



**Linc Energy Operations, Inc.**  
3000 "C" Street, Suite #103  
Anchorage, Alaska 99503

August 22, 2011

Alaska Oil and Gas Conservation Commission  
333 West 7<sup>th</sup> Ave., Suite 100  
Anchorage, Alaska 99501

**RE: Application for Permit to Drill**  
**Well: ANEX 01 (Underground Coal Gasification Stratigraphic Test Core)**  
**TRS: SWNE, T06S, R08W, Section 23, Fairbanks Meridian**

Dear Chairman Seamount,

Linc Energy Operations Inc. hereby applies for a Permit to Drill an onshore Underground Coal Gasification stratigraphic test well approximately 3 miles northeast of the town of Anderson at mile 396 of the Alaska Railroad, and 75 miles southwest of Fairbanks. The well will be cored on Alaska Mental Health Trust Land under the authority of a current Underground Coal Gasification (UCG) Exploration License (Fairbanks License MHT# 9400434) held by Linc Energy Operations Inc. and governed by the Coal Regulatory Group at the Department of Natural Resources.

Linc plans to commence operations on approximately March 26<sup>th</sup>, 2012, employing the Tester Simco 4000 Drilling rig to drive conductor casing to approximately 300', and the Boart Longyear coring rig to core approximately 3500'. A diverter system will be installed on the Boart Longyear coring rig per Alaska Oil and Gas Conservation Commission ("AOGCC") well safety requirements.

Please find attached information as required by 20 AAC 25.005 (a) and (c) for your review. Pertinent information attached to this application includes the following:

- 1) Form 10-401 Application for Permit to Drill
- 2) A plat showing the surface location of the well
- 3) Geologic Discussion, Anticipated Formation Tops

- 4) Shallow Gas Hazard Evaluation
- 5) General Well Prognosis, Waste Management, Logging Program
- 6) Proposed Operations Summary
- 7) Drilling Time versus Depth Plot
- 8) Proposed Wellbore Diagram
- 9) Description of the Well Control Equipment to be Used
- 10) Description of Rig Layout & Pit System
- 11) Drilling Fluid Program

The following are Linc Energy designated contacts for reporting responsibilities to the Commission:

1) Completion Report (20 AAC 25.070)	Corri Feige, Alaska Project Manager (907) 868-8660
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2) Geologic Data and Logs (20 AAC 25.071)	Corri Feige, Alaska Project Manager (907) 868-8660
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The AOGCC is requested to treat as confidential all information in the Application for Permit to Drill (except the Public Information Copy) as information in these documents is drawn from research and data proprietary to Linc.

If you have any questions or require further information, please contact either Corri Feige, General Manager – Alaska at (907.868.8660) or Nick Scales, Drilling Operations Manager at (907.868.8660).

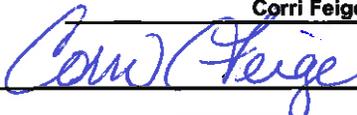
Sincerely,

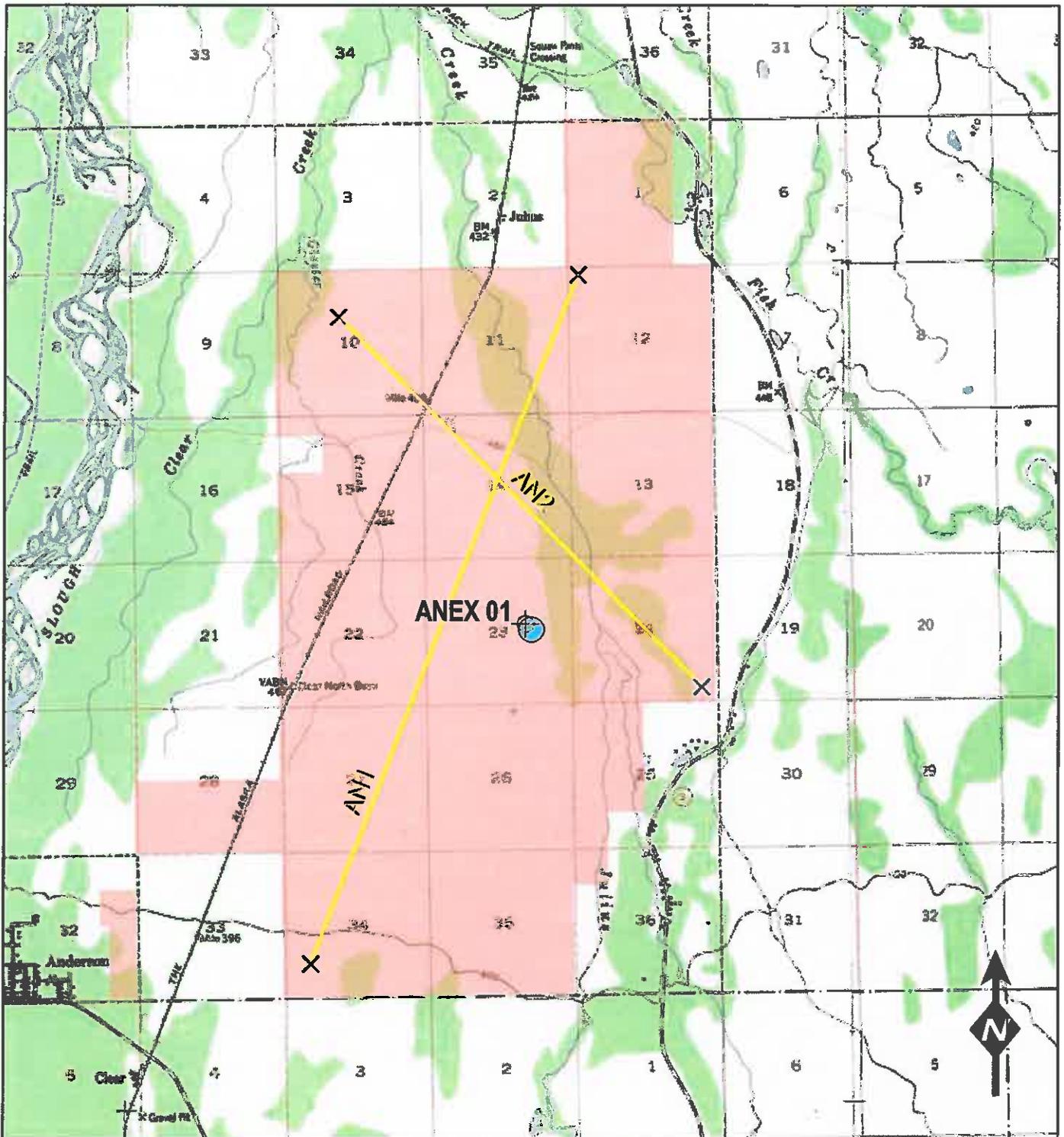


**Corri A. Feige**  
**Alaska General Manager**

STATE OF ALASKA  
ALASKA OIL AND GAS CONSERVATION COMMISSION  
**PERMIT TO DRILL**

20 AAC 25.005

1a. Type of Work: Drill <input checked="" type="checkbox"/> Redrill <input type="checkbox"/> Re-entry <input type="checkbox"/>		1b. Current Well Class: Exploratory <input type="checkbox"/> Stratigraphic Test <input checked="" type="checkbox"/> Service <input type="checkbox"/> Multiple Zone <input type="checkbox"/>		Development Oil <input type="checkbox"/> Development Gas <input type="checkbox"/> Single Zone <input type="checkbox"/>		1c. Specify if well is proposed for: Coalbed Methane <input type="checkbox"/> Gas Hydrates <input type="checkbox"/> Shale Gas <input type="checkbox"/>				
2. Operator Name: <b>Linc Energy Operations, Inc.</b>			5. Bond: Blanket <input checked="" type="checkbox"/> Single Well <input type="checkbox"/> Bond No. <b>number pending</b>		11. Well Name and Number: <b>ANEX 01</b>					
3. Address: <b>3000 C Street, Suite 103, Anchorage, AK 99503</b>			6. Proposed Depth: MD: <b>3500'</b> TVD: <b>3500'</b>		12. Field/Pool(s): <b>Exploratory</b>					
4a. Location of Well (Governmental Section): Surface: <b>2388' FNL, 1593' FEL, Sec 23-6S-8W, Fairbanks Meridian</b> Top of Productive Horizon:  Total Depth: <b>3500'</b>			7. Property Designation: <b>Alaska Mental Health Trust</b>		8. Interior Region UGC Exploratory License: <b>MHT#9400434</b>					
4b. Location of Well (State Base Plane Coordinates): Surface: AKSP Lat: 3794515.876 AKSP Long: 1786692.716 Zone 4			10. KB Elevation (Height above GL): <b>2140 feet</b>		13. Approximate Spud Date: <b>3/26/2012</b>					
16. Deviated wells: Kickoff depth: Maximum Hole Angle: <b>0 degrees</b>			17. Maximum Anticipated Pressures in psig (see 20 AAC 25.035) Downhole: _____ Surface: _____							
18. Casing Program:		Specifications				Top - Setting Depth - Bottom		Cement Quantity, c.f. or sacks		
Hole	Casing	Weight	Grade	Coupling	Length	MD	TVD	MD	TVD	(including stage data)
driven	6"	18.97	A53	BW	300'	0'	0'	300'	300'	driven
3.77"	na				3500'	0'	0'	3500'	3500'	
19. <b>PRESENT WELL CONDITION SUMMARY (To be completed for Redrill and Re-Entry Operations)</b>										
Total Depth MD (ft):		Total Depth TVD (ft):		Plugs (measured):		Effect. Depth MD (ft):		Effect. Depth TVD (ft):		Junk (measured):
<b>Casing</b>		<b>Length</b>		<b>Size</b>		<b>Cement Volume</b>		<b>MD</b>		<b>TVD</b>
Conductor/Structural										
Surface										
Intermediate										
Production										
Liner										
Perforation Depth MD (ft):						Perforation Depth TVD (ft):				
20. Attachments:		Filing Fee <input type="checkbox"/>		BOP Sketch <input type="checkbox"/>		Drilling Program <input checked="" type="checkbox"/>		Time v. Depth Plot <input checked="" type="checkbox"/>		Shallow Hazard Analysis <input checked="" type="checkbox"/>
		Property Plat <input type="checkbox"/>		Diverter Sketch <input checked="" type="checkbox"/>		Seabed Report <input type="checkbox"/>		Drilling Fluid Program <input checked="" type="checkbox"/>		20 AAC 25.050 requirements <input type="checkbox"/>
21. Verbal Approval: Commission Representative: _____ Date _____										
22. I hereby certify that the foregoing is true and correct. _____ Contact <b>Corri Feige 907.868.8660</b>										
Printed Name		<b>Corri Feige</b>				Title		<b>General Manager - Alaska</b>		
Signature						Phone		<b>(907) 868-8660</b>		Date <b>8/25/11</b>
<b>Commission Use Only</b>										
Permit to Drill Number:		API Number: <b>50-</b>				Permit Approval Date:			See cover letter for other requirements.	
Conditions of approval If box is checked, well may not be used to explore for, test, or produce coalbed methane, gas hydrates, or gas contained in shales: <input type="checkbox"/>										
Other: _____										
Samples req'd: Yes <input type="checkbox"/> No <input type="checkbox"/>					Mud log req'd: Yes <input type="checkbox"/> No <input type="checkbox"/>					
H <sub>2</sub> S measures: Yes <input type="checkbox"/> No <input type="checkbox"/>					Directional svy req'd: Yes <input type="checkbox"/> No <input type="checkbox"/>					
DATE: _____										APPROVED BY THE COMMISSION _____ COMMISSIONER



State Plane, Alaska Zone 4, NAD83  
 Fairbanks Meridian  
 USGS Quads: Fairbanks B-4, B-5



**INTERIOR LICENSE AREA  
 PROPOSED DRILLHOLE  
 LOCATION AND WATER SOURCE**

-  Drill Site Location
-  Water Source
-  Seismic Lines
-  LINC UCG Exploration License Acreage

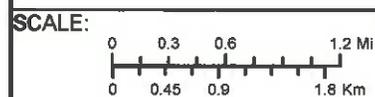


FIGURE:  
**5**

## **Exploration Drill Hole ANEXO1**

Linc Energy Operations, Inc.

### **Area Geologic Description**

ANEXO1 is located in the NE1/4 of Sec.23, T6S, R8W, of the Fairbanks Principle Meridian. The Nenana Coal Basin includes a structurally similar series of disconnected sub-basins resulting in subfields. The approximately 3,000 foot thick Tertiary coal-bearing group rests directly on a highly irregular surface of Precambrian and Paleozoic aged metamorphic rocks and is overlain by Nenana Gravels and Quaternary surficial deposits. The belt of Tertiary coal-bearing rocks extends for about 140 miles along the north-central flank of the Alaska Range and is up to 30 miles wide. The Nenana trend continues approximately 150 miles to the southwest of the Nenana Basin proper and includes the coal-bearing rocks of the Farewell field.

Tertiary sedimentary rocks contain the coal seams of potential UCG interest. These rocks range in age from the Oligocene to late Miocene and uncomfortably overlie the Precambrian-Paleozoic basement. These deposits of Tertiary sediment of potential UCG interest are subdivided into five formations and are informally known as the Usibelli Group. They are from youngest to oldest, Grubstake, Lignite Creek, Suntrana, Sanctuary and Healy Creek formations. The sedimentary rocks of the basin are weakly indurated terrestrial clastics interbedded with numerous coal beds ranging from 2 to 40 feet thick. Late Tertiary Nenana Gravels and Quaternary surficial deposits overlay the coal-bearing formations. Based on findings by others, the coal-bearing units are characterized by rapid lateral changes in lithologies and varying thicknesses in individual facies.

### **Drill hole Stratigraphic Description**

It is anticipated that ANEXO1 will penetrate through Quaternary surficial deposits, the Nenana gravels, and penetrate the Usibelli Group to a total depth of between 3000 and 4000ft.

### **Anticipated Coal Targets**

The Usibelli Group coal seams exceeding 15 feet in thickness are the primary targets for ANEXO1. Linc Energy is preparing to acquire new 2D seismic line data within the license area near ANEXO1. Results of this survey will be used to drive the ANEXO1 core drilling program, as the seismic is expected to determine the depth of the surficial gravels, the thickness of Nenana gravels, the depth of thick coal seams of interest to UCG, and structural setting.

### **Shallow Gas Hazard Analysis**

Three conventional oil and gas exploration wells have been drilled in the vicinity of the proposed ANEXO1. None of these wells intersected gas or gas-charged intervals, and all seemed to lack a sufficient seal in the intermediate and overlying strata. The nearest drill hole to ANEXO1 is approximately 20 miles north near the village on Nenana. In 2009 a partnership between Doyon and others drilled the 11,100-foot Nunivak No. 1 well about five miles west of the village of Nenana targeting a saddle between the

northern and southern sub-basins of the complete Nenana basin. No commercial gas was found and the well was plugged and abandoned. Two other shallower wells have also been drilled in the area: Union Oil Co. of California drilled the Tazlina 1 in 1962 to the west-northwest of Nenana; and Arco Alaska Inc. drilled the Totek Hills 1 on the southern side of the basin in 1984. The Tazlina 1, drilled to 8,837 feet encountered no gas. The Totek Hills 1, drilled to 3,590 feet, found no gas intervals but encountered coal seams at various depths.

As referenced previously, Linc Energy is preparing to acquire new 2D seismic line data within the license area near ANEX01. In addition to geologic data, this data will be analyzed for the presence of shallow gas.



## ANEX 01 General Prognosis

Well Name: ANEX 01  
Surface Location: SWNE, Section 23, T06S, R08W, FM  
Bottom hole Location: Same (vertical hole)  
Planned TD: 3,500' MD / TVD

### Well Summary

A 6" conductor will be driven to 300' prior to the coring rig moving in. The cellar will be grouted with concrete to stabilize the conductor casing. Rotary coring operations will cut approximately 3,500' of 2.50" core using a 10' wireline retrievable core barrel with a 3.77" OD core bit.

### Drilling Fluid Management

A gel freshwater mud system provided by MISWACO will be used for the coring operations from 300' to TD. At the end of coring operations the settling pit will be reclaimed in accordance with the Alaska Surface Coal Mining Control and Reclamation Act AS 27.21.

### Waste Management

All waste including drill cuttings will be handled in accordance with the Alaska Surface Coal Mining Control and Reclamation Act AS 27.21 as governed by the Coal Regulatory Group of the Alaska Department of Natural Resources.

### Well Trajectory and Deviation Survey

The ANEX 01 is planned to be a vertical well.

### Formation Tops and Casing Depths

See attached geologic summary. No production casing is planned at this time.

### Logging Program

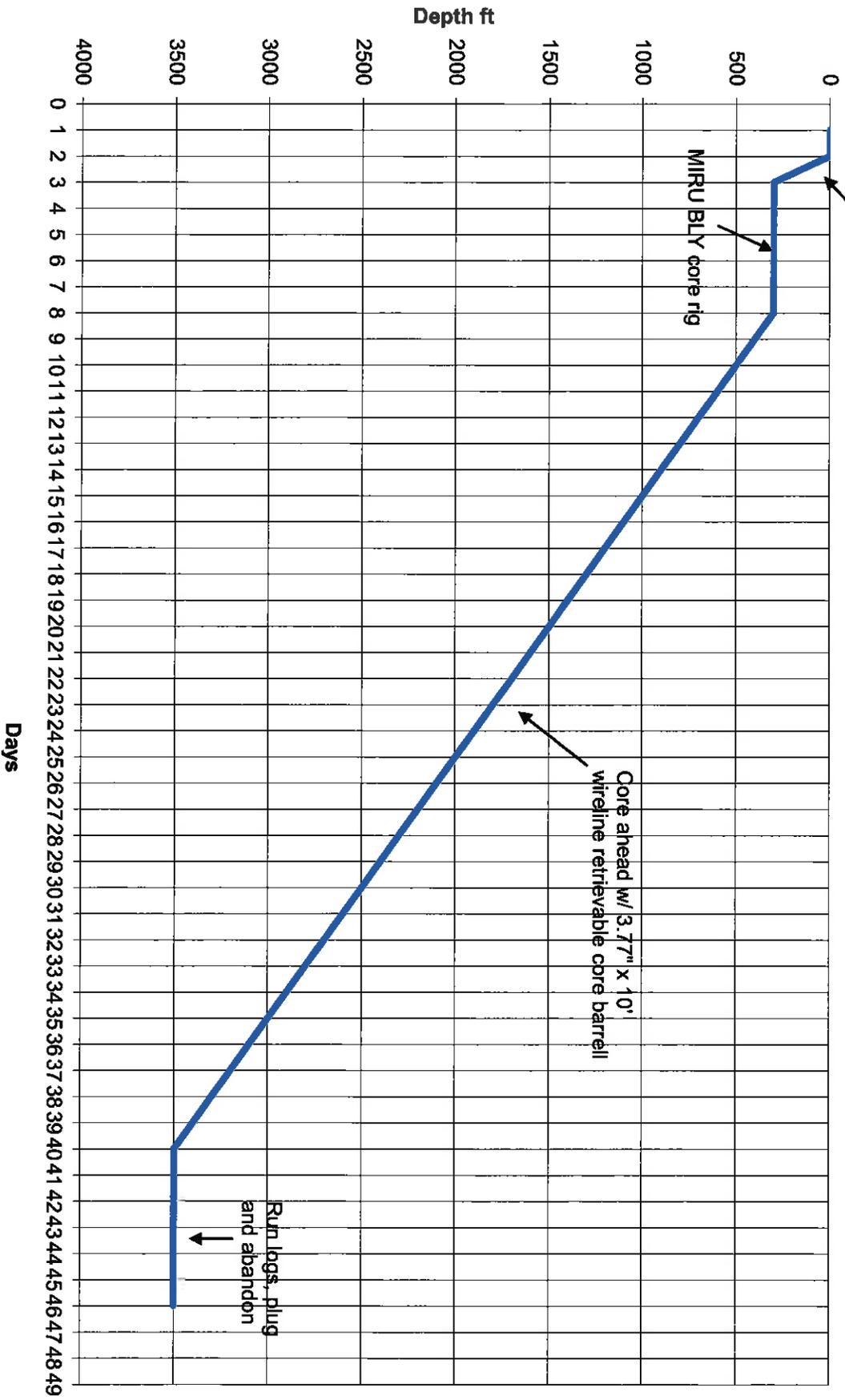
0' – 300'	No open-hole logs
300' – 3500'	GR/Resistivity/Neutron Density/Sonic

**Proposed Operations Summary**

1. MIRU Tester Simco Drilling conductor rig
2. Drive 6" conductor pipe to +/-300'
3. Hand mix cement and grout conductor cellar to stabilize conductor pipe at surface
4. RDMO Tester Drilling conductor rig
5. MIRU Boart Longyear coring rig, dig settling pit
6. Notify AOGCC of start up, perform diverter drill
7. MU 3.77" core bit, 2.50" coring assembly
8. Core ahead using 10' wireline retrievable core barrel assembly from 300' to 3500'
9. RU wireline, run open hole logs including GR/Resistivity/Neutron Density/Sonic
10. Plug and abandon per AOGCC requirements, RDMO core rig

MIRU Tester Drilling, drive  
conductor pipe to 300'

### ANEX 01 Days vs Depth



**PROPOSED WELLBORE DIAGRAM**

**ANEX 01**

Linc Energy Operations, Inc.

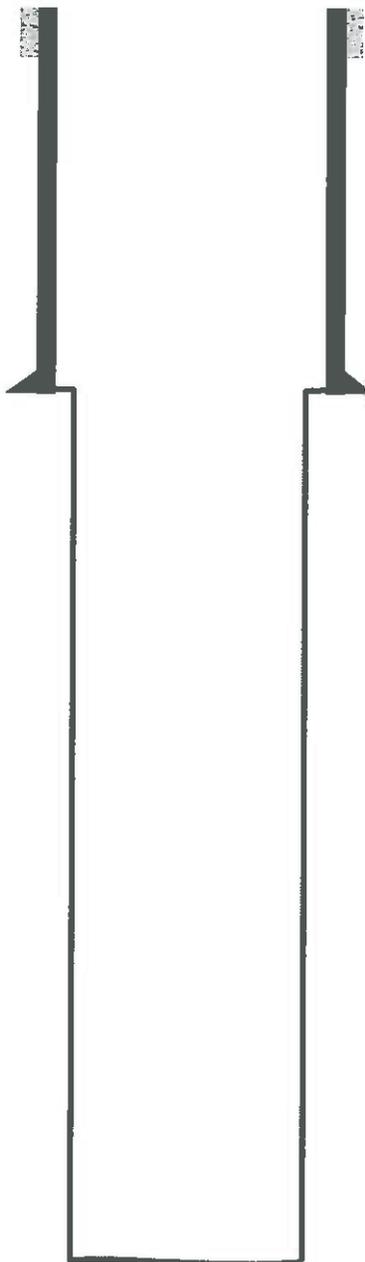
Section 23-06S-08W, FM

API #: \_\_\_\_\_

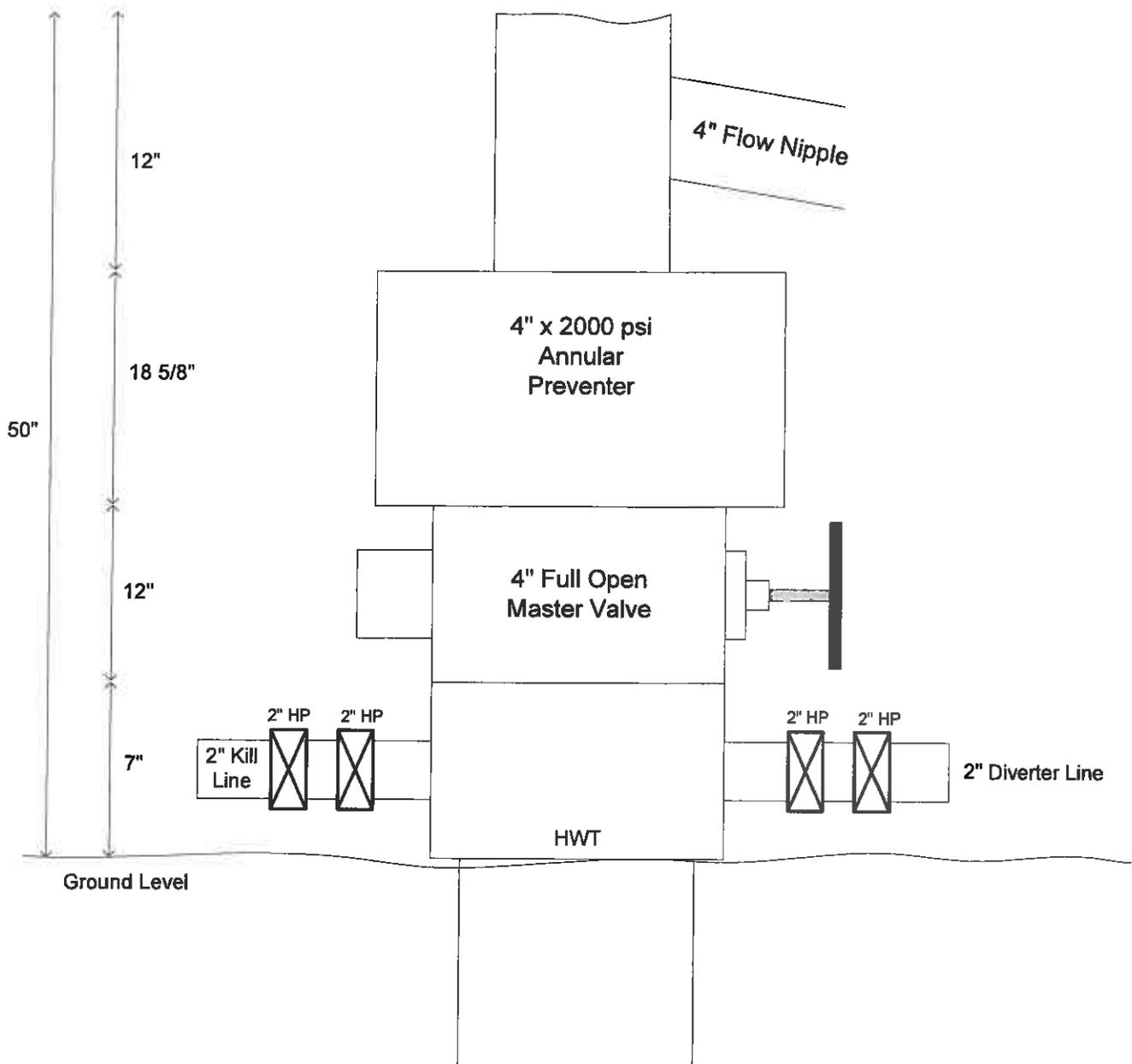
Cellar & conductor annulus grouted at surface to stabilize conductor pipe

6" conductor casing driven to refusal @ +/-300'

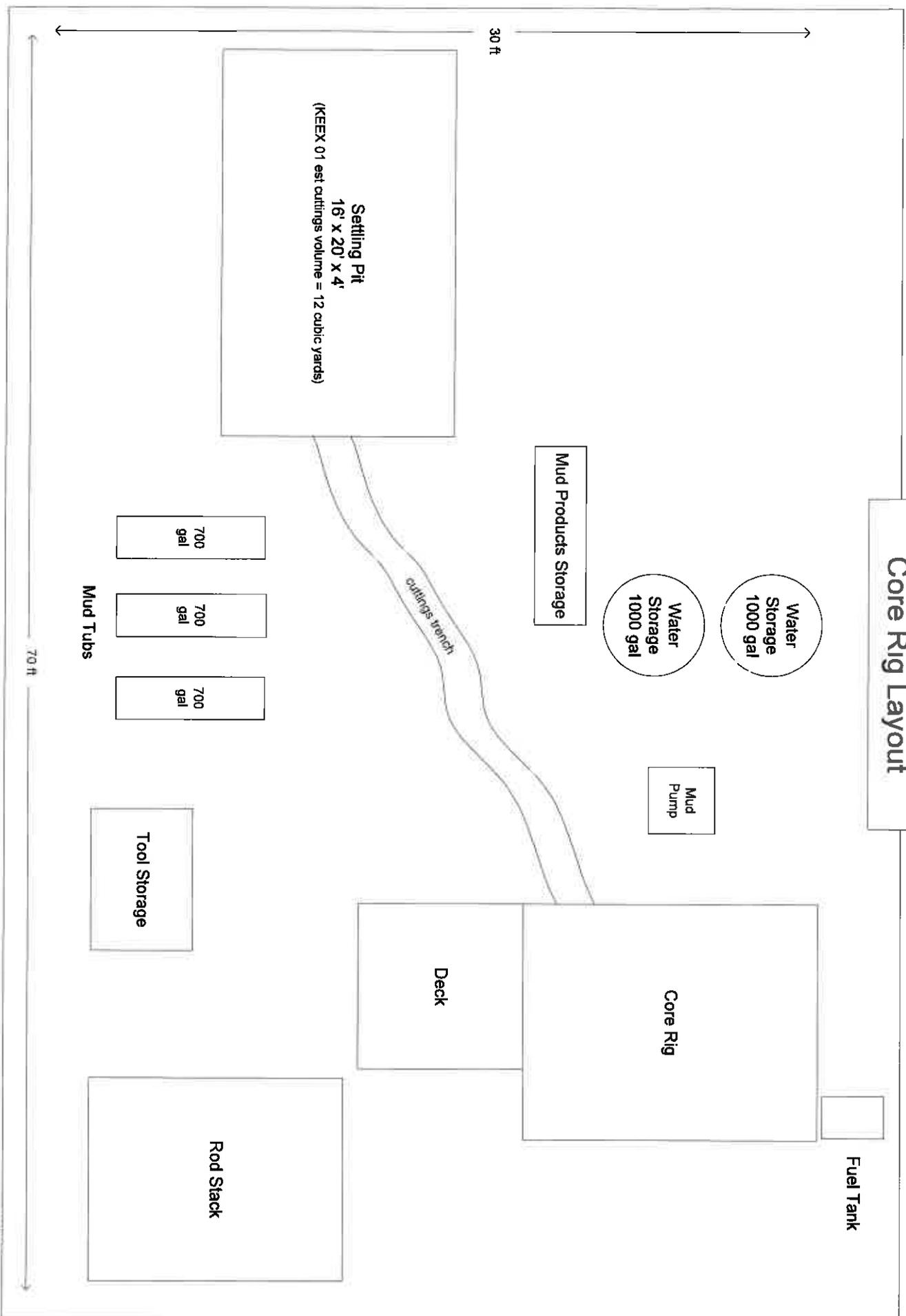
3.77" Core Hole to +/- 3500'  
\* 2.50" x 10' Core Barrel



# Proposed Diverter Layout



# Core Rig Layout



# ANEX 01 Proposed Drilling Fluid Program

