoning exploration holes, boreholes, wells or other exposed underground openings;

j. procedures and control practices to be implemented to minimize disturbance to the prevailing hydrologic balance, including, if necessary, sedimentation control;
k. handling and disposal of known acid-forming or toxic-forming materials, if any; and
I. removal of all facilities and equipment.

8.3 Provide a time table for each phase of exploration and reclamation including starting and ending date, type of disturbance, area of disturbance, and reclamation measures.

8.4 Give an estimate of the quantity of coal to be removed during the exploration. Specify method used to measure quantity.

8.5 Give a detailed estimate of the cost of reclamation of all areas to be affected by exploration activities.

PART D: EXPLORATION ON LANDS UNSUITABLE FOR MINING
Ref: 11 AAC 90.165

9.1 Does the proposed exploration area include any area previously designated as unsuitable for all or certain types of mining by the Commissioner of Natural Resources?

☐ YES ☑ NO

If yes, respond to 9.2 and 9.3. . .

9.2 Indicate petition name and number: _____

9.3 Describe the basis for the designation of the area as unsuitable for mining and why exploration in the area is not incompatible with the values or features which led to the designation of the area.

PART E:

The applicant states to the best of his or her knowledge and belief that all statements made in the notice of intent to explore or in the application to explore are true and correct.

Applicant's Name: Corri A. Feige Title: Project Manager

Address: 3000 C Street, Suite 103, Anchorage, Alaska 99503

Applicant's Signature: Corri A. Feige Date: 21 June 11

Subscribed and sworn before me by Corri A Feige this the 21 day of June, 2011

Notary Public: Coleen Leonard My commission expires May 29, 2014

Notary Public
COLEEN LEONARD [SEAL]
State of Alaska
My Commission Expires May 29, 2014

Note: Attach a copy of power of attorney, or resolution of Board of Directors that grants signature authority)

LINC ENERGY OPERATIONS, INC.

POWER OF ATTORNEY

Linc Energy Operations, Inc., a corporation organized and existing under and pursuant to the laws of Delaware (hereinafter called the "Company"), which Company is in good standing and qualified to carry on business in the State of Alaska, by and through its undersigned President does hereby make, constitute and appoint CORRI FEIGE as its Attorney-in-Fact (hereinafter referred to as "Attorney") for and on behalf of the Company:

1. to conduct business on behalf of the Company with respect to exploration, development and production activities by the Company on oil and gas leases, coal leases, mineral exploration and prospecting licenses, and all such similar and related interests within the State of Alaska that the Company or any affiliate, including Linc Energy (Alaska), Inc., owns or otherwise holds the legal authority to access for purposes of exploration, development and production activities (hereinafter referred to as "Leases");

2. to draft and prepare, negotiate, execute and sign, file, and tender on behalf of the Company all documents and instruments, including amendments thereto, relating to the Company's Leases and all exploration, development and production activities by the Company on the Leases, including without limitation contracts, designation of operator, extension or modification of lease, unitization, formation of participating area, and applications for all necessary and appropriate permits, authorizations or other governmental or private approvals; and

3. to take any and all further steps which the Attorney may deem to be necessary or desirable to accomplish the purposes herein specified, the Company hereby ratifying and confirming all that its Attorney shall lawfully do or cause to be done pursuant to the powers herein granted.

The authority conferred on the Attorney by this Power of Attorney shall terminate at 11:59:59 p.m. Alaska time on June 30, 2016.

///

///

IN WITNESS WHEREOF the Company has caused this instrument to be executed by its duly authorized officer this 24 day of June 2011.

LINC ENERGY OPERATIONS, INC.

Donald Schofield
President

STATE OF COLORADO)
) ss.
COUNTY OF DENVER)

I, Deborah Yenchick, a Notary Public in and for the State of Colorado, residing at Denver, Colorado, DO HEREBY CERTIFY THAT I personally know the signatory on the above Power of Attorney, Donald Schofield, that he is President of Linc Energy Operations, Inc., and that he has confirmed to me his signature on the above Power of Attorney appointing Corri Feige.

IN TESTIMONY WHEREOF I have subscribed my name and affixed my notarial seal at Denver, Colorado this 24 day of June 2011.

Deborah Yenchick
A Notary Public in and for the State of Colorado
My Commission expires: 6/25/2012

DEBORAH A. YENCHICK
NOTARY PUBLIC, STATE OF COLORADO
My Comm. Expires June 25, 2012