

4/7/09
LUNCH &
LEARN:
UNDER-
GROUND
MINING

Council of Alaska Producers Introduction to Underground Mining

House Resources Committee
Lunch and Learn
April 7, 2009

Underground Miners, c. 1900

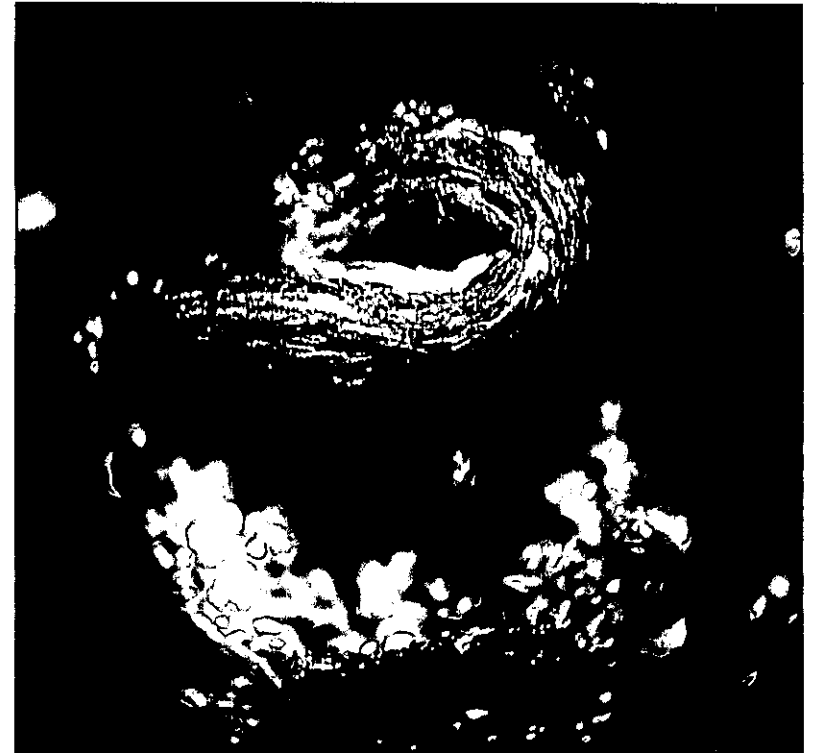


Underground Miner 2009

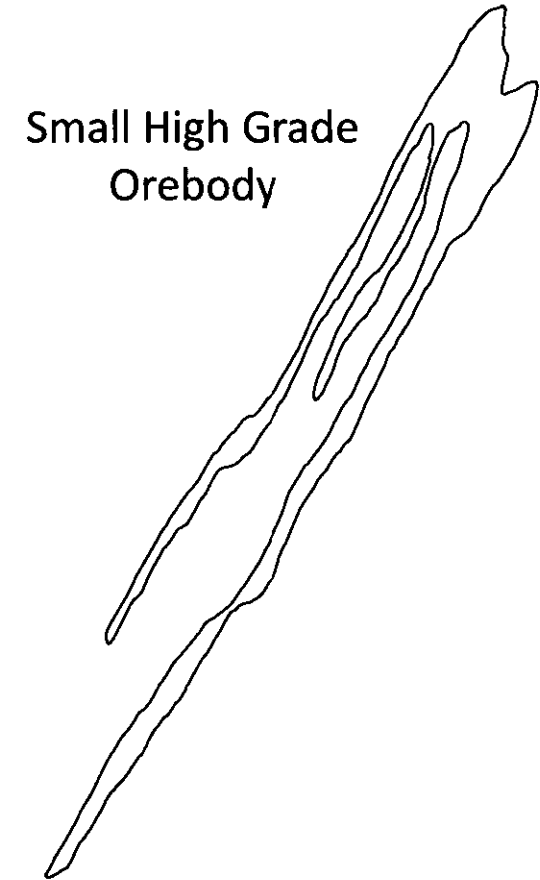
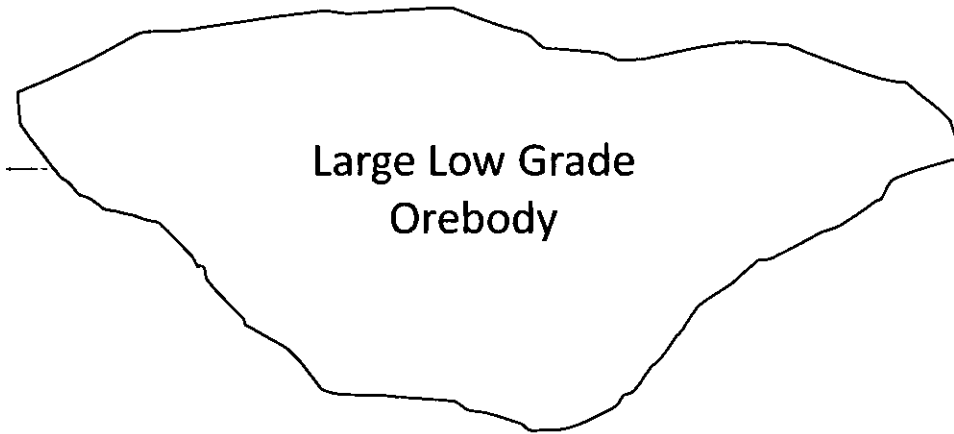


Mining Method Selection

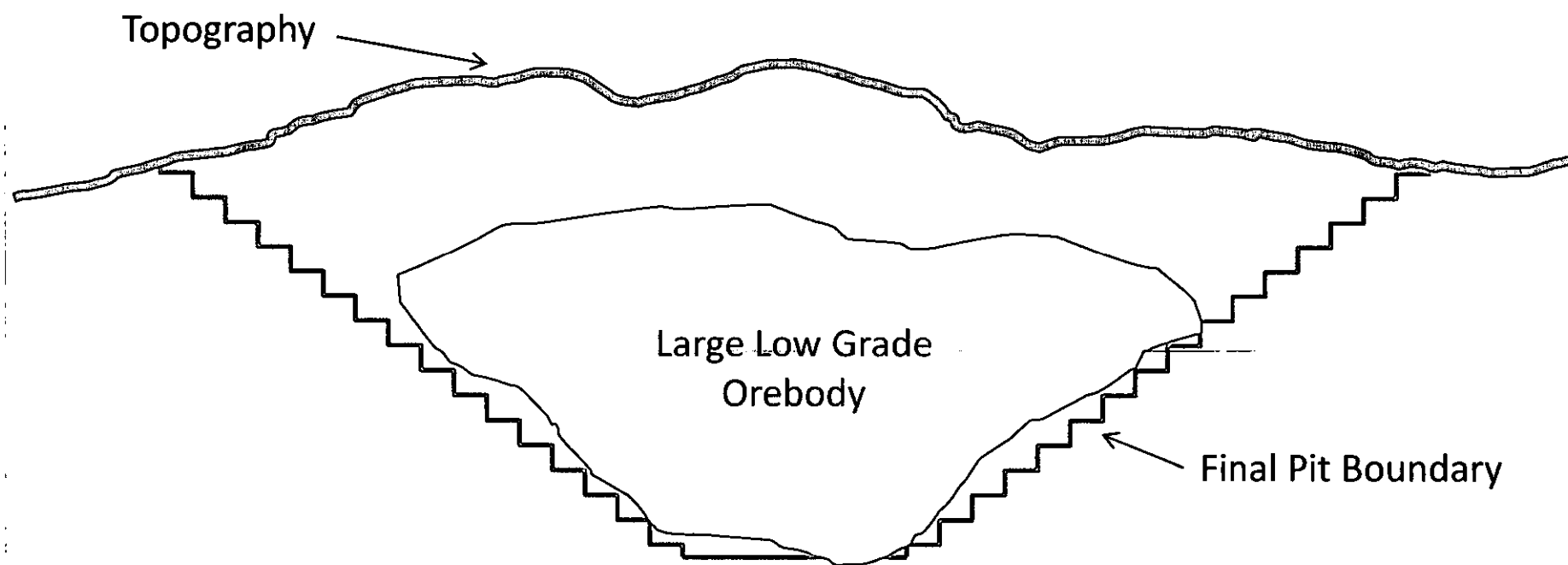
- Deposit Type
- Deposit Size
- Deposit Location
- Advances in Technology
- Regulatory Requirements



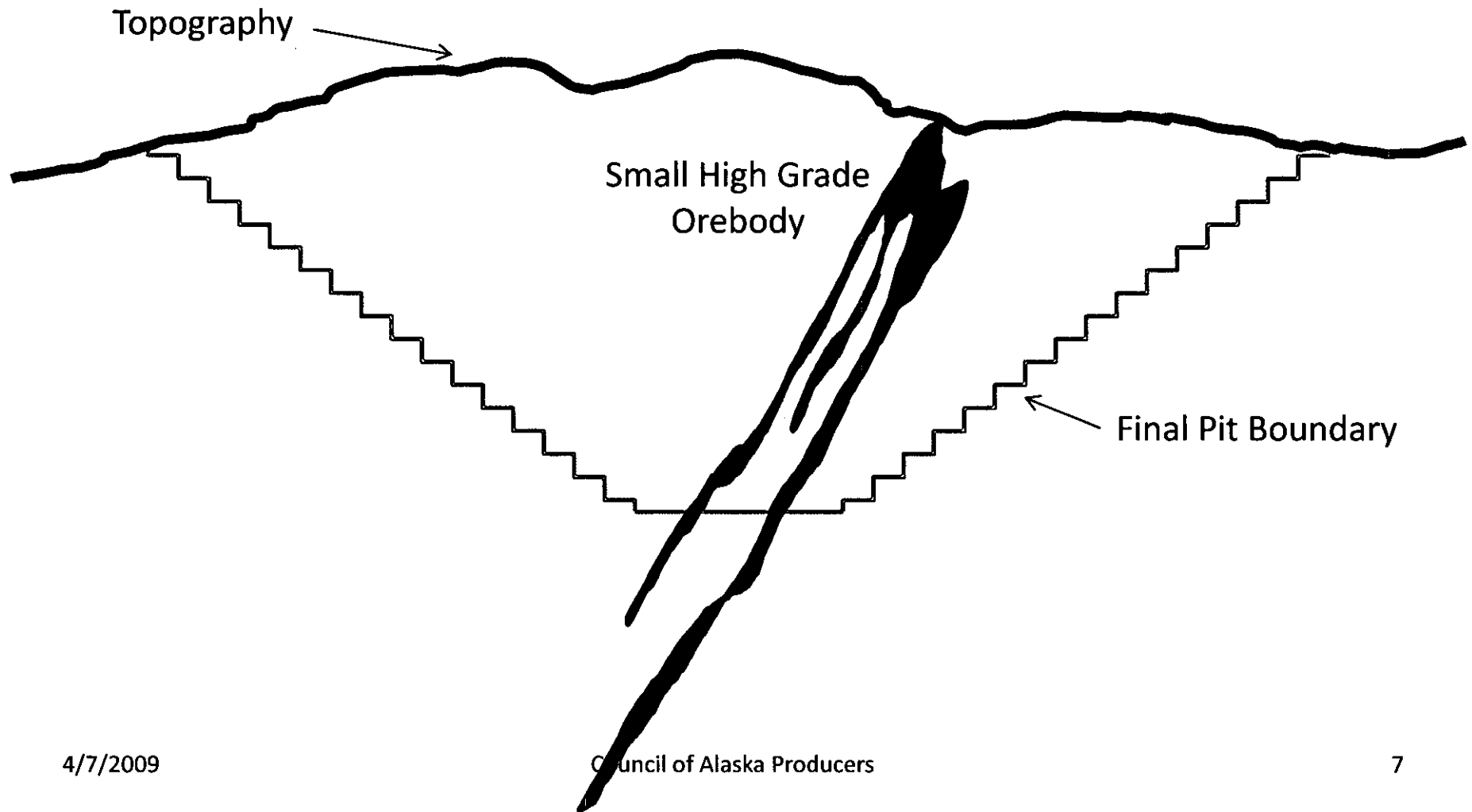
Open Pit or Underground?



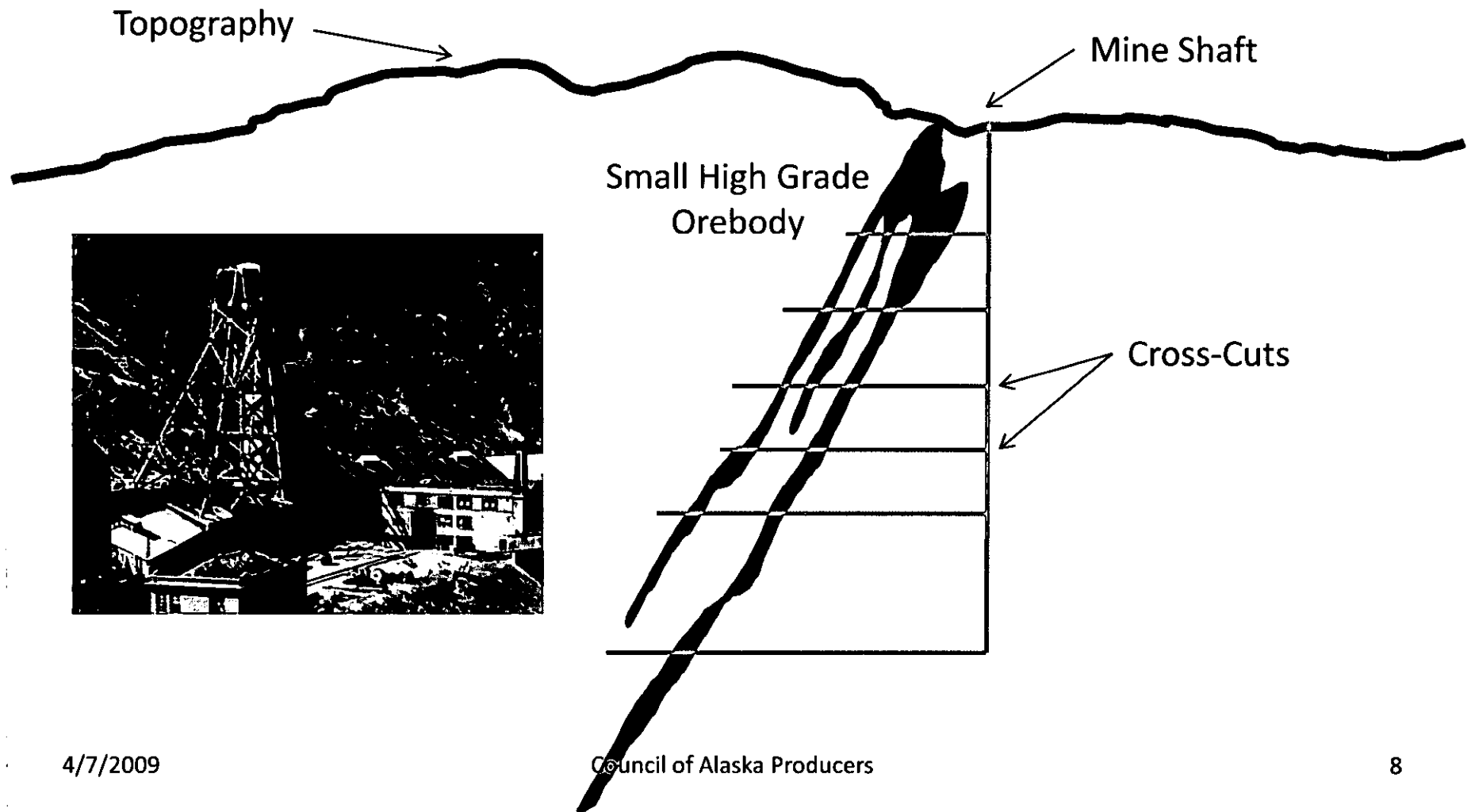
Open Pit



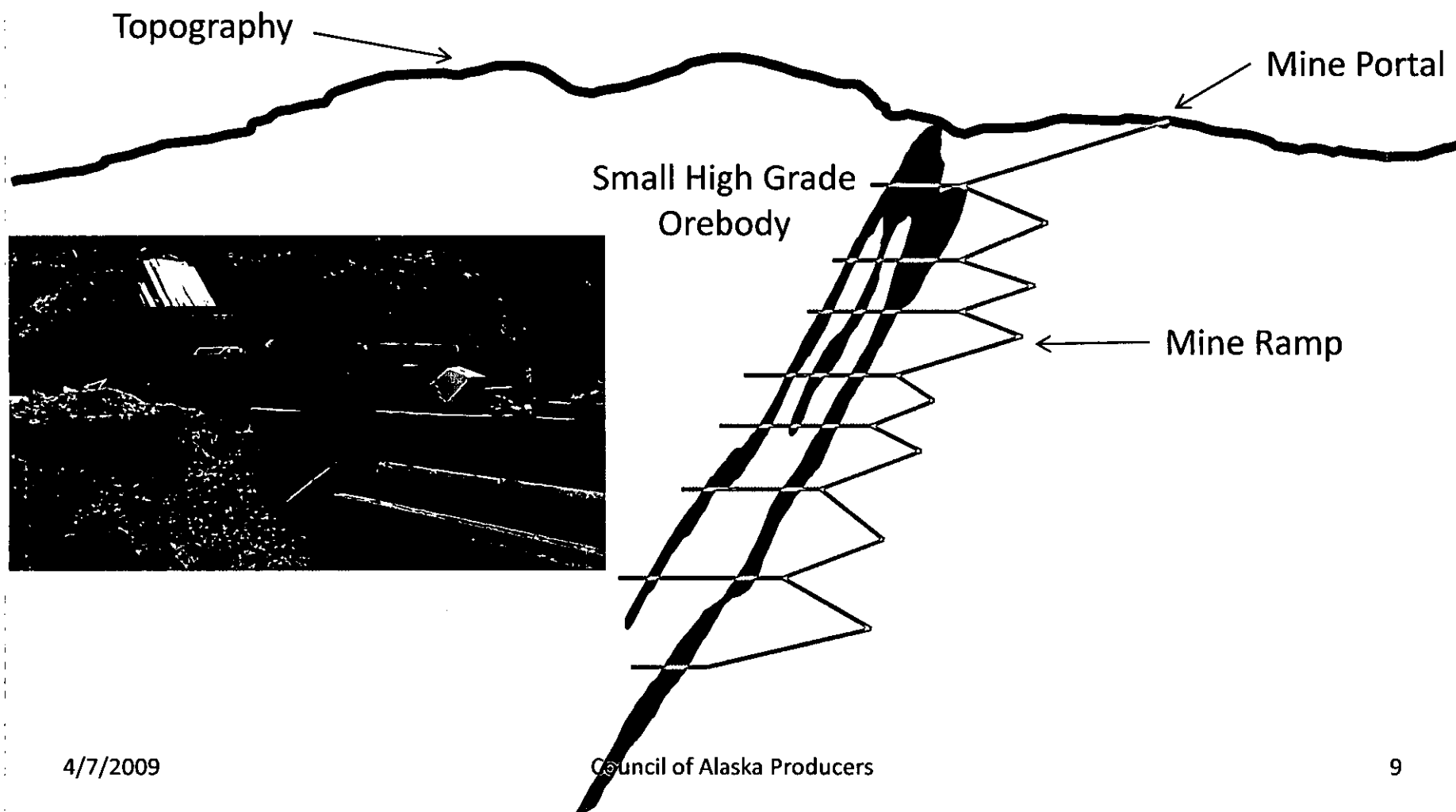
Open Pit?



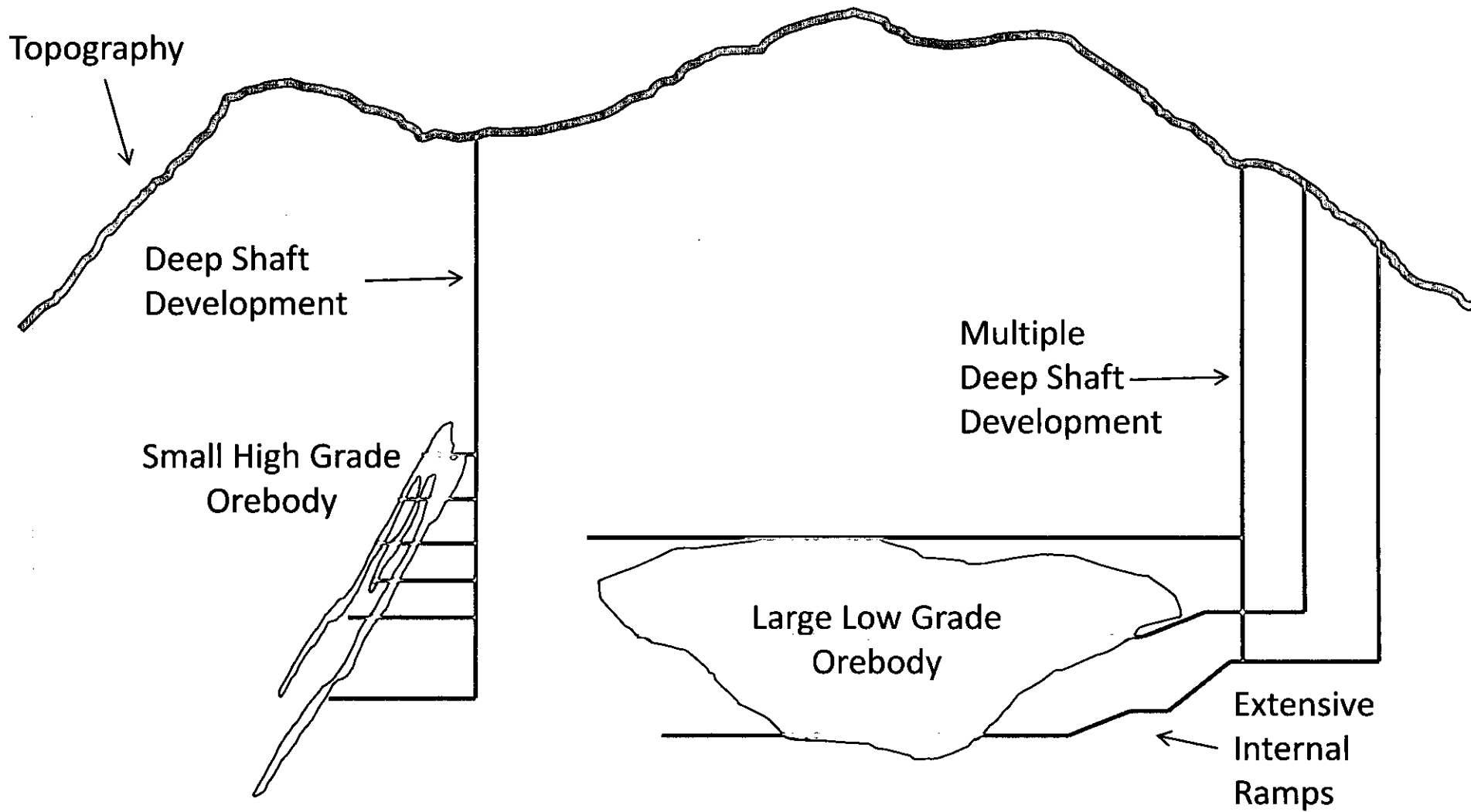
Underground Mine – Shaft Access



Underground Mine – Portal Access

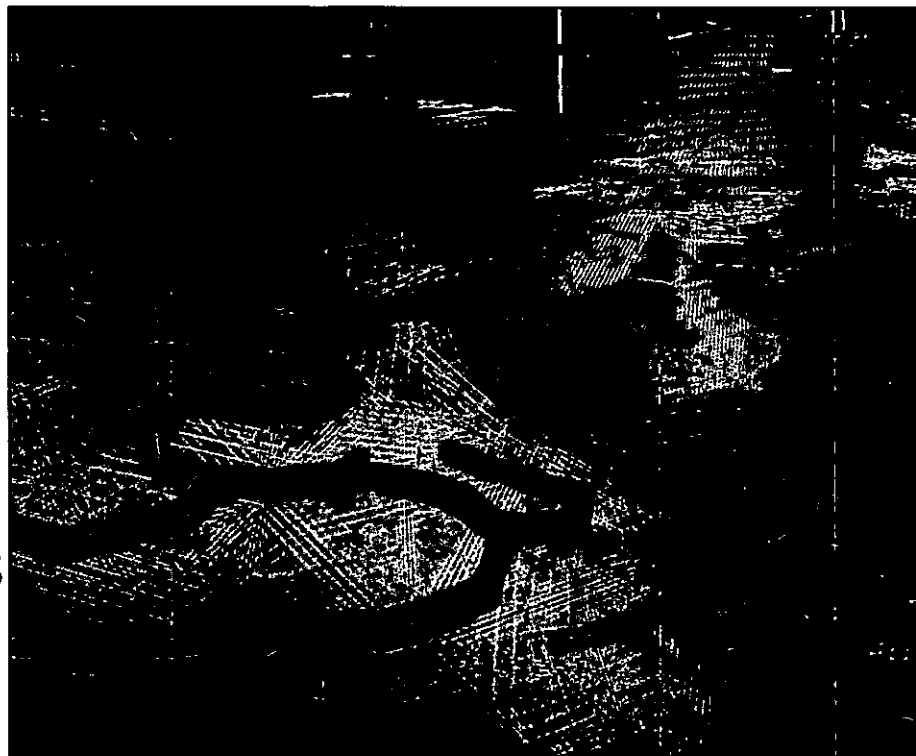


Underground Mine?

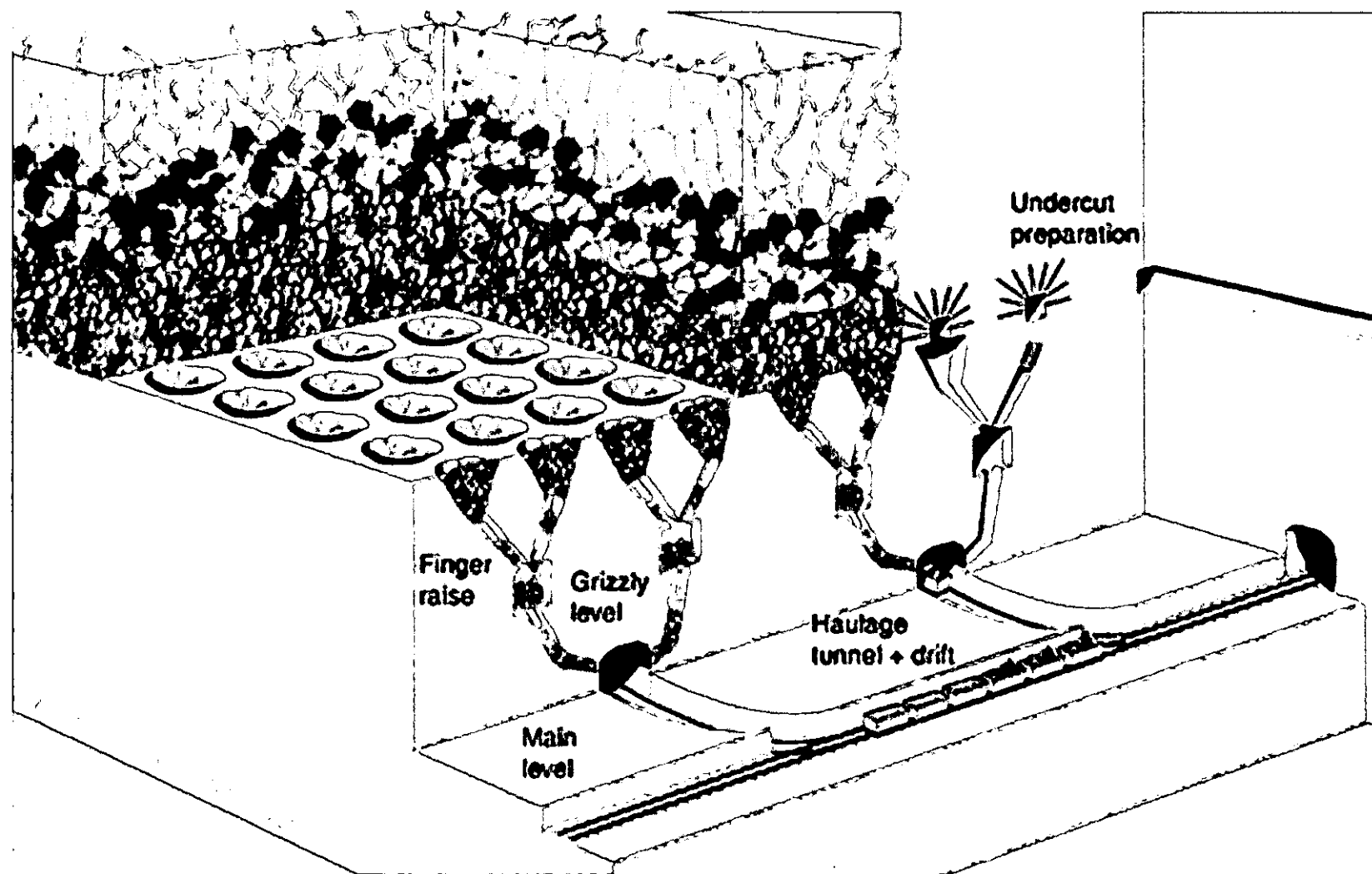


Underground Mining Methods

- Matched to Deposit Type
- Maximize Ore Extraction
- Minimize Capital
- Engineering Requirements
- Regulatory Requirements



Underground Block Cave

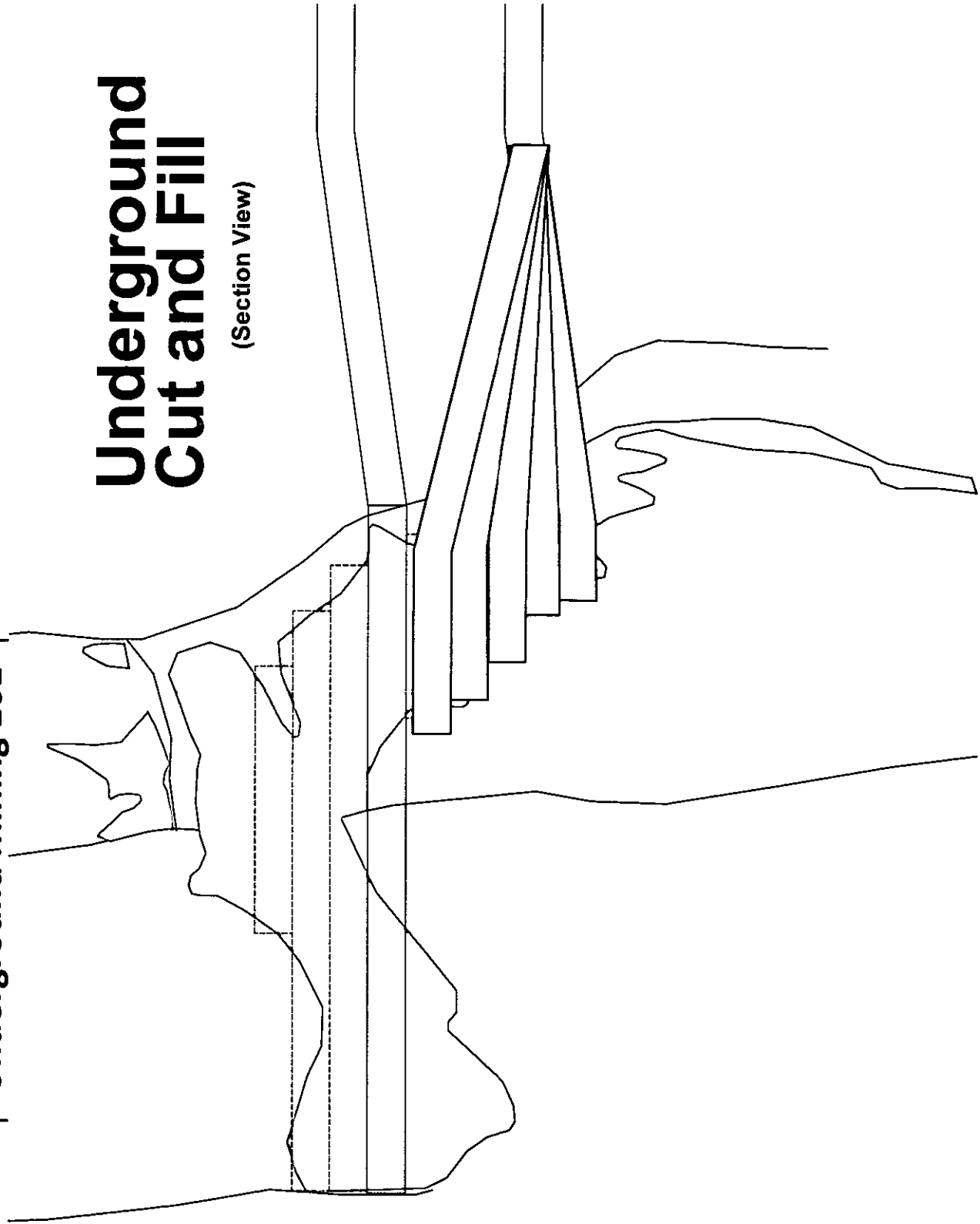


Underground Mining 101

Underground Cut and Fill

(Section View)

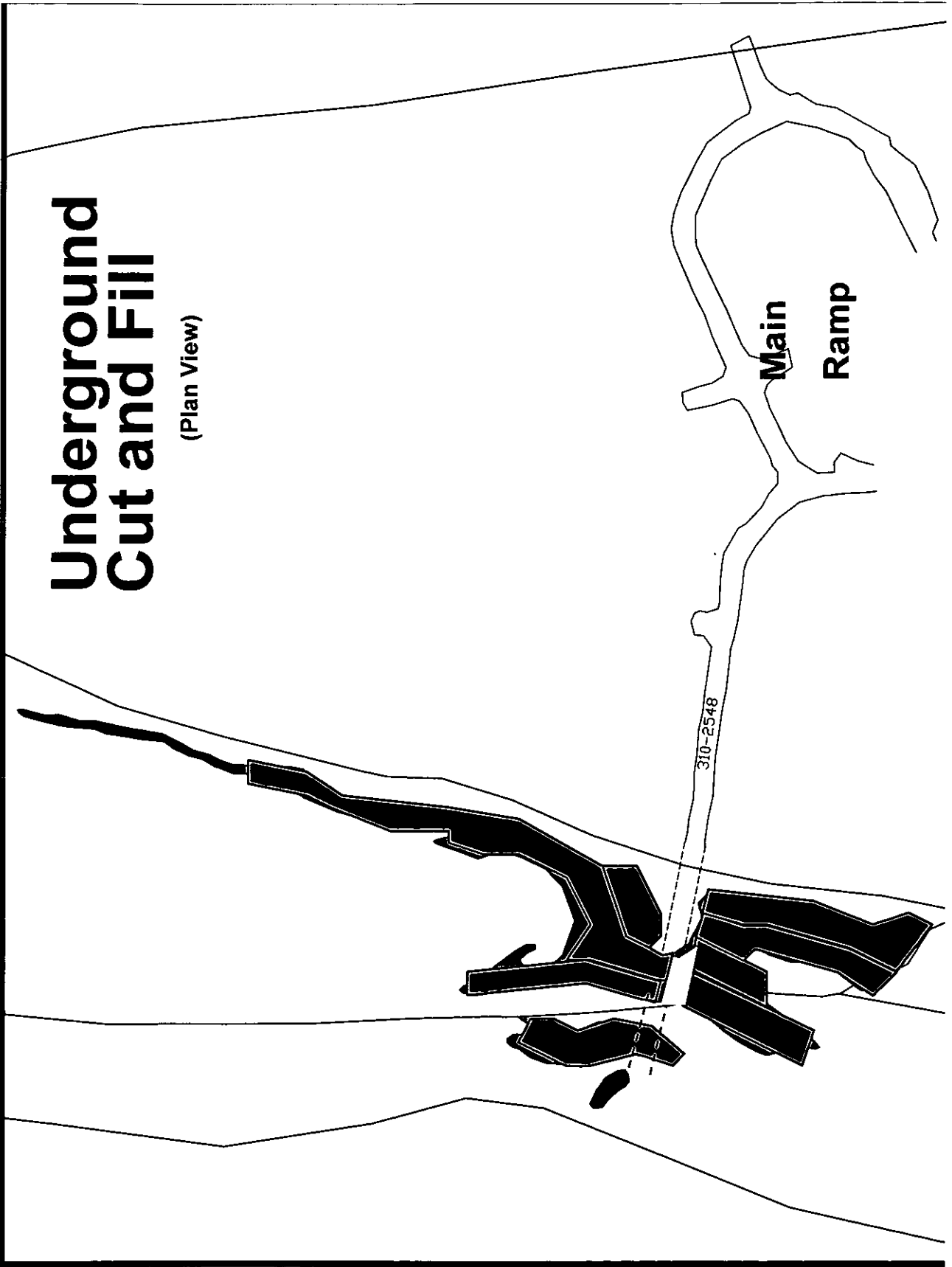
Main Ramp



Underground Mining 101

Underground Cut and Fill

(Plan View)

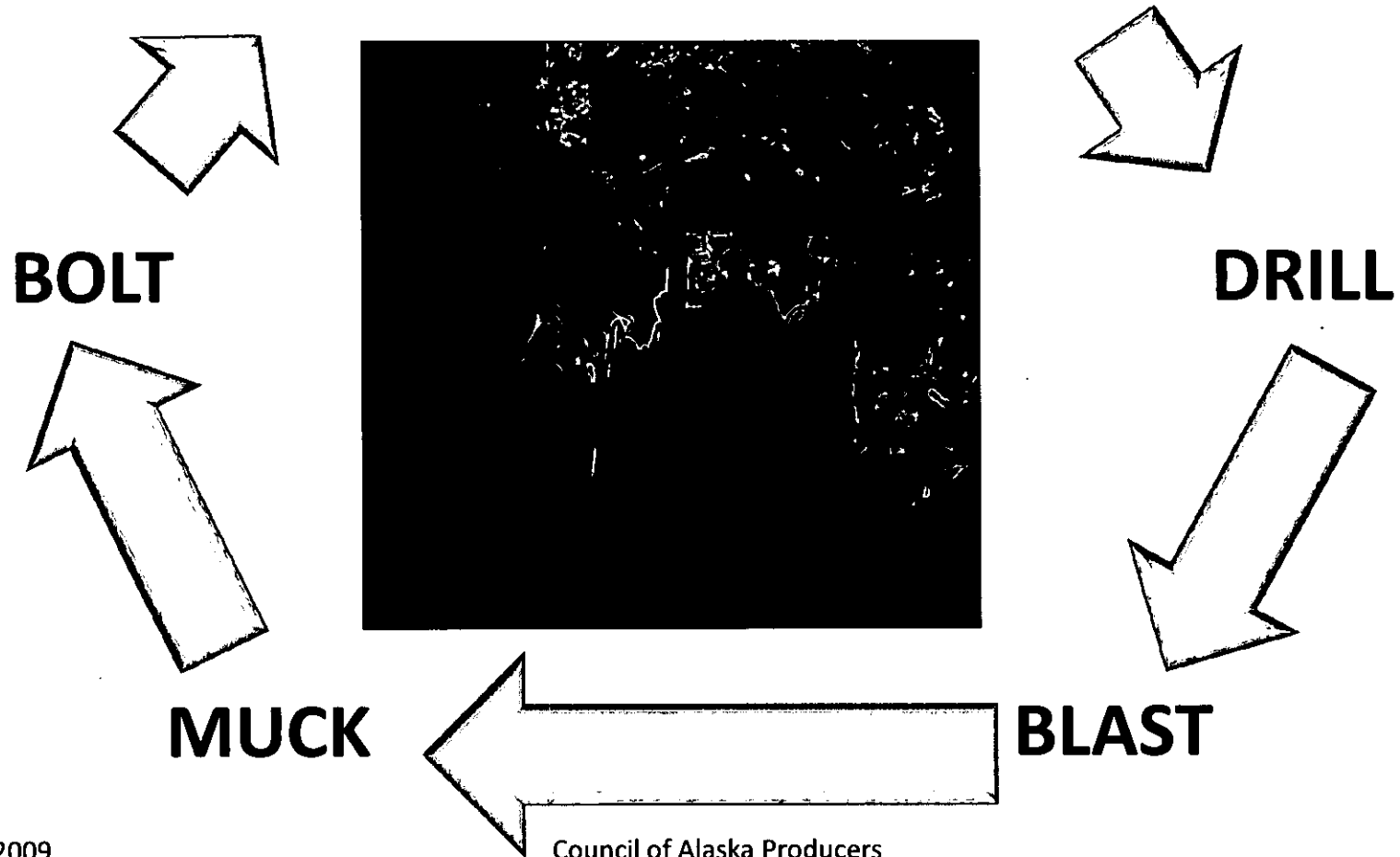


Underground Longhole

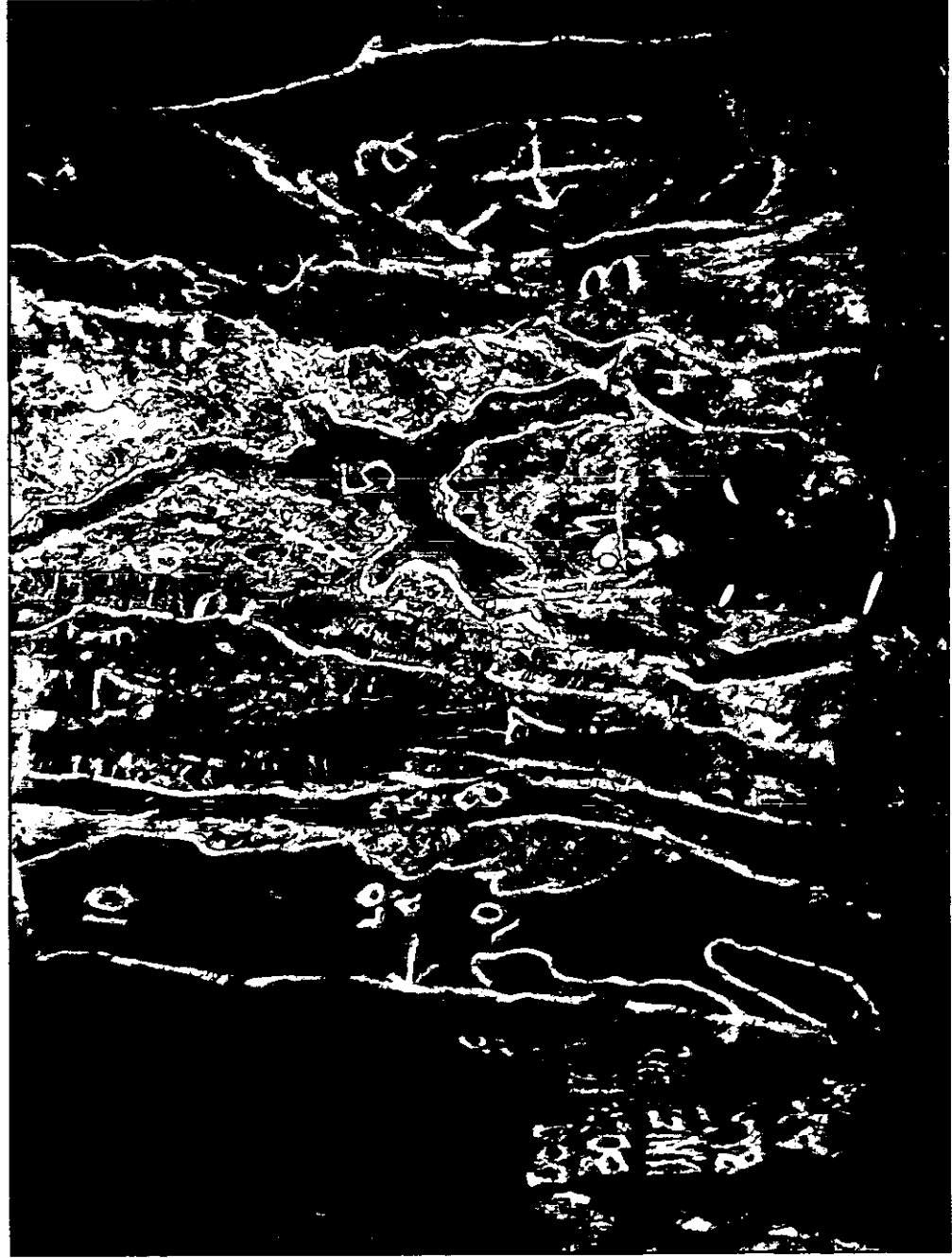


Basic Underground Mining Cycle

Geology + Engineering Control



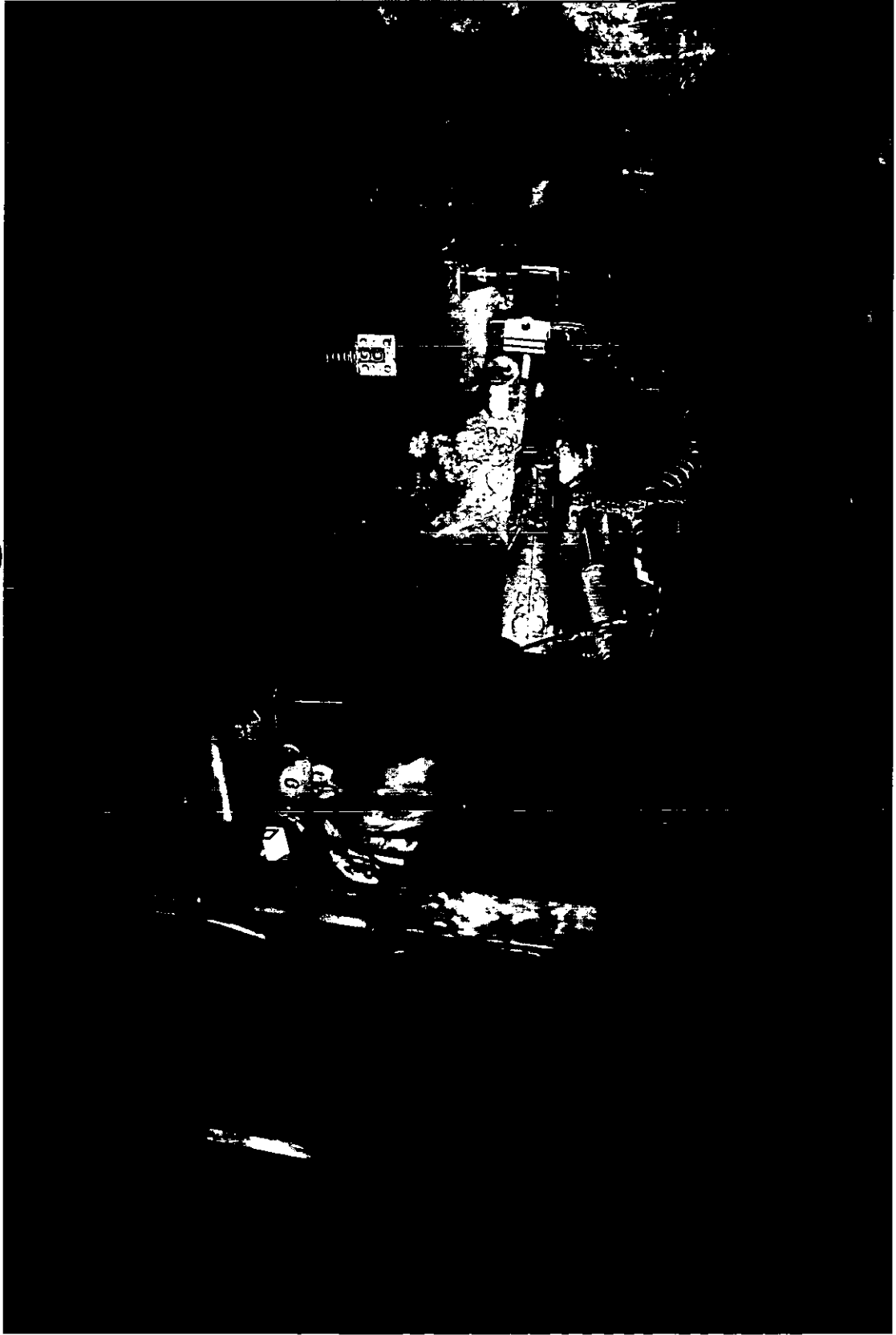
Geology and Engineering Control



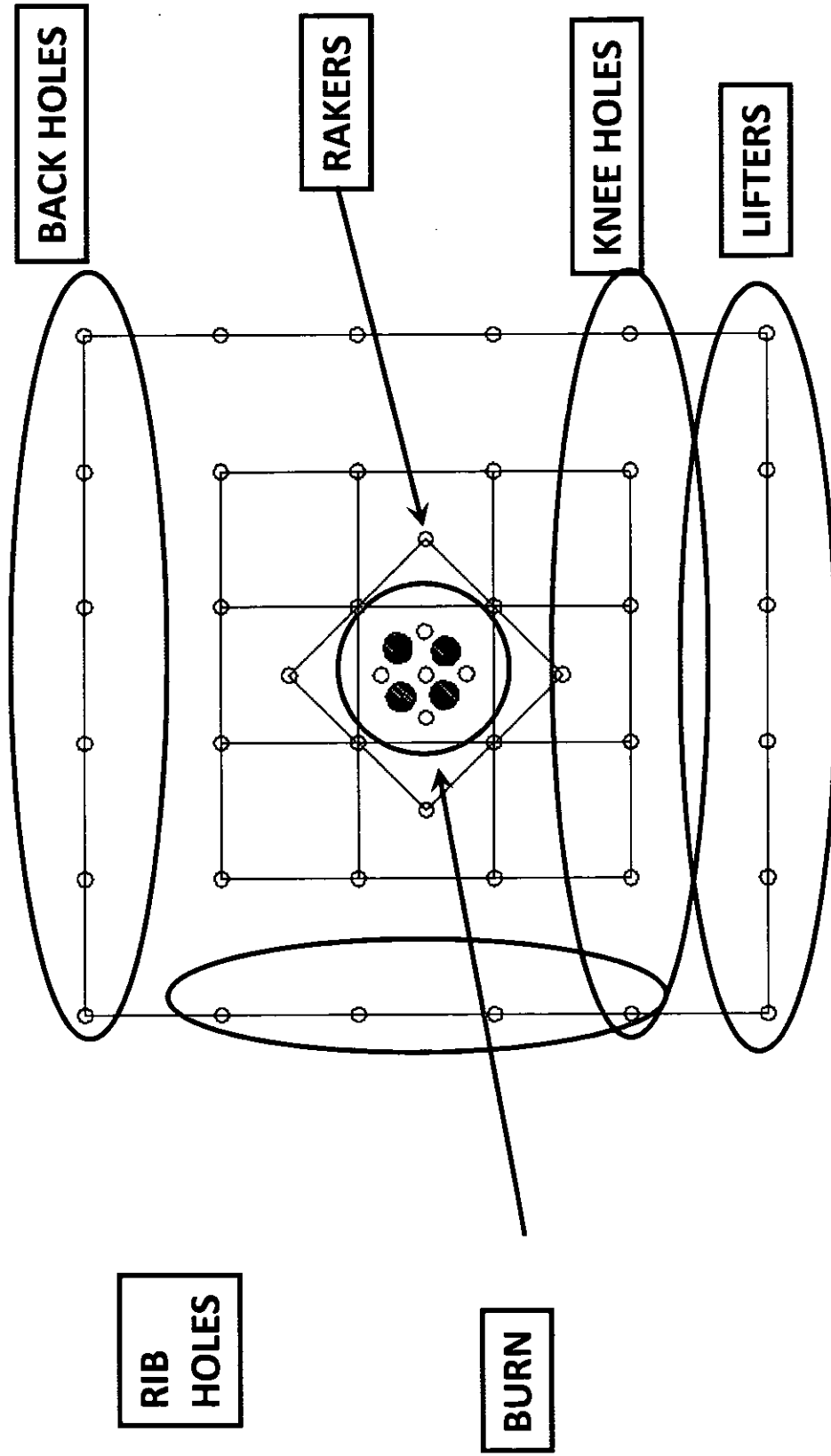
Drilling



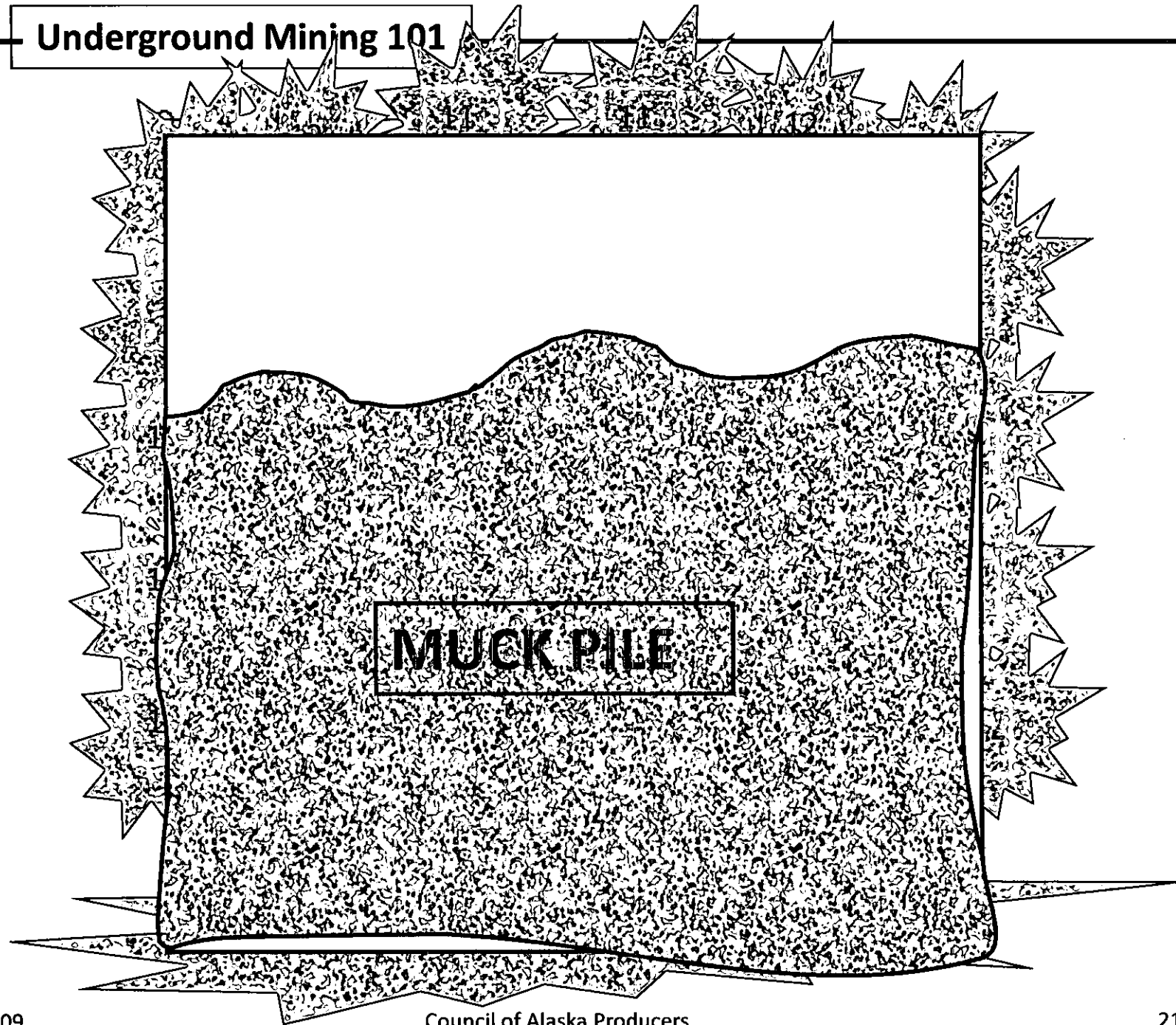
Drilling



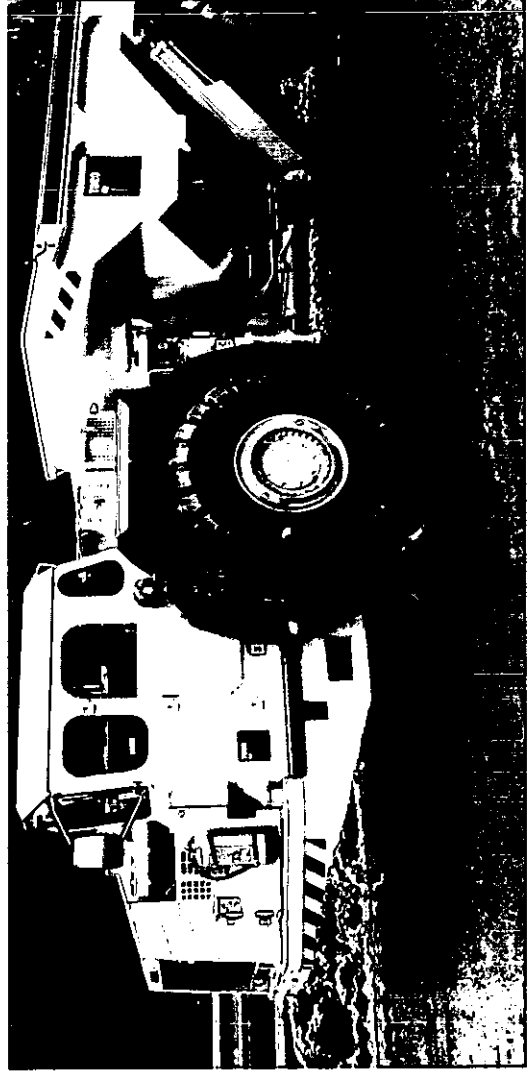
Drill Pattern



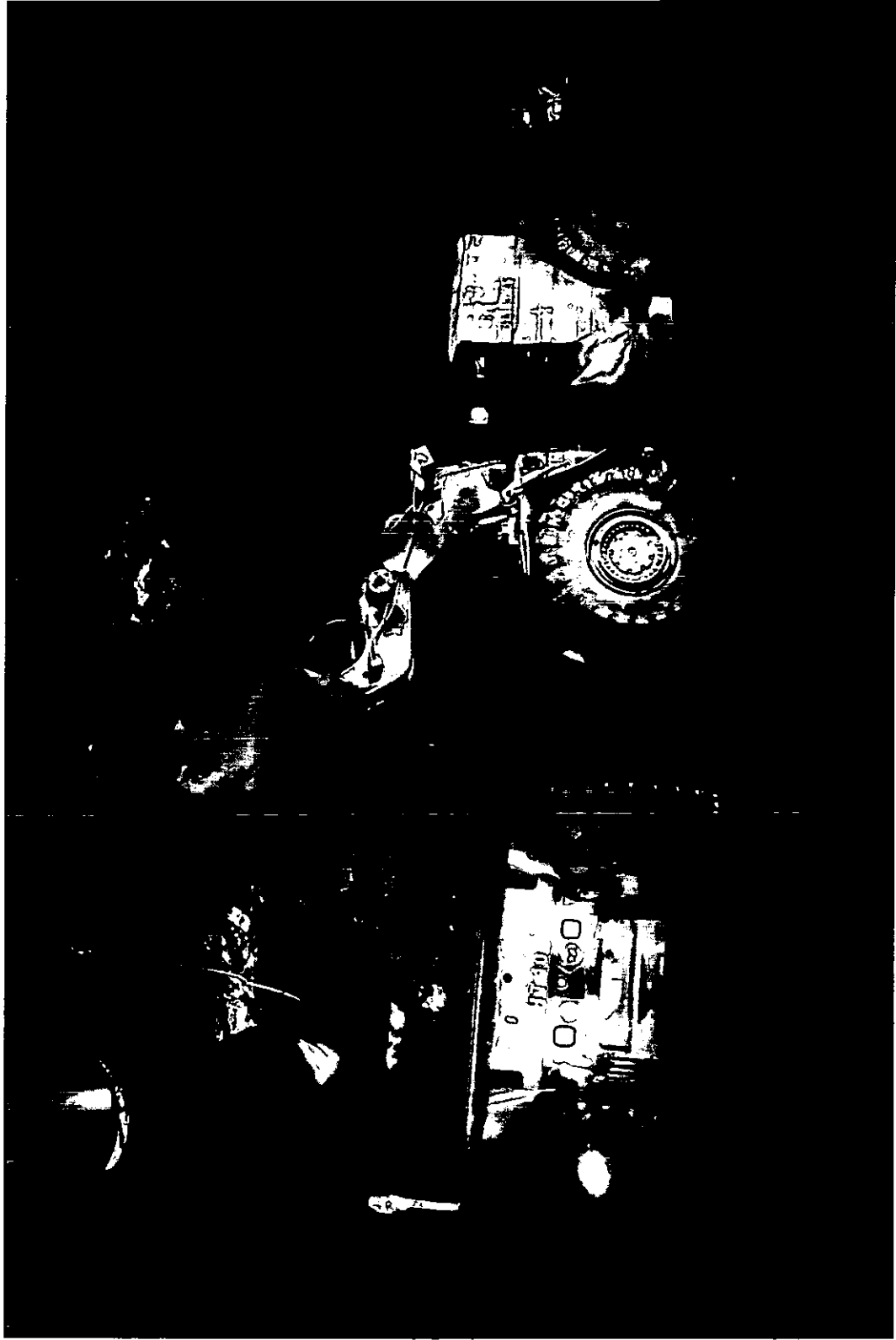
Underground Mining 101



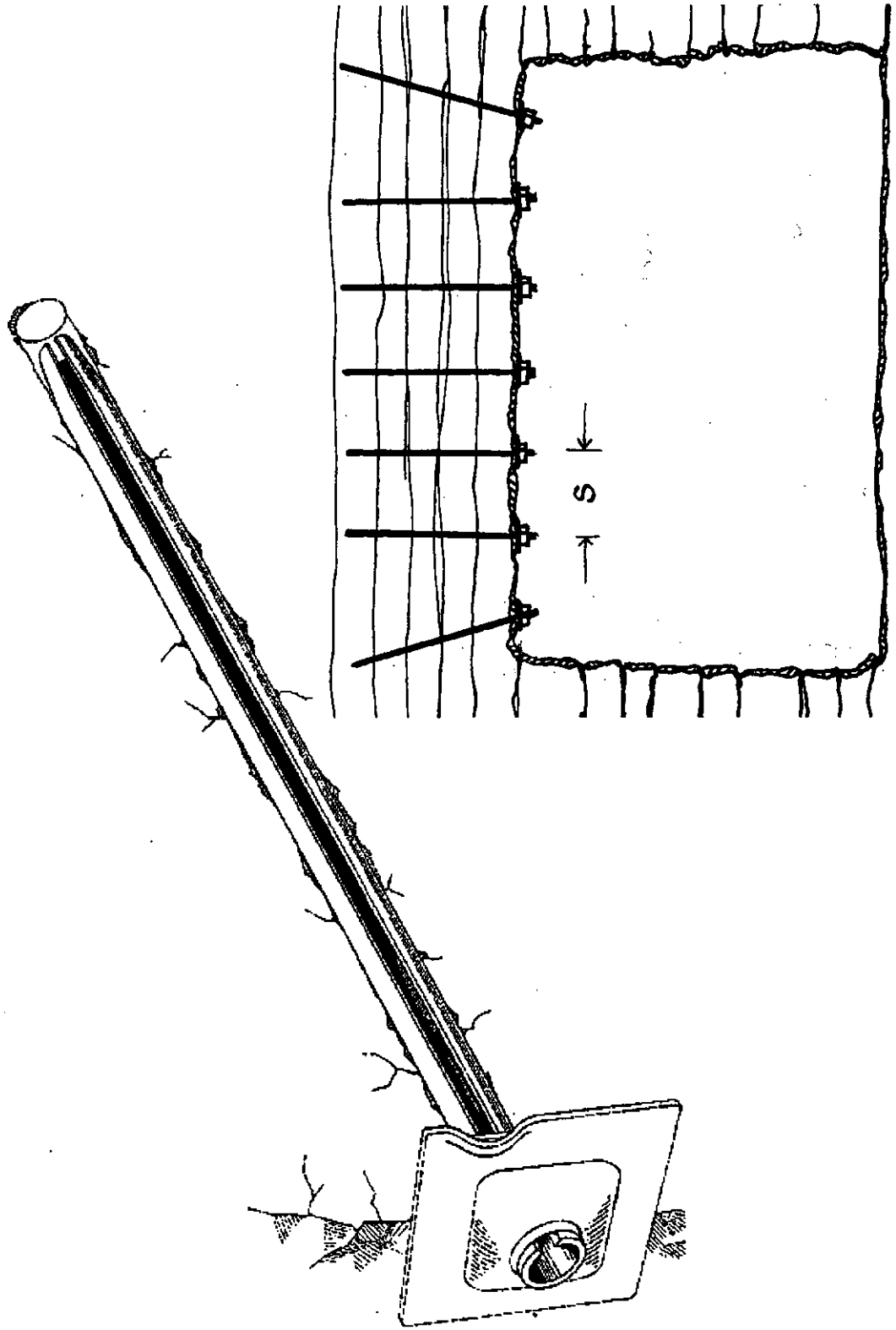
Mucking



Mucking



Bolting



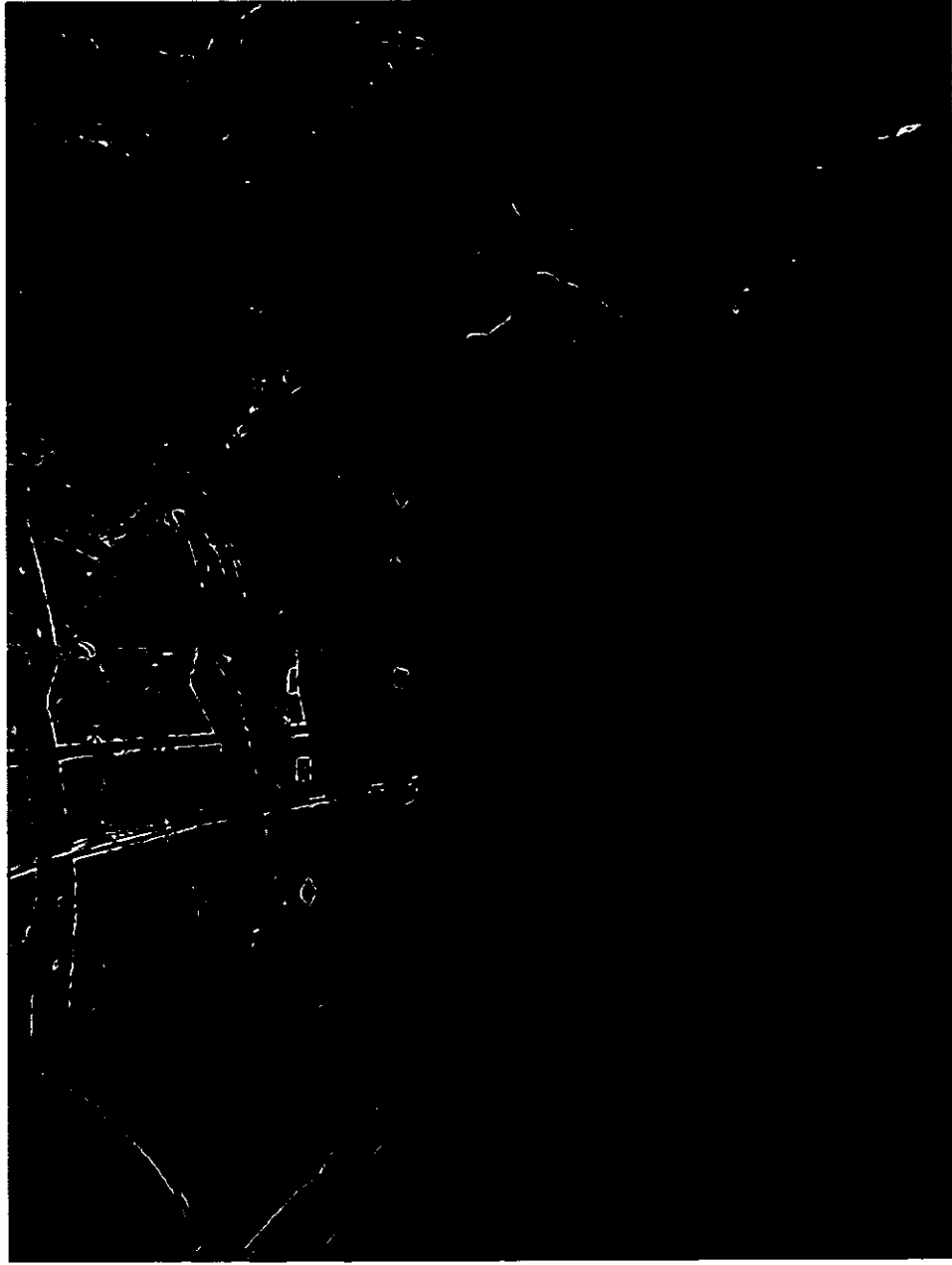
Bolting



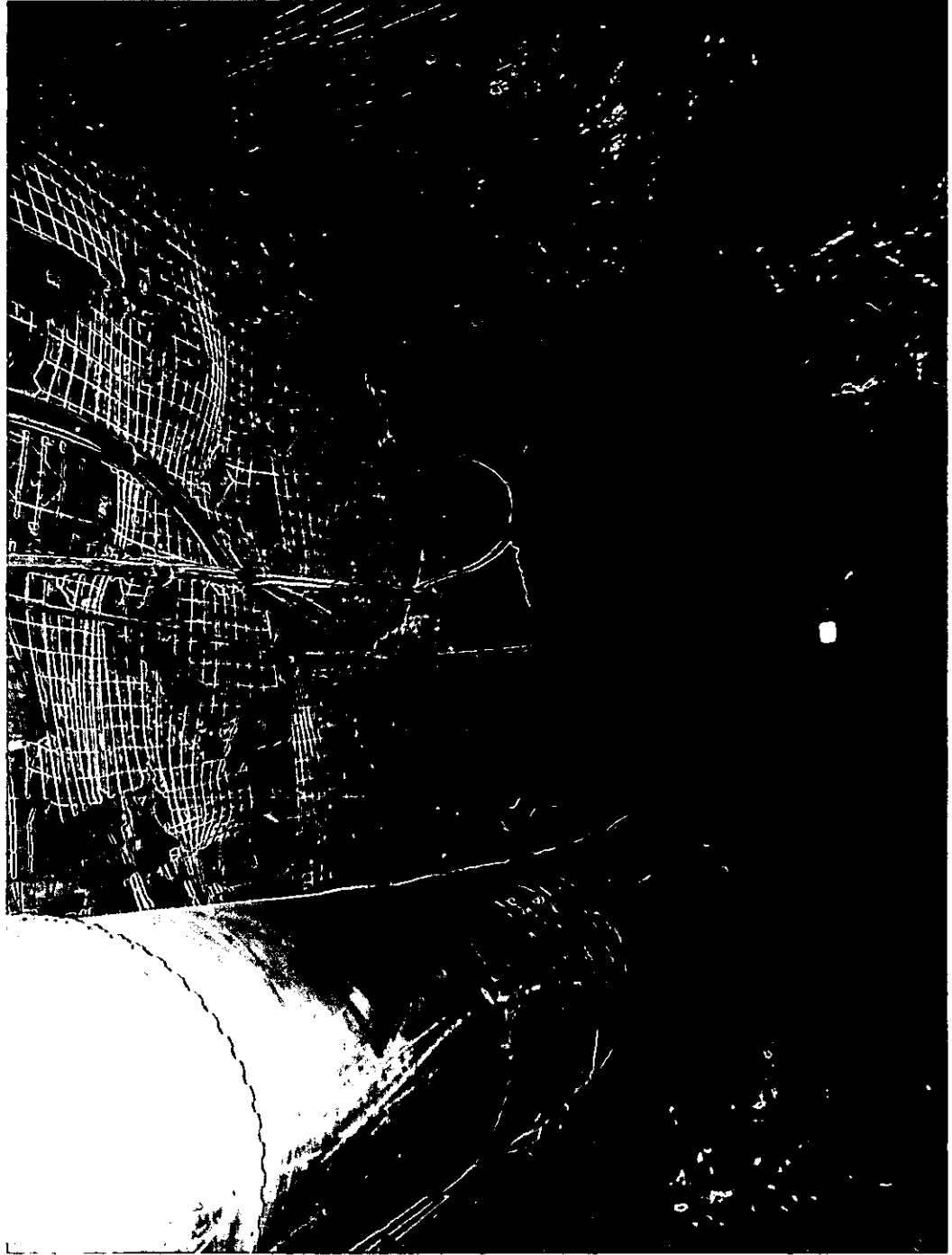
Bolting



Ground Control



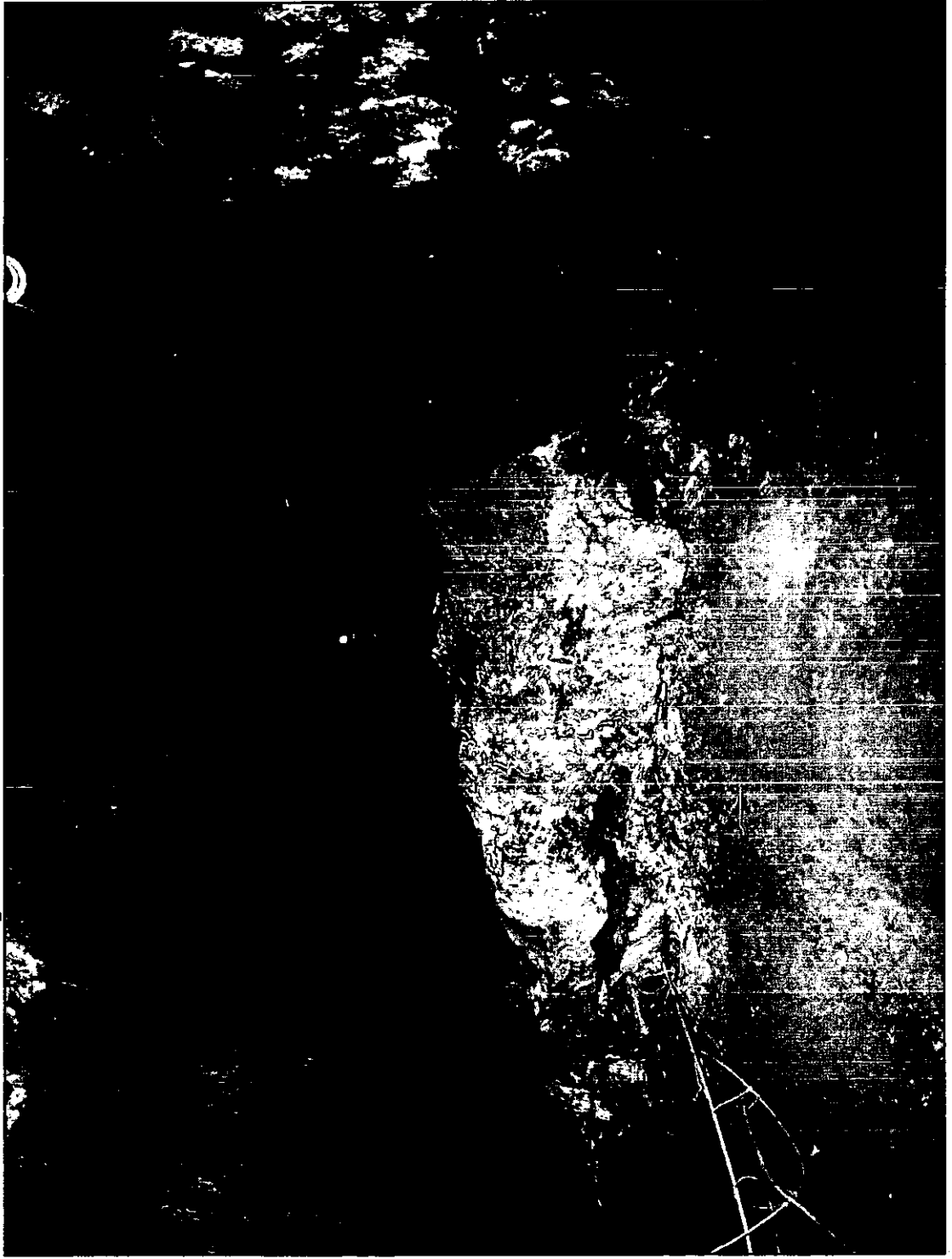
Ground Control



Ground Control



Why Ground Control?



4/7/2009

Council of Alaska Producers

Backfill

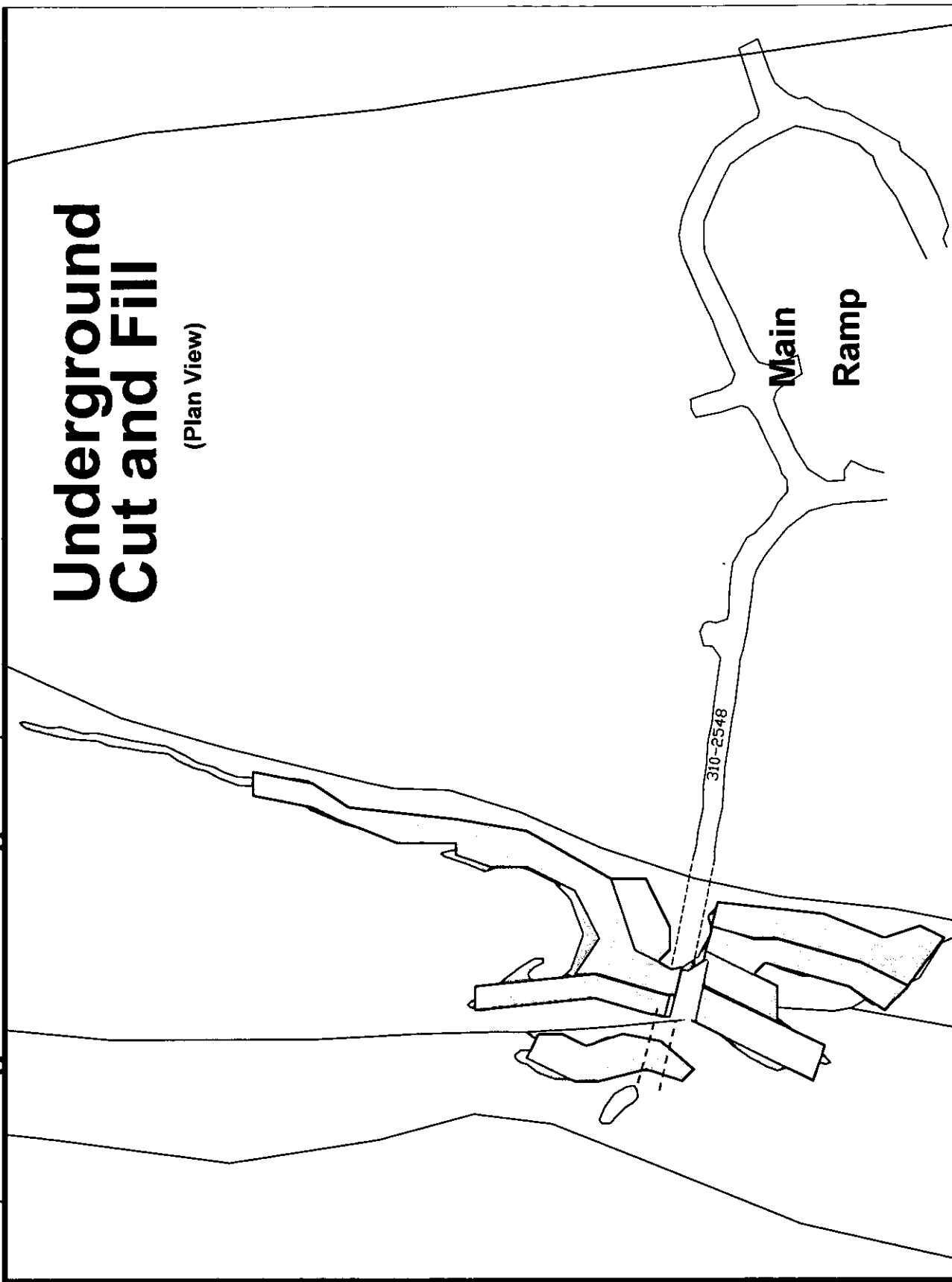
- Waste Fill
- Conventional Fill
- Paste Fill



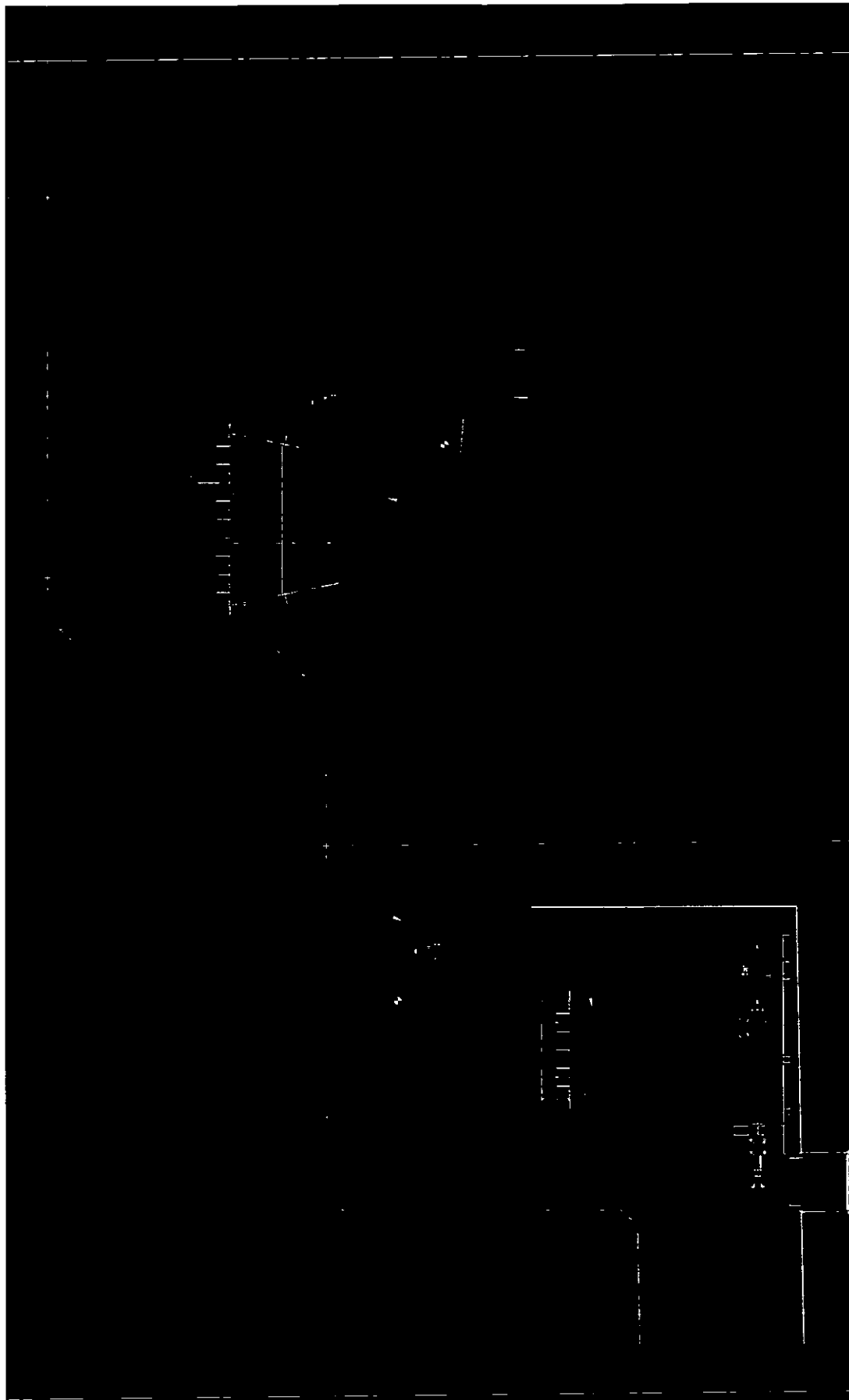
Underground Mining 101

Underground Cut and Fill

(Plan View)



Paste Fill Plant



Underground Mining

- Alaska has a history of underground mining.
- Mining method determined by deposit type.
- Modern mining methods require a highly skilled workforce.



Thank You!

