



Office of Inspector General

Audit Report

**EPA CAN DO MORE TO HELP
MINIMIZE HARDROCK
MINING LIABILITIES**

E1DMF6-08-0016-7100223

June 11, 1997

Inspector General Division
Conducting the Audit:

Central Audit Division
Denver, Colorado

Regions Covered:

Regions 5, 8, 9, 10

Headquarters Program Offices
Involved:

Office of Water

Office of Solid Waste and Emergency Response

Office of Enforcement and Compliance Assurance

MEMORANDUM

SUBJECT: EPA Can Do More To Help
Minimize Hardrock Mining Liabilities
Report No. E1DMF6-08-0016-7100223

FROM: Michael D. Simmons
Deputy Assistant Inspector General
For Internal Audits

TO: Robert Perciasepe
Assistant Administrator
For Water

Attached is our report entitled *EPA Can Do More To Help Minimize Hardrock Mining Liabilities*. We found that critical gaps exist in federal and state statutory and regulatory authority to require adequate financial assurances at hardrock mines. We also found that EPA could improve implementation of its existing statutory authority and use non-regulatory tools, such as partnerships, more effectively to minimize the financial and environmental impacts of hardrock mining. The report contains recommendations for EPA to improve its relationship with state and federal land management agencies and to assist them in revising their authority to require adequate financial assurance for hardrock mines. We also recommend you complete and publish a hardrock mining strategy to provide Agencywide direction on mining issues.

ACTION REQUIRED

In accordance with EPA Order 2750, you, as the action official, are required to provide us a written response to this report within 90 days of the final audit report date. While several EPA offices share responsibility for hardrock mining activities, we understand that the Deputy Administrator has designated you to coordinate EPA's hardrock mining activities. Therefore, we ask that you as the action official for this report consolidate the responses for all recommendations. For corrective actions planned but not completed by the response date, reference to specific milestone dates will assist us in deciding whether to close the report.

This report contains findings that describe issues the Office of Inspector General (OIG) has identified and corrective actions OIG recommends. This report represents the opinion of the OIG, and the findings contained in this report do not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established EPA audit resolution procedures.

We have no objection to the release of this report to any member of the public. This report contains no confidential business or proprietary information that cannot be released to the public.

Should you or your staff have any questions regarding this report, please contact me at (202) 260-4945 or Bennie Salem, Divisional Inspector General for Audit in our Kansas City office, at (913) 551-7878. Please refer to the report number on all related correspondence.

Attachment

EXECUTIVE SUMMARY

PURPOSE

The Environmental Protection Agency (EPA), Region 8, requested an audit of the environmental and financial liabilities that could result from active hardrock mines. The Region was concerned that the low level of financial assurance requirements at active and future hardrock mine sites would leave EPA in the position of assuming responsibility for cleanup of future abandoned hardrock mines under the Superfund program.

BACKGROUND

Significant changes in mining practices over the last 20 years have led to a resurgence of mining activities in many areas of the country. Closed and abandoned mines could result in environmental problems and sizable cleanup costs for the federal taxpayers.

Mining activities are regulated under federal and state authorities. Federal statutory authority is spread among several agencies with no one agency having overall statutory responsibility. Most states with significant hardrock mining have established their own statutory programs and regulate mine activities through mine permits.

EPA does not have specific statutory authority to address the potential environmental problems at active hardrock mines.

RESULTS IN BRIEF

We found critical gaps in some federal and state statutory and regulatory authorities to require adequate financial assurances at hardrock mines. This lack of adequate financial assurances could result in EPA having to assume responsibility for cleaning up some hardrock mine sites in the future. EPA had not effectively implemented its existing statutory authorities or used non-regulatory tools, such as partnerships, to minimize the environmental impacts of hardrock mining and help federal and state agencies eliminate financial assurance gaps.

PRINCIPAL FINDINGS

Federal and state land management agencies' authorities to require environmental performance standards and financial assurances at hardrock mines varied, leaving critical gaps in bonding requirements. Unreasonably low bond ceilings did not allow adequate financial assurance coverage for hardrock mining on some state and private lands.

As a result, EPA may become liable for the considerable costs of cleaning up mines abandoned by the companies that operated them.

EPA could have been more effective in implementing its own statutory and regulatory authorities to prevent hardrock mining pollution problems. While some EPA regions have developed a cross-media approach for addressing hardrock mining issues, EPA as a whole has been slow to develop and implement a comprehensive hardrock mining strategy and effectively coordinate and address specific hardrock mining issues.

Even though partnering is an important part of EPA's 5-year strategic plan, EPA had not consistently engaged in effective partnerships. EPA cited a lack of resources, expertise, and management commitment for not participating more actively with federal and state agencies. EPA needed to invest in partnerships to help prevent problems rather than wait until problems occurred and respond under its Superfund authorities.

RECOMMENDATIONS

We recommend the Assistant Administrator for Water encourage regions to improve their relationships with federal and state land management agencies to help eliminate existing gaps in the Mining Law of 1872 and federal and state bonding requirements. The Assistant Administrator should establish and implement a national hardrock mining strategy to provide direction for EPA's more effective use of its statutes to address hardrock mining issues and develop stronger partnerships with other hardrock mining stakeholders. The Assistant Administrator should develop a critical core of cross-media mining expertise and encourage proactive, timely involvement in hardrock mining environmental issues.

**EPA COMMENTS AND
OIG EVALUATION**

EPA generally agreed with our findings and recommendations. EPA offered comments to clarify some issues and recommendations, and we have modified our report as appropriate. We summarized EPA comments at the end of each finding chapter and included the full text of the comments as Appendix I.

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Chapter 1

INTRODUCTION

PURPOSE

The Environmental Protection Agency (EPA), Region 8, requested an audit of the environmental and financial liabilities that could result from active hardrock mines. The Region was concerned that the low level of financial assurance requirements at active and future hardrock mine sites would leave EPA in the position of assuming responsibility for cleanup of abandoned mines under the Superfund program. Without adequate environmental performance standards and financial assurances established prior to permitting mines, new sites could become the federal government's responsibility.

Our overall objective was to determine if adequate federal and state statutory and regulatory authorities were in place to minimize the environmental damage and unfunded financial liabilities resulting from active hardrock mining. Our specific audit objectives were to answer the following questions:

- Do current federal and state statutory and regulatory requirements include environmental performance standards and adequately provide for financial assurance to restore active mine sites to an acceptable condition?
- Has EPA effectively used existing environmental statutes and regulations to prevent mining pollution and minimize potential government financial liabilities?
- Has EPA established effective partnerships to develop environmental performance standards and appropriate financial assurance requirements for active and future mine sites?

BACKGROUND

Significant changes in mining practices over the last 20 years have led to a resurgence of mining activities in many areas of the country. Although much of the hardrock mining has been historically concentrated in the western states, hardrock mines are operating or planned throughout the country including the states of Maine, Michigan, South Carolina, and Florida.

No national inventory of the number or character of active hardrock mines exists. Estimates of active hardrock mines on federal lands ranged from 2,000 to over 10,000. We could find no

reliable overall estimate of active mine sites on state and private lands.

Mining activities are regulated under federal and state authorities. Federal statutory authority is spread among several agencies with no one agency having overall regulatory responsibility. Most states with significant hardrock mining have established their own statutory programs and regulate mine activity through mine permits.

Although EPA does not have comprehensive regulatory authority over mining, EPA does have statutory authority that can and has been used to address the potential environmental problems at active hardrock mines. EPA also has the responsibility to respond to and fund the cleanup of many abandoned mines. Currently, 67 of these mines are on EPA's Superfund National Priority List (NPL). Federal cleanup costs for these hardrock mine sites are significant. Of all NPL sites, mines are the largest and most costly to clean up, according to one Office of Solid Waste and Emergency Response (OSWER) official. For example, EPA estimated it will spend about \$150 million from the Superfund Trust Fund to clean up the Summitville mine in Colorado. It estimated it will cost about \$20 billion to clean up the mine sites currently on the NPL.

Statutory authorities that provide EPA authority to prevent pollution at active hardrock mines include the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), the Clean Air Act, the Safe Drinking Water Act, the Toxic Substances Control Act, and the National Environmental Policy Act (NEPA). However, many active mines may not be subject to these statutes.

The most significant statutes for this report are CWA, RCRA, and NEPA. The CWA National Pollutant Discharge Elimination System (NPDES) Program provides for permits to limit the discharge of pollutants into United States waterbodies. RCRA provides for regulation of hazardous and solid wastes. NEPA provides for environmental review and public disclosure of the potential impacts to the environment that could be caused by a planned activity on federal lands, such as hardrock mining.

RCRA amendments have limited EPA's ability to regulate wastes generated at hardrock mines under RCRA. The Solid Waste Disposal Act Amendments of 1980 included the Bevill Amendment, which required EPA to study mining wastes and

determine if regulation under RCRA Subtitle C was warranted. EPA issued a regulatory determination in 1986 that certain hardrock mining wastes (i.e., those wastes generated by the removal and treatment of the ore to concentrate its valuable constituents) should not be regulated as hazardous wastes under Subtitle C at that time. However, EPA subsequently planned to develop an enhanced Subtitle D program to manage mining wastes.

While several EPA offices share the authority to regulate hardrock mining activities, the Assistant Administrator for the Office of Water (OW) has responsibility to develop an agency-wide hardrock mining strategy. According to EPA, hardrock mining workgroups at the national and regional levels addressed hardrock mining issues as early as 1991. In 1994, the Deputy Administrator formally designated OW take the lead in the development of EPA's hardrock mining strategy. As a result of the Deputy Administrator's decision, OW established a hardrock mining workgroup in 1994 composed of experienced EPA regional and headquarters staff to develop an EPA hardrock mining framework. Between 1994 and 1996, EPA distributed two drafts of its hardrock mining framework to federal land management agencies, states, industry, and environmental organizations for comment. The draft hardrock mining framework described how EPA could best use its limited statutory authority and partner with other regulatory agencies to protect the environment from degradation resulting from hardrock mining.

Many states have recently increased their regulation of the hardrock mining industry. Much of the recent regulatory activity resulted in part from the widespread use of the heap leaching method of extracting precious metals from the ore. Most knowledgeable mining experts agree that cyanide and

most other leaching agents, if properly controlled, are manageable, although the long term effects on public health and the environment are not well understood.

Mine wastes represent a significant long term threat to the environment from mine tailings and fugitive dust. However, the most serious environmental threat of current hardrock mining methods is the risk of acid mine drainage. Acid mine

***THE MOST
SERIOUS
ENVIRONMENTAL
THREAT IS THE
RISK OF ACID
MINE DRAINAGE.***

drainage is often generated from waste rock piles or other mining wastes. Water and oxygen flowing over and through the metal-rich, sulfide rock exposed by mining activities can contaminate surface and ground waters and damage aquatic life. Predicting the probability and extent of acid mine drainage at a specific mine is difficult because drainage may not occur until long after active mining ends. Once acid mine drainage starts, it may never stop without intervention. In some cases, reclamation may require water treatment in perpetuity.

S C O P E A N D
M E T H O D O L O G Y

We conducted our fieldwork from January 1996 to November 1996. We conducted our audit in accordance with *Government Auditing Standards* (1994 Revision) and included tests and other auditing procedures as we considered necessary. Other than the issues discussed in this report, no other significant issues came to our attention that warranted expanding the scope of our audit.

We limited our review to hardrock mines using the heap leaching method of ore extraction. To answer our three objectives, we met with various federal, state, and industry stakeholders responsible for the permitting and monitoring of hardrock mines. We consulted with the U.S. Department of Agriculture (USDA), Forest Service and the U.S. Department of the Interior (DOI), Bureau of Land Management in Washington, D.C. These two federal land management agencies control about 83 percent of federal land subject to mining. We also met with officials at the Forest Service field office at the Payette National Forest in Idaho and the Bureau of Land Management field office in Nevada to obtain an understanding of how the field offices operate. We met with various agencies in the States of Alaska, California, and Idaho. We met with the Alaska Miners Association, Nevada Mining Association, the National Mining Association, and individual mine operators to obtain an overall understanding of how the mining industry perceived the effectiveness of current mining regulations and EPA's role in hardrock mining. We toured mine sites in Alaska, California, and Idaho.

To obtain an understanding of EPA's authority and role in hardrock mining, we conducted fieldwork at EPA headquarters in OW and the OSWER, Enforcement and Compliance Assurance (OECA), and General Counsel. We also conducted fieldwork at EPA Regions 5, 8, 9, and 10. We selected Region 5 because EPA had identified a problem mine in Michigan. We selected Regions 8, 9, and 10 because these Regions included the 12 western states containing about 99 percent of all U.S. hardrock mining claims.

We have included detailed scope and methodology information in

Appendix II.

P R I O R A U D I T
C O V E R A G E

Several government audit organizations, including the General Accounting Office (GAO), DOI/Office of Inspector General (OIG), and USDA/OIG, have recently conducted audits of the environmental impacts of hardrock mining and of EPA's working relationships with its stakeholders. We have included a summary of the most pertinent of these reports in Appendix III.

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Chapter 2

CRITICAL FINANCIAL ASSURANCE GAPS REMAINED IN HARDROCK MINING REGULATIONS AND POLICIES

Environmental performance standards and adequate financial assurances must be incorporated in hardrock mine permits to ensure protection of human health and the environment and minimize future cleanup costs. Although federal and state land management agencies have varying authorities to require environmental performance standards and financial assurances at hardrock mines, some critical gaps remained in federal and state coverage. Unreasonably low statutory bond ceilings and other limitations significantly reduced federal and state land managers' abilities to include adequate financial assurances in mine permits. These gaps in coverage could result in environmental damage and unfunded government liabilities.

MINING LAW OF 1872 RESULTED IN CRITICAL GAPS

A critical gap in financial assurances for hardrock mining on federal lands results from a provision of the Mining Law of 1872. Disparities between federal and state bonding requirements for mined lands have caused concerns that a land patenting provision of the 1872 law provides mine operators relief from the stricter federal bonding requirements.

The Mining Law of 1872 provided for miners to purchase, or "patent," federal land for a nominal sum of \$2.50 to \$5.00 per acre, if a hardrock mineral deposit was discovered on the land. Upon patenting, the mining claim became a fully recognized private interest that could be traded or sold. GAO estimated in 1992 that over 3.2 million acres of federal land had been patented under the 1872 law.

Environmental concerns were not a consideration when the law was written. Consequently, federal land management agencies and states have developed their own performance standards and bonding requirements to provide for protection and restoration of mined land. In the 1970's, the Forest Service and the Bureau of Land Management developed regulations to prevent any unnecessary or undue degradation of federal lands under their control. While these regulations reduced some of the most critical gaps for protection of federal lands from the impacts of hardrock mining, the right of miners to patent the land can still bring about undesirable environmental consequences. The primary concern is that some states' regulations have not kept pace with federal regulations in requiring sufficient financial assurances to restore the land if owners cannot do so.

According to a 1989 GAO report, the patent provision of the Mining Law of 1872 is counter to the provisions of more recent laws governing hardrock mining on specific lands, such as the Alaska National Interest Lands Conservation Act of 1980 and the Military Lands Withdrawal Act of 1986. These laws provide for the accommodation of mining while providing for the federal government to retain title to the land. According to GAO, “[u]se, but not ownership, may be granted for as much land as may be necessary to mine a claim.” Also, various laws subsequent to the mining law provided for lands used to extract fuel minerals and other common variety minerals to remain in public ownership. Federal retention of land would provide for better protection of the environment under the stricter federal regulations.

The mining law has been very successful in accomplishing its original intent to encourage and reward discovery of economically valuable minerals. Consequentially, the potential for considerable environmental damage has led some federal and state land managers as well as EPA to agree that the Mining Law of 1872 is outdated and should be revised. We agree with EPA officials who believe that EPA should work with DOI in their efforts to address the land ownership provisions of the Mining Law of 1872.

**F I N A N C I A L
ASSURANCES ARE
ESSENTIAL**

Federal and state agencies should ensure that mine operating permits include financial assurances to restore a mine site if the environmental performance standards do not adequately protect the site from contamination and the operator is unable or unwilling to do so. EPA officials strongly agreed that financial assurance limits now in place at mines are, in large part, inadequate. However, EPA has no direct statutory authority to address this pressing problem.

The number of hardrock mines using environmentally sensitive technologies (e.g., heap leaching with cyanide) has grown rapidly during the last 20 years. If the waste streams from new mining technologies are not properly controlled, they could have a significant detrimental impact on the environment. Without adequate financial assurances available to respond to these sites in the future, EPA may have to assume responsibility to restore sites under its statutory requirements.

**FEDERAL LAND
MANAGEMENT
AGENCIES HAVE**

The hardrock mining statutory authorities of the two largest federal land management agencies, the Forest Service and the Bureau of Land Management, generally provide for establishment of environmental

ADEQUATE AUTHORITY

performance standards and adequate financial assurances to protect the environment. The Forest Service considers financial assurance for all mine sites. The Bureau of Land Management recently finalized regulations that require financial assurances for all sites except those for sites having negligible land disturbance.

Also, NEPA extends federal agencies' administrative responsibilities over mining. NEPA requires federal agencies to assess the impacts their activities may have on the quality of the human environment. Before approving a mining activity, federal land management agencies must prepare an environmental analysis of the environmental impacts of the activity. The environmental analysis on major activities is made available for review and comment to other federal and state agencies, including EPA, which have environmental oversight or regulatory responsibility.

**REGULATORY
COVERAGE ON STATE
AND PRIVATE LAND IS
LESS CERTAIN**

In contrast to federal agencies, the adequacy of statutory and regulatory requirements for mines on state and private lands appears less certain. Seven of the eight states we reviewed required environmental performance standards that would provide for protection of the environment during active mining operations, and all states required mine closure plans. However, of the states we reviewed, most statutes and regulations still seriously limited financial assurances. For example, only 2 of the 8 states provided for 100 percent bonding for the estimated costs of addressing toxic contamination.

TABLE
SUMMARY OF STATE REQUIREMENTS

	ENVIRONMENTAL PERFORMANCE STANDARDS	REQUIRED CLOSURE PLAN	FULL BONDING
ALASKA	YES	YES	YES
ARIZONA	NO	YES	NO
CALIFORNIA	YES	YES	YES
COLORADO	YES	YES	NO
IDAHO	YES	YES	NO
MONTANA	YES	YES	NO
NEVADA	YES	YES	NO

SOUTH DAKOTA	YES	YES	NO
TOTALS	7 YES 1 NO	8 YES	2 YES 6 NO

Seven of the states reviewed require environmental performance standards in the permit to avoid future problems. Alaska, for example, had instituted some particularly effective performance standard requirements that protected the State from adverse environmental impacts created by new mining operations. The State required the parent corporation to guarantee in writing the environmental performance of a mine operated as a subsidiary corporation. This requirement should help discourage the owners from abandoning the mine when serious environmental problems occur. Also, Alaska required major mine developers to contract with independent consultants to conduct periodic environmental audits and to report the results to the State.

Limitations in some states' bonding requirements could result in unfunded government liabilities. For example, Nevada required limited bonding for site reclamation (recontouring, etc.) which included no bonding for addressing toxic contamination at the site prior to site closure. Alaska had a \$750 per acre limit for reclamation. California, Idaho, and South Dakota bond for reclamation and for contingencies and closure, but Idaho and South Dakota had unreasonably low bond ceilings of \$100,000 and \$500,000, respectively, at mine sites that used cyanide.

IDAHO AND SOUTH DAKOTA REQUIRE UNREASONABLY LOW BONDING FOR CYANIDE.

EPA officials stated that reclamation of a site must include assurances that toxic and hazardous wastes at mine sites are cleaned up as part of site reclamation. Often reclamation is limited to surface recontouring and reseeding. Although many states had mine reclamation statutes and regulations, not all state statutes included requirements to address toxic contamination at a site prior to closure. As noted earlier, Nevada statutes did not require removal of toxic contamination prior to site closure. In comparison, the Forest Service and the Bureau of Land Management regulatory definitions of reclamation appeared to be comprehensive and included measures to isolate, remove, or control toxic material from a site prior to closure.

Restrictions on states' abilities to require reasonable levels of financial assurance could result in states' inability to adequately respond to a catastrophic release of hazardous contaminants to the environment, such as occurred at the Summitville mine site in Colorado. If a state is unable

to respond, EPA may have to assume responsibility under Superfund.

In some instances where state bonding requirements were less stringent than federal requirements, mine owners could avoid the more stringent federal bonding requirements by converting the federal land to private land. The potential adverse effect of converting the land was illustrated by two mine operations in Idaho which applied to convert their land from federal to private land. The Kinross mine in Idaho was on federal land under the jurisdiction of the Bureau of Land Management. The mine used a cyanide heap leaching process. The site already generated acid mine drainage and will eventually discharge contaminated water. The Bureau of Land Management required financial assurances in the amount of \$9.9 million for the mill site. However, the mine operator applied to convert, or "patent," the land. As a result, Idaho's \$100,000 bonding limit for cyanide operations could replace the \$9.9 million federal bonding requirement. Likewise, the Thompson Creek mine in Idaho requested to patent the land on which it mines. This transfer would reduce its bonding requirements from \$12 million to the \$100,000 cyanide bond limit, although the risk of acid mine drainage and the potential threat to the environment remains the same. If the mine operators are unable or unwilling to restore the site in the future, the State could be left with large contaminated sites generating acid mine drainage that will require large infusions of money to remediate the land from outside sources including EPA.

CONCLUSION

Hardrock mining activities could adversely impact the environment and result in cleanup costs that may have been avoided. Land patent provisions in the Mining Law of 1872 contribute to federal authorities' limited abilities to require adequate financial assurances. Although some state authorities provided for adequate financial assurance for hardrock mines, other state statutes and regulations did not. As a result of bonding ceilings, mine operators may not be held to the financial assurance requirements that would be commensurate with risk associated with their mining operations. One key to consistent cleanup is to reach agreement on a common definition of reclamation that includes cleaning up toxic contamination prior to site closure.

RECOMMENDATIONS

We recommend the OW Assistant Administrator coordinate with the appropriate Assistant Administrators to:

- 2-1. Assist DOI in its effort to address the issue of the land ownership provisions of the Mining Law of 1872.

- 2-2. Work with states that have unreasonably low bond ceilings or other inappropriate limitations on their authorities to seek modification of their authorities.
- 2-3. Work collaboratively with the responsible federal and state agencies to ensure that the mines that pose the highest environmental and financial risks have adequate federal and state bonding to cover future cleanup costs.
- 2-4. Work collaboratively with federal and state agencies to reach agreement on a common definition for reclamation that includes addressing toxic contamination prior to site closure.

**EPA COMMENTS AND
OIG EVALUATION**

EPA agreed that it should work directly with DOI to improve financial assurance at mines operating on federal lands. However, EPA asked that we specifically identify how EPA should assist DOI in addressing issues raised by land ownership provisions of the Mining Law of 1872. We believe EPA could assist by evaluating past and potential future environmental effects of mines converted from federal to private ownership. However, we believe EPA and DOI staff are in the best position to identify specific contributions appropriate for EPA.

EPA stated that our recommendations were consistent with its hardrock mining framework. EPA agreed it must work with and provide assistance to other stakeholders to improve the effectiveness of mining programs. However, we cannot evaluate whether the draft EPA hardrock mining framework will fully satisfy our recommendations because the framework has not been completed. EPA should provide a timeframe for completing and implementing the framework. Also, EPA should ensure that adequate resources and expertise are available to meet the demand before EPA offers to provide assistance to others.

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Chapter 3

EPA COULD BE MORE EFFECTIVE IN USING ITS AUTHORITIES TO ADDRESS HARDROCK MINING

EPA could be more effective in implementing its authorities to help prevent specific hardrock mining pollution problems. While EPA has no comprehensive statutory authority to regulate mining, it does have statutory authorities to help reduce potential environmental problems at individual mines. Some EPA regions have developed a cross-media approach to hardrock mining, but EPA as a whole has been slow to develop and implement a comprehensive hardrock mining strategy and effectively coordinate cross-media hardrock mining issues.

EPA HAS LIMITED AUTHORITY OVER MINING

EPA has attempted to address pollution prevention at individual mines either through state authorized environmental programs or direct management. EPA has media-based authorities that can be and have been applied to pollution prevention at individual mines. Also, EPA has administrative statutes, such as NEPA, that can be used to help prevent mining pollution problems. However, EPA has no comprehensive statutory authority to regulate mining and oversee development of environmental performance standards and financial assurances at individual mines.

EPA's Implementation of CWA Varied

The EPA media-based program most often applied to hardrock mining is the CWA NPDES program, which calls for permits to limit the discharge of pollutants into U. S. waters. EPA operates the NPDES program through authorized state programs, or less frequently, through direct management in states which do not have an authorized program. EPA directly managed the NPDES program in three of the eight states we reviewed (Alaska, Arizona, and Idaho).

CWA NPDES has limited application because many hardrock mines have been designed as non-discharge facilities and require no NPDES permits. Many of these mines are located in arid climates (e.g., Nevada and Arizona) where water is scarce and the mines recycle

water for use in operations. Another serious limitation of the CWA is that it provides protection for surface waters only. Unless a connection with surface water can be demonstrated, groundwater is not subject to regulation under the CWA.

Where NPDES is applicable, EPA has not always provided for adequate oversight or technical assistance to important mining states. For example, Region 9 did not provide adequate attention to the NPDES program in Arizona, an important mining state where EPA directly managed the NPDES program. Region 9 staff told us that the Region had not fully evaluated all the necessary site-specific factors before issuing NPDES permits to mine operators. Permit writers and inspectors needed to visit a mine site to adequately determine appropriate NPDES permit conditions, but were generally unable to do so due to limited resources.

EPA Had Not Pursued Mining Regulatory Opportunities Under RCRA

While EPA had developed some non-regulatory tools, it had not pursued development of a mining waste regulatory program under RCRA, even though it had announced its intentions to do so in the mid-1980s. EPA reported to Congress in 1985 that mining had created serious environmental damage and announced its intention in 1986 to develop a RCRA regulatory mining program. EPA could have developed such a program either under RCRA Subtitle D or Section 3004(x).

Eleven years after EPA announced this intention to develop Subtitle D regulations establishing a mining program, EPA had not affirmatively acted. Such a program could have required specific environmental performance standards to prevent pollution from heap leach piles, tailing piles, and similar mining pollution sources. The serious mining environmental damages identified in the 1985 report to Congress continue to this day, according to an EPA official.

EPA also could have, but had not, proposed regulations under RCRA's Hazardous and Solid Waste Amendments of 1984 Section

3004(x). This section provided EPA the flexibility to modify Subtitle C requirements for certain mining wastes.

However, EPA officials stated that either approach may still not provide EPA with adequate oversight and enforcement authority. On the other hand, states may now have adequate authority. Seven of the eight states we reviewed require environmental performance standards and many mining states strengthened their mining regulations since 1985. However, we did not assess the adequacy of states' implementation of their authorities.

EPA's non-regulatory tools included guidance, RCRA technical support on mining environmental analyses, and support on mining enforcement actions. EPA recently issued a Federal Register notice to seek public comment on whether EPA should reevaluate the extent to which mining wastes should be regulated under RCRA Subtitle C.

EPA's NEPA Input Is Too Late

EPA has also been actively involved in hardrock mining through its NEPA authority. However, EPA's role has been as a reviewer of completed environmental analyses rather than as an early assessor of the potential environmental impacts of a planned mining operation. Although EPA officials stated that environmental analyses and public disclosure served as an important forum to limit negative mining environmental impacts, a National Interagency Coordinating Committee workgroup found serious problems with the NEPA process and recommended earlier EPA involvement. Federal regulations emphasize agency cooperation as early as possible in the NEPA process, and specifically require cooperating agencies to participate in the scoping phase to avoid adversarial comments later.

Bureau of Land Management officials, state land management agency representatives in all the states we visited, and industry representatives criticized EPA for not participating as early or as often as they think is necessary. Late EPA involvement resulted in delays, increased costs, and deteriorated working relationships. For example, Region 9 frequently returned the environmental analyses without commenting because the one staff person assigned for this review process claimed she does not have time to review more than the most significant analyses. Although NEPA requires significant staff time, according to EPA headquarters

officials, it may be EPA's best opportunity to be proactive in preventing pollution at active mines.

**EPA NEEDS A STRATEGY
AND STRONG NATIONAL
LEADERSHIP TO
ADDRESS ITS
HARDROCK MINING
ISSUES**

EPA has recognized for some years that it needed a more coordinated approach to effectively deal with hardrock mining issues. However, EPA has yet to develop it. Organizational and funding barriers prevented EPA from being as successful as it might have been in cross-media issues that affect hardrock mining.

OW has not timely developed and implemented a comprehensive hardrock mining strategy. The Deputy Administrator formally designated OW to take the lead in the development of EPA's hardrock mining strategy. Although OW drafted a hardrock mining framework, it still did not have a completed, approved mining strategy. According to EPA officials, senior EPA management had not yet formally reviewed and approved the latest draft of the hardrock mining framework. The

framework would provide the basis for developing a hardrock mining strategy.

Regional EPA staff stated they were skeptical regarding OW's commitment to a mining strategy. Their skepticism was reinforced in late 1996 when OW lost its staff charged with finalizing the hardrock mining framework and assigned new staff unfamiliar with mining issues. This unfamiliarity may have contributed to the loss of momentum in the development of a hardrock mining strategy.

Some regions have attempted to overcome the problems of addressing a cross-media activity like mining in an organization that is predominantly organized by media. Regions 8 and 10 have made significant progress in overcoming these organizational barriers and funding constraints. They have appointed full-time mining coordinators, established hardrock mining workgroups to address mining issues, and developed regional hardrock mining strategies. Regions 8 and 10 have also participated on special projects with other stakeholders to address specific sites such as the Clear Creek community-based watershed project in Colorado and the Coeur d' Alene Basin Restoration Project in northern Idaho. In October 1995, Region 8 reorganized to be more responsive to the multimedia and partnership goals in EPA's strategic plan. Region 8's new structure placed programs and functions in new organizations that will enhance multimedia opportunities. In 1996, Region 8 identified hardrock mining as the most serious ecological problem in the Region and has been a leader in using innovative approaches to solve difficult mining related problems.

CONCLUSION

While EPA has no comprehensive authority to regulate mining, it does have CWA and RCRA authorities that it has or could develop to apply to help prevent pollution problems at individual mines. However, EPA did not always provide for adequate CWA NPDES oversight or technical assistance to some important mining states. Also, evaluation of environmental damages from mining indicates that the primary cause is RCRA mining wastes, but EPA had not developed a regulatory mining program under RCRA to address this problem. Until such time as these wastes are adequately regulated, long term environmental liabilities at mines will continue to increase. However, many mining states strengthened their mining regulations since 1985. Therefore, EPA should evaluate the adequacy of states' regulations before developing a RCRA regulatory mining program. EPA should also improve the timing of its involvement in the NEPA process. EPA missed important opportunities to influence mining environmental performance standards and financial assurances. Organizational barriers, lack of a strong headquarters component, and the absence of a hardrock mining strategy

prevented EPA from being as successful as it might have been in effectively addressing hardrock mining issues.

RECOMMENDATIONS

We recommend the OW Assistant Administrator coordinate with the appropriate Assistant Administrators to:

- 3-1. Provide for adequate mine site assessments before issuing NPDES permits to discharging mines in states where a region manages the NPDES program.
- 3-2. Provide adequate oversight in states with authorized NPDES programs to help states effectively implement NPDES authorities at hardrock mines.
- 3-3. Assess what further actions EPA can take to ensure it has fully utilized its existing authorities under RCRA to regulate active mines.
- 3-4. Participate early in the NEPA process and adequately review NEPA environmental analyses for mines.
- 3-5. Emphasize more timely EPA involvement with federal and state land management agencies' field offices during the mine permitting process.
- 3-6. Finalize a hardrock mining strategy and develop an implementation plan that includes resources, timeframes, and assignment of responsibility.

**EPA COMMENTS AND
OIG EVALUATION**

EPA commented that it was not clear how pollution could be prevented at hardrock mine sites without specific statutory authority. We believe EPA has statutory authority that it has not fully used. For example, our report discusses how EPA had not pursued mining regulatory opportunities under its existing RCRA authority. In addition, EPA's draft hardrock mining framework included a variety of non-regulatory tools that could be used to prevent pollution at hardrock mines.

EPA also stated that we had not considered the role of resource availability in environmental management. EPA asked us to estimate the additional resources required to implement our recommendations and to identify potential locations of these resources. We believe our recommendations can generally be implemented without significant additional resources. For example, some of our most important

recommendations concern the timing, rather than the amount, of EPA staff involvement in the NEPA process. We acknowledge that resources are limited and that EPA must direct its staff and budget to a wide range of competing environmental program needs. Nonetheless, resource determination and allocation to address serious environmental concerns is a responsibility of EPA management.

EPA stated that the report recommendations are consistent with EPA's draft hardrock mining framework which emphasizes the importance of identifying potential environmental concerns early in mine site planning and permitting. Since EPA has not completed the EPA hardrock mining framework, we are unable to evaluate whether the framework will fully satisfy our recommendations.

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Chapter 4

MORE EFFECTIVE PARTNERSHIPS CAN HELP PREVENT MINING POLLUTION AND MINIMIZE GOVERNMENT FINANCIAL LIABILITIES

Partnering is an important part of EPA's 5-year strategic plan and has long been part of EPA's overall regulatory strategy. Although federal and state agencies had invited EPA to participate early in the mine permitting process and some successes have been achieved, EPA has not consistently availed itself of the opportunity. Partnerships with federal and state agencies may be EPA's best opportunity to minimize future financial liability for mine cleanups using its Superfund responsibilities.

EPA'S STRATEGIC PLAN E M P H A S I Z E D PARTNERING

EPA's mission advocates working with its partners to improve and preserve the environment. EPA's current initiatives also promote use of the best available science and innovative and effective solutions to address environmental problems, such as the environmental damage caused by hardrock mining. To accomplish this mission, EPA's strategic plan and other policy statements advocate partnering with all stakeholders.

*EPA NEEDS TO
WORK IN
PARTNERSHIP
WITH ITS
STAKEHOLDERS*

The New Generation of Environmental Protection: EPA's Five-Year Strategic Plan, dated July 1994, clearly recognized that environmental protection has become increasingly complex and that all stakeholders must work together to preserve and improve the nation's environmental quality. The plan stated that EPA will:

help its partners carry out their responsibilities, working together to define respective roles...[and] to develop and implement more innovative, effective, and efficient approaches to environmental protection and sustainable development.

Another specific strategy was to "Create opportunities to establish working partnerships among local, state, and federal levels of government."

**E A R L Y E P A
INVOLVEMENT MAY
AVOID UNFUNDED
LIABILITIES**

EPA does not have a significant role in the issuance of operating permits for mines. Effective partnerships with federal and state land management field personnel, where specific mine-related decisions are made, may be EPA's best opportunity to prevent environmental pollution and avoid substantial unfunded financial liabilities.

Although EPA has no statutory authority to require adequate financial assurances at active hardrock mines, EPA has the responsibility to act to protect public health and the environment. The Comprehensive Environmental Response, Compensation, and Liability Act requires the federal government to respond in cases where a hazardous substance release or a substantial threat of release to the environment occurs.

Using its Superfund authorities, EPA has expended funds for mining cleanups where mines were permitted without adequate performance standards and financial assurances. At the Summitville mine site in Colorado, EPA had to respond to an immediate threat of a catastrophic hazardous waste release. EPA estimated the costs to remediate the site at about \$150 million, which does not include ongoing operation and maintenance costs.

**EPA NEEDS TO ACCEPT
AND SEEK MORE
P A R T N E R S H I P
OPPORTUNITIES**

EPA is currently engaged in several hardrock mining projects that include a wide range of stakeholders. These projects demonstrate the value of establishing effective partnerships. For example, Region 8 is working in partnership with other stakeholders on the Clear Creek community-based watershed restoration project to protect the water supply of over 250,000 people from mining impacts. Region 10 is participating with other stakeholders in the Coeur d'Alene Basin Restoration Project in northern Idaho to develop workable solutions to repair an environment degraded by mining. Region 10 also entered into a tri-state agreement to promote mining issues coordination with Idaho, Washington, and Oregon. Headquarters participated in a workgroup that developed an interagency agreement on mining, oil, and gas to improve coordination with federal land management agencies. Although these examples demonstrate that EPA can add value through establishing and maintaining successful partnerships, it has missed other mining partnership opportunities.

**EPA Missed Important
Opportunities**

Working in partnership with states is an appropriate role for EPA, but its involvement has not always been timely or welcomed. For example, according to the State, Region 5 did not respond early to Michigan's request for assistance in a copper mine permitting process, thereby delaying the permit, causing increased costs, and adversely impacting EPA's relationship with the State. Also, Region 9 has not established an effective working relationship with Nevada's NPDES program staff.

Nevada is a delegated state and does not welcome EPA participation during its NPDES permitting process. California state officials told us that Region 9 showed little interest in state hardrock mining issues. Region 10 and Idaho officials disagreed on the frequency and value of Region 10's involvement in developing an Idaho Joint Review Process for mine permitting (an all-inclusive permitting team process). Alaska state representatives told us that EPA was invited to participate on its major mine permitting teams but seldom participated. EPA's role is undermined when it is not viewed as an effective partner.

EPA Could Add Value But Lacks Expertise

EPA could help land management agencies by providing its technical expertise and research capabilities. Land management agencies do not always have adequate staff or adequately trained staff needed to address all the environmental issues present when permitting and closing a large, complex mine site. EPA's participation could provide balance where the lack of staff or sufficient mining expertise negatively impacts the development of comprehensive performance standards and financial assurances. For example, EPA agreed that it could have a beneficial role assisting land management agencies in analyzing the extent of contamination and estimating cleanup costs at a mine prior to bond release. However, EPA must ensure that it has the resources and technical expertise to respond.

*EPA
NEEDED TO
BE VIEWED
AS A
PARTNER
THAT
COULD ADD
VALUE.*

Nationwide, EPA does not currently have adequate mining expertise to effectively serve in a consultive role. EPA regional staffs acknowledged that overall they lacked the resources necessary to properly develop and nurture hardrock mining expertise and build working relationships. Region 9, which has significant hardrock mining activities, has dedicated few resources to address hardrock mining issues. On the other hand, OSWER, OECA, and some regions, specifically Regions 8 and 10, had dedicated some staff to work on hardrock mining issues. However, most staff dedicated to hardrock mining worked on mining issues as an adjunct to their primary responsibilities.

CONCLUSION

Forging more effective partnerships is a good way for EPA to add its resources and expertise to the process and avoid future adverse impacts at mine sites. EPA should invest in preventing problems rather than waiting until problems occur. If EPA chooses to be more proactive and flexible, it could take advantage of many opportunities available to work

in partnership with federal and state land management agencies to address mine permitting issues including adequate financial assurances.

RECOMMENDATIONS

We recommend the OW Assistant Administrator coordinate with appropriate Assistant Administrators to:

- 4-1. Solicit advice from federal and state land managers as to how EPA could add greater value to the process and become involved earlier in the mine permitting process.
- 4-2. Identify and inform EPA regional offices of ways they can become more proactively involved in hardrock mining environmental issues.
- 4-3. Provide training and guidance to national and regional hardrock mining employees to improve their abilities to provide technical assistance to federal and state land management agencies and state environmental agencies in developing adequate environmental performance standards and financial assurances.
- 4-4. Develop a critical core of dedicated cross-media mining expertise to work with and support federal and state land managers in a collaborative, consultive manner.

**EPA COMMENTS AND
OIG EVALUATION**

EPA agreed that partnering opportunities should be fully utilized to better manage mining activities. EPA noted that it had already taken some steps, and agreed that further steps should be taken to broaden its partnerships with state and federal land managers on both the national and regional level.

EPA questioned whether it had missed important opportunities to work with states and asked for specific suggestions as to what those opportunities might be. We included some additional details in the report on missed opportunities. Also, we believe that federal and state land managers are best suited to help EPA identify how it could add increased value to the process. We believe that almost any opportunity that can be created to work with states on mining issues in the future is an opportunity that should not be missed.

EPA commented that the draft hardrock mining framework acknowledged the importance of forging effective partnerships with

other stakeholders. EPA also agreed that developing those partnerships are essential to the successful implementation of the framework. We agree that the framework may address many of our concerns. However, we cannot evaluate whether the framework fully satisfies our recommendations until the framework is completed.

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opportunities in working with states. Again, it would be helpful if suggestions were offered as to what these opportunities may be. The Report recognizes that EPA does not have specific statutory authority to address potential environmental problems at active hardrock mines and then cites EPA's responsibility to respond to and fund the clean up of many abandoned mines. It isn't clear how EPA can truly prevent the contamination without adequate statutory authority.

I am also concerned that the report fails to consider the role of resource availability in environmental management. For example, the report concludes that "EPA did not adequately manage NPDES in some important mining states." However, the evidence cited that EPA is not managing the permitting program is the lack of travel funds to enable staff travel to proposed mine sites in one Region. This lack of travel resources is not necessarily a sign of poor NPDES management; in a time of resource restrictions the Region may have chosen to spend its travel funds on other areas it decided to be of higher priority. Similarly, the Report cited one Region which had assigned only one person to NEPA reviews and called for more adequate review of NEPA environmental analyses for mines. Again, in light of resource realities, limiting reviews to the most significant statements probably was a good management decision. The Report's recommendations call for actions with associated resource demands. I would find helpful an estimate of what these demands might be, and recommendations as to where they should come from.

I would be happy to discuss this with you further. Or, if your staff has any questions, please contact Daniel Weese, in the Office of Wastewater Management at (202) 260-6809.

Attachment

cc: Tim Fields, Jr., Acting Assistant Administrator, Office of Solid Waste and Emergency Response (with attachment)
Steve Herman, Assistant Administrator, Office of Enforcement and Compliance Assurance (with attachment)
Mike Cook, Director, Office of Wastewater Management, OW (with attachment)

EPA Can Do More to Help Minimize Hardrock Mining Liabilities
EPA Comments on OIG's Draft Audit Report No. E1DMF6-08-0016-XXXXX
April 29, 1997

General Comments:

The responding offices agree that the Agency's overall management of mining activities could be made more effective and efficient. We also welcome the attention this report has directed to these areas. We emphasize and ask the draft report's authors to recognize that the Agency must manage mining within the legal constraints placed upon us by Congress and that EPA must direct its staff and budget to a wide range of competing environmental impacts.

Chapter 1:

It is important to note that EPA has very specific statutory authorities to regulate mining. We suggest the report be amended to accurately portray the range of regulatory controls the Agency utilizes at mines.

EPA first becomes involved at mines during the Environmental Impact Statement (EIS) process. At this stage, the Agency acts either as a cooperating agency or, at a minimum, comments on the draft EIS. Under the Clean Water Act (CWA), the Agency has clear authority to regulate point source and storm water runoff from active and inactive mines. In 1995 the Office of Water (OW) issued a National Pollutant Discharge Elimination System (NPDES) Storm Water Multi-Sector General Permit which covers operating mines. This significant addition of permitting authority is not recognized in the report.

Under the Resource Conservation and Recovery Act (RCRA) the agency regulates the handling and disposal of hazardous wastes. While RCRA regulatory coverage is limited due to the Bevill exclusion, such coverage is not restricted at mineral processing sites. RCRA has clear authority to regulate mineral processing wastes, and has done so since 1989. All mining sites are also fully subject to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and mines must also comply with the Toxic Substances Control Act (TSCA).

The report also should more fully discuss the role that CERCLA plays in addressing mining impacts. There are approximately 60 mine and mineral processing sites on the National Priorities List (NPL), and these sites are among the largest and most costly to remediate. The Agency devotes considerable staff and budget resources to assure that these NPL sites are managed properly. Further, the CERCLA program has taken a number of CERCLA Section 106 actions at mine sites where direct threats to human health and the environment have been identified.

The report does not adequately identify the regulatory and statutory constraints on controlling mining activities that have been placed on the Agency. As noted earlier, RCRA at

present has limited authority to regulate mining wastes. The CWA is restricted in its ability to regulate groundwater contamination and can only do so if there is a hydrologic linkage between groundwater and surface water. The Clean Air Act (CAA) does address fugitive dusts, but its application at mines has been very limited. The EIS process can point out potential concerns, but there is no clear authority to assure that concerns are ever addressed. CERCLA can not act until contamination has occurred and clearly is reactive in nature. A review of our statutory authority at present indicates that RCRA and CERCLA are essentially reactive in nature, while the CWA can be preventive. The EIS process is preventive but has very limited ability to assure that findings are ever addressed.

The Assistant Administrator (AA) for the Office of Water does not have "full responsibility for all hardrock mining issues" as indicated in the draft report. The statutory authority to regulate mining is shared with several different offices in the Agency. These offices include OSWER, the Office of Enforcement and Compliance Assurance (OECA), and the Office of Prevention, Pesticides, and Toxic Substances (OPPTS). The Deputy Administrator has designated the AA for OW to take the lead in the development of the Hardrock Mining Strategy. This designation does not change any of the existing responsibilities of the other offices in the Agency.

We agree that one of the most serious environmental threats of current hardrock mining is acid rock drainage (ARD). The report, however, fails to note that the source of ARD are piles of mining waste, either waste rock piles, tailings ponds, or abandoned heap and dump leaches. RCRA authority over these wastes is severely limited and thus prevents the Agency from being proactive at many sites.

Chapter 2.

We support the conclusion that EPA should work directly with the Department of the Interior (DOI) to improve financial assurance at mines operating on Federal lands.

The report should note that the definition of reclamation is a key element in reducing Federal liabilities. The Federal government needs to assure that all remaining toxic and hazardous wastes at mine sites are cleaned up as part of reclamation. Often reclamation is limited to surface recontouring and reseeding, but this type of reclamation, while useful, does not adequately clean up mine sites.

The report should also indicate that EPA could have a beneficial role in assisting the Bureau of Land Management (BLM) and the Forest Service in analyzing the extent of contamination at a mine prior to bond release. EPA participation in the bond release process could further reduce Federal liabilities on Federal lands by clearly pointing out the types of contamination present and determining the potential costs of cleaning up sites.

Chapter 3:

This chapter of the report does not adequately discuss the activities taken by the program offices and the Regions to coordinate mining activities. The report should acknowledge that the Regions have already begun to coordinate mining issues.

For example, Region 8 established its Mining Team in 1993 and now utilizes a cross-program approach in managing mining impacts. Region 8 was one of the first Regions to have a full-time national mining expert. Region 10 established Regional Mining Coordinator and Water Mining Specialist positions in 1995. Region 9 is in the process of creating a Regional Mining Coordinator position. Both Regions 8 and 10 have also developed their own Regional mining strategies.

The report should also note that the CERCLA program created a Mine Sites Coordinating Committee five years ago. The Committee was originally administered by the Region 8 Montana field office, has been recently reorganized, and is now managed by Region 10. The purpose of the CERCLA mine site group is to disseminate the lessons learned at large-scale CERCLA mining clean-ups. The Office of Emergency and Remedial Response (OERR) and the Office of Solid Waste (OSW) are currently working on a mine site guidance manual which will be used to assure that sound science and cost effectiveness are used when determining clean-up methods at mine sites. This manual is expected to be completed by July 31, 1997.

Chapter 4:

We agree that partnering opportunities should be fully utilized to better manage mining activities. The report should indicate that the Agency established an informal headquarters staff working group on mining in 1991. As a result of the work of that group, which includes representatives from OSWER, OW, and the Office of Federal Activities, the Agency signed the Interagency Agreement of Mining and Oil and Gas to specifically address the need to better coordinate our activities with the Federal land management agencies.

The report should note that we have already taken such steps, and we agree that further steps should be taken to broaden our partnerships with states and Federal land managers on both the national and Regional level. The Regions have established good working relationships with the states. For example, Region 10 works directly with the Tri-State Agreement (composed of Idaho, Washington, and Oregon).

Comments to Proposed Recommendations

As previously mentioned, we agree that the Agency's overall management of mining activities could be made more effective and efficient. In an effort to improve the Agency's abilities to address hardrock mining, the Agency established a multi-program workgroup to draft an Agency-wide hardrock mining framework. Currently in final draft form, the Framework

identifies measures that will help EPA implement a multi-media, multi-stature approach to dealing with the environmental concerns posed by hardrock mining. Recommendations identified in the Framework are very consistent with those proposed in the Draft Audit Report. Finalization of the Framework is expected in May 1997. A brief summary of how the Framework achieves the recommendations proposed in the Draft Audit Report is provided below.

Draft Audit Report recommendations 2-1 through 2-4

Although the Framework focuses on understanding and improving the use of existing EPA authorities it also recognizes that programs influencing the environmental impacts of mining are administered by many parties. States, Tribes, other federal agencies, and local government each have a role in mine regulation. Improving EPA's programs as well as providing assistance to other stakeholders to improve the effectiveness of other programs that address hardrock mining is a key element of the Framework and is consistent with recommendations 2-1 through 2-4 proposed in the draft audit report.

Draft Audit Report recommendations 3-1 through 3-5

Consistent with recommendations 3-1 through 3-5 of the draft audit report, EPA's Hardrock Mining Framework, emphasizes the importance of identifying potential environmental concerns early in mine site planning and permitting. In addition to more timely involvement in the NEPA process, EPA should promote adequate considerations of environmentally protective standards and preferred alternatives at proposed mine sites during the EIS development. In cases where EPA retains NPDES permitting authority, the Framework recommends that NEPA site evaluations and the NPDES permitting process be integrated; providing an opportunity to streamline the regulatory process for mine site evaluation and planning, while assuring that permits include appropriate provisions requiring that the preferred alternative be implemented as presented in the EIS.

Draft Audit Report recommendations 4-1 through 4-4

Consistent with the recommendation 4-1 proposed in Draft Audit Report, EPA's Hardrock Mining Framework acknowledges the importance of forging effective partnerships with other mining stakeholders and thus, is fundamental to the successful implementation of the Framework. With regard to recommendation 4-2, some EPA Regions with significant mining activity have established dedicated mining teams; this was done, in part, to facilitate proactive involvement in hardrock mining issues. Consistent with recommendation 4-3, the Framework promotes the improvement of scientifically based predictive tools used to evaluate the environmental impacts of mine sites. In addition, the Framework specifically supports collaborative research efforts, technology development, participation in information exchanges and training opportunities.

SCOPE AND METHODOLOGY

Our review was limited to hardrock mines using the heap leaching method of ore extraction. To determine if current federal and state statutory and regulatory requirements included environmental performance standards and adequate financial assurances, we reviewed the statutory and regulatory authority of the Forest Service, the Bureau of Land Management, and the States of Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, and South Dakota. We relied on information included in a 1996 book authored by the Environmental Law Institute entitled *Hard Rock Mining: State Approaches to Environmental Protection* for an assessment of the statutory and regulatory authorities in the States of Arizona, Colorado, Montana, Nevada, and South Dakota. This book contained a state-by-state review of statutes and regulations applicable to hardrock mining. Other than the eight states listed above, we did not review the statutory and regulatory authority of any other states engaged in hardrock mining. Nor did we review any aspect of hardrock mining on tribal lands.

Although we reviewed federal and state statutory requirements, we did not attempt to assess the adequacy of the performance standards or federal and state oversight for enforcing the standards. Therefore, if the agency with primary responsibility for approving the hardrock mining permit application had authority to require environmental performance standards, we considered the authority adequate for our purpose.

Because determining the adequacy of financial assurance is highly subjective, we only assessed whether an agency had the regulatory authority to require a reasonable level of financial assurance. Depending on the methods and level of expertise of agency staff, the level of financial assurance required can vary dramatically. Both federal and state land management agencies we contacted stated that they did not require financial assurance for every possible eventuality.

To determine whether EPA effectively used existing environmental statutes and regulations to prevent mining pollution and minimize potential government financial liabilities, we reviewed EPA media-specific authorities and discussed EPA's implementation efforts with federal, state, and industry representatives. Because EPA delegated implementation of its media-based authorities to states, we assessed whether EPA performed oversight activities relative to mine permitting activities. We reviewed EPA's draft hardrock mining strategy. Also, we reviewed RCRA legislative activities to better understand EPA's RCRA authority limitations relative to hardrock mining. We assessed how EPA fulfilled its administrative responsibility under NEPA to influence permitting decisions.

To determine whether EPA established effective partnerships to provide guidance in the development of environmental performance standards and financial assurances, we discussed EPA's working relationships with the federal and state land management agencies. We assessed EPA's involvement with other federal and state regulatory agencies responsible for the permitting and monitoring of active hardrock mines and reviewed memorandums of understanding between agencies to understand how EPA could interact and affect decisions. We reviewed various state joint mine permitting procedures and obtained other federal agencies' and states' assessments of EPA staff availability and technical expertise to gauge EPA's effectiveness in influencing permitting decisions. We also evaluated EPA staff organizations and capabilities to effectively participate in partnerships with other agencies.

PRIOR AUDIT COVERAGE

Several government audit organizations, including GAO, DOI/OIG and USDA/OIG, have recently conducted audits of the environmental impacts of hardrock mining and of EPA's working relationships.

A June 1991 GAO report, *MINERAL RESOURCES, Increased Attention Being Given to Cyanide Operations* (GAO/RCED-91-145), examined: (1) the hazards of cyanide operations to wildlife and the environment on federal land, and (2) the existing laws and regulations governing these operations. The report recommended that USDA direct the Forest Service to develop and implement an agencywide policy specifically aimed at managing cyanide operations on Forest Service land.

In September 1991, DOI/OIG issued a report entitled *Noncoal Reclamation, Abandoned Mine Land Reclamation Program, Office of Surface Mining Reclamation and Enforcement* (91-I-1248), evaluating the reclamation program's effectiveness in correcting health and safety hazards and environmental problems associated with abandoned noncoal mines. Among other findings, the audit concluded that reclamation was inadequate and funding was insufficient and recommended DOI seek legislation to establish a fee on noncoal mining to reclaim abandoned mine sites.

A March 1992 DOI/OIG report, *Hardrock Mining Site Reclamation, Bureau of Land Management* (92-I-636), found that the Bureau of Land Management had not adequately implemented procedures for ensuring abandoned mine sites were reclaimed. The report made five recommendations, one of which was that the Bureau of Land Management amend its bonding regulations to require that all operators post financial guarantees commensurate with the size and type of mining operation.

In April 1995, a GAO report, *EPA AND THE STATES, Environmental Challenges Require a Better Working Relationship* (GAO/RCED-95-64), disclosed that EPA was inconsistent in its oversight, micro-managed state programs, did not provide sufficient technical support, and did not adequately consult with states before making decisions. GAO recommended EPA work with states on consistency, oversight, flexibility, and communications.

A February 1996 GAO report, *FEDERAL LAND MANAGEMENT, Information on Efforts to Inventory Abandoned Hard Rock Mines* (GAO/RCED-96-30), concluded that no definitive inventory was available of the number of abandoned hardrock mines located on federal lands. The report discussed the range of estimates made by federal agencies and others on the number of mines and the costs to clean up the problem sites.

Most recently, a March 1996 USDA/OIG report, *Forest Service Management of Hazardous Material at Active and Abandoned Mines* (08601-1-At), found that the Forest Service did not have the authority to suspend mining operations if a mine operator was not in compliance with the plan of operation, the Forest Service had not inspected many of the mines as required, many sites were not reclaimed by the operators, and bonds were inadequate to cover the costs. The report recommended that USDA seek authority to shut down mine operations when violations are not corrected, inspect mines under approved plans of operations, and review bonds annually and increase them as needed.

ABBREVIATIONS

CWA	Clean Water Act
DOI	U. S. Department of the Interior
EPA	Environmental Protection Agency
GAO	General Accounting Office
NEPA	National Environmental Policy Act of 1969
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
OECA	Office of Enforcement and Compliance Assurance
OIG	Office of Inspector General
OSWER	Office of Solid Waste and Emergency Response
OW	Office of Water
RCRA	Resource Conservation and Recovery Act
USDA	U.S. Department of Agriculture

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