Introduction to Financial Assurance

ORCR
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**Relationship between the EIS/EIA Process and FA**

- The EIA/EIS should include a draft mine operations plan and a preliminary mine reclamation and closure plan.
- Those plans are the basis for the first cost estimate of a proposed mine reclamation and closure.
- The initial cost estimate for FA should be based on these documents.
- It is common for the mine operations plan and reclamation and closure plan used of the EIA/EIS process to undergo significant changes prior to the actual opening of a mine.
Regulatory Compliance Standards and FA

• Mine operations plans and reclamation and closure plans are developed to assure compliance with specific regulatory standards.

• For example, waste water discharges from copper mines must meet federal Clean Water Act discharge standards in addition to state standards.

• If there is a lack of numeric standards, a mine may develop its operations and closure plans relying on international or corporate best management practices.

• Lack of specific environmental standards leads to uncertainty of how a mine operates and closes. This can lead to underestimation of FA.
When Does Reclamation/Closure Begin?

- Reclamation/closure plans should be submitted before mining begins. These plans should be updated every 3-5 years.
- What constitutes a complete mine operations plan and a reclamation and closure plan should be noted in regulation (or in guidance)
- Reclamation should be encouraged to be integrated into day to day operations.
- Plans should be reviewed and approved by the government.
How to Define Financial Assurance

- Regulations should be clear on what environmental standards must be met for the government to determine that closure is complete.
- The term “Financial assurance” should be defined in regulation.
- It is assumed that the amount of FA required by the government should cover all the costs of completing an approved reclamation and closure plan by an independent third party.
How to Calculate the FA Amount

• Once an reclamation and closure plan has been approved, the cost of closure must be calculated using government approved procedures.
• Cost estimation should address assumed inflation rates, rates of return, contingencies, and labor rates.
• If FA is being established to cover costs many years into the future, a net present value procedure should be required. This will allow the government to request an amount now so that funds may be available in the future.
Assumptions and Methodology

- Reclamation by contractor
- Worst Case Scenario Conditions
- The applicant has provided the reclamation cost
- The bond is based on compliance with the approved mining and reclamation plan
5 Major Steps for Estimating Bond Amount

- Determine the Maximum Bond Requirements
- Estimate Direct Reclamation Costs
- Determine Inflation
- Estimate Indirect Reclamation Costs
- Calculate the Total Bond Amounts
Determine the Worst Case Scenario

• Largest Disturbance
• Largest Material Volume
• Longest Haul Distance
• Most Structures
• Special Reclamation Activities (Water treatment, soil amendments, hazardous materials)
Estimate Direct Reclamation Costs

• Structure Removal and Demolition Costs
• Earthmoving
• Revegetation
• Other Reclamation Costs
• Total Direct Cost of Reclamation
Inflation Adjustment: Two Methods

• Periodic bond recalculation during the permit term with at a minimum at the mid-term review to allow for any cost increases.
• Calculate an Inflation factor using a common index, such as the Construction Cost Indexes (CCI) from the Engineering News Record.
Estimate Indirect Reclamation Costs

- **Definition:** Fees and Charges above Direct Costs Applicable to 3\(^{rd}\) Party Reclamation
- Mobilization and Demobilization
- Contingencies
- Engineering Design
- Profit and Overhead
- Reclamation Management Fee
Calculate Total Bond Amount

• Sum of 3 Cost Elements:
  • Direct Reclamation Costs
  • Inflation Adjustment
  • Indirect Reclamation Costs
BOND AMOUNT COMPUTATION

Applicant: ____________________________________________________________

Permit Number: ______________ Permitted Acreage: ______________

Bonding Scheme (permit area, incremental, cumulative): ________________

If incremental:

Increment Number: __________

Increment Acreage: __________

If Cumulative:

Acres previously authorized for disturbance: __________

New acres proposed for disturbance: __________

Type of Operation: _________________________________________________

Location: _________________________________________________________

Prepared by: _____________________________________________________

Date: ____________________________________________________________

Total Bond Amount: $ __________________________
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total Facility and Structure Removal Costs</td>
<td>$______________</td>
</tr>
<tr>
<td>2.</td>
<td>Total Earthmoving Costs</td>
<td>$______________</td>
</tr>
<tr>
<td>3.</td>
<td>Total Revegetation Costs</td>
<td>$______________</td>
</tr>
<tr>
<td>4.</td>
<td>Total Other Reclamation Activities Costs</td>
<td>$______________</td>
</tr>
<tr>
<td>5.</td>
<td>Total Direct Costs (sum of Lines 1 through 4)</td>
<td>$______________</td>
</tr>
<tr>
<td>6.</td>
<td>Inflated Total Direct Costs (Line 5 x inflation factor *)</td>
<td>$______________</td>
</tr>
<tr>
<td>7.</td>
<td>Mobilization/Demobilization (___% of Line 6)</td>
<td>$______________</td>
</tr>
<tr>
<td></td>
<td>(1% to 10% of Line 6)</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Contingencies (___% of Line 6)</td>
<td>$______________</td>
</tr>
<tr>
<td></td>
<td>(3% to 5% of Line 6)</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Engineering Redesign Fee (___% of Line 6)</td>
<td>$______________</td>
</tr>
<tr>
<td></td>
<td>(2.5% to 6% of Line 6)</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Contractor Profit/ Overhead (___% of Line 6)</td>
<td>$______________</td>
</tr>
<tr>
<td></td>
<td>(see Graph 1)</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Project Management Fee (___% of Line 6)</td>
<td>$______________</td>
</tr>
<tr>
<td></td>
<td>(see Graph 2)</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Total Indirect Costs (sum of Lines 7 through 11)</td>
<td>$______________</td>
</tr>
<tr>
<td>13.</td>
<td>GRAND TOTAL BOND AMOUNT (sum of Lines 6 and 12)</td>
<td>$______________</td>
</tr>
</tbody>
</table>

**Total Reclamation Costs**
How Often Should FA amount be Reviewed

• FA amounts should be reviewed every 3-5 years or whenever a significant change in mine operations has occurred.

• The amount of FA may be fixed in time or rise or fall based on mine operations and the range of risks existing during that review period.
Who Holds FA and when Does the Government Release it

• The government must have direct access as a payee of all forms of FA.
• Release of FA may be total after government review and approval.
• Partial release of FA may be allowed if specific reclamation actions are determined by the government to be complete
Examples of Bond Failure Estimation

• Summitville Mine (the poster child) = In 1992 Galactic Resources declared bankruptcy and abandoned the heap leach closure. EPA and the State of Colorado obtained $28 million as part of the bankruptcy proceedings. However, it has cost EPA and the State nearly $200 million. The bond for this mine was $4.5 million.

• Zortman Landusky Mine = In 1998 Pegasus Gold went bankrupt. The $29.6 million financial security was not sufficient to remediate the site. The EPA, BLM, and the state of Montana have spent an additional $33 million beyond this. In addition, long term water treatment is required.

• Asarco Bankruptcy = In 2005, Asarco filed for bankruptcy and is liable for at least 90 contaminated sites nationwide, including 21 federal Superfund sites. These sites will cost an estimated $1.3 billion to remediate.

• Coeur d'Alene Basin in Region 10, where EPA's remedy at the site will cost over $2 billion. We have been in litigation with Asarco and one other potentially responsible party (Hecla) for over 10 years. Asarco has chosen to litigate with EPA and to file for bankruptcy protection (even now when metals prices are the highest ever) rather than pay for any cleanup in the Basin. EPA has already incurred over $100 million in costs in the Basin. Asarco is also liable for yard cleanups in the Bunker Hill Box (remaining liability estimated to be about $25 million), yard cleanups in Ruston/Tacoma (estimated around $5 million), sediments cleanup in Tacoma (estimated around $10-20 million), and mine cleanup at the Jack Waite mine in Idaho (estimated around $10 million). The United States will try to recover these costs through the Asarco bankruptcy proceedings, but anything we do not recover from Asarco (and Hecla at Coeur d'Alene) will need to be covered by the Superfund.
Key Reports on Financial Assurance

- **NRC Report: Hardrock Mining on Federal Lands (1999):**
  The NRC reported instances of recently abandoned but un-reclaimed exploration and mining sites that had not been covered by any financial assurance and also found that long-term water treatment and monitoring at mines sites generally does not carry financial assurance at either the state or federal level. The NRC concludes that inadequate protection of the public and environment caused by current financial assurance procedures is a gap in the regulatory programs.

- **Mineral Policy Center Issue Paper, Putting a Price on Pollution, Financial Assurance for Mine Reclamation and Closure (March 2003):**
  The report reviewed financial assurance requirements for mining operations in the western United States. The report identified 151 mining operations with total amount of financial assurance at $1.4 billion. Existing liabilities for these 151 mines were estimated to be $12.2 billion.

- **OIG Report: Implementation, Information, and Statutory Obstacles Impede Achievement of Environmental Results from EPA’s National Hardrock Mining Framework (Aug. 2003):**
  The OIG identified obstacles for EPA in achieving environmental results at mining sites. One of the obstacles identified was EPA’s limited ability to influence financial assurance requirements for mining operations. One of the OIG recommendations is that EPA develop a strategy for implementing the goals of EPA’s 1997 National Hardrock Mining Framework and that the strategy address such regulatory challenges.

- **Superfund 120-Day Study (April 2004):**
  In evaluating ways to prevent future Superfund sites, the SF-120 Day Study included a recommendation that OSWER study whether promulgating new regulations under CERLCA’s broad financial assurance authorities (108(b)) could reduce the future needs of the Superfund program.

- **GAO Report: Hardrock Mining, BLM Needs to Better Manage Financial Assurances to Guarantee Coverage of Reclamation Costs (June 2005).**
  This report found that financial assurances may not fully cover all future reclamation costs if operators do not complete required reclamation. BLM identified 48 mines that ceased operation and were not reclaimed by the operators. BLM estimated at least $136 million would be required, but only $69 million is available from financial assurances. In addition, there are numerous mines where no financial assurance has been required.
  GAO recommends that BLM strengthen its management of financial assurances by requiring its state office directors to develop an action plan for ensuring operators have adequate financial assurances.

  The GAO recommended that EPA implement CERCLAl08(b) and enhance oversight and enforcement of existing financial assurances and authorities. Regarding mining, the GAO report recommends that EPA may want to consider hardrock mining a high priority because it presents taxpayers with an especially serious risk of having to pay cleanup costs associated with wastes from thousands of abandoned, inactive, and operating mines on private lands in the US.
  The GAO found that as of 2004, the 63 NPL mining sites are estimated to cost at least $7.8 billion to clean-up. At least $2.4 billion is expected to be borne by taxpayers. However, this could likely be more as there are concerns about the viability of some of the PRPs since the cleanups and O&M are estimated to take 40-years to in-perpetuity. In addition, there are another 93 mining sites that have the potential to be added to the NPL that are not accounted for in the $2.4 billion dollar estimate.

- **Cleanup Assurance and Polluter Accountability Act (January 2007):**
  As a consequence of the Asarco bankruptcy and August 2005 GAO report, on January 31, 2007, Sen. Maria Cantwell introduced the Cleanup Assurance and Polluter Accountability Act which would require EPA to write financial assurance regulations under CERCLA 108(b). EPA would give highest priority to classes of facilities that may contain sites at which unreimbursed response costs are greater than $12 million.