



Our membership and services span the globe

10 N Post St, Ste 220 | Spokane, WA 99201-0705

Phone: 509.624.1158 | Fax: 509.623.1241
Email: nwma@nwma.org | Web: www.nwma.org

THE EVOLUTION OF FEDERAL AND NEVADA STATE RECLAMATION BONDING REQUIREMENTS FOR HARDROCK EXPLORATION AND MINING PROJECTS:

*A Case History Documenting How Federal and State Regulators Used
Existing Regulatory Authorities to Respond to Shortcomings in the
Reclamation Bonding Program*

Prepared by:

Jeffrey V. Parshley

Principal Geologist

SRK Consulting

Reno, NV

775/828-6800

And

Debra W. Struhsacker

Environmental Permitting & Government Relations Consultant

Reno, NV

775/826-3800

January 2009

Introduction and Executive Summary

This Northwest Mining Association (NWMA) white paper documents the evolution of the federal and the Nevada state bonding requirements for hardrock exploration and mining projects. Although this white paper focuses primarily on Nevada –the state with the most exploration and mining activity on federal land and the hub of the U.S. gold mining industry – other western states have similar regulatory programs and reclamation bonding requirements for hardrock mineral activities.

Key findings in this white paper include:

- The Nevada mining industry and state and federal regulators recently worked together to update and refine bonding requirements.
 - The resulting modifications to the Nevada bonding program reflect a collaborative effort to develop comprehensive and conservative bonds that consider all likely contingencies based on agency costs to implement, manage, and complete reclamation of sites requiring governmental intervention.
- Existing federal and Nevada state laws and regulations governing hardrock exploration and mining clearly provided the necessary authority and flexibility for regulators to make changes in response to the problems encountered during agency reclamation of several bankruptcy sites.
 - Federal and Nevada regulators – with the mining industry’s full participation and concurrence – have significantly improved and expanded reclamation bonding requirements in the last few years based on the lessons learned at the bankruptcy sites.
- Existing federal and Nevada state laws and regulations include comprehensive environmental protection and reclamation bonding requirements for hardrock mines.
 - These laws and regulations already give regulators the necessary tools to protect the environment, to ensure proper reclamation, and to deal effectively with problems, gaps, or unforeseen situations should they develop in the future.
- The recent changes that federal and Nevada regulators made to the bonding program clearly demonstrate that the current federal and state regulations work well.
- The sweeping changes to the nation’s environmental and regulatory programs governing hardrock mining that are included in the House Mining Law bill (H.R. 699) are not needed.
 - The environmental provisions in H.R. 699 are solutions in search of a problem which seek to fix a system that is working well and does not need “fixing.”

Historical Overview of Federal and Nevada Reclamation Bonding Programs

The U.S. Forest Service Has Required Reclamation Bonds Since 1974

The U.S. Forest Service (USFS) has had bonding requirements for mineral projects on National Forest System lands dating back to 1974. The USFS’s bonding program is included in Section 13 of the USFS’s surface management regulations at 36 C.F.R. Part 228 Subpart A (“the 228A regulations”). In contrast to the original version of the Bureau of Land Management’s (BLM’s)

regulations, which did not require bonds for small projects, the USFS regulations have always given District Rangers the discretionary authority to require a reclamation bond for any mineral activity that requires a Plan of Operations. Therefore, since 1974 when the 228A regulations went into effect, the USFS has almost always required a bond for all exploration road building, trenching, and drilling projects and for all major mineral projects on National Forest System lands. Like the BLM bonding program described below, when calculating bonds for operations on National Forest System lands, the agency assumes it will perform the reclamation work using government contracting procedures.

BLM Has Required Bonds Since 1981

Since 1981, companies conducting exploration or mining activities affecting more than five acres of BLM-administered public lands have had to secure BLM's approval of a Plan of Operations that includes a Reclamation Plan and a reclamation cost estimate, and have also had to provide BLM with a reclamation bond. This bonding requirement is part of BLM's Surface Management Rules for Hardrock Minerals at 43 C.F.R. Subpart 3809 ("the 3809 regulations.") The amount of the required bond reflects the assumption that BLM – not the company – will perform the reclamation using third-party contractors in accordance with government contracting procedures. This means the reclamation cost estimate is calculated using Davis-Bacon wage rates and includes government administration fees and other charges related to BLM's management of the reclamation effort.

The original 1981 version of the 3809 regulations did not include a bonding requirement for Notice-level projects that disturbed fewer than five acres of public land. As discussed below, in 2001 BLM expanded its bonding program to include Notice-level projects.

During the early years (1981 to 1990) of the 3809 regulations and BLM's bonding program, reclamation cost estimates were typically based on a uniform reclamation cost per acre factor that was simply multiplied by the amount of surface disturbance at a site. Although this approach simplified the preparation and review of bond cost estimates, it also increased the risk of inaccurate cost estimates. In the early 1990s, reclamation plans became considerably more detailed and were designed based on site specific conditions. This produced more detailed and realistic reclamation cost estimates.

Nevada's State Bonding Regulations Started in 1990

Nevada's regulations for "Reclamation of Land Subject to Mining Operations or Exploration Projects" (NAC 519A) became effective in October 1990. The Nevada mining industry supported the development of these regulations and the authorizing statute (NRS 519A).

The Nevada regulations include stringent requirements for reclamation plans and reclamation bond cost estimates for projects on public, state, and private lands. Therefore, with the advent of the NAC 519A regulations, all Nevada mines and exploration projects affecting more than five acres – regardless of land status – require a reclamation bond. The Nevada Division of Environmental Protection/Bureau of Mining Regulation and Reclamation (NDEP) manages the Nevada reclamation bonding program cooperatively with BLM and the USFS under the terms of an interagency Memorandum of Understanding.

BLM Expanded the 3809 Bonding Program in 2001

By the late 1990s, all Plans of Operations had an accompanying detailed reclamation plan and cost estimate upon which the reclamation bond was based. But exploration projects that

disturbed fewer than five acres were still operating under a Notice without a reclamation bond on BLM-administered lands.

In 1999, the National Research Council (NRC) published a study entitled “Hardrock Mining on Federal Lands.” One of the recommendations from the NRC study was that BLM should require a bond for all surface disturbing activities, including Notice-level exploration projects affecting fewer than five acres. The mining industry supported this finding and encouraged BLM to modify the 3809 regulations to expand the bonding requirements to include Notice-level exploration projects. In 2001, BLM implemented a new bonding requirement for Notice-level projects.

USFS Updates its Bonding Guidance in 2004

By the 21st century, the USFS, BLM and state agencies had acquired significant experience in reclaiming and closing abandoned and bankrupt mine sites. In order to document this knowledge and experience, and to ensure that reclamation bonds are adequate to fund reclamation and closure, the USFS issued a document entitled “Training Guide for Reclamation Bond Estimation and Administration” in April 2004. This Guide is designed to be used in estimating new bonds and updating existing bonds for projects on National Forest System lands.

Agency Reclamation of Several Bankrupt Cites Revealed the Need for Expanded Bonding Requirements

By the late 1990s, the industry had closed a number of modern mine sites using the techniques commonly included in BLM and Nevada State reclamation plans of that era. However, NDEP and the federal land management agencies (i.e., BLM and the USFS) had closed and reclaimed only a few sites using funds from reclamation bonds.

In the late 1990s – early 2000s timeframe, historically low metal prices forced a few companies to declare bankruptcy. These bankruptcies tested the scope and efficacy of the federal and state reclamation bonding programs – programs that were supposed to provide regulators with sufficient financial resources to reclaim abandoned or bankrupt mines. However, as NDEP and the federal agencies used the reclamation bonds to close and reclaim the bankrupt sites, program-wide deficiencies and inefficiencies became readily apparent. This led to the realization that the bonds for nearly all of the bankrupt sites were inadequate for NDEP, BLM, and the USFS to implement and complete the approved reclamation plans.

The Nevada mining industry, NDEP, and federal regulators readily agreed that this situation was unacceptable and that changes in the bonding requirements were needed. Working cooperatively over the next few years, the industry and state and federal regulators identified the specific deficiencies and found solutions to address each one to ensure that adequate funding would be immediately available to state and federal agencies should any other bankruptcies occur.

This cooperative effort between the mining industry and regulatory agencies in Nevada has resulted in a program that is embraced as being fair, defensible, and accurate. All parties recognize this program may result in somewhat conservative cost estimates. However, the shared commitment to capitalize upon the lessons learned from responding to unexpected situations at the bankrupt sites and to modify the bonding program to eliminate the shortfalls that were due to these unexpected situations makes a conservative approach essential. The resulting bonding program provides comprehensive cost estimates that consider all likely contingencies.

Similar industry-agency collaboration recently occurred in Montana where the Montana Mining Association and the Montana Department of Environmental Quality worked together to update Montana's bonding requirements. This cooperative effort resulted in a bill, HB 460, which Montana Governor Brian Schweitzer recently signed into law to amend the Montana Metal Mine Reclamation statute to provide for temporary bonding in unanticipated circumstances.

The Cooperative Industry – Agency Review Revamped the Bonding Program to Address all Identified Shortcomings

The following are the major issues identified during the review and revamping of the mine closure and reclamation bonding requirements. The identified shortcomings were rectified as described below:

Identified Shortcoming: Some types of costs which would be incurred should a regulatory agency assume responsibility for closing a mine site had not been adequately anticipated or included in the previous cost estimates. Because the agencies' and industry's experience with mine closure at that time was based on planned and orderly closure performed by the mine owner, some costs associated with government management and the timing of mine closure had not been anticipated. For example, some sites required immediate management of process solutions to ensure that the environment was protected, but the process of obtaining the money from the bonds often took several months, during which time bond funds to manage the site were not available. Other emergency funding programs were used to cover this deficiency at that time.

Implemented Solution: The Nevada mining industry set up and funded a program to ensure that funds would be immediately available for site management at any site declaring bankruptcy. Now all bonds calculated in the state of Nevada must include the cost for managing the site including all process fluids, for a period of six months under typical care and maintenance conditions.

Identified Shortcoming: The hourly equipment rates used in the bond cost estimates did not reflect the agencies' costs to contract the work to third parties. The equipment rates used in the bonds were based on a number of sources and varied widely from site to site.

Implemented Solution: A small working group comprised of Nevada mining industry professionals and regulators investigated a number of options to provide realistic hourly equipment rates and ultimately decided that the local equipment suppliers' monthly, single-shift rental rates were most appropriate – even though it is highly unlikely that a contractor would only work their equipment for 40 hours per week on this type of job.

Identified Shortcoming: Some of the bonds assumed that the equipment at the site would be the same types of equipment used for reclamation. Because some of the equipment used at mine sites is larger than the equipment a reclamation contractor would typically have available, this assumption was inappropriate and produced inaccurate reclamation cost estimates.

Implemented Solution: Another small working group comprised of Nevada mining industry representatives and regulators reviewed the types and sizes of equipment readily available from contractors and suppliers in Nevada and limited the equipment choices for reclamation bond costs to that equipment.

Identified Shortcoming: The productivity (quantity of work performed per hour) used for different equipment varied considerably in some of the bond cost estimates. Because the productivity of reclamation equipment has a direct impact on the time required to perform the reclamation activities, it also affects the cost estimate.

Implemented Solution: Nevada mining industry experts and the regulatory agencies determined that equipment productivities should be calculated based on accepted, published sources such as equipment manufacturers' handbooks, engineering manuals, and published construction cost databases to provide defensibility and consistency. In addition, typical correction factors were defined to ensure that the productivities represented an average range of conditions. This is believed to represent a conservative approach because the contractors typically used in the western U.S. for reclamation work have highly experienced staff.

Identified Shortcoming: The costs for and timing of process fluid stabilization and management were inconsistently calculated. The time required to stabilize a site for long-term passive management is directly related to the time needed to reduce the inventory of any remaining process fluids and ensure that the reclamation plan will limit the amount of water that must be managed in a passive management system. Estimating a short- and long-term water balance for a site requires a combination of science, engineering and experience. The industry has spent considerable effort globally in recent years to better understand this process for sites in closure. Most importantly, it is recognized that although common approaches can be applied, each site is different and requires detailed analysis to define the parameters that will affect closure costs.

Implemented Solution: Standard approaches and tools that use site specific data have been defined by federal land management agencies and state regulatory agencies along with minimum design criteria and site data required to properly estimate the time and effort required to manage any solutions remaining on-site at closure.

Identified Shortcoming: The estimate of both long-term site management and monitoring were not always adequate. The requirements and period required for long-term site management and monitoring are highly site-specific. However, the same approach used to bring consistency to the calculation of process fluid stabilization can be used to determine what, if any, long-term management and monitoring is required.

Implemented Solution: Site-specific studies and design requirements will determine the need and requirements for long-term site management and monitoring. Often, it is uncertainty that will dictate if or how much funding must be in place for long-term site management. In these cases, trust fund-type approaches are often used to ensure that there will be funding for both expected and unknown future site requirements. Monitoring requirements are typically based on the need to demonstrate stability at the site based on trends in empirical data. This will vary by site, but most regulatory agencies have guidelines for minimum requirements. Nevada's Water Pollution Control regulations allow NDEP to require a 30-year monitoring period, or longer if needed.

Identified Shortcoming: Some miscellaneous costs were not adequately captured in some cost estimates. The cost for removal of small infrastructure (e.g. power lines, substations, pipelines, etc.) were not included or underestimated. Other miscellaneous costs such as fence

removal or installation, hazardous waste removal, construction or removal of erosion and sediment controls were inconsistently addressed.

Implemented Solution: Nevada mining industry personnel and the regulatory agencies cooperatively developed a checklist of miscellaneous costs that must be considered for each site.

Identified Shortcoming: The cost to mobilize and demobilize (mob/demob) equipment from the sites was often excluded or inadequately estimated. The cost to move equipment to and from a site being reclaimed will be added by a contractor to the overall cost of reclamation. Although this cost primarily included the direct costs to transport equipment and materials to the site, some contractors also include other costs in this line item.

Implemented Solution: The specific items that should be included in the mob/demob cost were defined by a small working group and local transport companies were contacted to determine the cost incurred to transport the necessary equipment to and from the site by a third-party transporter. Other common costs such as the establishment and use of office trailers, portable power and sanitary facilities were added to Nevada reclamation bonding guidelines as separate line items.

Identified Shortcoming: Out of date costs were used in some bond cost estimates. Although Nevada's regulations require that bond costs be updated every three years, the hourly rates often change annually based on economic conditions. Although most annual variations are generally small, cost estimates should be based on current rates.

Implemented Solution: NDEP and federal regulatory agencies update equipment, labor and material rates each year and post the current rates on a public web site for use in reclamation bond cost estimates.