

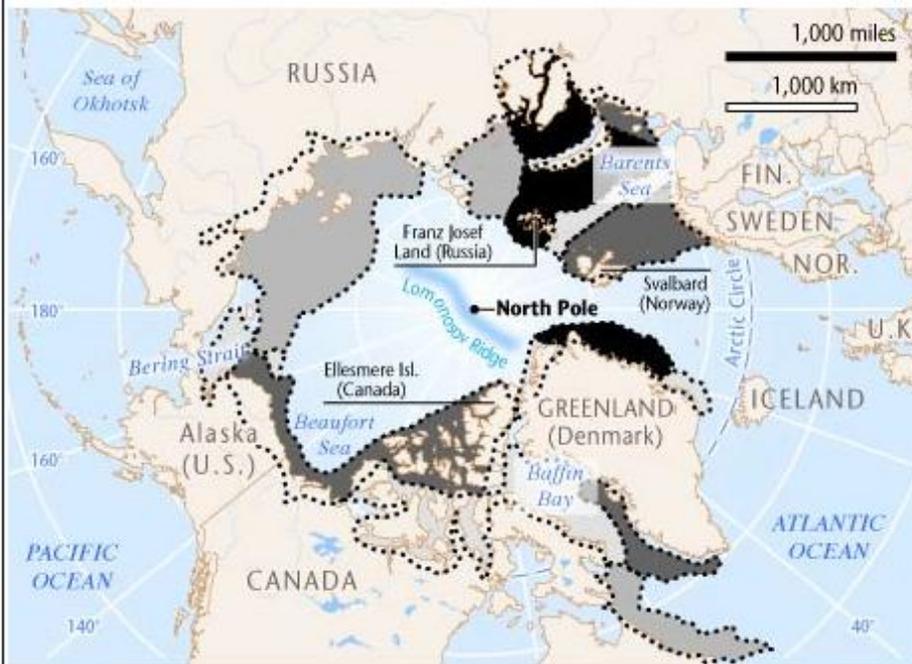
ARCTIC ENERGY CHALLENGES

Presented by Tom Barrett
Deputy Federal Coordinator
Office of the Federal Coordinator
for Alaska Natural Gas Transportation Projects
January 06, 2010

ARCTIC ENERGY

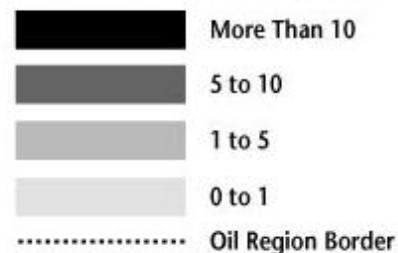
- ❖ Background
- ❖ Project Update
- ❖ Challenges
- ❖ Framing Issues

Arctic Oil and Gas Potential

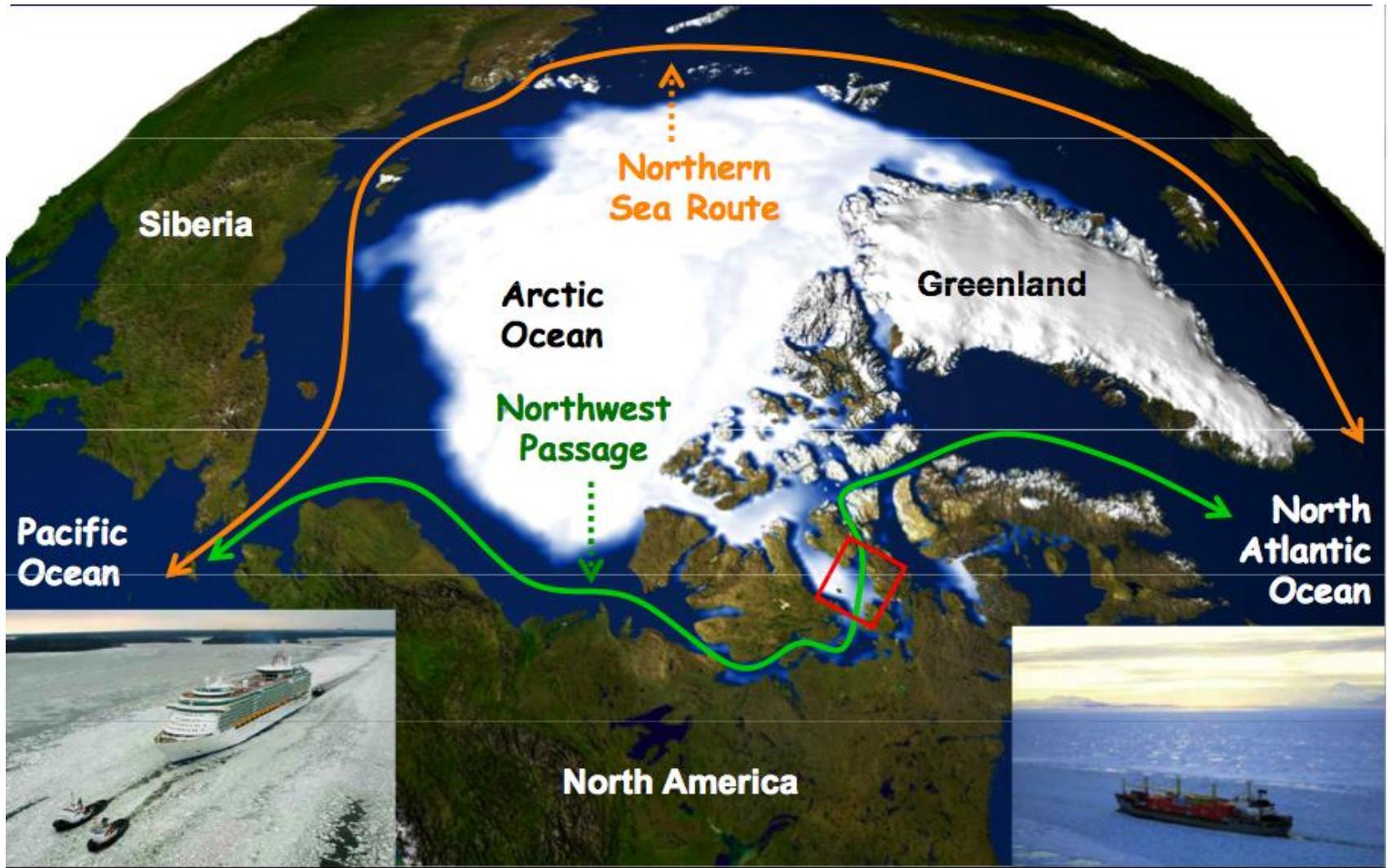


Estimated Oil, Gas Yet to Be Found

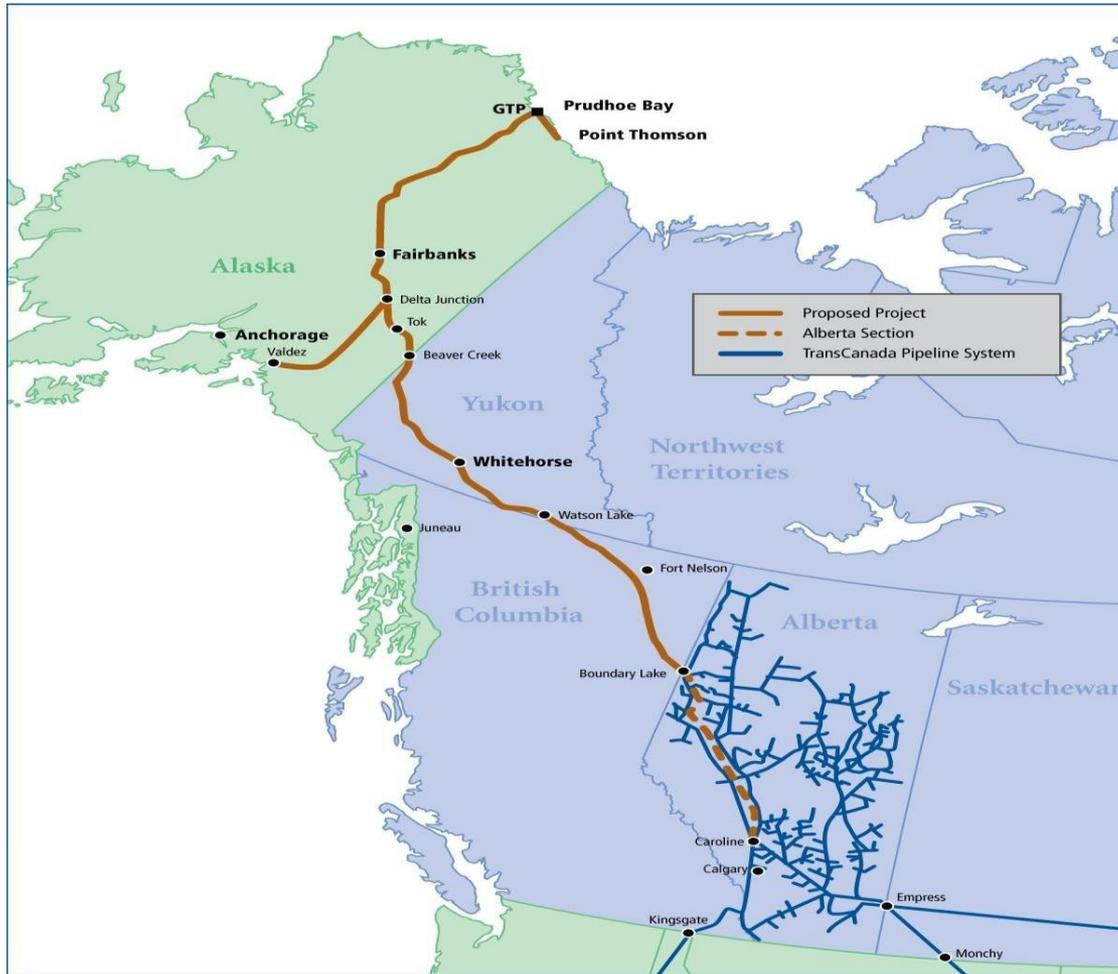
In billions of barrels of oil equivalent



SOURCE: Wood Mackenzie
Map based on a *Financial Times* graphic.



Gas Pipeline Route

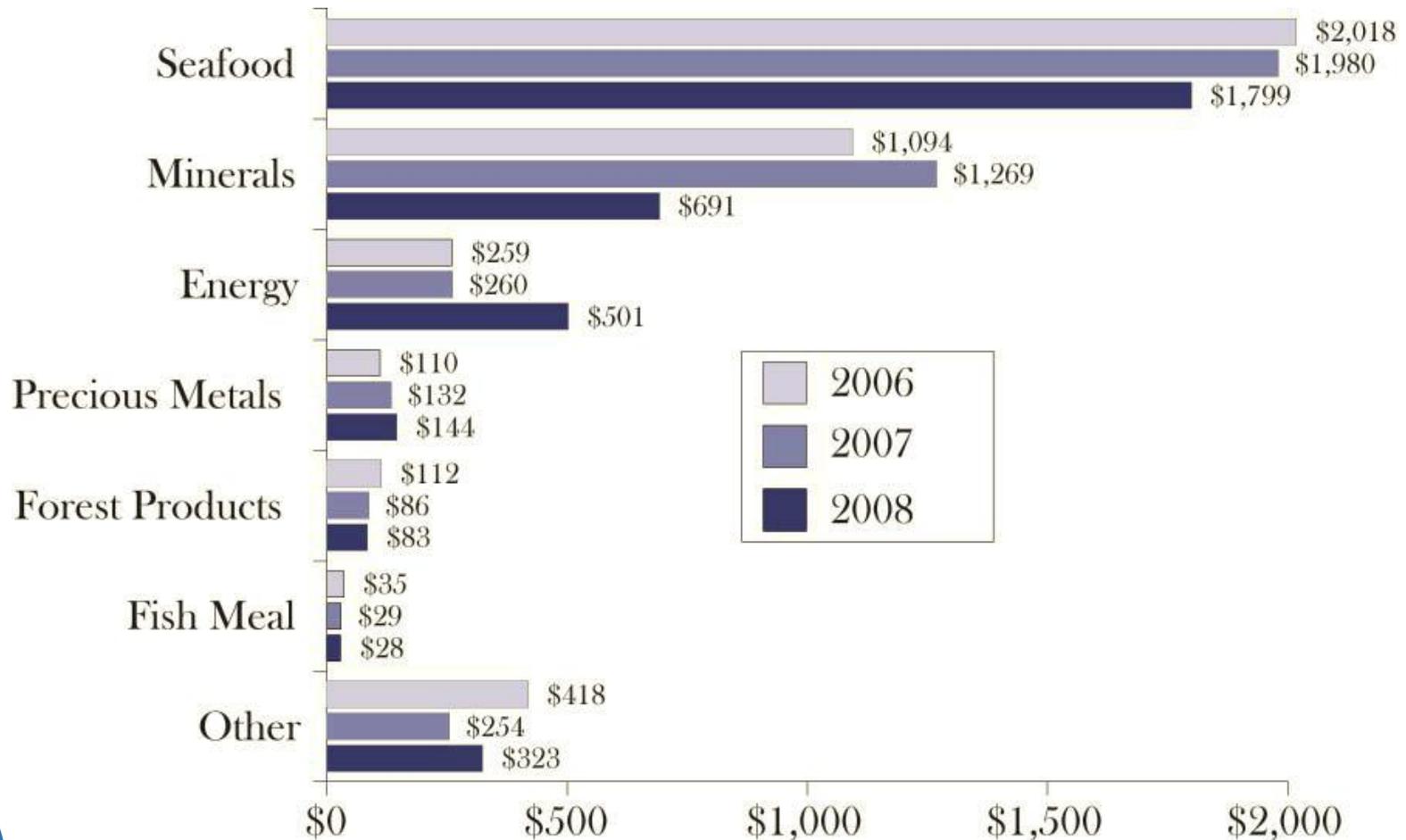


ENERGY STATE ECONOMIC DRIVER

❖ Alaska

- ❖ 40 per cent of economy-90% of tax base-
from oil/gas
- ❖ 30 per cent federal spending
- ❖ 30 percent tourism, fishing and
mining(everything else

ALASKA'S MAJOR EXPORTS



PIPELINE APPLICANTS



ALASKA Pipeline Project

DENALI STATUS

- ❖ Entered FERC Pre-File Process June 2008
- ❖ Argonne National Labs ID'd as FERC 3rd party contractor
- ❖ Discussions with potential shippers
- ❖ Offering routes from North Slope to Alberta Hub
- ❖ Open Season 2010

ALASKA PIPELINE PROJECT STATUS

- ❖ Offering two routes: North Slope to Alberta Hub and North Slope to Valdez, Alaska (LNG Option)
- ❖ Discussions with potential shippers
- ❖ Entered FERC Pre-File Process May 2009
- ❖ Open Season 2010

OPEN SEASON PROCESS

- ❖ Applicant files open season plan with FERC
- ❖ 30-day third party review/public comment
- ❖ Applicant has 15 days to respond to third party comments followed by 15-day FERC review
- ❖ 30-day period for applicant to finalize open season plan
- ❖ Applicant commences open season for at least 90 days
- ❖ FERC visit this month to help explain process



CHALLENGES

- ❖ Arctic Environment
- ❖ Federal/ State/Canadian Permit Requirements
- ❖ Political/Policy Uncertainties

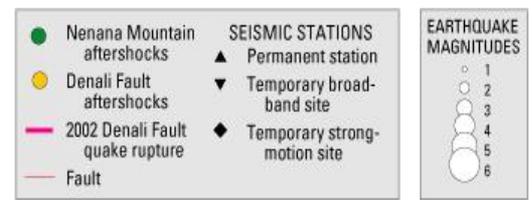
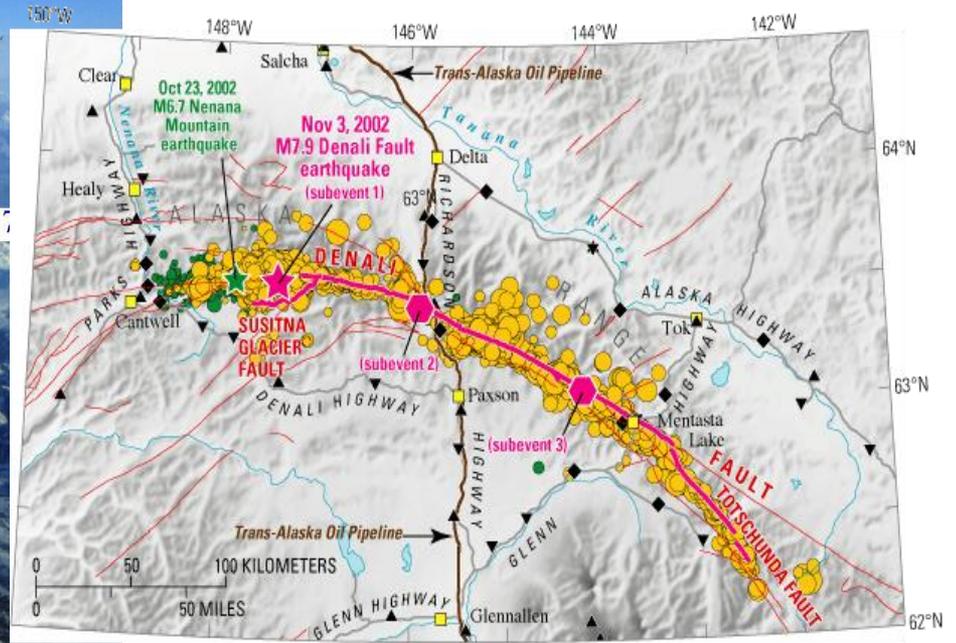
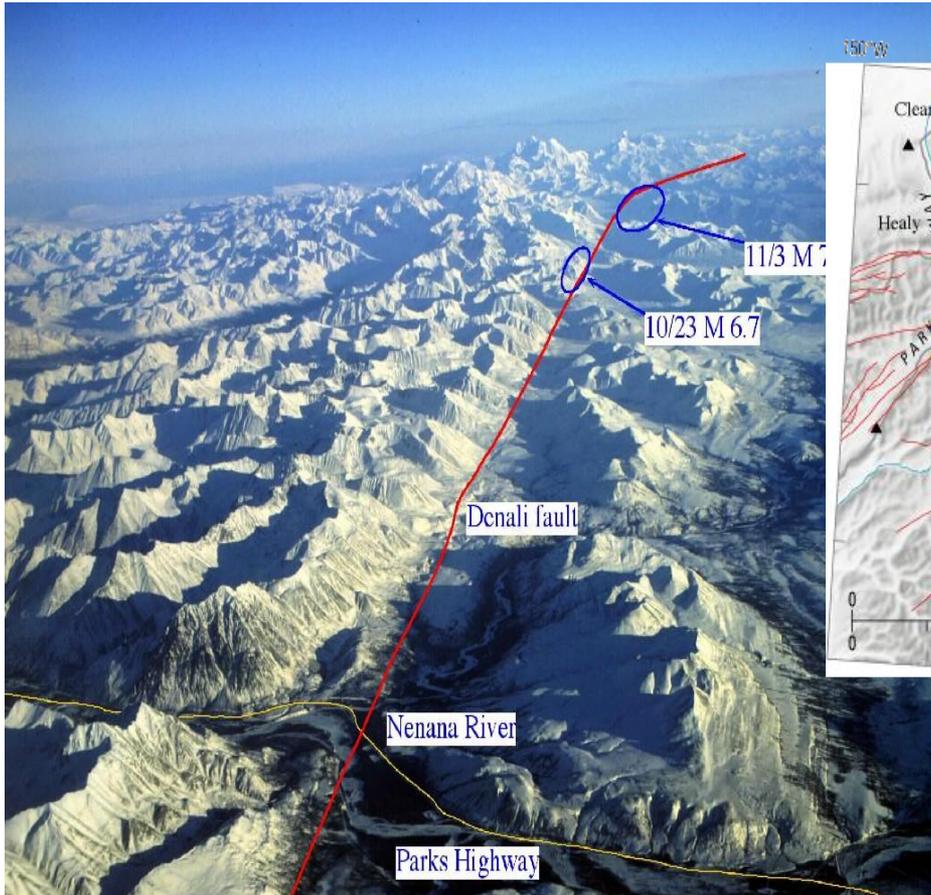
THE ARCTIC

- ❖ **Cold still cold, -40F = -40 C**
- ❖ WORST WEATHER
- ❖ Vast Distances (transportation \$\$ very high)
- ❖ Limited port, airport, road, rail,
telecommunications infrastructure

66N

- ❖ Ice, darkness, permafrost, seismic, fires
- ❖ Incomplete/inaccurate mapping/resource data
- ❖ All Translate to COSTS(\$\$\$)
- ❖ ALL HAVE BEEN OVERCOME(for oil)

SEISMIC



SEISMIC



This rupture of the Tok Cutoff Highway in Alaska resulted from a magnitude 7.9 earthquake along the Denali Fault in 2002.

Peter Haeussler, USGS, prepares to measure the offset of a crevasse on the Canwell Glacier.

PERMIT PROCESS AND OFC

- ❖ Prevent Delay
- ❖ Lower Costs
- ❖ Avoid Unnecessary Conditions
- ❖ Agencies Cooperative

CONSTANT COMMUNICATION

- ❖ Gap analysis of permitting processes
- ❖ Permit matrix –advance ID data requirements
- ❖ Implementation plan for each applicant
- ❖ GIS prototype
- ❖ Technical review team

OFC GIS PROTOTYPE

- ❖ Authoritative base map
- ❖ Data integration
 - ❖ habitat analysis
 - ❖ cultural resource mapping
 - ❖ geotechnical data integration
 - ❖ infrastructure planning and analysis
 - ❖ wetlands



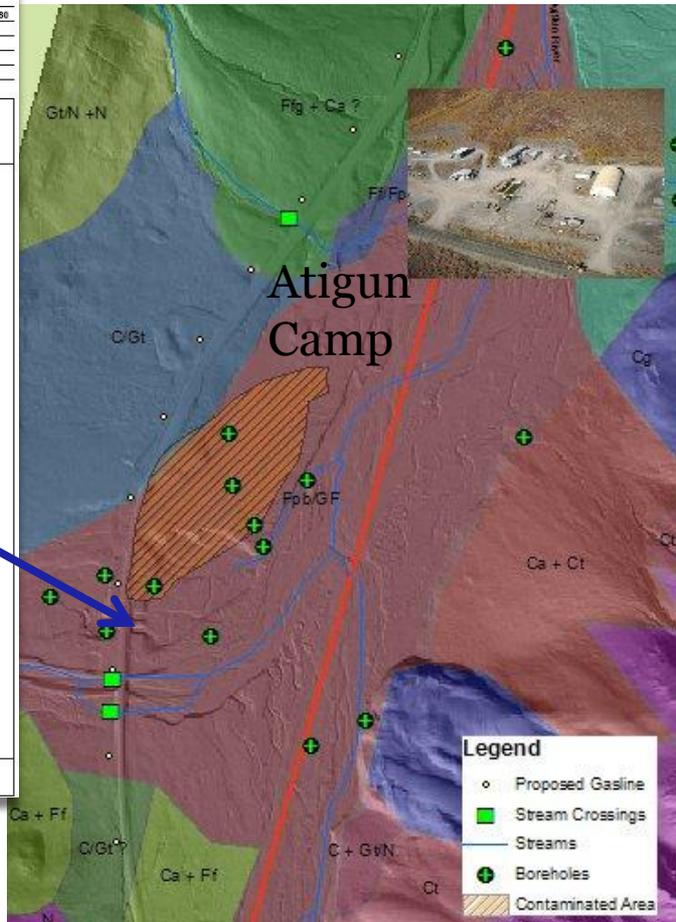
DATA INTEGRATION—PUTTING THE PIECES TOGETHER

Baker LOG OF BORING: N70-93

PROJECT: OFC Atigun Pass SHEET: 1 OF 2
 LATITUDE: 68.19296 LONGITUDE: -145.401 GEO. DATUM: N/A START: 11/28/1990 END: 11/28/1990
 GROUND ELEV.: 3301.4 ft. ELEV. DATUM: N/A LOGGER: Steven Clark
 WATER LEVEL: TIME: DATE: DESCRIPTION: Driller: Feldman; Nichols
 EQUIPMENT: 630 Mobile B-61 w/ Flextrack DRILL CO.: Bearfoot
 METHOD DETAILS: 10 in. OD HSA, 3.0 in. OD spoon, 2.0 in. OD spoon, Hammer size unknown

SAMPLE DEPTH (FT)	TEST RESULTS	STRAFA	DEPTH (FT)	DESCRIPTION	REMARKS
0.5-1	100%	6	0	PEAT? Frozen; individual ice inclusions (VX); 30% visible excess ice.	
1.0-3	100%	11	0.5 - EL 3300.9	SILT, with sand and gravel; gray and brown. Frozen; well bonded; random ice formations along with ice crystals in pore spaces (VX); 15% visible excess ice; trace organic inclusions.	
3.0-4	100%	6	1.0 - EL 3300.4	SILT, with sand and gravel; gray and brown. Frozen; well bonded; random ice formations along with ice crystals in pore spaces (VX); 10% visible excess ice; trace organic inclusions.	
5.0-6	100%	14	4.0 - EL 3297.4	SILT, with sand and gravel; gray and brown. Frozen; well bonded; random ice formations along with ice crystals in pore spaces (VX); 30% visible excess ice; trace organic inclusions.	
6.5-7.5	100%	12	4.5 - EL 3296.9	SILT, with sand and gravel; gray, subrounded to angular. Local iron staining. Frozen; well bonded; massive ice (ICE); 60% visible excess ice; hard, clear, white, trace silt inclusions.	
8.0-9.0	100%	36	10.5 - EL 3290.9	GRAVEL SANDY, with silt/clay; gray, subrounded to angular. Local iron staining. Frozen; well bonded; individual ice inclusions (VX); 10% visible excess ice.	
10.0-10.5	100%	140.5	20.0 - EL 3281.4	GRAVEL SANDY, Frozen; well bonded; individual ice inclusions (VX); 20% visible excess ice.	
10.5-11.5	100%	1000.1	25.0 - EL 3275.4	SHALE, and siltstone; gray; moderately weathered. Frozen; random ice formations along with ice crystals in pore spaces (VX); 40% visible excess ice.	
12.5-13.5	100%	36	27.0 - EL 3274.4	SHALE, and siltstone; gray; moderately weathered. Frozen; no visible ice segregation (Nbn); 0% visible excess ice.	
13.5-14.0	100%	66			
14.0-15.0	100%	300.1			
15.0-15.5	100%	27			
15.5-20.0	100%	300.1			
20.0-21.5	100%	61			
21.5-25.0	100%	70			
25.0-26.5	100%	36			
26.5-30.0	100%	500.2			

Boring backfill data not available.



- ❖ Soils information from Northwest data
- ❖ Borehole logs and data from Northwest data
- ❖ Stream crossing data

UNCERTAINTIES

- ❖ Gas Market/Global Energy Dynamic
- ❖ State Fiscal Terms
- ❖ Climate Change Reactions
- ❖ Carbon Caps/Cap and Trade Legislation
- ❖ Conservation Issues

OPTICS

- ❖ Washington, D.C.
 - ❖ We passed legislation in 2004, why hasn't the project been built? What more can we do?
- ❖ Alaska
 - ❖ Competing visions and projects
 - ❖ Statewide energy needs and policy
- ❖ Canada
 - ❖ Mackenzie Gas line Project, Oil sands, and First Nations

FRAMING ISSUES

- ❖ Environment
 - ❖ Wilderness/Controlled Development
- ❖ Polar bears
- ❖ Arctic People
- ❖ Jobs
- ❖ Existing Infrastructure

ECONOMY/JOBS



THANKS!

- ❖ Appreciate your time and interest
- ❖ How can we help you?