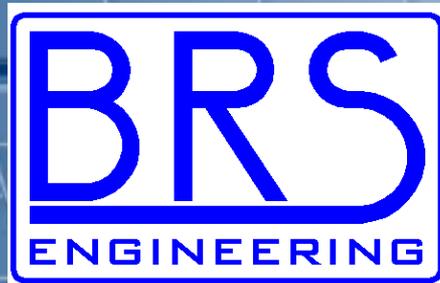


A light blue world map with white grid lines is visible in the background of the top and bottom sections of the image.

Lyntek

INCORPORATED



Coles Hill Uranium Project

Uranium Industry
Technology Discussion
JCOTS – Sept. 21, 2010

Items for Discussion

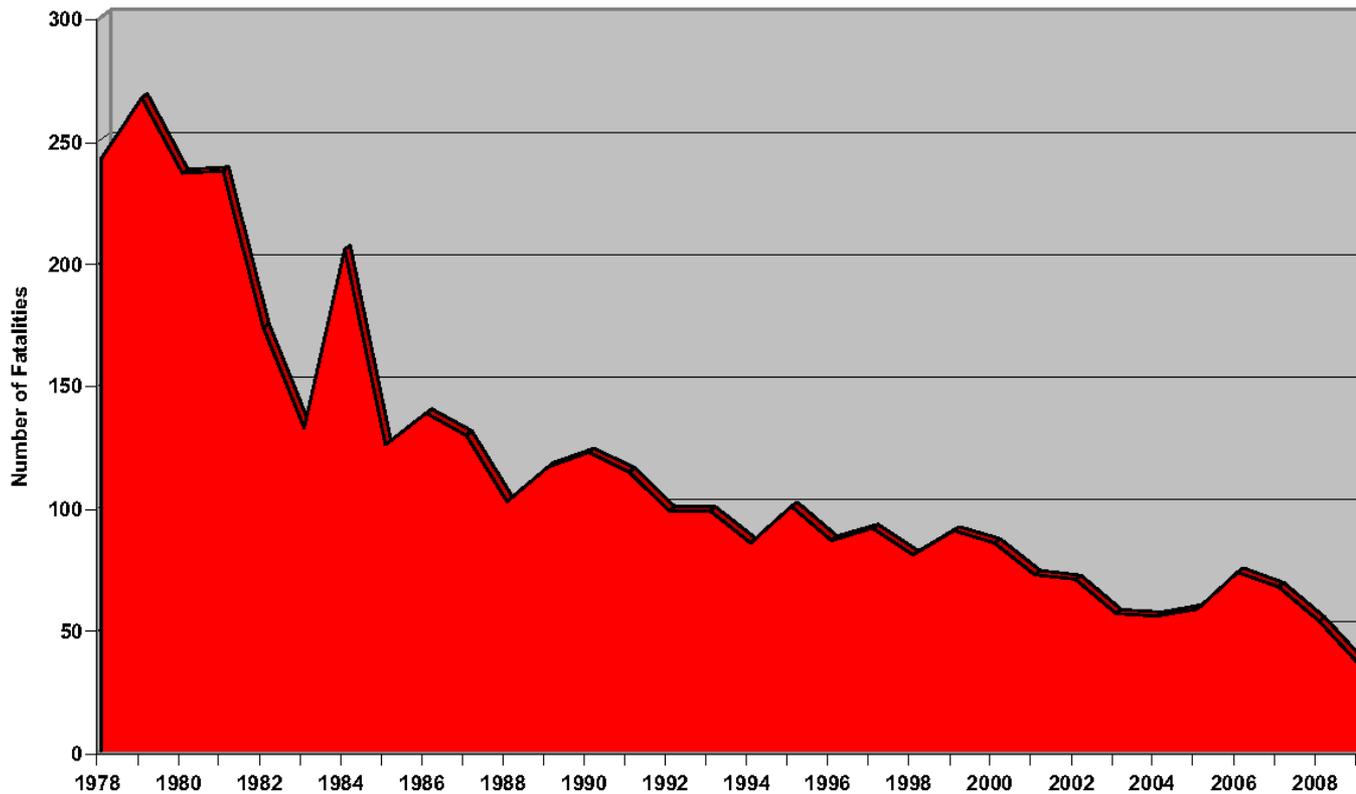
- How has uranium mining and milling changed over the last fifty years?
- How have these changes improved health/safety for workers and the surrounding community?
- How are these changes more protective of the human health and the environment?

Fundamental Regulatory Changes

- EPA – 1970
 - Sets Environmental Standards
- NRC – 1974
 - Regulates Uranium Processing
- MSHA Standards 1977
 - Establishes Mine safety standards
 - Greatly improved safety
 - WLM standards for Underground Mines
 - Smoking banned underground

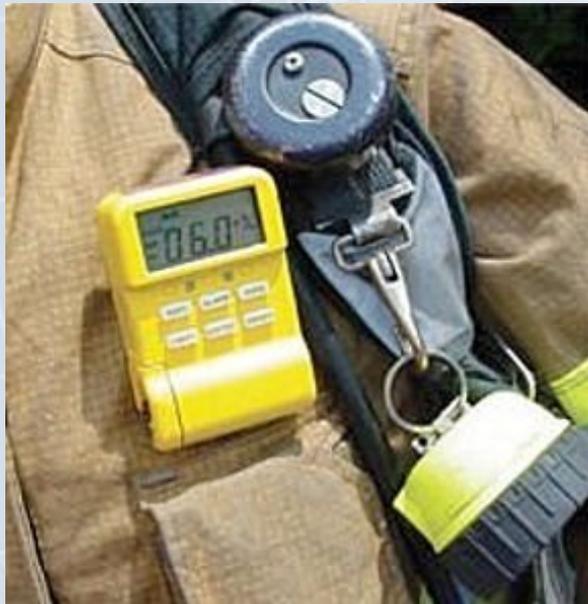
Reduction of Fatalities Since Implementation of MSHA

U.S. Mining Fatalities CY 1978 - 2009



Fundamental Operating Changes

- Continual Health and Safety Monitoring
 - Specifically Developed Monitoring Instruments
 - Employee Radiation and Dust Badges
 - Stationary Radiation, Dust, and Gas Monitors



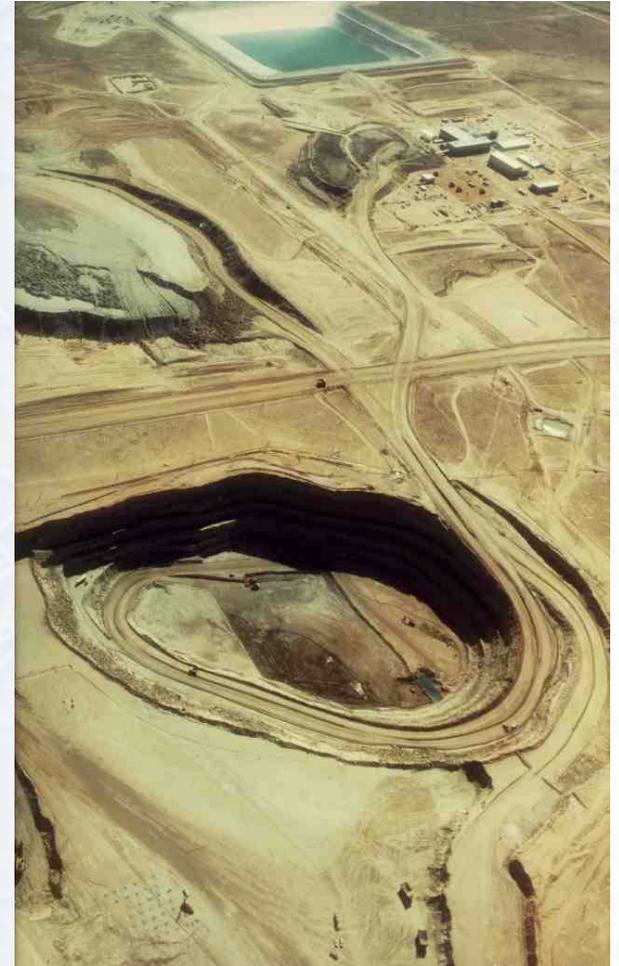
Fundamental Operating Changes

- Greater Awareness
 - Environmental Respect and Management
 - Safety for Workers and the Community

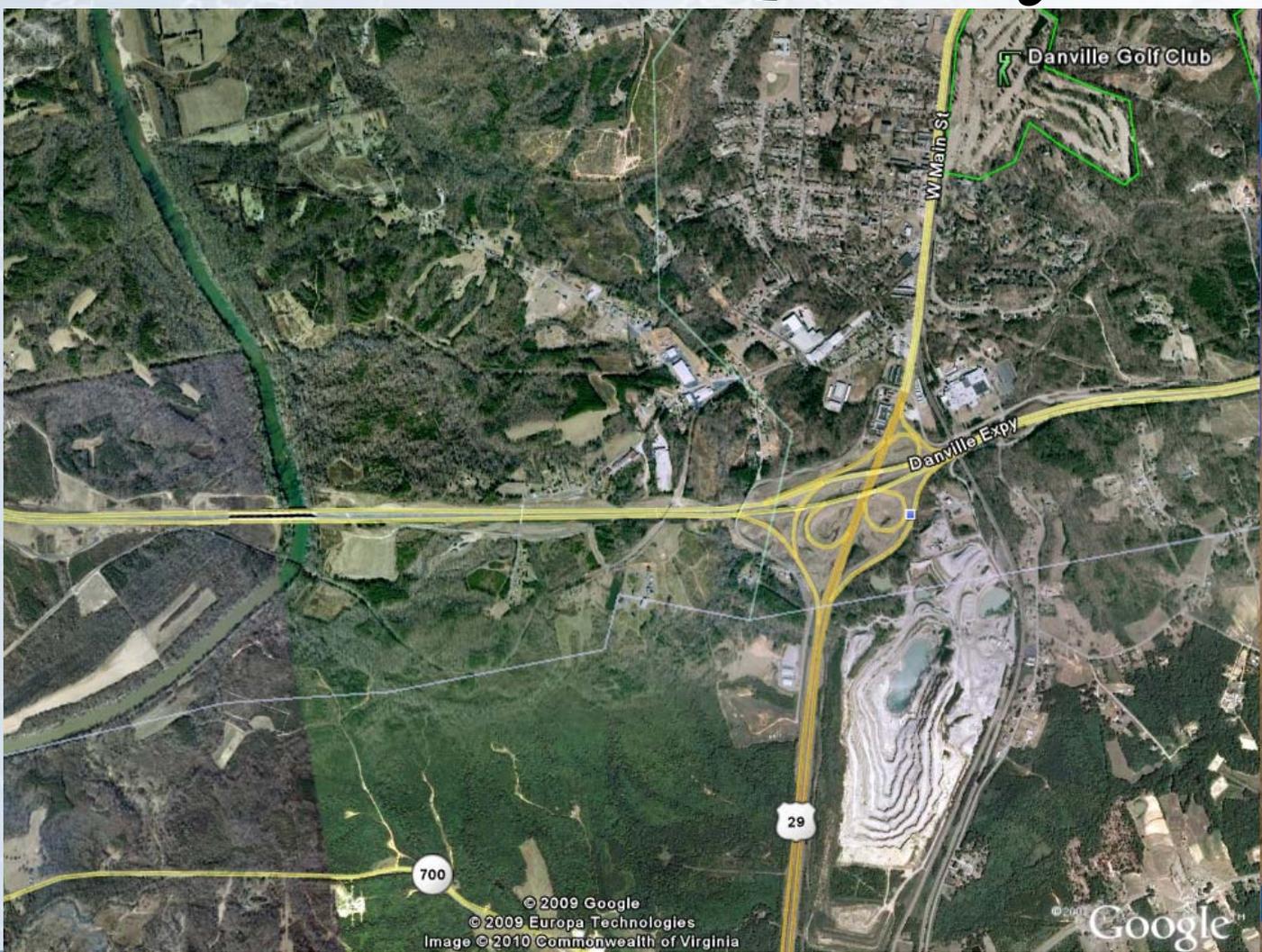


Mining Uranium

- Types of Methods
 - In-situ Recovery (ISR)
 - Significant New Technology Development (But Not Applicable)
 - Surface
 - Classic Wyoming Districts
 - » Open Pit Similar to Virginia Quarries



A Local Quarry



© 2009 Google
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Image © 2010 Commonwealth of Virginia

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Mining Uranium

– Types of Methods

- Underground

- Uravan Mineral Belt – Colorado

- » Small Concentrated Roll Front Mining

- New Mexico Deep Mines

- » Deeper Mining with Larger Roll Fronts

- Athabasca Basin – Canada

- » Much Larger and Thicker Deposits Using Remote Mining and Hard Rock Mining Techniques



New Mining Technologies

- More Productive Equipment
- Enclosed and Protected Cabs
- Remote Operation
- Bulk Material Handling Equipment
- Blasting Agents
- Communication Equipment
- Safety Training and Practices
- Advanced Ventilation Design and Practices
- Advanced Roof and Wall Support Designs

Drilling Equipment



Jackleg Drill 1950's

Modern Jumbo Drill



Improvement in Equipment



Hand Loading 1950's

Remote Controlled Loader



Surface Mining Equip.



GPS Controlled Equipment

Support Equipment



Processing of Uranium

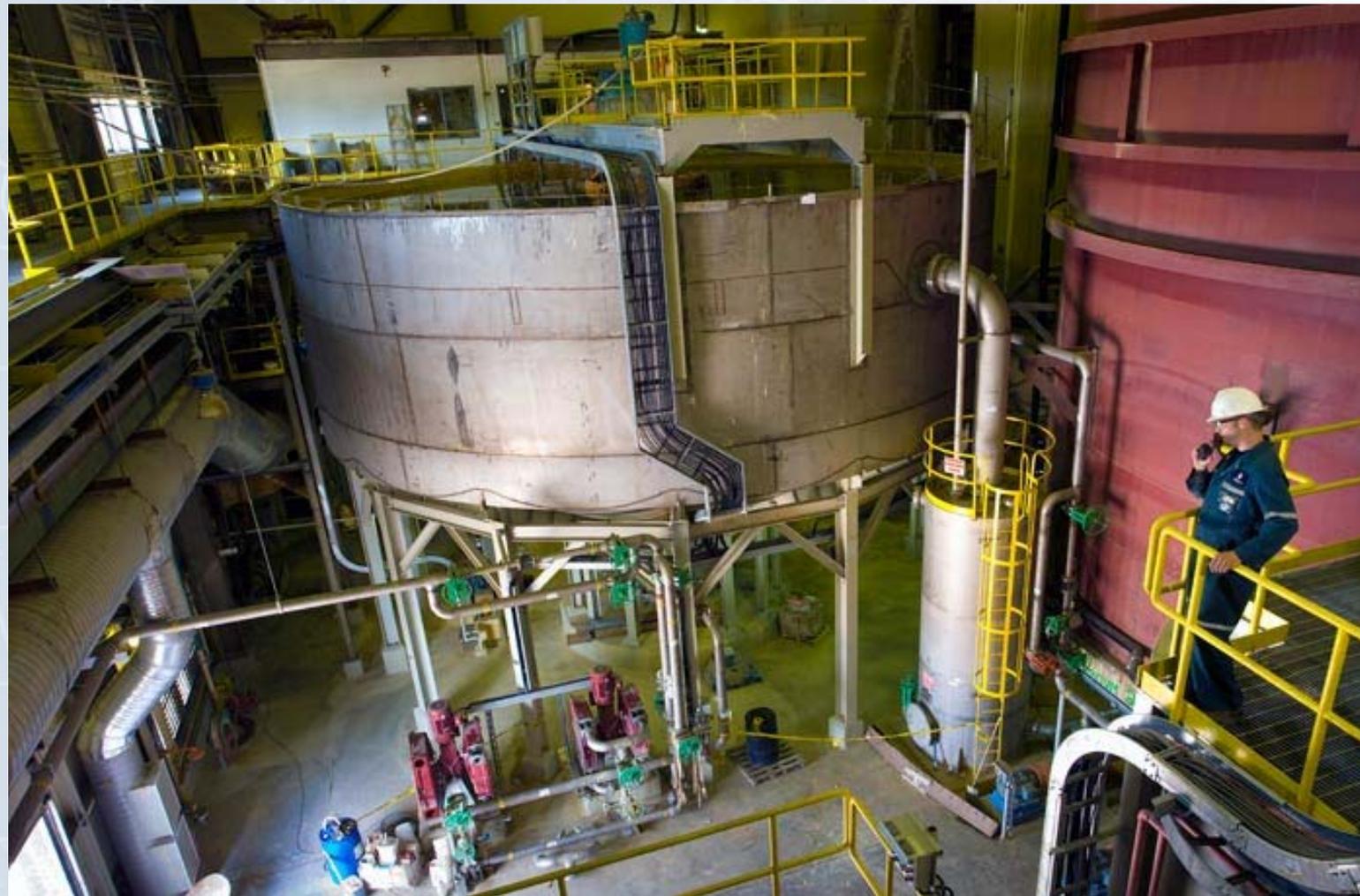
- Leaching
 - Acid Leach
 - McClean Lake
 - White Mesa
 - Carbonate Leach
 - Langer Heinrich



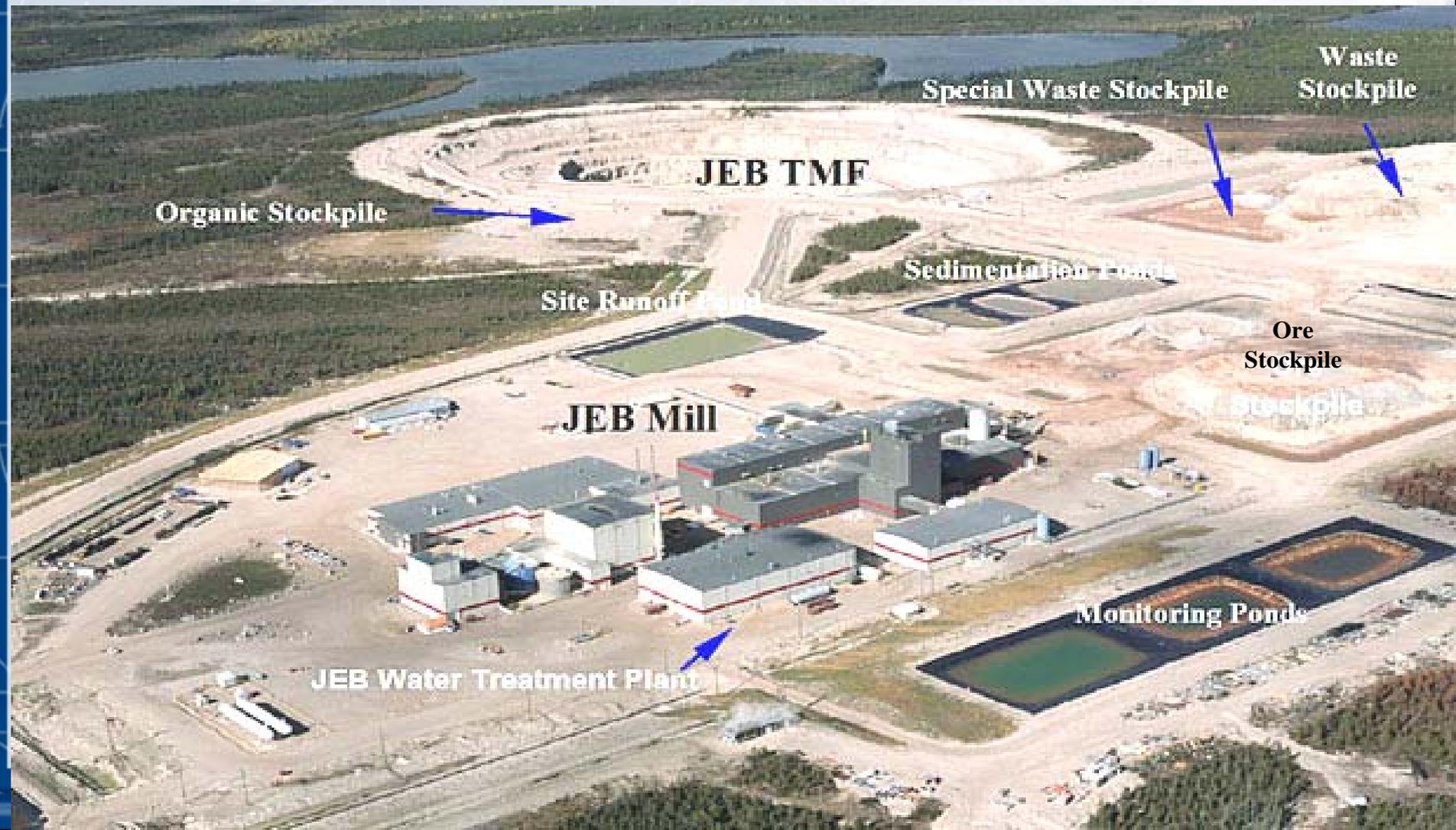
Advancement in Techniques

- Greatly Improved Crushing and Grinding
- Sample Collection and Analytical Turn Around
- Refinement of Ion Exchange
- Refinement of Elution Systems (U-Tube)
- Refinement of Solvent Extraction
- Development of High-Rate Thickeners
- Refinement of Heap Leaching
- Development of Biogenic Processing and Remediation

Modern Mill



McClellan Lake (Jeb Mill)



Organic Stockpile

JEB TMF

Special Waste Stockpile

Waste Stockpile

Site Runoff Pond

Sedimentation Ponds

Ore Stockpile

JEB Mill

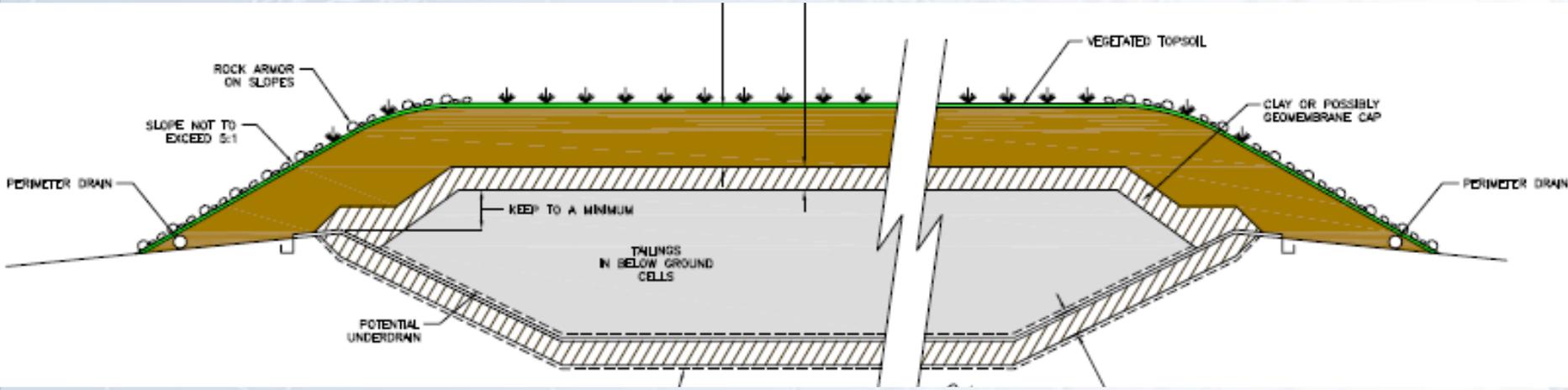
Monitoring Ponds

JEB Water Treatment Plant

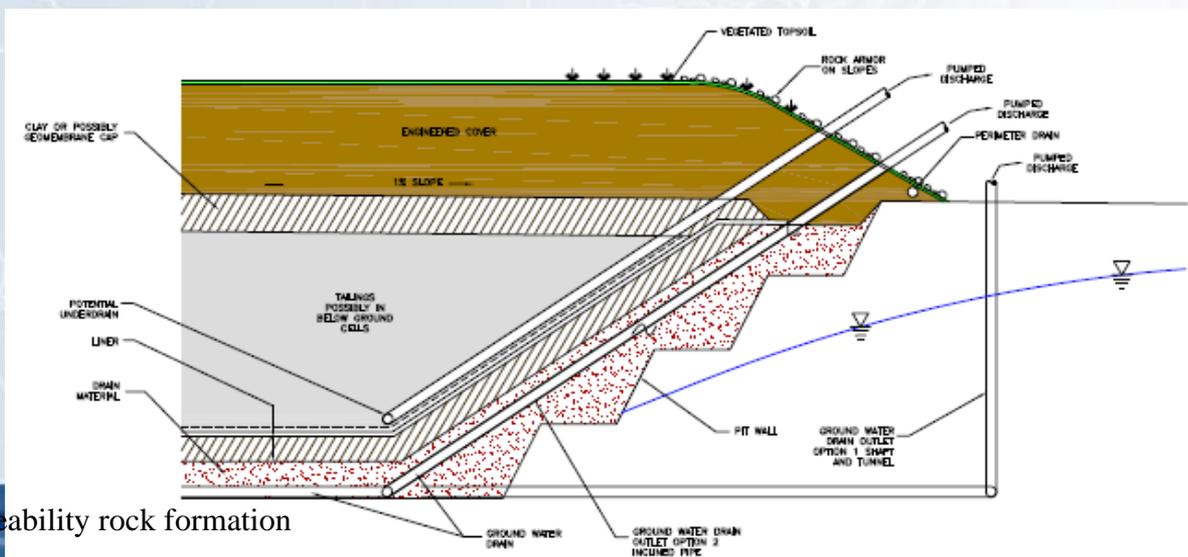
Advancement in Techniques

- Resin in Pulp (Now Pump Cells)
- Precipitation (Peroxide)
- Filtering
- Drying
- Tailings Facilities
 - Legacy Tailings Standard of Design
 - » Natural Amelioration
 - New Standards
 - » Lined Facilities
 - » Long Term Closure

Uranium Tailings Management



Low permeability rock formation



Low permeability rock formation

Arid Region Mine Reclamation



Mine Reclamation After One Year



Temperate Climate Mine Reclamation



Reclaimed Site with Fishery



50 Years of Industry Changes

- Process
 - Communication Development With Stakeholders
 - Development of Sustainable Concepts
 - Development of Life of Mine Closure and Reclamation Designs
- Technology
 - Laboratory – New Capabilities for Lower Detection Levels from ppm to ppb for Water and Soils
 - Computers – Overall Geological, Mining, Processing, and Environmental Modeling

50 Years of Industry Changes

- Environmental
 - Establishment of Baseline and Operations Monitoring
 - Air
 - Water
 - Soils
 - Dust
 - Waste Rock and Tailings Control
 - Enhanced Understanding of Health Physics and Radiation Exposure

50 Years of Industry Changes

- Regulations
 - Permitting and Community Involvement – Methodology to Mesh into Environment and Community
 - Regulation – Complete Development of a Planning and Performance Assessment Methodology
 - Enforcement – Complete Development of a Performance Methodology
 - Bonding – Established for Insurance to Ensure Site Rehabilitation
 - Performance

Conclusions

- Advances in Science and Technology Make Uranium Mining and Milling Safer than it was 50 Years Ago.
- Claims That the Uranium Industry is Unsafe and will Cause Harm to the Environment and Human Health and Safety are Unfounded.
- Even the True Health Effects of the “Unregulated” Era of Uranium Mining are Exaggerated.

Health Effects Facts

U.S Department of Health and Human Services, Public Health Services, Agency for Toxic Substance and Disease Registry, *Toxicological Profile for Uranium*, 1999.

“No human cancer of any type has ever been seen as a result of exposure to natural or depleted uranium”.

Colorado Plateau Health Effects

Cancer and Noncancer Mortality in Populations Living Near Uranium and Vanadium Mining and Milling Operations in Montrose County, Colorado, 1950 -2000. Boice, JD, Mumma, MT et al. Journal of Radiation Research, 167:711-726; 2007:

“The absence of elevated mortality rates of cancer in Montrose County over a period of 51 years suggests that the historical milling and mining operations did not adversely affect the health of Montrose County residents”.

South Texas Health Effects

- *Cancer Mortality in a Texas County with Prior Uranium Mining and Milling Activities, 1950 – 2001*. Boice, JD, Mumma, M et al. *Journal of Radiological Protection*, 23:247 – 262; 2003 –
- **“No unusual patterns of cancer mortality could be seen in Karnes County over a period of 50 years suggesting that the uranium mining and milling operations had not increased cancer rates among residents”.**

In Closing

“It is the position of the Virginia Chapter of the Health Physics Society, an international radiation safety professional organization chartered in the 1950s, that uranium mining in the Commonwealth of Virginia can and should be pursued. “*Virginia Chapter Health Physics Society (August, 2010)*