

CENTER for SCIENCE in PUBLIC PARTICIPATION

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“Technical Support for Grassroots Public Interest Groups”



**Testimony of Jim Kuipers
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**To The Subcommittee on Energy and Mineral Resources
Committee on Resources
U.S. House of Representatives**

**A Hearing on “Availability of Bonds to Meet Federal Requirements for
Mining, Oil and Gas Projects.”**

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Washington, D.C.**

Chairwoman Cubin, members of the Subcommittee. My name is Jim Kuipers and I am a consulting mining engineer with the Center for Science in Public Participation. Thank you for inviting me to testify on the important subject of reclamation bonds, which are used as a method to ensure cleanup at mine sites.

Professional Background and Affiliation

I was raised in a mining family and attended Montana School of Mines, obtaining a B.S. degree in Mineral Process Engineering in 1983. I have worked as an engineer and manager at base and precious metals mines in the U.S. and abroad and at the corporate level for one of the world's largest mining companies. I am a registered professional engineer in Colorado and Montana. My main area of expertise is hardrock metals mining and includes mineral processing, project design and permitting, mine reclamation and closure, water treatment, and financial assurance including cost estimating. My professional background is further described in a resume attached to this testimony.

Since 1996 I have worked on behalf of public interest groups, and tribal and state governments to address environmental mining issues at a large number of mine sites throughout the U.S. and Canada. In February 2000 I authored a report entitled: *Hardrock Reclamation and Bonding Practices in the Western United States*. The approximately 500 page report examines the principles of mine reclamation and closure, financial assurance, and financial assurance cost estimating and includes information on each state's mines and financial assurance and each state's applicable regulations, and contains 20 different specific mine site case studies. It concluded that financial assurance shortfalls could exceed \$1 billion, an extreme underestimate, in retrospect. I am at present involved in reclamation, closure and financial assurance matters at over 20 different mine sites in the U.S. and am a qualified technical expert and have testified before on the subject.

Introduction/Overview

My testimony starts from the premise that the public's interest is served by the availability and use of surety bonds, and other financial guarantees, so that extractive industries, like mining companies meet all federal and state requirements for cleaning up pollution and reclaiming sites. As a starting point, it is critical that whatever financial instrument we use to set aside funds for cleanup, it comes in the form of a rock-solid, irrevocable guarantee. To do otherwise, as some mining companies have recommended, is to put the public, communities and other natural resources at risk. Therefore, from the perspective of the public and taxpayer interest, it is important that we explore and mandate all forms of guarantees, not just bonds. But we must not allow mining companies to use financial instruments such as corporate pledges that are not guaranteed. To allow the use of such instruments, as we have seen in too many examples in recent years, would be to potentially transfer the risk of cleanup to the taxpayer. In the era of ENRON and Worldcom, it is more important than ever to protect the public from hidden costs and surprise liabilities. Cleaning up a mine site should be a cost of doing business.

If the mining company cannot guarantee funds for cleanup, then it should not be permitted to mine.

There is not doubt that today, there are instances where the costs of bonds are increasing and they are becoming more difficult to secure. Unfortunately, I am intimately familiar with a number of mines, where this is occurring. In my experience, the most direct cause of this is that companies that provide bonds are responding, as one would expect in a market economy, to greater risk. There is greater risk in the sector because over the past few years, in case after case, it has been demonstrated that mining companies and regulators substantially underestimated the cost of mine closure and cleanup. I have seen companies respond in a number of ways. Some are securing larger bonds and paying the costs associated with those bonds. Some are putting in place other forms of acceptable guarantees such as letters of credit. And some are seeking to exempt themselves from these requirements by seeking to lower or weaken cleanup standards or by gutting bonding requirements to be allowed to put up soft financial instruments such as so-called corporate “guarantees” that amount to nothing more than a promise. The public interest is not protected by granting exemptions, lowering standards, or softening regulations. This committee and this Administration have an interest in keeping the bar at an acceptable standard.

There is no doubt that prices are rising for legitimate financial guarantees, but these prices are rising for the right reasons. In my experience recent regulatory actions at the state and federal level have led to more realistic estimates of mine reclamation costs to financial guarantee providers. These new cost projections are substantial, but they are real. For example, the three largest copper and three largest gold mining companies operating in the United States have a potential combined un-guaranteed liability of \$9 billion. Many in the industry have responded to these increased costs by seeking to avoid responsibility. Rather than pay the new, more accurate costs associated with the environmental risks of mining, some in the industry are essentially petitioning federal and state governments to shift the costs of risk to the taxpayer for cleanup.

Mine reclamation and closure addresses water quality, air quality, adjacent property owner impacts and land use in the aftermath of mining operations. As it pertains to modern mines it deals with large waste rock dumps, leach piles, tailings ponds, open pits and other mining facilities which may disturb 10,000 or more acres at a typical large mine site. Mine reclamation and closure tasks include regrading and reshaping mine features, applying covers to control water infiltration and provide growth media, and revegetation. The goal is to control and eliminate if possible ground water and surface water pollution, air pollution, and to restore the land to a suitable post-mining land use.

In addition, water treatment is often a necessary component of mine closure. At many mine sites acid drainage can result in the leaching of harmful contaminants such as lead, copper, zinc, arsenic and cadmium, which are known carcinogens and toxins that can cause cancer and reproductive disorders, into ground water and surface water, seriously impacting water quality. The incidence of acid drainage, which has been shown to be much more common than has been assumed, can increase the cost of reclamation and

closure by ten times or more, and is the leading cause of insufficient reclamation and closure plans and cost estimates that exist today. In many cases water treatment will be required for hundred of years or more, resulting in a need to address financial guarantees that will last long into the future. Altogether, mine reclamation and closure costs are extremely expensive, from tens of millions to almost a billion dollars – *per mine*.

In my experience, it should not come as a surprise that mining companies are having difficulty securing bonds today as this problem has been brewing for years. In a report that I authored two years ago entitled, *Hardrock Reclamation and Bonding Practices in the Western United States*, this problem was evident. While there are no doubt other factors that influence the price and availability of bonds, and are doing so today, we are now facing the reality that bonding companies are to a great degree adjusting price and availability to a more realistic assessment of risk. We don't expect insurance companies to charge the same for a policy covering a Honda Civic or a Jaguar, and nor should they charge the same for a low risk construction surety bond and a higher risk mine reclamation and closure bond.

Not to be a pessimist, but the worst isn't over. In my experience, there is even more uninsured risk out there than is being recognized by the insurance industry and regulators. What we are facing today is simply the symptom of a larger problem. The problem is the significant underestimation of the actual cost of modern hardrock mine reclamation and closure and the lack of financial guarantees to ensure that taxpayers will not foot the bill. This problem is likely to get worse before it gets better.

An example is the disparity that exists between the estimated amount for clean-up and the amount presently shown as reclamation liabilities in many mining company's annual statements. For example, according to Phelps Dodge Corporation's 2001 Annual Report, reclamation and closure reserve activities (funds accrued by the company for eventual reclamation and closure costs) at the end of the year totaled \$135 million. While the report goes on to disclose the potential for significantly higher costs, and anticipates making significant capital and other expenditures in future years, the report concludes with the statement that "we are unable to reasonably estimate the total amount of such expenditures over the longer term, but it may be potentially material." Evidence suggests that the company can reasonably predict expenditures significantly in excess of the amount accrued so far, and that it may be highly material as to the company's ability to deal with its reclamation and closure liabilities, which could exceed \$3 billion or more.

The present situation with respect to bonding difficulties is also only a symptom of the much larger problem that the mining industry faces in regard to corporate accountability and public disclosure. The total cost of clean-up that the mining industry has failed to recognize could be as high as \$10 billion or more for the U.S. hardrock mining industry alone. This raises an important question, if we are aware of these potential risks, and no doubt many companies are, is this risk being fully and accurately reported to investors, insurers and regulators?

Unfortunately, today, instead of dealing with this situation in a pro-active and responsible manner, to many companies are seeking a special exemption or a short-term solution. Any efforts to weaken the Bureau of Land Management's 3809 regulations which were specifically intended to address the gap between expected costs and current financial guarantees fall into this category, as do efforts to weaken, soften or avoid state regulations. In fact, today we call on the committee and the Bush Administration to hold the line and enforce the current 3809 regulations as good public and environmental policy that is pro-taxpayer protection and pro-investor protection. We also recommend that the BLM significantly strengthen its closure requirements. They have simply not gone far enough. We are concerned that the task force recently created by the Bush Administration to review these issues, may only be responding to the interest of the extractive industries, rather than the interest of the public, taxpayers, the environment and investors. The task force should not consider any weakening of the current bonding rules. And, specifically, corporate self-guarantees (which amount to nothing more than a pledge to pay) should not be accepted. To do so would amount to shifting the cleanup risk from the mining company, where it is today, to the taxpayer. We are already seeing overburdened states with budget problems struggling to use taxpayer funds to pay for cleanup.

At a time when Enron and Worldcom scandals have rocked public confidence and demonstrated a need for much greater corporate accountability, transparency and fair dealing, the Bush Administration should reject any efforts that allow mining companies to under-report environmental liabilities or evade responsibility for paying to clean up toxic pollution from mines? Today we call on the Bush Administration to embrace its own public position by enforcing current regulations and seeking new tools to ensure that polluters pay, not taxpayers. And the mining industry should, because it's in their own interest, come forward and acknowledge its liabilities and support efforts to ensure that mines are cleaned up by mining companies, and not at taxpayer expense.

The Real Cost of Closure Lead to Higher Risk and Higher Bonds

The issues the industry faces today in regard to securing reclamation bonds can be directly attributed to the fact that for years mining companies have proposed and regulators have approved insufficient reclamation and closure plans and financial assurance amounts industry-wide. The net discrepancies between what should be secured for mine closure and what is on the books today could be as high as \$10 billion or more. Although other factors are no doubt impacting the surety bond market, this is a key issue.

Progressive improvements have been made in the regulations and enforcement on these issues at the federal level and in some states. However, instead of moving forward in this direction, some are beginning to argue that the federal government should gut recent improvements to existing regulations. If the government accedes, industry could successfully avoid addressing and accounting for water pollution impacts, and could be allowed the use of so-called corporate guarantees – enabling industry to avoid corporate responsibility and shifting billions of dollars of clean-up costs from the industry to taxpayers.

Surety bonds, after corporate guarantees, have been the preferred form of financial assurance by the mining industry. The mining industry has utilized these instruments because the cost, typically limited to \$5 to \$15 per \$1000 in value, is relatively low. However, the low cost has caused the mining industry to use financial assurances in place of actually conducting reclamation concurrently during mining (at least to the extent possible). The best means for mining companies to reduce their liability for cleanup is to simply perform the required reclamation and closure activities.

As a result, mining companies have left the cost of reclamation and closure entirely to the post-production period. There is little incentive for the mining company to conduct the agreed-upon tasks of reclamation and closure, so the use of surety bonds may actually exacerbate the problem rather than address it and in some cases may actually encourage eventual bankruptcy. The only effective means to ensure corporate accountability and that the polluter pays is to require cash or equivalent forms of financial assurance.

Industry's practice of leaving all reclamation costs until post-production has resulted in numerous environmental and financial disasters over the past 10 years that have cost taxpayers hundreds of millions of dollars. In response, the Bureau of Land Management and the states of Montana and New Mexico began requiring financial guarantees that more fully covered mine reclamation costs.

The Department of Interior's Bureau of Land Management (BLM) 3809 regulations describe the agency's requirements for mine regulation, including that of mine reclamation and closure planning and financial assurance. In an October 25, 2001 letter, Interior Secretary Gale Norton, in discussing her agency's and the Bush Administration's support for the revised BLM 3809 regulations, stated "Stringent financial guarantee requirements – the so-called bonding provisions – that will ensure that the full costs of any mine reclamation or environmental damage are borne by the mining operator, and not the U.S. taxpayer." In fact, the revised regulations do include requirements for water treatment in reclamation and closure plans, the calculation of agency oversight and contracting costs in financial assurances, and, most importantly, the elimination of corporate guarantees as an acceptable form of financial assurance. Secretary Norton and others in the Interior Department touted those measures as an example of the Bush administration's commitment to corporate responsibility. Proposals to continue or even enhance the ability to use corporate self-guarantees in response to the bonding situation would clearly decrease, not increase, corporate accountability.

Insurance companies providing surety bonds began to examine their risk exposure for mining industry guarantees as a result of the Pegasus, Alta Gold and other mining company bankruptcies and the increased evidence of higher clean-up costs and company bankruptcy risk because of the incidence of acid drainage at many mine sites long before the current so called "crisis." Evidence beginning in 1999 shows those surety bond providers began charging higher rates for mining surety bonds and reconsidered providing coverage at some mine sites and for some companies. The current "crisis" has as much or more to do with risk associated with the mining industry than anything else.

What are the real liabilities?

Table 1 (Source: data from Kuipers, J., Hardrock Reclamation Bonding Practices in the Western United States, February 2000) shows the estimated aggregate reclamation and closure financial assurance amounts for the three largest gold and copper mining companies. The third column in the table shows the estimated range of actual liability for reclamation and closure costs faced by those companies. The estimated range of potential costs was estimated by taking 60% of the existing financial assurance cost as the “Low,” and estimating the “High” costs based on the sites owned by each company and professional experience in estimating costs at similar mine sites where actual cleanup has been proposed and undertaken. The “Mid” cost, based on experience at other mine sites, represents the typical cost resulting from actual cleanup determined and/or conducted by state and federal agencies in response to an abandoned or bankrupt mine cleanup situation.

As the range demonstrates, while it may be possible for the companies to conduct the actual reclamation and closure tasks for less than the cost estimated in their existing financial assurances (by deducting agency oversight and contracting costs and realizing company efficiencies), those estimates typically represent the lowest cost of all possible reclamation and closure outcomes. The actual cost may be significantly higher as history has shown that in most cases, typically because of failure to address acid drainage, actual costs are higher than the amount of financial assurance available once actual site conditions are assessed upon mine closure. If the mid cost within the range shown is the actual realized cost for reclamation and closure by the responsible state and federal agencies, then the total estimated shortfall amount for the major companies in the gold and copper industries would be approximately \$4.3 billion. Taxpayers may unfortunately wind up footing that bill, or the mining pollution may be left unaddressed.

Of the amount of existing total financial assurances shown (\$682 million), approximately half of the total is presently in the form of corporate guarantees (primarily at mines in Arizona and Nevada), 40% is in the form of surety bonds, and the remainder (less than 10 percent) in various forms of cash. If those corporate guarantees are not honored, potential taxpayer costs for clean-up would be even greater.

Table 1
Reclamation and Closure Liability of Major Copper and Gold Producers

Company	Reclamation and Closure Liability (all figures shown in Billions of U.S. Dollars)			
	Existing Financial Assurance	Estimated Range of Potential Costs		
		Low	Mid	High
Copper				
Phelps Dodge	\$0.248	\$0.149	\$1.867	\$3.585
ASARCO	\$0.022	\$0.013	\$0.705	\$1.397
Rio Tinto	\$0.038	\$0.023	\$0.738	\$1.454
Gold				
Newmont	\$0.211	\$0.126	\$1.177	\$2.227
Placer Dome	\$0.099	\$0.059	\$0.226	\$0.392
Barrick Gold	\$0.066	\$0.040	\$0.299	\$0.558
Total	\$0.682	\$0.409	\$5.011	\$9.612

(Source: Kuipers, J., Hardrock Reclamation Bonding Practices in the Western United States, February 2000)

Note: The figures shown in Table 1 are for mine reclamation and closure only and do not include additional liabilities for smelters, refineries and other industrial sites. ASARCO, Phelps Dodge and Rio Tinto all own major smelting and refining facilities with additional significant costs for clean-up.

Is Financial Assurance Really Necessary?

Both historic and modern mining operations have demonstrated that the mining industry has failed to adequately consider reclamation and closure requirements and costs prior to mining, and have failed to pay for those costs post-mining. The legacy and cost of abandoned mine sites is known all too well by the industry, government, and the public. We are seeing today that cleanup of a specific mine site can cost tens to hundreds of millions and often requires pollution treatment systems that will be required to operate for hundreds of years.

While the intent of regulations enforced before 2002 was to prevent a similar situation at modern mines, at an even greater scale due to their methods and size, the following examples show how that system failed. The examples demonstrate that the system failed due to both inadequate regulation requirements and inadequate enforcement.

In 1998, Pegasus Gold Corp. filed for bankruptcy protection. At the time, Pegasus owned and operated at least eight different gold or base metals mines in the states of Montana (six mines), Nevada (one mine) and Idaho (one mine). As a part of the bankruptcy restructuring, those properties deemed valuable by the company were formed into Apollo Gold, and the remainder of the mines (four in Montana and one in Idaho) were relegated to the bankruptcy court for disposal with the responsibility for reclamation and closure activities and costs left to the responsible state and federal regulatory agencies to resolve.

In Montana and Idaho, the regulators had existing financial assurance at all the mines in the form of either cash or bonds. The Zortman and Landusky mines in Montana, the world's first large-scale open pit cyanide heap leach mines, had financial assurances of approximately \$80 million in face value. The state was forced to negotiate the bonds and trust fund accruals that had not yet been placed by the company prior to bankruptcy and as a result received approximately \$70 million in actual cash value after negotiations, less reclamation and closure work (approximately \$20 million) actually done by the mining company prior to its foreclosure. Subsequent analysis by the Bureau of Land Management and Montana Department of Environmental Quality determined that the actual amount needed for reclamation and closure will total approximately \$103 million due in part to acid mine drainage pollution that will continue for hundreds of years. \$103 million represents a shortfall of about \$33 million that must be paid for by taxpayers.

Similarly, Pegasus's Beal Mountain mine in Montana has revealed that the existing \$6 million financial assurance is inadequate. Reclamation and closure tasks required to clean up and provide water treatment in perpetuity for mine discharges are likely to cost \$12 million or more, representing a shortfall in the bond amount of 50% or greater. That shortfall has been paid for by the Montana Department of Environmental Quality (DEQ) and the U.S. Forest Service, which had not predicted any long term water treatment requirements. According to Warren McCullough, Bureau Chief of the Montana DEQ's Permitting and Compliance Division, "It's not going to be something that we're ever going to be able to walk away from, ... and people should realize that no one really understands all the chemistry that occurs after reclamation begins on the pile of ore where the cyanide milling process had been used. It's a very complex thing," he said. In total, the shortfalls in Montana alone are approximately \$40 million or more, which will be shouldered by state and federal taxpayers.

However, it should be noted that had Montana accepted corporate guarantees, which their regulations did not allow for, the shortfall would have been much greater (BLM did accept corporate guarantees at the time, but Montana and the federal agencies were able to rely on stricter state requirements to determine the financial assurance amounts and forms).

In the mid-1990s FMC Gold Corp./Meridian Gold Corp. sold to Arimetco Mining Co. its Nevada assets, which included the reclamation and closure liability for the closed Paradise Peak and other mines. Arimetco also owned the Yerington Copper mine, which had been operated for a number of years by others including the Anaconda Mining Company. Arimetco subsequently declared bankruptcy in 1999 and it was determined that the company lacked any assets to back its financial assurance for the Yerington and Paradise Peak projects, which not only was significantly less in amount than was actually necessary to effect reclamation and closure, but was also primarily in the form of corporate guarantees. While the State of Nevada and responsible federal agencies (primarily the Environmental Protection Agency) have yet to determine how to address reclamation and closure at these sites (the Yerington mine has been proposed as an EPA Superfund site), it is probable that the financial assurance shortfall will be at least \$10 million or more and could be more than \$100 million (site investigations are currently

underway). The State of Nevada's regulations, because they result in underestimation of reclamation and closure costs and allow financial assurance in the form of corporate guarantees, exposes state and federal regulators and taxpayers to an unreasonable degree of risk and actually serves to discourage corporate accountability.

These experiences highlight the consequences to taxpayers and the environment from inadequate financial assurances, combined with the recent spate of bankruptcies and incidences of inadequate reclamation and closure plans throughout the Western U.S. Insufficient money means less protection for communities, water, wildlife, etc. Other similar examples exist in South Dakota at the Brohm Mine owned by bankrupt Dakota Mining Company, the Cunningham Hill mine in New Mexico (also owned at one time by Pegasus), the Grouse Creek mine in Idaho, and Illinois Creek mine in Alaska to name just a few.

So far these have been mostly limited to small and medium size mining companies, with a limited aggregate liability. However, the situations leading to and resulting from these bankruptcies are highly similar to those that are now occurring with some of the largest copper mining companies with extensive operations in the U.S. and potentially additional gold mining companies.

We now have an opportunity to learn from past problems and ensure that regulators require strong corporate responsibility at current and future mines through enforcement and strengthening of financial assurance requirements. The Bush Administration should not now turn its back on the taxpayers or the communities that have been burdened by corporate irresponsibility and inadequate regulatory controls.

Financial Assurance – Where does bonding fit?

Bonding, or more correctly, "surety bonding," is just one of many forms of financial assurance that are recognized by the various state and federal agencies. The types of financial assurance and their various forms can be listed in three general categories as follow:

1. Forms of Cash or Equivalent
2. Surety Bonds
3. Corporate Guarantees

Forms of cash or equivalent are the preferred form of financial assurance since they are the most secure and are readily available in the event they are necessary. The regulatory community, much of the financial community, and public interest groups agree that these forms of financial assurance are the best protection against taxpayers paying for the cost of clean-up. Where closure costs are long-term (in many water-treatment situations, costs are "in perpetuity"), forms of cash are the only practical way to provide a financial guarantee. Forms of cash include irrevocable letters of credit (bank guarantees), CD's, and trust funds.

Surety bonds are essentially guarantees from an insurance company or its equivalent for the performance of the work. Surety bonds are generally assumed to be applicable to low-risk circumstances where the surety bond company, in the event of forfeiture, can expect to be able to hire another contractor to perform the work in the event the original contractor defaults on the job. Surety bonds are for a set amount of money and have the option of being cancelled or renewed on a regular (typically yearly) basis. Although surety bonds are considered an acceptable form of financial assurance, experience has shown that the amount of payout is likely to be reduced by 10-20% or more as a result of seemingly inevitable negotiation by the surety company.

Corporate guarantees are essentially self-guarantees or more accurately pledges made by the mine or mining company, or parent company (typically also a mining company). Although corporate guarantees are sometimes accompanied by financial tests as a measure of qualification, in some states the financial tests amount to little more than the existence of a business license. In cases where financial tests do exist, experience has shown that companies that have gone bankrupt continued to meet those tests right up to the moment of their filing. Corporate guarantees, although allowed in some states, should not be considered an acceptable form of financial assurance since any payout at all is doubtful, and replacing a corporate guarantee with another form of financial assurance once a company experiences financial difficulty is problematic. The evidence is compelling that corporate guarantees do not protect the taxpayer.

Principles of Financial Assurance

While the government and regulators need to work with industry and public interest groups to resolve the short-term and long-term mine reclamation and closure planning and financial assurance issues, certain principles of corporate responsibility and accountability must be strictly adhered to in formulating a response to the current situation. These principles include the following:

- Enforcement of existing state and federal laws that ensure against taxpayer cost for clean-up of mine pollution where already established (such as in the revised BLM 3809 rules and Montana statutes and regulatory practice), and improvement of other state and federal laws as necessary to provide equivalent protection to all state and federal jurisdictions.
- Polluter provides a cash or equivalent financial guarantee; no corporate or third party guarantees or transfer of risk to taxpayers.
- Financial assurance should cover the entire cost of reclamation and closure including source control, surface reclamation, contaminated water capture and treatment, and monitoring, with allowances for agency oversight and management should it become necessary.

By adhering to these principles the mining industry and government can ensure that the responsible corporation and its shareholders shoulder the burden of liability created by

their activities, and that adjacent landowners and the public at large can be assured that no significant harm will occur to their health, natural resources or quality of life as a result of corporate malfeasance.

Mining Industry Response to Surety Bond Market

While some mining companies have indicated difficulty obtaining surety bonds and voiced concerns about their ability to provide alternative forms of assurance that are considered acceptable, there are ready solutions to the problem. Many companies, even facing difficult financial situations, have managed to provide both increased and acceptable financial assurances. For example, Stillwater Mining Company in Montana recently saw its financial assurance requirement for its East Boulder platinum group metals mine increase from about \$4 million to nearly \$12 million. Kennecott Greens Creek Mining just secured an \$18 million letter of credit to fill out its \$24.4 million surety obligation for the Greens Creek mine in Alaska (the remainder of the surety is a \$6.4 million surety bond already in place). Despite financial difficulties and the inability to obtain a surety bond, these companies agreed to put up letters of credit for the amount necessary. Similarly, other companies such as Placer Dome and Barrick Gold, the second and third largest gold producers in the U.S. respectively with significant operations in Nevada and other western states, have reportedly experienced little difficulty in retaining their existing surety bonds or replacing them with forms of cash or its equivalent.

The companies complaining the most about the current situation are the largest companies with the greatest amount of unrealized liability associated with the cost of clean-up. These companies are responsible for some of the largest modern mining sites that require extensive reclamation and closure measures, and at this time the costs for those measures are either drastically underestimated or have been largely ensured by corporate guarantees. These costs are a direct result of the companies' own poor environmental practices during operations and the lack of environmental controls to encourage the companies to have conducted their operations differently.

Does the Industry Recognize This Problem?

The present actions of the U.S. mining industry suggest that it neither acknowledges nor is prepared to address the problem of inadequate reclamation and closure plans and financial assurance. However, the world-wide mining industry has specifically recognized it as a priority issue. The world mining industry has been undertaking a concerted project to address the specific steps that the industry needs to take to change mining/minerals related activities to the broader societal trend towards sustainable development. Towards this end the mining industry formulated the Mining, Minerals and Sustainable Development (MMSD) process, which recently culminated with the Global Mining Initiative conference held in Toronto, Canada. It should be noted that all the major copper and gold mining companies doing business in the U.S. participated in the MMSD process and conference.

By the end of the process priority issues and actions emerged, with the Mining Legacy Issue, that of dealing with reclamation and closure of both historic and modern mines, identified as a top priority. Among the final recommendations was to enhance efforts to address the legacy of past mining and mineral activities, and to strengthen the basket of legislated rules, market incentives, and voluntary programs to prevent the same problem from continuing into the future. A key feature of the recommendations was adherence to the principle that the “polluter pays” all costs for reclamation and closure. The process also recognized that, in order to ensure the government and taxpayers do not inherit these costs, financial guarantees such as cash or bonds are necessary to ensure that they will comply with reclamation and closure plans. By requiring real financial guarantees, the specific obligations for mine closure will be carried out; costs will be internalized, and economic efficiency will be promoted. The report concludes that “Without such surety, the legacy of abandoned sites and their attendant problems are certain to grow” (from Final MMSD report, pp 408-409).

The present use of corporate guarantees is in stark contrast to the priorities and actions identified by the mining industry as a whole to address what it considers to be a key issue to its future survival as a business sector, and also all too often fails to protect taxpayers, or communities faced with mining pollution.

Conclusion

The so-called surety bond “crisis” is related to the much larger and significant issue of underestimated and unguaranteed hardrock mine reclamation and closure costs. The lack of corporate accountability has resulted in a potential risk to taxpayers for mine cleanup of billions of dollars for modern mine sites. This has resulted both from a lack of adequate regulation as well as weak enforcement of existing regulations. At a time when corporate accountability is being seriously questioned, and when increased costs for and unavailability of surety bonds are a perfectly logical free market response, weakening existing regulations and accepting self-guarantees appears to be highly inappropriate.

Serious efforts should be undertaken to address reclamation and closure planning and financial assurance estimation to avoid taxpayers paying for clean-up at the nation’s mine sites. Regulations such as the revised BLM 3809 rules, which were intended to address and remedy this situation, should be retained and enforced, rather than weakened as has been suggested by the mining industry and being considered by the Bush Administration. The solution involves not weakening protections against corporate irresponsibility. Instead, the government should work with the industry and other stakeholders to ensure that adequate financial guarantees are in place so that the industry is able to pay for mine pollution clean-up and spare taxpayers the cost.

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SUMMARY OF EXPERIENCE

Over 20 years experience in mining and environmental process engineering design, operations management, regulatory compliance, waste remediation, mine reclamation and closure. Over six years experience providing technical assistance to public interest groups and tribal, state and federal governments on environmental aspects of mining and related issues.

EDUCATION

Montana College of Mineral Science and Technology, B.S. Mineral Process Engineering, 1983.

PROFESSIONAL REGISTRATION

Professional Engineer (PE Mining/Minerals): Colorado (No. 30262), Montana (No. 7809 & Corp. No. 197)

PROFESSIONAL EXPERIENCE

1997 to Present **Center for Science in Public Participation, Bozeman, MT.**

- *Amigos Bravos, Taos, NM:* Consulting Mining Engineer, MolyCorp Questa Mine, technical review committee and working group member in reclamation and closure/closeout permitting and bonding process.
- *Canadian Earthcare Society, Vancouver, BC:* Consulting Mining Engineer, Brenda Mine, assist appeal of reclamation and closure permit.
- *Clark Fork River Technical Advisory Committee, Missoula, MT:* Technical Advisor, Clark Fork River and Milltown Reservoir Operable Units, Upper Clark Fork Basin Superfund Sites.
- *Friends of the Similkameen, Hedley, BC:* Consulting Mining Engineer, Candorado Mine, assist appeal of reclamation and closure permit.
- *Gila Resources Information Project, Silver City, NM:* Consulting Mining Engineer, Phelps Dodge Chino, Cobre and Tyrone Mines, reclamation and closure/closeout permitting and bonding process.
- *Great Basin Mine Watch, Reno, NV:* Consulting Mining Engineer, various NV projects, permitting and reclamation and closure/closeout permitting and bonding process.
- *Guardians of the Rural Environment, Yarnell, AZ:* Consulting Mining Engineer, Yarnell Project, EIS review and assist appeal of State operating permit.
- *Fort Belknap Tribal Council and Environment Department, Fort Belknap, MT:* Consulting Mining Engineer, Zortman and Landusky Mines, author of Alternative Reclamation and Closure Plan, multiple accounts analysis working group member and technical advisor during supplemental EIS.

- *Montana Environmental Information Center, Helena, MT and National Wildlife Federation, Missoula, MT:* Consulting Mining Engineer, Golden Sunlight Mine, EIS Review and assist appeal of State operating permit.
- *National Wildlife Federation, Boulder, CO:* Consulting Mining Engineer authoring report on Hardrock Mining Reclamation and Closure Bonding Practices in the Western United States.
- *Northern Plains Resource Council, Cottonwood Resource Council, Stillwater Protective Association, Billings, MT:* Consulting Mining Engineer, Stillwater Mining Company Nye and East Boulder Mines, facilitate and perform technical aspects of Good Neighbor Agreement.

1996 to Present **J. Kuipers Engineering, Boulder, MT.**

- *Cabinet Resource Group, Noxon, MT:* Consulting Mining Engineer, Rock Creek Project, review of proposed tailing impoundment.
- *Citizens' Technical Environmental Committee, Butte, MT:* Technical Advisor, Butte-Silver Bow Site Operable Units, Upper Clark Fork Basin Superfund Sites.
- *Montana Attorney Generals Office, Helena, MT:* Consulting Mining Engineer, assist in defense of I-137 Open Pit Cyanide Mine Ban appeals.
- *Montana Department of Environmental Quality, Helena, MT:* General Contractor, Pony Mill Site Reclamation.
- *Montana Trout Unlimited, Missoula, MT:* Consulting Mining Engineer, Trout Unlimited's Four Mines Campaign, review and provide technical assistance on McDonald, Crandon, New World and Rock Creek Mines.
- *Trust for Public Lands, San Francisco, CA:* Consulting Mining Engineer, Viceroy Castle Mountain Mine, evaluated pit backfill and reclamation alternatives for settlement agreement trust fund determination.
- *Walz and Assoc, Albuquerque, NM:* Expert Witness and Consulting Mining Engineer, assist in defense of New Mexico Environment Department and Mining and Minerals Division permitting and takings case (Manning v. NM).

1993 - 1995 **Denver Mineral Engineers, Inc., Littleton, CO.**

- Manager, Process Engineering Department.
- Manager, Mining and Environmental Wastewater Treatment Program
- *Arrowhead Industrial Water Co., San Jose, CA:* Project Manager, evaluation of reverse osmosis for mine wastewater treatment.
- *Barrick Goldstrike, USA, Elko, NV:* Project Engineer, engineering design, construction and installation of 1.5 M oz/year stainless steel electrowinning system.

- *Battle Mountain Gold, Co., Battle Mountain, NV:* Project Manager, evaluation, pilot testing, and preliminary feasibility study of wastewater treatment options for groundwater remediation of Fortitude Mine tailings area.
- *Commerce Group Corporation, Milwaukee, WI:* Project Manager, San Sebastian Gold Project, El Salvador.
- *Independence Mining Corp, Jerritt Canyon, NV:* Project Manager, technical evaluation and feasibility study of column flotation for beneficiation of refractory ores.
- *Kennecott Utah Copper, Bingham Canyon, UT:* Project Manager, design and construct stainless steel solvent extraction mixer settlers for prototype SX/EW plant.
- *Israeli Chemical Corp., Beersheeba, Israel:* Project Manager, evaluation of bromine as an alternative to cyanide gold leaching and prototype design.
- *Marston and Marston, St Louis, MO:* Project Manager, Kommunar Gold Mill Modernization Project, Kommunar, Siberia, Russia (CIS) and Suzak Polymetal Leach Circuit Evaluation and Feasibility Study, Kazakhstan (CIS).
- *Nevada Goldfields Mining Co., Denver, CO:* Project Manager, Nixon Fork Mine Preliminary Engineering Design and Feasibility Study, Concentrate Marketing Study, and environmental permitting studies.
- *Southern Pacific Railroad, Denver, CO:* Project Manager, design, construction and installation of dissolved air flotation wastewater treatment system.

1991 - 1992

Western States Minerals Corp.

- Project Manager, Northumberland Gold Mine, Round Mountain, NV.
- Corporate Senior Metallurgist, Wheat Ridge, CO. Engineering design and feasibility evaluations.

1986 - 1991

Western Gold Exploration and Mining Co. (WESTGOLD)/Minorco

- Corporate Senior Metallurgist / Project Manager, WESTGOLD, Golden, CO. Acquisitions and engineering design and feasibility evaluations, corporate acquisitions and business development group.
- Project Manager, Shamrock Resources (WESTGOLD Subs.), Reno, NV. Evaluation, engineering design and feasibility study, and prototype plant operation of refractory gold ore bioleaching technology program.
- Project Manager, Balmerton Mine, Ontario: Refractory gold ore bioleaching project and feasibility evaluation.
- Project Engineer, Johannesburg South Africa: Evaluation of Anglo American Corp. Pumpcell Technology.
- Mill Superintendent, Austin Gold Venture (WESTGOLD), Austin, NV.

- Shift Foreman, Inspiration Consolidated Copper Co, Globe, AZ.

1984 - 1985

Canyonlands 21st Century Corporation

- Director of Metallurgy, Blanding, UT. Project Manager, Jarbidge, NV.

1983 - 1984

Cumberland Mining Corporation

- Mill Superintendent / Head Metallurgist, Basin and Virginia City, MT.

PRESENTATIONS and PUBLICATIONS

- *Mine Closure and Financial Assurance: Can the Mining Industry Afford It's Legacy?*, presented at Global Mining Initiative Conference, Toronto, Canada, May 2002.
- *The Role of the Center for Science in Public Participation in Mining Environmental Issues, with Perspective for Regulators and Industry*, presented at Canadian Institute of Mining and Metallurgical Engineers Conference, Vancouver, Canada, May 2002 and U.S. EPA Hardrock Mining Conference, Denver, Colorado, May 2002.
- *The Good Neighbor Agreement between Stillwater Mining Company and the Northern Plains Resource Councils: The Formation and Implementation of a New Approach to Addressing Environmental and Community Relations Issues*, presented at U.S. EPA Hardrock Mining Conference, Denver, Colorado, May 2002.
- *Underground Hard-Rock Mining: Subsidence and Hydrologic Environmental Impacts*, Center for Science in Public Participation, Bozeman, MT, February 2002. Co-authored with S. Blodgett.
- *Review of the Multiple Accounts Analysis Alternatives Evaluation Process Completed for the Reclamation of the Zortman and Landusky Mine Sites*; presented at National Association of Abandoned Mine Lands Annual Conference, Athens, Ohio, August 2001. Co-authored with S.C. Shaw, A.M. Robertson, W.C. Maehl and S. Haight.
- *Full Reclamation and Closure Plan, Phelps Dodge Tyrone Mine, Grant County, NM*; Gila Resources Information Project, Silver City, NM, July 2001. Co-authored with S. Blodgett.
- *Reclamation Bonding for Hardrock Metal Mines Workshop*; presented by CSP2 at Juneau and Fairbanks, AK, July 2001.
- *Full Reclamation and Closure Plan, Phelps Dodge Chino Mine, Grant County, NM*; Gila Resources Information Project, Silver City, NM, June 2001. Co-authored with S. Blodgett.
- *Reclamation Bonding in Montana*; Montana Environmental Information Center, Helena, MT, November 2000. Co-authored with S. Levit.
- *Full Reclamation and Closure Plan, MolyCorp Questa Mine, NM*; Amigos Bravos, Taos, NM, May 2000.
- *Hardrock Mining Reclamation and Bonding Practices in the Western United States*: National Wildlife Federation, Boulder, CO, February 2000.

- *An Economic Evaluation of the McDonald Gold Project*; Blackfoot Legacy, Lincoln, MT, February 2000..
- *Restoring the Upper Clark Fork: Guidelines for Action*; Trout Unlimited, Missoula, MT, April 1999. Co-authored with D. Workman, B. Farling and P. Callahan.
- *Alternative Final Reclamation and Closure Plan, Zortman and Landusky Mines, MT*: Indian Law Resource Center, Helena, MT, January 1999.
- *Reclamation Bonding Regulations of Precious Metal Heap Leach Facilities in the Western United States*: Presented at the workshop on Closure, Remediation and Management of Precious Metals Heap Leach Facilities, University of Nevada, Reno, Jan 15, 1999.
- *Wastewater Treatment Methods for Base and Precious Metal Mines*: Public Education for Water Quality Project, Northern Plains Resource Council, Billings, MT, 1996.
- *Bacterial Leaching Pilot Study – Oxidation of a Refractory Gold Bearing High Arsenic Sulphide Concentrate*: Randol Gold Forum, Squaw Valley, 1990. Co-authored with J. Chapman, B. Marchant, R. Lawrence, R. Knopp.
- *Novel Aspects of Gold Recovery Using Column Flotation at Austin Gold Venture*: Gold and Silver Recovery Innovations, Phase IV Workshop, Randol International Ltd, Sacramento, CA, 1989.