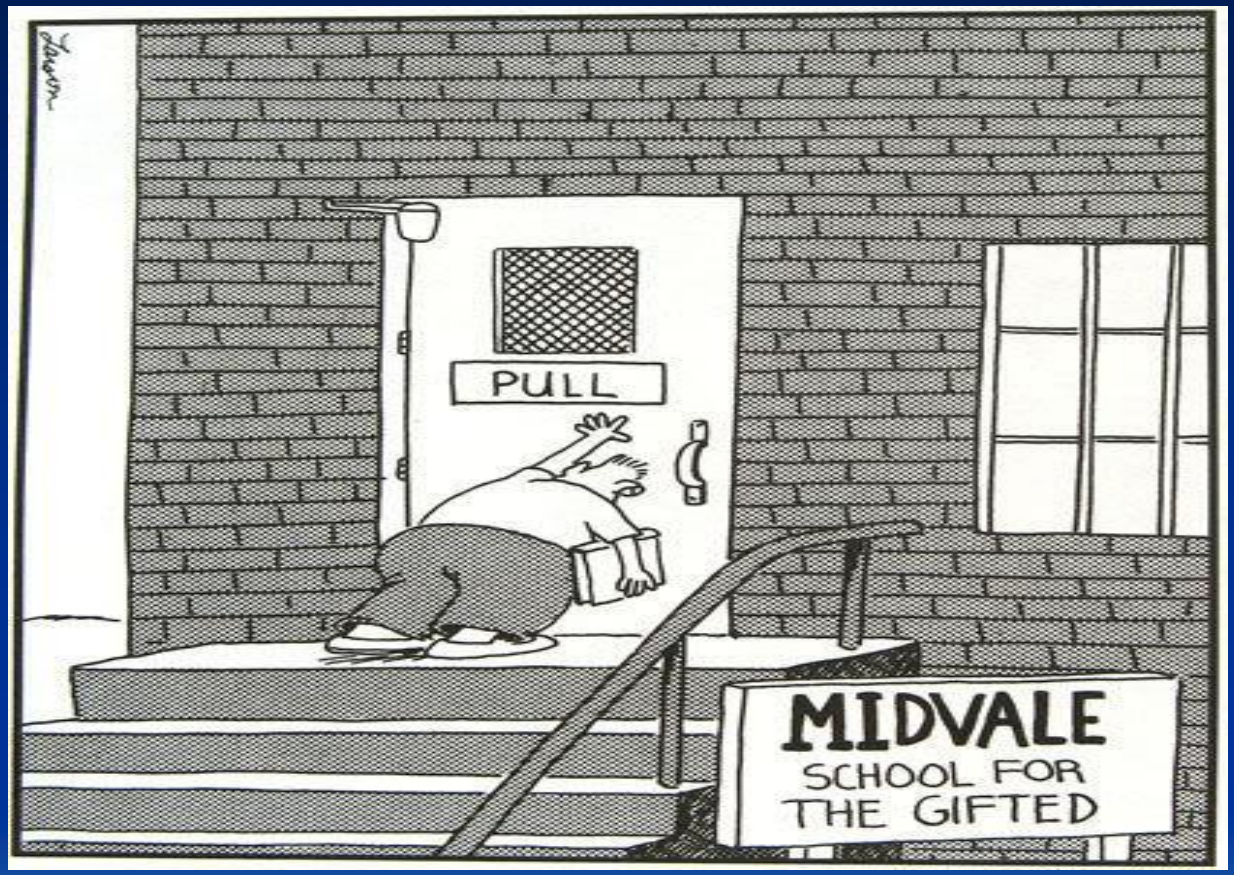
Mine Permitting Issues - From a Regulatory Perspective

Nevada Division of Environmental Protection
Bureau of Mining Regulation and Reclamation

Mine Design Operations & Closure Conference
May 8, 2013

Presentation Points

- Overview of NDEP Bureau of Mining Regulation and Reclamation
- Nevada Mining Regulations
- Industries Regulated
- Permitting; Project Bonding; & MOU
- Project Permitting Issues


PULL
MIDVALE
SCHOOL FOR
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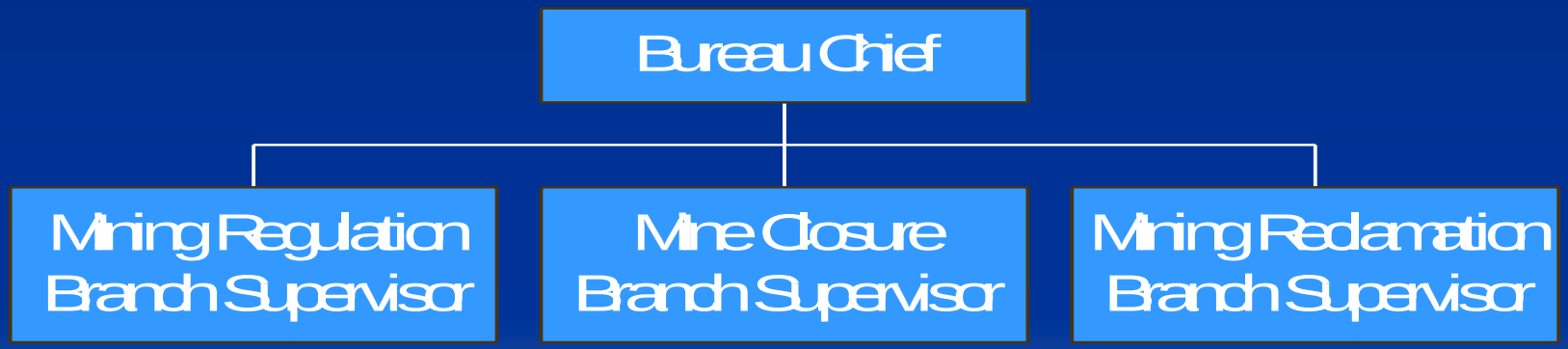
PERMITS – Multiple Federal, State and local Permits are required in Nevada before Mining or Milling can occur

Permit information provided in

"Special Publication L-6"

BMRR Branches

Regulation **Closure** **Reclamation**



Regulation & Closure Branch

Mission: Prevent degradation of waters of the State due to mining operations.

- NRS and NAC 445A
- Water Pollution Control Permits
- Zero Discharge for Process Solutions
- Degradation of Waters of the State Prohibited

Reclamation Branch

Mission: Ensure that mining operations and exploration projects are properly reclaimed to be safe and stable and provide a productive post-mining land use.

- NRS and NAC 519A
- Reclamation Permits
- Financial Assurance

Reclamation Permits

- Scope:
  - Both public and private lands
  - Mining operations – annual disturbance of 5 acres or more and removal of 36,500 tons
  - Exploration projects – annual disturbance of 5 acres or more
  - Locatable Minerals (CFR 3809 Defn.)

Permitting and Bonding

- Reclamation Plan - Plan of Operations
- NEPA - Federal Lands vs Private Lands
- Reclamation Permit not effective until Financial Assurance is in place
- Financial Assurance (Project Bond) – Reclamation Cost Estimate
  - Coordinated with Federal Land Management Agencies

Project Bonding

Issues:

- Standardized Reclamation Costs
  - SRCE for estimating costs
  - BMRR - Cost Data file annual update
- Process Fluid Stabilization Costs for Heap Leach Pads (HLDE); Tailings Impoundments; and Mine Impacted Waters
- Closure Costs for Process Components
- Phased Bonding Requests

Nevada Mining Financial Assurance

(in millions $, as of January 1 of each year)

	2007	2008	2009	2010	2011	2012	2013
Bonds	$210.6	$214.0	$328.2	$480	$998.9	$1,165.6	$1,444.4
Letters of Credit	$412.7	$618.1	$654.5	$545	$413.4	$489.8	$500.6
CD/Cash	$4.7	$9.3	$3.9	$6.2	$7.0	$11.7	$12.9
Corporate Guarantee	$187.3	$182.0	$179.7	$183.7	$183.0	$180.3	$194.3
USFS	$12.3	$12.5	$13.5	$13.3	$13.3	$16.0	$19.9
Bond Pool	$2.3	$2.7	$2.2	$2.2	$2.2	$2.2	$1.1
TOTAL	$829.9	$1,038.6	$1,182.0	$1,230.4	$1,617.8	$1,865.6	$2,173.2

Exploration Projects

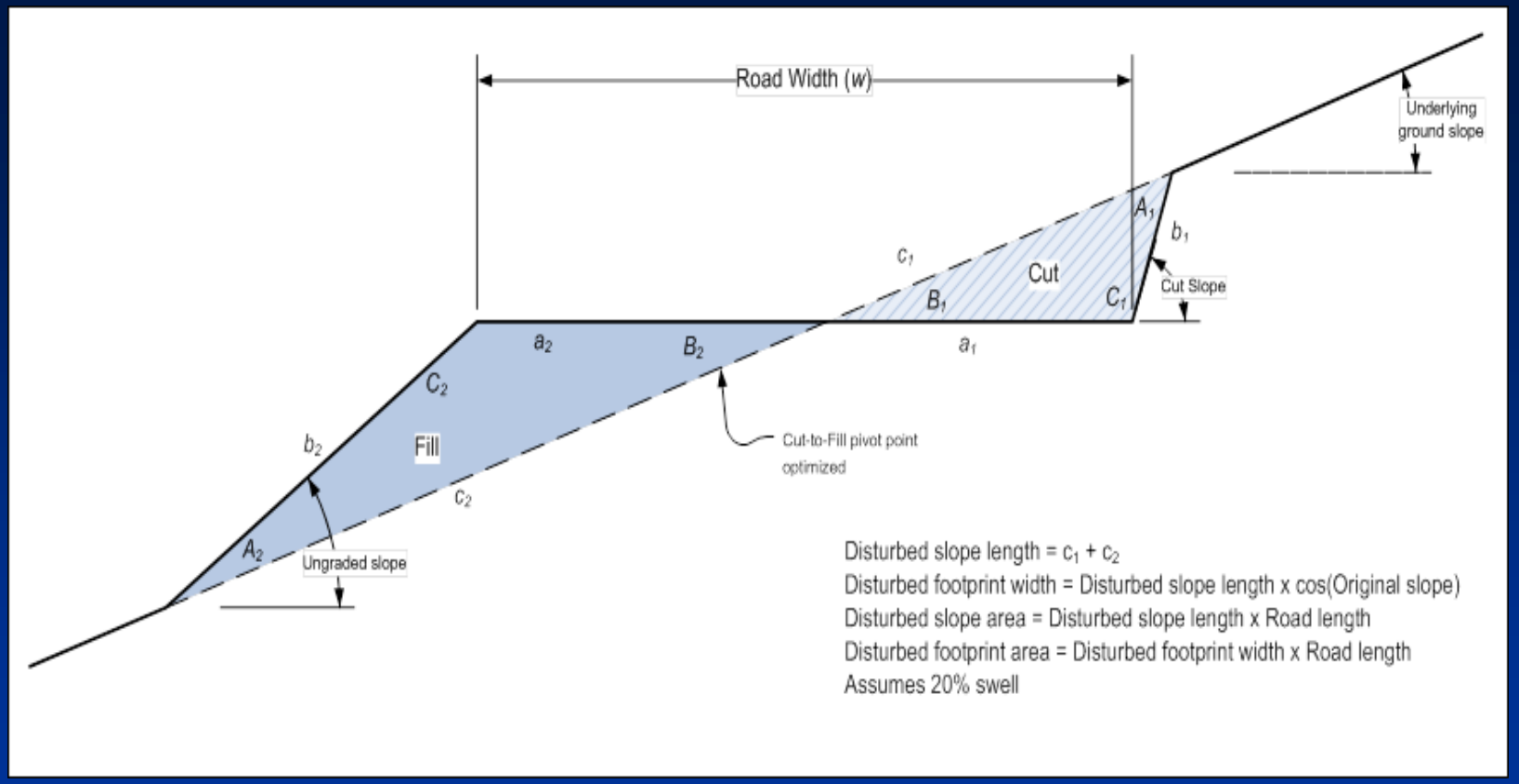
Issues:

- Proposed Disturbance vs. Actual Disturbance

  Authorized/Bonded acreage based on plan view rather than slope view

- Permit Reporting Requirement

  Annual “as-built” map of project disturbances



Exploration Road - 14 feet running width

At 5% Slope – disturbance width of 15 feet

At 15% Slope – disturbance width of 17 feet

At 25% Slope – disturbance width of 19 feet

Exploration Projects

Issues:

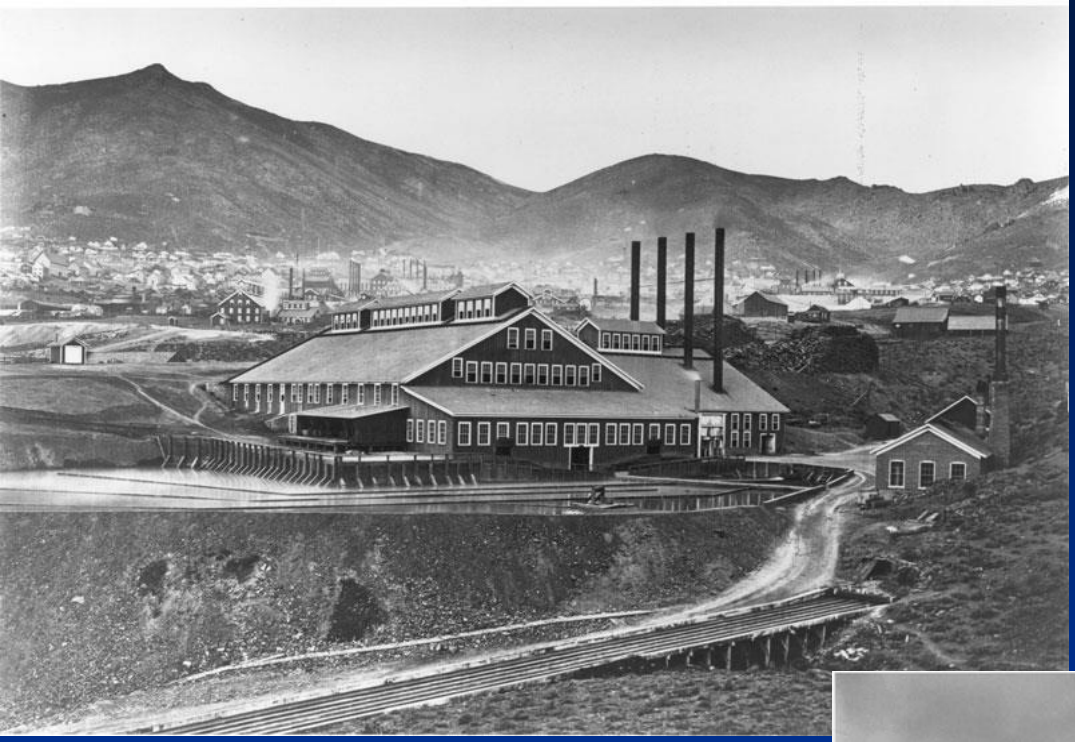
- Deep Drilling
- Permit Requirement: All drill hole cuttings, grout, and fluids shall be contained in sumps constructed at the drill sites
- Drill Pad Sumps – capacity to contain drilling fluids

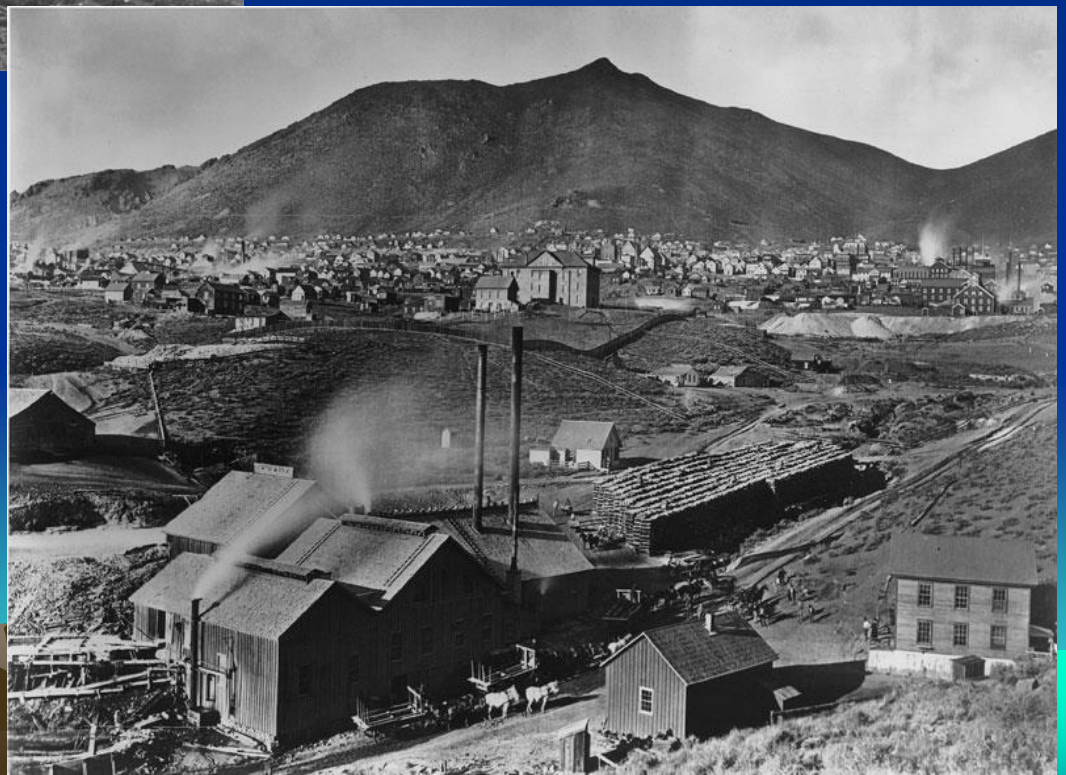
Project – Historic Mining District

Issues:

- Legacy Environmental Problems
- Land-Use Changes


Virginia City
Divide Reservoir
Gold Hill
© 2013 Google
1779 ft
Google earth





Issue:

Historic Mining District

- Mercury imported and used in Comstock mills to recover gold and silver.
- Mercury was lost to the environment during the process. Arsenic and Lead, which were associated with ore also released to the environment.
- The Contaminants of Concern (CoC's): mercury, arsenic and lead.

Historic Mining District

- Long Term Sampling and Response Plan (LTSRP) established to provide a clear sampling plan for proposed disturbance of soils within contaminated areas.
- Mitigation involves excavating and backfilling or covering contaminated soils in-place.


Image USDA Farm Service Agency
Image U.S. Geological Survey
913 ft
Google earth
Imagery Date: 6/14/2011
39°15'45.04" N 119°38'18.95" W elev 5091 ft
Eye alt 9197 ft

Issue:

Exploration Project in Historic Mining District

- Historical Mining District/Residential Area
- Proposed Exploration Project Boundary Included Portions of Superfund Areas
- All Private Land &/or Patented Claims
- LTSP Included as Permit Schedule of Compliance Item
- Permit Appealed by Residents Association Group

Mine Projects

Issues:

- Size and Extent
- Expansions
- Complexity

Project Permits Become Complex

Numerous Components/Facilities:

- Mill – Autoclave - Roasters

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- Mill – Autoclave - Roasters
- Heap Leach Pads – Process Solution Ponds – Waste Rock Storage/Disposal Facilities – Tailings Impoundments

Project Permits Become Complex

Numerous Components/Facilities:

- Mill – Autoclave - Roasters
- Heap Leach Pads – Process Solution Ponds – Waste Rock Storage/Disposal Facilities – Tailings Impoundments
- Project Expansions and Permit Modifications


2908 ft
© 2013 Google
Google earth
Imagery Date: 10/5/2012
40°45'08.65" N 116°12'06.95" W elev 5356 ft
Eye alt 17941 ft

Mine Projects

Issues from Regulatory Perspective:

- Fluid management, reduction, & stabilization
- Formation of MIW's from mine components
- Long term liabilities – trust funds
- "Conceptual" closure approach included in project bond - conservative

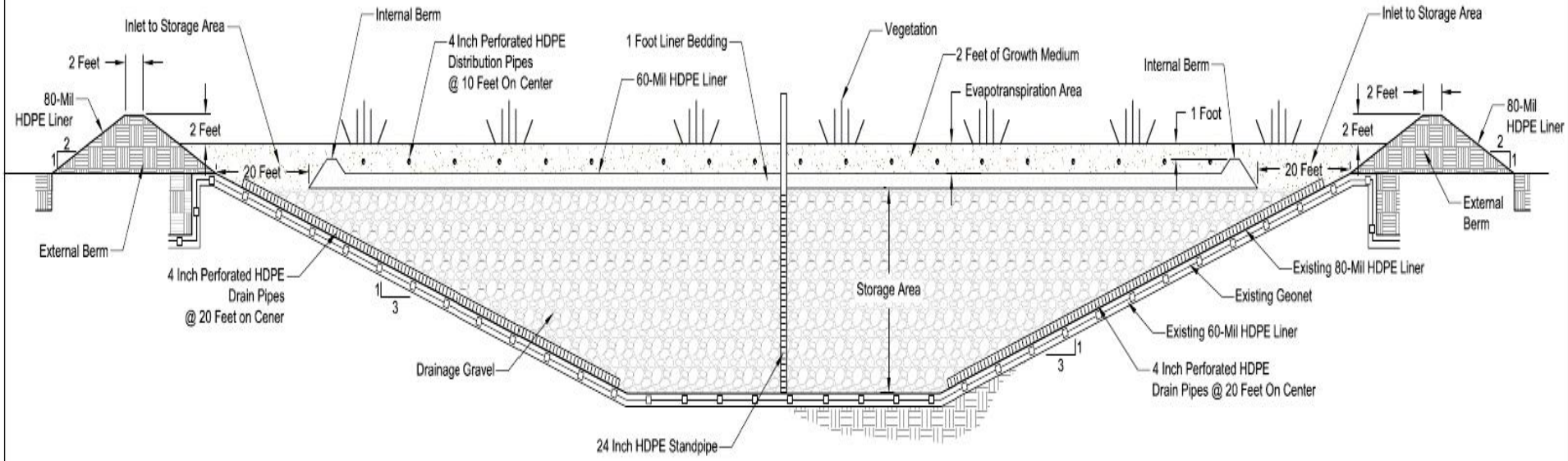
Mine Projects

Issues from Regulatory Perspective:

- “Walk-Away” closure – attainable?

TYPICAL EVAPOTRANSPIRATION CELL SECTION

N.T.S.



Mine Projects

Issues from Regulatory Perspective:

- Open Pits – Pit Lakes

Reclamation of Mine Pits

- Under current regulations (NAC 519A.250) Operator may request exemption to requirements for reclamation of open pits and rock faces which may not be feasible to reclaim.
- Exemption based on feasibility, technological, and economic considerations.
- Public safety must still be provided if exemption granted.

Pit Lakes in Nevada

- Currently there are approximately 30 significant pit lakes in Nevada
- Another 20 or so predicted to form in the future, 9 have been partially backfilled
- Only a few have required treatment
- Pit lake prediction and treatment methods continue to improve

How Do We Regulate Pit Lakes?

- NAC 445A.429 - Bodies of water which are a result of mine pits penetrating the water table must not create an impoundment which:
  - Has the potential to degrade groundwaters of the State; or
  - Has the potential to affect adversely the health of human, terrestrial or avian life.

Pit Lake Water Quality

- Every pit lake is different
- Evaluation based on:

  Hydrology, geochemistry, rock characterization, pit lake modeling, water balance, risk assessment
- Most pits in Nevada have adequate neutralizing capability, therefore pit lake water is relatively good

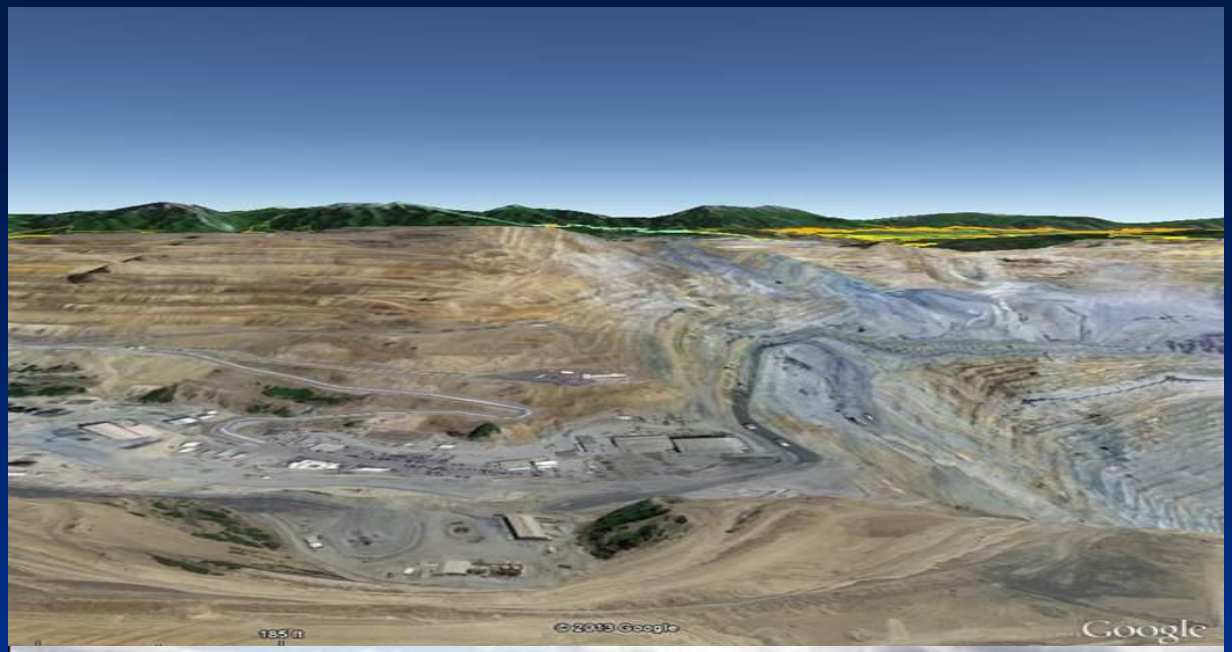
What if There is a Problem?

- Prevention
  - Reevaluate
  - Awareness of liability, avoidance
- Mitigation
  - Partial backfill, amendment, accelerated fill, wall treatment
- Remediation
  - Neutralization, water treatment

Pending Legislation

- AB 346

  Plan for Reclamation must provide for reclamation of pit lake if predicted filled surface area will be 200 acres; and if feasible, provide for at least one point of public nonmotorized access to the water level when pit lake reaches 90 percent of its predicted capacity.



2010

Apr 2013

Mine Project

Issues:

- Post-Mining Land Use

Examples of Acceptable Post-Mining Land Uses

- Future Mineral Exploration and Development
- Cattle Grazing
- Wildlife Habitat
- Recreation
- Industrial site/ business park

Mine Projects

Issues:

- Post-Mining Land Use: Housing Subdivision
  - All Private Land
  - This land use proposed early 2000's

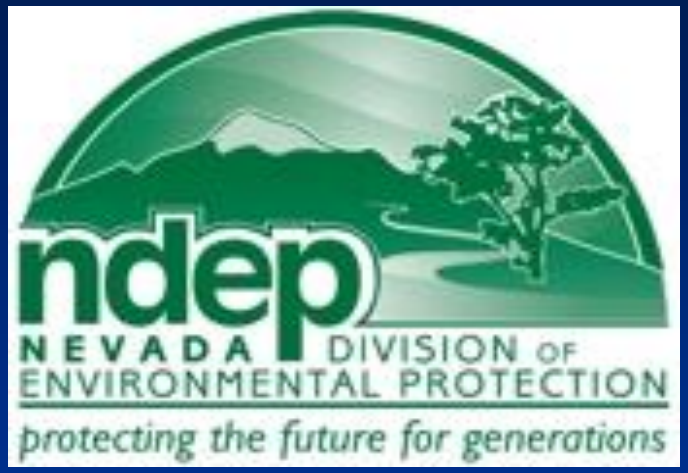

Calico Basin
Blue Diamond
Image © 2013 DigitalGlobe
© 2013 Google
2.16 mi
Google earth


Image © 2013 DigitalGlobe
1714 ft
Google earth


Image © 2013 DigitalGlobe
1622 ft
Google earth
Imagery Date: 6/21/2012
36°03'39.34" N 115°24'43.27" W elev 3625 ft
Eye alt 11800 ft

Issue:

- Significant public opposition
- Limited site activity over past 10 years
- Mine plan approved 2002
- Activities on private land; no federal land management agency involvement
- Additional approvals/permits required for proposed land use



QUESTIONS?

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