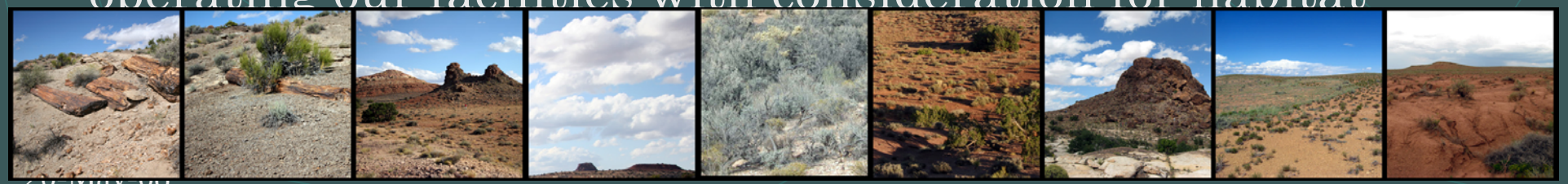
Liberty Star Uranium & Metals Corp. Environmental Mission Statement

- Liberty Star Uranium & Metals Corp is committed to responsible stewardship of our environment as well as our investors' assets.
- We pledge to readily and fully comply with all laws and regulations affecting natural and cultural resources. We expect the same of our contractors, consultants, and affiliates.
- We will demonstrate our leadership in environmental stewardship through innovative planning and execution at every stage of mine development, from road, mine and mill engineering and construction through decommissioning and mine reclamation and closure.
- We are dedicated to transparency and pro-activity in minimizing environmental impact by planning and operating our facilities with consideration for habitat



Did You Know?
Facts About Nuclear Energy

- Uranium is ubiquitous on the earth. It is as common as tin or zinc, and is found in most rocks and even seawater.
- Unlike coal, natural gas or oil, nuclear energy doesn't burn anything to produce electricity. There are no CO2 emissions

Did You Know?
Facts About Nuclear Energy

- The energy in one uranium fuel pellet –a thimble full – is the equivalent of 17,000 cubic feet of natural gas, 1,780 pounds of coal, or 149 gallons of oil.
- Nuclear power plants take up far less space than other alternative electricity generating facilities. Solar and wind farms must occupy much more land, and be located in unpopulated areas far from energy need.

Did You Know?
Facts About Nuclear Energy

- One diagnostic x-ray exposes you to about the same amount of radiation received living near a nuclear power plant for 2,000 years.
- On average each human has 90 micrograms of uranium in their body: about 66% in the skeleton, 16% in the liver, 8% in the kidneys and about 10% in other tissues.

Clear Thinking on Nuclear Plant Construction

- Nuclear energy is dependable, affordable, and environmentally sound.
- Nuclear energy is needed to meet increasing electricity demand.
- New power plants can now be built faster and cheaper.

*source American Nuclear Society

Dependable, Affordable, and Environmentally Sound

- Not subject to unreliable weather or climate conditions, unpredictable fuel cost fluctuations, or dependence on foreign suppliers.
- Among the cheapest available fuels today – production costs are the same or less than production costs from coal, oil, or natural gas.
- Expandable source of electricity with near-zero emissions that will help the US meet clean air requirements.

Meeting Increasing Electricity Demand

- There is a limited supply of natural resources, which is insufficient to continue to meet growing electricity demand.
- Maintaining or increasing nuclear energy's share in the nation's energy mix will reduce US dependence on foreign oil.
- Over the next 20 years, the US will need 400,000 megawatts of new electric generating capacity to meet new electricity demand.

*source American Nuclear Society

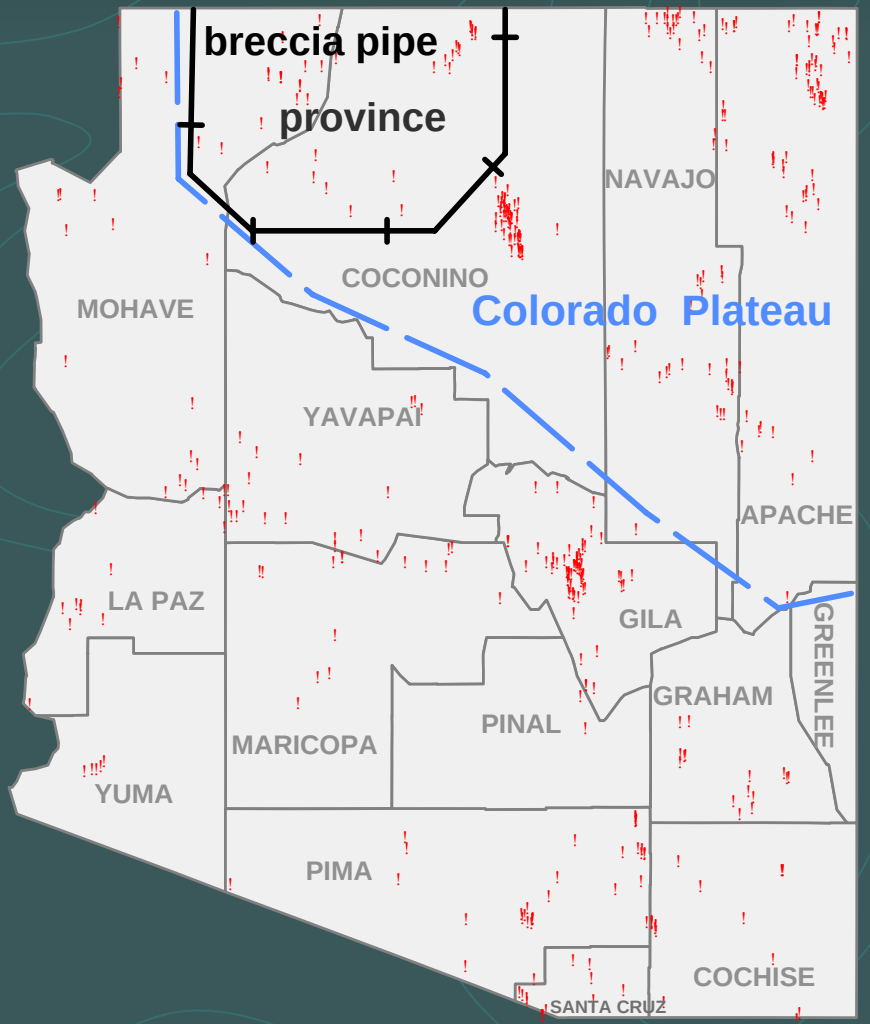
New Power Plants Built Faster and For Less

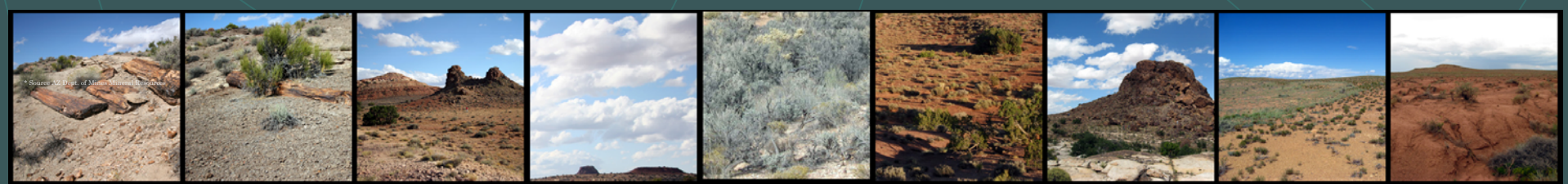
- Standardized designs will lead to greater efficiencies in all aspects of nuclear plant operations.
- Technological advances offer designs that are simpler and more compact, which leads to reduced construction time and costs.
- Improvements in the regulatory processes reduce uncertainties in licensing and construction, which lowers the costs of capital needed to finance new plants.

*source American Nuclear Society

Arizona Uranium Breccia Pipe Province

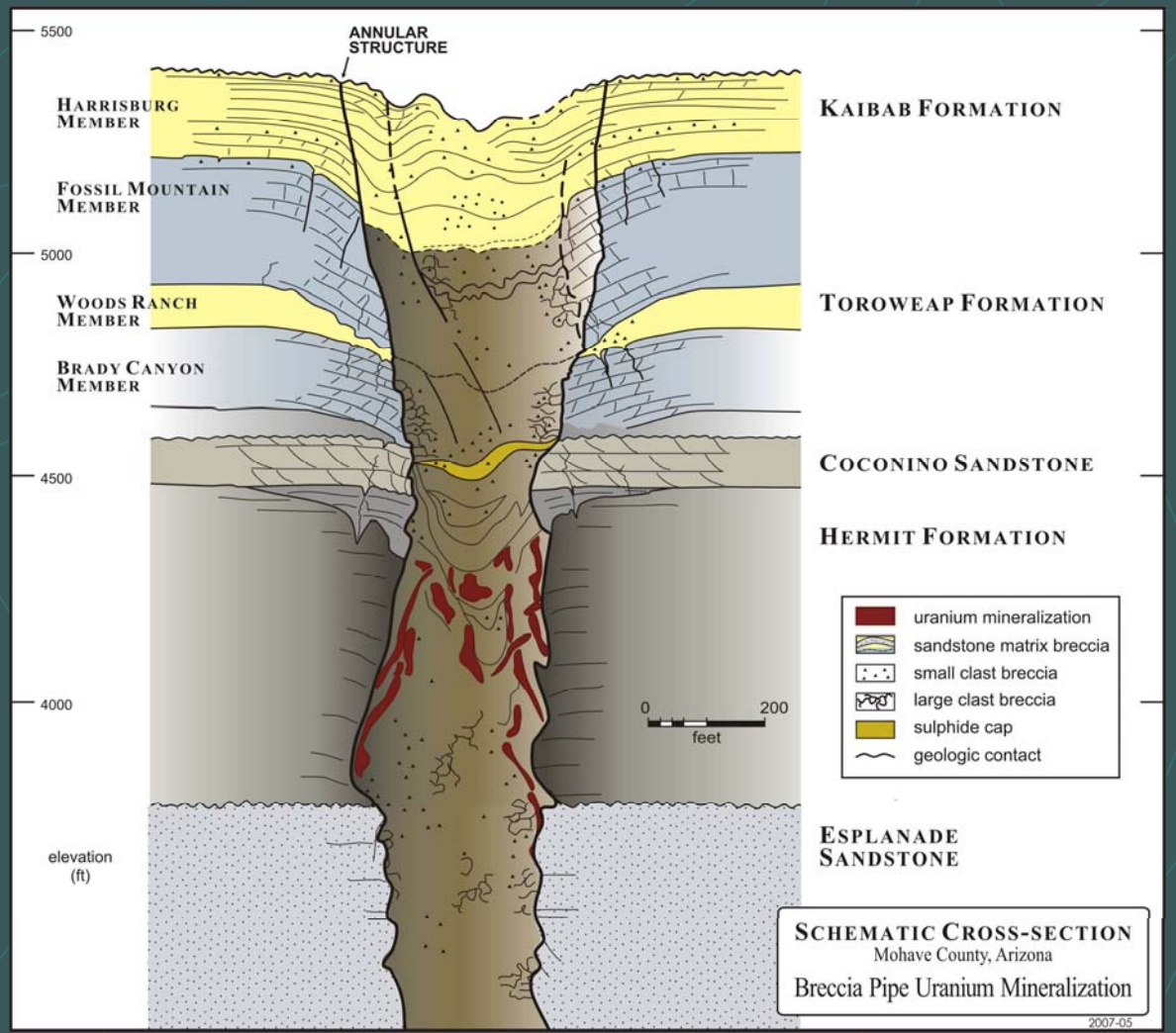
- High-grade collapse breccia pipes on the Colorado Plateau
- Liberty Star controls up to 308 breccia pipes within the province



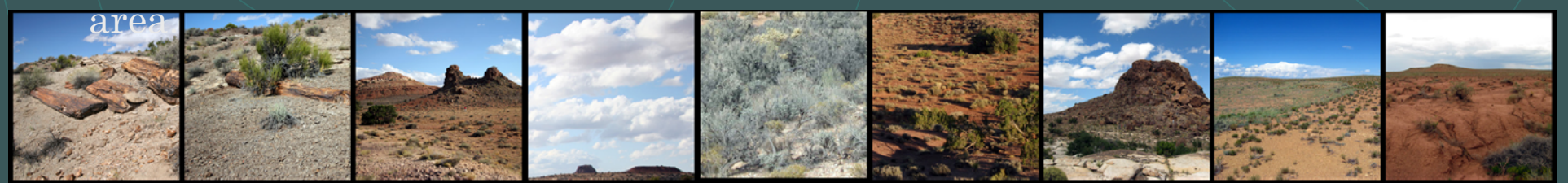


Solution-Collapse Breccia Pipe

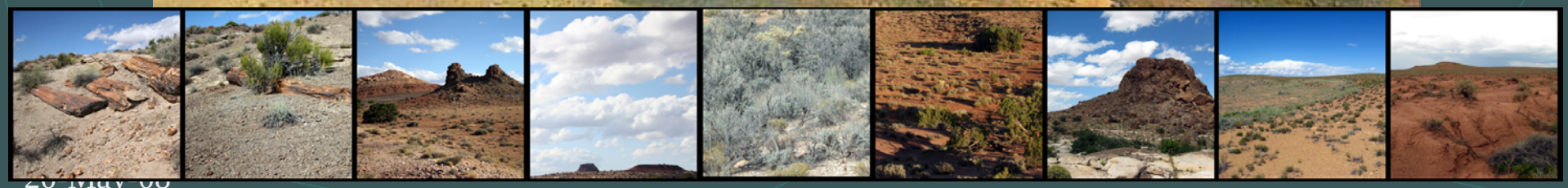
- Schematic cross section of a solution-collapse breccia pipe showing the general distribution of uranium ore within the pipe.
- Nearly all primary ore is confined to the breccia pipe.
- Rarely, a little uranium ore is reported in relatively undisturbed beds outside the ring structure.
- Vertically, most primary ore is below the Coconino Sandstone and at the level of the Hermit Shale and the Esplanade Sandstone of the Supai Group.
- Ground water is normally 1000+ feet below the bottom of the mineralized area



*source AZ Dept of Mines and Mineral Resources

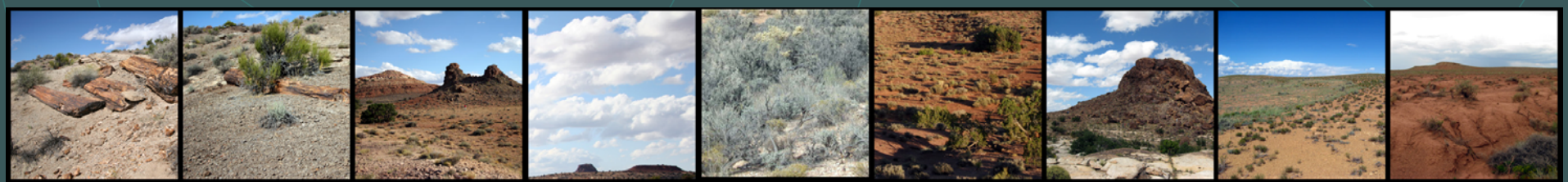


Aerial View of Two Breccia Pipes Showing Alteration Haloes



Typical Surface Vegetation Over Breccia Pipe

December 2007 Drilling



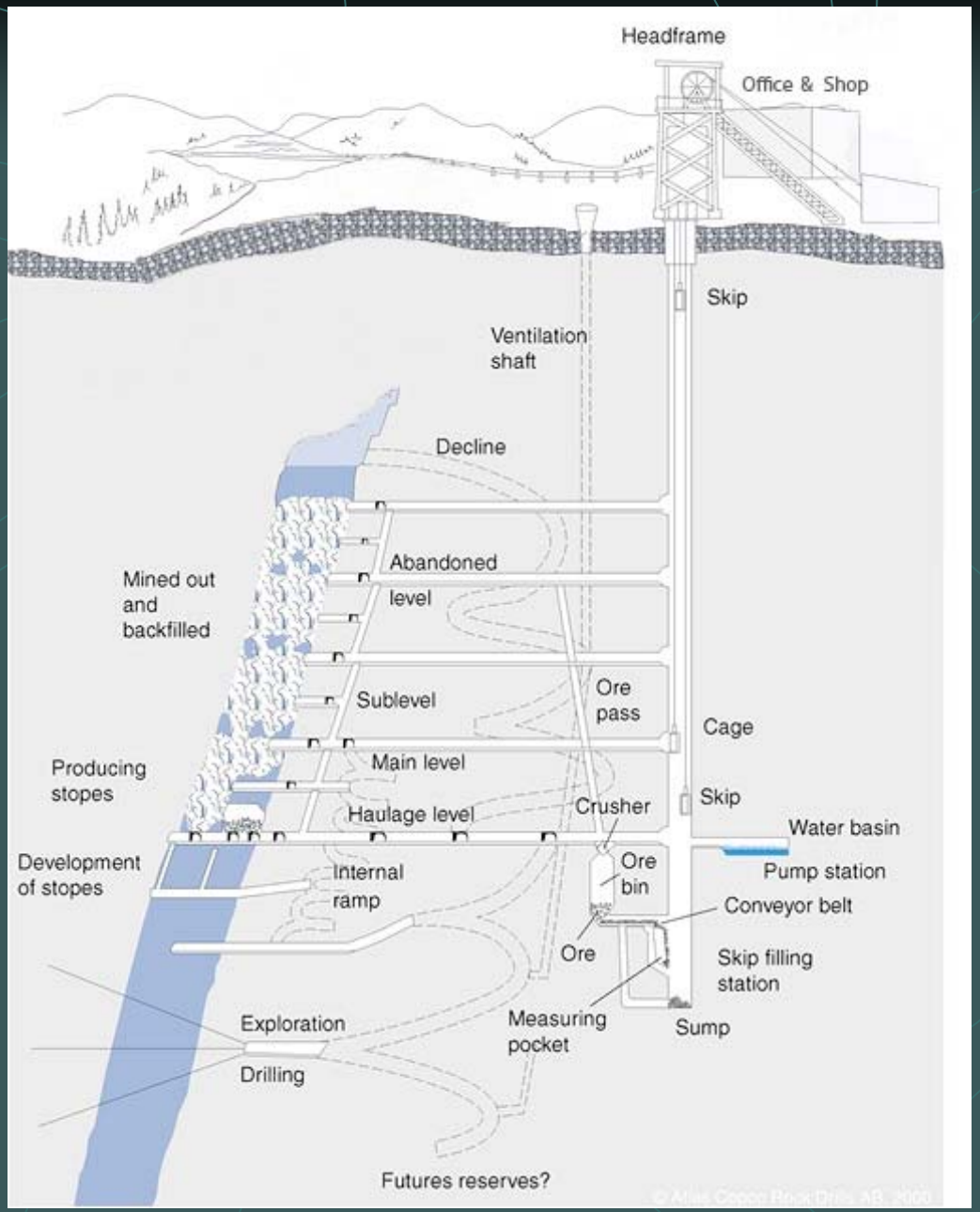
Mine Plan Highlights: Mining

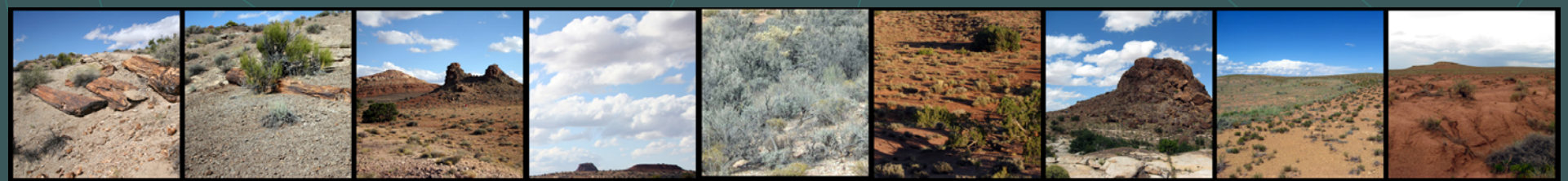
- Underground, cut and fill stoping; shaft, access decline or shaft with internal decline
- 400 tons of ore per day production rate
- Cemented tailing is returned to the mine and backfilled underground
- Mine-out in 18 months
- Re-use mining and rolling equipment at the next mine

Mine Plan Highlights: Environmental

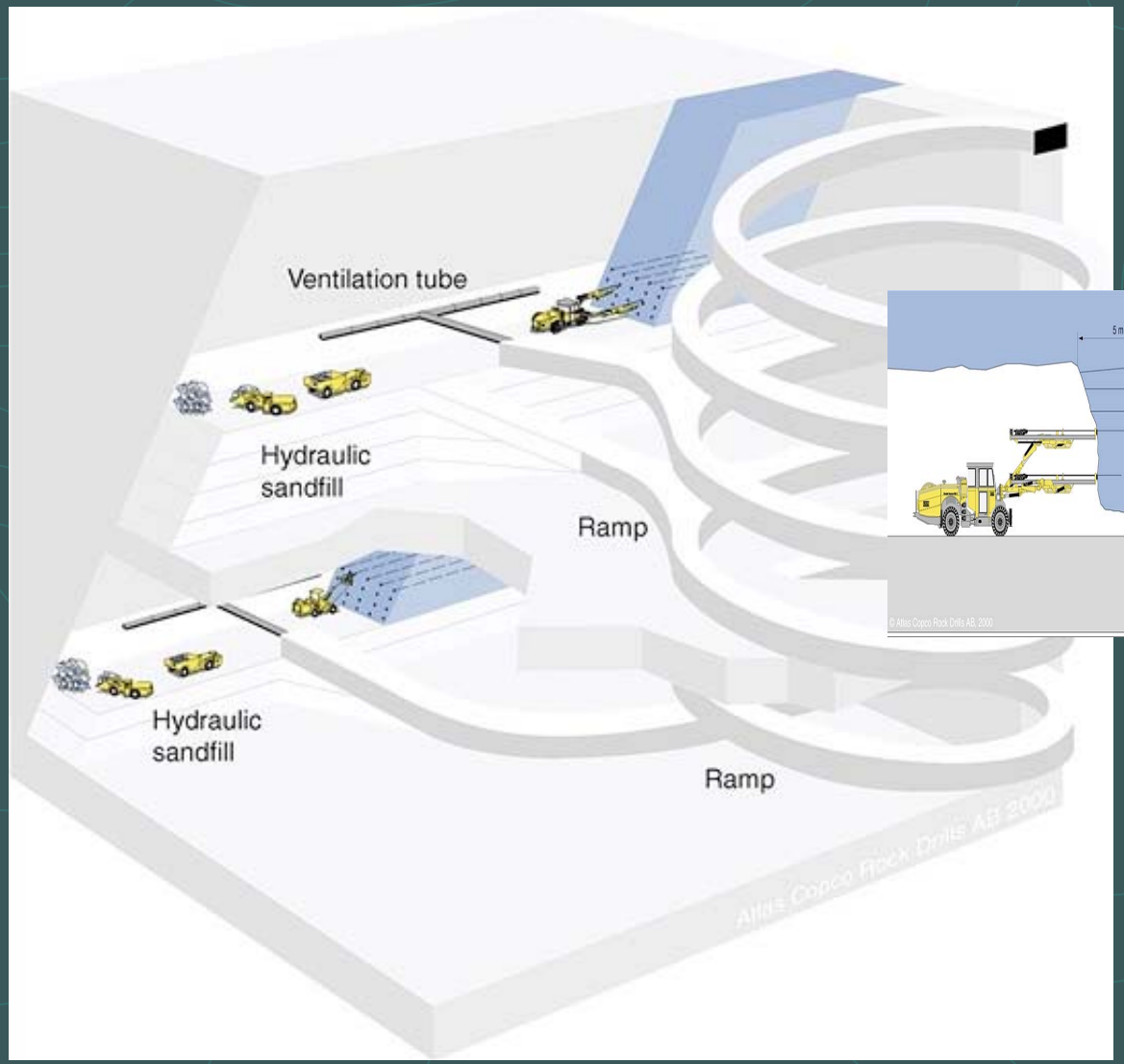
- Limit site to less than 5 acres
- Aggressive dust control for traffic
- No signage
- Camouflage for operations
- Concurrent reclamation to “invisibility”

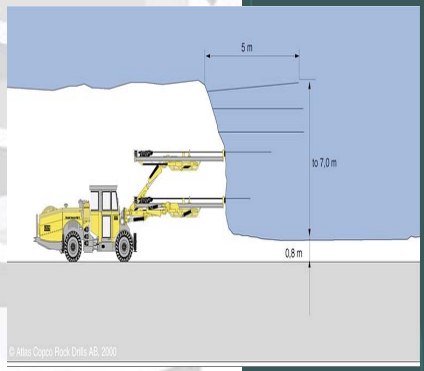
Underground Mining





Mining Method: Cut and Fill Stoping





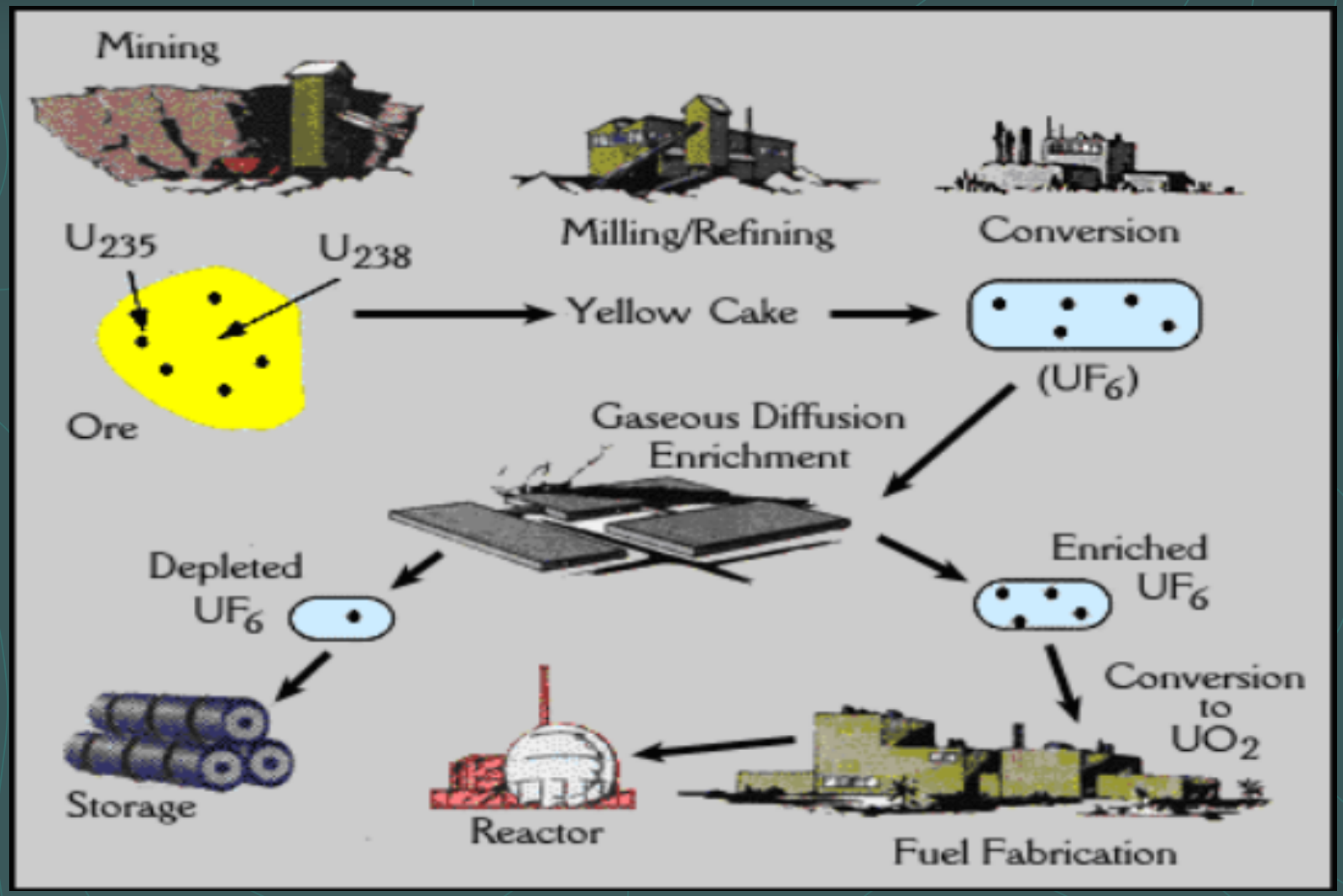
Mine Site Pre-Camouflage

Mine Site Camouflaged

Mine Site Pre-Reclamation

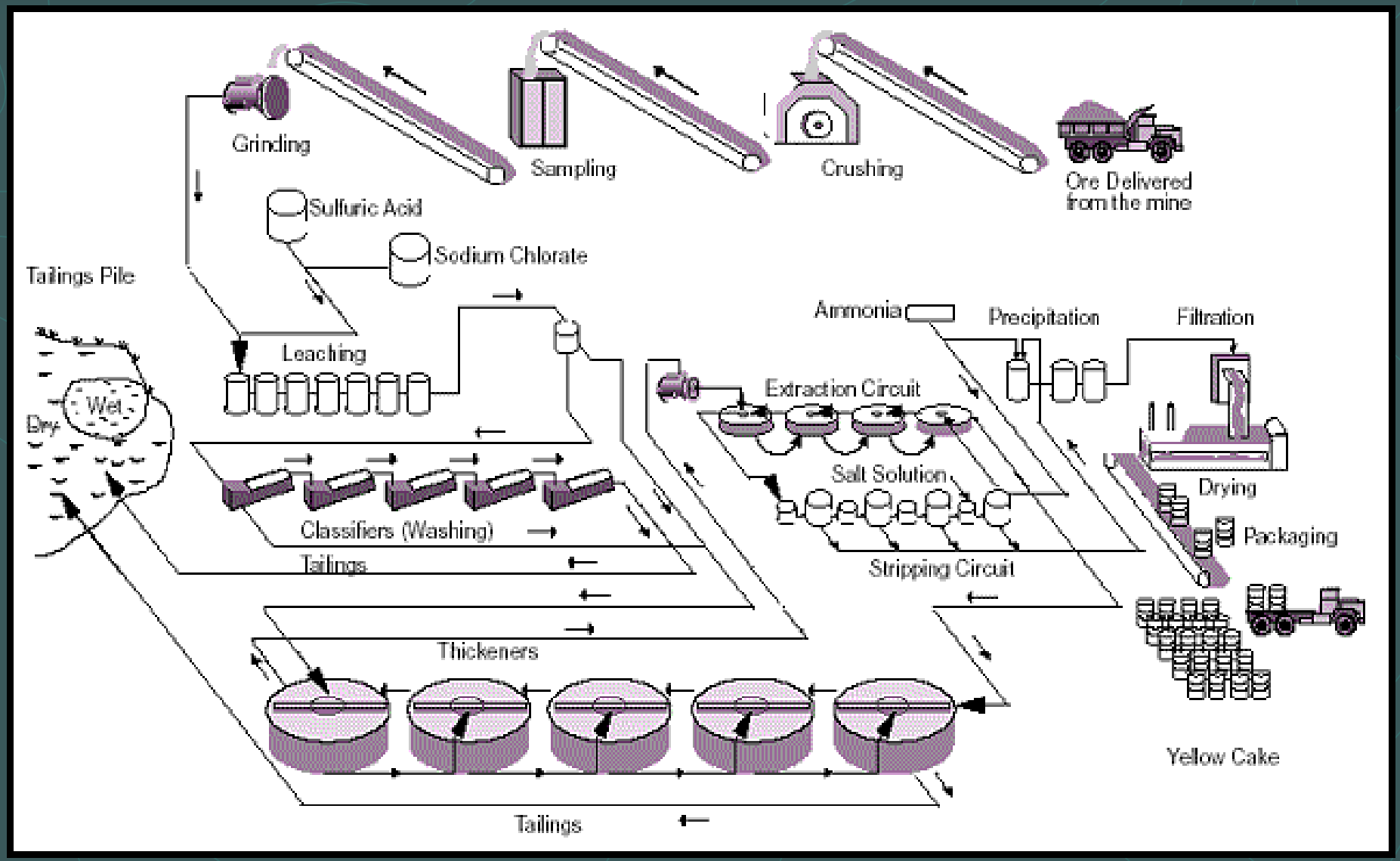
Mine Site Reclaimed

Uranium: From Ore to Fuel

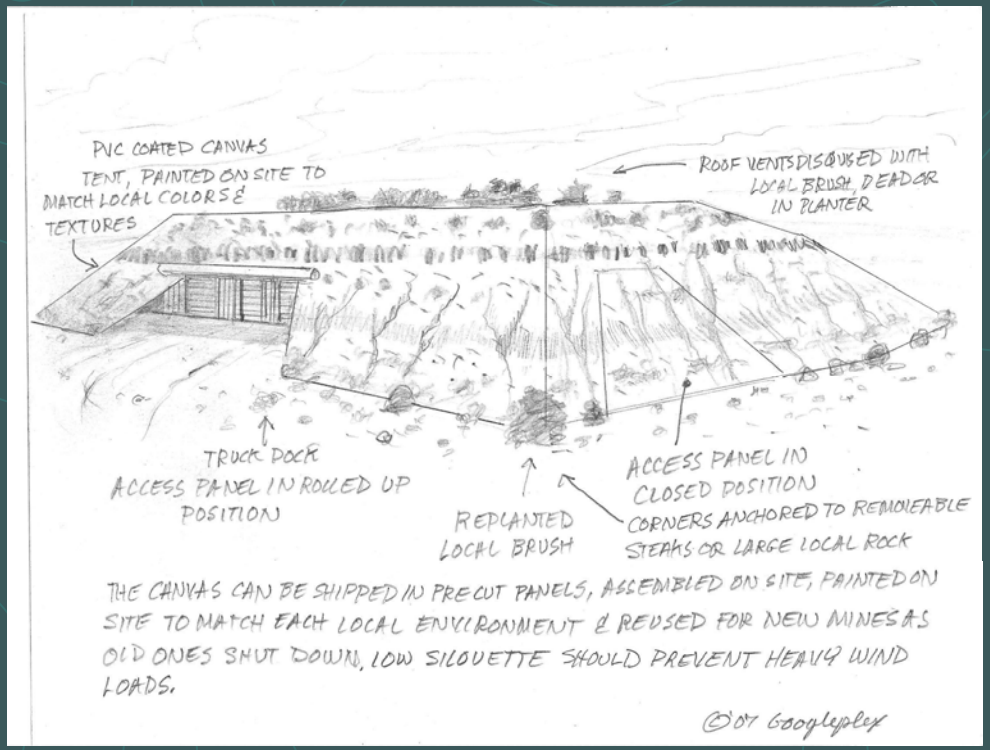


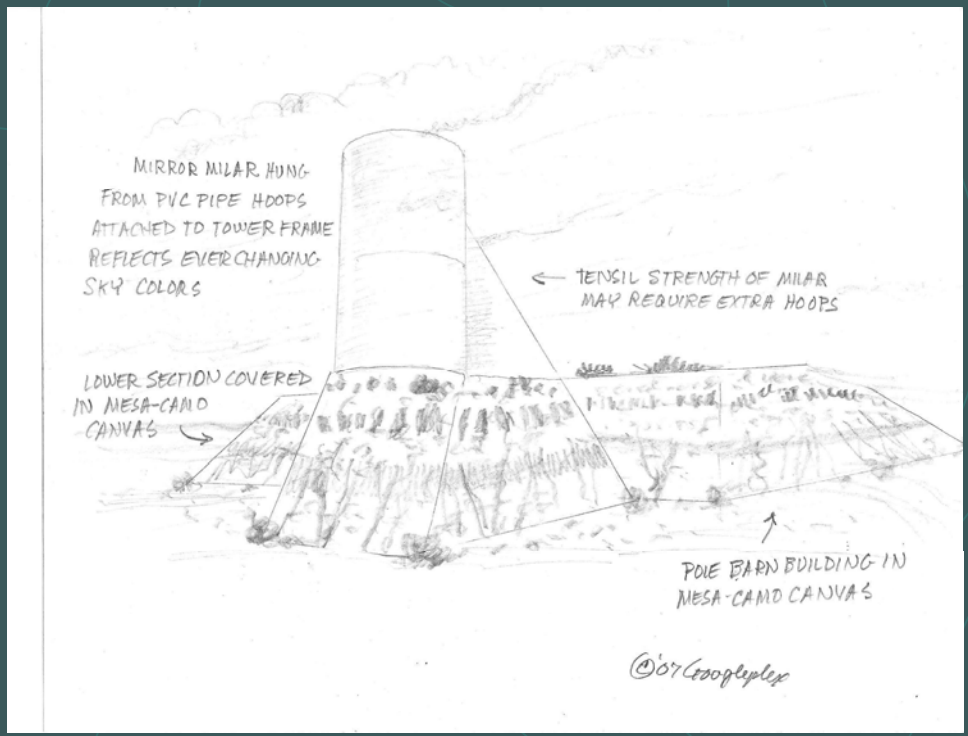
Uranium is mined, milled, and converted for enrichment and use

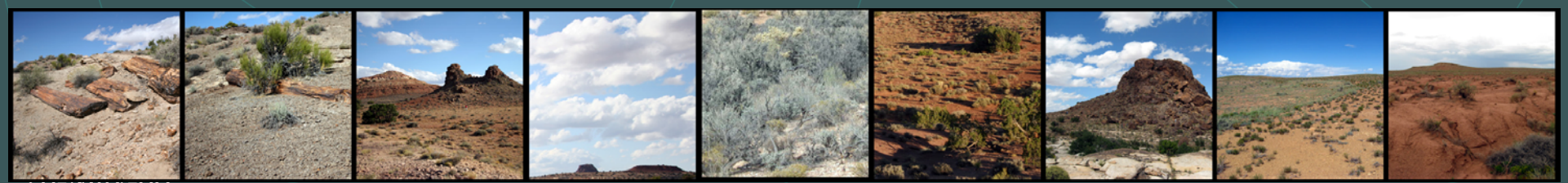
Conventional Uranium Mill



Artist's Rendering of Portable Mine Site Camouflage







Uranium Mill Plan

- Capacity: 2,000 pre concentrated tons per day reduced by Sortex & gravity to 500 TPD mill – Flotation front followed by standard U leach circuit.
- As trucks deliver ore, they will pick up tailings to be returned into the mine
- No signage
- Aggressive dust control for traffic
- Camouflage during operations
- Concurrent reclamation to “invisibility”; all evidence of structure removed at final reclamation

Mill Pre-Camouflage

Mill Camouflaged

Estimated Federal and State Time Frames

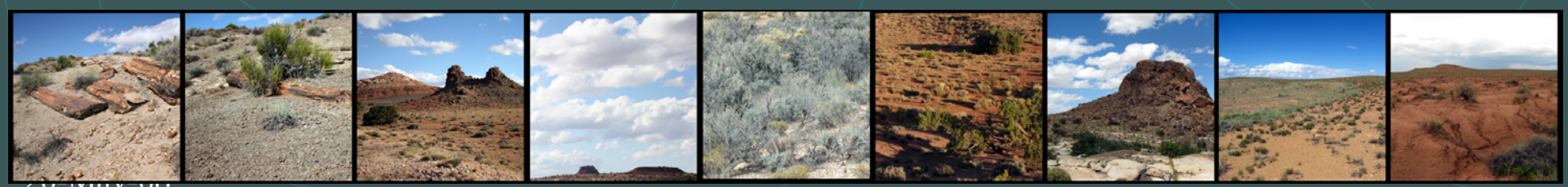
PROBABLE	ESTIMATED TIME	POSSIBLE	ESTIMATED TIME
Plan of Operation for activities on BLM Land that will disturb greater than 5 acres of land	60 days if no EA/EIS required; 1 to 2 years if required	Mine Reclamation Plan for mining on Private Lands greater than 5 acres	1 year
Environmental Assessment (EA) if agreed to by BLM	1 to 2 years	Surface water appropriation	450 days
Environmental Impact Statement (EIS)	3 to 5 years	Groundwater withdrawal and use permit	6 to 12 months
Industrial Storm Water General Permit- Sector G	**1 to 2 years**	AZPDES Permit, including SWPPP	2 to 3 years
Aquifer Protection Permit (APP)	2 to 3 years	Clean Water Act 401 Certification & 404 Permit	2 to 3 years
AZDPES Discharge permit	1 to 2 years	Non-Municipal Solid Waste Permit	2 to 3 years
Air Quality Control Permit	1 to 2 years	ADOT Encroachment Permit	6 months

Mine Permitting Requirements Estimated Federal/State/County Time Frames (cont'd)

PROBABLE	ESTIMATED TIME	POSSIBLE	ESTIMATED TIME
Spill Prevention Control & Countermeasure Plan (SPCC)	6 months	Power and Gas Line Permits	3 months
Groundwater Withdrawal and Use permit	**6 to 12 months**	Septic Tank & Drain Field Permit (Mohave County)	6 months
Geotechnical Boring Permit; Groundwater Well Permit	30 days		
Native Plant Permit for moving any protected plants	30 days		
EPA ID Number	**1 month**		
Dust Permit (Mohave County)	**6 months**		

Estimated Federal/State Time Frames

PROBABLE	ESTIMATED TIME	POSSIBLE	ESTIMATED TIME
Radioactive Materials License Application UMTRCA Title II	2 to 3 years	Groundwater withdrawal and use permit	6 to 12 months
EIS (conducted by NRC)	3 to 5 years	AZPDES Permit, including SWPPP	2 to 3 years
Radioactive Materials Transportation Certificate	3 to 5 years	Clean Water Act 401 Certification & 404 Permit	2 to 3 years
Industrial Storm Water General Permit- Sector G	1 to 2 years	Non-Municipal Solid Waste Permit	2 to 3 years
Aquifer Protection Permit (APP)	2 to 3 years	Power and Gas Line Permits	3 months
AZDPES Discharge permit	1 to 2 years	ADOT Encroachment Permit	6 months
Air Quality Control Permit	1 to 2 years		
SPCC	6 months		



Mill Permitting Requirements Estimated Federal/State Time Frames (cont'd)

PROBABLE	ESTIMATED TIME	POSSIBLE	ESTIMATED TIME
Groundwater Withdrawal and Use Permit	**6 to 12 months**		
Geotechnical Boring Permit; Groundwater Well Permit	30 days		
EPA ID Number	**1 month**