



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**



Nevada Department of
**CONSERVATION &
NATURAL RESOURCES**

NDEP Mining Regulation and Reclamation

Mining Oversight and Accountability Commission

January 25, 2022

Presented by:

Greg Lovato, Administrator, NDEP

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

OUR MISSION



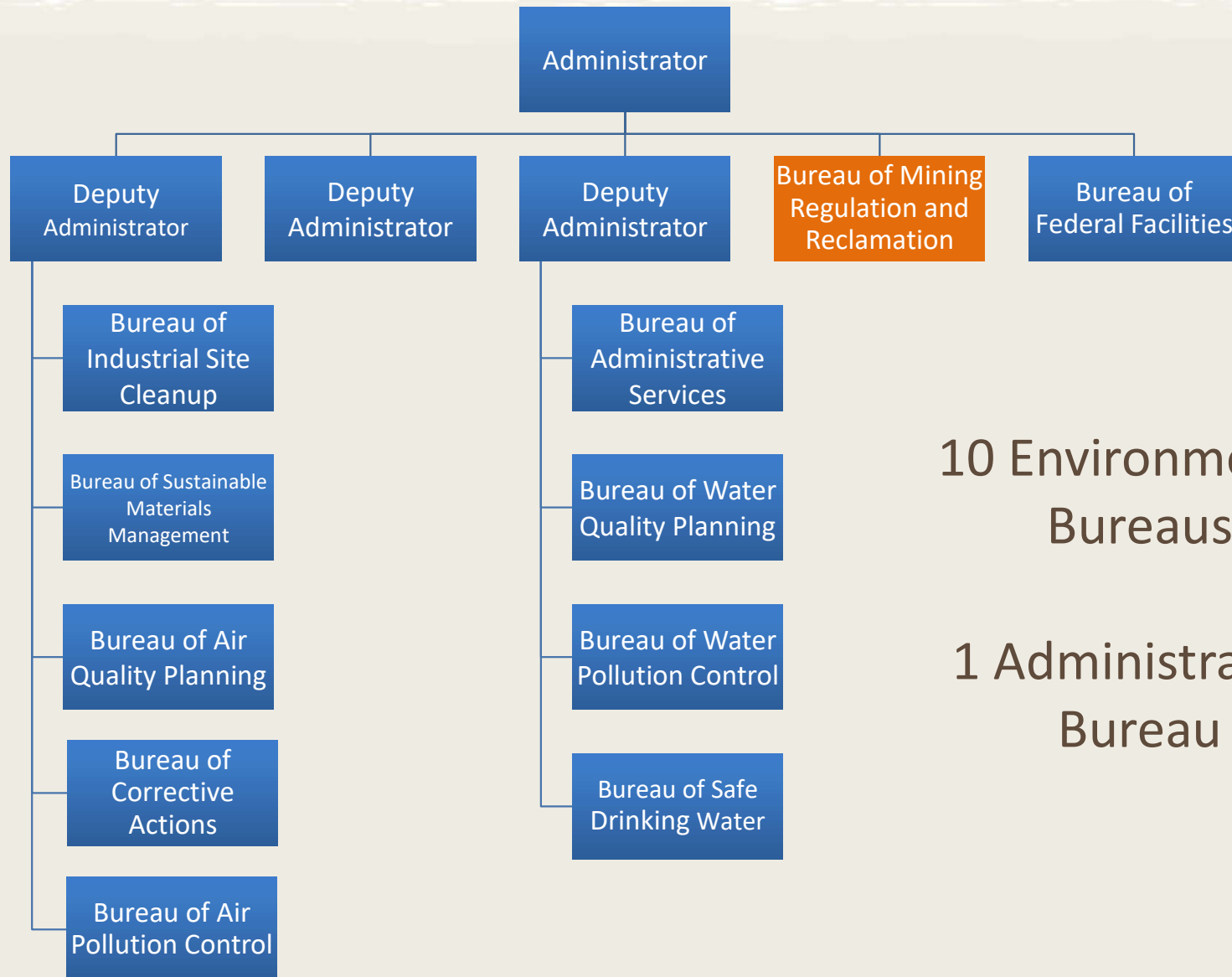
NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

To preserve and enhance the environment of the State in order to protect public health, sustain healthy ecosystems, and contribute to a vibrant economy



NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

ORGANIZATIONAL STRUCTURE



10 Environmental Bureaus

1 Administrative Bureau



BUREAU OF MINING REGULATION AND RECLAMATION

The Basics:



Created in 1989



Entirely Funded by Mining Permit Fees

Cradle-to-Grave Program



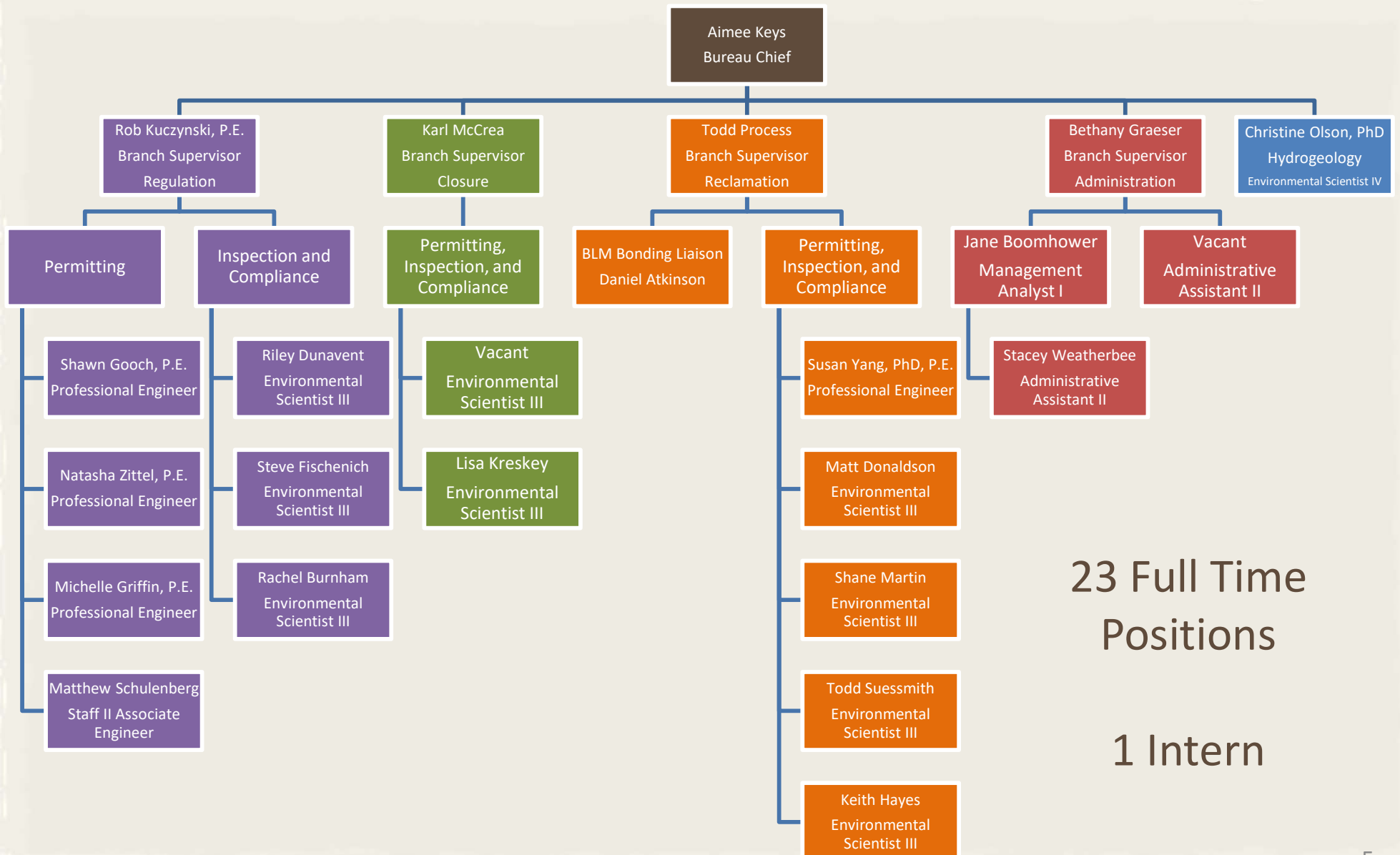
Three Specialized Branches:



- Regulation – Ensures Protection of Waters of the State
- Reclamation – Ensures Mines are Reclaimed to a Productive Post-Mining Land Use
- Closure – Ensures Mines are Chemically Stabilized

BUREAU OF MINING REGULATION AND RECLAMATION

ORGANIZATIONAL STRUCTURE



23 Full Time
Positions

1 Intern

PERMITS REQUIRED



NEVADA BUREAU OF MINES AND GEOLOGY
Special Publication L-6
STATE AND FEDERAL PERMITS REQUIRED IN NEVADA
BEFORE MINING OR MILLING CAN BEGIN

Compiled by Lucia M. Patterson, Nevada Division of Minerals
Last Updated June 2018
Last Revised May 2009

This is a list of State and Federal permits and actions required during planning, development, construction, and before operation of Nevada mines and mills. We hope it will help both individuals and companies through the complex, often confusing regulatory maze - please understand that not all of these permits are necessarily required for all operations.

Remember that in addition to State and Federal permits, County and City permits may be required. We have attempted to include a general description of County and City permits necessary. As these may vary, it is suggested you contact the local County Planning commission for specific requirements.

This list will be revised periodically, however, the user should be aware that there may be additional, new, or revised regulations issued after this list was compiled. We welcome any additions and/or corrections, as well as any suggestions on how to improve this list. For more information about permitting, contact: Nevada Division of Minerals, 400 W. King Street, Suite 106, Carson City, Nevada 89703, (775) 684-7040 or e-mail to mvisher@minerals.nv.gov.

STATE REQUIREMENTS

COMMISSION ON MINERAL RESOURCES, DIVISION OF MINERALS

MINE REGISTRY FORMS

Agency to contact Nevada Division of Minerals (<http://minerals.nv.gov>)
Carson City Office: 400 W. King St., Suite 106, Carson City, NV 89703
Phone: (775) 684-7040, Fax: (775) 684-7052
Las Vegas Office: 2030 E. Flamingo Rd., Suite 220, Las Vegas, NV 89119
Phone: (702) 486-4343, Fax: (702) 486-4345

When Required Within 30 days after a mine operation begins

Required Action Operators shall submit a completed form for registration

Legal Authority NRS 513.063 and 513.073

Administrative Authority..... NAC 513.100

ANNUAL STATUS AND PRODUCTION REPORT

Agency to Contact..... Nevada Division of Minerals (<http://minerals.nv.gov>)
Carson City Office: 400 W. King St., Suite 106, Carson City, NV 89703
Phone: (775) 684-7040, Fax: (775) 684-7052
Las Vegas Office: 2030 E. Flamingo Rd., Suite 220, Las Vegas, NV 89119
Phone: (702) 486-4343, Fax: (702) 486-4345

When Required On or before April 15 of each year

Required Action Operators shall submit a report relating to the annual status and production of the mine for the preceding calendar year

Legal Authority NRS 513.063 and 513.073

Administrative Authority..... NAC 513.120

FEES FOR ABATEMENT OF HAZARDOUS CONDITIONS AT ABANDONED MINES

Agency to Contact..... Nevada Division of Minerals (<http://minerals.nv.gov>)
Carson City Office: 400 W. King St., Suite 106, Carson City, NV 89703
Phone: (775) 684-7040, Fax: (775) 684-7052

When Required Within 30 days after approval of a Federal plan of operation or amended plan of operation

Required Action Operator to provide Division of Minerals copy of filing of plan of operation or amended plan of operation; fee; refunds; use of money collected; Division to file report with Governor and Legislature.

Multiple Federal, State, and Local Permits are Required in Nevada before Mining or Milling Can Begin

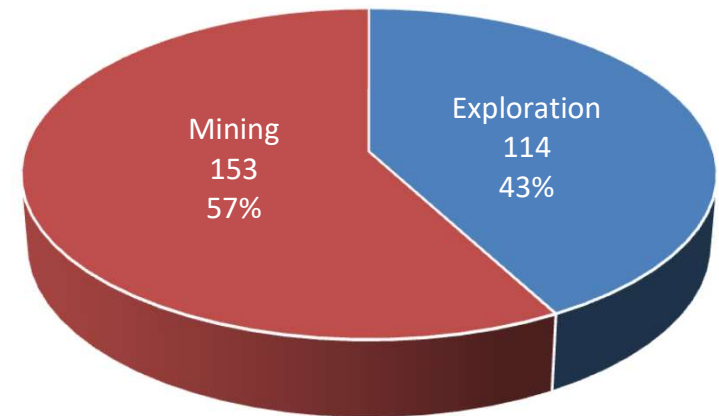


Special Publication L-6
Published by the Nevada
Bureau of Mines and
Geology

BMRR PERMITTED FACILITIES AND EXPLORATION PROJECTS

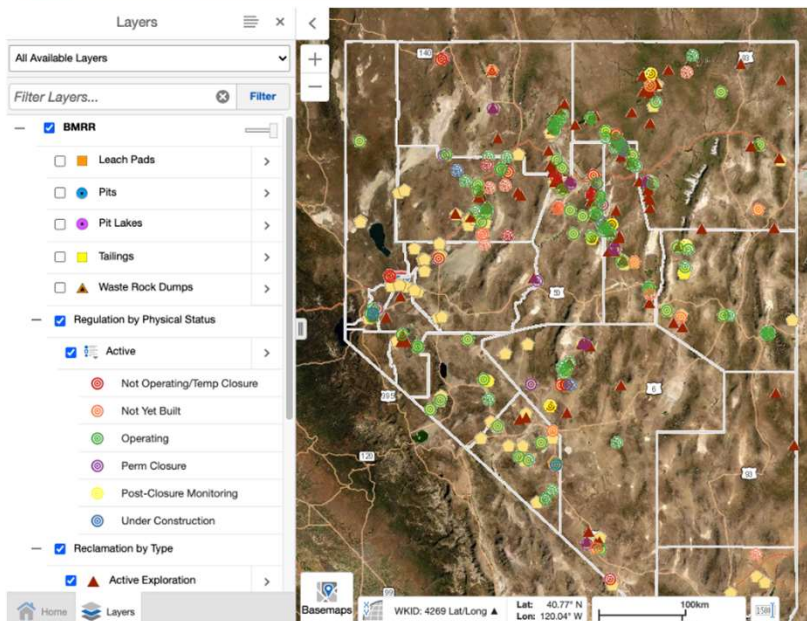
267 Reclamation Permits
173 Water Pollution Control Permits
98 Operating Mines
17 Mines in Temporary Closure
31 Mines in Permanent Closure
27 Mining Projects Not Yet Built

Reclamation Permits

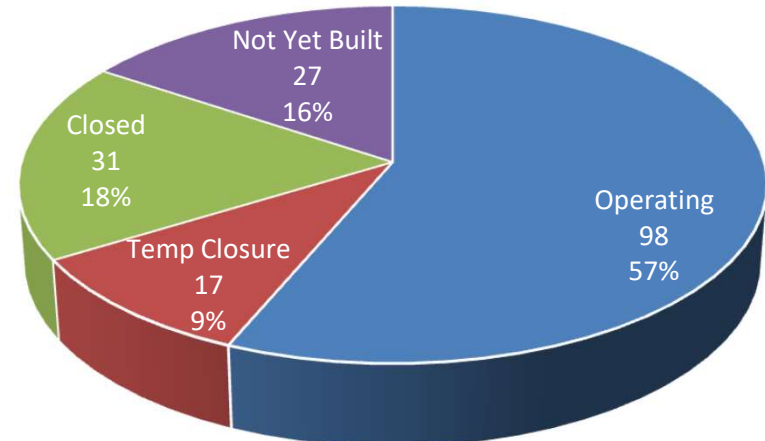


Interactive Online Map

<http://webgis.ndep.nv.gov/>



Water Pollution Control Permits



NDEP MINING PROGRAM

PRE-REGULATION (BEFORE 1989) VS. POST REGULATION (1990 ONWARD)

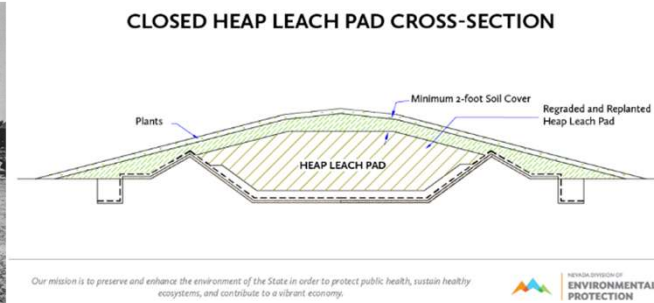
3 part NDCNR blog series from February 2021



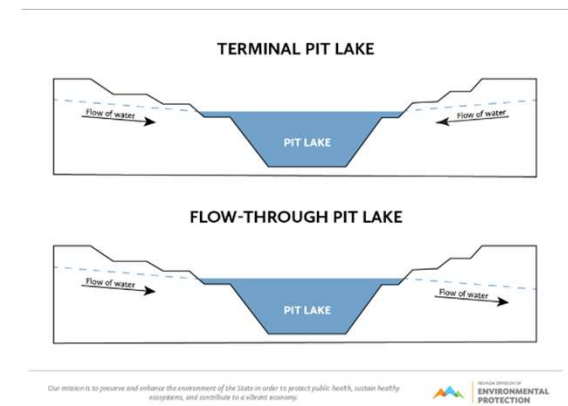
Part 1 - How Past Mining Practices Led to Today's Permitting Rules in Nevada

Part 2 - It's Our Duty to Protect Nevada's Water. So How Do We Protect Nevada's Water's at Modern Mines?

Part 3 - Pit Lakes are Tricky to Manage: 4 Tools We Use to Preserve Water Quality



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REGULATION BRANCH

PREVENT DEGRADATION OF WATERS OF THE STATE

Administer Water Pollution Control Law and Mining Regulations through issuance of Water Pollution Control Permits

Any Mining or Processing Activity that has Potential to Degrade Waters of the State



Public and Private Lands



Industrial Minerals (Sand, Gravel, Clay, Slate, Gypsum) Exempt

Govern Site Characterization, Facility Design, Construction, and Operation



REGULATION BRANCH

SITE CHARACTERIZATION

The Proposed Mine Site Must be Characterized Prior to Permitting

“Assessment of Area of Review”

Hydrogeological and Lithological Conditions



Surface Waters & Meteorological Report



Representative Samples of Overburden, Ore, and Waste
Evaluated for Potential to Generate Acid and Mobilize
Contaminants

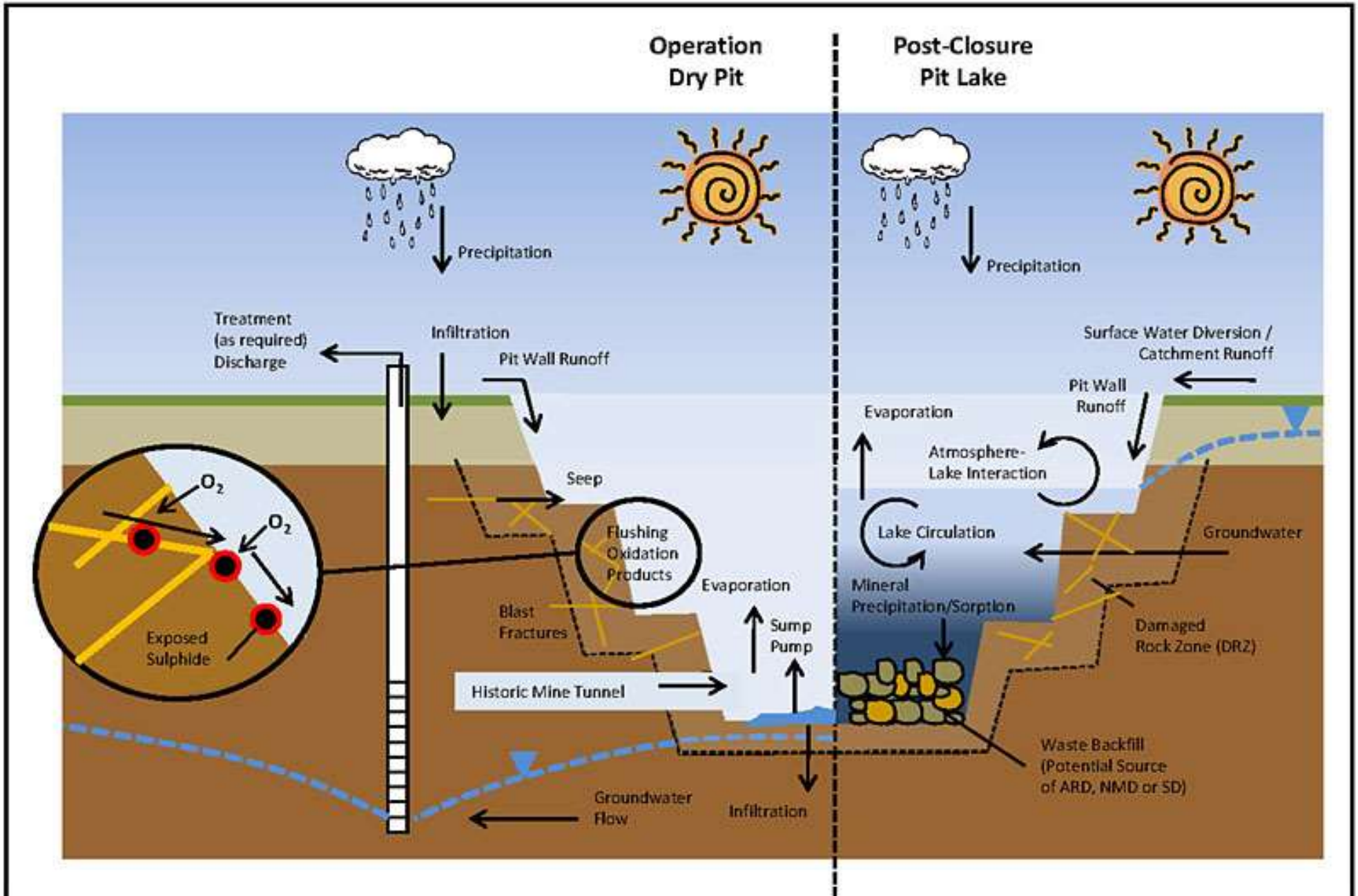


Geologic and Hydrologic Studies Predict Groundwater Impacts

Site Characterization and Predictive Studies Direct Facility Design and Closure Plans

REGULATION BRANCH

SITE CHARACTERIZATION – PIT LAKES



REGULATION BRANCH

FACILITY DESIGN

Process Fluid Containment

Zero Discharge Requirement for all Process Fluids During Operations

Minimum Design Requirements

Liners



Leach Pads

Ponds



Vats, Tanks, etc.

Tailings Impoundments



Stormwater Controls

Secondary Containment

Leak Detection



**Designed by Licensed Professional Engineer
Approved Prior to Construction**

REGULATION BRANCH

FACILITY CONSTRUCTION

Quality Control and Quality Assurance
Verify Built to Approved Design



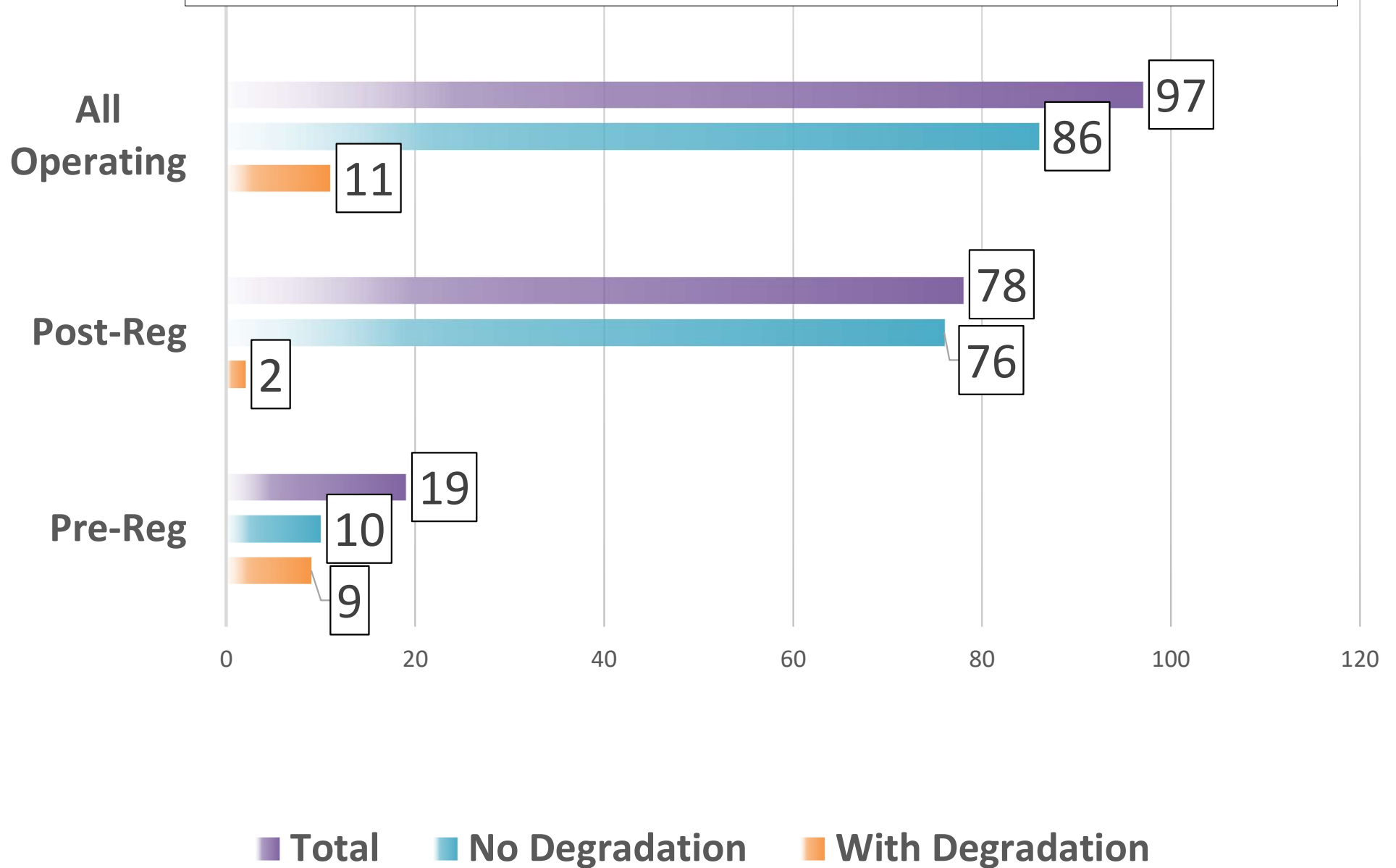
REGULATION BRANCH

OPERATIONS – COMPLIANCE AND ENFORCEMENT

Facility Monitoring and Reporting
Quarterly Inspections
Enforcement for Noncompliance

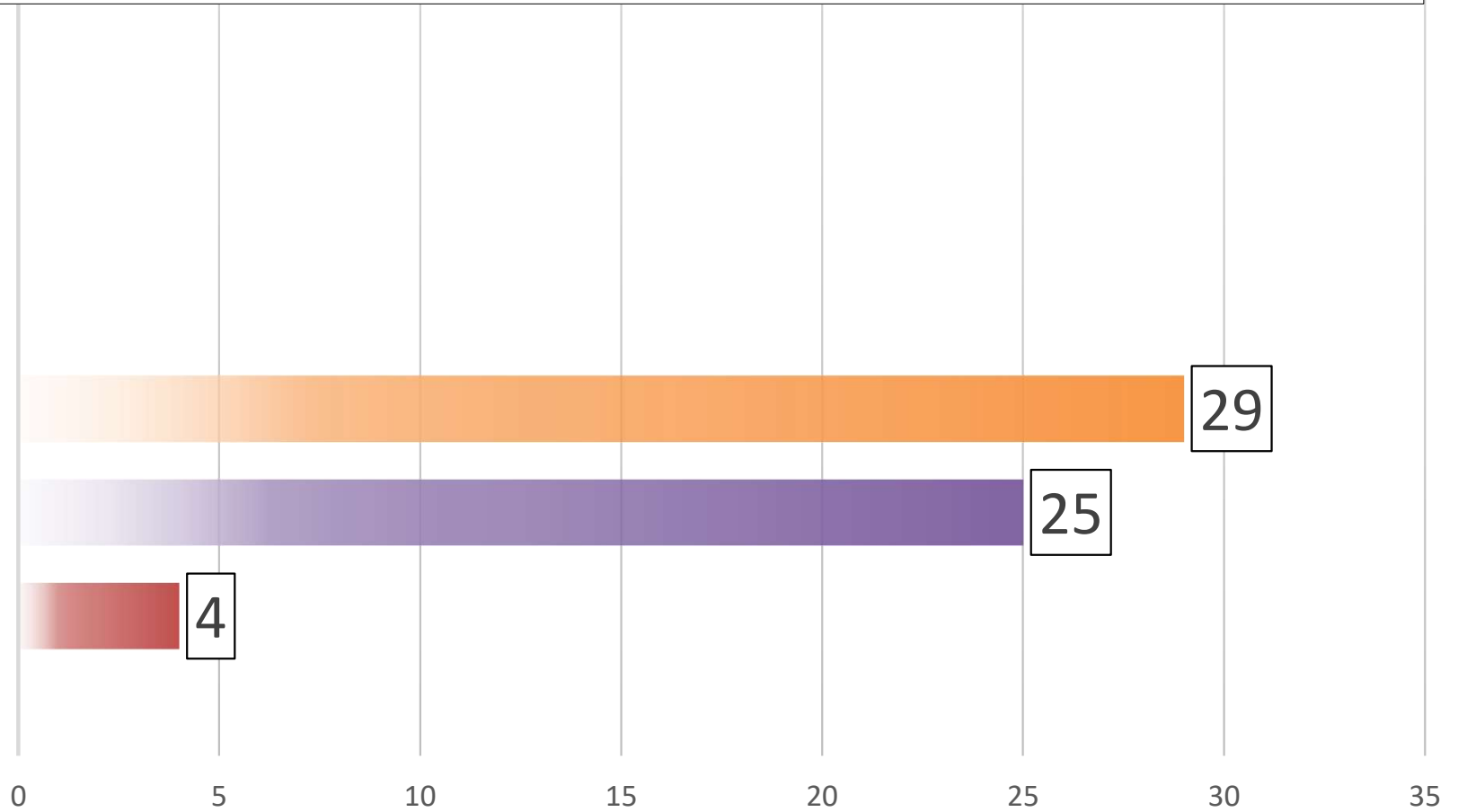


REGULATION HAS REDUCED WATER QUALITY DEGRADATION AT OPERATING NV MINES



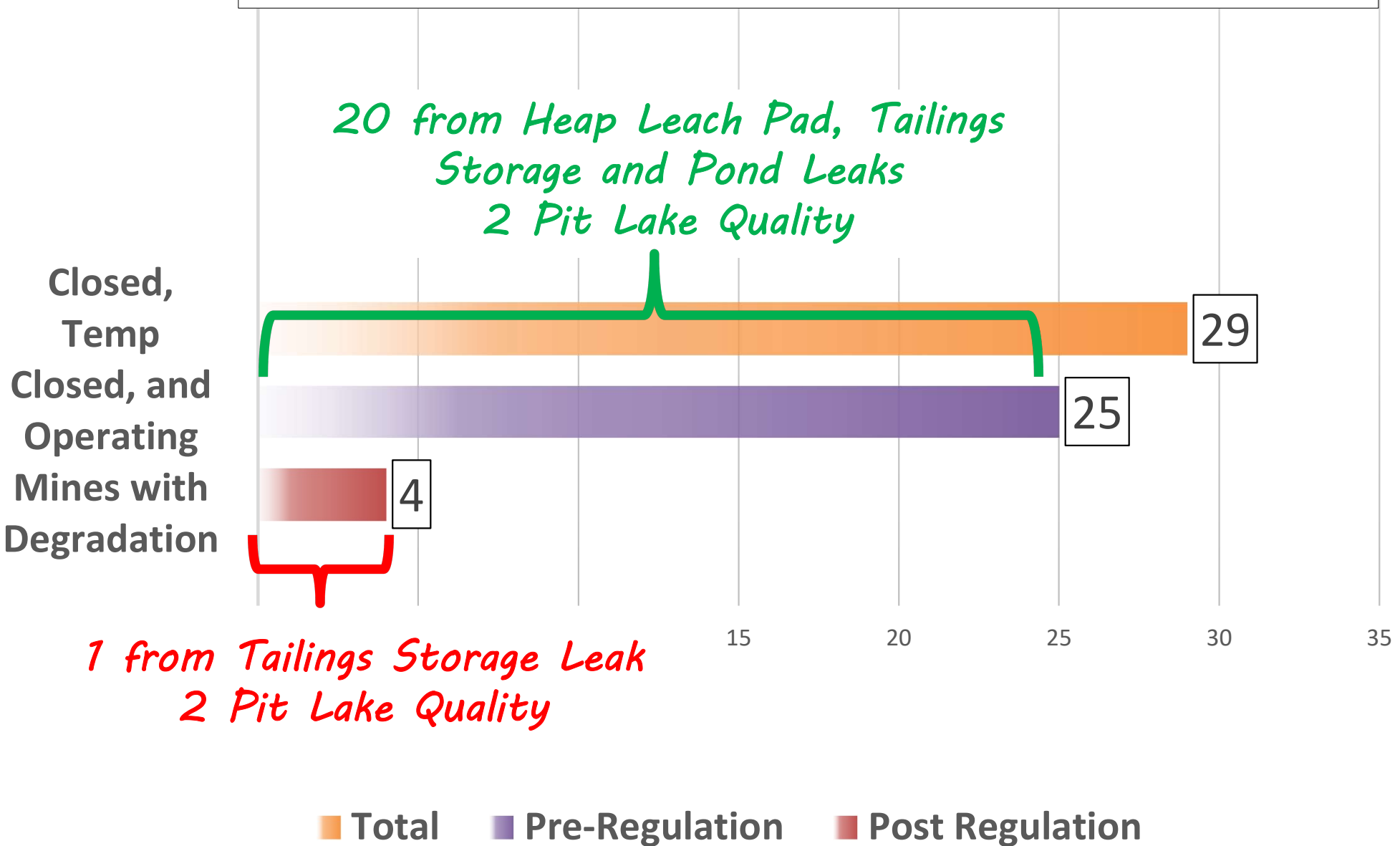
REGULATION HAS REDUCED WATER QUALITY DEGRADATION AT NV MINES

Closed,
Temp
Closed, and
Operating
Mines with
Degradation



■ Total ■ Pre-Regulation ■ Post Regulation

REGULATION HAS REDUCED WATER QUALITY DEGRADATION AT NV MINES



RECLAMATION BRANCH

RECLAMATION OF MINING OPERATIONS AND EXPLORATION PROJECTS

Administer Reclamation Law and Regulations Through Issuance of Reclamation Permits and Establishment of Financial Surety

Mining Operations and Exploration Projects are Reclaimed
Safe and Stable
Provide for a Productive Post-Mining Land Use

Acceptable Post-Mining Land Uses



Wildlife Habitat

Cattle Grazing



Recreation

Industrial Site/Business Park



Future Mineral Exploration and Development

Renewable Energy Creation and Storage



RECLAMATION BRANCH

FINANCIAL ASSURANCE / PROJECT BOND

Standardized Reclamation Cost Estimator (SRCE)

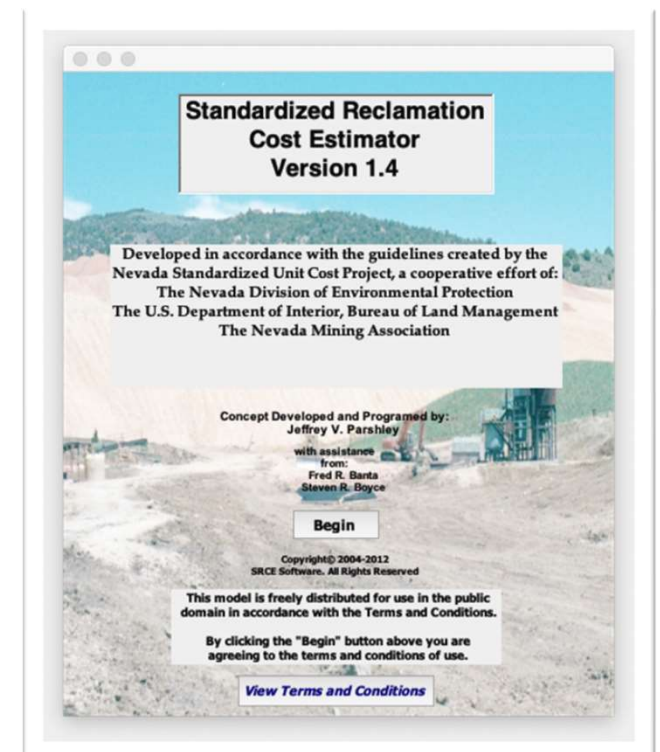
- \$ Third-party Costs
- Cost Data File Annual Update

Surface Reclamation (Regrading Stabilization, Vegetation)

- Waste Rock Dumps
- Heap Leach Pads
- Roads
- Tailings
- Pits and Underground Openings

Process Fluid Stabilization

- Heap Leach Pads
- Tailings Impoundments
- Mine-Impacted Waters



RECLAMATION BRANCH

NEVADA FINANCIAL ASSURANCE (MILLIONS OF DOLLARS)

	2005	2010	2015	2019	2020	2021
Bonds	\$248.0	\$480.0	\$1,844.6	\$2,291.5	\$2,699.3	\$2,793.7
Letters of Credit	\$254.0	\$545.0	\$405.8	\$663.1	\$358.9	\$331.3
CD/Cash	\$4.0	\$6.2	\$38.8	\$36.5	\$45.3	\$50.7
Corp Guarantee	\$204.0	\$183.7	\$181.6	\$140.9	\$13.3	\$8.0
USFS	\$10.0	\$13.3	\$21.7	\$22.3	\$22.5	\$24.4
Bond Pool	\$1.0	\$2.2	\$1.0	\$1.2	\$1.2	\$0.8
TOTAL	\$721.0	\$1,230.4	\$2,493.5	\$3,155.6	\$3,140.6	\$3,437.6

COORDINATION WITH FEDERAL LAND MANAGERS

Memorandum of Understanding with BLM and USFS



Collaboration is Key

Share Information

Coordinate Concurrent Agency Review

Copy Agencies on Decisions

Send Updates

Approval from all Agencies Required



CLOSURE BRANCH

PROTECTION OF WOTS; LONG-TERM CHEMICAL STABILITY

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 mechanisms if necessary



Increased Focus on Up-Front Closure Planning

Conceptual closure plan must support the initial reclamation
plan/cost estimate

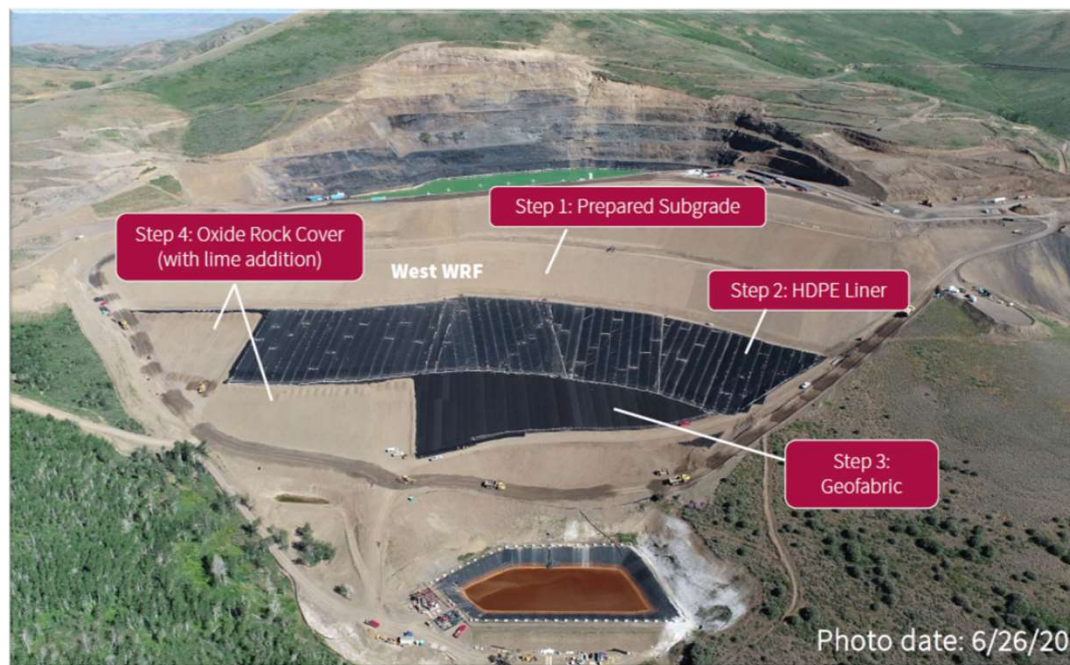


CLOSURE BRANCH

PROTECTION OF WOTS; LONG-TERM CHEMICAL STABILITY

Preferred Closure Practices

1. Inhibit migration of precipitation through closed components
2. Install engineered soil and/or synthetic covers
3. Passively capture draindown over the long term (Evaporation cells)
4. Zero discharge condition for the long term



CLOSURE BRANCH

SITE CLOSURE MONITORING



Progress Toward Physical and Chemical Stability



Regular Site Inspections

Quarterly Monitoring and Reporting



Monitoring Wells

Draindown



Annual summary

Revision to Final Closure Plan if Necessary



CLOSURE BRANCH

PROGRAM TRENDS

Increased Focus on Up-Front Closure Planning

Conceptual closure plan must support the reclamation plan/cost estimate



Initial Site Characterization



Heap Leach Facility Draindown and Cover Performance



Long-term Trusts for Mine-Impacted Water



Improved Access to Information

Scientific Advancements

Drone sampling, isotope analysis, evaporative mineral precipitates, collaboration, predictive modeling

QUESTIONS?

Nevada Division of Environmental Protection:

<http://ndep.nv.gov>

Bureau of Mining Regulation and Reclamation:

<http://ndep.nv.gov/land/mining>

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