

**2/23/11  
ANNUAL  
MINING  
INDUSTRY  
BRIEFING**

<TARGET><BILL></BILL><SUBJECT>2-23-11 ANNUAL MINING  
INDUSTRY BRIEFING</SUBJECT><COMM>SRES27</COMM></TARGET>

**Annual Mining Industry Briefing  
for  
Joint House/Senate Resources  
Committees**

February 23, 2011



# Today's Agenda

- Historical context Steve Borell
- Status of Alaska's surface mines “
- Status of underground mines Mike Satre
- Review of selected projects pending Steve Borell



# 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** – 6 large mines in Alaska; much exploration.

**The Question:** Why so little mining today?



# Mining History Since WW II

## At Start of World War II

- Presidential order closed all gold mines
- Needed miners and equipment for war effort

## After World War II

- Some placer mining resumed
- Limited lode **exploration** resumed as metal prices allowed
- **Excess base metal production capacity in world**
- **Gold price fixed - but cost of wages and supplies continued to increase**
- Prudhoe Bay, ANCSA (44m ac), ANILCA (104m ac)
- Land and regulatory uncertainty

## From World War II to 1989

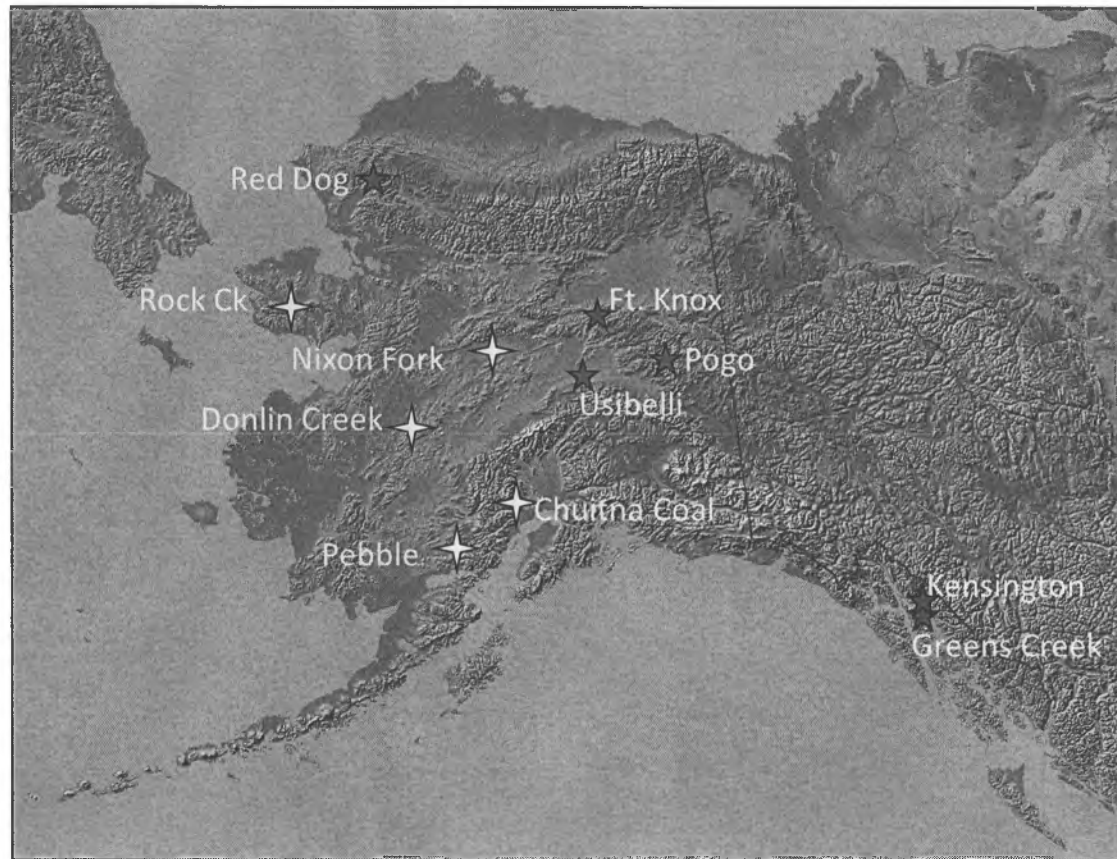
- Effectively no lode/hardrock mining, some placer mining, some coal mining
- In 1989 Greens Creek & Red Dog began operating
  - **Proved to the world that a major mine could be permitted in Alaska!**
  - **Proved that all Alaska was not in a Park!**



# Alaska Major Mines and Projects

★ Producing mine

✦ Developing and major exploration projects



0 100 200 300 400 500 kilometers  
0 50 100 150 200 250 300 350 statute miles

meters 0 1000 2000 3000 4000 5000  
feet 0 5000 10000 15000

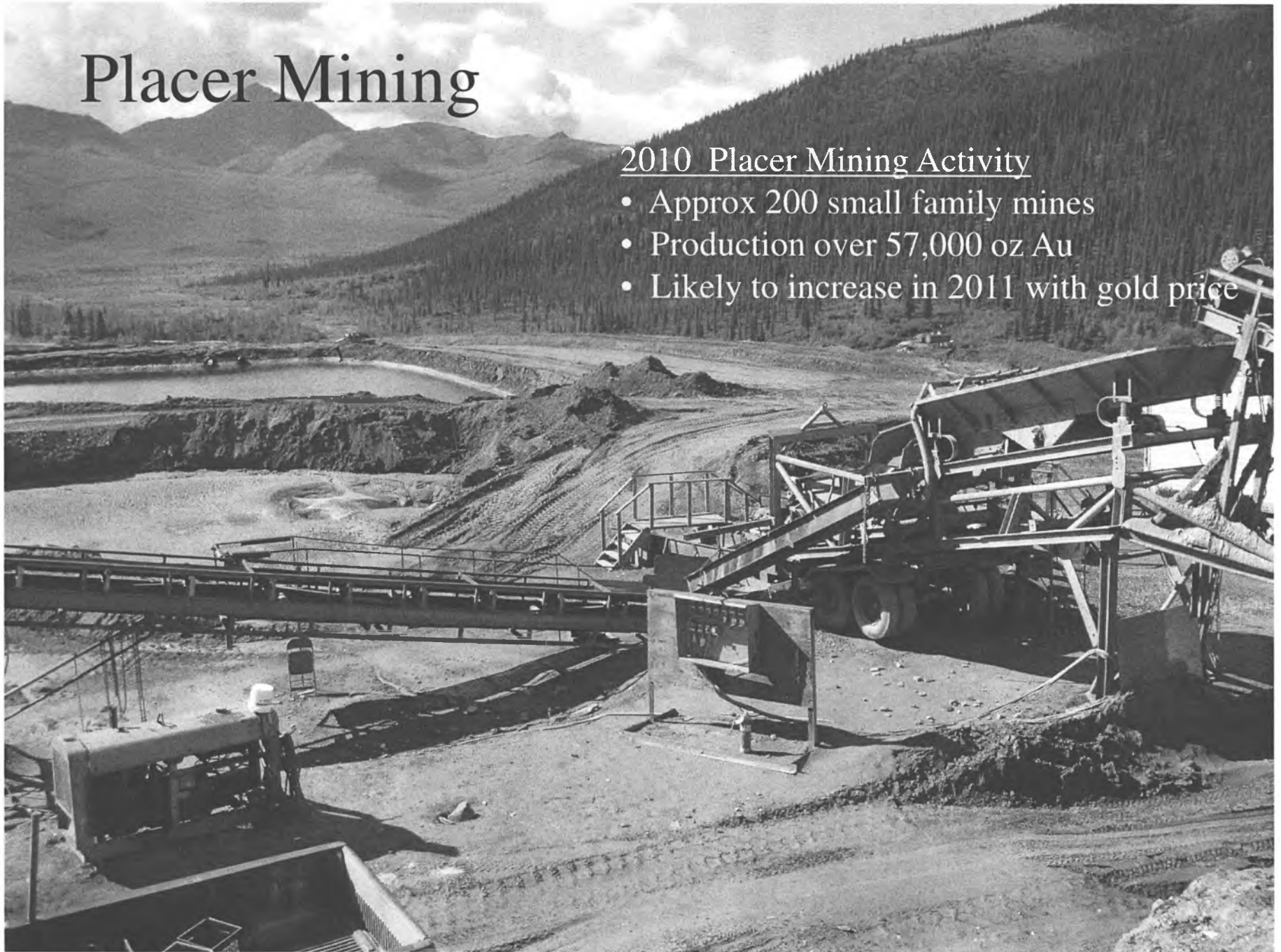
Stereographic  
Central lat, lon, ang: 63.0, -149.5, 0.0

V 3.0 Copyright © 2003 by Ray Sterner, Johns Hopkins University Applied Physics Laboratory

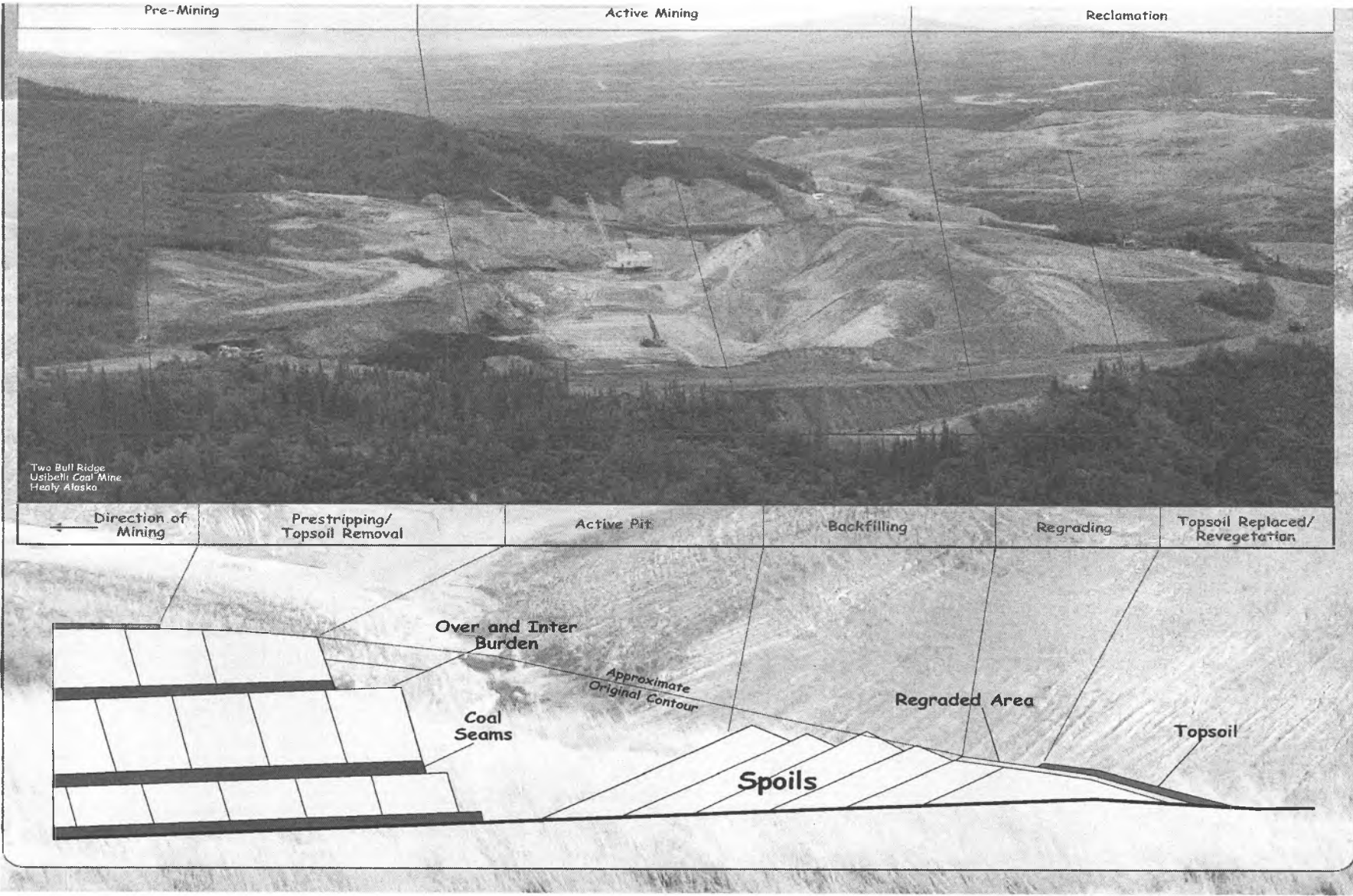
# Placer Mining

## 2010 Placer Mining Activity

- Approx 200 small family mines
- Production over 57,000 oz Au
- Likely to increase in 2011 with gold price

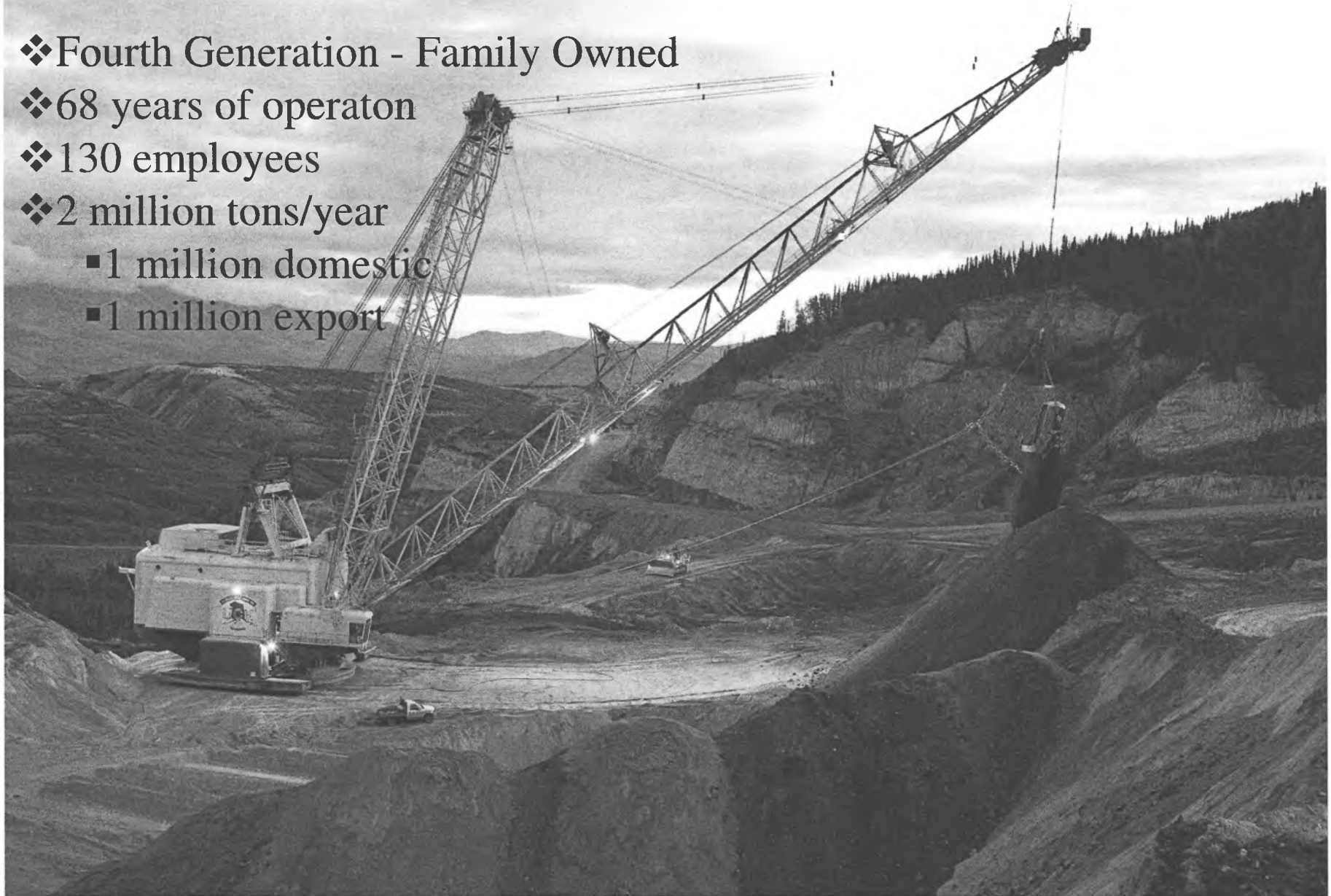


# Usibelli Coal Mine



# Usibelli Coal Mine

- ❖ Fourth Generation - Family Owned
- ❖ 68 years of operation
- ❖ 130 employees
- ❖ 2 million tons/year
  - 1 million domestic
  - 1 million export



# Red Dog Mine



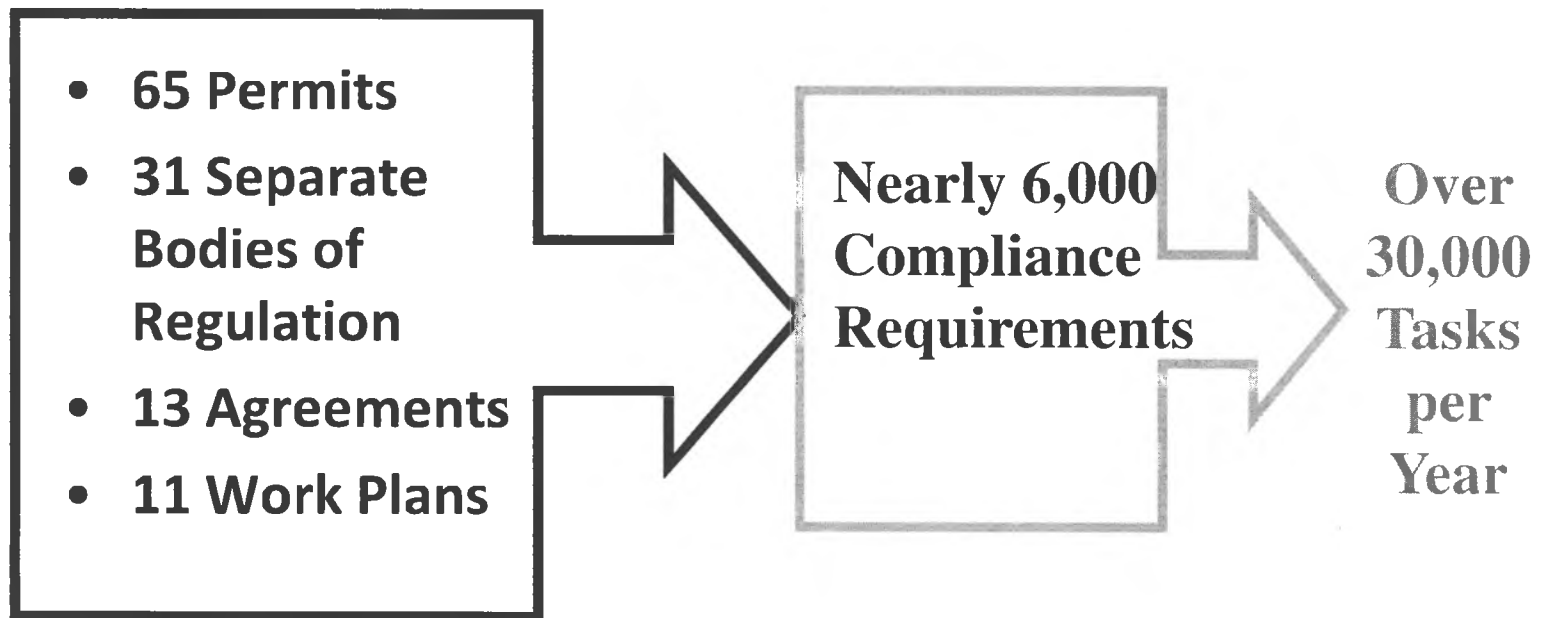
- Aqqaluk permits received May 2010
- First concentrates shipped Sept 2010

## Red Dog Statistics

- 550 employees and full time contractors
- 56% NANA shareholder hire
- \$50M annual mine wages & benefits
- \$7M paid to NWAB
- +\$50M taxes paid to State



# Red Dog Legal and Other Environmental Requirements



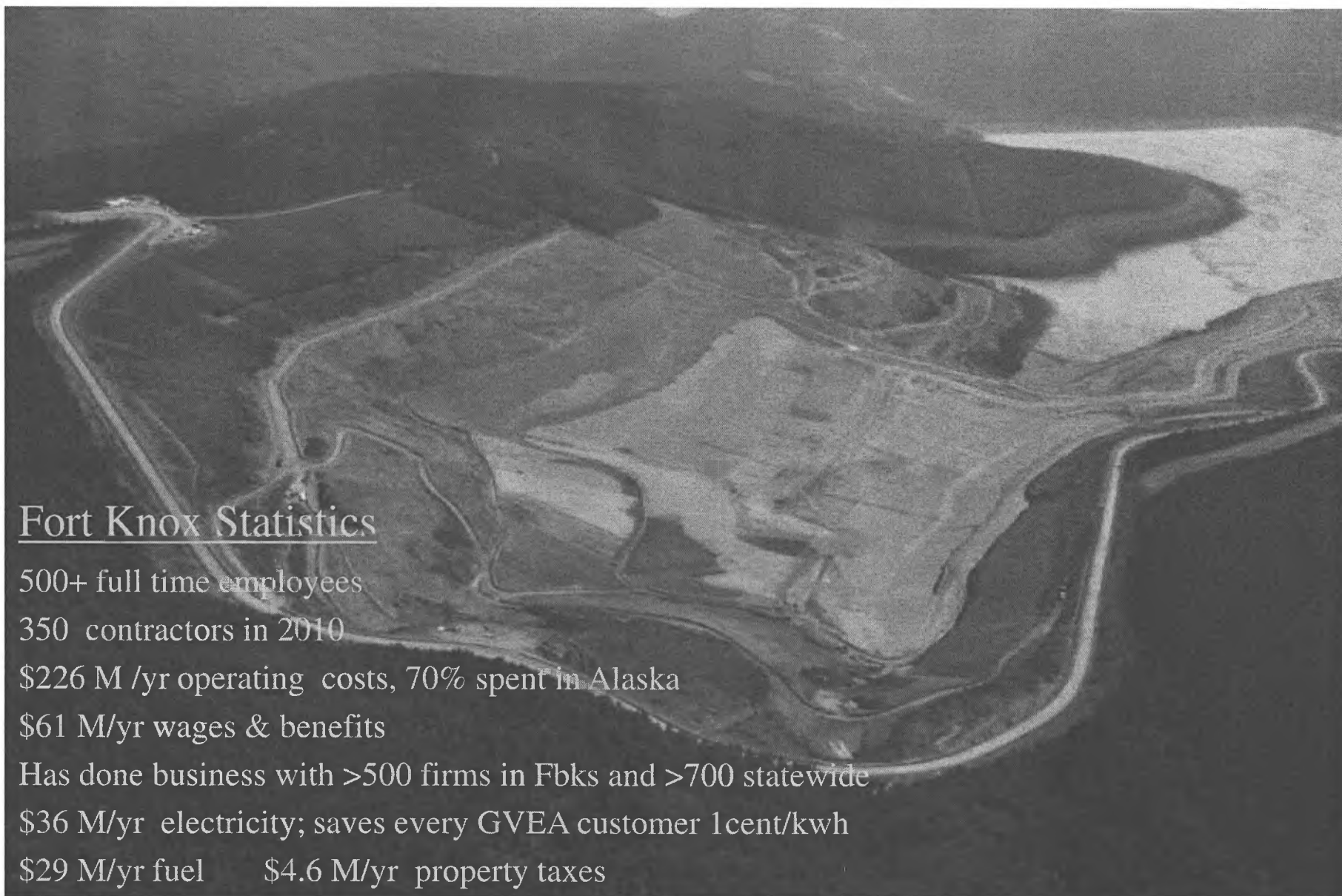




# Fort Knox Mine

KINROSS

Fort Knox



## Fort Knox Statistics

500+ full time employees

350 contractors in 2010

\$226 M /yr operating costs, 70% spent in Alaska

\$61 M/yr wages & benefits

Has done business with >500 firms in Fbks and >700 statewide

\$36 M/yr electricity; saves every GVEA customer 1cent/kwh

\$29 M/yr fuel      \$4.6 M/yr property taxes

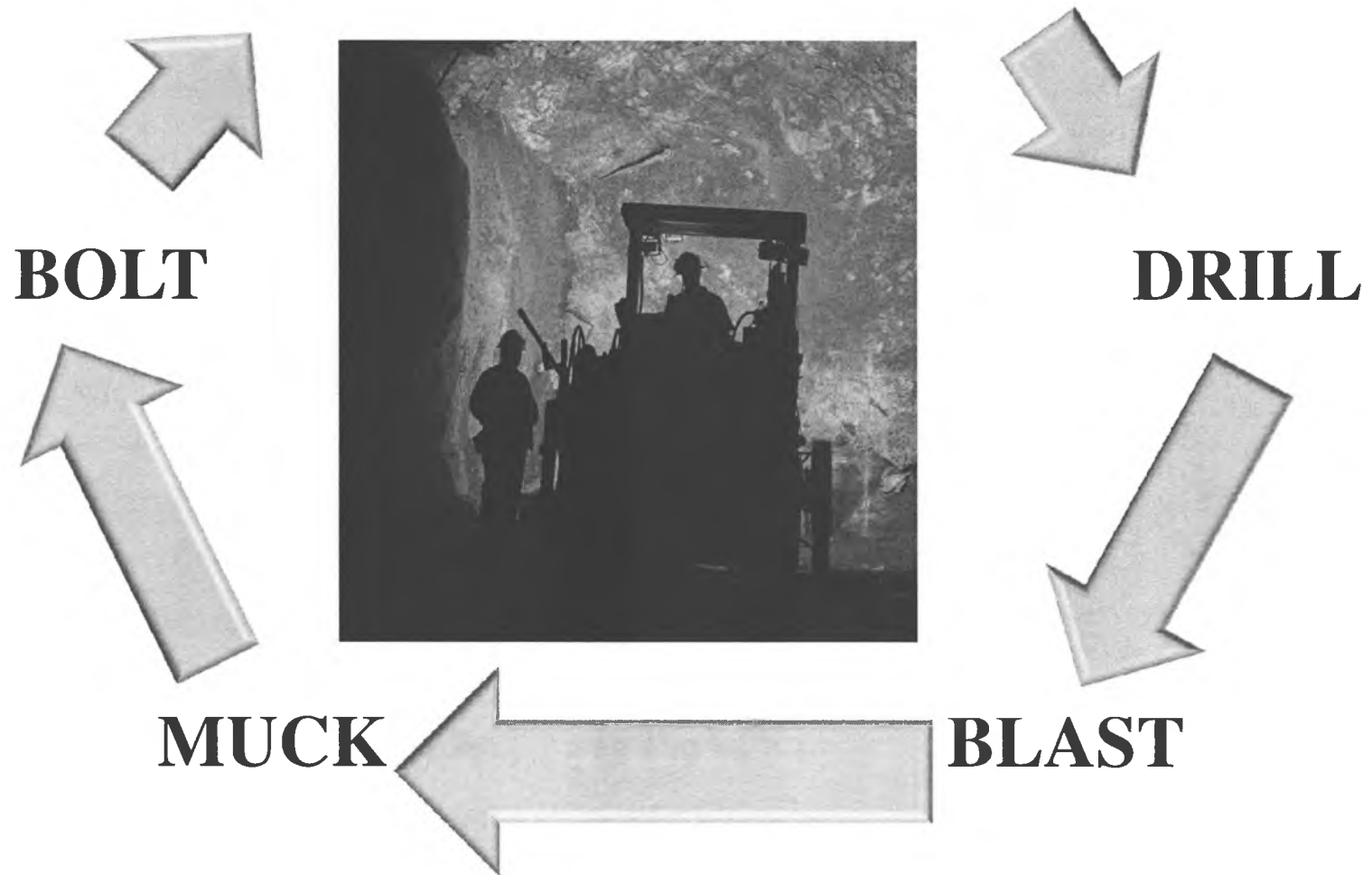
# Fort Knox Safety Milestones

- On 12/28/2010 - 4 years with no lost-time injuries
- On 1/23/2011 - 4 Million manhours with no lost-time injuries



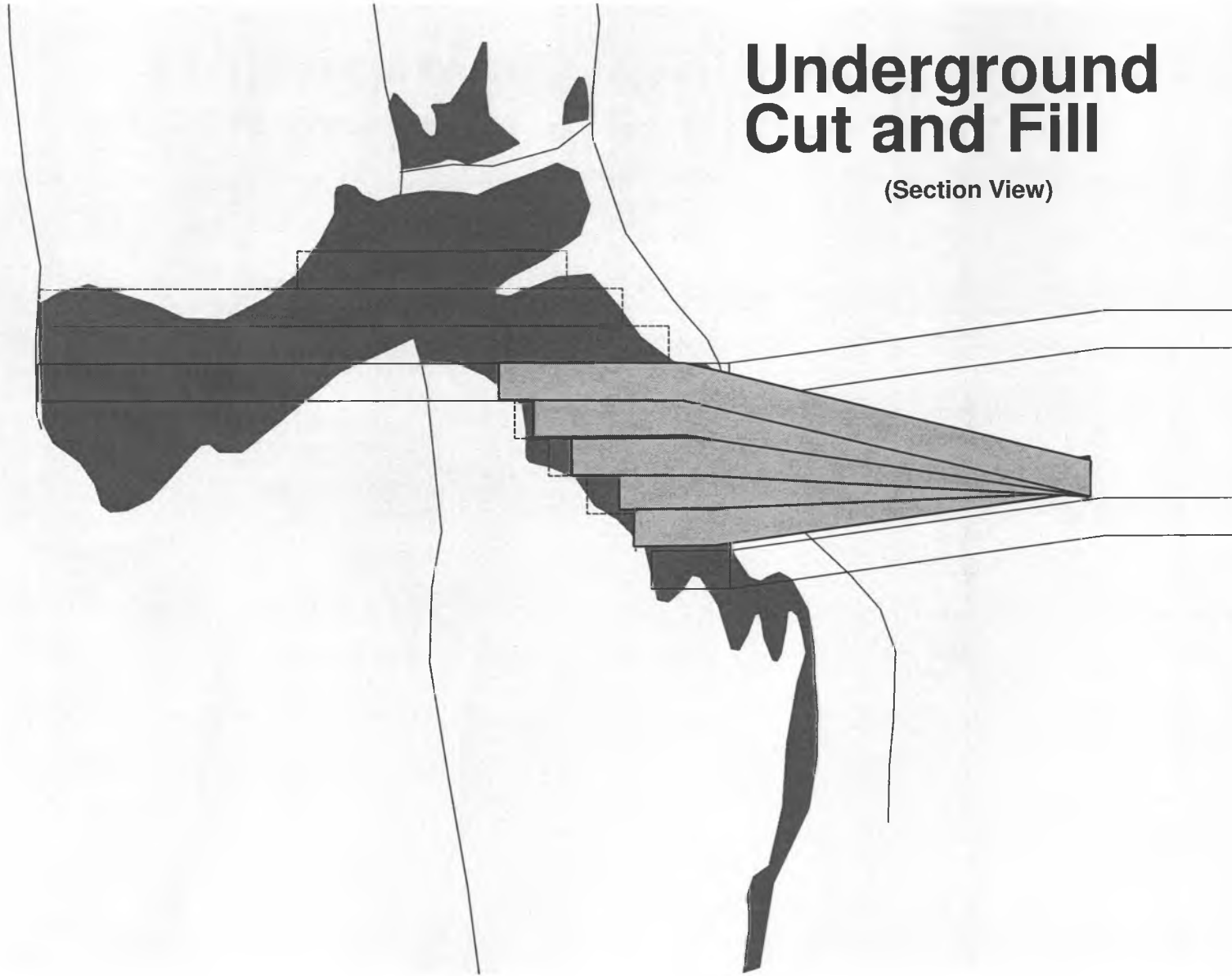
# Basic Underground Mining Cycle

Geology + Engineering Control



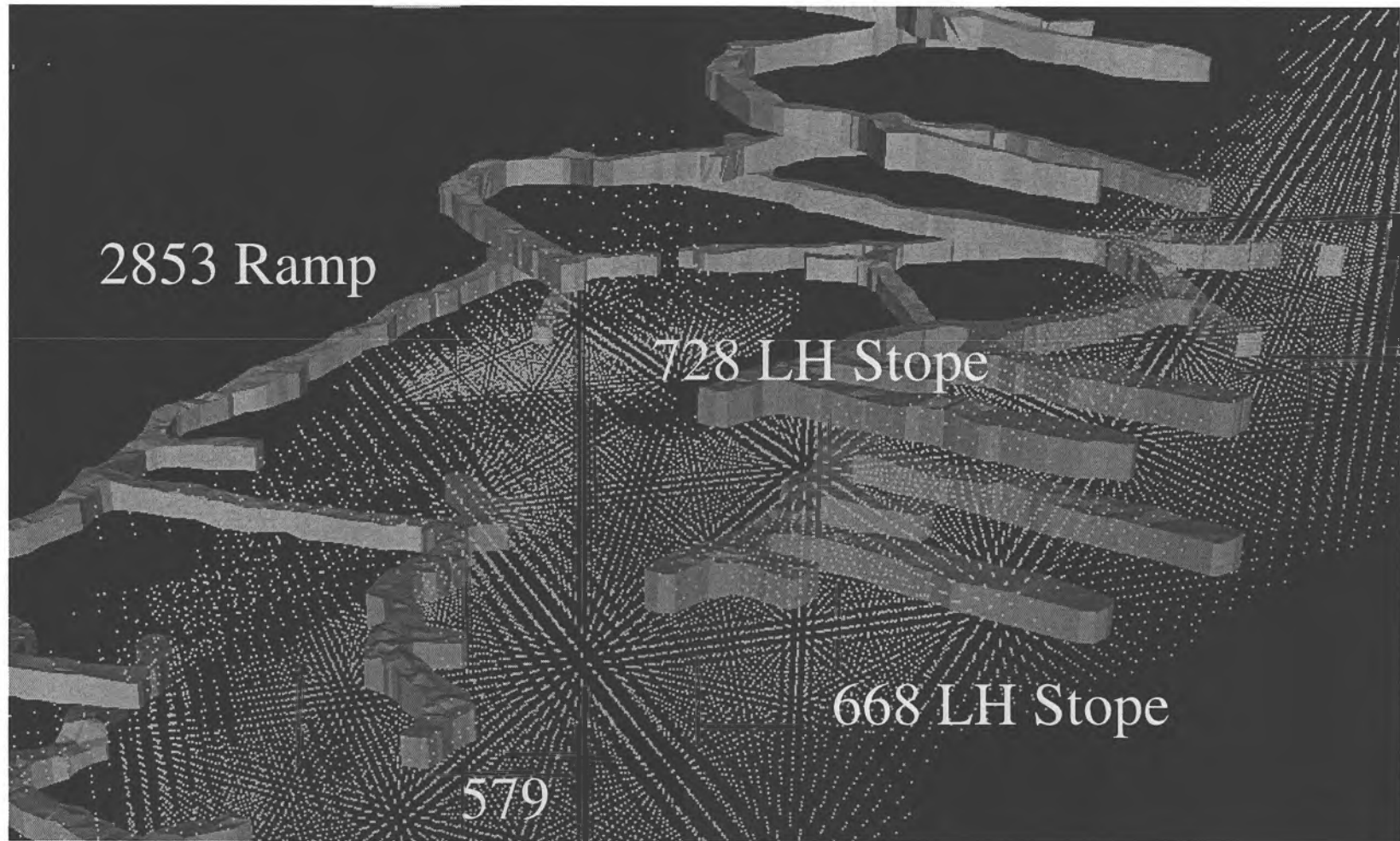
# Underground Cut and Fill

(Section View)



Main Ramp

# Underground Longhole



2853 Ramp

728 LH Stope

668 LH Stope

579

Stope

# Hecla Greens Creek Mine

## “At a Glance”

- **18 miles south of Juneau on Admiralty Island**
- **High-grade polymetallic orebody**
  - **Silver, zinc, lead and gold**
- **UG mine with surface concentrator**
  - **(2,250 tpd)**
- **Producing three concentrates + dore’**
  - **Zinc, lead and bulk**
- **20 years of production**
  - **Current 10 year mine life**



# Hecla Greens Creek Mine

## Economic Impact

- **340 Employees**
  - **530 total direct and in-direct jobs**
- **Largest private sector employer in Juneau**
- **>\$42M in pay and benefits**



# Hecla Greens Creek Mine



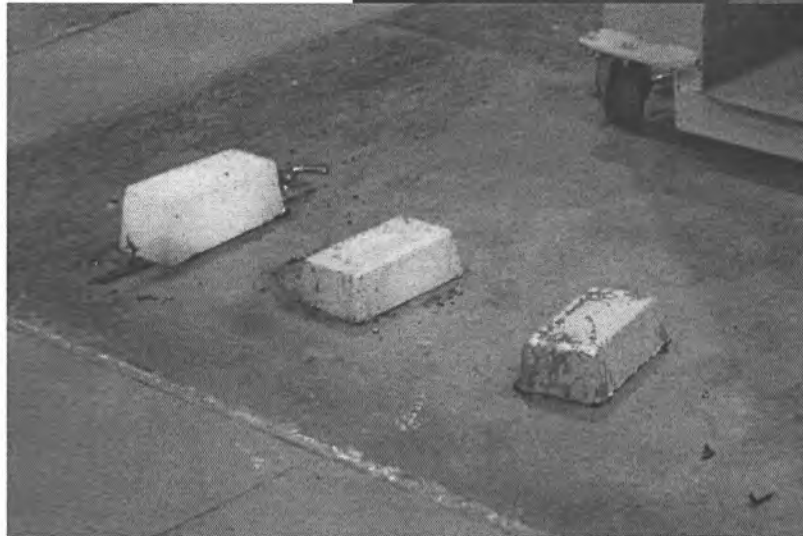
## Tailing Expansion

- **NEPA process initiated to add ~30-50 years of tails storage capacity**
- **Proposal will expand the site by ~200 acres**
- **Construction to start in 2012 pending favorable EIS and ROD from Forest**

# Pogo Gold Mine

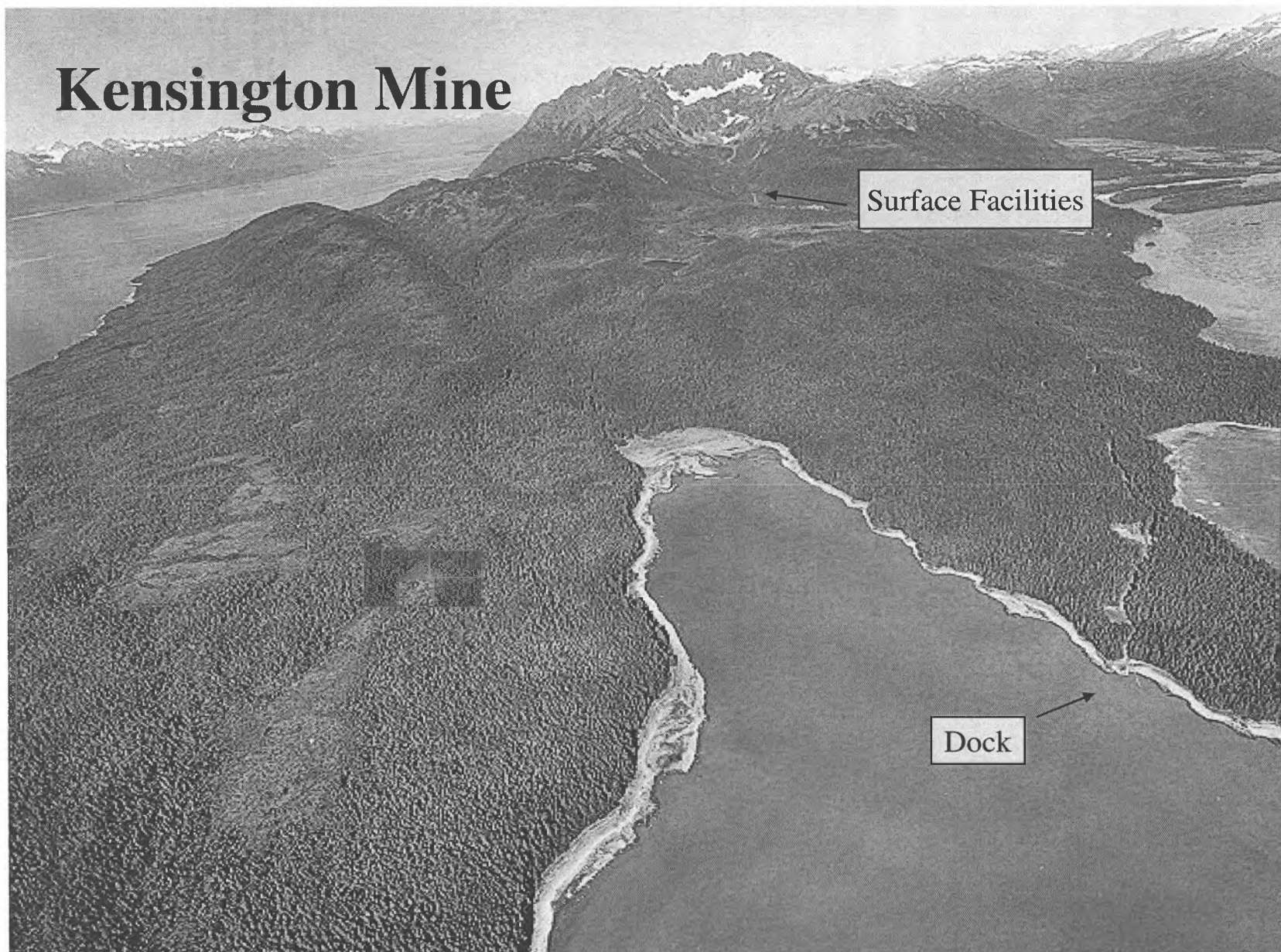
- 380,000 oz/yr
- 300 employees plus 100 full-time contractors
- Sumitomo Metal Mining (85%) and Sumitomo Corp (15%) are JV owners...SMM is the operator

# Pogo Gold Mine



- Focus on safety and environmental performance
- Mine reserves are through 1<sup>st</sup> Qtr 2017
- On-going exploration to expand ore reserves and mine life

# Kensington Mine



Surface Facilities

Dock



# Kensington Gold Mine

- Began operating July 2010
- 200 employees
- 125,000 oz/yr - Ongoing exploration
- \$25M/yr annual payroll
- 2<sup>nd</sup> largest Juneau employer by payroll
- \$9.3M/yr purchases local goods & services
- Several million in local tax revenues

## Limited On-site Accommodations



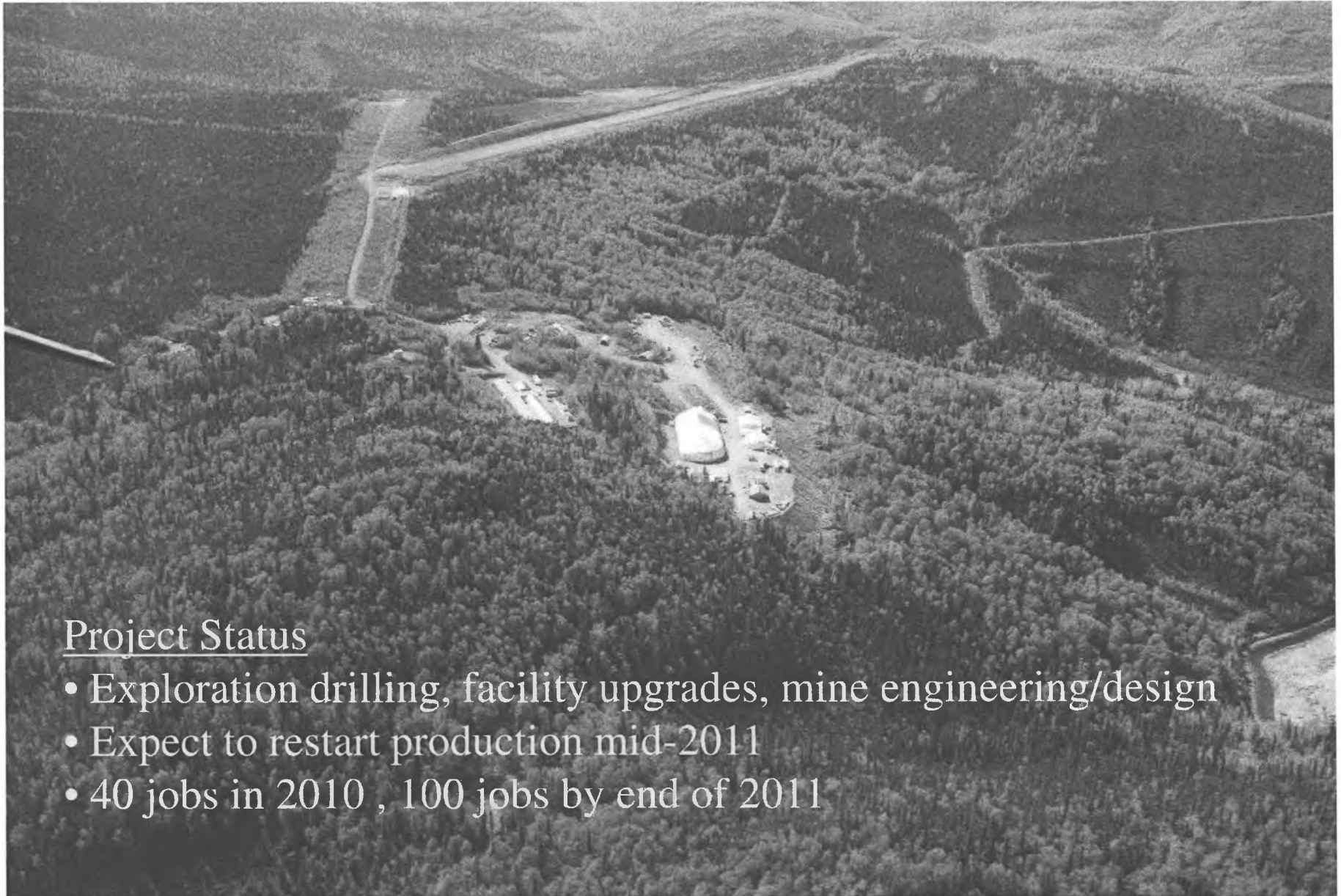


RDC Board at Lower Slate Lake

# **Mines in Idle Status**

- **Nixon Fork - Fire River Gold**
- **Rock Creek - Alaska Gold/ NovaGold**

# Nixon Fork Mine



## Project Status

- Exploration drilling, facility upgrades, mine engineering/design
- Expect to restart production mid-2011
- 40 jobs in 2010 , 100 jobs by end of 2011

# Rock Creek Mine



## Project Status

- On care & maintenance with 20 employees
- 160 employees when in operation with \$12.3M/yr payroll
- NovaGold announced 9/30/10 that mine is for sale
- In discussions with potential buyers

# **Projects in Advanced Exploration and Permitting**

## **Advanced Permitting**

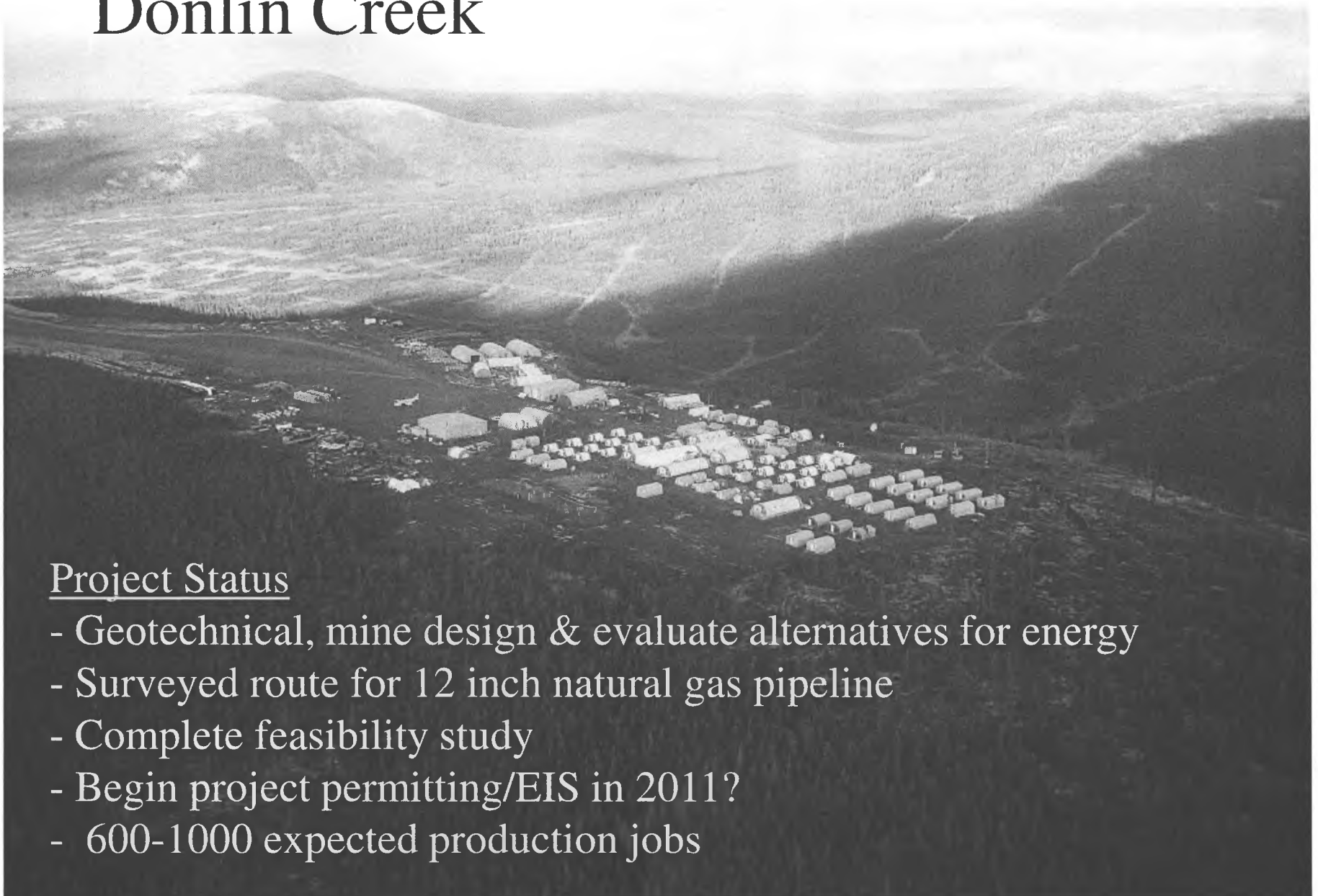
1. Chuitna Coal      PACRIM Coal

## **Advanced Exploration/Pre-permitting**

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

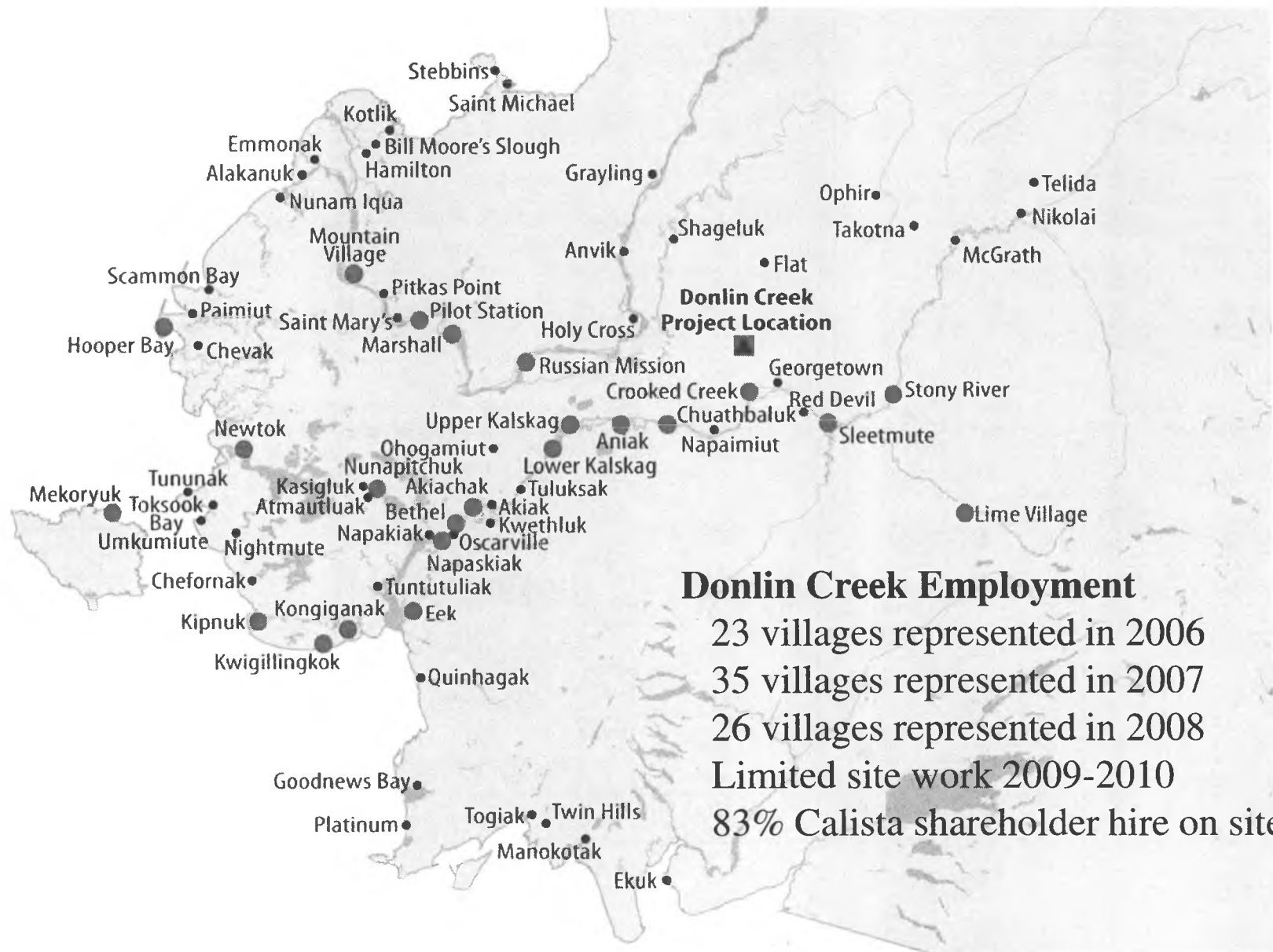


# Donlin Creek



## Project Status

- Geotechnical, mine design & evaluate alternatives for energy
- Surveyed route for 12 inch natural gas pipeline
- Complete feasibility study
- Begin project permitting/EIS in 2011?
- 600-1000 expected production jobs





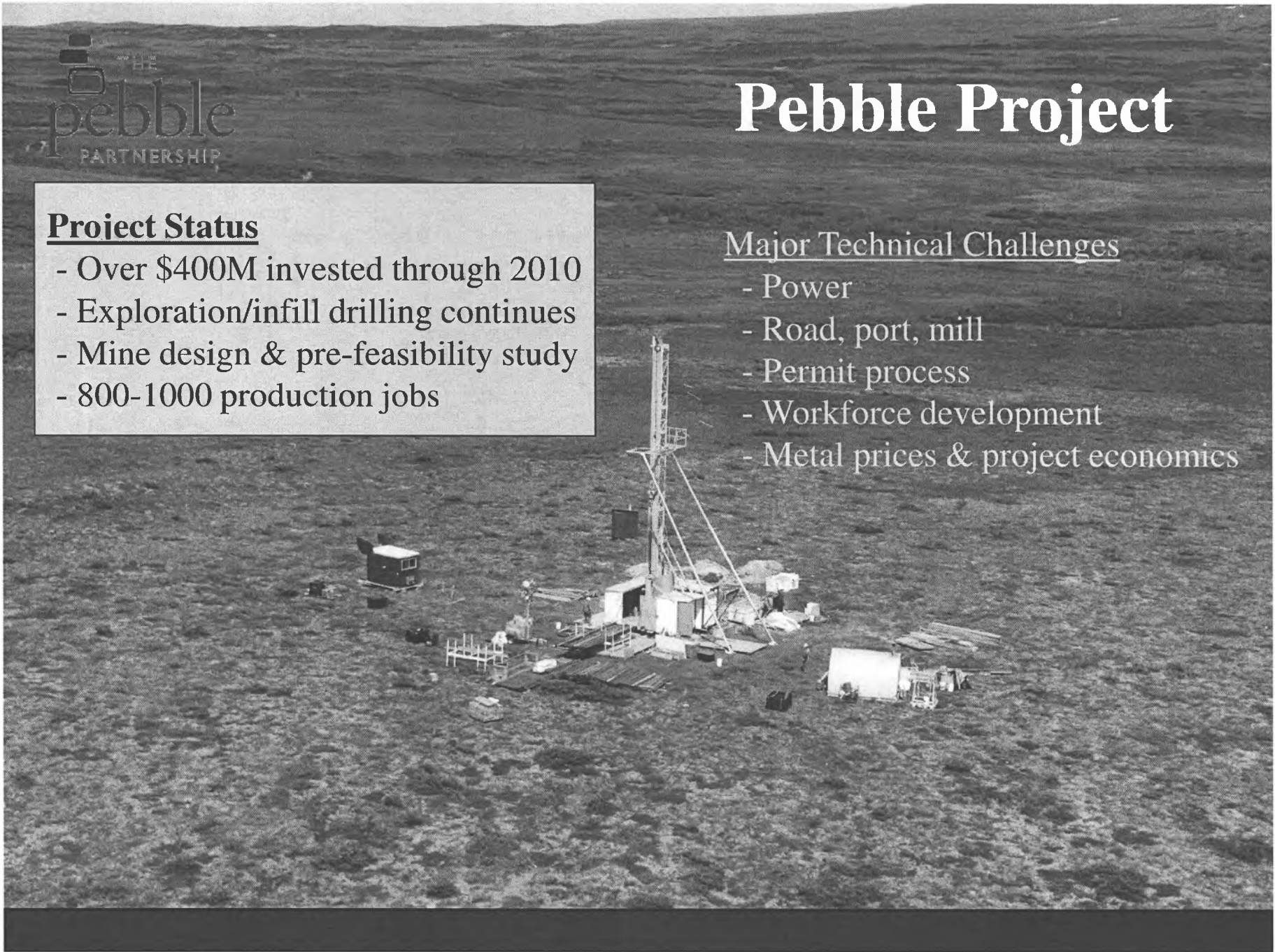
# Pebble Project

## Project Status

- Over \$400M invested through 2010
- Exploration/infill drilling continues
- Mine design & pre-feasibility study
- 800-1000 production jobs

## Major Technical Challenges

- Power
- Road, port, mill
- Permit process
- Workforce development
- Metal prices & project economics



# Drill Site Reclamation



After drill removed



After one year

# Pebble – Environmental Baseline Studies

- ☐ Surface Water
- ☐ Water Quality
- ☐ Groundwater
- ☐ Geochemistry
- ☐ Snow Surveys
- ☐ Analytical QA/QC
- ☐ Fish & Aquatic Resources
- ☐ Macroinvertebrates
- ☐ Wetlands
- ☐ Trace Elements
- ☐ Flow Habitat Study
- ☐ Iliamna Lake Study
- ☐ Marine
- ☐ Wildlife
- ☐ Air Quality
- ☐ Noise
- ☐ Cultural Resources
- ☐ Subsistence
- ☐ Land Use
- ☐ Recreation
- ☐ Socioeconomics
- ☐ Visual Aesthetics
- ☐ Impact assessment & management
- ☐ Mine closure & reclamation

>50 independent consulting firms  
>500 contractors  
>\$120 million expended to date



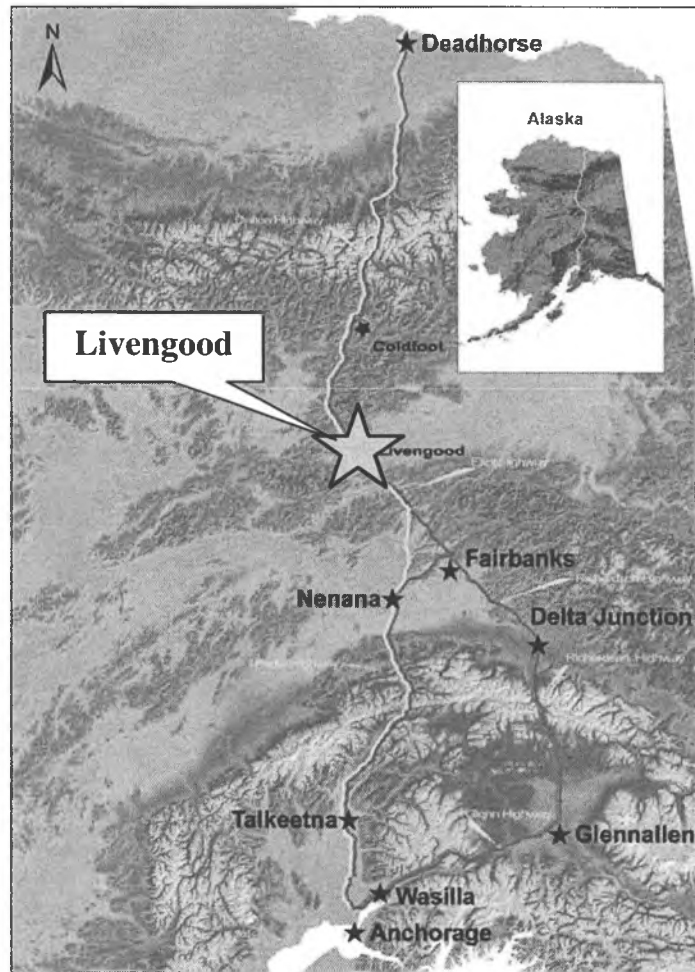
# Major Exploration Projects

- 24 projects spent >\$1 million each in 2010
- Expect higher number in 2011

## Four Example Projects

- Livengood - International Tower Hill Mines
- Niblack - Heatherdale Resources
- Arctic – NovaGold Resources
- Palmer - Constantine Resources

# Livengood Gold Project Highlights



## Gold Deposit

Indicated Resources of 10.9Moz @ 0.83 g/t Au &  
Inferred Resources of 2.4Moz @ 0.79 g/t Au  
(0.5 g/t cutoff). (June 2010)

Geometry of deposit supports low-cost bulk  
tonnage mining

## Favorable infrastructure

All weather paved highway, 70 miles north of  
Fairbanks

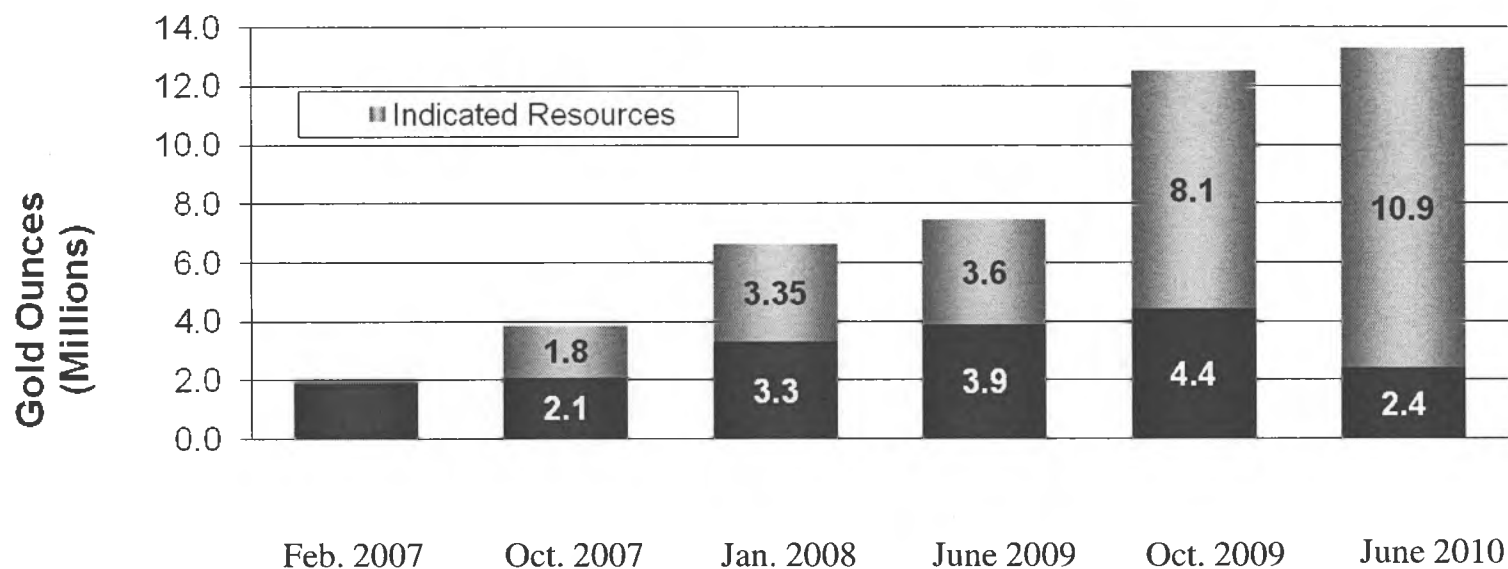
Potential natural gas pipeline - would help project

## Project Status

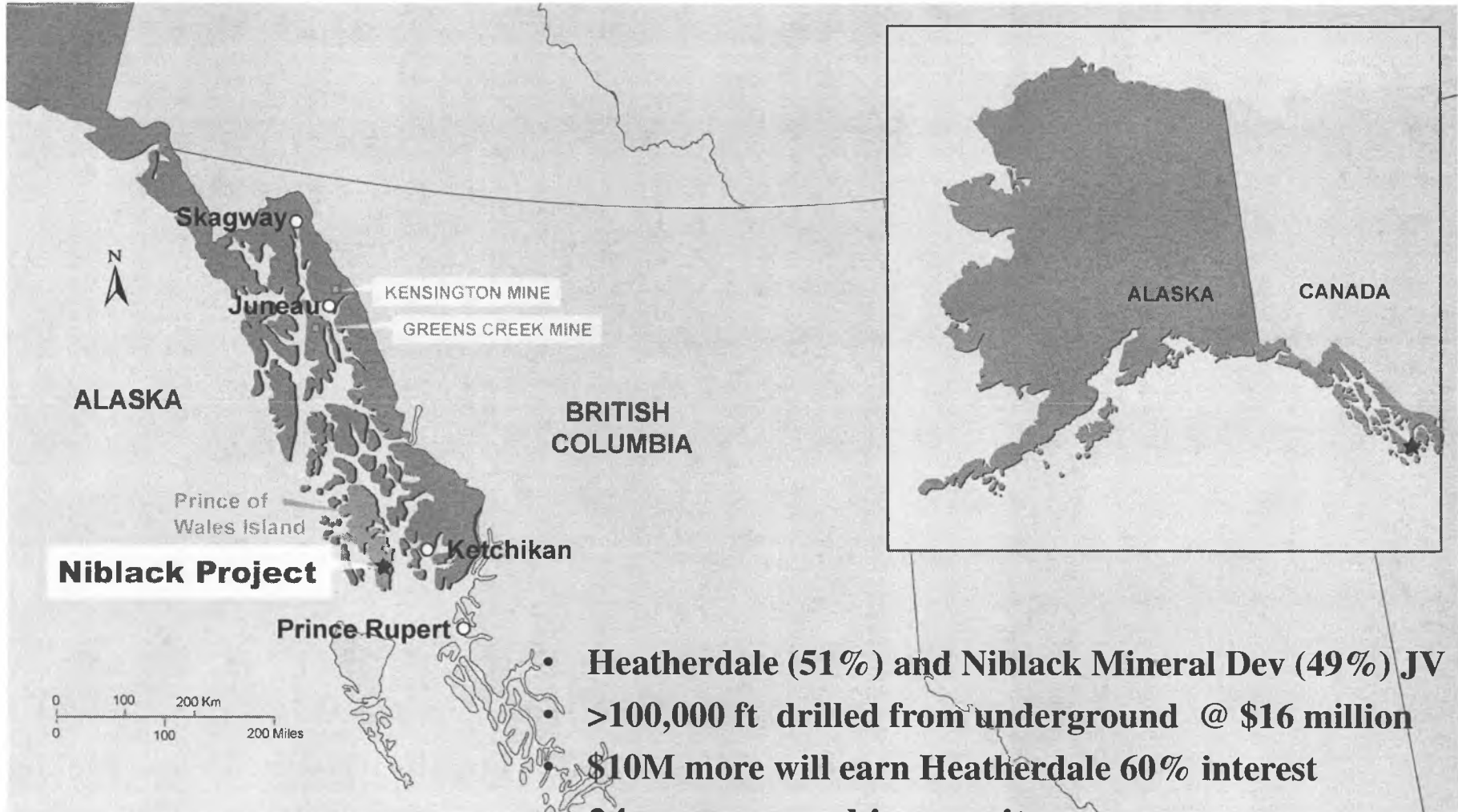
+100 persons on site for drilling, environmental,  
and engineering work

Over \$50 million spent in past 3 years

# Livengood Resource Growth



# HEATHERDALE RESOURCES LTD.



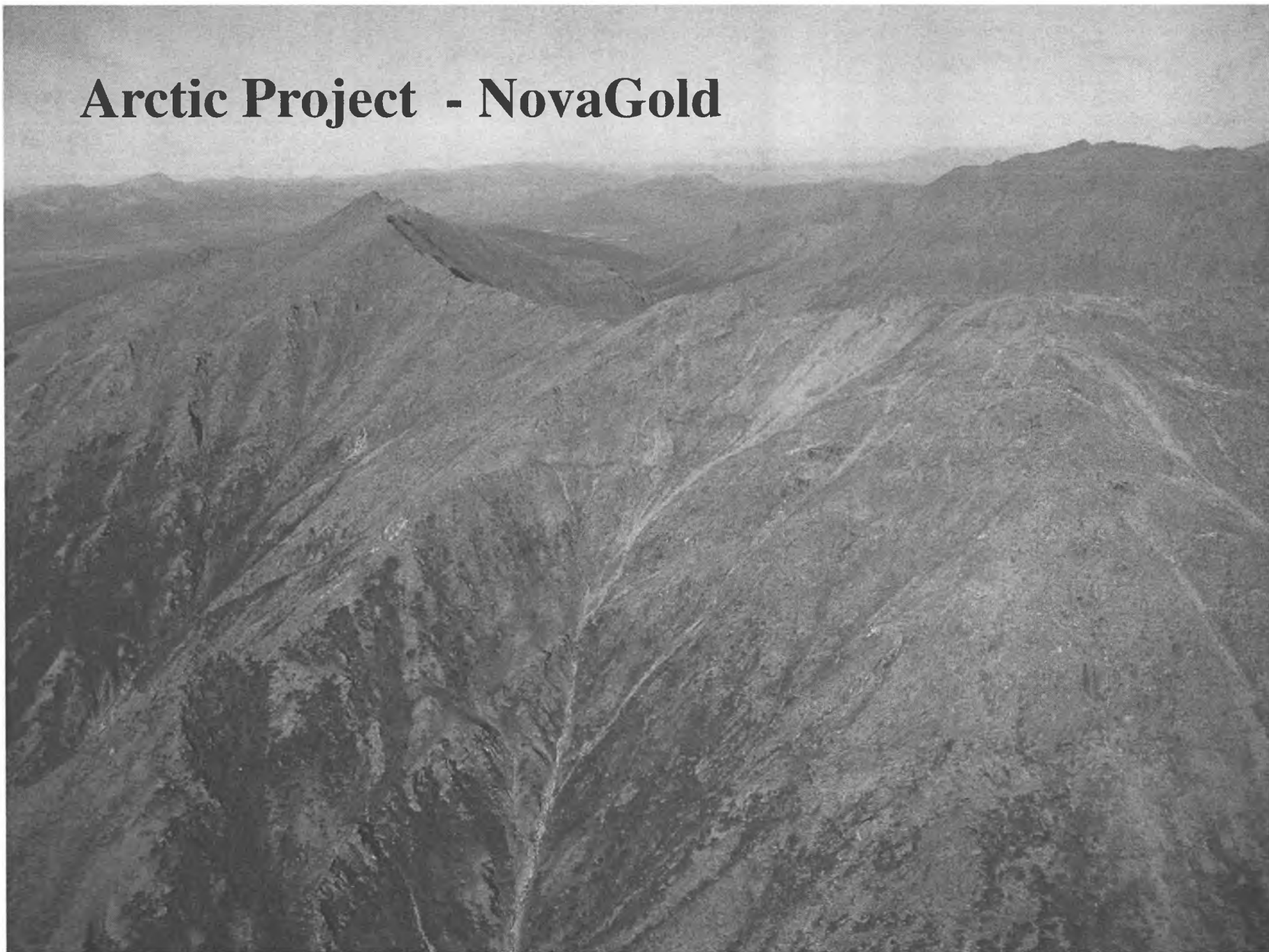
**Niblack Project**

- Heatherdale (51%) and Niblack Mineral Dev (49%) JV
- >100,000 ft drilled from underground @ \$16 million
- \$10M more will earn Heatherdale 60% interest
- 24 persons working on site
- \$50 million invested through 2010

# Niblack Project



# Arctic Project - NovaGold



## Palmer Project at Haines – Constantine

- Copper-zinc-gold-silver VMS deposit
- Discovered by Merrill Palmer in 1969
- Explored by seven companies since then
- Constantine spent >\$10M over past several years

