



**The Alaska Support Industry Alliance**  
**UMIAT Project Update**  
**9 May 13**



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# Summary

- About Linc Energy
- Umiat History
- Stakeholder Relations
- Umiat 2012 – 2103 Winter Drilling Program
- What's Next
- Linc Energy Clean Energy Alaska
- Underground Coal Gasification (UCG)
- Discussion

# About Linc Energy

- Diversified energy company
- Resource holdings (4 continents):
  - 3 million acres of UCG coal leases
  - 22 million acres of oil & gas leases
- Corporate office: Brisbane, Australia
- Public Listings: ASX and OTCQX
- Global leader in Underground Coal Gasification (UCG)
- Recognized Gas to Liquids (GTL) capabilities.



# Business Divisions

Clean Energy



Oil & Gas



Coal



Sapex (Oil Shale)



# Linc Energy USA

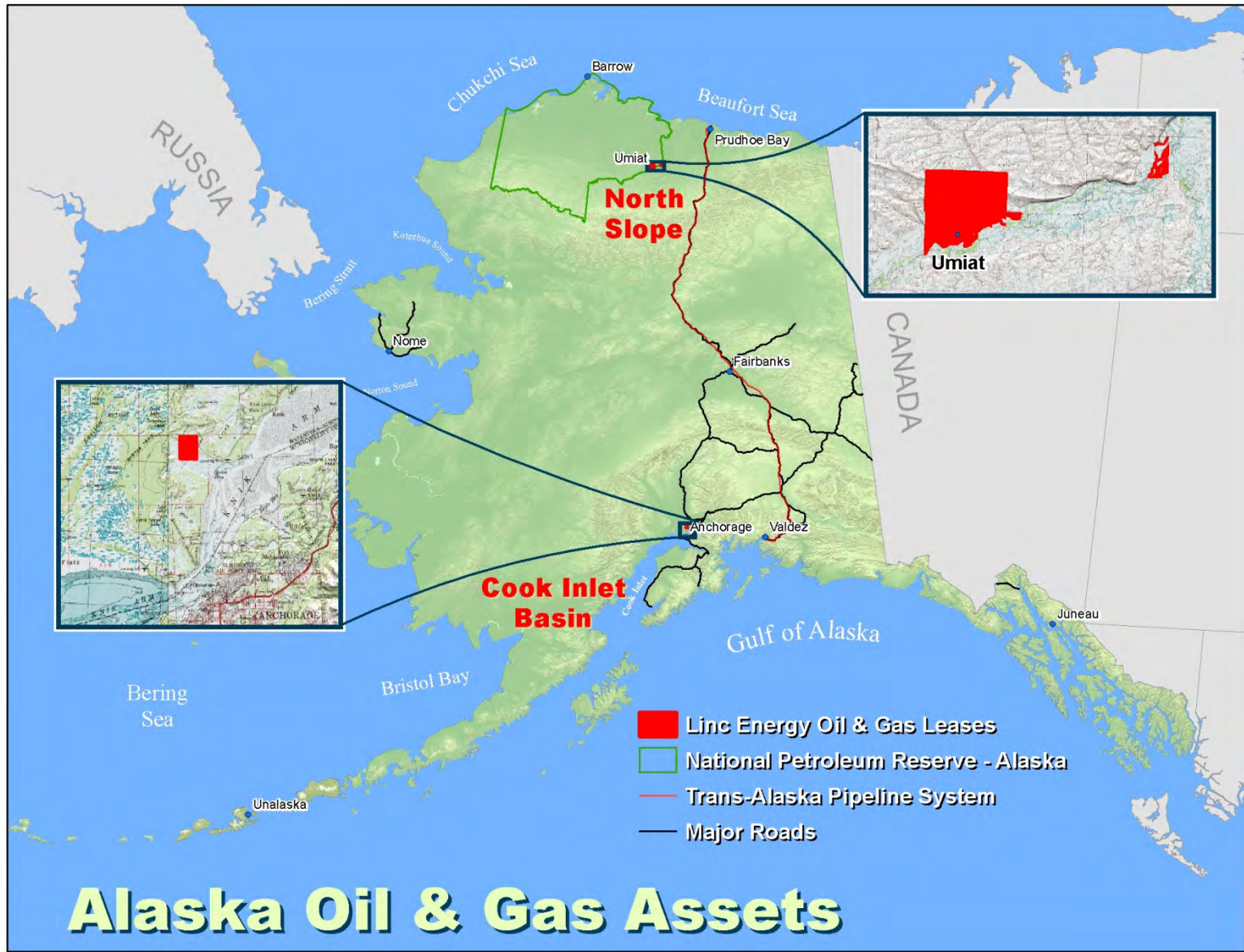
- Linc Energy US offices: Anchorage, Casper, Denver, and Houston
- 150 US staff employees and contractors
- **Clean Energy Division - US Coal Acreage**
  - Wyoming Powder River Basin (PRB) - coal leases/184,210 acres
  - North Dakota/Montana Williston Basin – coal leases/8,308 acres/15,589 surface
  - Alaska/Cook Inlet MHT licenses – UCG Exploration Licenses/167,917 acres
- **Oil & Gas Division - US Oil and Gas Reserves**
  - Wyoming PRB - Glenrock producing oil fields/23,163 acres
  - Texas & Louisiana Gulf Coast – 13 producing oil fields, 13,400 acres
  - Alaska Cook Inlet Basin – Oil & Gas leases/1,933 acres
  - Alaska Umiat – 19,358 acres NPRA (National Petroleum Reserve Alaska)
- **UCG projects being analyzed in Alaska, Louisiana and Wyoming**

# Linc Energy Alaska

- **2010 – Anchorage office**
  - 3000 C Street
- **General Manager Alaska**
  - Corri Feige
- **Operations**
  - Clean Energy
  - Oil & Gas
- **30 employees and contractors**









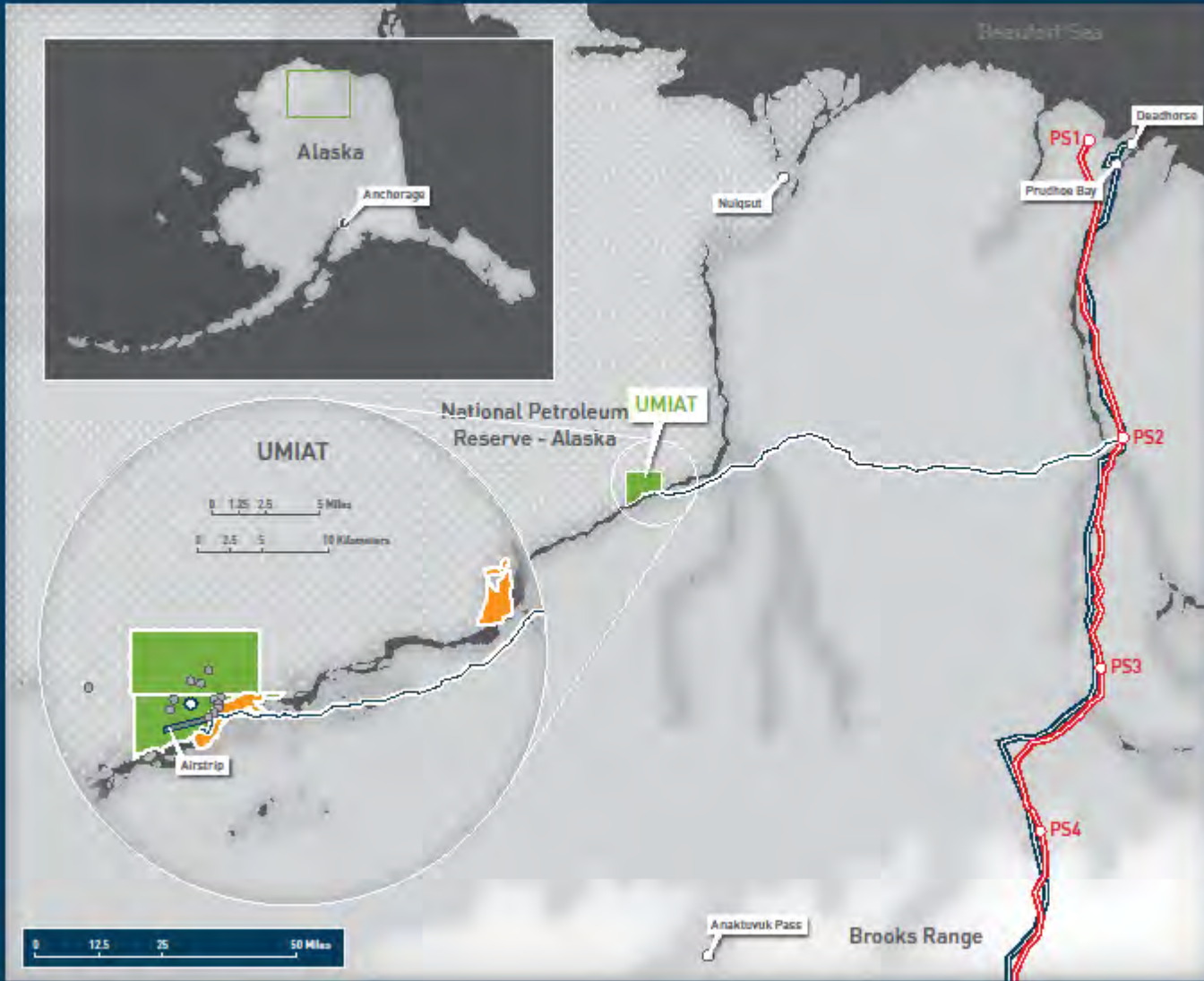
# Umiat History

# Alaska

## LINC ENERGY UMIAT OIL & GAS LEASES



- Trans-Alaska Pipeline System
- Dalton Highway
- Pump Station (PS)
- Linc Energy Snow Road
- State of Alaska Lease
- Federal BLM Lease
- Legacy Wells
- Linc Energy Wells 2013

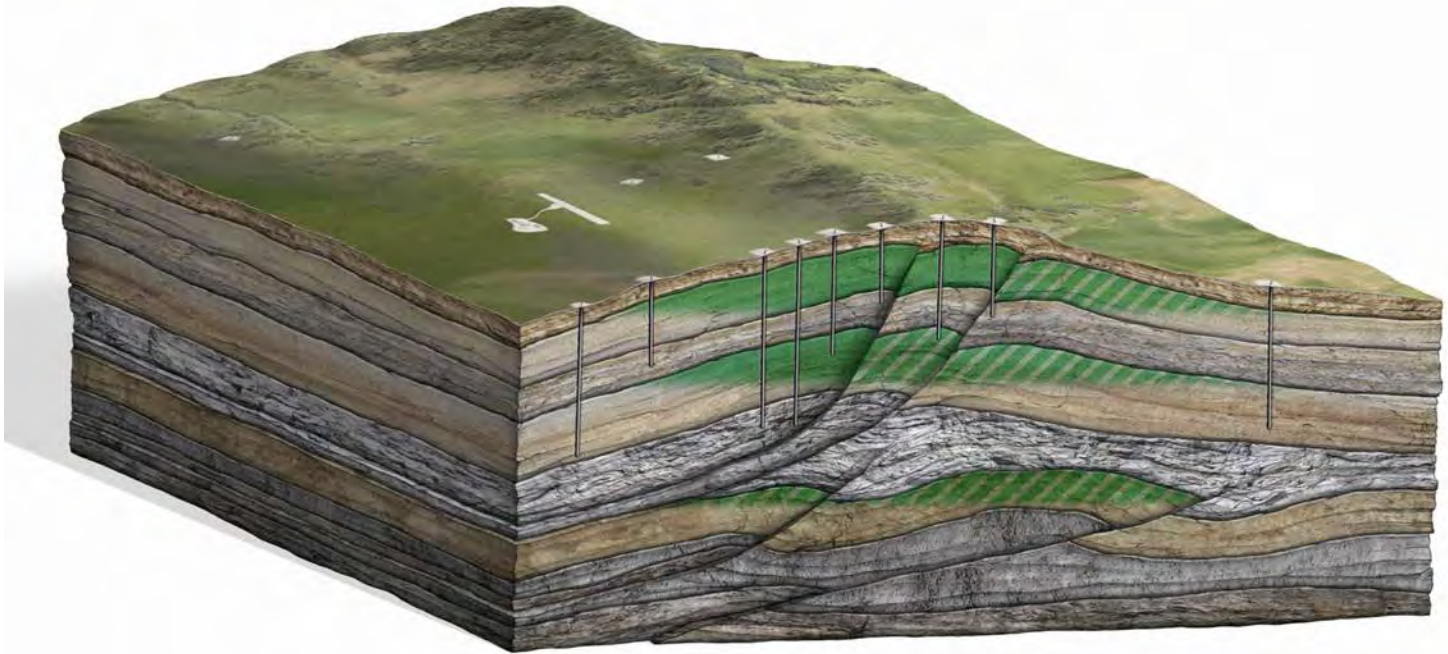


# Umiat History

- **US Navy discovered Umiat in early 1940's**
- A total of 12 “legacy wells” have been drilled within the field between 1944 and 1979. The oil is shallow, light, sweet crude with a 37 API gravity
- **July 16, 2011**, Linc Energy acquired controlling interest in the 19,358 acre “Umiat” Oil Field July, located in the National Petroleum Reserve, Alaska (NRPA) approximately 100 miles west of Pump Station #2 for **US \$50 million**
- **Ryder Scott estimates 1.2 billion barrels of oil in place** with “2P” reserves of 154.5 MMboe and “3P” reserves of 194 MMboe
- Linc Energy anticipates peak production at approximately **50,000 bpd**
- Umiat project delineation activities qualify for Alaska investment incentive credits
- **Very early** – project analysis and development continues

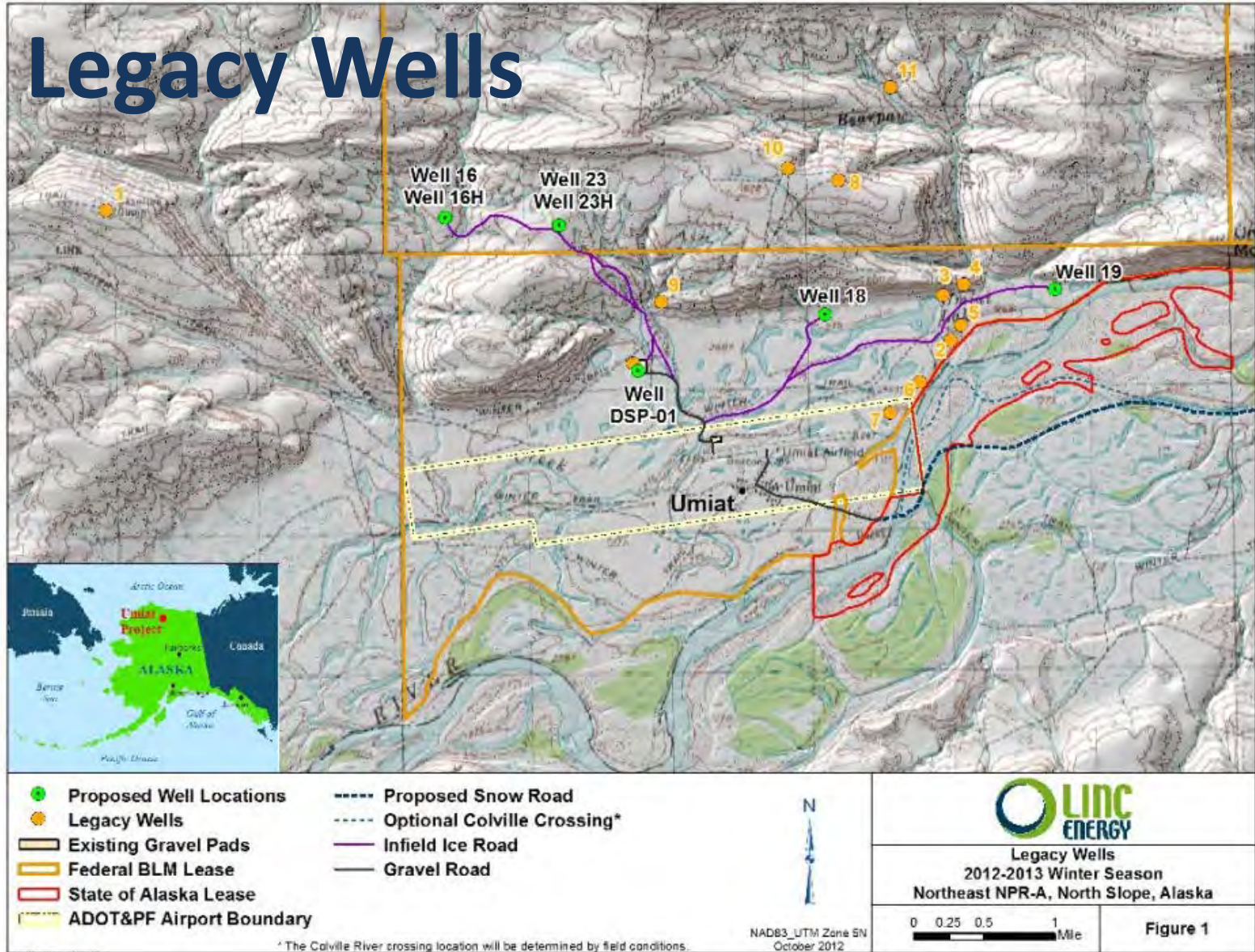
# Umiat: One of the World's Most Unique Oil Fields

- Consolidated, Good Quality Reservoir Sandstones Near The Surface
- Reservoirs Contain Light (37 Degree API), Sweet Crude Oil
- Large OOIP (1 BBO+)
- Part of The Accumulation Is In Permafrost
- Surrounding Structures Tested Gas





# Legacy Wells



\* The Colville River crossing location will be determined by field conditions.

# Working Alaska's North Slope

- **Extremes**
  - Weather – Arctic cold, wind, snow, blizzards, low to no light
  - Logistics – no roads/infrastructure/great distances/wildlife
- **Regulatory**
  - Overlapping & duplicative government regulations Federal/State/Local
- **Stakeholder Relations are CRITICAL**
- *In the end, of all the places Slaiby worked over the years – third world countries, jungle countries, a “dictatorship” renowned for being difficult – Alaska would turn out to be the hardest, he’d tell people...”Difficulty level? Nine out of Ten\*.”*

*\* Pete Slaiby, Shell Oil, The Eskimo and the Oil Man, 2012*

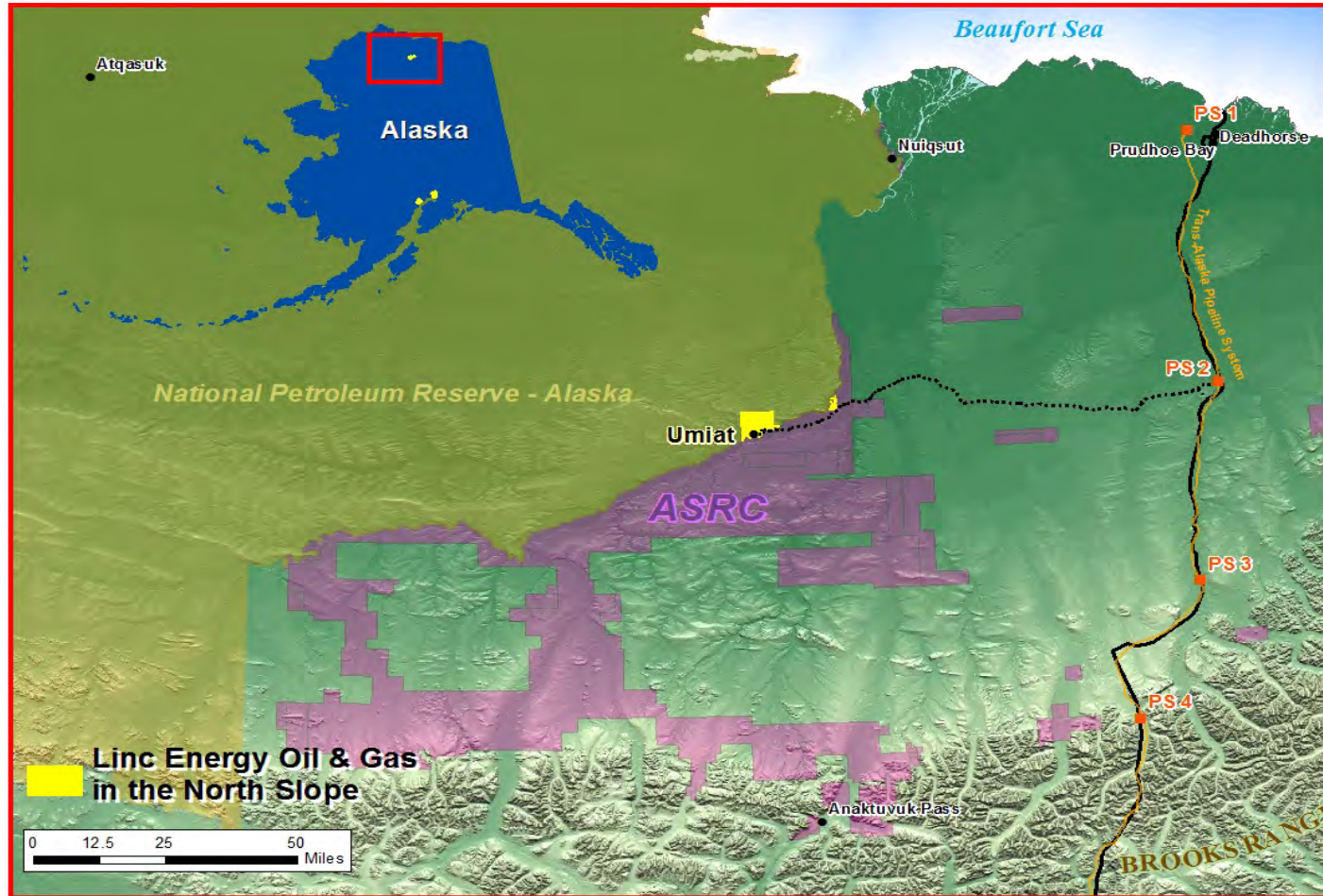


# STAKEHOLDER RELATIONS

# Stakeholder Relations

- Began stakeholder outreach “EARLY”
- Show-up...and continue to show-up
- Listen to concerns and respond
- Wide reach – meet with all levels/entities:
  - Local Villages
  - North Slope Borough
  - State & Federal Agencies
  - Key stakeholders
- Transparency
- Project Website (Communications portal & NEPA/EIS function)
  - [www.lincenergyumiatic.com](http://www.lincenergyumiatic.com)

# Stakeholder Relations Focus



# Stakeholder Relations

Date	Meeting
July 16, 2011	Linc Acquires Renaissance and Umiat Leases
August 22, 2011	Meeting in Anchorage with NSB Chief of Staff and Special Assistant
September 12, 2011	Meeting in Barrow with NSB Mayor's office—Mayor Itta and Staff
September 12, 2011	Meeting in Barrow with NSB Planning Department
November 10, 2011	Nuiqsut Leadership Meetings
November 10, 2011	Nuiqsut Community Meeting
November 3, 2011	Anaktuvuk Pass Leadership Meetings
November 3, 2011	Anaktuvuk Pass Community Meeting
November 15, 2011	SAP meeting in Fairbanks—Introduction of Linc Energy
February 9, 2012	Nuiqsut Community Meeting
March 9, 2012	Meeting with NSB Mayor Brower and Staff
April 18, 2012	Anaktuvuk Pass Community Meeting
April 18, 2012	Meeting in Barrow with NSB Planning Department
June 5, 2012	SAP Meeting in Point Lay
October 1, 2012	Meeting in Anchorage with NSB Planning Department
October 25, 2012	NSB Planning Commission Meeting in Barrow
November 6, 2012	SAP Meeting in Barrow
November 8, 2012	Nuiqsut Leadership Meeting
January 21, 2013	Anaktuvuk Pass Leadership Meeting
February 13-15, 2013	Umiat
April 2, 2012	SAP Meeting Nuiqsut



# Economic/Employment Opportunities

- **Summer Program**

- UIC Camp in Umiat
- ASRC Subsistence Advisor
- UMIAQ stakeholder relations.

- **Winter Program**

- Kuukpik 5 Drill Rig
- UIC Camp in Umiat
- AES C-Plan Update
- Umiag Subsistence Advisors
- UMIAQ Stakeholder Relations
- ARO Spill Response Equipment
- ASRC Land Use Fee
- ASRC Well Testing Equip.

# Community Outreach

- Community outreach plan partnering with local villages and communities
- Camp Galena 2 ton perishable food drop at AKP

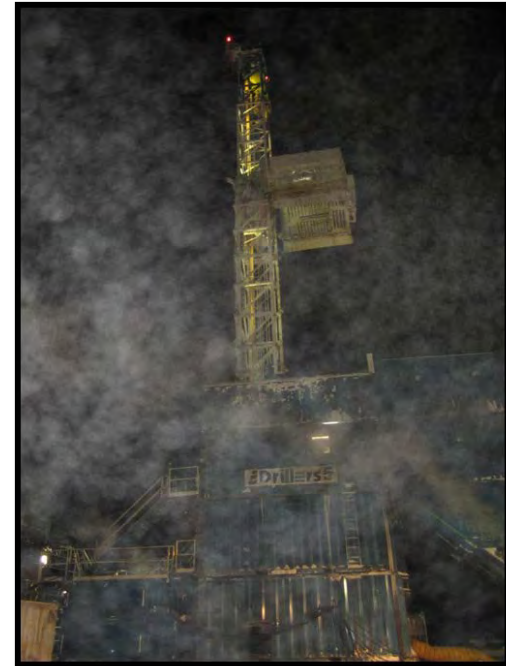




# **2012 – 2013 WINTER DRILLING PROGRAM**

# 2012 – 2013 Drilling Objectives

1. Execute Arctic Drilling Program SAFELY
2. Build and maintain 109 mile snow road
3. Test Mineral Oil Based Mud (MOBM) system
4. Mobilize Kuukpik #5 drill rig at Umiat
5. Verify early well test information
6. Compare vertical to horizontal completions
7. Acquire new core data – 300' LGS
8. Acquire accurate fluid samples
9. Test/investigate deeper gas reservoirs to 2600'
10. Establish Class 2 disposal well



# 2012-13 Drilling Plan

- **Drill 1 shallow vertical well (#18)**
  - Collect 5 each 60' cores through LGS
  - Run OBMI & quad-combo log suite
- **Test deeper gas sand targets in #18**
  - Open-hole logs across deep horizons
- **Flow test vertical well configuration**
  - Plug back, case, perf & complete B-Sand zone
- **Prep DS01 disposal well site for early start in Dec 2013**
- **Stack rig on Seabee pad over DS01**
- **Set cellar & conductor on #23H for early start next winter**



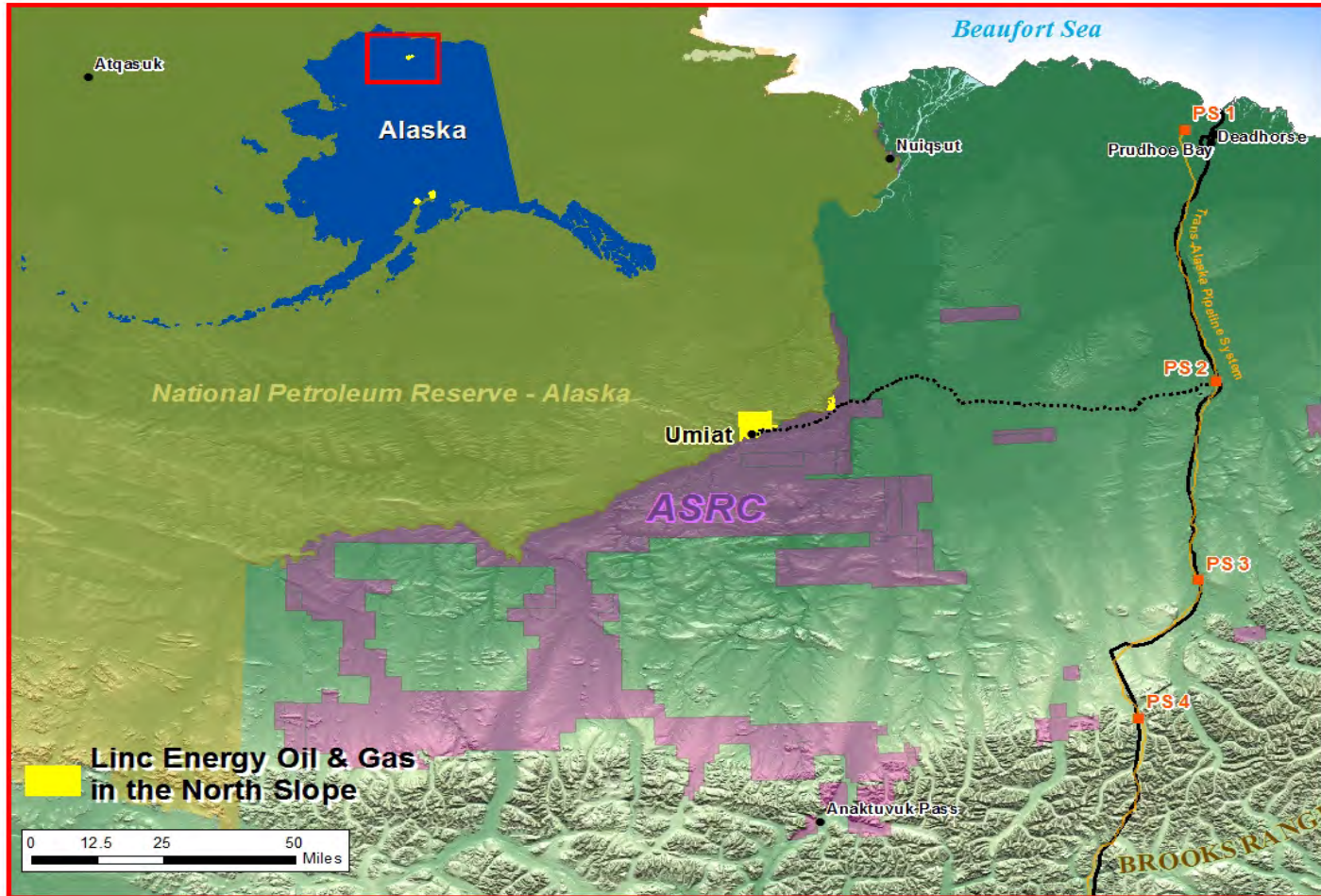
# Umiat Winter Drilling Program Mobilization

## Operations:

- Commenced snow road pre-pack – 11 Nov 12
- 51 C-130 Hercules loads + 148 overland just to spud
  - (ADDITIONAL 100 LOADS MOVED IN FOR FULL OPERATIONS)
- Moved first light loads on snow road 4 Jan 13
- Tundra opened for heavy loads 16 Jan 13
- Moved 1<sup>st</sup> heavy loads 17 Jan 13
- Rigged up on #18 -- 7 March 13
- Spud #18 on 10 March 13
- Data = 300ft core, quad-combo, dual-OBMI
- Moved rig off #18 and to DS01 location
- Installed PC Pump 4 April – 17 April
- Rig-up test equipment 4/18 - 20
- Commence flow testing 4/21 (7 days test)
- **Over 140 charter flights moving over 1400 pax and cargo**
- **50,000+ snow road miles moving 15,000,000 pounds of cargo– no accidents**
- **Steigers rolling 5 – 7 mph 12 – 14 hour trips 1 way winter/17 – 20 hours during demobe**
- **Total loads moved on snow road to date = 400+ (equipment, materials + cuttings/waste for disposal)**
- **Roughly 15,000,000 lbs./7,500 tons material & supplies moved over the snow road**



# Snow Road ~ 109 miles





# Dalton Highway MP 359 Base Camp





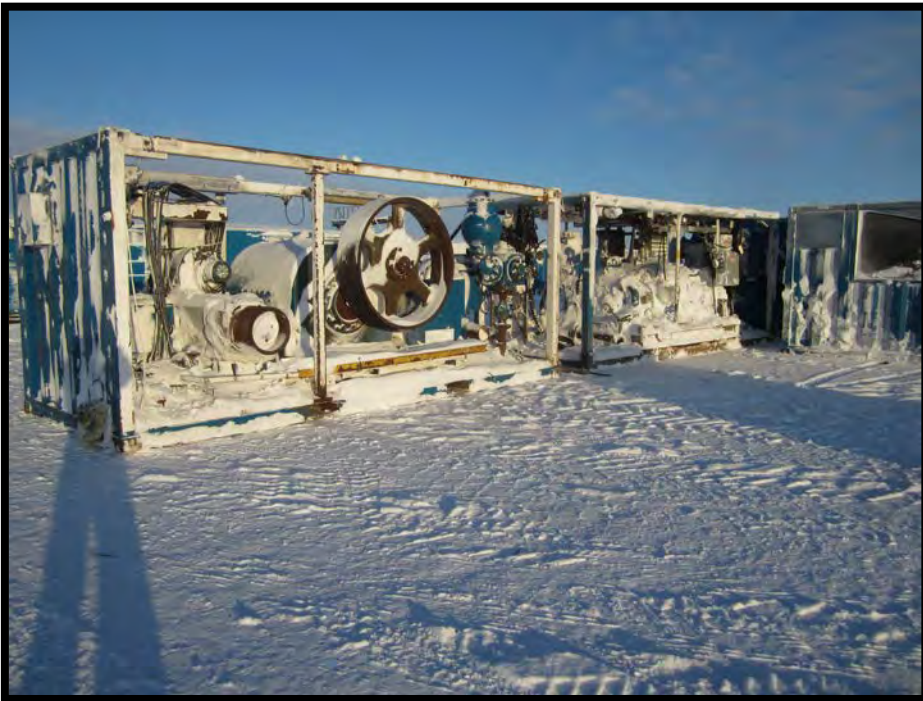
# Snow Road



# Heater & Steigers on Snow Road



# Kuukpik Rig #5 - Thawing





# Water Sources



# Ice Road Construction



# Ice Pad Construction

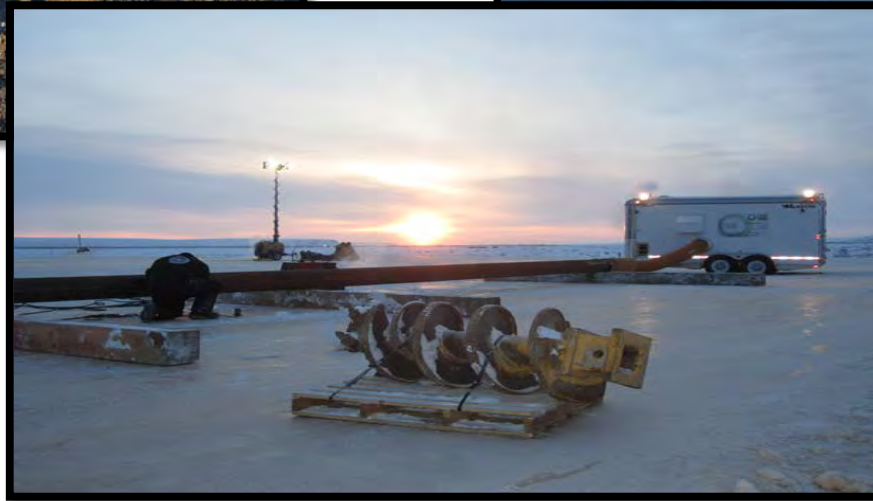
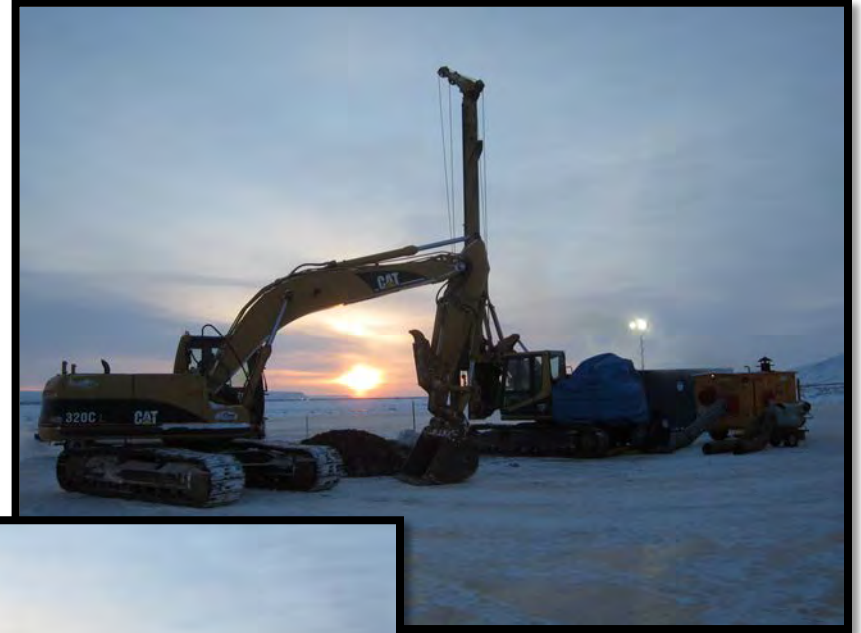




# Ice Pad



# Setting Conductor on #18



# 24 Hour Operation – Minus 45 F





# Steiger Life Line



# T-Bear/Loads Arrive 24/7



# Steigers En Route to Umiat





# Fuel Delivery



# Personnel Rotated by Air Charter



# Welcome to Umiat



# Supply Line to Umiat





# Camp Galena at Umiat



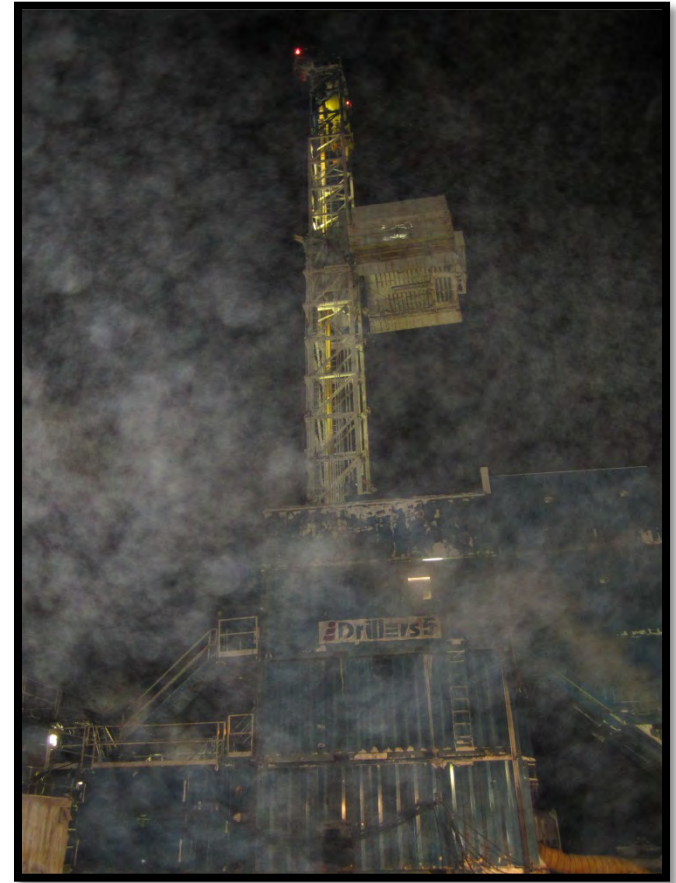
During peak operations – 150 pax on location [www.lincenergy.com](http://www.lincenergy.com)



# Umiat Well #18 Pad



# Umiat Well #18



# Well #18 Pad Aerial



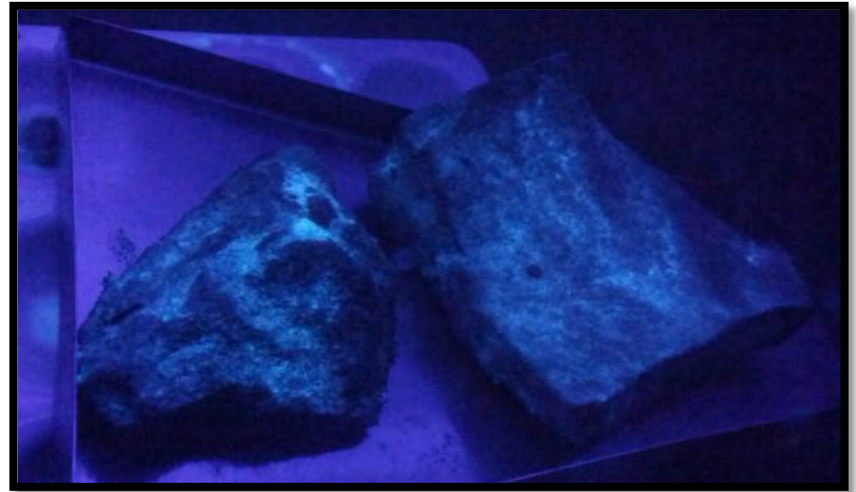


# Flow Test #18



# Umiat #18

- 300 feet of conventional core through Lower Grandstand
- 100% recovery
- Maintained in frozen state continuously
- 101 feet of net pay in the LGS formation
- Drilled sands below LGS for gas potential - low permeability & not productive





# Umiat Winter Drilling – HS&E

**People, Safety and environmental protection are Linc Energy “Core Values”**

- “Everyone goes home safe”
- “Never spill a drop”

**Health & Safety** – Temps have ranged from -64F to +12F

- 3 LTIs
- 10 Near Misses

**Environmental** – 167 permits, authorizations & plan approvals required for this program

- 4 Inspections by BLM, ADEC, NSB
  - High Marks on All
- Minor issues reported
  - Pick up truck oil leak
  - Steiger hydraulic line leak



# Umiat – Cause & Effect

## Lost Time/Days over Course of Project due to:

- Late tundra travel opening & snow road development
- Phase III weather travel stoppage impacting all of North Slope
- Ice road equipment delays
- Extreme cold (temps <-45F down to -64F)
- Initial rig move (extra time to thaw & mix initial OBM)
- Lost time to retainer malfunction in hole

**Total days lost = 58.75**

(Winter program = 6 months)



# Demobilization

- **“Pack OUT what you packed IN”**
- Move out all but critical items
- All waste off location
- Kuukpik #5 Rig Laydown
- Cruz Heavy Equipment
- Camps/vehicles
- Ice Road & Pads
- All winter operations complete Friday, May 10



# Kuukpik Rig #5 on Seabee Pad





# Mov'in Out



# WHAT'S NEXT?

# Summer Projects

- Spring Breakup Study
- River Crossing Hydro-analysis for road/pipe design
- Wildlife studies continue per lease stipulations
- Stakeholder Relations Village meetings continue
- All moving toward commencement of NEPA/EIS process
- Complete core analysis & factor learning's into winter 2013 - 2014 drilling program

# 2013 – 2014 Winter Drilling Program Objectives

- Drill DS01 – disposal well is more efficient, reduces time and helps de-risk & establish zone for development drilling (critical path)
- Drill & test #23H horizontal well



# LINC ENERGY CLEAN ENERGY

# Clean Energy Division

## Focus:

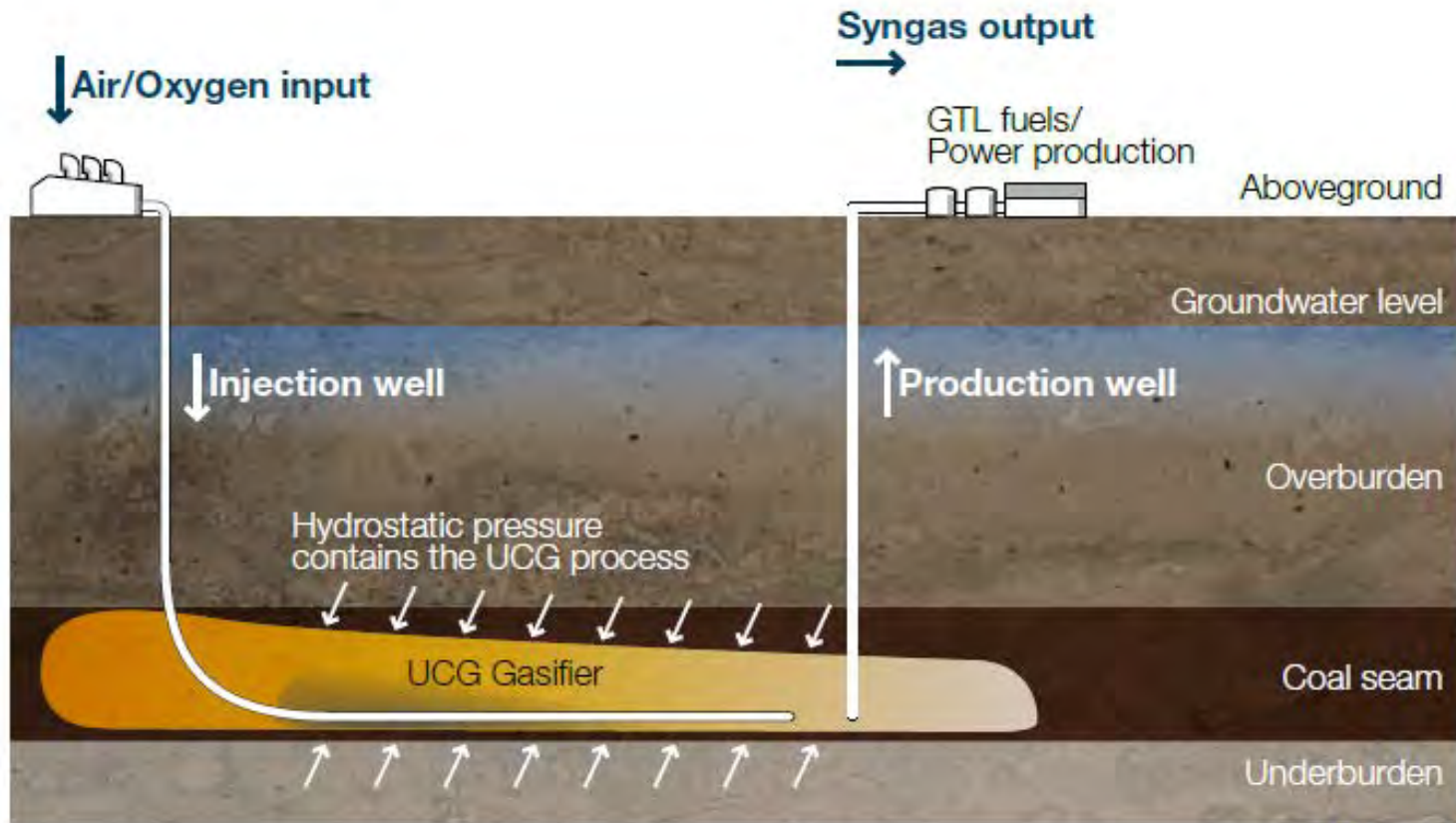
- Commercial UCG projects using proprietary technology
- UCG and GTL integration to produce transportation fuels
- Alternative syngas uses (Electric Power, Synthetic Natural Gas, Chemicals)
- CO<sub>2</sub> for Enhanced Oil Recovery (EOR)



# What is UCG?

- Underground Coal Gasification, or UCG, converts coal to a gas while still in the ground, or in situ
- Two wells, injection and production, are drilled horizontally into the coal seam and connected with a linking well
- Oxygen/air is injected, heat and steam are generated, creating a chemical reaction
- Produces synthesis gas (known as syngas) of mainly hydrogen and carbon monoxide.

# Underground Coal Gasification



Not to scale  
Linc Energy © 2011



# Underground coal gasification

## UCG. . . The value proposition:

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### **Converts deep stranded hydrocarbons (coal) into syngas**

Trillions of tons of coal are amenable to the UCG process

Suitable coal reservoirs are located on all continents

### **Produced syngas is a valuable and flexible intermediate**

Syngas from UCG consists mostly of CO, H<sub>2</sub> and CH<sub>4</sub>

### **Multiple downstream options – fuels, chemicals, SNG and power**

UCG syngas can be used to create clean synthetic liquid fuels, chemicals, synthetic natural gas and power

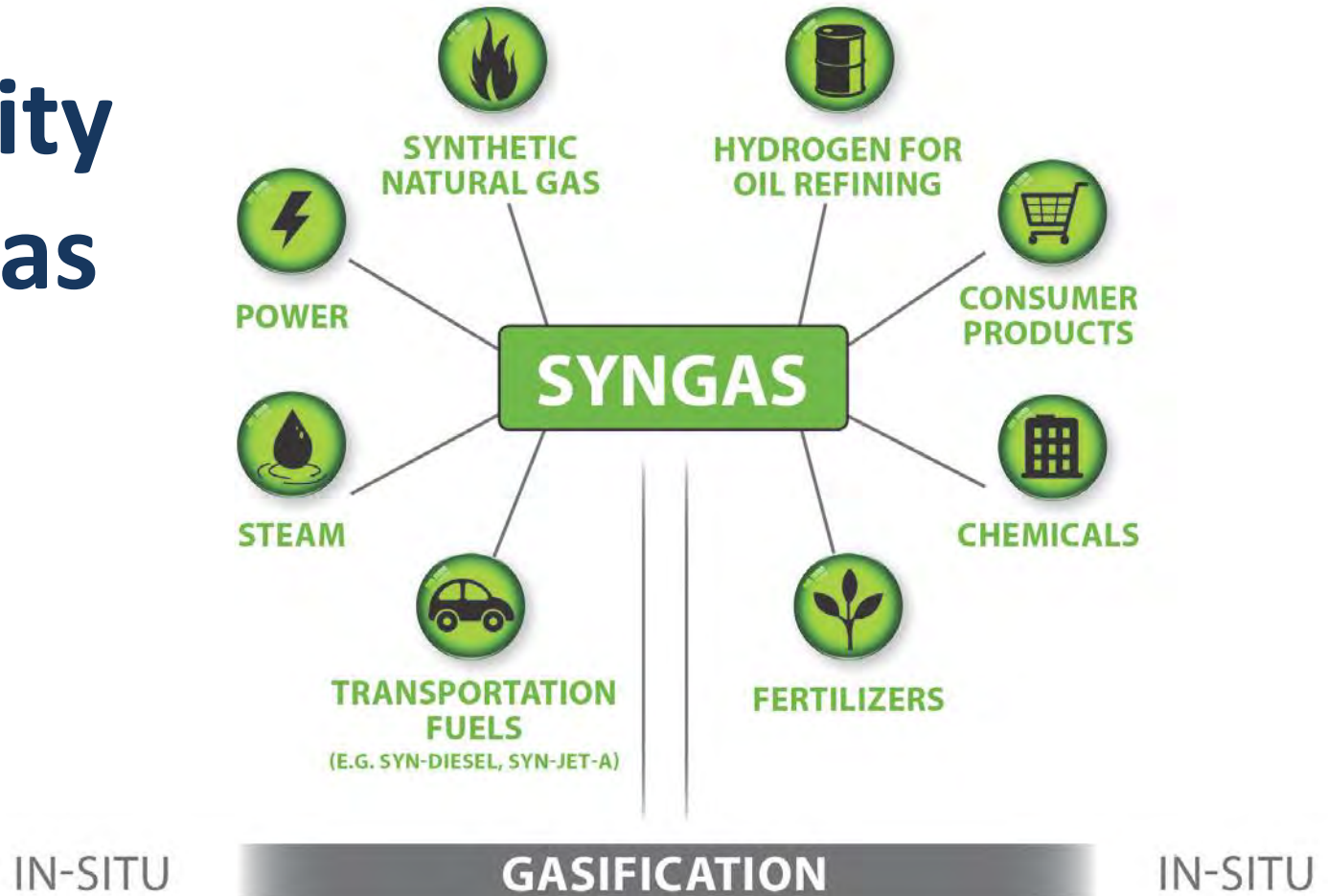
### **CO<sub>2</sub> can be economically captured and applied for beneficial use, especially EOR**

Syngas available at high pressure, making CO<sub>2</sub> capture one of the most cost competitive methods

CO<sub>2</sub> is a highly valued product for EOR



# Versatility of Syngas



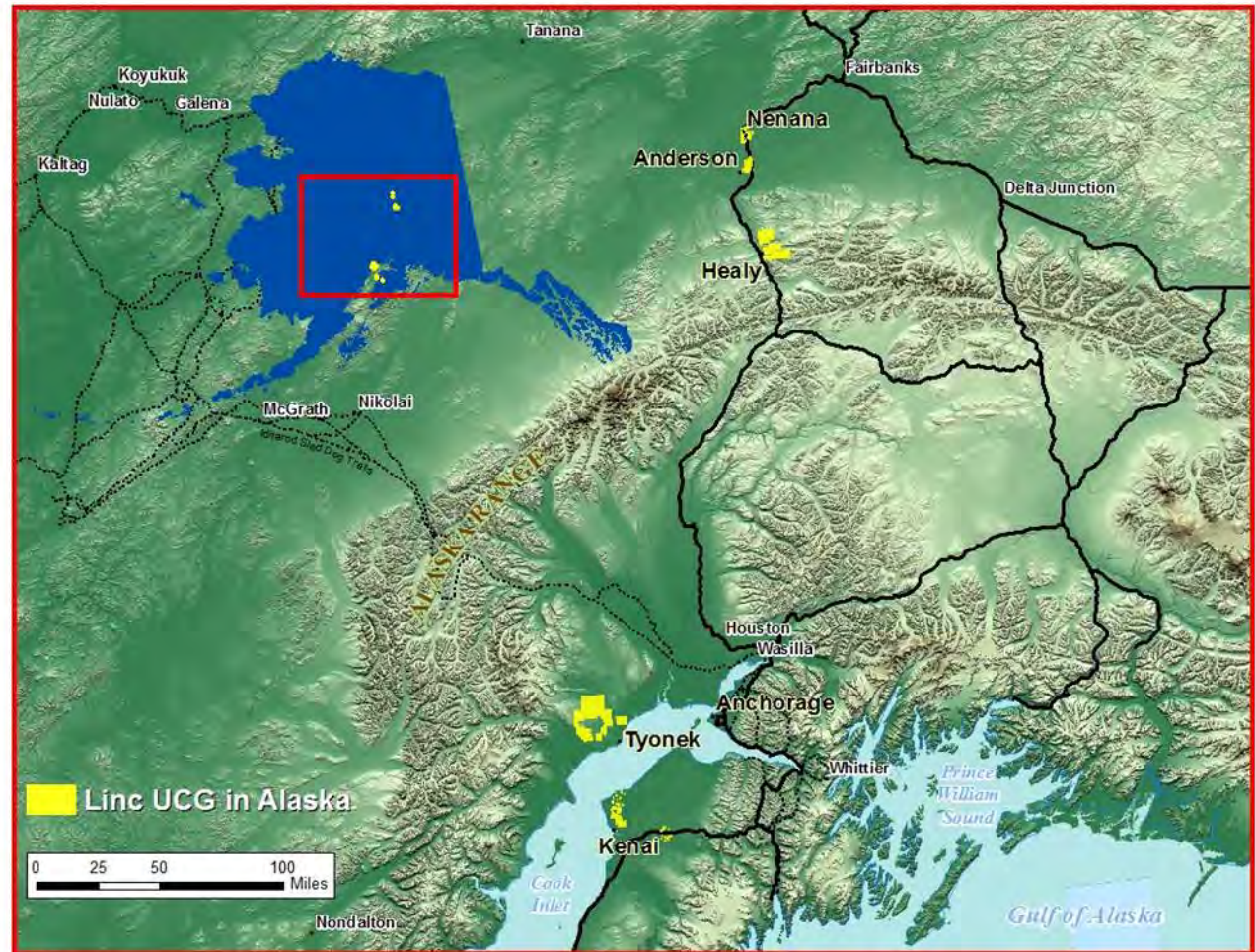
# UCG Video



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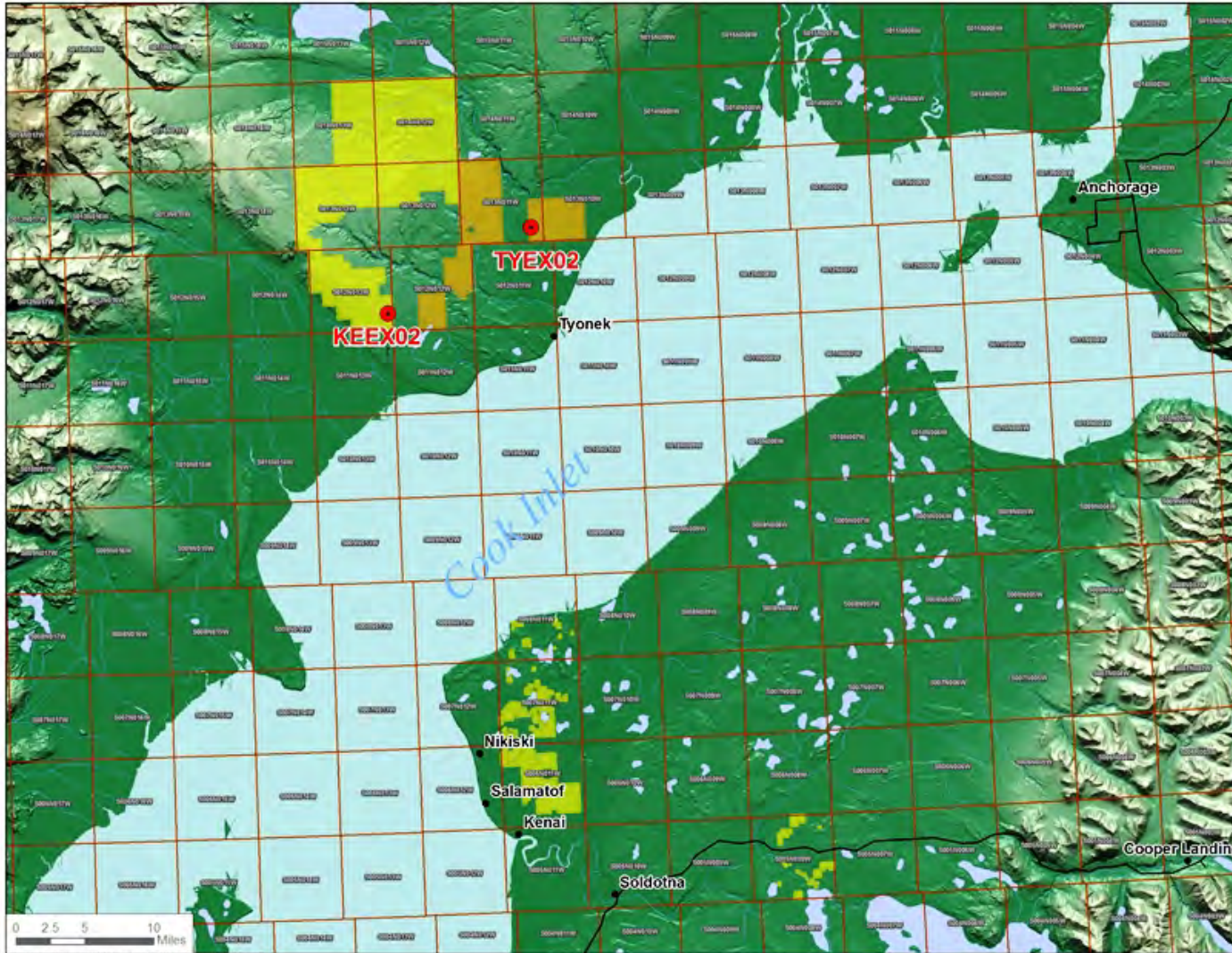
# Alaska UCG Potential

- Linc Energy has 167,916 acres of UCG coal exploration licenses in Alaska's interior and Cook Inlet areas
- 2D seismic data newly acquired in 2011-2012 (Cook Inlet & Interior acreage)
- Site selection underway





# Alaska Exploration – Cook Inlet



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## Southcentral Alaska Linc Energy UCG License Areas

- Exploration Holes
- Major Roads
- ▭ Townships
- ▭ Kenai UCG Exploration License Area
- ▭ Tyonek UCG Exploration License Area



# LECR #1 on KEEX02 Drill Site October 2012





# Discussion



# Thank you

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