

Chakachamna Status Report

TDX Power
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House Special Committee on Energy
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Chakachamna Hydropower Investigations

- | | | |
|--------------------------------|-------------|-----------------|
| ■ Department of Interior | Late 1940s | Reconnaissance |
| ■ U.S. Army Corps of Engineers | 1970s | Reconnaissance |
| ■ Alaska Power Authority | Early 1980s | Pre-feasibility |
| ■ TDX Power | 2006 | FERC permit |

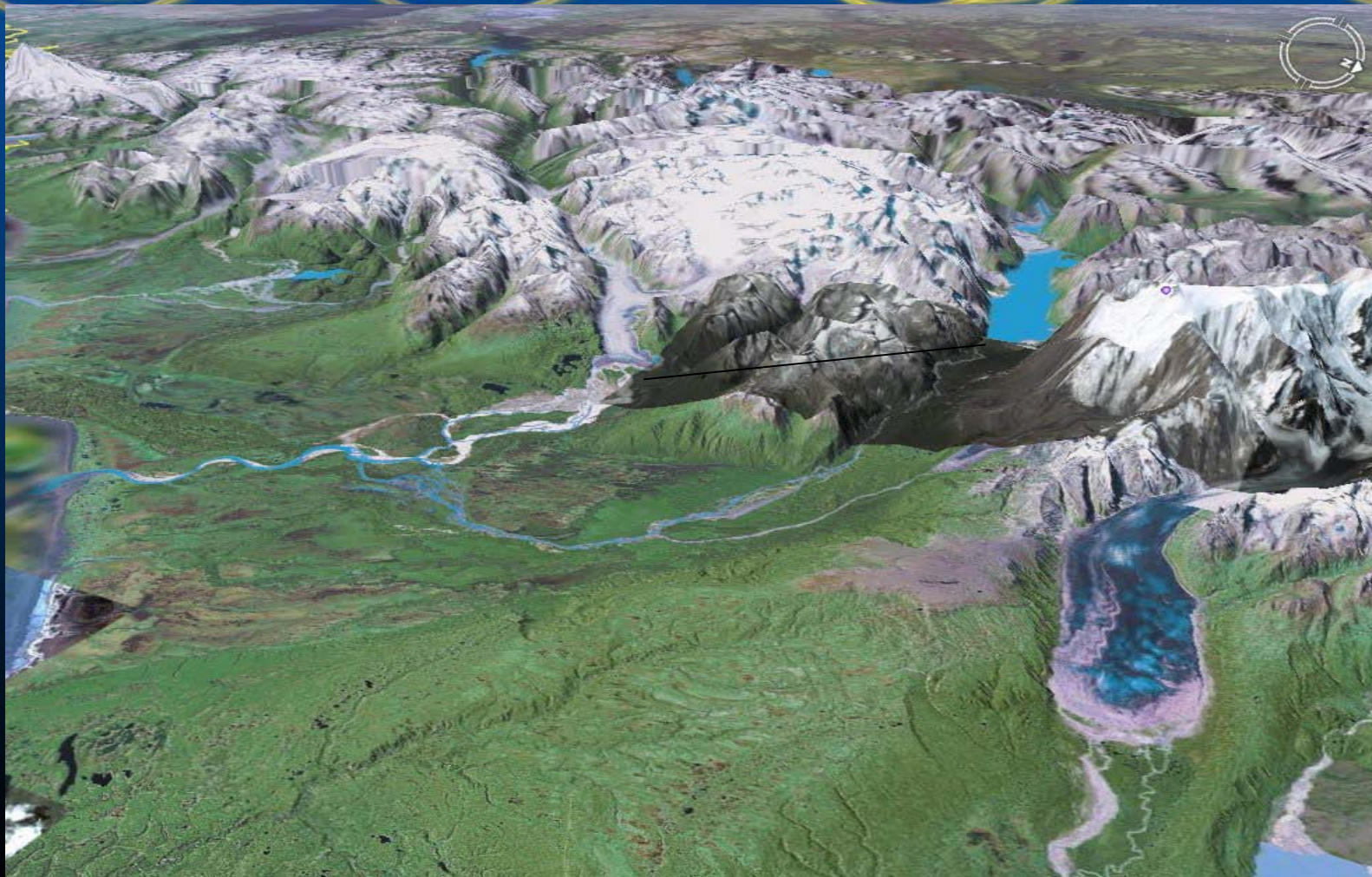
Chakachamna Hydro Power

- High head lake tap – 12 mile power tunnel
- No dam
- 330 MW creating 1.6 billion KWH annually
- Total cost of project in 2008 dollars = \$1.7 billion
- Project is 40 miles from Chugach T-line at Beluga

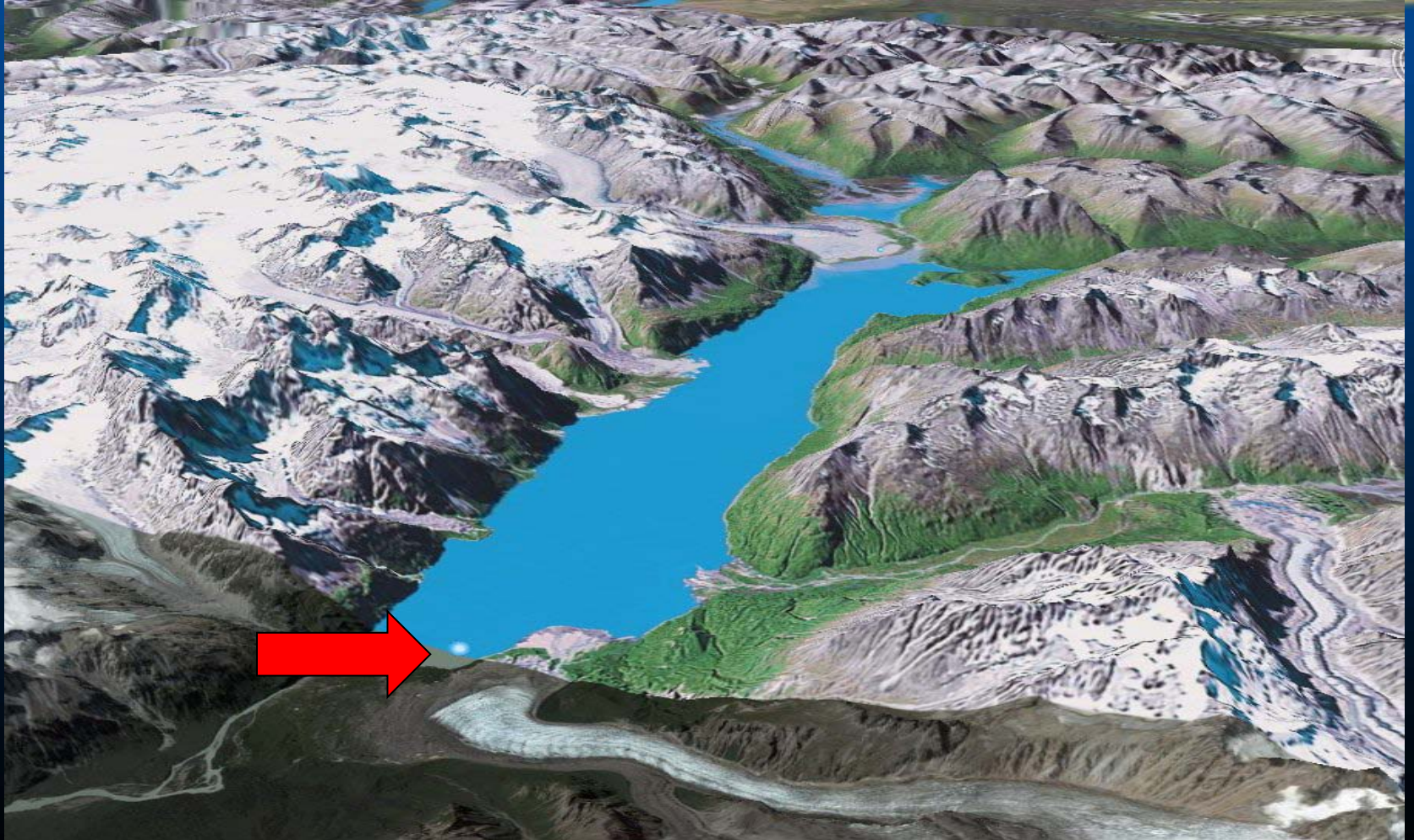
Chakachamna Project Location



Chakachamna Aerial View

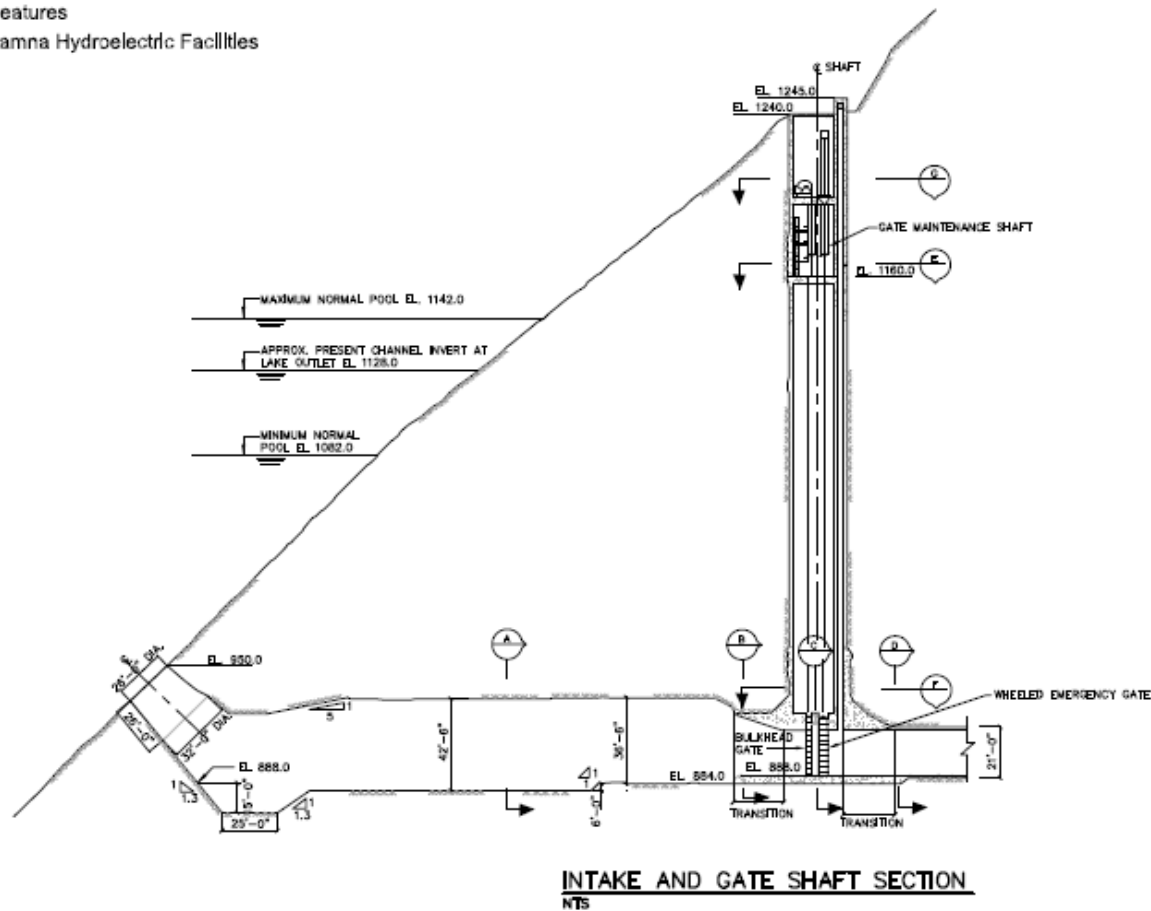


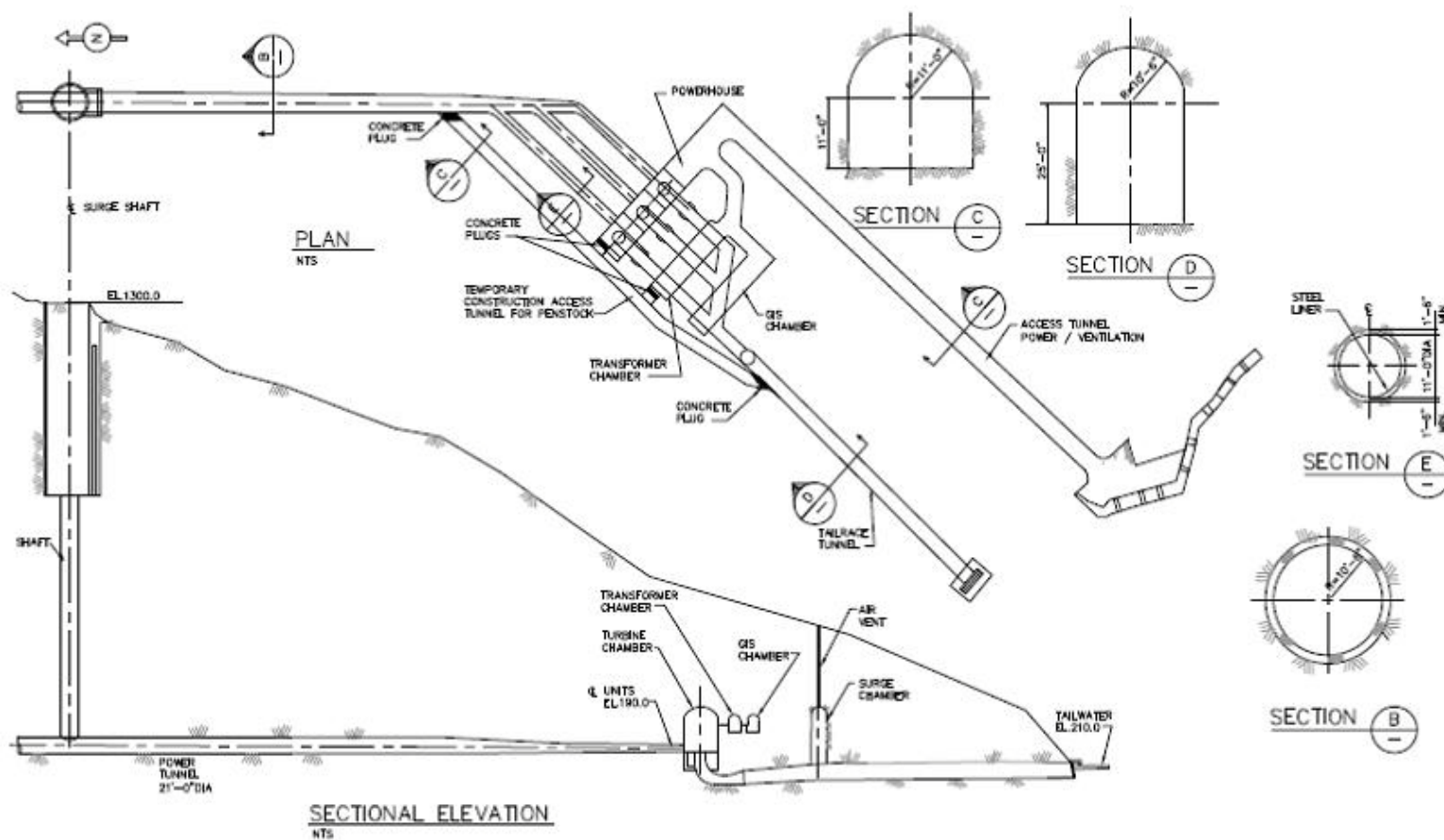
Chakachamna Lake



McArthur River Valley Power Plant Site

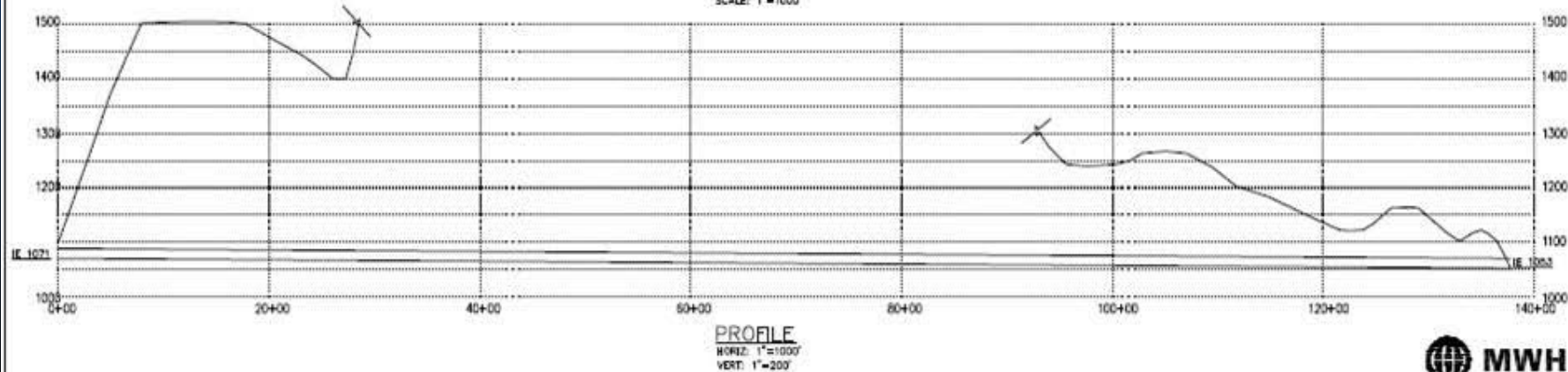




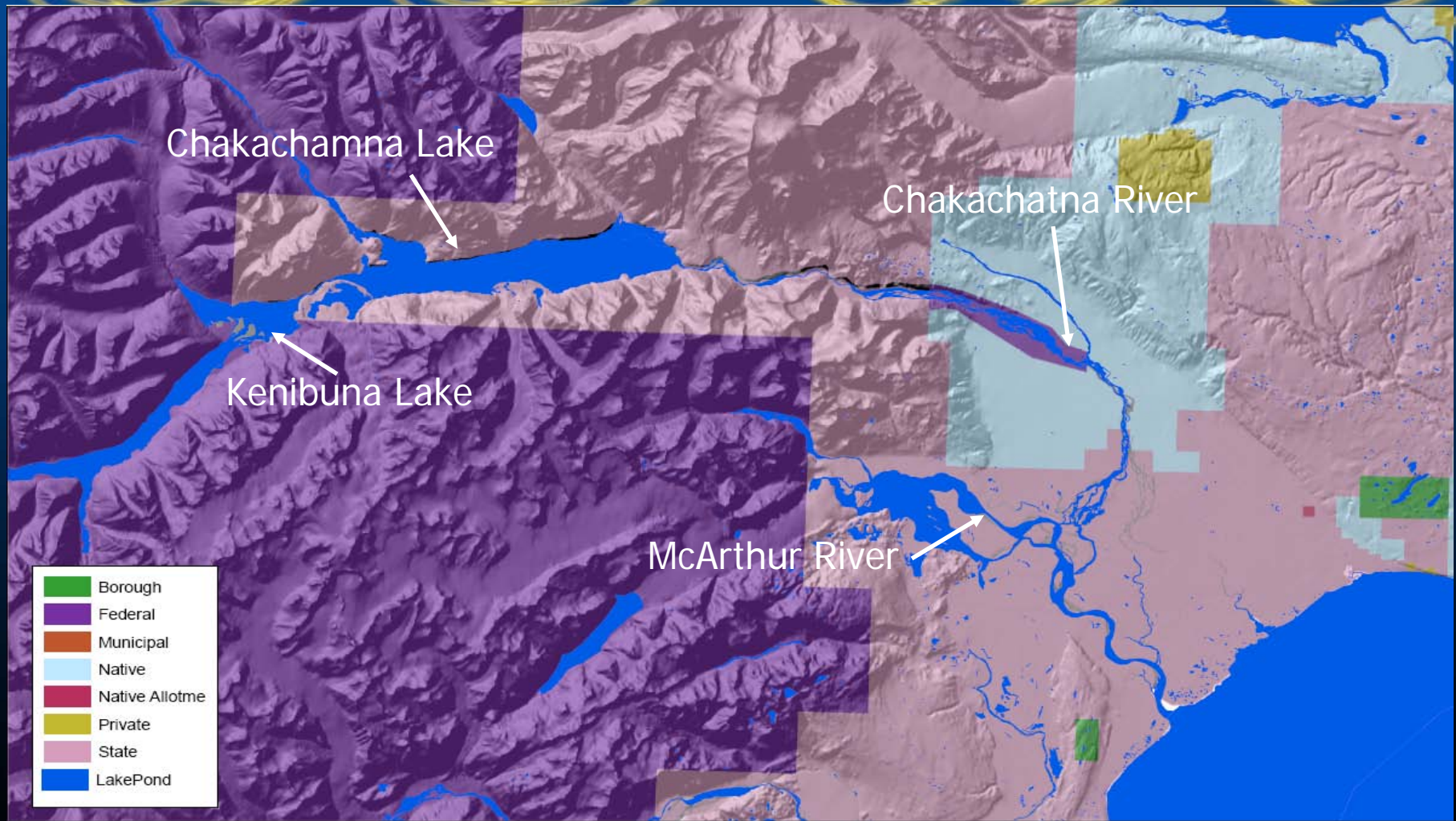




SITE PLAN
SCALE: 1"=1000'



Project Area Landownership



CHAKACHAMNA FISHERIES

- 5 species of salmon use the basin
- Sockeye the main salmon species
- Dolly Varden ubiquitous in the streams
- Lake trout observed in lake
- Not a large anadromous fishery but worthy of protecting
- Fish passage at lake outlet required
- Possible temperature enhancement to river

Cook Inlet Sockeye 2007 Fish Runs

<u>System</u>	<u>Run</u>
Crescent River	109,000
Fish Creek	37,000
Kasilof River	1,247,000
Kenai River	2,411,000
Susitna River	487,000
Minor Systems	644,000
*Chakachamna (1982)	78,000

CHAKACHAMNA WILDLIFE

- 56 species of birds
- 16 species of mammals
- Moose, wolves, lynx, bear, wolverine, other fur bearers
- None on the endangered species list
- Less impact than other hydro projects of similar size

Geotechnical Considerations

- Seismic – Castle Mountain Fault
- Volcanic – Mount Spurr (1992 & 1953 eruptions)
- Glacial – Barrier, Blockade, McArthur, Shamrock

CHAKACHAMNA LAKE OUTLET



McARTHUR RIVER POWERHOUSE SITE



Development Costs

- 2010 Field Season -- \$5 million
- 5 year permitting -- \$30 million
- Construction (2008\$) -- \$1.7 Billion

Cost of Power

- TDX Power financial model = 9 cents/kwh

(assumes 100% debt at 5% interest rate, \$10 million annual O&M, insurance, debt coverage etc.)

- AEA model for large hydro = 6-8 cents/kwh

(some differences from TDX Power model include lower O&M, lower debt coverage, no inflation etc.)

Schedule

- Preliminary permit investigations 36 months
- FERC licensing 18-36 months
- Project construction 54 months
- Power on line 2019

2010 Field Season

- Sockeye spawning in drawdown zone
- Adult salmon access to Chakachamna Lake
- Timing of juvenile salmon outmigration
- Maintenance of downstream groundwater dependent habitats
- Flow maintenance in tributaries south of Noaukta
- Maintenance of vegetation and wildlife habitats
- Geotechnical investigations
- Project optimization & cost estimate