

Alaska Mining Industry Changes Over Past 22 Years

Alaska Support Industry Alliance

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Historical Context

- 1. From late 1800s until World War II** - mining was Alaska's largest industry with the most jobs.
- 2. From World War II until 1989** - effectively no lode (versus placer) mining in Alaska!
- 3. From 1989 to Present** – continued steady growth.

Today – 7 large mines in Alaska; much exploration.

The Question: Why so little mining today?



Status of Alaska Mining in 1989

3 “Large” Mines:

- Usibelli Coal Mine
- Alaska Gold Co – Dredge #5 & #6 operating at Nome
- Valdez Creek Mine – largest placer mine in North America

- Many family placer mines (<15 employees, most <4)
- Many sand and gravel mines

N.B. Tweet & Sons, Taylor, AK







Valdez Creek Mine







85 08 12



**VCMC, 1854 oz
1988**

Bima Dredge at Nome



Placer Mining

2011 Placer Mining Activity

- Aprox 250 small family mines
- Production over 70,000 oz Au



Usibelli Coal Mine – Began Operating 1943





2011 Statistics
135 employees
2.2 million tpy

Hecla Greens Creek Mine

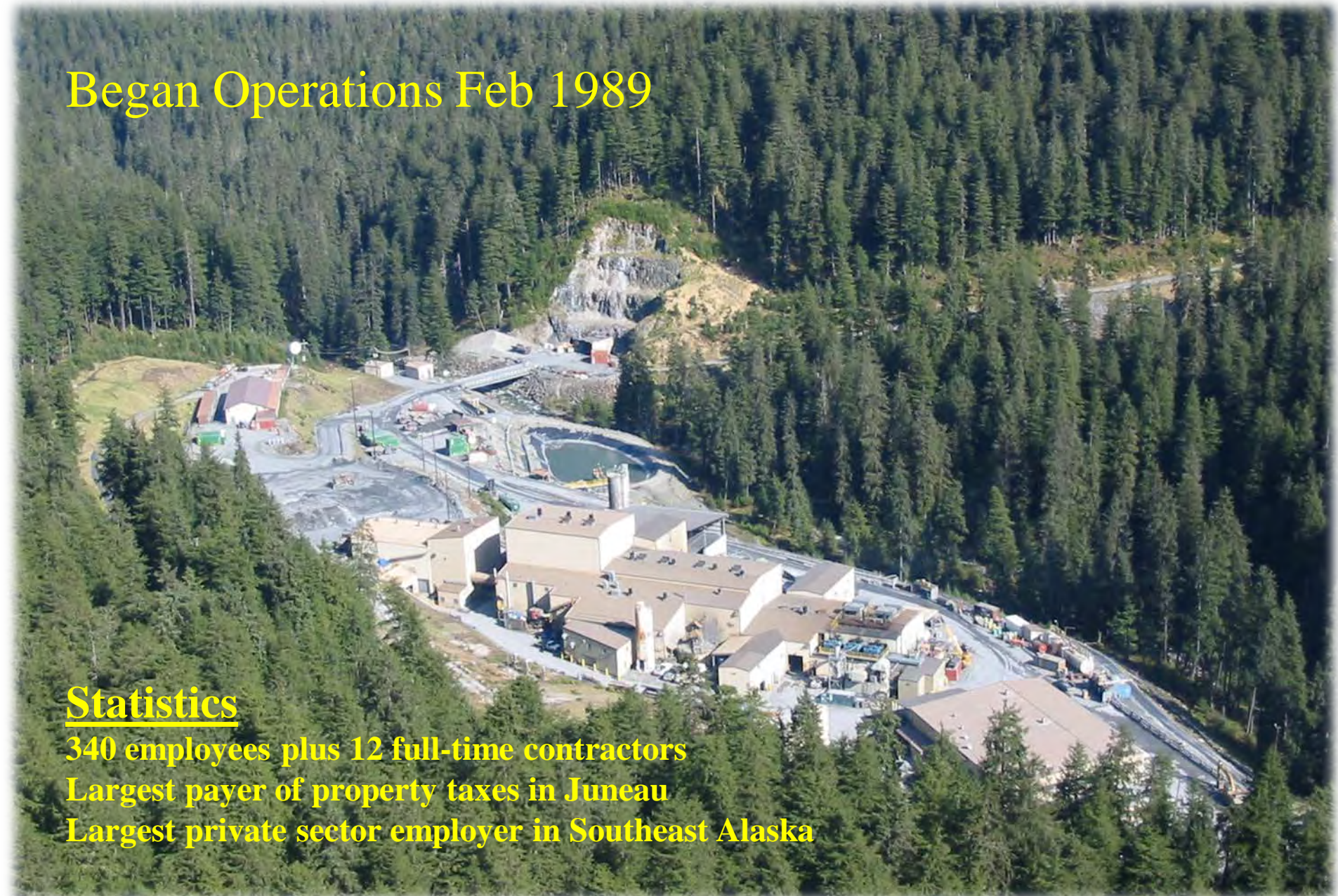
Began Operations Feb 1989

Statistics

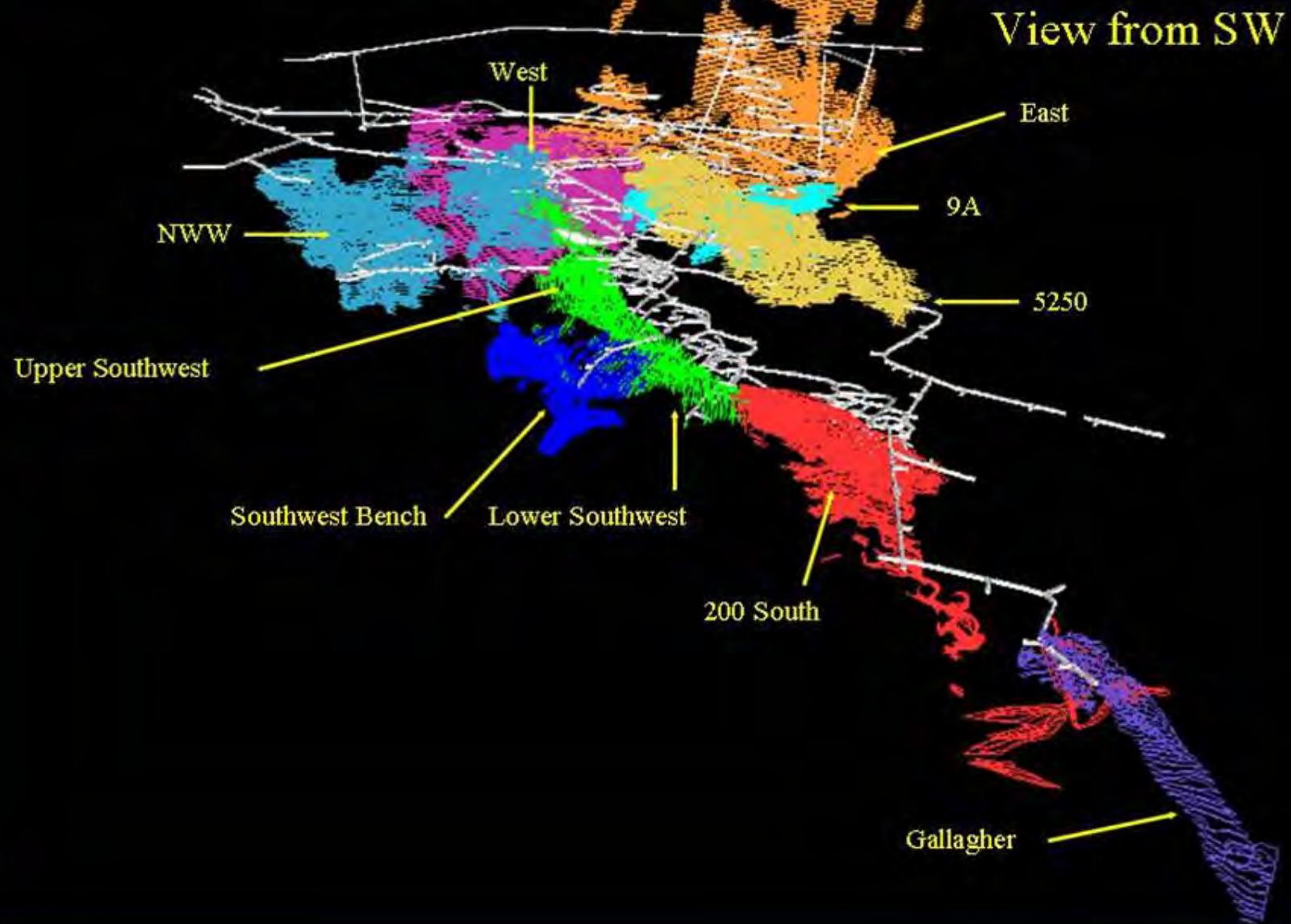
340 employees plus 12 full-time contractors

Largest payer of property taxes in Juneau

Largest private sector employer in Southeast Alaska



Greens Creek Ore Bodies



Greens Creek Ship Loading Facilities



Red Dog Creek ~ 1968



Red Dog Mine



Began Operations Nov 1989

Aqqaluk

Main Pit

Statistics

550 employees & contractors

Only taxpayer in NWAB





Fort Knox Mine

Began Operations March 1996





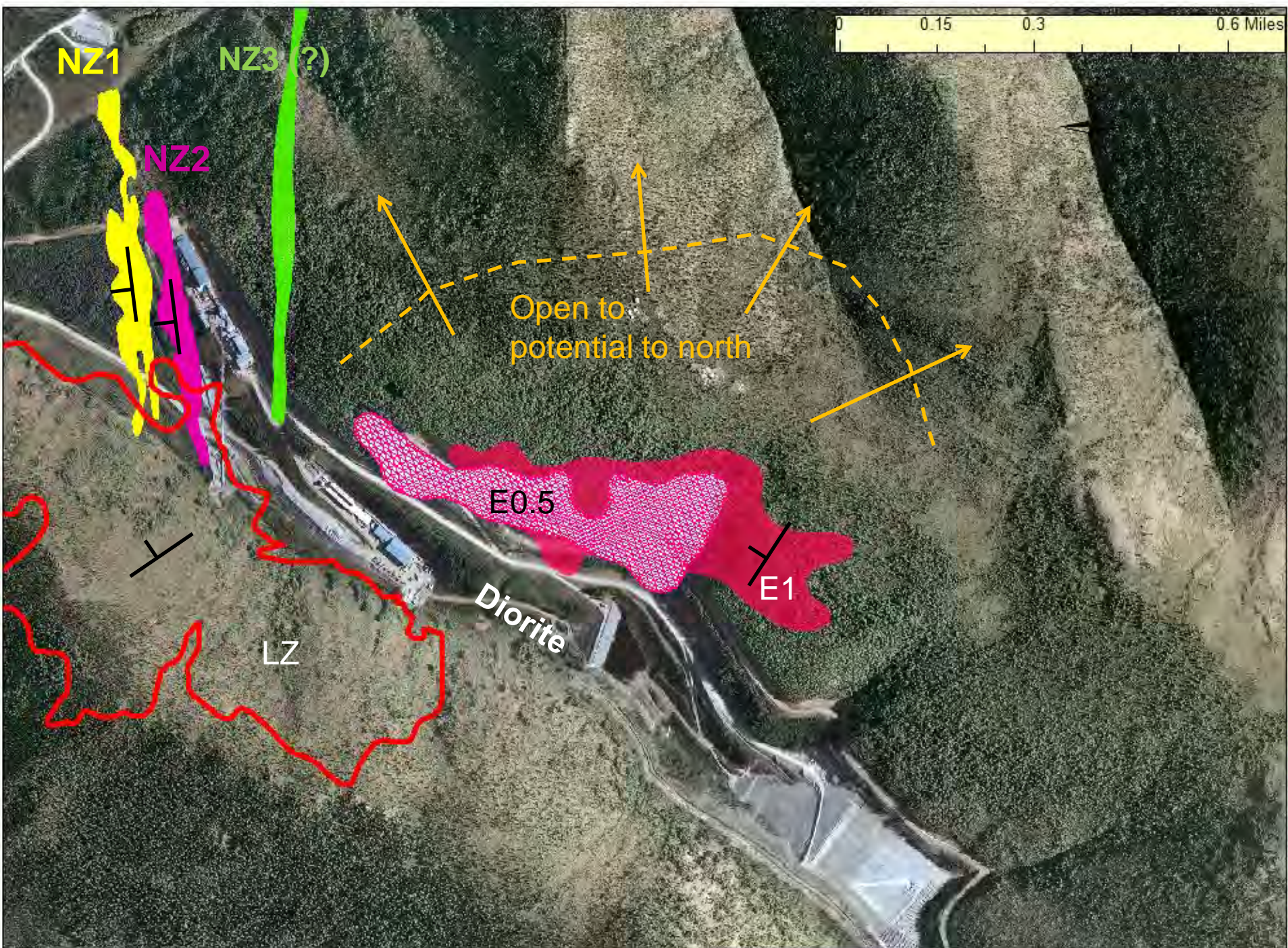


Pogo Gold Mine

Began Operations 2006

- 385,000 oz/yr
- 300 employees plus 100 full-time contractors

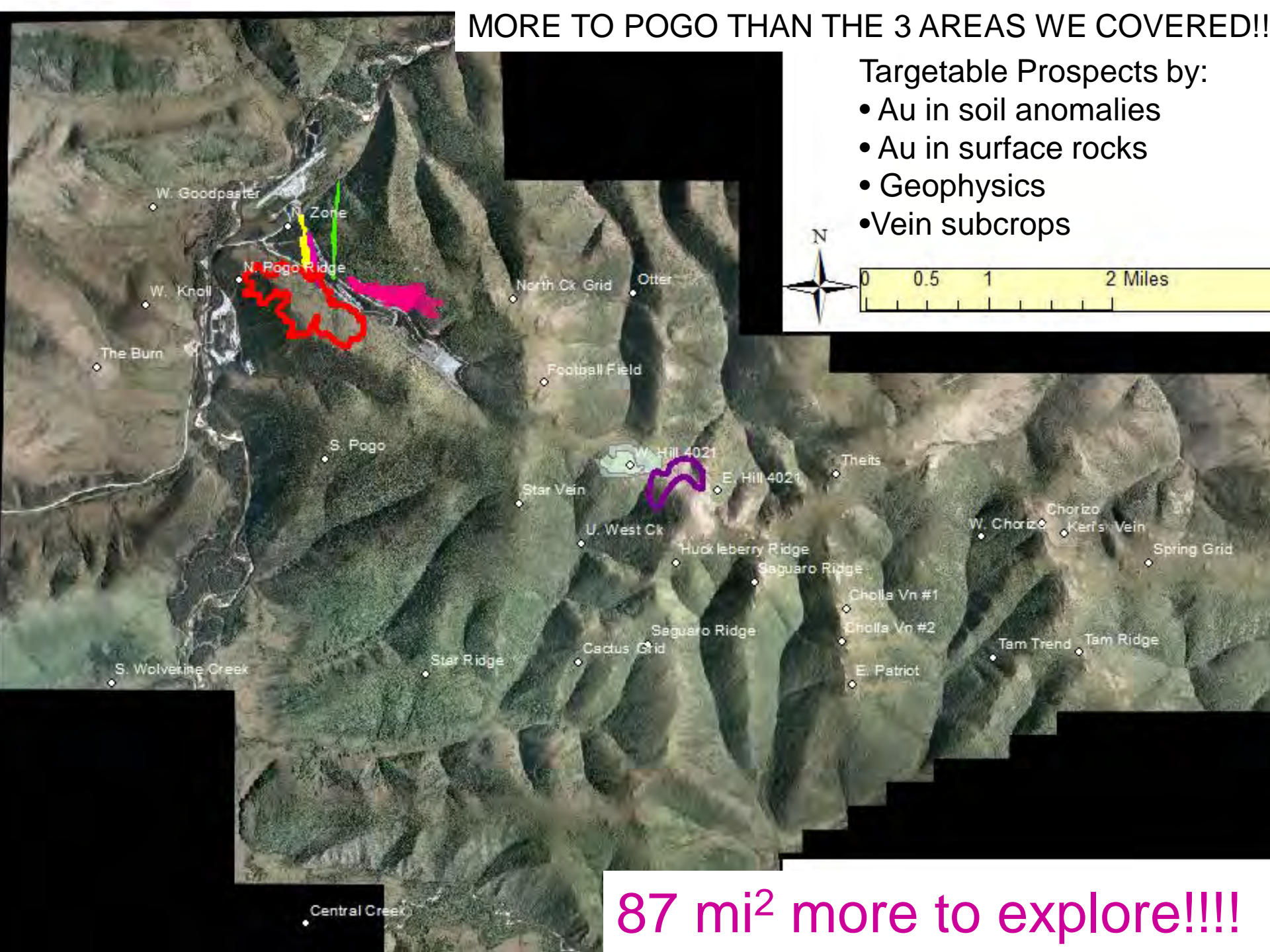




MORE TO POGO THAN THE 3 AREAS WE COVERED!!

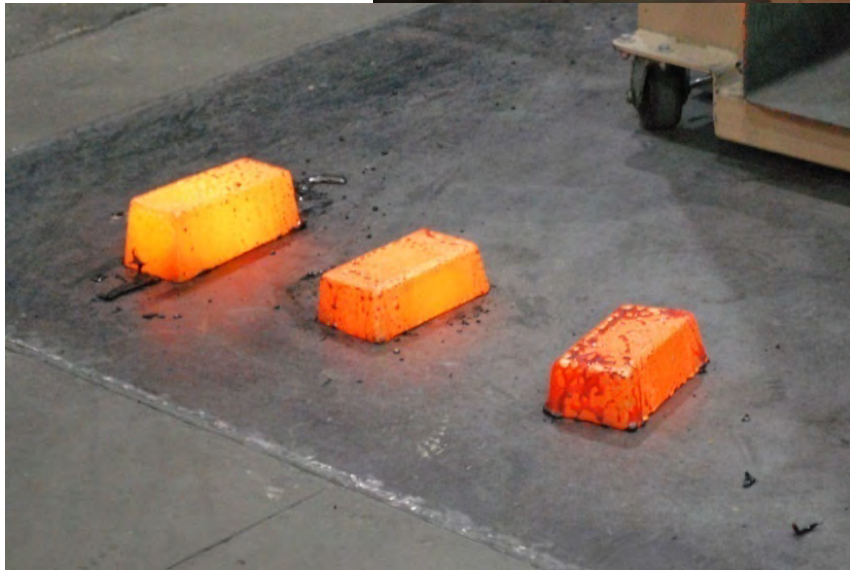
Targetable Prospects by:

- Au in soil anomalies
- Au in surface rocks
- Geophysics
- Vein subcrops



87 mi² more to explore!!!!

Pogo



Kensington Mine



Surface Facilities

Dock

An aerial photograph of the Kensington Mine site. The image shows a large, dark green forested area in the foreground and middle ground. In the background, there are rugged mountains with patches of snow. A body of water, likely a lake or reservoir, is visible in the lower right quadrant. Two labels with arrows point to specific features: 'Surface Facilities' points to a small, light-colored area in the upper right, and 'Dock' points to a small structure on the shoreline of the lake in the lower right.

Kensington Gold Mine

An aerial photograph of the Kensington Gold Mine. The central part of the image shows several large industrial buildings with grey roofs, surrounded by a network of dirt roads and gravel areas. To the left and right of the main processing area are large, dark grey tailings storage piles. In the foreground, there are several circular and rectangular ponds, some containing greenish water. The entire mine complex is situated in a valley surrounded by dense, dark green forest. The lighting suggests a bright day, with shadows cast across the terrain.

- Began operating June 2010
- 230 employees at full production
- 100,000 oz/yr
- Ongoing exploration

Limited On-site Accommodations

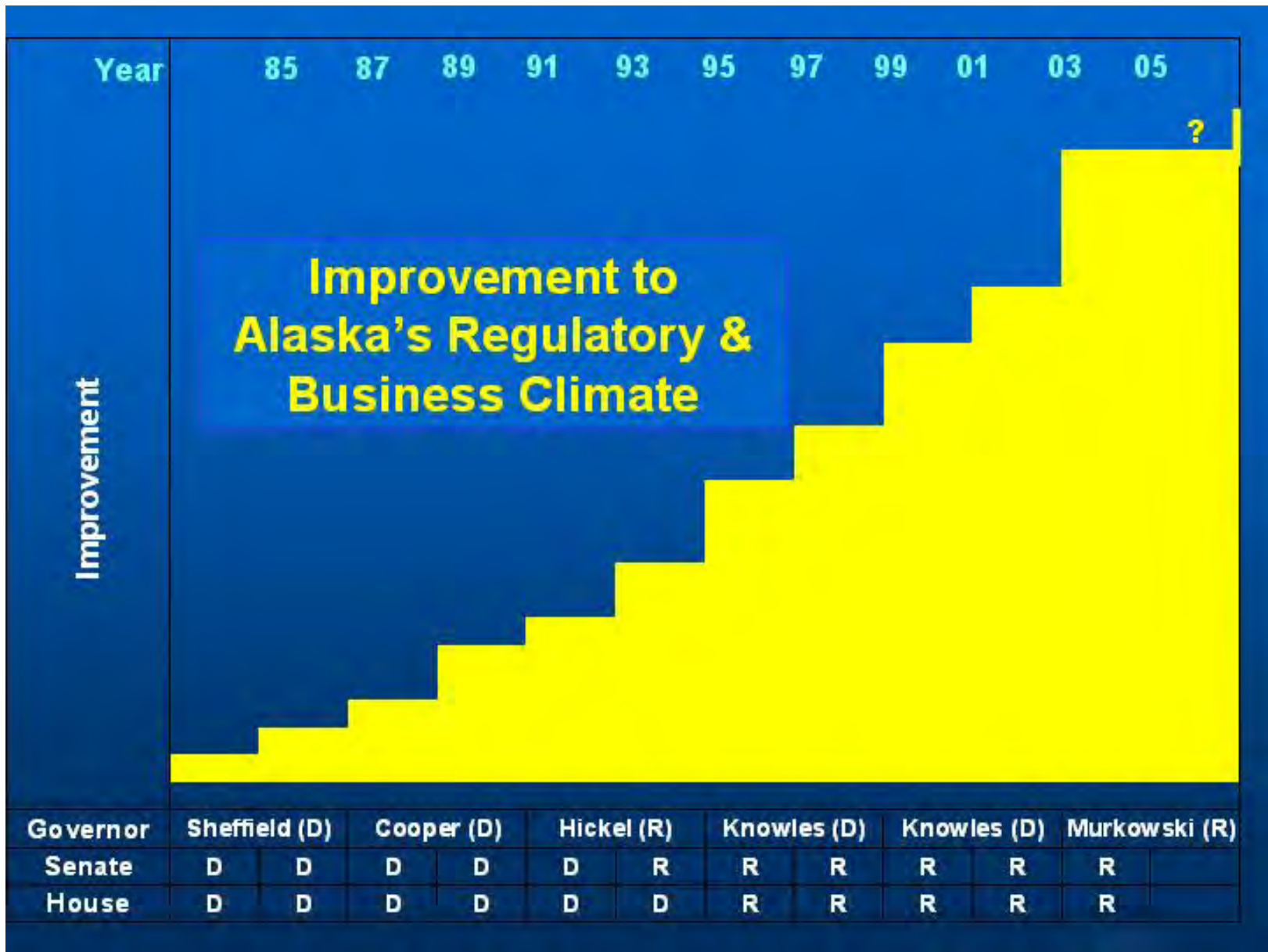


Nixon Fork Mine

Statistics

- Mill startup July 4, 2011
- Commission CN circuit early 2012
- 75 employees

17 7 2003



Selected Statute and Regulatory Improvements

1971

- **Alaska Native Claims Settlement Act (ANCSA)** - Resolved all aboriginal land claims; 44 million acres of land now private property; no BIA trust involvement whatsoever.

1985

- **Alaska Industrial Development and Export Authority (AIDEA)** - This state office given tax exempt bonding authority and mandate to support resource development.

1986

- **Alaska Minerals Commission** - Established AMC to provide annual report to Governor and Legislature with recommendations for changes to statutes and regulations that will benefit mining.

1990

- **Mine Reclamation Act** - Established standard as “reclamation to a stable condition that will allow natural revegetation in a reasonable period of time”; requires financial assurance; establishes a bonding pool; includes incentives to encourage concurrent reclamation; includes “hammers” if miners do not perform; allows miners not on State land to use the bonding pool.



Improvements Continued

1991

- **In-place Taxation of Resources** - Changed law to eliminate this taxation option.

1992

- **Definition of State Land** - Changed definition to facilitate conversion of federal mining claims to state ownership of the land and guarantee claimants can securely convert to state mining claims.

1993

- **DNR as Lead Agency for Mining** - Stated in statute that Department of Natural Resources is the lead agency for mining.

1994

- **Administrative Closures of State Land to Mineral Entry** - Set limit so not more than 640 acres can be closed to mineral entry without approval by Legislature.

- **Mental Health Lands Trust** - Settled conflicts over these pre-statehood state lands.

1995

- **Exploration Incentive Act** - Established a mining incentive program.



Improvements Continued

1997

- Minerals Data & Information Rescue in Alaska (MDIRA) - Began project and process to ensure that data, files, samples, etc. from former U.S. Bureau of Mines and other sources, including private sources (Anaconda Collection) would not be lost. <http://AKGeology.info>

2000

- Modernize State Mining Law - Major changes to modernize state mining location law.
 - removed 1320 foot limitation for maximum length for sidelines;
 - allows location of claims by GPS;
 - each claim is uniquely defined by Meridian, Township, Range, Section, Claim (MTRSC);
 - allows both 40 acre and 160 acre claims, If MTRSC format;
 - allows non-MTRSC claims, as originally in law.
- **Codified 590 RS-2477 Rights-of-Way** - Asserted rights-of-way into State statute.

2002

- **Established a Temporary Water Right** - Facilitates rapid development where water is needed for only a short period of time, as in building ice roads.



Projects in Advanced Exploration and Permitting

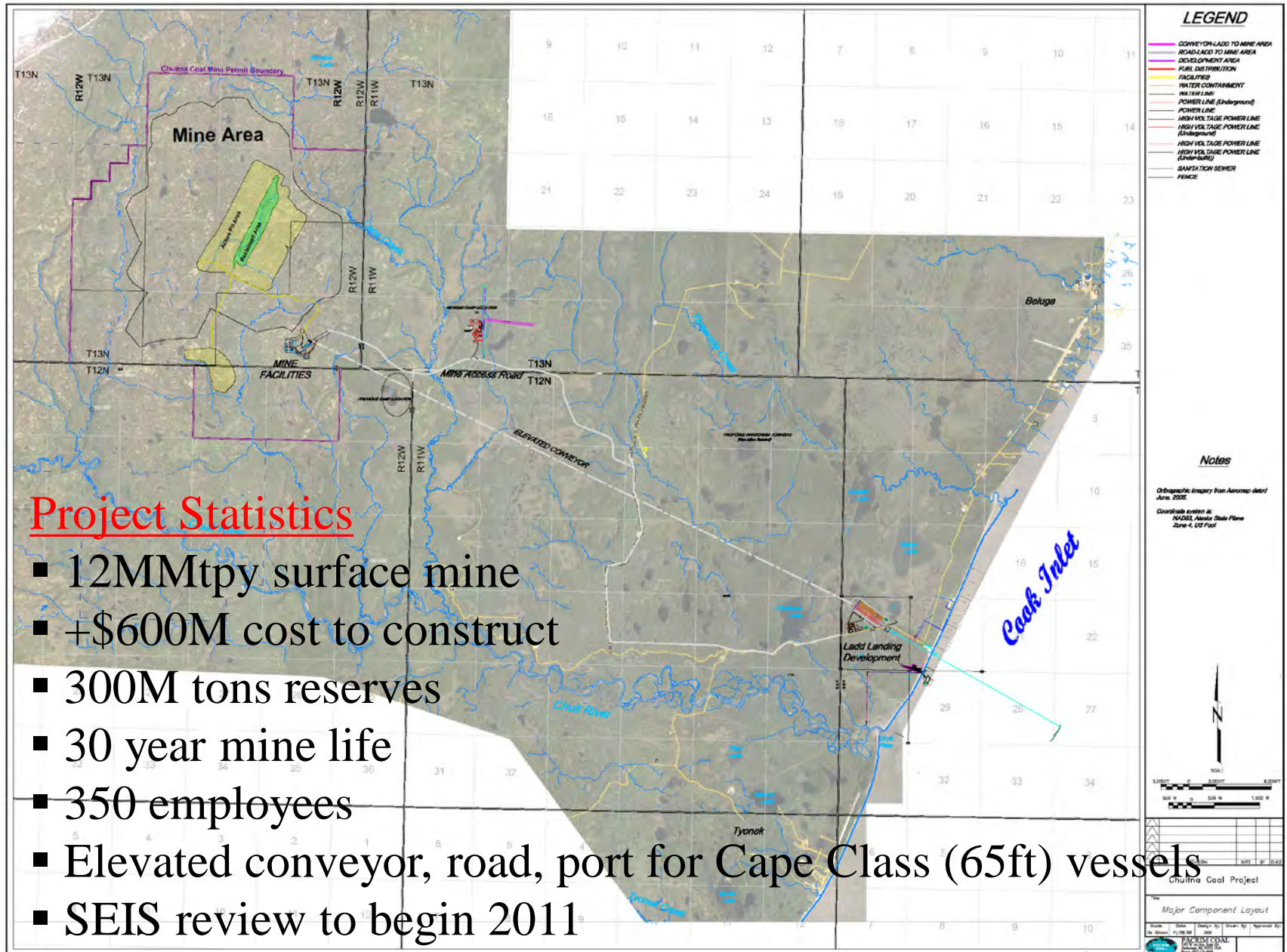
Advanced Permitting

1. Chuitna Coal PACRIM Coal
2. Wishbone Hill Usibelli

Advanced Exploration/Pre-permitting

3. Donlin Creek Barrick/NovaGold JV
4. Pebble Partnership NDM/Anglo American JV

Chuitna Coal Project

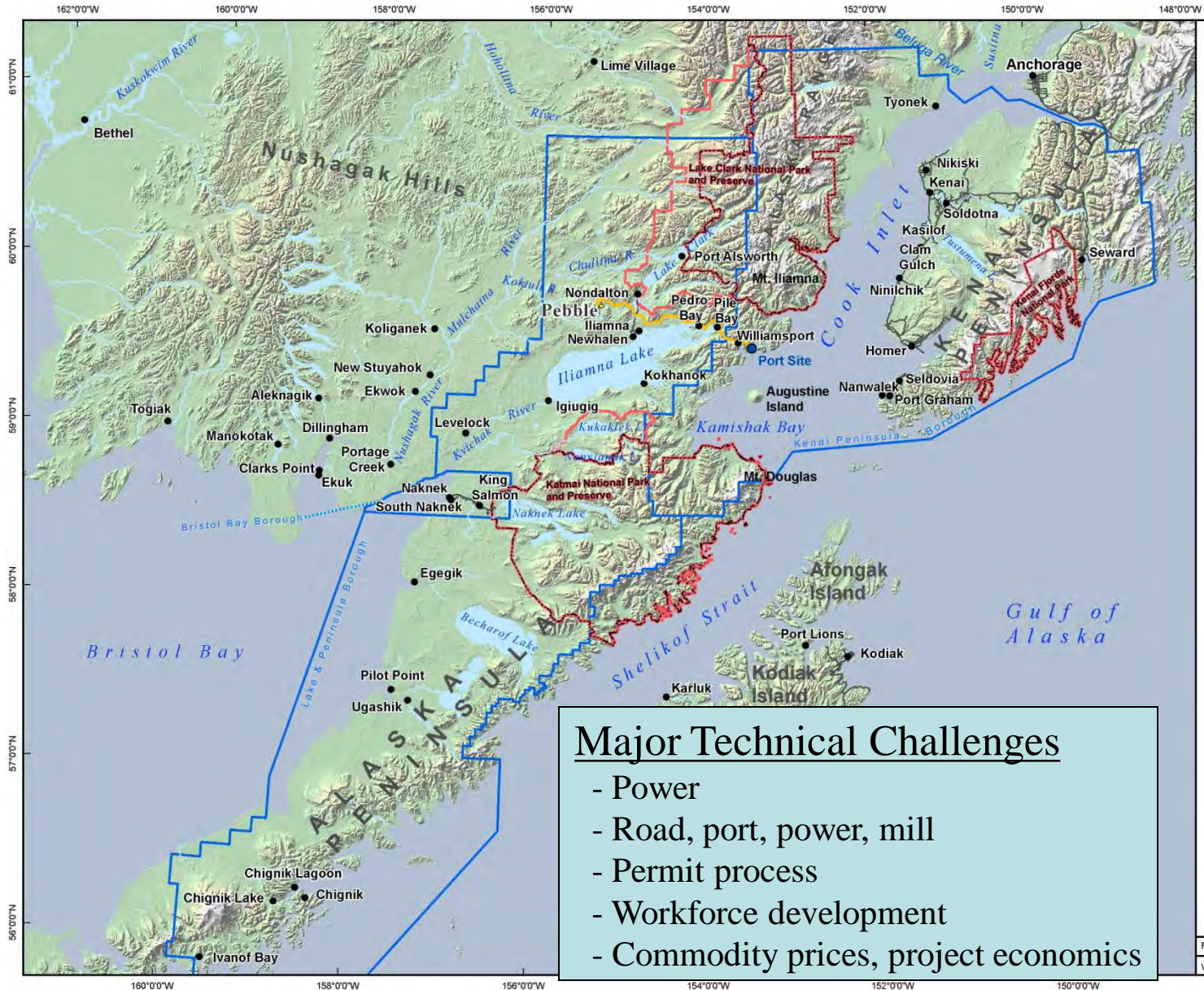


Donlin Creek



Project Status

- Began project permitting/EIS Dec 1, 2011
- 600-1000 expected production jobs



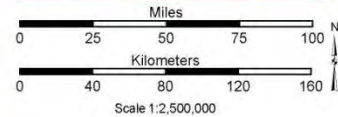
Regional Map

Legend

- Communities
- Possible Port Site
- ADOT&PF Road Study Corridor
- Existing Roads
- Deposit Site
- National Park
- National Preserve
- Borough Boundary

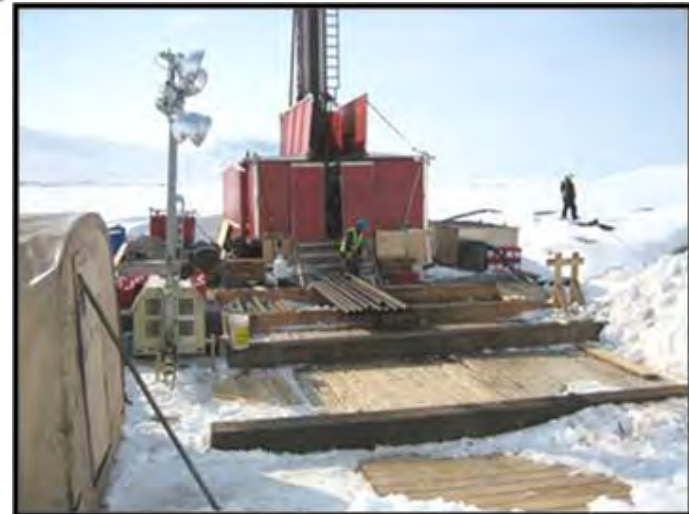
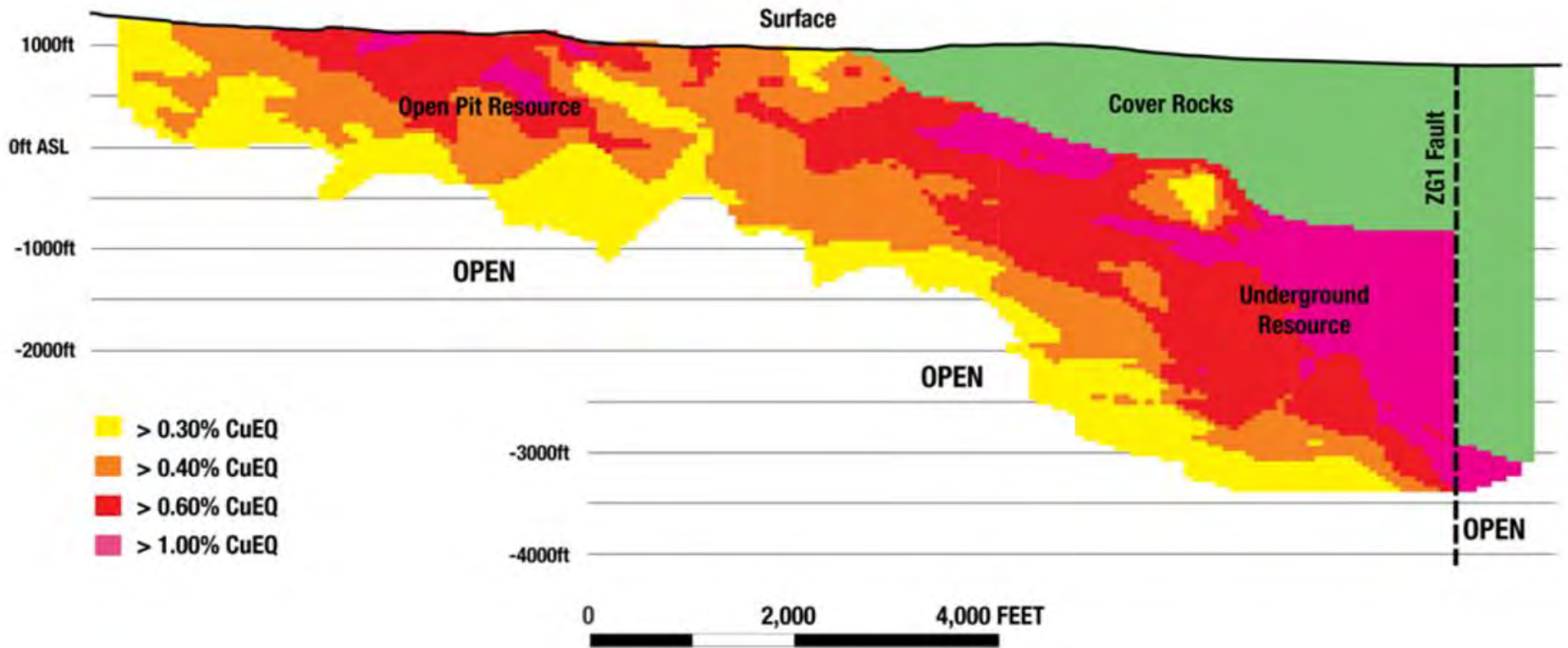
Major Technical Challenges

- Power
- Road, port, power, mill
- Permit process
- Workforce development
- Commodity prices, project economics



Alaska State Plane Zone 5 (units feet)
1983 North American Datum

Pebble



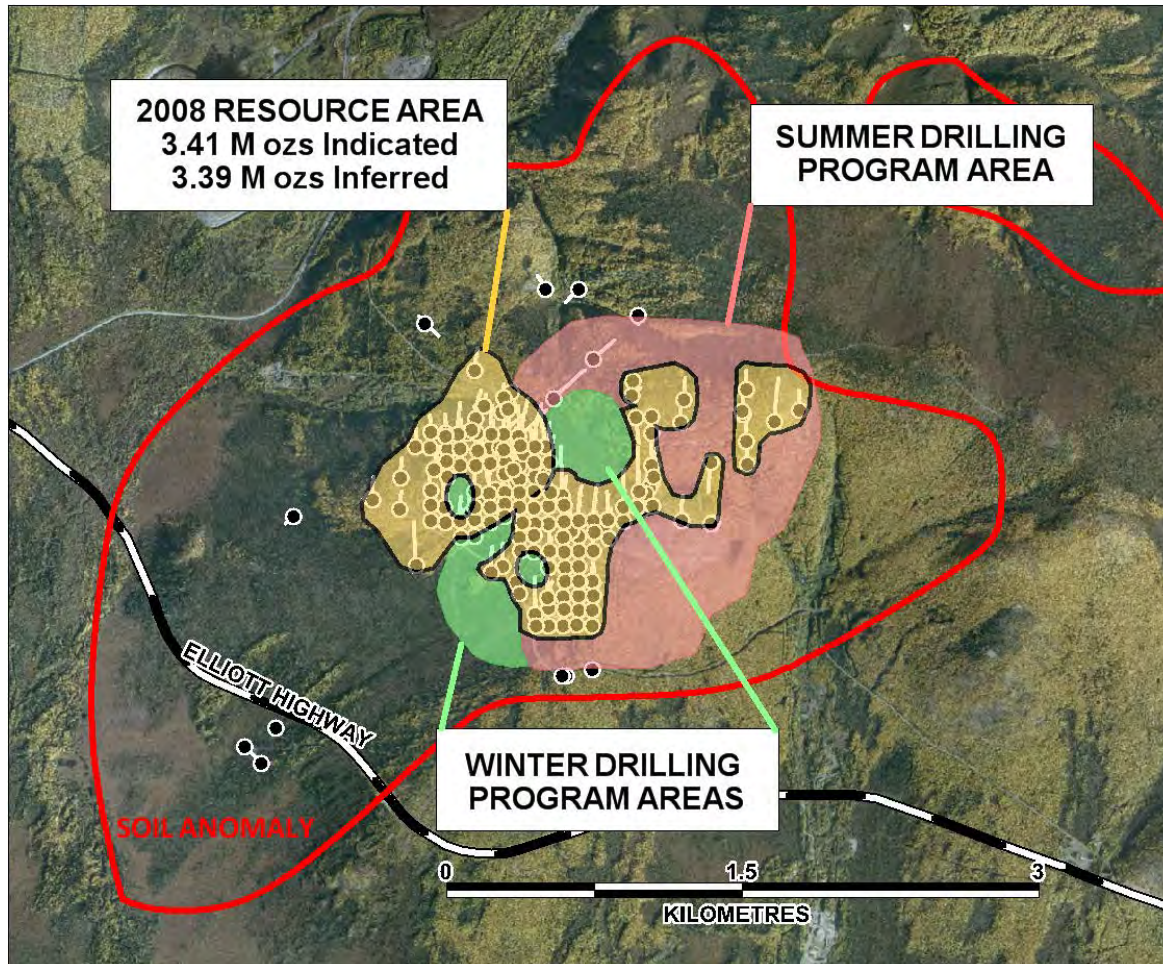
Major Exploration Projects

- 34 projects spent >\$1 million each in 2010
- Expect +40 in 2011

Four Example Projects

- Livengood - International Tower Hill Mines
- Niblack - Heatherdale Resources
- Bornite & Arctic – NovaCopper

International Tower Hill Livengood Project



Project Status

Placer mining began in 1913

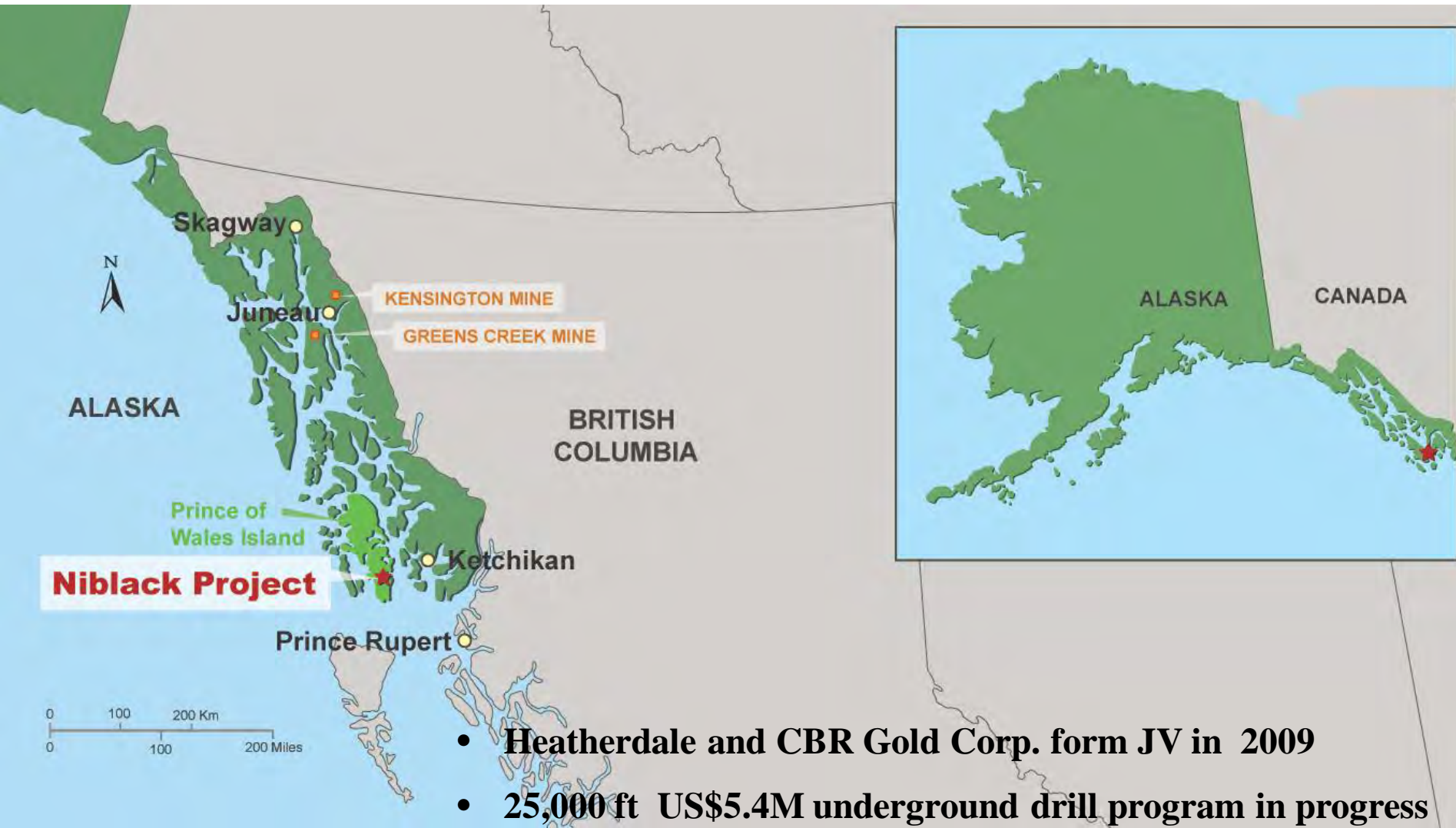
Lode discovered 2007

\$58M invested through 2010

~18 Moz

450-500 potential jobs

HEATHERDALE RESOURCES LTD.



- **Heatherdale and CBR Gold Corp. form JV in 2009**
- **25,000 ft US\$5.4M underground drill program in progress**
- **\$50 million invested through 2010**

Niblack Project



Bornite – NovaCopper



Arctic - NovaCopper



Time From Discovery to First Production

	<u>Discovery</u>	<u>Startup</u>	<u>Time</u>	<u>Jobs</u>	<u>Major Factors</u>
Greens Creek (Ag,Zn,Au,Pb)	1975	1989	14 yrs	352	Expl, Prove-up, Design, Permit
Red Dog (Zn,Pb,Ag)	1968	1989	21 yrs	550	E,P,D,P
Ft Knox (Au)	1984	1996	12 yrs	500	E,P,D,P
Pogo (Au)	1994	2006	12 yrs	400	E,P,D, EIS 3yrs 1mo
Kensington (Au)	1983?	2010	27 yrs	200	E,P,D, Gold \$, 3 EISs, NGO Suit
Quartz Hill (Mo)	1974	?	37 yrs+	?	
Chuitna (Coal)	~1979	?	32 yrs+	300-350	E,P,D NGO suits, Market, Prepare EIS
Wishbone Hill (Coal)	~1984	?	27 yrs+	75-125	MHT suit, Market
Donlin Gold (Au)	1988	?	23 yrs+	750-1000	Gold \$



Fort Knox Business in Alaska

- \$174 million annual operating budget
- Work with more than 500 Fairbanks businesses
- Work with more than 700 Alaska businesses
- \$61 million in wages and benefits
- \$31 million for electricity
 - 1¢ per kwh savings for every GVEA customer
- \$23 million for fuel
- \$2.8 million in property taxes



Gold Mining Districts In Alaska

A total of 58 Mining Districts in Alaska have had Gold production
Lode gold mining currently in only 4 of the 58 Districts!

Eight Districts with Gold Production Greater Than 1,000,000 Ounces

Fairbanks	13.5Moz	Fort Knox
Juneau	9.1	Greens Creek & Kensington
Nome	5.0	<i>Rock Creek Project</i>
Iditarod	1.6	<i>Donlin Creek Project</i>
Goodpaster	1.5	Pogo
McGrath-Innoko	1.2	Nixon Fork
Circle	1.1	
Council-Solomon	1.0	

Seven Districts with Gold Production of 500,000 to 1,000,000 Ounces

Chichagof	0.77	
Willow Ck-Hatcher Pass	0.67	
Aniak	0.61Moz	
Hot Springs	0.59	
Fortymile	0.58	
Tolovana-Livengood	0.54	<i>Livengood Project</i>
Valdez Creek	0.52	



