

Technical Review Comments
Tyrone Mine Closure/Closeout Plan
New Mexico Mining and Minerals Division
Public Hearing
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On behalf of
Gila Resources Information Project (GRIP)



Overview

- Presenter background
- 1993 New Mexico Mining Act
- History of Tyrone Mine Closure/Closeout Plan
- Objectives of GRIP Technical Involvement
- Recommendations on current Closure/Closeout Plan and Financial Assurance
- Recommendations on updating Closure/Closeout Plan and Financial Assurance
- Recommendations to address impacts to local residents
- Initiative for Responsible Mining Assurance (IRMA)

Presenter background

- Miner, Mineral Process Engineer
- 25 years independent consultant
 - Primary clients NGOs, Tribes and First Nations, federal, state and local government.
- Expertise includes Tailings Storage Facilities, Reclamation and Closure, Water Management and Treatment, Financial Assurance.
- Involvement in New Mexico since 1998.

1993 New Mexico Mining Act

As per MMD:

The purposes of the Mining Act of 1993 include “promoting responsible utilization and reclamation of lands affected by exploration, mining or the extraction of minerals that are vital to the welfare of New Mexico.” The act establishes requirements for a broad range of “hard rock” mines to obtain permits, meet certain standards, develop an approved reclamation plan, and post financial assurance to support the reclamation plan.

Reclamation and Closure Plan = Closure/Closeout Plan

Definition of Financial Assurance

- Financial assurance is the basic concept that a company or corporation affecting public lands or resources (e.g. hardrock mining) must provide funding to ensure mitigation or remediation of any adverse impacts from those activities.
- The amount of financial assurance is based on the responsible government entities costs to hire and manage a third-party contractor.

Financial Assurance Cost Estimation

Cost estimation is the process of assessing the amount of funds required to perform the necessary tasks for mine reclamation and closure.

- Considerations
 - *Adequacy of site specific characterization*
 - *Current mine reclamation and closure plan*
 - *Project schedule or timeframe, including “worst case cost assumptions”*
 - *Cost estimation methodology*
 - *Professional Judgement vs First Principle Engineering Cost Estimate*

History of Tyrone Mine CCP and Financial Assurance

- 1993 – NM Mining Act
- 2001 – CCP first submitted and initial FA established
- 2007 – Updated CCP and FA submitted, not approved
- 2013 – Updated CCP and FA submitted, not approved
- 2015 – Updated CCP and FA submitted, not approved
- Jul 2019 – Updated FA submitted to MMD
- Aug 2019 to Present – Negotiation of Net Present Value and Finalization of Financial Assurance Instruments
- Aug 2020 – MMD Public Meeting

Objectives of GRIP Technical Involvement

- Provide technical expertise in financial assurance cost estimation.
- Expedite establishment of a current CCP and financial assurance.
- Return to performing regular CCP and financial assurance updates at least every five years.
- Identify areas of question or uncertainty in the current financial assurance and make recommendations to address in next update of CCP.
- Identify areas that need to be addressed in policy, regulation or practice to ensure future CCP and financial assurance are kept current and reflect best practice.

Current CCP and FA Comments

- The current CCP provides the required level of detailed technical information.
- The direct cost estimates are based on standard and accepted professional engineering methods for the costs of subcontracting the tasks described in the CCP to a third party.
- The indirect cost estimates are based on a compromise that uses a percentage of direct costs.
 - 30% for reclamation
 - 22.5% for long-term monitoring, maintenance and operations

Current CCP and FA Recommendations

Long-Term Costs

- Proposed method reduces some monitoring, maintenance and operating costs over the 100-year estimate period.
 - No actual basis for reducing costs
 - Method not consistent with that used in other estimates for long-term costs
 - Actual reductions are hypothetical – may or may not actually occur, or occur sooner or later
- Recommendation: Ongoing costs should not be reduced in long-term costs estimates unless it can be clearly justified. When reduction in costs is proven or accepted, proponent can submit new estimate and reduce FA at that time.

Next CCP and FA Update Recommendations

- Timing of current and next submittal
- Update of mining and reclamation plans
- Address proposed use of post-mining discharge water
- Stormwater design standards
- Address duration and net present value of financial assurance estimate
- Form of financial assurance

Timing of current and next submittal

- The 2019 CCP update represents the mine plan during years 2012-2017.
- Tyrone suggests the mine plans have been evaluated and represent the maximum area of disturbance through 2022.
- The intent is for the updates to represent the upcoming five years, thus the 2019 update should have been based on a new forward looking mine plan for 2019-2024.
- Tyrone Mines and the Agencies should consider updating the Tyrone Mine CCP and Financial Assurance estimate for the Tyrone Mine in 2022, for a mine plan through 2027, and potentially through 2032 based on present mine development plans. This would accomplish several aspects including most importantly updating the necessary CCP and FA to accommodate future mine expansion in a timely manner.

Proposed Use of Water Discharge

- Water to be treated and discharged is valued commodity and options need to be considered with regard to disposition.
- Quantity will vary over time but approximately 1,000 gpm (1,611 acre-feet per year)
- Equal to approximately 60% of Silver City water usage
- Options include:
 - Aquifer recharge
 - Municipal use
 - Agricultural use
 - Other beneficial use

Stream and Stormwater Diversion Standards

- Anthropogenic climate change has resulted in previous storm event estimates used in operation and closure designs to be highly inadequate.
- In New Mexico, storms exceeding the predicted 100-year storm event criteria have recently occurred on a common basis.
- Some states, such Montana, have recognized the importance of addressing climate change. The DOWL (2016) Montana Dam Safety Program, Montana Department of Natural Resources and Conservation, Extreme Storm Working Group Summary Report is one example.

Duration and Net Present Value of financial assurance estimate

Duration/Term

- The CCP uses a concept of 100 years for planning and financial assurance purposes.
- Actual requirements are predicted to continue for an indefinite period beyond 100 years.
- Recommendation: BLM has recently used 500-yr long-term estimates for financial assurance purposes to represent indefinite costs and to establish what is essentially a perpetual trust fund.

Duration and Net Present Value of financial assurance estimate

Net Present Value

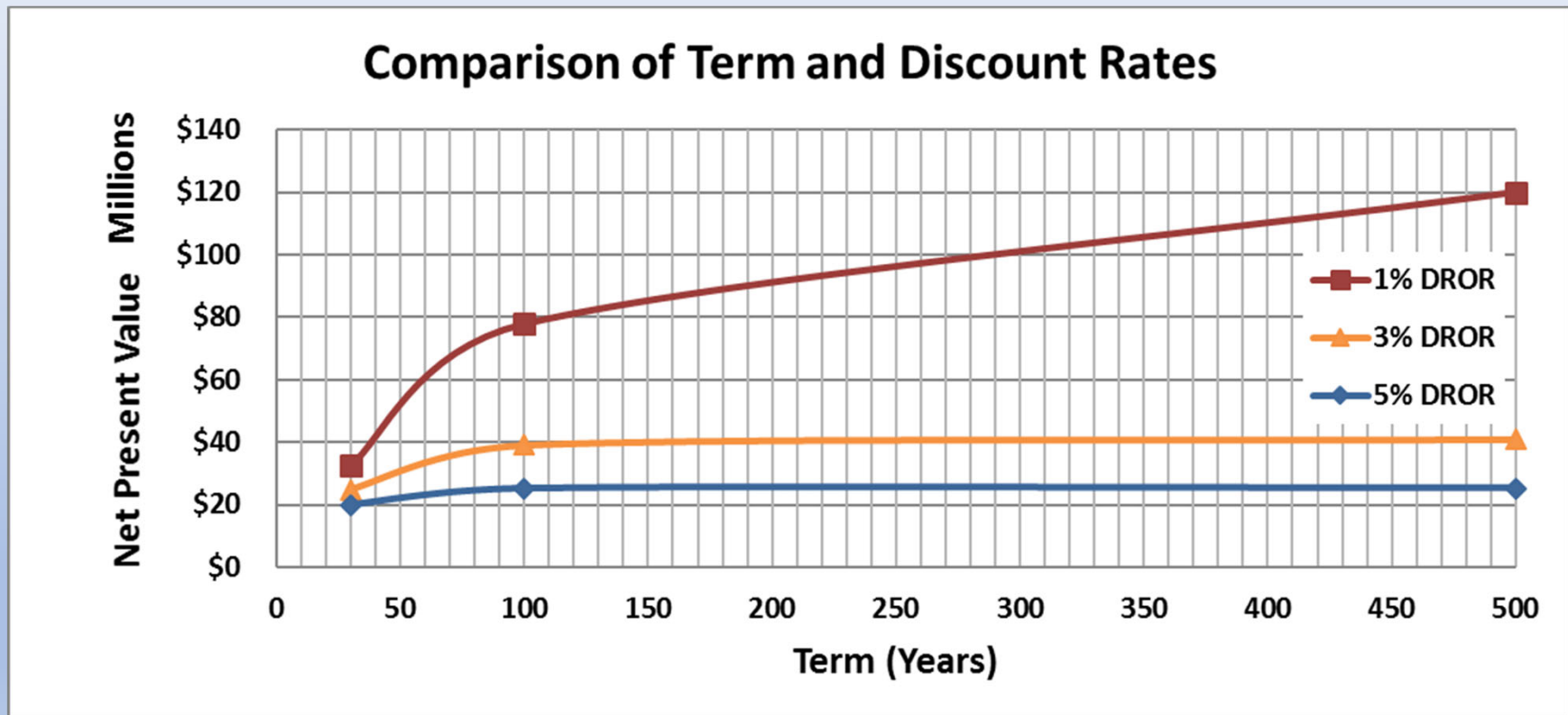
- Interest, inflation and discount rates are used to predict the *future* cost of a project in current dollars by determining a net present value
 - Predict future rates of inflation affecting costs
 - Predict future rates of interest on invested financial assurance funds deposited
 - Predict overall (e.g. discount rate)

Discount rate = Interest Rate – Inflation Rate

- Interest and inflation rates are difficult to predict and even the best sources have been known to fail

Therefore, best to take a conservative approach!

Term and Discount Rate impact on financial assurance estimate



Form of Financial Assurance

Financial Assurance Instruments

1. Cash or Equivalent Forms
 - *Irrevocable Letters of Credit*
 - *Certificates of Deposit*
 - *Savings Accounts*
 - *Government Bonds*
 - *Trust Funds*
 - *Deeds for Property*
2. Surety Bonds and Insurance
3. Collateral (Property)
4. Corporate Self-Guarantees

Forms of Acceptable Financial Assurance for State and Federal Agencies

Financial Assurance Form	US BLM	US EPA	US FS	Alaska	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	Oregon	South Dakota	Utah	Washington	Wyoming
Forms of Cash	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Surety Bonds	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Corporate Guarantees		√			√					√	√			√		√
Discretionary						√	√		√							
Other				√						√	√					

Form of Financial Assurance

Recommendations:

- Ensure funds for long-term costs are in cash form convertible to a trust fund.
- Phase out corporate self-guarantees and collateral guarantees over time.

Impacts to Local Residents

Concerns include:

- loss of property value
- water and air quality impacts
- property damage from blasting and subsidence
- nuisance dust
- odors
- noise
- vibrations
- lights
- traffic

In sum, a mine next door can significantly impact residents in terms of their environment, property values and quality of life.

Impacts to Local Residents

- State and federal regulations address air and water quality together with post-mining land use
- State and federal regulations do not contain specific requirements requiring the mining company via the regulatory process to address property value, property damage from blasting and subsidence, nuisance dust, odors, noise, vibrations, lights and traffic.
- Options to local residents
 - Oppose mine expansion
 - Enlist city/county assistance to address mine expansion
 - Seek mitigation from company as individuals or organization



Initiative for Responsible
Mining Assurance

IRMA's approach to responsible mining is to certify social and environmental performance at mine sites globally using an internationally recognized standard that has been developed in consultation with a wide range of stakeholders.

The IRMA Standard recognizes different performance levels, and certification is awarded to mines meeting relevant best practice requirements.

Members of IRMA include industry, NGOs, labor.

<https://responsiblemining.net/>