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July 10, 2017

Scott Pruitt
EPA Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Docket ID No. EPA-HQ-SFUND-2015- 0781

Thank you for the opportunity to comment on the proposed financial responsibility requirements under CERCLA 108(b) for classes of facilities in the Hardrock Mining Industry. These comments are submitted on behalf of the undersigned organizations and Earthworks, a national non-profit organization dedicated to protecting communities and the environment from the adverse effects of mineral and energy development, while seeking sustainable solutions.

The rule is based on a simple principle. If you make a mess; you clean it up. Strong financial assurance regulations are needed to protect the American taxpayer from the burden of clean-up costs associated with mining industry – the nation's leading source of toxic pollution.[1] With an estimated backlog of $20-54 billion for clean-up of hardrock mines,[2] American taxpayers already face an enormous financial burden. Strong rules are necessary to shift the financial responsibility for cleanup to the industry, not the taxpayer, and to ensure timely cleanup to protect American citizens and the environment from the adverse effects of hazardous releases.

[1] EPA, 2015 TRI National Analysis: Executive Summary. Available at: https://www.epa.gov/sites/production/files/2017-01/documents/tri_na_2015_executive_summary.pdf
[2] https://www.regulations.gov/document?D=EPA-HQ-SFUND-2009-0265-0001

We'd like to highlight a few key points in relation to the draft rules:

1) We strongly support the EPA's preferred option (Option 1) that precludes the use of corporate guarantees, or mere promises, as an instrument for financial assurance. Corporate or "self" guarantees are no guarantee at all because they are not backed by real assets, cash or cash equivalents. Corporate guarantees conflict with the purpose of the rule-making because it places the financial risk primarily on the American taxpayer, rather than the operator, and it ignores the reality that market forces work faster than governments.

2) These rules are essential, and not duplicative, because the liabilities covered by the CERCLA 108(b) program, such as spills, natural resource damages and health risk assessments, are generally not covered by other state and federal land management financial assurance programs.

3) We support the proposal to provide access to financial assurance funds for third parties. It is important that those that are adversely affected by a hazardous release have an avenue to secure funds for timely cleanup.

4) Program deferrals should not be authorized because the risks and liabilities under CERCLA 108(b) differ from those of state and other federal land management agencies. This approach inappropriately defers regulatory authority to another agency, and prevents EPA from ensuring compliance with the statute.

5) Reductions to the financial assurance calculations should only be applied for engineering controls that are installed and demonstrated to function as required to reduce the degree and duration of risk - not mere plans to do so.

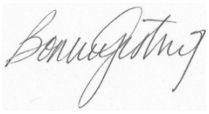
6) The draft rules should not authorize the "all or nothing" approach to financial assurance reductions, described on p. 3467 of the Federal Register Notice. This approach relies entirely on engineering controls to safeguard against releases, and discounts the substantial risk associated with human error and mechanical failures, which are the basis for significant hazardous releases. Ultimately, the rule must ensure that financial assurance is sufficient to cover the full cost of cleanup.

7) We strongly support the EPA's proposal to require that financial responsibility (FR) be terminated only after the agency releases the owner or operator of its obligation because many mines require water treatment long after mining operations cease, and often in perpetuity. We encourage the establishment of trust funds for these long-term liabilities.

8) The rules should incorporate a public review component that allows for meaningful input into the financial responsibility calculation, and affords a process for the financial responsibility amount to be increased to accurately reflect the site liability when site conditions change.

Our more detailed, section-specific comments are provided below. We look forward to working with the EPA as it completes these financial assurance regulations.

Sincerely,



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SECTION SPECIFIC COMMENTS

I. Executive Summary

A. Purpose of the Regulatory Action (320.1)

- **Strong CERCLA 108(b) regulations are necessary to protect taxpayers from incurring the cost of mine clean-up, and to ensure that clean-up of hazardous materials at mine sites occur in a timely manner.**

Mining and mineral processing generate more toxic and hazardous waste than any other industrial sector.[3] Furthermore, the mining of increasingly lower grade deposits has increased the scale of surface disturbance and the volume of waste generated. Numerous reports highlight the need for CERCLA 108(b) rules to address the clean-up liabilities associated with the release of hazardous materials from hardrock mining. A 2005 GAO Report[4] explained:

> The need for EPA to fully use its existing authorities to execute the 'polluter pays' principle underlying the Superfund laws is even more compelling today than it was during the 1980s and 1990s when corporate taxes ... provided about $1 billion a year for Superfund cleanups. Now, without revenue from Superfund taxes, the cleanup burden has increasingly shifted to the general public—and at a time when large federal deficits are likely to constrain EPA's ability to obtain such funding for these cleanups. In addition, over time, businesses have become more sophisticated in using the limited liability principle to protect their assets by separating them from their liabilities. The result is that businesses of all sizes can easily limit the amounts they may be required to pay for environmental cleanups under Superfund.... These challenges can seriously hamper EPA's ability to achieve its primary mission of protecting human health and the environment because they present formidable obstacles to obtaining the funding needed for cleanups. ... Thus, we believe it is imperative for EPA to increase its focus on financial management and to fully use its existing authorities to better ensure that those businesses that cause pollution also pay to have their contaminated sites cleaned up.

Funding shortfalls reduce the effectiveness of Superfund cleanups, leaving the public exposed to higher levels of hazardous substances. EPA's Office of Inspector General found that in fiscal year 2003, a $174.9 million funding shortfall "prevented EPA from beginning construction at all sites or providing additional funds needed to address sites in a manner believed necessary by regional officials."[5] The report identified 29 specific sites where cleanup work was delayed or scaled back in ways harmful to human health and the environment because of funding shortfalls. For example, "[t]he impact of reduced funds for the Bunker Hill site [in Northern Idaho and

[3] EPA, Toxic Release Inventory, 2015.
[4] Government Accountability Office, Environmental Liabilities, EPA Should Do More to Ensure that Liable Parties Met Their Cleanup obligations. August 2005.
[5] Office of Inspector General, Nationwide Identification of Hardrock Mining Sites, Report No. 2004-00005, March 31, 2004.

Eastern Washington] is associated with risk to human health, particularly for young children and pregnant women, from lead contamination in a residential area."[6]

The delayed cleanup and prolonged health risks at the Bunker Hill site are not unique: indeed, it is now more common than not for cleanup to be delayed due to lack of funding, even at the sites that pose the highest risks to human health.[7] At over 60 percent of the 75 nonfederal [National Priority List] sites with unacceptable human exposure, all or more than half of the work remains to complete the remedial construction. Since fiscal year 2000, most [EPA] regions have experienced delays because of insufficient funding. These delays "increase the length of time it takes to clean up a site; the total cost of cleanup; and, in some cases, the length of time populations are exposed to contaminants."

Huge funding shortfalls are not unusual. For example, in March 2008, W.R. Grace entered into the then-largest Superfund settlement in history, agreeing to pay $250 million to clean up asbestos contamination from its vermiculite mine in Libby, Montana. Asbestos contamination caused hundreds of deaths and thousands of illnesses in Libby.[8] W.R. Grace declared bankruptcy in 2001, shortly after the deadly situation came to light. But even the record-setting settlement does not come close to covering the cost of cleanup. The EPA has reported expenditures of $540 million – a $290 million shortfall.[9]

Similarly, despite recent record-setting settlements with Asarco, the primary responsible party for the Bunker Hill site, substantial public funds will be needed to cover the full cost of cleanup.[10] According to EPA, "While the Asarco bankruptcy settlement is very significant [$494 million], the funds received represent only about 20% of the overall site cleanup needs. EPA estimates that the cost of a final Bunker Hill remedy, including the Coeur d'Alene Basin and Bunker Hill Box, would be more than $2 billion."[11]

EPA and other government oversight agencies have consistently arrived at the same conclusion, in study after study: the high cost of cleanup and the dwindling resources of the Superfund program render it impossible to address all sites in a timely and adequate manner. A 2010 GAO Report states that, "The limited funding, coupled with increasing costs of cleanup, has forced EPA to choose between cleaning up a greater number of sites in a less time and cost efficient manner or cleaning up fewer sites more efficiently." And, a 2005 GAO Report states that, "The decrease in Superfund funding in recent years and this backlog of sites ready for additional funding may make the already lengthy NPL cleanup process even lengthier." The OIG Report states that, "When funding is not sufficient, construction at National Priority List (NPL) sites cannot begin; cleanups are performed in less than an optimal manner; and/or activities are

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[6] Id.
[7] GAO, "Superfund EPA's Estimated Costs to Remediate Existing Sites Exceed Current Funding Levels and More Sites Are Expected to Be Added to the National Priorities list." May 2010. GAO-10-380 Available at: http://www.gao.gov/assets/310/304124.pdf
[8] AP Story, "U.S. cleanup would leave some asbestos in contaminated Libby, Montana," May 5, 2015. http://www.stltoday.com/business/local/u-s-cleanup-would-leave-some-asbestos-in-contaminated-libby/article_886cad8a-9e3f-57cc-b3a2-0e1503c748b8.html
[9] http://www.seattlepi.com/national/article/W-R-Grace-indicted-in-Libby-asbestos-deaths-1165915.php
[10] EPA Region 3, Bunker Hill FAQ, located at: https://www3.epa.gov/region10/pdf/sites/bunker_hill/asarco-trust-faqs-031610.pdf
[11] Id.

stretched over longer periods of time. As a result, total project costs may increase and actions needed to fully address the human health and environmental risk posed by the contaminants are delayed." With hundreds of National Priority List sites awaiting cleanup and tens of thousands of contaminated sites not even on the list for public remediation, the risk to health and the environment is substantial.

Furthermore, recent proposals to substantially cut the EPA's budget, including a 45% cut in CERCLA (the Superfund Program) from $404 million to $221 million – would contribute to the problem.[12] If this budget is realized, the delays in clean-up become even more exacerbated.

C. Costs and benefits of the regulatory action

5. Benefits of the Rule

(a) Reduced costs to Government

- **The cost of maintaining financial assurance is a legitimate cost of doing business, not a regulatory burden.**

The EPA has estimated that "*The average annual public reporting and recordkeeping burden for this collection of information is estimated to be 29 hours per respondent annually*." (EPA 2016b) The anticipated respondent cost is approximately $2000/yr./facility, with EPA's administrative costs being a total, for all respondents, of $65,473/yr. (EPA 2016b). In no sense can these administrative costs be considered more than minor for either industry or the EPA, so that the real cost will be the cost of maintaining the financial surety itself – a legitimate cost of doing business, not a regulatory burden. As the draft rule articulates, the rule simply forces the industry to internalize the real costs of mining, rather than externalizing those costs to the public.

Mining industry leaders, such as Phillips S. Baker, the CEO of Hecla Inc., assert that the rules are an unjustifiable financial burden on the industry.[13] To the contrary, Mr. Baker's previous role as Chief Financial Officer at Pegasus Gold illustrates why these regulations are needed to protect taxpayers against the unjustifiable burden of cleaning up after the mining industry. Mr. Baker was the Vice President and Chief Financial Officer for Pegasus Gold when it declared bankruptcy, leaving the liability for cleanup and long-term water treatment at the Zortman Landusky, Beal Mountain and Basin Creek Mines to state and federal government.[14] An estimated $40 million in public funds has been spent to date, and the costs continue to mount.[15] Meanwhile, the company provided golden parachutes to its top executives. The seven top managers received $2 million in bonuses after the bankruptcy.[16] Mr. Baker moved on to become

[12] https://www.nytimes.com/2017/04/10/climate/trump-epa-budget-cuts.html
[13] Phillips S. Baker, Hecla Inc., Letter to EPA Administrator Scott Pruitt, March 16, 2017.
[14] http://www.bloomberg.com/profiles/people/1420444-phillips-s-baker; Montana Standard, "Pegasus Gold Corp. seeks to liquidate 3 Montana mines." August 8, 1998.
[15] Funding summary of Zortman-Landusky expenses from 1999-August 2014, provided by Tom Livers, MTDEQ; U.S. Forest Service, Bob Wintergrest, Annual Beal Mountain Reclamation Update, July 2014.
[16] http://mtstandard.com/news/pegasus-gold---from-boom-to-bankruptcy/article_7a82e59e-9aec-5d6a-a376-bc4ecf492ac9.html

the CEO of Hecla Inc., yet taxpayers are still paying for the costs of these mines, which continue to be a source of hazardous releases.

- **The RIA does not have sufficient data to accurately determine the financial responsibility requirements, and therefore the reduced costs to Government associated with the rule.**

On page 5-4 of the RIA, it states that data *for most of the facilities in the potentially regulated universe* were not available, and therefore, the estimated Financial Responsibility amounts (FRs) are highly uncertain. As a result, the agency is unable to provide an accurate assumption of the reduced costs to Government. The EPA should collect additional site data to provide a more accurate estimate of the financial responsibility amounts, and therefore, the reduced costs to government.

On its face, the draft rule appears to underestimate the reduced costs to government, as evidenced by two mine bankruptcies alone, which have resulted in costs to government that exceed $500 million.[17] If financial assurance had been in place at the time, these costs would have been borne by the mining companies; not the government/public. Thus the reduced cost to government from those two bankruptcies alone are the equivalent of the estimated amount ($511-527 million) the EPA predicts as the estimated reduced costs to government over a 34-year period.

The rule should also consider the reduced cost to government associated with addressing the risks and liabilities from a large spill, such as a tailings dam failure. Researchers have determined that the rate severe tailings dam failures are increasing globally as a result of the increase in mining of low-grade deposits, generating larger volumes of waste and requiring taller tailings dam structures.[18] Just one tailings dam failure could swamp the CERCLA program, if rules aren't in place to help defray those risks and liabilities.

Once again, the rule simply provides a correction in the market that requires mines to internalize these costs, rather than externalizing them to the public.

(b) Improvement in Environmental Performance

- **The draft rule fails to describe and quantify the regulatory benefits of the proposed rules, including but not limited to, benefits to ecosystem services, groundwater resources, public health, and subsistence resources associated with securing financial assurance.**

The EPA considered the benefits of the draft rule on Clean Water Act impaired waters and/or wild and scenic rivers – a very limited analysis of a very narrow set of considerations. The release of hazardous materials can have adverse effects on a broad array of natural resources,

[17] The W.R Grace and Galactic Resource bankruptcies alone resulted in more than $500 million in government funded clean-up costs.

[18] Bowker, Lindsay Newland and Chambers, David M., "The Risk, Public Liability and Economics of Tailings Storage Facility Failures," July 21, 2015. Available at: https://www.earthworksaction.org/files/pubs-others/BowkerChambers-RiskPublicLiability_EconomicsOfTailingsStorageFacility%20Failures-23Jul15.pdf

public health and subsistence resources. The delays associated with inadequate funds for clean-up can prolong these impacts, resulting in substantial costs to the public over extended periods.

For example, a number of studies document the adverse impacts to groundwater from hazardous releases due to hardrock mining. Kuipers and Maest (2006) found that 100% of hardrock mines studied were predicted to have no impact on water quality during the permitting phase, yet 76% resulted in adverse impacts to surface or groundwater.[19] Another study of 14 out of 16 U.S. operating copper porphyry mines identifies extensive groundwater pollution and other natural resource damages, resulting from the release of hazardous materials.[20]

Releases of hazardous materials may also be expected to have adverse effects on subsistence uses, as evidenced by the release of radioactive materials at the Yerington Mine, and as predicted in the analysis of the proposed Pebble mine,[21] Donlin mine, and other large-scale operations.

The analysis of impacts on subsistence resources at the proposed Donlin Mine concluded that subsistence use would be restricted in all alternatives, such as Alternative 2, which states, "potential spill scenarios involving ocean and river barge release of diesel fuel, cyanide, mercury, tailings dam failure, and release of untreated water from the pit lake and tailings dam after mine closure may also result in significant restriction to subsistence uses for the Kuskokwim River communities listed above."[22] These releases would not be covered by existing financial assurance programs administered by state or federal land management agencies.

At the proposed Pebble Mine, the EPA analyzed potential impacts to the Bristol Bay salmon fishery from pipeline spills, tailings dam failures and other releases. The 2014 risk assessment determined that:

> "Based on a review of historical and currently operating mines, some failure of water collection and treatment systems would be expected to occur during operation or post-closure periods. A variety of water collection and treatment failures are possible, ranging from operational failures that result in short- term releases of untreated or partially treated leachates to long-term failures to operate water collection and treatment systems in perpetuity. A reasonable but severe failure scenario would involve a complete loss of water treatment and release of average untreated wastewater into average dilution flows. In that failure scenario, copper concentrations would be sufficient to cause direct effects on salmonids in 27, 64 to 87, and 74 to 97 km (17, 40 to 54, and 46 to 60 miles) of streams in the

[19] Kuipers, J.R., Maest, A.S., MacHardy, K.A., and Lawson, G. 2006. Comparison of Predicted and Actual Water Quality at Hardrock Mines: The reliability of predictions in Environmental Impact Statements. https://www.earthworksaction.org/files/publications/ComparisonsReportFinal.pdf

[20] Earthworks, "U.S. Copper Porphyry Mines: The Track Record of Water Quality Impacts Resulting from Pipeline Spills, Tailings Failures and Water Collection and Treatment Failures, July 2012. Available at: https://www.earthworksaction.org/files/publications/Porphyry_Copper_Mines_Track_Record_-_8-2012.pdf

[21] U.S. EPA. An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA 910-R-14-001 ES, January 2014.

[22] U.S. Army Corps of Engineers, Donlin Gold, Draft Environmental Impact Statement, Appendix N, November 2015. Available at: http://www.donlingoldeis.com/Documents/19%20Appendix%20M%20to%20Appendix%20O.pdf

> Pebble 0.25, 2.0, and 6.5 scenarios, respectively. Aquatic invertebrates would be killed or their reproduction reduced in 78 to 100 km (48 to 62 miles) of streams in all three scenarios. In the Pebble 2.0 and 6.5 scenarios, a fish kill would occur rapidly in 3.8 and 31 km (2.4 and 19 miles) of streams, respectively, following treatment failure."[23]

The EPA also determined that pipeline spills of concentrate, diesel, and return water would likely happen over the mine life and have adverse effects on the fishery.[24] Once again, existing financial assurance programs do not address the costs associated with these types of spills.

Similarly, an increase in the timeliness of clean-up can have beneficial impacts on fish and wildlife. For example, a 2000 pre-assessment of natural resource damages at the Chino Mine in New Mexico found migratory bird morbidity and mortality. The assessment states that a large body of economic literature has documented significant service reductions from bird kills, even when the species are not particularly unique or sensitive (e.g., Loomis et al., 1990; Rowe et al., 1991; Boyle et al., 1994).[25]

There are economic tools, which are used in natural resource damage claims, to quantify the value of these resources and that can assess the value associated with the loss of public use of these resources over time. The draft rules should describe and estimate the economic benefits to natural resources, public health, and subsistence resources that could reasonably be expected to be better protected as a result of these rules. Simply because it is difficult to quantify these values does not excuse the agency from doing so.

- **The draft rule should also quantify the economic benefits of avoiding environmental impacts and increasing the speed of site clean-ups.**

Tourism, recreation, fishing, and other activities are substantial economic benefits and drivers in many states. The benefits of timely clean-up and reductions in impacts should also be quantified and described.

- **Access to funds by third parties should be identified as a benefit, and described in more detail.**

E. Market Capacity Study

The draft rule states that the capacity of the financial industry will be dependent upon the overall financial responsibility that the market will need to accommodate, and that capacity will be influenced, among other things, by "whether the proposed rule permits use of a financial test." EPA should not condition its decision on whether or not to allow use of a corporate guarantee (basically, company self-insurance) on "the market." What the market can absorb depends upon

[23] U.S. EPA, An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska, Executive Summary, EPA 910-R-14-001ES, January 2014.
[24] Id. P. 17.
[25] Stratus Consulting Inc., Prepared for U.S. Fish and Wildlife Service, "Preassessment Screen for the Chino Tyrone and Morenci Mine Sites, Grant County, New Mexico and Morenci, Arizona." June 18, 2003.

how much the buyer in the marketplace will spend. Regardless of the cost to the regulated industry, EPA has set forth too many dispositive arguments against the corporate guarantee to allow it to be used. If the regulated industry must pay more for financial assurance, the market will absorb the demand.

IV. Major Issues in the Development of the Proposed Rule

C. Universe Covered

- **EPA should clarify the scope of facilities to be covered, which are described as "facilities that are authorized to operate, or should be authorized to operate."**

Section 302.2 describes the rule as applying to current owners and operators of facilities that are authorized to operate, or should be authorized to operate, on or after the effective date of this rule. It's unclear what is meant by "or should be authorized to operate," which should be explained in the rule. We also suggest that the rule require that compliance with CERCLA 108(b) financial assurance requirements be a prerequisite to mine operations. For new mines, activities should not be authorized to proceed until financial assurance under this part has been secured.

- **The rules should apply to mine operations that are no longer active, but still retain a responsible party.**

Many "past hardrock mining facilities" are already and/or will be the site of CERCLA liabilities and necessary response actions. The CERCLA §108(b) regulations should apply to these operations. Failure to extend the requirements to inactive mines contradicts the concept of CERCLA liability, which includes "past owners and operators" in CERCLA §107(a).

- **The rule should apply to mineral processing facilities with less than 5 disturbed acres of waste pile and surface impoundment that present a risk of hazardous releases.**

A release of hazardous material from an impoundment up to 5 acres in size could result in substantial damage, and should be incorporated into the rule. Also, in the EPA's response to peer review comments, the EPA states that the rule may not apply to industrial mineral categories such as barite, chromite, fluorspar and vermiculite. We're particularly concerned with the exclusion of vermiculite, given the potential for vermiculite to be found in association with asbestos. (p. 2-2, Response to Peer Review). The W.R. Grace Mine in Libby Montana highlights the grave consequences associated with the release of this hazardous material to public health. For that reason, the rules should incorporate vermiculite, at a minimum.

- **The rule should define transportation-related facilities, and they should not be exempt from the rule because DOT has not yet issued regulations to address these liabilities.**

EPA proposes to exclude "transportation-related facilities" at mining and processing site because E.O. 12580 (1/23/87) delegates to the Department of Transportation the authority to issue such

regulations. Certain transportation-related facilities at mining and processing sites can cause CERCLA liabilities (e.g., fuel spills at load out facilities, etc.), but the public would not be indemnified because DOT has not yet issued these regulations. Furthermore, depending on how "transportation-related facilities" is defined (it is not defined in these proposed regulations), a responsible owner or operator could exempt itself from financial-assurance requirements, thereby jeopardizing the public that the CERCLA §108(b) requirements are supposed to protect.

V. Relationship of CERCLA § 108(b) to Other Federal Laws, and to State and Tribal Laws.

There is abundant data to demonstrate that existing regulatory programs are insufficient to effectively protect against the release of hazardous materials. Kuipers and Maest (2006) reviewed hardrock mines throughout the U.S. to determine what water quality impacts were predicted during the NEPA and permitting process, and what impacts occurred as a result of mining. This report determined that 100% of the mines predicted that water quality would be protected, yet 76% of the mines resulted in adverse impacts to surface or groundwater. Predictions of the efficacy of mitigation were no more reliable than overall predictions of water quality: 73% of mines exceeded surface water quality standards despite predicting that mitigation would result in compliance. 77% of mines that exceeded groundwater quality standards predicted that mitigation would result in compliance. Thus, the existing regulatory programs, and the associated engineering controls, are insufficient to prevent the release of hazardous materials.

- **CERCLA 108(b) regulations are essential because they address risks and liabilities that aren't addressed in most other state or federal land management financial assurance programs, including, but not limited to the following:**

1. SPILLS, ACCIDENTAL RELEASES AND TAILINGS FAILURES

Pipeline spills, tailings spills, tailings impoundment failures and other releases of hazardous materials are generally not covered in most state or federal financial assurance programs even though they commonly occur at hardrock mines, and can result in substantial liabilities.

In a recent report, Earthworks reviewed state and federal documents and a federal database for fourteen copper porphyry mines representing 87% (14 out of 16) of operating copper porphyry mines, and 89% of U.S. copper production in 2010.[26] The fourteen mines were chosen based on an operating record of more than five years, and they provide a representative view of the types of environmental impacts resulting from the development of copper porphyry deposits, focusing on pipeline spills, tailings failures and water collection and treatment failures.

We found that all of the mines (100%) experienced pipeline spills or other accidental releases. The most frequent spills were reported at the Ray Mine in Arizona, where over fifty pipeline spills occurred from 1988 to 2012. Examples of recent pipeline spills with adverse on and off-site effects include a 2012 spill at the Ray Mine which washed tailings into the Gila River, a

[26] Earthworks, "U.S. Copper Porphyry Mines: The Track Record of Water Quality Impacts Resulting from Pipeline Spills, Tailings Failures and Water Collection and Treatment Failures, July 2012. Available at: https://www.earthworksaction.org/files/publications/Porphyry_Copper_Mines_Track_Record_-_8-2012.pdf

2008 pipeline spill at the Morenci Mine of 186,000 gallons of sulfuric acid along two miles of Chase Creek - a tributary of the San Francisco River, and a 2009 spill of 2 million gallons of process water at the Bagdad Mine.

At 13 of the 14 mines (92%), water collection and treatment systems failed to control contaminated mine seepage, resulting in significant water quality impacts. The development of acid mine drainage was associated with the most severe and lasting impacts. For example, the Tyrone and Chino mines – the two largest copper porphyry mines in New Mexico, will generate an estimated 2 billion gallons of acid and metals contaminated seepage every year, requiring water treatment in perpetuity. These two mines have resulted in severe surface and groundwater contamination, and the State of New Mexico and U.S. Department of Justice have filed natural resource damage claims against the company for damages to water, fish and wildlife resources. The Bingham Canyon Mine, the largest copper porphyry mine currently operating in the United States, will also generate water pollution in perpetuity from the mine's waste rock piles. Mine operations have resulted in a plume of contaminated groundwater extending over 70 square miles.

At 4 out of 14 mines (28%), partial tailings impoundment failures have occurred, and at 9 out of 14 mines (64%), tailings spills have occurred. These included a 1997 partial failure of the tailings impoundment at the Pinto Valley Mine, where 8.1 acres of creek bed and surrounding upland were buried under material as deep as 42 feet. In 1993, heavy precipitation caused the Gila River to flood and breach the tailings impoundment at the Ray Mine, carrying pollutants 11 miles downriver. And in 1980, 2.6 million cubic yards of tailings were released at the Tyrone mine, and flowed 8 kilometers downstream.

Recent research also indicates that the rate of severe tailings dam failures is increasing globally.[27] The report finds that the problem is driven by mining continuously lower grades in identified resources and continuously falling real prices of most metals. The research found that many of the same features of modern mining that create economic feasibility in lower grades of ore also pose greater challenges for the management of mine waste and waste water. One of the manifestations of these challenges overall is a greater frequency of Very Serious tailings dam failures with significant levels of social and economic consequence, sometimes non remediable.

The study found that 49% of all recorded Serious and Very Serious failures from 1940- 2010 have occurred since 1990. Of all 525 recorded incidents cited, 1990- 2010, 17 (33%) were Serious failures, i.e. large enough to cause significant impacts or involved loss of life. Another 31% were Very Serious failures, i.e. catastrophic dam failures that released more than 1 million cubic meters of tailings and in some instances resulted in multiple loss of life. 63% of all incidents and failures since 1990 were Serious or Very Serious.

The total costs for just 7 of these 16 large failures was $3.8 billion, at an average cost of $543 million per failure (See Appendix 3). These losses, according to dam committee reports and government accounts are almost all the result of failure to follow accepted practice. According to

[27] Bowker, Lindsay Newland and Chambers, David M., "The Risk, Public Liability and Economics of Tailings Storage Facility Failures," July 21, 2015. Available at: https://www.earthworksaction.org/files/pubs-others/BowkerChambers-RiskPublicLiability_EconomicsOfTailingsStorageFacility%20Failures-23Jul15.pdf

the report, these failures are a direct result of the increasing prevalence of tailings storage facilities with greater than a 5 million cubic meter total capacity necessitated by lower grades of ore and the higher volumes of ore production required to attain or expand a given tonnage of finished product.

A recent tailings dam failure at the Mount Polley Mine in British Columbia resulted in a report by an independent expert panel that determined that mines that use "wet" tailings, rather than "dry" tailings are a greater risk for catastrophic failure.[28] The report states that: "improving technology to ensure against failures requires eliminating water both on and in the tailings: water on the surface, and water contained in the interparticle voids, and it strongly recommends that the mining industry and regulators adopt best available technology (i.e., dry tailings), to reduce the risk of catastrophic failures. An EPA memo identifies numerous U.S. mines that store wet tailings behind tailings dams – presenting a long-term risk of catastrophic failure.[29] The risks and liabilities associated with tailings dam failures are not addressed in state financial assurance programs or those of federal land management agencies, and state and federal regulations do not require the best available technology recommended by the panel.

A recent study also identifies the water quality impacts associated with spills, accidental releases and mine water capture and treatment failures at 27 operating U.S. gold mines, representing 93% of U.S. gold production in 2013 – the most recent data available from the U.S.G.S.[30] It found that 100% of the mines experienced spills or other accidental releases, and 74% failed to capture and control mine seepage. At 74% of the 27 mines, water quality impacts occurred as a result of these failures. The report demonstrates that existing regulations are insufficient to prevent hazardous releases or protect water quality.

The Gold King and Sunnyside Mines in Colorado provide another example. These inactive mines have owners, but no financial assurance were obtained for these mines and failure to complete reclamation at the sites allowed for conditions to deteriorate over time. As a result, acid mine drainage built up to problematic levels. In an attempt to remediate the Gold King mine, an EPA contractor inadvertently triggered a release of an estimated 3 million gallons of acid mine drainage into the Animas River – resulting in impacts that extended into three states. The EPA has dedicated $29 million to address the release to date.[31]

2. NATURAL RESOURCE DAMAGES

Natural resource damages, particularly those that occur off-site, are generally not addressed under existing state or federal land management financial assurance programs. For example, the

[28] Independent Expert Engineering Investigation and Review Panel, Report on Mount Polley Tailings Storage Facility Breach, January 30, 2015.
[29] EPA Docket EPA-HQ-SFUND-2015-0781, Summary Wet Tailings and Hydraulic Head Data for the Financial Responsibility Requirements Under CERLCA 108(b0 for Classes of Facilities in the Hardrock Mining Industry Proposed Rule. April 27, 2017.
[30] Gestring and Hadder, "U.S. Gold Mines: Spills and Failures Report: The Track Record of Environmental Impacts Resulting from Pipeline Spills, Accidental Releases and Failure to Capture and Treat Mine Impacted Water. July 2017.
[31] EPA, News Releases from Headquarters, "EPA Continues Reimbursing Gold King Mine Costs, June 23, 2017.

phosphate mines in southeast Idaho have resulted in off-site impacts of selenium pollution to surface water, soils, domestic stock, and fish and wildlife.

According to a 2012 GAO report that evaluated the regulatory oversight at phosphate mines in Idaho, federal agencies are currently overseeing mining operations or selenium cleanup at 18 phosphate mines, of which 5 are active and 13 inactive. Of the 18 mines, 16 are contaminated with selenium and most are being assessed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, for future cleanup.[32]

Table 1. Phosphate Mine Status and Associated Selenium Contamination in Southeast Idaho (adapted from GAO 2012) .

MINE NAME	ACTIVE	INACTIVE	ACRES DISTURBED	SELENIUM CONTAMINATION DETECTED	LIVESTOCK DEATHS HAVE OCCURRED
Ballard		•	635	•	
Blackfoot Bridge[1]	•		NA		
Champ		•	392	•	
Conda/Woodall		•	1,506	•	•
Diamond Gulch		•	32	•	
Dry Valley		•	888	•	
Enoch Valley		•	581	•	
Gay[2]		•	4,736	•	
Georgetown Canyon		•	251	•	•
Henry		•	1.074	•	•
Lanes Creek	•		29	•	•
Mountain Fuel		•	716	•	
North Maybe		•	1,228[3]	•	
Rasmussen Ridge	•		756	•	
Smoky Canyon	•		2,506	•	
South Maybe Canyon		•	See North Maybe Mine	•	•
South Rasmussen	•		389	•	
Wooley Valley		•	808	•	•
Total	4	14	16,527	17	6

1. The Blackfoot Bridge Mine is a newly permitted mine (Record of Decision signed in 2011), and as such will not be included in the NRDA.
2. Gay Mine occurs on Shoshone-Bannock Tribal lands. For purposes of this PAS, Trustees, at this time, are not considering Gay Mine. Such consideration may be made at a later date.
3 Acres of disturbance provided include disturbance for North Maybe Mine and South Maybe Canyon Mine combined.

The report also found that "no final cleanup actions have been chosen at any of the sites, and according to officials, most sites will require years of additional investigative work before final cleanup actions are selected." And, furthermore, "*no financial assurances have been established to cover future cleanup costs because remaining cleanup actions have not yet been identified, according to agency officials."*[33]

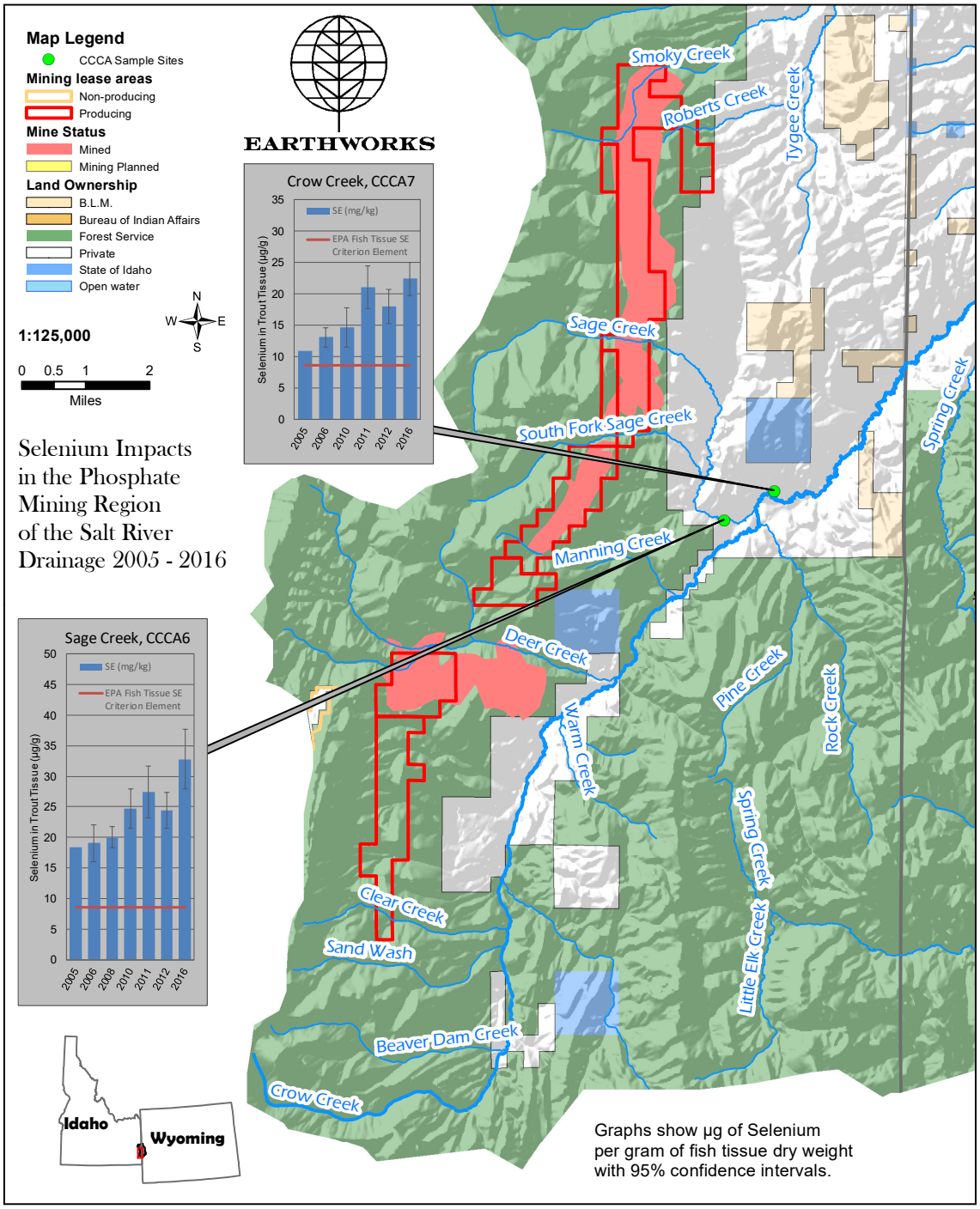
[32] US Government Accountability Office, Phosphate Mining: Oversight Has Strengthened, but Financial Assurances and Coordination Still Need Improvement, May 2012. Available at: http://www.gao.gov/assets/600/590642.pdf
[33] Id.

> "Over the last 16 years, federal agencies and mine operators have primarily focused on assessing the extent of selenium contamination in Idaho and have conducted only limited remediation actions. The agencies have conducted or overseen high-level assessments of contamination at 16 of the 18 mines where federal agencies are overseeing mining operations or cleanup activities, and at several of these mines the agencies and mine operators are now conducting more detailed assessments, known as remedial investigations and feasibility studies. However, no final cleanup actions have been chosen at any of the sites, and according to officials, most sites will require years of additional investigative work before final cleanup actions are selected. Federal agencies reported that they have spent about $19 million since 2001 to oversee these assessments and undertake a limited number of remediation actions, roughly half of which has been reimbursed by the mine operators under cleanup settlement agreements. Mine operators told GAO that they too have spent millions of dollars in additional assessment and remediation work but did not provide documentary evidence to support these claims. Agency officials told GAO that they have not developed estimates for the remaining cleanup costs because final cleanup remedies have not yet been identified. However, their informal estimates suggest that remaining cleanup costs may total hundreds of millions of dollars for the contamination from mining in Idaho.[34]

At the Smoky Canyon Mine, an active phosphate mine, a remedial investigation was completed in 2014 that documents the impacts of selenium releases associated with mine operations.[35] It found that selenium concentrations exceed State water quality standards to protect aquatic biota in Hoopes Spring, South Fork Sage Creek Springs, South Fork Sage Creek, Sage Creek and Crow Creek. It concluded that, "The data presented in this report indicate that COPC concentrations in groundwater downgradient of the source areas and in surface waters that receive discharge from the Wells Formation aquifer (i.e., downstream of Hoopes Spring and SFSC springs) are above applicable screening-level benchmarks. Therefore, water quality conditions in these areas represent potential risks to human and/or ecological receptors."

The off-site environmental liability from the Smoky Canyon Mine in southeast Idaho, is illustrated in the map on the next page, which documents selenium concentrations in fish tissue downstream from the mine in Crow Creek and Sage Creek. Data released in 2016 show that

[34] http://www.gao.gov/assets/600/590642.pdf
[35] Smoky Canyon Mine Remedial investigation/Feasibility Study, prepared for J.R. Simplot Company by Formation Environmental, September 2014.


Map Legend
CCCA Sample Sites
Mining lease areas
Non-producing
Producing
Mine Status
Mined
Mining Planned
Land Ownership
B.L.M.
Bureau of Indian Affairs
Forest Service
Private
State of Idaho
Open water
1:125,000
0 0.5 1 2
Miles
N
W
E
S
EARTHWORKS
Selenium Impacts in the Phosphate Mining Region of the Salt River Drainage 2005 - 2016
Crow Creek, CCCA7
SE (mg/kg)
EPA Fish Tissue SE Criterion Element
Selenium in Trout Tissue (µg/g)
2005 2006 2010 2011 2012 2016
Sage Creek, CCCA6
SE (mg/kg)
EPA Fish Tissue SE Criterion Element
Selenium in Trout Tissue (µg/g)
2005 2006 2008 2010 2011 2012 2016
Smoky Creek
Roberts Creek
Tygee Creek
Sage Creek
South Fork Sage Creek
Spring Creek
Manning Creek
Deer Creek
Pine Creek
Rock Creek
Warm Creek
Spring Creek
Clear Creek
Sand Wash
Little Elk Creek
Beaver Dam Creek
Crow Creek
Idaho
Wyoming
Graphs show µg of Selenium per gram of fish tissue dry weight with 95% confidence intervals.

selenium pollution has substantially increased in trout downstream from the mine, with levels four times the criteria established by the EPA to prevent defects and reproductive failure in fish. Off-site impacts, as illustrated by the selenium concentrations in these surface waters, and the associated native trout, have increased in severity and scope over the last decade.

Long-term water treatment is needed to capture and treat the hazardous releases from this mine to prevent further pollution. While Simplot is expected to pay for the installation of the water treatment system (as part of the consent decree that requires the system as part of a treatability study), a final remedy hasn't been determined, and as a result, no financial assurance is in place to cover the long-term water treatment costs in the event that Simplot can't, or won't, pay for long-term treatment.[36] These costs are expected to be significant because water treatment will be necessary for releases of contaminated mine water at 2,000 gpm (over a billion gallons a year). According to the U.S. Forest Service, the financial assurance for CERCLA related activities associated with the current Remedial Investigation/Feasibility Study (RIFS) at Smoky Canyon is currently $1.5 million.[37] It does not address the cost of long-term water treatment or off-site natural resource damages. Thus, if Simplot were to file for bankruptcy, these costs would be borne by the taxpayer. A 2016 southeast Idaho update indicates that final remedies are not in place at many other phosphate mines as well.[38]

The agencies are still in the process of determining the extent of natural resource damage from selenium releases at many of these mines as well. In 2015, a preassessment screen was conducted under 43CFR Part 11 for seventeen of the southeast Idaho phosphate mines (collectively called the Mine Site) to provide a review of readily available information on hazardous substance releases and potential impacts of these releases on natural resources under the trusteeship of Federal, State or Tribal authorities.[39] It found that:

> Numerous natural resources, including surface water, ground water, sediments, vegetation, and animal tissues, have accumulated elevated selenium concentrations as a result of releases from identified upstream mines and ore processing facilities, and these releases have occurred through various pathways. Upstream sources have discharged in the past, and in most cases, continue to discharge selenium into the Blackfoot, Salt, Bear, and Portneuf River Subbasins. Infiltration of water through waste rock dumps and pits has resulted in mobilization of selenium into the surface and ground water, as well as accumulation in sediments and vegetation both on-site and in downstream locations that are influenced by the surface and ground water flowing through the individual mine sites. Erosion from waste rock dumps to surface soils also contributes to the transport of selenium."

[36] Personal communication, Sherri Stumbo, U.S. Forest Service engineer, Feb. 3, 2017.
[37] Id.
[38] https://www.deq.idaho.gov/media/60178549/phosphate-mine-site-investigations-cleanup-southeast-idaho-fact-sheet.pdf
[39] Southeast Idaho Phosphate Mine Site Trustee Council, Preassessment Screen for the Southeast Idaho Phosphate Mine Site, Idaho, June 15, 2015

The assessment also documents additional ongoing natural resource damages:

> Hazardous substances, most notably selenium, have been documented in surface water, ground water, soils, sediment, vegetation, and animal tissues within the Mine Site over the past decade, and continue to be documented in current studies (Montgomery Watson 1999; Ratti et al. 2002; Skorupa et al. 2002; Kuck 2003; Vasterling 2003; Hamilton and Buhl 2004; Presser 2004; Hamilton and Buhl 2005; Van Kirk and Hill 2007).

Exposures and potential adverse impacts to natural resources include, but are not limited to:

- Exceedances of State criteria for the protection of aquatic life.
- Fish consumption advisory based on selenium concentrations (IDHW 2006).
- Elk liver consumption advisory based on selenium concentrations (IDHW 2006).
- Impacts to fish from aqueous and dietary exposures.
- Effects to wildlife that depend on aquatic prey or forage within the Mine Site boundary.

The preassessment screen is part of a natural resource damage assessment underway by various state and federal agencies. It is only the initial step in a long process.[40] They anticipate that a plan for studying the natural resource damage injuries will be in place by the end of 2018. There is no date set for when the damage claim will be filed, and the mining companies will be required to provide funding to the agencies. In the meantime, the liability for these damages rests on the public because there is no financial assurance in place to cover these costs in the event of a bankruptcy.

Another example is the Formosa Mine in Oregon, where modern mining has resulted in impacts to natural resources downstream of the mine. Modern mining was permitted by the State of Oregon in 1990. When mining operations ended in 1993, the mine was filled with mill tailings, crushed ore, concentrates, and other mine materials. Acidic water, called acid rock drainage, was directed into the adit water diversion system and discharged into a drainfield area. Tailings and low grade ore from the mine were placed in a lined cell and capped. After some additional reclamation work, the mining company left the area in 1996. The financial assurance collected by the State of Oregon, $980,000, has long been spent.[41] The original adit water diversion system began to fail in 1995. Since then, the system has needed maintenance to keep it working. Investigations of water quality and aquatic life were done by the mining company in 1988-89, and in the 1990s by BLM and ODEQ. Between 1999 and 2002, BLM and ODEQ performed a baseline remedial investigation of the site.

Despite reclamation efforts, the mine continued to release acid mine drainage, affecting downstream waters. According to the EPA remedial investigation: These studies have documented 18 miles of fish habitat in Middle Creek and South Fork Middle Creek that have been severely degraded. The fishery that had thrived before this time was destroyed.[42]
The mine was designated a state orphan site by ODEQ in 2000, and was designated a National Priorities List site under CERCLA in 2007. An ecological risk assessment was completed, along

[40] https://www.fws.gov/idahonrdar/documents/NRDADamageAssessmentGraphic.pdf
[41] EPA, Final OU1 Remedial Investigation Report: Formosa Mine Superfund Site, January 30, 2012
[42] https://www3.epa.gov/region10/pdf/sites/formosamine/Formosa_Mine_FS_2_12.pdf

with a human health risk assessment. The costs associated with these two assessments were not included in the state or federal financial assurance programs, nor are the costs associated with the extensive natural resource damages.

Another example is found at a number of copper mines in Arizona, where impacts to wildlife are extensive. According to the preassessment screen for natural resource damages at the Chino, Tyrone and Morenci Mines:

"The bird carcasses (Table S.1) found at the Chino, Tyrone and Morenci Mines during just a three-month period in 2000 confirm adverse impacts to birds at each of these sites. At the Chino Mine, elevated concentrations of hazardous substances in bird, small mammal and reptile tissues provide further evidence that wildlife potentially have been exposed to hazardous substances at the site. The ecological risks assessment found risk to small ground feeding birds at the Chino Mine based on exposure to elevated concentrations of copper in soil, seeds, foliage and invertebrates. Risks to other wildlife, including raptors, small mammals, mammalian predators, and ruminants were also found from cadmium, lead, and zinc."[43]

According to the assessment, "current hazing activities at the Tyrone and Morenci Mines may reduce some future injuries to wildlife, but are not sufficient to remedy injury and do not occur at all the locations of ponded water at the site. The Trustees are unaware of any hazing activities to reduce injuries to wildlife at the Chino Mine.

GROUNDWATER PLUMES

Groundwater impacts from hardrock mining are widespread. Recent studies document that a large percent of mines predict that there will be no impacts to groundwater during the permitting process, but groundwater impacts often occur once mining commences. State and federal land management agency financial assurance programs generally do not address the risk or liability of groundwater pollution until after it has occurred, and even then, it's generally only the cost of installing pumpback wells to contain the plume – rather than requiring financial assurance sufficient for clean-up.

Furthermore, existing financial assurance programs by state or federal land management agencies do not cover the natural resource damage costs associated with damaging this important resource, often in perpetuity. In many cases, the public is left with a site that includes groundwater pollution in perpetuity, precluding the use of that resource for other beneficial uses. The National Groundwater Association puts the estimated annual economic value of pumped groundwater at $20.9 billion, and 43.8% of America's population regularly depends upon groundwater for its drinking water.[44]

PIT LAKES

The CERCLA 108(b) regulations should also address the environmental liability and natural resource damages associated with the formation of pit lakes – the water that fills the open pit

[43] Stratus Consulting Inc., Prepared for U.S. Fish and Wildlife Service, "Preassessment Screen for the Chino Tyrone and Morenci Mine Sites, Grant County, New Mexico and Morenci, Arizona." June 18, 2003.
[44] http://www.ngwa.org/Events-Education/awareness/Documents/usfactsheet.pdf

after the completion of mine operations at some surface mines. At the Thompson Creek Mine in Idaho, the BLM says that they will manage the pit lake as a wastewater storage facility and that it does not need to meet water quality standards.[45] This policy position by the BLM makes it clear that risks to wildlife, water quality and public health from the release of hazardous material in pit lakes may occur at mines under its regulatory authority. When mine operations ceased in 1993, the reclamation plan and bond money originally set forth in the 1990 operating permit was determined inadequate for current conditions at the site. AS a result, the reclamation bond was increased from $500,000 to $980,000. As a result, the CERCLA 108(b) regulations must address this risk and liability.

The long-term damage to groundwater resources, associated with the development of pit lakes, is extensive. According to a 2002 article in Southwest Hydrology, gold-mining pit lakes in Nevada, when filled, will contain more water than all of the reservoirs within the borders of this arid state. The preponderance of pit lakes will be in the Humboldt River basin where these lakes are estimated to eventually hold approximately 1,052,0003 acre-feet of water (more than the all existing reservoirs in Nevada, 600,000 AF, excluding Lake Mead).

An estimated 35 pit lakes from all types of hard rock mining are expected to form, containing from less than 100 acre-feet up to about 540,000 acre-feet of water. Pit lakes represent an in-perpetuity commitment of groundwater resources, particularly in arid climates where water is the limiting resource for agricultural and municipal development.[46] In reviewing water quality in 12 pit lakes in Nevada, USFWS determined that all pit lakes for which water quality data was obtained contained at least one trace element at concentrations that are potentially toxic to aquatic life or wildlife. Aquatic life effect concentrations were exceeded for arsenic, cadmium and chromium in 2 of the 12 pit lakes for which water quality data were available.[47]

Another examples involves the Ketchup Flat Pit Lake at the Paradise Peak Mine. After Meridian Mining Company sold the mine, it went bankrupt and the resulting pit lake tended towards acidity (pH less than 5). This pit lake poses a potential risk to wildlife and public safety.

At the Montana Tunnels Mine in Montana, the pit walls have destabilized, preventing access to the pit lake for water monitoring. The State of Montana has not secured increased financial assurance to stabilize the pit lake to prevent a release of hazardous material into the pit lake from the pit walls, or to address the potential for long-term treatment to protect wildlife, etc.

[45] DOI, Thompson Creek Mine, Final Environmental Impact Statement, Appendix E, Response to Comments, p. E-182.
[46] Miller, Glenn, Ph.D., "Precious Metals Pit Lakes: Controls on Eventual Water Quality", Southwest Hydrology, September 2002.
[47] Higgins, D.K. And Wiemeyer, S.N., Assessment of Wildlife Hazards Associated with Mine Pit Lakes, USFWS. Reno FWO. 2001.

Montana Tunnels Mine – pit lake.

The costs associated with pit lakes can be considerable, as evidenced by the perpetual treatment costs at the Berkeley pit mine in Montana, and the recent wildlife fatalities of thousands of snow geese that died after drinking from the pit lake waters in 2016.[48]

2. WATER TREATMENT IN PERPETUITY

Water is a scarce and precious asset, particularly in the western United States where the demand for freshwater is far out-pacing the supply. Perpetual management of mines is a rapidly escalating national dilemma. A lengthy review of government documents reveals that an estimated 17 to 27 billion gallons of polluted water will be generated by forty mines each year, every year, in perpetuity.[49] Another 13 mines are likely to generate water pollution in perpetuity, accounting for an additional 3.4 - 4 billion gallons of polluted water, per year. Four new mines

[48] https://www.washingtonpost.com/news/morning-mix/wp/2016/12/07/montana-snow-geese-searching-for-pond-land-in-toxic-mine-pit-thousands-die/?utm_term=.2a7d50bfd4ee; http://billingsgazette.com/news/state-and-regional/montana/some-worry-treatment-plant-won-t-keep-berkeley-pit-water/article_527666b3-a031-5c09-9b25-8a489e86eb04.html

[49] Earthworks, "Polluting the Future," May 2013. Available at: https://www.earthworksaction.org/files/publications/PollutingTheFuture-FINAL.pdf

are currently proposed, which are predicted to generate perpetual pollution, or at high risk for perpetual pollution – an estimated 16.7-16.9 billion gallons a year.[50]

Existing financial assurance programs fail to proactively provide for financial assurance for sites with a high risk for water treatment in perpetuity, nor do they address the natural resource damages associated with the loss of this important resource. In 2001, the Bureau of Land Management imposed an additional yet distinct requirement for a trust fund to guarantee water treatment separate from the financial guarantee for reclamation. However, this trust fund is imposed after-the-fact "when BLM identifies a need for it," and does not ensure the kind of prospective, forward-looking requirements that is intended in the implementation of Section 108(b) financial assurance. Similarly, the Forest Service does not ensure that these risks are adequately addressed, leaving lengthy periods of environmental liability.

For example, although water treatment in perpetuity will be required at the Thompson Creek molybdenum mine in Idaho, the reclamation bond does not cover those costs. According to EPA comments on the Final Environmental Impact Statement:[51]

> "The draft EIS does not provide detailed information on funds that would be made available post closure to treat the resulting mine- influenced water in perpetuity. The EPA's independent estimate of financial assurance needed for long term water quality treatment, maintenance and operation for Phase 8, using a scenario for an unplanned closure, could be up to $77.8 million (copy enclosed). However, the existing trust fund to cover earlier mine operations is $42.3 million and covers only reclamation, not post closure operations and water quality treatment. The EPA also completed a CERCLA Site Inspection (SI) Report in December, 2013, and provided copies to BLM, the State, the Thompson Creek Mining Company (TCMC), and other cooperating agencies (copy enclosed). The EPA concluded in the SI report that there is a significant potential for major releases from the site, with the potential for adverse downstream impacts based on the presence of elevated concentrations of metals in the surface water bodies located within 15 miles downstream of the site. These potential impacts are largely due to the uncertainty of long-term water treatment and a lack of financial assurance. Based on the level of environmental risk, the EPA strongly recommends that BLM determine and disclose the amount of financial assurance that will be required. This information should be provided in a Supplemental Draft EIS."
>
> "Hardrock mines without appropriate financial assurance can pose significant risks to human health and the environment, and financial risk to responsible parties and the public if cleanup of the mine site becomes necessary. The EPA has stressed the importance of establishing and disclosing the details of financial assurance for reclamation and long-term water management over the last decade

[50] Id.
[51] U.S. DOI, Thompson Creek Mine Final Environmental Impact Statement, Response to Comments, Appendix E, p. E-155. January 2015. Available at: https://eplanning.blm.gov/epl-front-office/projects/nepa/8000/56038/60729/TCM_FEIS_14_AppE.pdf

at the TCM site. The draft EIS provides general information about the process to establish financial assurance. We appreciate the mention of the EPA's independent estimate, which calculated a gap in the current bond ranging approximately from $25 million to $78 million, depending on the discounted rate of return. However, detailed information about funding for long-term water management/treatment is not included in the draft EIS. Therefore, without this information the EPA cannot determine whether water management and source control will be adequate to protect beneficial uses and habitat. The most stringent parameters and metals criteria are for the protection of cold water aquatic life and salmonid spawning. In addition, the Salmon River in the analysis area is designated as a domestic water supply. The draft EIS states that active water treatment is required to meet applicable laws and regulations. Therefore, water quality standards violations would occur without treatment.

We understand that the BLM intends to begin updating the current financial guarantee (Phase 7 mine plan) to include long-term water treatment with the goal of finalizing the process prior to release of the final EIS. We would encourage the BLM to initiate this process promptly, particularly since the need for long-term water treatment currently exists, and a guarantee should be in place if the mine undergoes unplanned, early closure. Section 4-134 of the draft EIS describes BLM's commitment to condition the Record of Decision on the establishment of an irrevocable trust fund or similar mechanism per 43 CFR 3809.552(c) for long-term requirements between the TCMC and the Idaho Department of Lands. However, the pertinent details regarding this arrangement are currently unknown. While a legal agreement may be developed, the EPA is not aware of any State authority to require financial assurance for water treatment."

As a result of this substantial gap in financial assurance, there continues to be severe, unfunded, environmental liabilities at the Thompson Creek Mine.

3. GAPS IN STATE REGULATORY PROGRAMS

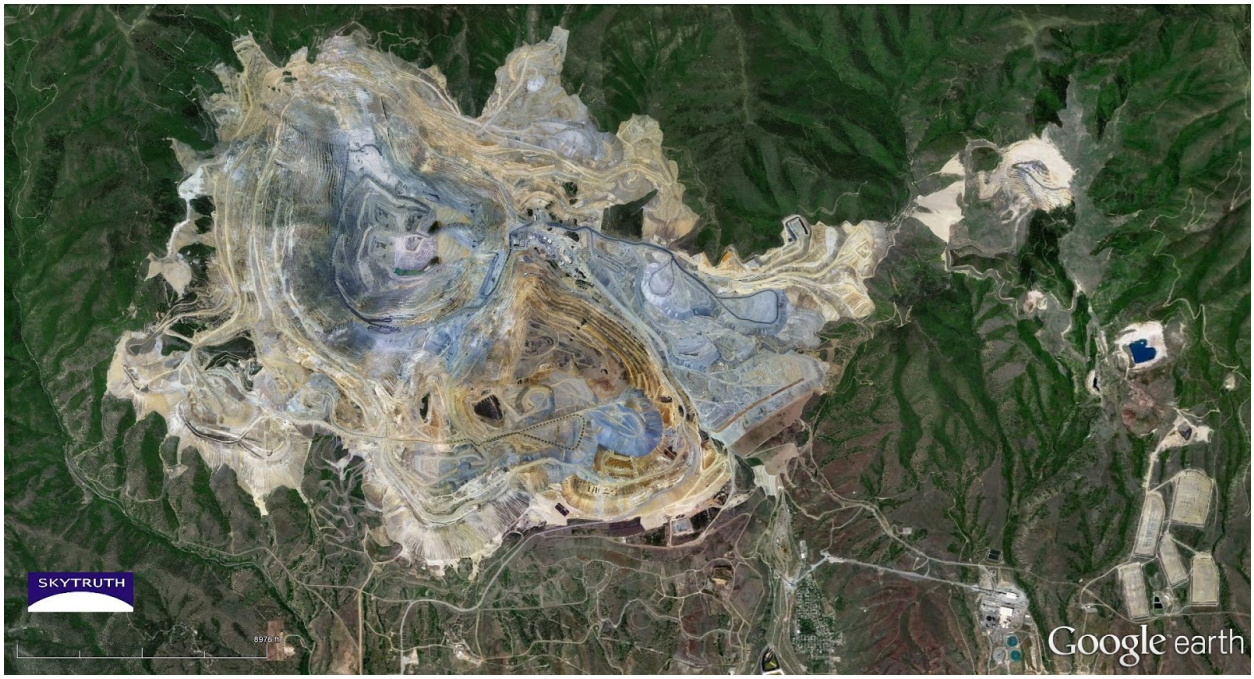
There are gaps in state regulatory programs that fail to ensure adequate financial assurance for reclamation and closure liabilities. In Montana, for example, various areas at the Continental Pit mine, owned by Montana Resources, fall under a grandfather clause that places a ceiling on reclamation costs.[52]

Montana statute contains procedural impediments that can preclude timely changes in financial assurance. MCA 82-4.338 (7-8) allow DEQ may require that a revised reclamation plan be completed before changed circumstances trigger an increase in the reclamation bond. As a result, there may be substantial delays in increasing the bond amount to cover environmental liabilities. For example, at the Kendall Mine, Montana DEQ recognized that water quality impacts would require long-term water treatment in 2003, and tried to increase the bond amount. However, the State was never able to obtain the increased bond amount before the company filed

[52] Montana Standard, "Too soon to clean up Butte Mine," December 1, 2001. http://mtstandard.com/news/local/too-soon-to-clean-up-butte-mine/article_d1783ac8-b67a-5e2f-8401-aa6a836fee0a.html

for bankruptcy in November 2015 because the mining company refused to pay for the NEPA process necessary for the final reclamation plan that was required before the state would increase the bond. As a result, the State of Montana is a creditor in the bankruptcy proceedings against Atna Resources for $6.2 million for long-term water costs.[53]

In Utah, the state has accepted a corporate guarantee, allowed by R647-4-113.4.16, for the Bingham Canyon Mine (M/035/002 permit). The corporate guarantee was established by a contract in 1978 between the State of Utah and Kennecott, committing the company to a minimum average of $50,000 in reclamation for each three year period.[54] If Kennecott were to file for bankruptcy, the State of Utah would bear liability for the mine site because it does not have independent financial assurance to address mine clean-up at this massive mine, which covers 23,000 acres.



Bingham Canyon Mine, Utah

V. Relationship of CERCLA § 108(b) to Other Federal Laws, and to State and Tribal Laws.

A. Subpart A – General Facility Requirements

1. Purpose and Scope (§ 320.1) and Applicability (§ 320.2)

[53] CR Kendall Corporation Case 15-22848-JGR, Filed 05/16/16
[54] State of Utah, Department of Natural Resources, Board of Oil, Gas and Mining, Mined Land Reclamation Contract, September 28, 1978. January 2016 UTAH DNR Map illustrating bond amounts.

- **The rules should not authorize a program deferral approach to the deductions because it conflicts with the purpose of the statute, and inappropriately defers regulatory authority and compliance to other agencies.**

The draft rule makes clear that CERCLA 108(b) address risks and liabilities that aren't covered by other state and federal land management agencies. As a result, deferring these obligations to the State would be inappropriate and fail to address the statutory purpose.

Program deferrals should not be authorized because it is EPA's responsibility under CERCLA 108(b) to ensure compliance, and this would inappropriately defer this responsibility to another regulatory authority. The EPA doesn't have the means to ensure that the regulatory controls under other regulatory agencies are effectively maintained or enforced to ensure continued compliance. And, many states fail to take enforcement action to ensure timely compliance.

For example, in Montana, the Department of Environmental Quality has failed to take enforcement action against the Montana Tunnels Mine[55] even though the agency has acknowledged for years that there is an estimated $15 million shortfall in the reclamation bond,[56] and years of field inspection reports demonstrate that the company has ceased maintaining the site, its water diversion systems, and has failed to take water samples.[57]

In California, the Mountain Pass Mine filed for bankruptcy in 2016. State and counties failed to collect an estimated $28 million in financial assurance at the mine. According to claims filed by the County in bankruptcy court, "…it is estimated that the groundwater cleanup operation would need to continue until at least 2043 and likely after 2058 (42 years from now) even if the mine were to return to active operations. Groundwater cleanup will require the continuous maintenance and operation of the groundwater pumps and treatment facilities at the Mountain Pass Mine to prevent the contamination plume from spreading and further contaminating the aquifer. Moreover, should the groundwater pumps at the Mountain Pass Mine cease operating for any reason (such as a lack of funding), it would result in the termination of potable water service to the local school district, law enforcement office, and others, which rely on the Mountain Pass Mine pumps for their water service."[58]

The state and county agencies admit that the financial assurance was grossly inadequate because the company provided inaccurate data on the cost of pumping and treating contaminated groundwater over an extended period. "Unfortunately, as the County and State learned post-petition, the financial assurances provided by the Minerals Debtors are either significantly or

[55] E-mail correspondence from John Arrigo, Montana Department of Environmental Quality, stating that no enforcement action has been taken at Montana Tunnels, October 19, 2016.
[56] Copy of 2015 Legislative Request – OP Reclamation Bonds, provided by Montana Department of Environmental Quality
[57] Montana Department of Quality, Operating Permit, Annual Inspection Report, Montana Tunnels Mine, July 30, 2013 and Annual Inspection Report September 16, 2016.
[58] Molycorp, Minerals LLC et. al., Case 15-11371-CSS Doc 108, Joint Response of the County of San Bernardino, California, the California Regional Water Quality Control Board Lahontan Region, and the California Department of Resources Recycling and Recovery to Chapter 11 Trustee's Motion for an order Dismissing Molycorp Minerals Debtor's Chapter 11 Cases. United States Bankruptcy Court for the District of Delaware, Filed 09/19/16

grossly inadequate to reclaim the mine site."[59]

5. Information Submission Requirements (§320.6)

- **The rules should require an annual re-calculation of the financial assurance amount, and provide a process by which the amount can be increased if evidence of increased costs is provided.**

The rule proposes to require the owner or operators to submit an update of the financial responsibility amount calculations every three years, at a minimum. This timeframe is simply too long. Substantial changes can occur very quickly on a mine site and dramatically change the scope of liability. At a minimum, the rules should require an update in the calculations if there is a change in the operating permit, or any significant changes on site that would increase the financial assurance costs. For example, costs would increase dramatically if it is determined that a leak in the tailings impoundment has allowed substantial groundwater contamination. This would be consistent with the U.S. BLM's requirement for financial assurance review.[60]

8. Requirements for Public Notice (§ 320.9)

- **CERCLA 108(b) rules should incorporate a public review component, since the public is ultimately liable for the cost of clean-up if the financial assurance is insufficient.**

The public should have the opportunity to comment on the calculation of financial assurance amounts since the public is ultimately liable for clean-up, and the public incurs the adverse impacts if clean-up doesn't occur. Local communities and community groups are often well informed about site conditions, and can improve the reliability and accuracy of the CERCLA 108(b) program if authorized to review and provide comments.

The rules should provide for meaningful public engagement by incorporating an administrative process for the public to contest the financial assurance amount, if the industry inputs are incorrect, the financial assurance inadequate, or for other related issues.

The EPA has repeatedly commented on the need for public process in the reclamation bonding calculations under financial assurance programs administered by state and federal land management agencies. It should be consistent in this policy approach, and incorporate meaningful public engagement into these rules.

While we support the EPA's proposal to require mine operators to maintain information to demonstrate compliance with part 320 on their website, it is unclear what the recourse is to the public if those sites are not maintained, accurate, accessible, etc.

We also suggest that the agency create a searchable database on the EPA website where this information can be obtained to prevent the public from having to search for over 200 websites to

[59] Id.
[60] http://www.gao.gov/assets/690/681693.pdf

evaluate the effectiveness of the program overall.

B. Subpart B- General Financial Responsibility Requirements

5. General Provisions on Instrument Payment

The regulations anticipate that recovery on the financial assurance cannot be triggered until there is a judicial finding of liability or limited administrative actions occur. This is not reasonable and ignores the fact that considerable harm can occur and be exacerbated during the years that liability is litigated or administratively appealed, and such harm can far outstrip the assurance established. There should be an opportunity to trigger recovery of the assurance, at the least, when EPA issues either General Notice or Special Notice Letters. Such recovery can deal, at least, with immediate threats (a Unilateral Administrative Order, which presumably can trigger recovery on the financial assurance instrument, may be inadequate because of the lengthy time that an appeal can run). Furthermore, the requirement of a final judgment could discourage pre-lawsuit settlements between PRPs and those that incur response costs.

7. Notification of cessation of operations (§ 320.26)

- **The draft rule requirements that require financial assurance be terminated only after the EPA releases the owner or operator of its obligation are essential to the purpose of the statute – to reduce the risks and liabilities associated with the release of hazardous materials.**

The proposed rule provides that CERCLA § 108(b) requirements continue until EPA releases the owner or operator from such obligations. Thus, closure of a facility would not, in and of itself, trigger release from requirements under proposed part 320. This is an essential component of the rule because the risk of a hazardous release, at many mines, may continue long after mining operations cease. It is particularly critical for mines that will have long-term water quality issues that require capture and water treatment for an extended period, or in perpetuity.

The further out one tries to "predict" or estimate water pollution based on modeling, the less and less reliable the predictions. No one knows what the financial markets will be like in 500 years, how much technology will have changed, the rate of inflation, the proper discount rate, and many other factors. Thus, it is essential that the EPA have the ability to maintain CERCLA financial assurance instruments over the long-term, and make adjustments as needed.

According to the EPA Inspector General, the majority (59 percent) of all the projected mines sites in the Comprehensive Environmental Response, Compensation and Liability (commonly known as CERCLA or Superfund) program will need 40 years to "in perpetuity" for cleanup.[61] Furthermore, the agency questions the ability of businesses to sustain clean-up efforts for such lengths of time.[62]

A 2013 report identifies 40 hardrock mines that have been documented to require water

[61] U.S. EPA Inspector General, "Nationwide Identification of Hardrock Mining Sites," March 2004
[62] Id.

treatment in perpetuity, and are estimated to release17-27 billion gallons of contaminated water every year, in perpetuity.[63] Pollution from many of these mines has already contaminated drinking water aquifers, lakes and streams, agricultural lands, and prime fish and wildlife habitat.

For example, the Zortman Landusky Mine in north central Montana will require water treatment in perpetuity to prevent exposure to toxic metal concentrations from untreated mine waste.[64] In addition, a large storm event in 2011 caused the release of 56 million gallons of untreated acid mine drainage into downstream resources at the Zortman Mine and 19 million gallons of untreated acid mine drainage at the Landusky Mine.[65] Although the Zortman Landusky Mine was pulled into CERCLA after the company filed for bankruptcy in 1998,[66] funds have not been available for clean-up of the affected streams.[67] A 2012 assessment by the State of Montana determined that twelve streams in the Little Rocky Mountains do not meet water quality standards because of metals, cyanide and/or acid runoff from the mines.[68] The chronic and acute toxicity of metal and cyanide pollutants were identified as impairing cold water fishes, warm water fishes, drinking water uses, primary contact recreation, and agricultural and industrial uses in planning area streams (see map).[69] The natural resource damages associated with these impacts are substantial, yet the costs associated with addressing natural resource damages was not incorporated in the financial assurance for the mine, calculated by the BLM and State of Montana.

[63] Id.
[64] Montana Department of Environmental Quality, Landusky Metals Total Maximum Daily Load and Framework Water Quality Improvement Plan, March 2012.
[65] http://www.mtech.edu/mwtp/conference/2012_presentations/Warren%20McCullough.pdf
[66] U.S. Bureau of Land Management, Action Memorandum for Water Management at the Zortman Landusky Mines, Non-time Critical Removal Action, September 2006.
[67] Montana Department of Environmental Quality, Landusky Metals Total Maximum Daily Load and Framework Water Quality Improvement Plan, March 2012.
[68] Id.
[69] Id.

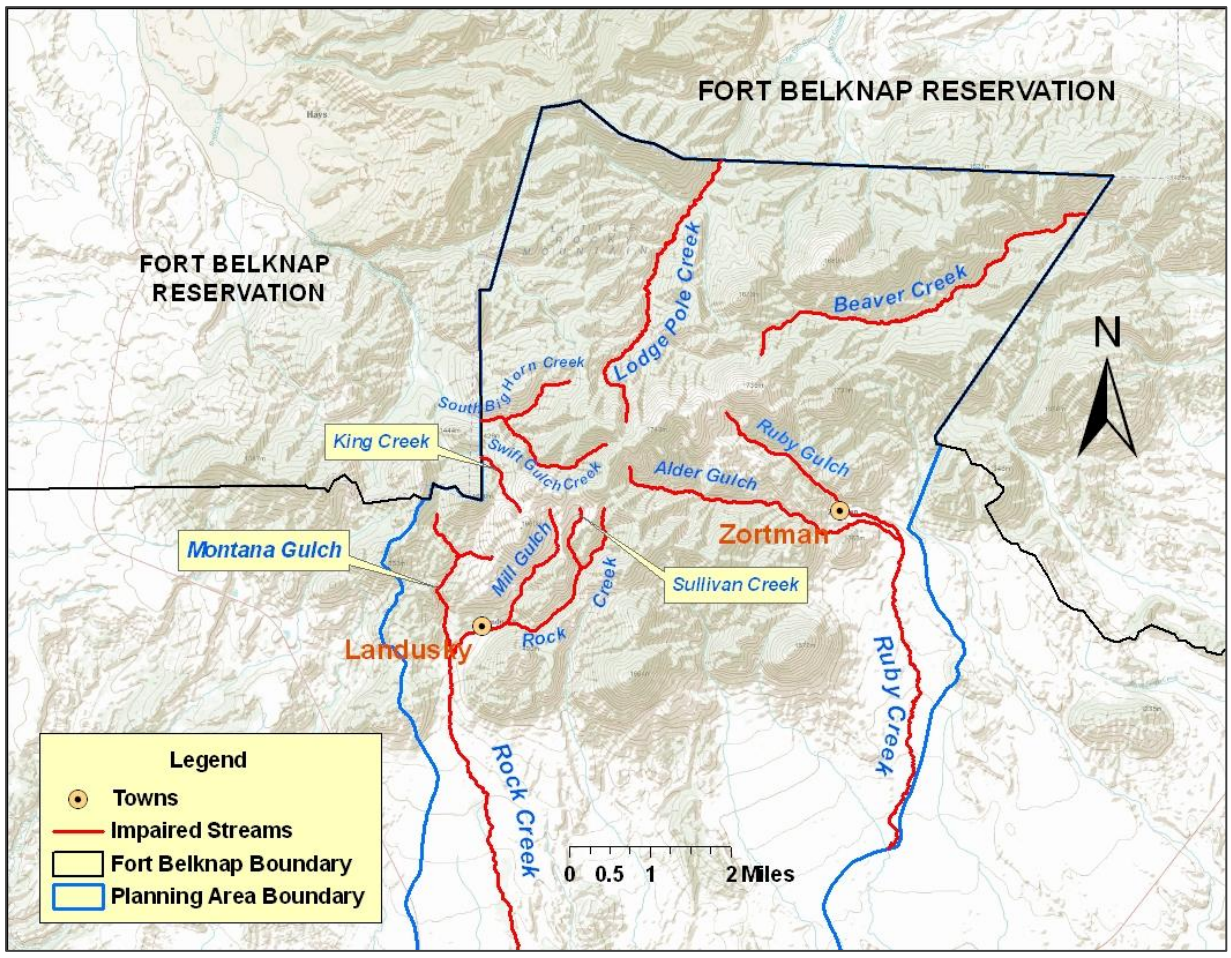


Figure 2-1. Map of the northern half of the Landusky TPA showing locations of impaired waters.

It is imperative that the financial assurance for these mines be placed in a long-term trust to ensure that funds are available to address the risk of release of these materials for as long as necessary.

8. Release from Financial Responsibility Requirements

- **A site by site evaluation prior to release of facility from financial assurance regulation is an important element of the rules.**

It is essential that the EPA conduct a site evaluation prior to the release of a facility from financial assurance regulation. A site evaluation is the only way to ensure that the facility is in compliance with the requirements for release. The EPA should not rely solely on data provided by the mine or another agency that does not have the same regulatory obligations as those identified in CERCLA 108(b).

For example, mines in Nevada have repeatedly provided inaccurate information on hazardous releases associated with mercury air emissions.[70] This data was corrected only after local, state and national organizations pointed out the discrepancy. The Mountain Pass Mine in California provided inaccurate information on clean-up costs, as documented above.

In a far more extreme example, W.R. Grace failed to disclose information about the release of asbestos at its vermiculite mine in northwest Montana, causing enormous public health impacts. Asbestos contamination caused hundreds of deaths and thousands of illnesses in Libby.[71]

We also encourage the agency to consider a preliminary site review as well to ensure that the initial information that is provided by the company is accurate.

- **We support the noticing of the Agency's final decision in the Federal Register.**

Section 320.9 provides that upon a finding that the owner or operator should not be released from financial responsibility requirements, the Administrator would provide notice of the Agency's final decision, and response to comments received, and will provide the owner or operator with written notice of its decision. EPA is considering whether to make these available through EPA's web site, or alternatively through traditional Federal Register notices. We support the noticing in the Federal Register.

- **We support the public notice requirements in the proposed rule that provide an opportunity for public comment prior to release of the financial assurance obligation, and require a written response to public comment prior to the release of financial assurance.**

It is essential that the public have an opportunity to comment, and receive a written response in return, before the release of financial assurance. After all, it is the public that ultimately pays the costs, and lives with the impacts, if the financial assurance is insufficient. For example, the State of Montana was in the process of returning the reclamation bond at the W.R. Grace Mine in Libby, but public opposition concerning public health issues put the reimbursement on hold. The mine was subsequently placed in the CERCLA program, and $290 million in public funds has been spent to cover remediation of the site.

C. Subpart C – Available Financial Responsibility Instruments §320.27

- **Mines that will require long-term or perpetual care should be required to shift to trust funds or irrevocable letters of credit before mine closure.**

There are many mines that will require long-term or perpetual active treatment to prevent off-site releases of hazardous or toxic materials. For these operations it is important to provide financial assurance that is reliable, durable, flexible, and offer low transaction costs to ensure that the funds can be claimed at low cost and without further delays.

[70] https://www.earthworksaction.org/files/publications/Mercury_Report_Underreporting.pdf; https://ndep.nv.gov/mercury/docs/mercury010307.pdf

[71] https://www.asbestos.com/companies/wr-grace.php

Mines that require perpetual operation of a collection and treatment system, require that the Financial Responsibility instrument remain in place forever – placing a particular emphasis on the long-term viability of the associated financial responsibility instrument.

In the last fifty years there have been many bankruptcies of insurance companies.[72] At best, bankruptcy of an insurance company providing a financial assurance would force a new instrument to be secured and leave the public's interest unprotected until a new instrument is in place. At worst, the bankruptcy of an insurance company or surety would occur while a claim was pending. If so there may not be adequate funds to complete the work.

A surety or insurance company that insists on a finitely defined loss such as a stated number of years of monitoring and a finite length of collecting and treating will not be useful for the perpetual obligations required by some mines.

All of the financial assurance instruments have risks, but perhaps the most secure is an arms-length, irrevocable, fully funded trust that is protected from claims arising from a responsible party's bankruptcy and pays for the work as it occurs.[73] It invests its cash balances only in liquid securities issued by the U.S. Treasury. It is reviewed for adequacy as often as necessary.

The rules should require that financial assurance instrument be shifted to a trust fund or letter of credit for those operations that will require long-term or perpetual care.

3. Insurance (320.42)

- **Captive insurers, an insurance company that provides insurance primarily or exclusively to its owner(s), should not be authorized in these rules**.

If an insurer is wholly owned by a mining firm, then the insurance policy is, in effect, no different than self-insurance. If the mine were to become bankrupt, then the wholly-owned insurance company (the "captive insurer") almost certainly would also be bankrupt. In 2005, the EPA's Office of Inspector General found that financial assurances provided by a "captive" company did not provide adequate assurance of funding for closure and post-closure activities at Superfund facilities.[74] The financial health of the captive insurance company is too closely related to the financial health of the parent and subsidiaries that it insures for it to be sufficiently reliable as financial assurance. Risk retention groups should not be authorized unless they have a viable number of clients to diffuse the risk.

- **Additional safeguards should be put in place to guard against insured misrepresentation in a CERCLA §108(b) financial responsibility policy application.**

[72] See "Insurance Company Failures, Why Do They Cost So Much?" Working Paper 03-32, Wharton Financial Institutions Center; In late 2008, S&P issued a negative outlook for the property liability companies (Zinkewicz 2009). See also Weiss ratings http://www.weissratings.com/ for recent failures. Reasons given for the failure problem include: inadequate reserves and underpricing.
[73] See expert report of Michael Kavanaugh, on behalf of Penn Environment and Sierra Club v. PPG Industries Inc. and Borough of Ford City, November 29, 2013.
[74] http://www.gao.gov/products/GAO-05-658

The discussion regarding cancellation of insurance policies raises questions that require further analysis. EPA designed the required policy language to reflect its concern that "at the time a claim was made against a CERCLA §108(b) insurance policy, rescission (retrospective cancellation) of the policy due to misrepresentation of the insured, would result in the financial responsibility being unavailable and leave valid claims unsatisfied." Additional safeguards should be put in place to guard against insured misrepresentation in a CERCLA §108(b) financial responsibility policy application. For example, the insured could be required to submit a copy of its application to EPA, or even be made available for public review (and possible comment), in addition to submitting the application to the insurer. This would enable EPA to cross-reference the information contained in the application with the information contained in EPA's files to ensure that the information in the application is correct.

4. Financial Test (Options) (§ 320.43)

See combined response to 5 (below).

5. Corporate Guarantee (Options) (§ 320.44)

We support the preferred option (Option 1) that precludes financial tests or corporate guarantees, for the reasons stated below:

- **Corporate guarantees and the associated financial tests should not be authorized as part of the regulations because it conflicts with the purpose of CERCLA 108(b) by placing the financial risk on the public, rather than the company.**

Despite the name, corporate guarantees are not guaranteed. A corporate guarantee is merely a pledge made by the company or its parent company. It is not secured by hard assets, cash or cash equivalents. It transfers the risk and liability to the government agencies and public. In essence, it defeats the purpose of requiring financial assurances for bankruptcy. In the event a mine operator enters bankruptcy, the government may not be able to recover the full value of a company's reclamation obligations because a self-bond is treated by the company like unsecured debt, which falls to the end of the collection line.

Financial tests fail to meet the requirements of the statute because a financial test cannot anticipate sudden changes in market conditions or other factors that can dramatically change a company's financial picture and a company's ability to meet its environmental obligations. Markets move faster than government. Once a company's financial condition declines to the point that the company can no longer pass the financial test, it can be very difficult for the company to meet the requirements, or pay the costs, of obtaining an alternative form of financial assurance from a third-party provider. When the company is having financial challenges is the absolutely worst time to try to acquire financial assurance.

This has become abundantly clear with the recent failure of corporate guarantees for major coal companies, and the resulting liabilities for coal reclamation in multiple states. The Surface Mining Control and Reclamation Act (SMCRA), which regulates the reclamation of coal mining, allow mining companies to "self-bond" for reclamation liabilities if the company can pass a financial test. When an applicant or corporate guarantor no longer satisfies the requirements for

self-bonding, regulations provide that an alternative bond in the same amount be posted within 90 days or the operator shall cease coal extraction.

Between August 2015 and May 2016, three of the largest coal companies in the U.S. declared Chapter 11 bankruptcy, including Peabody Energy Corporation, the world's largest private-sector coal company. These bankruptcies have left substantial liabilities for reclamation and natural resource damage costs because replacement bonds were not secured.

The United States recently filed proofs of claims asserting that Debtors Peabody Energy Corporation and Gold Fields Mining, LLC are liable to the EPA for clean-up costs, and liable to the DOI for restoration costs for natural resource damages.[75] In the court papers, the United States asserts that Debtor Peabody Energy Corporation is liable for $877,431,818 in clean-up costs and for $286,757,944 in natural resource damages. The United States also asserts that Debtor Gold Fields Mining, LLC is liable for $934,070,370 in clean-up costs and $429,547,177 in natural resource damages.[76]

One additional point about corporate guarantees, or self-bonding, is that these liabilities are carried "off-balance sheet." That is, the full reclamation liability is not shown on the company's balance sheet, so it does not increase the debt-to-equity ratio of the company. As a result, the company appears financially stronger than it actually is.

In Peabody's case, the proportion of its debt that was off balance sheet rose, while its secured debt declined as the company's overall financial picture worsened. While the company's stock price was in freefall from $718 at the end of 2009 to $8 at the end of 2015, Peabody's off-balance sheet reclamation liabilities increased from $1.6 billion to $2 billion. Peabody's ability to increase its reliance on self-bonding while its financial health deteriorated represents a colossal failure. Now taxpayers are going to pick up the tab. In order to avoid future taxpayer losses, the practice of self-bonding must stop.

"Self-bonding essentially allows the operator to avoid posting asset collateral to secure their reclamation obligation, permitting the company to pledge its assets to other creditors," Zubets-Anderson says in a Bloomberg article.[77] Thus, if a company files for bankruptcies the assets are already obligated to other creditors.

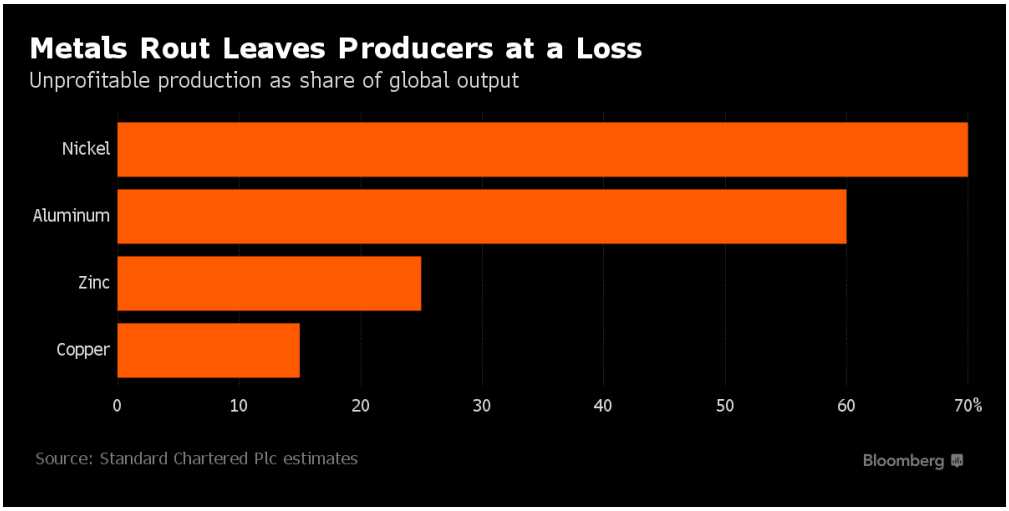
The inappropriate nature of corporate guarantees is also demonstrated by the current circumstances with financial assurance at Freeport McMoRan Inc. (Freeport) facilities. The State of New Mexico has authorized Freeport's use of corporate guarantees, in conjunction with a financial test, to cover its reclamation requirements at the Chino, Tyrone and Continental Mines in New Mexico. New Mexico required Freeport McMoRan to meet a financial test in which the most recently issued senior credit obligation is rated "BBB" or higher by Standard and Poor's or "Baa" or higher by Moody's. Yet, Freeport has failed its financial test and has been unable to replace its financial assurance with a secure, independent form of financial assurance.

[75] Peabody Energy Corporation, et al., Chapter 11, Case No. 16-42529-399, Filed 01/12/17.
[76] Id.
[77] Id.

The downturn in their credit rating was abrupt. In January 2016, citing "deterioration in FCX's debt protection metrics and increase in leverage as a result of the more precipitous drop in copper prices in 2015, … as well as the collapse in oil prices," Moody's dropped Freeport's senior bond rating three notches to B1 – commonly known as "junk" status. Two weeks later, Standard and Poor's dropped its rating two notches to BB.

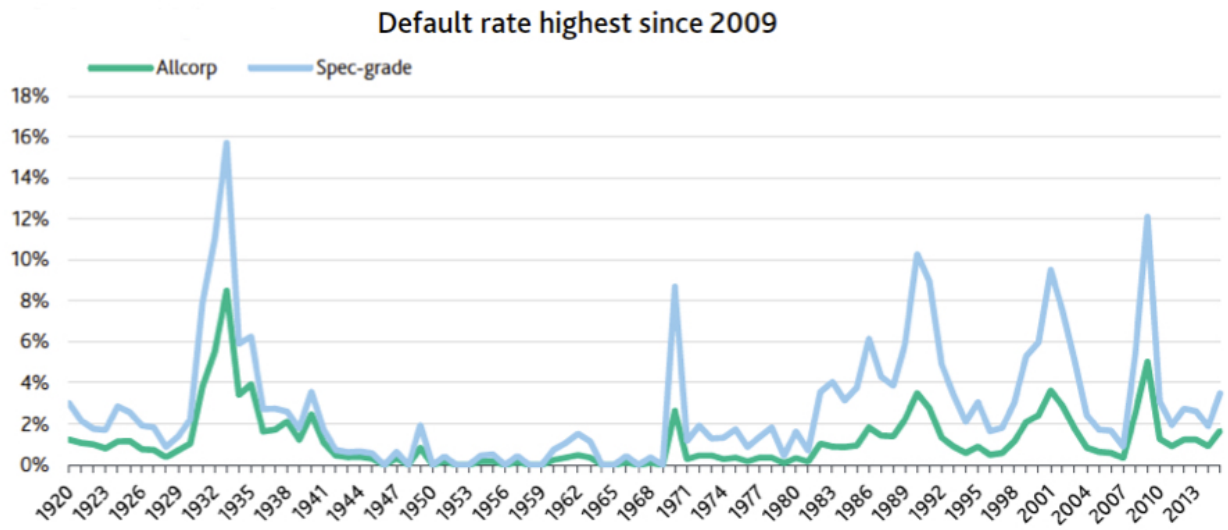
As described in a 2016 letter by GRIP, "Freeport-McMoRan Inc.'s financial situation is unlikely to turn around soon and could worsen. The company's high debt in conjunction with low global copper prices are cause for concern over the long-term according to market analysts. Moody's downgraded FCX to junk bond status in January and Standard & Poor's followed suit in late September."[78]

The "boom and bust" nature of metal commodities make this sector particularly inappropriate for corporate guarantees and financial tests. Depressed commodity prices are adversely affecting many companies. According to Bloomberg, "A gauge of contracts on the London Metal Exchange has slid 26 percent this year, the most since 2008, to near the lowest in six years. About 15 percent of copper production and a quarter of zinc output are unprofitable, while 60% of aluminum and 80% of nickel are supplied at a loss according to Standard Chartered Plc."[79]



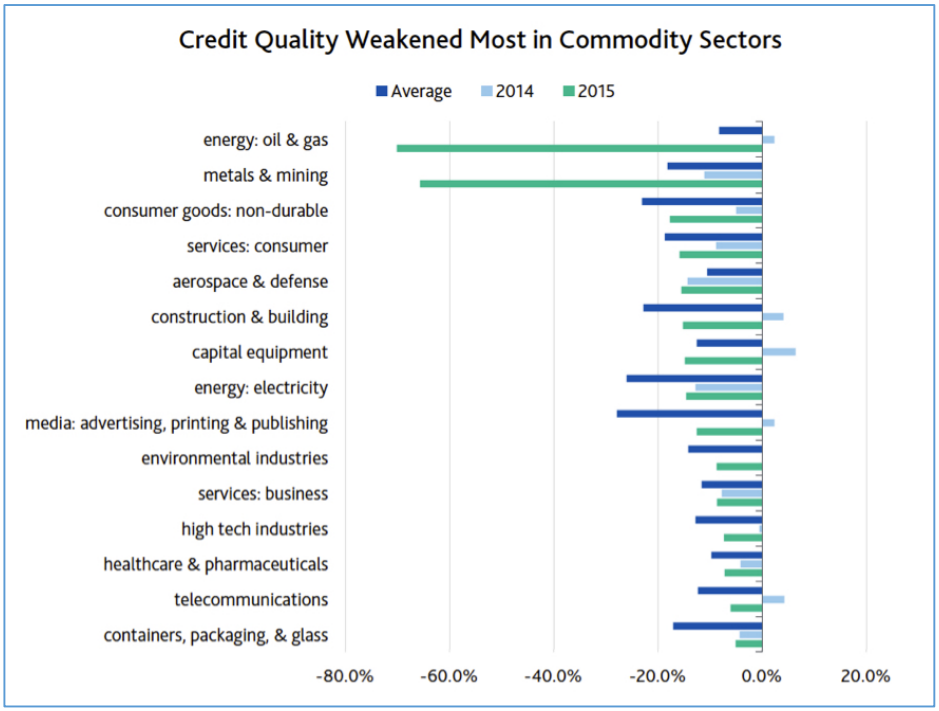
Recent reports by Moody's predicts that the mining sector is experiencing the highest default rate since 2009 (see graph).[80]

[78] Letter from Gila Resources Information Project to New Mexico Environmental Department, re: Third Party Guarantee for Freeport McMoRan, October 11, 2016.
[79] Bloomberg, "Why Bankruptcy Might be the Mining Industry's Last Best Hope," 12/5/2016.
[80] Mining.com, "Warning of another string of mining bankruptcies in 2016," March 1, 2016. http://www.mining.com/warning-of-another-string-of-mining-bankruptcies-in-2016/



Moody's Corporate Default and Recovery Rates (1920-2015)

Moody's forecasts for mining and oil default rates in 2016 go as high as 8%–9% and according to their baseline forecast the outlook for metals & mining is once again the worst at 7%. These forecasts, if realized, will be more than double and triple their historical averages.[81]



It also concludes that the metals and mining sector represents the weakest credit quality (see graphic).[82]

[81] Id.
[82] Id.

Even if indicators of financial distress are apparent, regulators might be reluctant to require mining companies to cease operating if they are unable to obtain a surety bond, or if acquiring a surety bond will force the company into greater financial distress. If a mining company continues to operate, it can at least generate some revenue to offset the ongoing costs of reclamation. But if regulators force the company to shut down its operations, they might thereby reduce the company's liquidity and push it company into bankruptcy, at which point the company may be unlikely to pay the full value of the bond. The Executive Director of the Interstate Mining Compact Commission describes this decision as a Catch-22: "[I]f the state chooses to insist on alternative financial assurances or collateral as a result of the company's diminished financial situation, the threat to the company's financial solvency would only increase."

An example of this is the Kendall Mine in Montana. After the company's financial situation deteriorated, the Montana Department of Environmental Quality was afraid to require a bond increase to address increased environmental liabilities for fear of pushing the company into bankruptcy. As a result, the State did not obtain the increased bond amount to cover the necessary long-term water treatment before the company filed for bankruptcy in November 2015. The State of Montana is now a creditor in the bankruptcy proceedings against Atna Resources for $6.2 million.[83]

- **Corporate guarantees in association with financial tests should not be authorized because it places an unacceptable burden on the federal government.**

It requires the government to become financial experts to oversee the process – a role that the agency should not have to assume. The mechanisms that pose the greatest risks financial risk to the government – the corporate financial test and corporate guarantee – also require specialized expertise to oversee. In 2000, the DOI BLM identified similar concerns when it decided to prohibit new corporate guarantees for future reclamation work to restore lands when mining operations cease. In making the decision, BLM cited both the agency's lack of expertise to perform the periodic reviews of company's assets, liabilities and net worth that would be necessary to oversee guarantees and the fact that even with annual reviews by skilled staff, a default risk would remain. Further, some concerns about the financial test stem from limitations inherent in relying on financial indicators rather than secured guarantees.

This mechanism rests on the assumption that a company's (either the PRP itself or a guarantor) recent financial performance is a reasonable predictor of its ability to satisfy environmental obligations covered by the underlying test going forward. As we stated earlier, markets move much faster than government, precluding a timely response, if needed.

Many corporations that rely on resource extraction lack diversified lines of business that can dilute the risk of market downturns. Once market conditions do decline, self-bonding has the perverse outcome of discouraging a shift to a stronger form of financial assurance because the shift would occur at the weakest financial moment for the company. Furthermore, many metal

[83] Case 15-22848-JGR Claim 18, Filed 5/16/16 http://www.upshotservices.com/atna

mines are operated by U.S. subsidiaries to foreign parent companies. As revealed by the ASARCO bankruptcy, this puts the U.S. government in a severe disadvantage when bringing legal action before a foreign court.

Asarco filed for bankruptcy in 2005. The company has estimated the total environmental claims filed against it to have been in excess of $5 billion. Recently approved settlements with the U.S. and certain State governments involving environmental clean-up claims, when combined with settlements already approved by the bankruptcy court for environmental clean-up claims, provide for allowed claims and payments in the bankruptcy in an amount in excess of $1.5 billion and involve in excess of 50 sites. EPA and DOI estimate their combined claims in the bankruptcy at the largest of these sites, an NPL site located in Idaho and Eastern Washington, to be in excess of $2 billion.

A 2016 report by the EPA Office of the Inspector General (OIG) emphasizes the unacceptable risks posed by financial tests and corporate guarantees.[84] It concluded that data gaps within the agency impede the agency's ability to ensure companies can pay for clean-up, and that the agency does not have a systematic means for reviewing the financial health of a company. For RCRA and Superfund[85] combined, the OIG report found in its review of the EPA tracking system that an estimated $6 billion in financial assurance is insufficient or not provided for by corporate guarantee and financial test instruments. For those instruments, the EPA cannot readily determine if it has secured valid and sufficient financial assurance. The report goes on to point out the problems that occur when financial assurance is insufficient:

"At the point when a company files for bankruptcy, it can be too late for the EPA to take steps to recover the necessary cleanup funds. For example, Asarco, the potentially responsible party for several sites, settled with the EPA and other federal and state agencies for a total of $1.79 billion in 2009. At one Asarco site—the Bunker Hill Superfund Site in the Coeur d'Alene Basin, Idaho—the EPA received $485 million from the Asarco bankruptcy. However, the EPA region in charge of cleanup is seeking additional funding from EPA headquarters to supplement bankruptcy settlement funds. By using funding from EPA headquarters to cover cleanup costs, the total amount of funding available for other sites needing cleanup will be reduced. At another Asarco site—the River Mine Tailings/St. Joe Minerals Superfund Site in Desloge, Missouri—the EPA received approximately $29 million from the Asarco bankruptcy. The estimated clean-up cost at the site for the EPA's selected remedy, according to the 2011 Record of Decision, is about $108 million—significantly more than the settlement funds recovered. Without necessary funds from the responsible party at this and other sites, the EPA and, ultimately, the taxpayers will pay the cost of cleanup. This situation overall can result in delayed cleanups, longer human and environmental exposures to unsafe substances, and longer restrictions on public use of

[84] U.S. EPA, Office of Inspector General, "Management Alert: Significant Data Quality Deficiencies Impede EPA's Ability to Ensure Companies Can Pay for Cleanups." May 31, 2016.
[85] The EPA requires financial assurance when action is taken under CERCLA Sections 106 and 122. The EPA is currently developing regulations under CERCLA 108(b), which gives the EPA authority to require that classes of facilities maintain financial responsibility consistent with the degree and duration of risk associated with the production, transportation, treatment, storage or disposal of hazardous substances.

needed natural resources. Although not subject to RCRA financial assurance or Superfund authorities, recent bankruptcies of two large coal mining companies—Arch Coal Inc. and Alpha Natural Resources Inc.—have demonstrated that companies may be unable to pay debts to federal agencies and state and local governments, including obligations to clean up mining sites as required. Other smaller companies in the coal mining industry have also filed for bankruptcy, and others have lost significant value and are vulnerable to filing bankruptcy in the future."

The report further states that, "Although the EPA performs some ad hoc reviews of the financial health of companies, it does not have a systematic means of quickly identifying those in trouble." More importantly, the report states that, "The high dollar amount of potentially invalid financial assurance and the severe financial impacts of a financial assurance failure at even one site—as demonstrated with Asarco— results in an impairment that can prevent the agency from fulfilling its mission and effectively managing the Superfund and RCRA cleanup programs.

- **Corporate guarantees should not be authorized because they are unnecessary. There are many less risky financial assurance instruments available, and other federal and state agencies have been able to implement financial assurance programs without corporate guarantees.**

Corporate guarantees are not accepted by the federal land management agencies, including the BLM and Forest Service that are authorized to collect financial assurance to cover the costs associated with reclamation at hardrock mines. Self-bonding is also not authorized for onshore oil and gas leasing on federal lands or wind and solar development on federal lands.[86]Many states also preclude their use, such as Alaska, California, Idaho, Montana, Oregon, South Dakota, and Washington. These state and federal entities have already determined that corporate, or self-guarantees are unacceptably risky. The Nevada BLM state office rated corporate guarantees as "not effective" for minimizing losses to the federal government.[87]

In Nevada, there are numerous examples of corporate guarantee failures. At the Paradise Peak, County Line, and MacArthur Mines, an operator used corporate guarantees totaling $4.2 million to guarantee part of the estimated reclamation costs. However, these corporate guarantees lost all their value when the operator went bankrupt.[88]

- **Corporate guarantees should not be authorized because as the mine facility nears the end of its operations, its ability to generate revenue declines, but its liabilities may continue, even indefinitely.**

Many mine operations, particularly those that mine sulfide deposits, may result in the development of acid mine drainage and/or metals leaching that requires long-term water treatment, or water treatment "in perpetuity."[89] According to a recent literature review

[86] A recent GAO report found that it is the only activity that they reviewed that still allows self-bonding.[86]
[87] GAO Report June 2005 "Hardrock Mining: BLM needs to better Manage Financial Assurances to Guarantee Coverage of Reclamation Costs."
[88] Id.
[89] Earthworks, "Polluting the Future," May 2013. Available at: https://www.earthworksaction.org/files/publications/PollutingTheFuture-FINAL.pdf

commissioned by the U.S. Fish and Wildlife Service, "no hard rock open pit mines exist today that can demonstrate that acid mine drainage can be stopped once it occurs on a large scale. Evidence from literature and field observations suggests that permitting large scale surface mining in sulfide-hosted rock with the expectation that no degradation of surface water will result due to acid generation imparts a substantial and unquantifiable risk to water quality and fisheries."[90]

A report in 2013 identified 40 hardrock mines that are responsible for generating an estimated 17 to 27 billion gallons of contaminated water, every year, in perpetuity (for hundreds or thousands of years).[91] These liabilities may persist for hundreds to thousands of years – long after the expected life of the mining company. In these cases, it is particularly inappropriate to accept corporate guarantees, since the risks associated with the release of hazardous materials are likely to outlive the company. Academic studies find that the life expectancy at birth of all companies is twelve to thirteen years; multinational corporations last forty to fifty years; and, one-third of the Fortune 500 companies in 1970 disappeared by 1983 (a rate consistent with a forty year life for a Fortune 500 company).[92] These data show that there is a high probability that a responsible party will be unavailable to complete a remedy that requires long-term efforts. As noted above, the volatility of the commodity cycle makes hardrock mining a particularly risky sector.

Perpetual environmental management at operating and proposed hardrock mines is a rapidly expanding global dilemma.[93] While economies of scale have encouraged larger mines, improved models routinely predict long-term water quality degradation at sulfide metal mines. In the 40 years since the United States began requiring Environmental Impact Statements for disturbances on public lands, environmental analyses have determined with increasing certainty that many (and maybe most) new hardrock mines in sulfide rock will require continuous management to prevent perpetual water quality degradation.[94]

- **Corporate guarantees should not be authorized because a financial test for the hardrock mining industry may not fully reflect the financial health of the owner or operator.**

Mining companies often do not list "contingent" liabilities, such as the potential need for long-term operation and maintenance ("O&M") on their corporate balance sheets, at least not during the early exploration and start-up phases of a mine. As such, a balance sheet can show that a given company has sufficient assets to meet the requirements of the financial test, despite the fact that all or a portion the recorded assets may be zeroed out by unrecorded "contingent" liabilities.

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[90] Jennings, S.R., Neuman, D.R. and Blicker, P.S. (2008). "Acid Mine Drainage and Effects on Fish Health and Ecology: A Review". Reclamation Research Group Publication, Bozeman, MT. Available at: http://www.pebblescience.org/pdfs/Final_Lit_Review_AMD.pdf

[91] Earthworks, "Polluting the Future," May 2013. Available at: https://www.earthworksaction.org/files/publications/PollutingTheFuture-FINAL.pdf

[92] See the Prologue to Arie de Graus's, *The Living Company*.

[93] Kempton, H., Bloomfield, T.A., Hanson, J.L., and Limerick, P. 2010. Policy guidance for identifying and effectively managing perpetual environmental impacts from new hardrock mines. Environmental Science & Policy, Volume 13, Issue 6, October 2010, Pages 558- 566. Final journal version available at: http://dx.doi.org/10.1016/j.envsci.2010.06.001.

[94] Id.

Mining companies may also provide misleading information about the health of the company, in conjunction with the parent company. For example, the Mountain Pass Mine, which filed for bankruptcy in 2016, left an estimated $28 million shortfall in reclamation bonding to the State and County. According to documents filed with the bankruptcy court by the State and County, "Only after the commencement of the bankruptcy cases of the Minerals Debtors and their related entities did it come to light that the Minerals Debtors, presumably with the knowledge and consent of their parent, Molycorp, Inc., had transferred title to approximately $140 million in equipment at the mine to Oaktree, and had also over-encumbered all of the remaining equipment and facilities at the mine with hundreds of millions of dollars of liens in favor of Oaktree and the 10% Secured Noteholders (the "Noteholders").[95]

Similarly, Allied Nevada, which filed for bankruptcy in Nevada in 2015, is the subject of a securities fraud complaint that alleges that the company issued materially false and misleading statements regarding the company's financial performance and future prospects and failed to disclose adverse facts about its operations.[96]

Finally, financial assurances for businesses at risk for environmental contamination can help mitigate the fact that businesses can legally organize or restructure in ways that can limit their future expenditures for cleanups by, for example, separating their assets from their liabilities using subsidiaries to protect their assets. The ASARCO bankruptcy illustrates this issue well.

- **Financial assurance is essential for small companies because they tend to be at greater risk because they operate on smaller margins.**

A guiding principal in determining the amount of financial assurance is this: The greater the risk, the larger the financial assurance must be. When assessing risk, one must first look at the type company. According to the International Council on Mining and Metals' own study, "The thousands of small junior companies have little financial and managerial depth but can and do have the capability to create significant environmental problems."[97] There may be a greater chance of "unanticipated liabilities" with a Junior company. Because of this, the rules should rigorously apply to small companies to adequately protect taxpayers from unanticipated liabilities.

D. Subpart H – Hardrock Mining Facilities

4. § 320.63 Determining the financial responsibility amount

- **The rules should provide a mechanism by which the financial assurance costs are increased to reflect the full liability, when data to support an increased amount is provided.**

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[95] Molycorp Minerals LLC et. al., Case 15-11371-CSS Doc 108, Joint Response of the County of San Bernardino, California, the California Regional Water Quality Control Board Lahontan Region, and the California Department of Resources Recycling and Recovery to Chapter 11 Trustee's Motion for an order Dismissing Molycorp Minerals Debtor's Chapter 11 Cases. United States Bankruptcy Court for the District of Delaware, Filed 09/19/16

[96] http://www.classactionsnews.com/investments/allied-nevada-gold-anv-securities-fraud-class-action-lawsuit

[97] International Council on Mining and Metals Financial Assurance for Mine Closure and Reclamation, page 44, February 2005.

The draft rules propose to use a calculation based on an average cost approach to determine the financial responsibility amount for a facility. This approach places the public at considerable financial risk if the CERCLA financial responsibility costs of failure are larger than average. It appears that the public would be liable to assume the differential between the average and larger than average costs of the CERCLA mining program. The rules should include a mechanism by which the public, or other entities, can provide evidence to substantiate an increase in the financial responsibility amount, and a formal process by which that increase is established.

- **We strongly support the incorporation of natural resource damages into the financial assurance calculation. These amounts are often very substantial, and state and federal land management agencies typically do not incorporate natural resource damages into their financial assurance calculations.**

Natural resource damages are often substantial and the CERCLA 108(b) rules should maximize the amount of financial assurance amount associated with these damages – particularly for high risk sites, such as those at risk for perpetual water pollution associated with acid mine drainage or metals leaching. The long-term nature of these types of hazardous releases increase the potential for long-term damages to water quality, and other natural resources.

According to a recent literature review commissioned by the U.S. Fish and Wildlife Service, "no hard rock open pit mines exist today that can demonstrate that acid mine drainage can be stopped once it occurs on a large scale. Evidence from literature and field observations suggests that permitting large scale surface mining in sulfide-hosted rock with the expectation that no degradation of surface water will result due to acid generation imparts a substantial and unquantifiable risk to water quality and fisheries."[98]

For example, substantial natural resource damages have occurred at Freeport McMoRan's Morenci Mine, and were the subject of a natural resource damage complaint. According to the complaint, the hazardous substance release, which included sulfuric acid and metals, injured, destroyed or led to the loss of "surface waters, terrestrial habitat and wildlife, and migratory birds."[99] An investigation found that the main ore minerals are sulfide minerals, which have resulted in the development of acid mine drainage. According to the report, "Surface water has been, and most likely continues to be, exposed to hazardous substances released from the Morenci Mine through a variety of pathways." Concentrations of hazardous substances measured in groundwater at the Morenci Mine and measured in the San Francisco and Gila Rivers downstream of the mine provide further indications that hazardous substances present in the source materials at the Morenci Mine have been released to the environment. The report found that "Concentrations of total and dissolved zinc have exceeded 1,000 ug/l in the Gila River and

[98] Jennings, S.R., Neuman, D.R. and Blicker, P.S. (2008). "Acid Mine Drainage and Effects on Fish Health and Ecology: A Review". Reclamation Research Group Publication, Bozeman, MT. Available at: http://www.pebblescience.org/pdfs/Final_Lit_Review_AMD.pdf

[99] Department of Justice, Press Release: "Freeport-McMoRan Corp and Freeport-McMoRan Morenci Inc. will pay $6.8 million in Damages for Injuries to Natural Resources from the Morenci Copper Mine in Arizona. April 24, 2012. http://www.justice.gov/opa/pr/2012/April/12-enrd-527.html

concentration of dissolved copper have exceeded 100 ug/l in the San Francisco River." Contaminated groundwater is also released to surface water via seeps and springs.

Similarly, there have been extensive natural resource damages incurred through multiple releases of hazardous substances by ASARCO L.L.C. into Mineral Creek and the Gila River in Pinal County, Arizona.[100] According to a 2012 ecological risk assessment by the State of Arizona, "The site of injury stretches from the Ray Mine and the Hayden Facility, to the Gila River from the Ashurst- Hayden Diversion Dam, upstream past the confluence of the San Pedro and Gila Rivers, and for a distance of 5 miles up each of those rivers beyond the confluence and to Mineral Creek from its confluence with the Gila River upstream to a point one mile above the Big Box Canyon Dam." The most substantial injuries occurred in the reach of Mineral Creek that extends from the tunnel outlet to the Gila River. The report finds that "Dissolved copper concentrations in the surface water of this reach have been recorded up to 130 times surface water quality standards that will sustain aquatic life, and sediment copper concentrations have been recorded to exceed up to 22 times the level beyond which injury is inflicted on sediment-dwelling organisms (MacDonald et al. 2000)." These concentrations of copper caused a complete loss of aquatic life in this reach.

Overall, the report found that "ecosystem services lost in the 117 acres that include Mineral Creek and its associated riparian habitat were estimated to be 100% from 1981- 2005, and up to 50% from 2005 to the present (Lipton 2009). Hazardous releases also affected the aquatic and riparian portions of the Gila River near the Ray Mine/Hayden Smelter Complex, including approximately 2,930 acres upstream of Mineral Creek to the confluence with the San Pedro River, and approximately 1,620 acres downstream of Mineral Creek to the Ashurst-Hayden Dam. The most substantial loss of ecosystem services in these areas occurred during the three years following the release of 300,000 tons of tailings in 1993, when ecosystem service losses were estimated at 10-25% (Lipton 2009)."

The natural resource damage claim program only allows for financial assurance after a final remedy has been selected – leaving the liability to the public in the event of a bankruptcy in the interim. Therefore, it is essential that the CERCLA 108(b) program cover these liabilities.

- **The rules should allow for an increase in the natural resource damage amount, where there is evidence to demonstrate that liabilities exist that exceed the amount estimated in the FG calculation. The rules should provide a formal mechanism by which this increase occurs.**

The FR calculation for natural resource damages is based on a set percent (13.4%) that was derived by EPA from evaluating costs from past natural resource damages. After excluding four statistical outliers, EPA divided the average natural resource damages by the average response costs to generate a multiplier. The problem is that this was computed as average NRD divided by

[100] State of Arizona and US Department of Interior, "Draft Restoration Plan and Environmental Assessment for the Hazardous Substance Releases from the Hayden Smelter and Ray Mine Facilities," February 2012.

average response costs. As a result, mines that have significant natural resource damages will be substantially underfunded – leaving a liability to the public. The rules should provide an avenue for the financial assurance amount for natural resource damages to be increased based on data submitted to the EPA for review by the public, or other entities. This will ensure more accurate compliance with the statute.

- **We strongly support the incorporation of health assessments into the financial assurance calculations. Health risks can be substantial and health risk assessments are not covered in existing state or federal land management financial assurance programs.**

This component of the rules is particularly important for mines that present a high risk to public health, particularly uranium mines, lead mines and those that release mercury. It's also critical for mines near high risk populations, such as subsistence communities, which rely heavily on natural resources. There are abundant examples of mines that present a substantial public health risks.[101]

Appendix A provides a list of Superfund Risk Assessment and/or Health Risk Assessments for mines operating in 2009. There are many other Superfund risk assessments or health risk assessments that are not included in this Appendix.

For example, only one document is listed in Appendix A for the Red Dog Mine. However, there are substantially more risk assessments that have been conducted at the mine. Fugitive dust from the transportation of the ore concentrate between the mine and the port has resulted in contamination of areas along the 52 mile connecting road for zinc, lead and cadmium above background levels. The mine started operation in 1989 and is currently scheduled to operate until 2032+. Metals contamination has been identified on land owned by NANA, the State of Alaska, and the federal government (Cape Krusenstern National Monument). These documents can be found here: http://dec.alaska.gov/spar/csp/docs/reddog/bibliography.htm#2001, and include:

- **The National Park Service's** "Spatial patterns of cadmium and lead deposition on and adjacent to National Park Service lands near Red Dog Mine, Alaska: NPS Final Report**," by Linda Hasselbach, Jay Ver Hoef, Jesse Ford, Peter Neitlich, Eric Crecelius, Shanti Berryman, Brett Wolk and Todd Bohle, July 2004 (PDF file 1.8 MB)**

- **U.S. Geological Survey Scientific Investigation Report,** "Occurrence and distribution of trace elements in snow, streams, and streambed sediments, Cape Krusenstern National Monuments, Alaska, 2002-2003**," Timothy P. Brabets, 2004, 2004, 31 pages.**

- **November 2007: Final Risk Assessment, "*DMTS Fugitive Dust Risk Assessment*" prepared by Exponent for Teck Cominco, submitted to DEC for review and approval.**

- **Fact sheet (PDF 1.9MB) Executive Summary (pdf file 1.8 M)**

[101] http://environmentportal.in/files/MiningHealthReport_WVE-done.pdf

- Public Health Evaluation of Exposure of Kivalina and Noatak Residents to Heavy Metals from Red Dog Mine**. October 25, 2001**

At the Bingham Canyon Mine, another operating mine, there are substantial risk assessment documents associated with evaluating the impacts to humans and natural resource damages from the north and south zone of the mine. Health risk assessments have been conducted by ATSDR for the north and south zones of the mine, and by other agencies.

- https://www.atsdr.cdc.gov/hac/pha/pha.asp?docid=801&pg=1
- http://deq.utah.gov/businesses/K/kennecott/Bingham-Magna_Ditch/index.htm
- http://deq.utah.gov/businesses/K/kennecott/nrd/docs/2007/08Aug/SouthZoneGroundwaterRDRA.pdf
- https://www.atsdr.cdc.gov/hac/pha/pha.asp?docid=800&pg=4

In Idaho, active phosphate mines require risk assessments, including the following:

- http://www.deq.idaho.gov/media/856749-selenium-project-area-wide-risk-management-plan-0204.pdf
- http://www.deq.idaho.gov/media/856745-selenium-project-area-wide-human-health-ecology-risk-assessment-work-plan-2002.pdf
- http://www.deq.idaho.gov/media/856761-selenium-project-existing-data-review-report-1001.pdf
- http://www.deq.idaho.gov/media/856717-selenium-project-elk-tissue-results-2000.pdf
- http://www.atsdr.cdc.gov/HAC/pha/PHA.asp?docid=1052&pg=0
- http://www.deq.idaho.gov/media/856789-selenium-project-toxicity-sheep-grazing-reclaimed-sites-0803.pdf
- https://www.atsdr.cdc.gov/HAC/pha/SoutheastIdahoPhosphateMining/SoutheastIdahoPhosphateMiningPHA022406.pdf

At the Chino, Tyrone and Morenci Mines in New Mexico, the following risk assessments have been conducted:

- https://www.fws.gov/southwest/es/documents/r2es/phelps_dodge_mines-final_pas.pdf
- http://www.fcx.com/chino/pdf/2015/042015.pdf

Molycorps Questa Mine:

- https://www.fws.gov/southwest/es/Documents/R2ES/Molycorp_PAS-Final_for_Signature.pdf
- https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/PB2005103470.xhtml

If this list is used to evaluate the importance of HRA or Natural Resource Damages in the CERCLA 108(b) program and the associated costs, we encourage the EPA to update this list.

- **Reductions to the financial responsibility amount should not be authorized for mines that merely demonstrate that they have a plan in place for controls to reduce risk. Rather they must demonstrate that the controls are fully implemented, maintained, enforced, and serve the function of actually reducing the degree and duration of risk associated with the production, transportation, treatment, storage or disposal of hazardous substances.**

There are many examples of mines with plans to prevent hazardous releases, but which have failed to do so because the plan failed, wasn't implemented, wasn't maintained, etc. This section must require that operating controls are actually in place, enforced, and operating in a way that reduces the degree and duration of risk and demonstrates ongoing effective operations to receive a reduction.

Reductions to the financial responsibility amount must also include protections for wildlife from access to hazardous materials. For example, a plan to address public safety by prevention of public access by means of security fencing or other effective methods does not address the risks associated with exposure to wildlife receptors. For example, at the Berkeley Pit in Butte, more than 1000 snow geese died in December 2016 as a result of landing on the pit lake and being exposed to the acidic waters.

- **Reductions to the financial responsibility amount that allow for an "all or nothing" approach are inappropriate.**

According to the draft rule, "The proposed rule allows for simple, all-or-nothing reductions for the formula sub-components, when they can be justified." We do not support this approach because it fails to ensure that funds will be available to address the purpose of the statute. Engineering controls can help reduce risk, but failures happen all the time. There is abundant data, as referenced in the sections above, that demonstrate that even with existing engineering controls, spills and other accidental releases occur on a regular basis and mines fail to control seepage of hazardous materials in most cases. The proposed approach is in direct conflict with the purpose of the statute – which is to ensure that there is financial assurance sufficient to cover the risks and liabilities associated with the release of hazardous materials.

We are also concerned about this approach because the closure costs in mine plans are often set artificially low by the company -- leaving substantial liability for the government/public. A recent study by Ernst and Young found "an average budget overrun of a staggering 62%" for mining mega-projects.[102] Thus, the CERCLA 108(b) rules should not incorporate an "all or nothing" approach when considering reductions. To the contrary, the EPA should incorporate a factored increase into the financial responsibility calculation to address this issue.

- **The rules should define "minimal degree or duration of risk" or delete that option.**

[102] Ernst and Young, Opportunity to Enhance Capital Productivity, Mining and Metal Mega Projects, 2015. Available at: http://www.ey.com/Publication/vwLUAssets/EY-opportunities-to-enhance-capital-productivity/$FILE/EY-opportunities-to-enhance-capital-productivity.pdf

According to the draft rule, "In order to qualify for reductions, the owner or operator must demonstrate to EPA that any requirements relied upon under paragraph 320.63(d) also meet the general standard, that the engineering requirements will result in a minimum degree and duration of risk …"

The term, "minimal degree or duration of risk" is not defined, so it provides an unacceptable level of uncertainty as to how this would be applied. Neither the public nor the regulated industry can be confident that the rules would be uniformly applied across regions. These terms should be defined, or better yet, the financial assurance should simply be associated with the degree and/or duration of risk, as substantial or as minimal as that may be.

- **The proposed 200-year return interval design criteria for stormwater management is appropriate BMP, given increase in large storm events from climate change.**

The proposed regulations include design criteria for collection, diversion and conveyance systems for stormwater of 100-year 24-hour return interval events for various categories of existing units and 200-year 24-hour return interval events for new units authorized to operate after the effective date of the rule. The 200-year criteria should be used for all facilities given the increase in large storm events from climate change. According to recent technical presentations by the U.S. Bureau of Land Management, "the industry is making closure, reclamation and drainage treatment predictions based on a historic climate that no longer exists," and the 100-year, 24-hour storm event is insufficient to protect against releases.[103]

The State of Montana also identified the increase in large storm events as an issue at mines, pointing to a major release at the Zortman Landusky Mine, which is designed for a 100-year, 24-hour storm event. The 2011 storm resulted in the release of 54 million gallons of untreated mine water from the Zortman Mine and 19 million gallons from the Landusky mine.[104]

5. Information Submission and Recordkeeping Requirements (320.64)

- **The rules should require full disclosure of the economic relationship between the owner or operator and a third-party certifier of the financial assurance instrument.**

EPA solicits comment on the criteria that should be used to determine whether the qualified professional engineer that certifies the financial responsibility amount is "independent." We encourage the agency to require full disclosure of the economic relationship between the owner or operator and a third-party certifier of the financial responsibility instrument. Such disclosure should be required for the rules, just as a public corporation is required to disclose the financial arrangements between itself and its auditors that audit the corporation's financial statements that are submitted to the SEC.

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[103] David Williams, Bureau of Land Management, "Climate Change – Extreme Conditions: Do Plans of Operations Need to Include an Ark, Presented at 20th Annual Mine Design, Operations & Closure Conference, April 29-May 3, 2012. http://www.mtech.edu/mwtp/conference/2012_presentations/Dave%20Williams.pdf

[104] Warren McCullough and Wayne Jepson, Montana Department of Environmental Quality, "Zortman: Dealing with Larger Weather Events."
2012.http://www.mtech.edu/mwtp/conference/2012_presentations/Warren%20McCullough.pdf

6. Third Party Certification (320.65)

- **We support the proposal that elements of the calculation of the financial responsibility amount be certified by an independent qualified professional engineer.**

We agree that it will improve the accuracy of submissions, and provide greater public confidence in the process.

7. Continued Risk at Hardrock Mining Facilities

- **We agree that there is abundant evidence that hardrock mine facilities continue to pose risks associated with the management of hazardous substances at their sites as outlined in the draft rule.**

COMMENTS ON SUPPORT DOCUMENTS

Financial Responsibility Requirements under CERCLA 108(b) for Classes of Facilities in the Hardrock Mining Industry Proposed Rule: Financial Responsibility Reductions, Technical Support Document.

- **This technical support document makes assertions that are not supported by data, and comes to erroneous conclusions.**

The document states: "Since the modern era of mining, circa 1980, the technical and regulatory approaches to hardrock mine design, operations, and reclamation and closure, have evolved significantly. Today, BMPs have been developed that can mitigate potential impacts from mining to meet EPA's goal "...that the engineering requirements will result in a minimum degree and duration of risk associated with the production, transportation, treatment, storage, or disposal, as applicable, of all hazardous substances present at that site feature." (P. 2-3)

The document provides no data to support this assertion. The document points to the New Mexico Copper Rule and the BLM's 3809 regulations as examples, yet it provides no data to demonstrate that these rules have reduced, or prevented, releases of hazardous materials. To the contrary, numerous reports document substantial impacts at modern hardrock mines, particularly those associated with the release of hazardous materials.[105]

COMMENTS ON THE SBAR RECOMMENDATIONS TO EPA

[105] Earthworks, "U.S. Copper Porphyry Mines: The Track Record of Water Quality Impacts Resulting from Pipeline Spills, Tailings Failures and Water Collection and Treatment Failures," July 2012 (Revised November 2012) Available at: https://www.earthworksaction.org/files/publications/Porphyry_Copper_Mines_Track_Record_-_8-2012.pdf; Kuipers, J.R., Maest, A.S., MacHardy, K.A., and Lawson, G. 2006. Comparison of Predicted and Actual Water Quality at Hardrock Mines: The reliability of predictions in Environmental Impact Statements. https://www.earthworksaction.org/files/publications/ComparisonsReportFinal.pdf

1) The SBAR urged EPA to solicit comment on the criteria used to identify lower-level of risk of injury classes in the proposed rule, and whether it would be feasible and appropriate to identify additional classes as presenting a lower level of risk of injury, particularly classes of mines that differ in their operations and associated risks from more traditional hardrock mines, and on whether such classes of mines, defined based on facility characteristics, could potentially encompass iron ore, phosphate, and uranium mines. We strongly disagree with the notion that these mining classes present a lower level of risk, as described below:

- **Phosphate mines must be incorporated into the rule because they present a substantial risk of injury; have resulted in releases of hazardous materials; and have cost agencies millions in health assessment and cleanup costs.**

Phosphate mines in southeast Idaho are a significant source of hazardous materials as described by the Idaho Department of Environmental Quality, "In Caribou and adjacent counties, phosphate mining has resulted in waste rock dumps and open pits that contain materials high in selenium and metals. Past studies – including voluntary mining company investigations, area-wide investigations, mine-specific studies and others – have identified these waste rock dumps as hazardous substance sources that may pose a risk to human health and/or the environment. These contaminants are known or suspected to be present in groundwater, surface water, sediment, soils and plants and can be transported beyond the former mining areas."[106]

Many of these mines are undergoing CERCLA clean-ups as a result of selenium contaminants released to ground and surface water. According to a 2012 GAO report that evaluated the regulatory oversight at phosphate mines in Idaho, "Much of the mining in this area has taken place on federal land, and federal agencies are currently overseeing mining operations or selenium cleanup at 18 phosphate mines, of which 5 are active and 13 inactive. Of the 18 mines, 16 are contaminated with selenium and most are being assessed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, for future cleanup."[107]

"The agencies have conducted or overseen high-level assessments of contamination at 16 of the 18 mines where federal agencies are overseeing mining operations or cleanup activities, and at several of these mines the agencies and mine operators are now conducting more detailed assessments, known as remedial investigations and feasibility studies. However, no final cleanup actions have been chosen at any of the sites, and according to officials, most sites will require years of additional investigative work before final cleanup actions are selected. Federal agencies reported that they have spent about $19 million since 2001 to oversee these assessments and undertake a limited number of remediation actions, roughly half of which has been reimbursed by the mine operators under cleanup settlement agreements."[108]

[106] https://www.deq.idaho.gov/media/856785-selenium-project-phosphate-mine-site-investigation-agency-update-2009.pdf
[107] U.S. Government Accountability Office, Phosphate Mining: Oversight Has Strengthened, but Financial Assurances and Coordination Still Need Improvement, May 2012. Available at: http://www.gao.gov/assets/600/590642.pdf
[108] Id.

The report further states that "Agency officials told GAO that they have not developed estimates for the remaining cleanup costs because final cleanup remedies have not yet been identified. However, their informal estimates suggest that remaining cleanup costs may total hundreds of millions of dollars for the contamination from mining in Idaho."

- **Uranium Mines must be subject to the CERCLA 108(b) regulations because they present a substantial risk of release of hazardous materials, particularly radioactive materials.**

There are extensive examples of conventional and in-situ uranium mines resulting in substantial environmental impacts as a result of the release of hazardous materials.[109] The milling sites alone have cost the federal government (and thus the taxpayer) billions of dollars in cleanup costs.[110] And while cleanup programs have been ongoing for decades, a handful of sites have been addressed only within the last few years. The EPA's *Technologically Enhanced Naturally Occurring Radioactive Materials* (TENORM) report estimated $2.27 billion in cleanup costs just for the uranium mills (i.e., not including the legacy costs of cleaning up and stanching the ow of contamination from conventional mine sites).[111] At locations in Wyoming, Nebraska, and New Mexico where the NRC is overseeing the cleanup of mills or ISL sites, estimates exist for approximately half the sites and add up to more than $80 million.[112] At other sites where NRC Agreement States, such as Texas, Colorado, and Utah have direct oversight authority over cleanup, estimated costs or completion dates have not yet been determined.

- **Iron Ore mines must be subject to the CERCLA 108(b) regulations because they present a substantial risk of release of hazardous materials.**

Taconite operations consist of two major processes, extraction and beneficiation. Extraction consists of drilling and blasting the ore and overburden. Beneficiation is the process of concentrating and pelletizing the ore. Taconite operations typically consist of a mine pit, waste rock and tailings disposal areas, and processing plants and associated facilities.
Taconite mining and processing requires the use and management of a large quantity of water. The mine pit must typically be dewatered below the depth of the groundwater table, and runoff from mining and processing areas must be managed. Beneficiation processes require a large

[109]https://www.earthworksaction.org/library/detail/nuclear_powers_other_tragedy/#.WFIOcqIrJjU
[110] U.S. Department of Energy/EIA, "U.S. Uranium Production Facilities: Operating History and Remediation Cost Under Uranium Mill Tailings Remedial Action Project as of 2000," January 11, 2005, eia.doe.gov/cneaf/nuclear/page/umtra/title1map.html. *See also* EPA, TENORM Report, Vol. 1, 4-15–4-18.
[111] EPA, TENORM Report, Vol. 1, 4-15–4-20. Here the EPA presents some cost data for reclaiming uranium mines and milling facilities. Costs can vary dramatically from site to site and will be dependent on a host of factors.
[112] James H. Clarke and Frank L. Parker, Vanderbilt University, "Uranium Recovery and Remediation of Uranium Mill Tailings: Russian and U.S. Experience," from *Cleaning Up Sites Contaminated With Radioactive Materials*, International Workshop Proceedings, Glenn E. Schweitzer, Frank L. Parker, and Kelly Robbins, editors, Committee on Cleaning Up of Radioactive Contamination: Russian Challenges and U.S. Experience, Office for Central Europe and Eurasia Development, Security, and Cooperation, Policy and Global Affairs, National Research Council of the National Academies, in cooperation with the Russian Academy of Sciences, the National Academies Press, Washington, D.C., nap.edu/openbook.php?record_ id=12505&page=69; at 73. Accessed August 25, 2011.

amount of water – ore and tailings are typically transported and treated in slurry throughout most of the process, and additional water is required for emissions control devices.

A recent study conducted by the Wisconsin Department of Natural Resources identifies numerous risks related to the release of hazardous substances from iron ore mining, including the release of acid mine drainage, mercury and other materials.[113] It states that, "Industry-wide, it is estimated that ~90% of the geologic material handled during metallic mining constitutes waste material, posing a disposal challenge (Jamieson et al. 2011). When waste rock surfaces are exposed to air and water, geochemical weathering solubilizes and mobilizes elements and compounds that can affect ecosystem and human health."

It further states that, "Recent emission inventories indicate that taconite mining and processing are the largest source of airborne mercury within the Lake Superior basin (Figure 12), and most of the taconite-related Hg emissions are associated with mining activity in northeastern Minnesota."

The report also states that selenium releases are an issue, "While selenium contamination is commonly associated with sulfide mining, and is also a major concern in areas impacted by mountaintop coal mining (Palmer et al. 2010), selenium contamination has also recently been discovered at the Tilden and Empire taconite mines on the Marquette range in northern Michigan (MDEQ 2009; 2010). Extensive sampling in the vicinity of these mines found many exceedances of the 5 μg/L chronic criterion in surface waters. The acute criterion (120 μg/L) was not exceeded in streams or lakes, but was exceeded in a seep coming out of a reclaimed waste rock pile. Selenium concentrations in sediments were measured as high as 39 mg/kg; a maximum of 2 mg/kg has been recommended as protective of bioaccumulative risk (MDEQ 2009). Fish tissue concentrations were measured at levels well in excess of the EPA criterion near the mines as well (MDEQ 2009; 2010)."

- **The January 30, 2017 Executive Order "Reducing Regulation and Controlling Regulatory Costs" does not apply to the CERCLA 108(b) rule-making.**

In addition, Commenters are aware that after EPA proposed this rule, President Trump signed an unlawful, arbitrary, and capricious Executive Order: Executive Order 13,771, 82 Fed. Reg. 9339 (Feb. 3, 2017). A number of groups have challenged that executive order in court. EPA cannot lawfully or rationally rely on that executive order in this rulemaking, nor can the agency allow that order to influence development of the final rule. This is because CERCLA directs EPA to establish financial assurance requirements based on the level of risk associated with industries' handling of hazardous substances, including level of risk of injury. See 42 U.S.C. 9608(b).

CERCLA dictates that these rules be established based on risk, not on cost to industry. An executive order cannot override a statute, limit the authority delegated and the legal responsibilities provided to the EPA Administrator by federal law, add factors that are

[113] Cory McDonald, et. al, "Taconite Iron Mining in Wisconsin: A Review", December 2013. Available at: http://media.jrn.com/documents/Iron-Mining-Review-011014.pdf

impermissible under the statute, or delay statutorily required agency action. In addition, weakening or delaying improvements contained in this proposed rule, or any other public health and safety improvements, due to the executive order would be contrary to the public health and environmental responsibilities and requirements of EPA to reduce the amount of hazardous substances and resulting health and environmental threats that the sources at issue in this rulemaking cause. Finally, it would be unlawful for EPA to consider or apply that executive order in any way in this rulemaking without providing the requisite public notice and opportunity for comment.