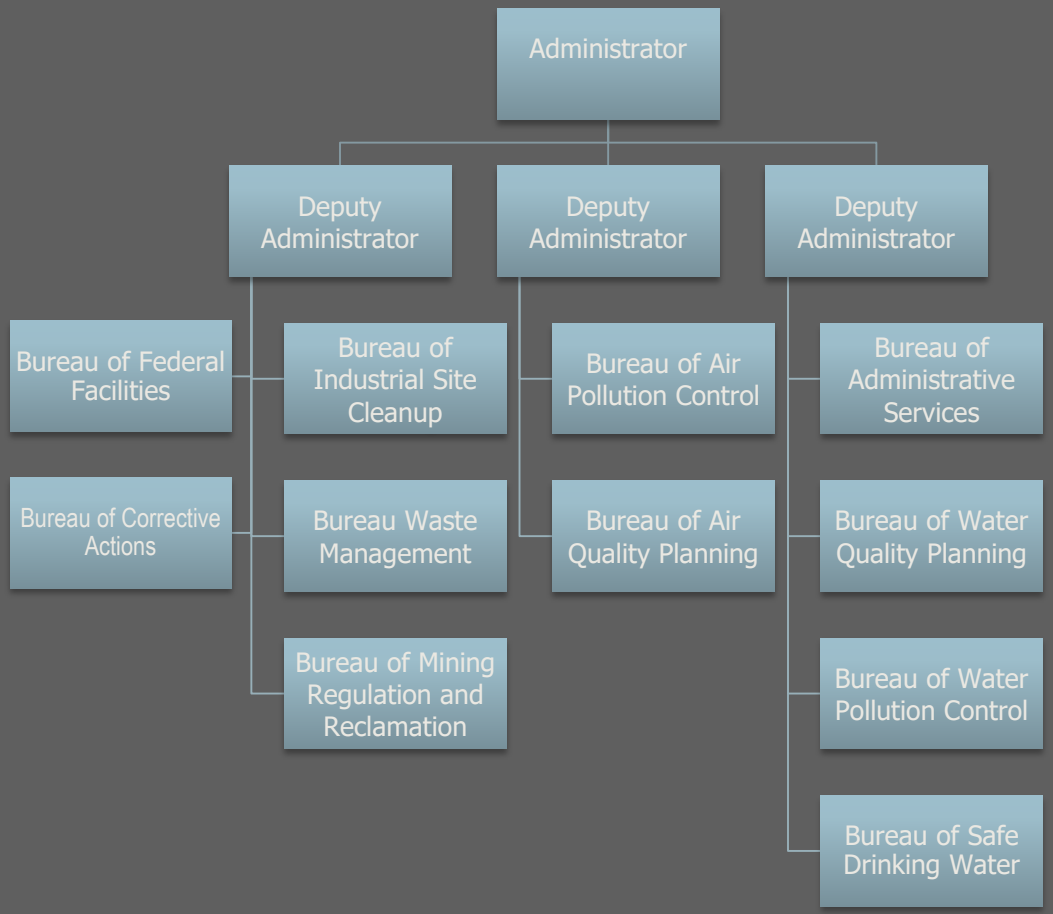
Nevada Department of Conservation and Natural Resources
Nevada Division of Environmental Protection
Bureau of Mining Regulation and Reclamation

NDEP

Protect public health, protect the environment and promote a vibrant economy

Nevada Division of Environmental Protection



The Division includes

10 Environmental Bureaus and 1 Administrative Bureau

Our Mission:

BMRR was created in 1989 with three specialized regulatory branches entirely funded with permit fees

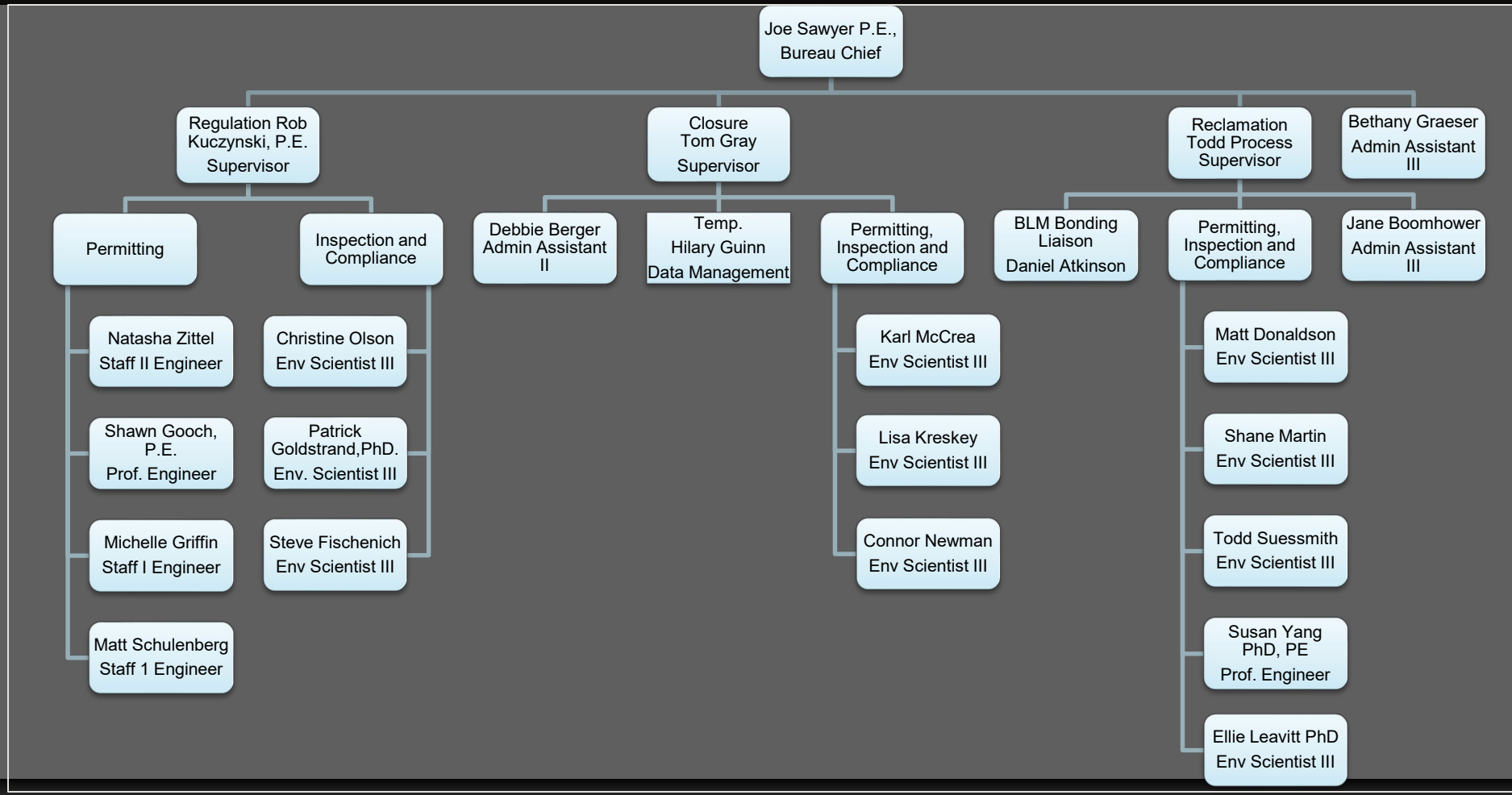
Regulation Branch – Provides protection of “waters of the State” enforcing water pollution control regulations at mining facilities

Reclamation Branch – Ensure land disturbed by mining operations are reclaimed to safe and stable conditions to promote a productive post-mining land use includes a bonding program

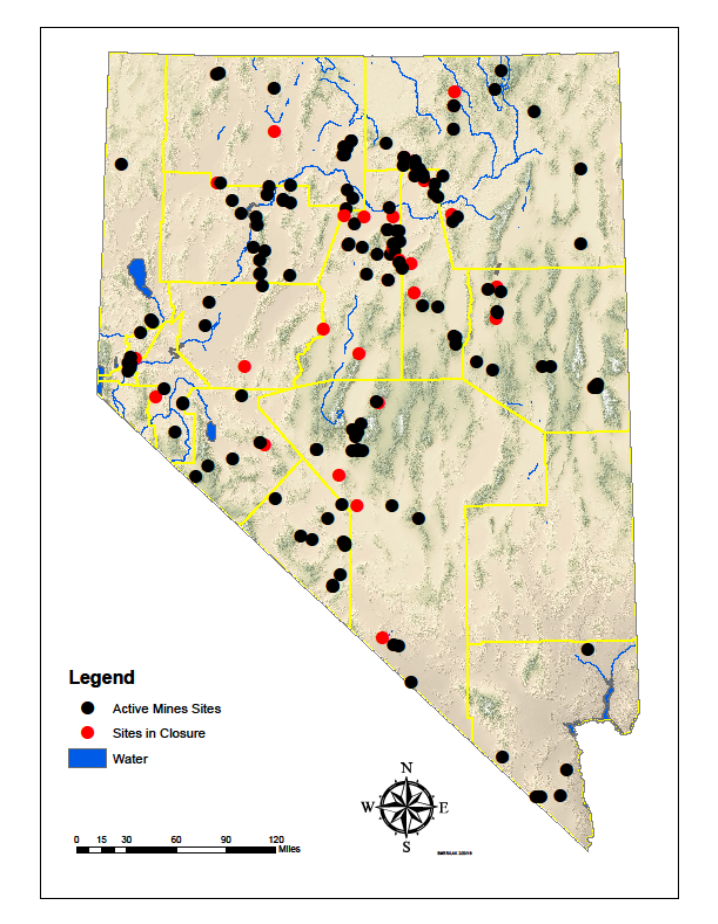
Closure Branch – Ensure that all components are left chemically stable for the long term

Organization Chart:

BMRR three branches Regulation, Reclamation and Closure



Multiple Federal, State, and Local Permits required in Nevada before Mining or Milling can occur



BMRR Permitted Facilities and Exploration Projects

- 261 Reclamation Projects
- 92 Operating Mines
- 38 Mines Not Yet Built
- 23 Mines in Temporary Closure
- 34 Mines in Closure

Regulation Branch

- Prevent degradation of the waters of the State due to mining

- Administer mining regulations and State water pollution control law, by Issuing Water Pollution Control Permits

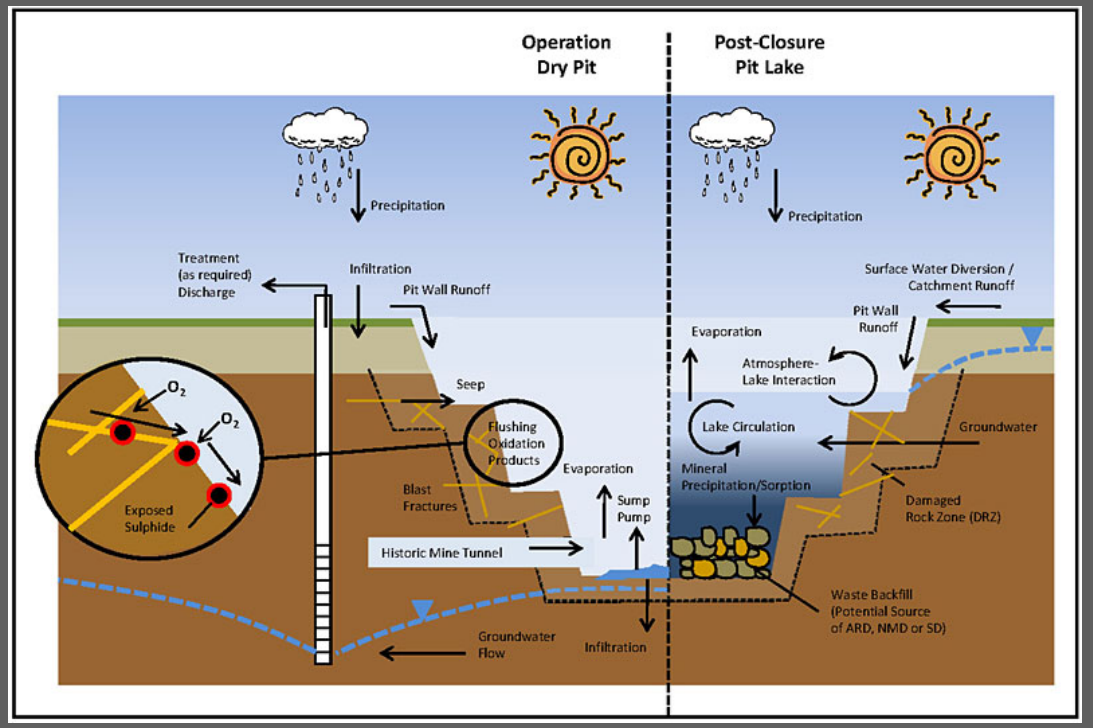
- Govern the Site Characterization, Design, Construction, and Operation, of mining facilities in the State of Nevada

Mining Regulated Activities

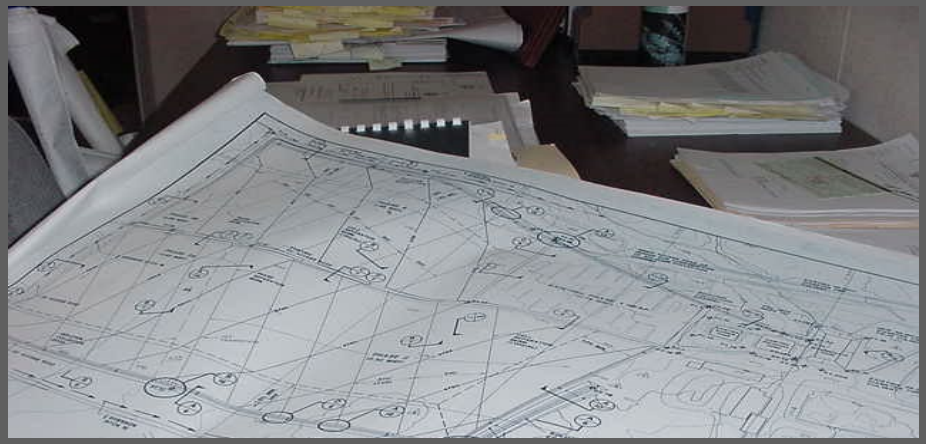
- Any mining or processing activity that has the potential to degrade waters of the State.
- Includes both public and private lands.
- Includes all mines in the state except for industrial minerals such as Sand and gravel, clay, slate, and gypsum

Site Characterization

- Before permitting begins the site must be characterized
- Potential to create acid and mobilize contaminants due to mining evaluated
- Complete geologic and hydrologic studies to predict future groundwater impacts to direct facility design and closure plans



Facility Design



- Zero discharge requirement for all process fluids during operations
- Process fluid containment
- Minimum design standards

- Must contain 25 year 24 hour storm event
- Designed by professional engineers
- Approval prior to construction

Construction

Quality control and quality assurance built to approved design

Operations Compliance and Enforcement

- Facility Monitoring and Reporting
- Quarterly Inspections
- Enforcement for non-compliance

Reclamation Branch

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

- Issue Reclamation Permits
- Oversee Financial Assurance

261 Active Reclamation Permits (Exploration Projects and Operating Facilities)

Acceptable Post-Mining Land Use

- Wildlife Habitat
- Cattle Grazing
- Recreation
- Industrial Site/Business Park
- Future Mineral Exploration and Development
- Renewable Energy Creation and Storage

Financial Assurance Project Bond

- Standardized Reclamation Cost Estimator (SRCE)
  - Third Party costs
  - Cost Data file annual update
- Process Fluid Stabilization Costs
  - Heap Leach Pads; Tailings Impoundments; and Mine Impacted Waters
- Closure Costs for Process Components

Nevada Financial Assurance

In Millions of Dollars

	2011	2012	2013	2014	2015	2016	2017
Bonds	$998.9	$1,165.6	$1,444.4	$1,680.7	$1,844.6	$2,075.0	$2,070.5
Letters of Credit	$413.4	$489.8	$500.6	$434.9	$405.8	$375.9	$395.1
CD/Cash	$7.0	$11.7	$12.9	$10.8	$38.8	$37.6	$33.2
Corp Guarantee	$183.0	$180.3	$194.3	$198.5	$181.6	$144.0	$140.9
USFS	$13.3	$16.0	$19.9	$22.0	$21.7	$21.8	$21.9
Bond Pool	$2.2	$2.2	$1.1	$0.7	$1.0	$1.05	$1.4
TOTAL	$1,617.8	$1,865.6	$2,173.2	$2,347.6	$2,493.5	$2,655.4	$2,662.9

At beginning of Year

Coordination with Federal Land Managers

- MOU with BLM and USFS
- Concurrent Agency Review
- Approval from all Agencies Required

Closure Branch

"Waters of the state" are not degraded and components are left chemically stable for the long term.

Challenges for Final Closure

- Long-term active and/or passive treatment
- Process solution draindown/disposal
- Pit lake water quality
- Acid rock drainage
- Groundwater contamination
- Long-term funding mechanism may be required

Preferred Closure Practice

Inhibit the migration of precipitation through closed facility components

- Install engineered soil and or synthetic covers
- Maintain the zero discharge condition for the long term
- Utilize ponds and then ultimately Evaporation Cells to capture draindown over the long term

Site Closure Monitoring

- Regular site inspections
- Quarterly monitoring and reporting (monitoring well data, component draindown volumes and quality)
- Annual monitoring reports

Overall Program Trends

- Increasing focus on mine closure early on
- Robust modeling for pit lakes and groundwater
- Heap leach facility draindown and cover performance
- Rock characterization and waste rock management plans
- Process fluid stabilization
- Improving access to information and automated data reporting
- New technologies drone sampling, data gathering

Questions:

Nevada Division of Environmental Protection: www.ndep.nv.gov
Bureau of Mining Regulation and Reclamation: www.ndep.nv.gov/land/mining

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