OFFICE OF INSPECTOR GENERAL

Catalyst for Improving the Environment

Evaluation Report

Implementation, Information, and Statutory Obstacles Impede Achievement of Environmental Results from EPA's National Hardrock Mining Framework

Report No. 2003-P-00010

August 7, 2003

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Abbreviations

AMLT	Abandoned Mine Lands Team
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
NEPA	National Environmental Policy Act
NICC	National Interagency Coordinating Committee
NMA	National Mining Association
NMT	National Mining Team
NPDES	National Pollutant Discharge Elimination System
OIG	Office of Inspector General
RCRA	Resource Conservation and Recovery Act

Cover photo: Photograph of the Coeur d'Alene Mine in Idaho is courtesy of the Colorado School of Mines, Department of Chemistry and Geochemistry.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
INSPECTOR GENERAL

August 7, 2003

MEMORANDUM

SUBJECT: Implementation, Information, and Statutory Obstacles Impede Achievement of Environmental Results from EPA's Hardrock Mining Framework
Report No. 2003-P-00010

FROM: Kwai-Cheung Chan /s/
Assistant Inspector General
Office of Program Evaluation

TO: Stephen L. Johnson
Acting Deputy Administrator

Barry Breen
Principal Deputy Assistant Administrator
Office of Solid Waste and Emergency Response

Attached is our final report on the evaluation of the Environmental Protection Agency's (EPA's) National Hardrock Mining Framework. Specifically, the purpose of our evaluation was to determine the results obtained and progress associated with the Agency's 1997 National Hardrock Mining Framework.

The report contains findings and recommendations that describe problems the Office of Inspector General (OIG) has identified and the corrective actions the 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 audit resolution procedures.

On April 21, 2003, the OIG issued a draft report to EPA for review and comment. We received the Agency's response to the draft report on June 3, 2003. At EPA's request, an additional 2 weeks was provided for the Agency to respond to the draft report. The Agency did not identify any factual errors in the report and generally agreed that a plan for implementing the Framework and better interagency coordination were needed. EPA recognized the effort expended by the OIG in collecting information and developing findings and recommendations, and appreciated OIG efforts to keep the Agency informed on the progress of our review.

The Agency provided a number of comments on various aspects of our report and on actions it indicated were taken to implement the Hardrock Mining Framework. We provide a summary and general evaluation of these comments at the end of this report. We include the full text of EPA's comments in Appendix E. Due to the length of the comments and because the Agency did not directly address each of our recommendations, our responses to each significant comment are summarized in Appendix F.

Action Required

In accordance with EPA Manual 2750, you are required to provide this office with a written response within 90 days of the final report date. The response should address all recommendations. For corrective actions planned but not completed by the response date, please describe the actions that are ongoing and provide a timetable for completion. Reference to specific milestones for these actions will assist in deciding whether to close this report in our assignment tracking system.

We have no objection to the further release of this report to the public. Should you or your staff have any questions, please contact me at (202) 566-0827 or Carolyn Copper at (202) 566-0829.

Attachment

Executive Summary

Purpose

This review is part of the Office of Inspector General's (OIG's) evaluation of Superfund mega-sites. The U.S. Environmental Protection Agency's (EPA's) Office of Solid Waste and Emergency Response suggested that we examine the issue of mega-sites due to potentially significant cost implications for the Superfund Trust Fund. Because of the high costs and complexities associated with cleaning up hardrock mining sites, and the common perception that they may account for a large proportion of future mega-sites, we conducted our initial evaluation on the Agency's National Hardrock Mining Framework.

Background

Hardrock mining can cause significant impacts on the environment, potentially affecting ground and surface waters, aquatic life, vegetation, soils, air, wildlife, and human health. Hardrock mining involves the extraction of certain metals and minerals found in hard formations of the earth. They include, among others, copper, gold, iron ore, lead, and silver. EPA estimates there may be as many as 200,000 abandoned hardrock mines in the United States. As of January 2003, 87 abandoned hardrock mine sites were on the Superfund National Priorities List. EPA estimates it will cost a total of about $2 billion to clean up these sites on the list.

A complex set of Federal and State environmental laws and regulations apply to hardrock mining activities. Although EPA can inherit the responsibility for cleaning up hardrock mining sites, the Agency is just one of several with a role in regulating the environmental impacts associated with hardrock mining.

In September 1997, EPA issued the National Hardrock Mining Framework to provide a multimedia, multistatute approach for handling environmental issues posed by proposed, active, and abandoned hardrock mining sites. The overall goals of the Framework were to achieve improved environmental protection, use resources more efficiently, and promote fiscal responsibility.

Results

The primary goal of the Hardrock Mining Framework is to protect human health and the environment at proposed, active, and abandoned mine sites on both Federal and non-federally managed lands through appropriate and timely pollution prevention, control, and remediation. EPA spent 3 years developing the Framework and it has been available for 5 years. However, we found no evidence that the Framework contributed to environmental improvements or protections at specific hardrock mining sites. There are regulatory and non-regulatory reasons for this.

The nature of hardrock mining regulations, environmental laws and regulations, and the manner in which they are implemented present obstacles to what the Agency can realistically accomplish in preventing or minimizing the environmental impacts of hardrock mining. For example: the Agency has limited authority to directly establish up-front pollution controls at hardrock mining sites on public or private lands; the Comprehensive Environmental Response, Compensation, and Liability Act largely allows the Agency to respond after environmental damage has occurred; amendments to the Resource Conservation and Recovery Act exempt some mining wastes from regulation; and EPA has only an advisory role in the development of environmental impact statements for mining operations on Federal lands.

In addition, EPA did not develop or communicate a strategy for implementing the Framework, management did not support it, and there was inadequate coordination within the Agency and between EPA and other agencies. Further, the Agency does not have current, accurate data on the extent of financial and environmental challenges posed by hardrock mining activities to assist management in determining appropriate strategies and actions to address existing and potential mining sites. Without an adequate implementation strategy, accountable offices and management support, profile of hardrock mining impacts, internal and interagency coordination, and strengthened EPA authorities, the environmental protection goals of the Framework will be difficult to achieve. EPA could consider policy and regulatory changes to help achieve the environmental goals of the Framework.

Recommendations

We recommend that EPA program management, led by the Deputy Administrator and the Assistant Administrator for the Office of Solid Waste and Emergency Response, develop effective implementation strategies for the National Hardrock Mining Framework that account for existing gaps in the Framework, lack of necessary coordination, and regulatory challenges. The Agency should also determine the estimated financial, human health, and environmental impacts associated with hardrock mining sites where the Agency currently has primary responsibility for handling cleanup as well as hardrock mining sites where there is a future likelihood that EPA may have lead cleanup responsibility.

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Chapter 1
Introduction

Purpose

This review is part of the Environmental Protection Agency (EPA) Office of Inspector General (OIG) evaluation of Superfund mega-sites. During our fiscal 2001 planning process, EPA's Office of Solid Waste and Emergency Response suggested that we examine the topic of Superfund mega-sites due to their potential significant cost implications for the Superfund program. Because of the high costs and complexities associated with cleaning up hardrock mining sites, and the common perception that they may account for a large portion of future mega-sites, we conducted our initial evaluation on hardrock mining sites. Specifically, we reviewed results obtained and progress associated with the Agency's 1997 National Hardrock Mining Framework.[1]

Objectives

We addressed the following questions:

- Are human health and environmental concerns being addressed by implementing the Framework?
- Is the Framework viable under current EPA and governmental authorities?
- Are there gaps or shortfalls in the Framework?

Background

Environmental Consequences of Hardrock Mining Can be Significant

In its 1999 report, "Hardrock Mining on Federal Lands," the National Research Council of the National Academy of Sciences (a non-profit research organization that, under Congressional mandate, advises the Federal government on scientific and technical matters) noted that hardrock mining can cause significant impacts on the environment, potentially affecting ground and surface waters, aquatic life, vegetation, soils, air, and wildlife. Mining sites are typically large, complex, and costly to clean up. Many hardrock mining sites have estimated cleanup costs greater than $50 million, which was categorized as a "mega-site" in a 2001 report on the future of the Superfund program by Resources for the Future (a nonprofit research organization).[2]

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[1]The OIG is also currently conducting a related, but separate, program evaluation of the potential financial impact of mining mega-sites on the Superfund Trust Fund and on States.

[2]Resources for the Future's use of financial criteria to define mega-sites was conventional at the time of their report. However, this approach does not consider site criteria (e.g., nature of contaminants, number of operable units, site acreage), risk criteria (e.g., environmental, ecological, and human health), or other factors (e.g., complexity) in defining mega-sites.

Hardrock mining is not coal mining. Hardrock mining involves the extraction and beneficiation (separation of minerals/metals from waste) of certain metals and minerals found in hard formations of the earth. These metals and minerals serve as the primary raw materials for most of the industrial, commercial, and consumer equipment and structures produced by the U.S. economy. The removal and beneficiation result in large quantities of waste (e.g., waste rock, tailings, mine water). The total amount of waste produced can range from 10 percent (potash) to 99.99 percent (gold). Open mine pits, tailings ponds, ore stockpiles, and waste rock dumps can all be significant sources of toxic pollutants, primarily heavy metals such as cadmium and lead. EPA's *Toxics Release Inventory 2000* report indicates that the metal mining industry (metal mining is synonymous with hardrock mining) was the largest toxic polluter in 2000, releasing 3.4 billion pounds of toxics, or 47 percent of the total released by U.S. industry (see Figure 1.1).

Figure 1.1. **Toxics Release Inventory**

Industry	On-site Land Releases					Total On-site Releases	Off-site Releases	Total On- and Off-site Releases
	RCRA Subtitle C Landfills	Other Landfills	Land Treatment	Surface Impoundments	Other Disposal		Transfers Off-site to Disposal	
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Metal Mining	0	21,792,594	2,006	886,978,322	2,407,123,486	3,357,144,895	621,752	3,357,766,648
Coal Mining	0	7,785,330	1,921,712	3,120,638	992,332	15,967,981	20	15,968,001
Electric Utilities	1,373,383	143,268,331	2,240,899	137,415,016	4,574,602	1,080,898,816	74,334,647	1,155,233,463
Chemical Wholesale Distributors	0	0	0	0	63,151	1,429,576	183,893	1,613,469
Petroleum Terminals/Bulk Storage	486	0	1,122	101	35,425	3,421,226	460,550	3,881,776
Hazardous Waste/Solvent Recovery	194,611,003	10,730,459	0	2,192,315	18	242,431,230	46,635,855	289,067,085
Total	**195,984,872**	**183,576,714**	**4,165,739**	**1,029,706,394**	**2,412,789,015**	**4,701,293,724**	**122,236,717**	**4,823,530,441**

Note: RCRA = Resource Conservation and Recovery Act
Source: *EPA's Toxics Release Inventory 2000, May 2002*

EPA estimates there may be as many as 200,000 abandoned hardrock mines in this country. As of January 2003, 87 abandoned mine sites were included on the Superfund National Priorities List. The Agency estimates that it will cost a total of about $2 billion to clean up these sites on the list.[3]

The U.S. Forest Service estimates that approximately 10,000 miles of rivers and streams may have been contaminated by acid mine drainage. Acid mine drainage can occur when iron sulfides in rock are exposed to water and oxygen (see photographs on next page). The process of mining brings sulfide-bearing rock to the earth's surface, fractures it, and exposes substantial amounts to weathering. The minerals gradually oxidize to form dilute sulfuric acid and ferric hydroxide, resulting in acid mine drainage. When acid drainage occurs, it is extremely

[3]This does not include sites on Bureau of Land Management land. The Bureau estimates it may cost as much as $35 billion to clean up contaminated hardrock mine sites on Bureau lands.

difficult and costly to control. According to the National Research Council, "improved methods for prediction, prevention, and long-term treatment are needed to minimize the expenses related to acid drainage and to enhance the long-term protection of the environment."[4] Resources for the Future noted that it would be difficult, if not impossible, to achieve water quality standards at some sites due to acid drainage and leaching of mine wastes.[5]

Figure 1.2. Acid mine drainage at Galax, Virginia (left) and Prospect Gulch, Cement Creek, Colorado (right)

According to EPA, in recent years, environmental practices employed by the mining industry have improved considerably and reduced the environmental impacts from mining projects. Bureau of Land Management data indicate the number of plans and notices of operations for new mining activities has fallen approximately 50 percent since 1992. Some improvements made in mining operations include best practices for control of storm water runoff, better treatment of wastewater, better management of tailings and waste rock, and more efficient metal recovery technologies. The National Research Council noted that some environmental changes resulting from hardrock mining may actually benefit wildlife, such as creation of mine tunnels that, when later abandoned, can be used by bat communities. Also, reclaimed waste rock sites and other terrestrial changes can provide substantial areas of forage, attracting various wildlife.

Multiple Laws and Agencies Involved in Hardrock Mining Activity

A complex set of Federal and State environmental laws and regulations apply to hardrock mining activities. The type and size of mining operations; kinds of land, water, and biological resources affected; organization of State and local permitting agencies; and the manner in which Federal and State agencies

[4] *Hardrock Mining on Federal Lands*, National Research Council, 1999

[5] *Superfund's Future: What Will It Cost?*, Katherine N. Probst and David M. Konisky, Resources for the Future, 2001

implement appropriate laws and regulations determine the degree and effectiveness of regulation. A significant amount of hardrock mining occurs on Federal lands in the Western States. The U.S. General Accounting Office estimated that mines on Federal lands in the Western States comprised 30 percent of all gold and 29 percent of all silver production in the Western States in 1990.

Cleanup of mine sites located on Federally-owned lands is the responsibility of the Federal agency having jurisdiction over the land, unless those lands become patented and thus private, at which point the States and/or EPA take over cleanup responsibility. The General Mining Law of 1872 is the primary statute regarding hardrock mining on Federal lands. The Federal Land Policy and Management Act of 1976 for the Bureau of Land Management and the 1897 Organic Act and 1976 National Forest Management Act for the U.S. Forest Service provide direction for Federal land management.

Development of the National Hardrock Mining Framework

In September 1997, EPA issued the National Hardrock Mining Framework to provide a multimedia, multistatute approach for handling environmental issues posed by hardrock mining activities. The key goals of the Mining Framework were to achieve improved environmental protection, use resources more efficiently, and promote fiscal responsibility. The number one goal of the Framework was to protect human health and the environment through appropriate and timely pollution prevention, control, and remediation. This goal was to apply to general management approaches at proposed, active, and abandoned mine sites on both Federal and non-federally managed lands. The Framework included 14 recommendations and 10 action items (see Appendix A). An explicit goal of the Framework was *not* to attempt to broaden the Agency's authorities beyond those granted by Congress. The Agency believed that the Framework recommendations were within the scope of EPA's "responsibility" and would serve as the basis for achieving its goals. While there is no current consensus, or conventional method for defining or identifying mine sites, as stated earlier, EPA estimates the number of hardrock mine sites in the United States to be as many as 200,000.

A need for the Framework was identified in 1994 when the Deputy Administrator tasked the Office of Water with developing an Agency-wide mining framework. The Office of Water partnered with the Office of Solid Waste and Emergency Response, Office of Enforcement and Compliance Assurance, Office of General Counsel, and the Regions to draft the Framework. In addition, EPA solicited input from various mining stakeholders, including other Federal agencies such as Department of Interior's Bureau of Land Management and Office of Surface Mining, and Department of Agriculture's U.S. Forest Service; States, including Colorado, Montana, and Nevada; tribes; local governments; industry; and environmental groups, such as the Western Mining Action Project. In June 1997, OIG issued report E1DMF6-08-0016-7100223, "EPA Can Do More to Help Minimize Hardrock Mining Liabilities," which recommended that EPA finalize and implement its hardrock mining strategy to encourage more effective use of

existing authorities to address hardrock mining issues and strengthen partnerships with mining stakeholders.

Scope and Methodology

We conducted our evaluation from April 2002 to November 2002. To achieve our objectives, we administered a survey to EPA National Mining Team members in headquarters and regional offices. We sent the survey to 6 headquarters offices and 9 of EPA's 10 regional offices (Region 2 did not participate due to limited hardrock mining activity in the region). Four headquarters offices (Office of Emergency and Remedial Response, Office of Solid Waste, Office of Site Remediation Enforcement, and Office of Federal Activities) and seven regional offices (Regions 1, 3, 5, 6, 8, 9, 10) responded to our survey. Since we received multiple responses from several regions, we received a total of 16 individual survey responses. The survey included questions regarding the status and implementation of Framework recommendations and 6 of 10 action items, accomplishments, gaps in the Framework, barriers to implementation, and ideas for improvement (see Appendix B). We did not verify the accuracy of survey responses.

We also interviewed external stakeholders, including representatives of other Federal agencies (Department of Interior's Bureau of Land Management and Office of Surface Mining, Department of Agriculture's U.S. Forest Service), the Western Governors' Association, National Mining Association (NMA), Mineral Policy Center, and Center for Science in Public Participation, to obtain their perspectives. NMA also provided extensive written comments on the National Hardrock Mining Framework. These are summarized in Appendix C. We did not receive written comments from other external stakeholders.

We reviewed prior reports, including the 1997 OIG report on minimizing hardrock mining liabilities, and reports issued by the National Research Council, National Academy of Sciences, Resources for the Future, Center for Science in Public Participation, and Mineral Policy Center.

We performed our evaluation in accordance with *Government Auditing Standards*, issued by the Comptroller General of the United States.

Chapter 2
Mining Framework Has Had Little Impact in Resolving Human Health and Environmental Concerns at Hardrock Mining Sites

The primary goal of the National Hardrock Mining Framework is to protect human health and the environment at hardrock mining sites through timely pollution prevention, control, and cleanup. However, the Framework has had little effect in addressing human health and environmental concerns at specific mine sites. Without an adequate implementation strategy, management support, improved intra- and interagency coordination and cooperation, and strengthened EPA authorities, the environmental protection goals of the Framework will be difficult to achieve. Gaps in the Framework also create barriers to its effectiveness. Current, accurate data on the extent of financial and environmental challenges posed by hardrock mining activities is critical to assist management in determining appropriate strategies, actions, or programs to address challenges posed by hardrock mining. This information is also necessary for decisions concerning the viability and relevance of the existing Framework. If current program management supports its utility and relevance, EPA could consider policy and regulatory changes to help achieve the environmental goals of the Framework.

Framework Had Minimal Impact on Health and Environmental Concerns

After 3 years of development, EPA issued its Mining Framework in September 1997. In developing the Framework, EPA demonstrated some commitment to environmental goals by working with and obtaining comments from other Federal agencies, States, industry, and the environmental community. Ten of the 15 survey respondents who addressed a question on Framework effectiveness considered the Framework to be a useful document that, among other things, effectively summarized regulatory and nonregulatory tools, encouraged internal and external coordination in dealing with mine sites, and helped to establish useful contacts and networks. However, we found that human health and environmental concerns at hardrock mining sites have not been addressed through implementation of the Framework. Although 67 percent (10 of 15) of EPA survey respondents addressing this specific question indicated the Framework had been effective in addressing health and environmental concerns, only one of the 10 respondents identified specific sites that directly benefitted from implementation of the Framework. In addition, only one of eight external stakeholders identified specific sites that had benefitted from the Framework guidance.

Regardless of their affiliation, only one of eight external stakeholders we interviewed could identify any environmental progress or impacts associated with the Framework. The Mineral Policy Center, an environmental organization, considered the Framework to be a "paper policy" that had no real impact at hardrock mining sites. Western Governors' Association officials were not aware that EPA's Framework was being used, nor had heard much about the Framework since it was issued in 1997. NMA, representing the mining industry, indicated that it had not observed any environmental impacts from implementation of EPA's Framework. NMA believed that the Framework was not needed, since the industry was already extensively regulated by other Federal and State agencies. U.S. Department of Agriculture officials were not aware of specific environmental improvements that could be attributed directly to the Framework, although they noted that the Framework appropriately stressed the need for agencies to work together to address problems at hardrock mining sites.

Framework Was Not Effectively Implemented

Lack of An Implementation Plan

EPA did not articulate a plan or strategy for implementing the Framework once it was completed. Although the Framework contained a set of action items to help implement Framework recommendations, no timeframes, project milestones, priority-setting procedures, outcome measures, or resource needs were established. This is particularly important because the Framework has very ambitious and broad goals. For example, when EPA was soliciting comments on the Framework, at least one other Federal agency noted that "our biggest concern is the apparent lack of ranking or priorities of effort....the proposal involves a process so enormous and complex that it will clearly drain the very limited resources agencies need to conserve for environmental protection." In addition, accountable offices were not specified for several key Framework action items. Specifically, no headquarters office was assigned responsibility for developing a cross-program mining team, promoting the National Interagency Coordinating Committee, or requesting comments on whether a reexamination was warranted on the exclusion of certain wastes as "hazardous" wastes under RCRA.

Agency Management Did Not Adequately Support Framework

Eleven of 15 (73 percent) survey respondents addressing a question regarding Framework barriers (see Appendix B) noted that EPA management did not adequately support implementation of the Framework. In addition, due to demands associated with a new National Pollutant Discharge Elimination System (NPDES) program, Total Maximum Daily Loads rules, and declining resources, the Office of Water, the lead EPA office tasked with developing the Framework, chose to discontinue involvement with it and the hardrock mining area shortly after the Framework was issued. By default, this left the Office of Solid Waste

and Emergency Response to essentially assume responsibility for the Framework. In February 2000, the Regional Administrator for Region 10 sent a memorandum to EPA's Deputy Administrator noting a Regional consensus that the Office of Water assign a headquarters mining team leader to assume the lead in following up on the recommendations contained in the Framework. We could not find evidence that any action was taken on the basis of this memorandum.

Lack of Intra- and Interagency Coordination

Our survey results and interviews indicated that there was inadequate coordination within EPA and between EPA and other Federal agencies regarding hardrock mining activities. In addition, there are varying priorities among Federal agencies in relation to hardrock mining issues, and no plans to identify, acknowledge, and work with the priorities of other agencies. For example, the Department of Interior's Office of Surface Mining indicated that safety at abandoned mine sites was considered to be a higher priority than environmental protection. The National Research Council study also noted a lack of early, consistent cooperation and participation by all Federal, State, and local agencies involved in developing or reviewing Environmental Impact Statements (EISs). According to the National Research Council, this lack of coordination has resulted in excessive costs and delays in mine permitting.

Although the Framework recommended promoting a National Interagency Coordinating Committee on mining, EPA staff told us that there has been little EPA support for the Committee. The National Interagency Coordinating Committee was envisioned by EPA's National Mining Team as a senior management-level forum for discussing and coordinating varying Federal agency policies and regulations in the area of hardrock mining. The Committee was to have included participants from several agencies, such as EPA, Bureau of Land Management, U.S. Forest Service, Office of Surface Mining, and U.S. Geological Survey. Although some activity took place at the EPA staff level, personnel in Regions 8 and 10 said that headquarters had not promoted the Committee, and Region 9 mining staff were unaware of any work the Committee had done. According to Office of Solid Waste and Emergency Response representatives, the Committee's memorandum of understanding was allowed to lapse and was not reinitiated.

Framework Recommendations Not Consistently Implemented

Survey respondents indicated that some recommendations and action items were not fully and consistently implemented. Specifically, as mentioned above, it did not appear that action had been taken to promote and support the National Interagency Coordinating Committee, which several respondents deemed crucial for working with other Federal agencies to prioritize and address environmental concerns at hardrock mining sites. Similarly, we were told that little action has been taken to solicit comments on a reexamination of high-risk mine wastes

currently exempt from hazardous waste regulations. In addition, we were told that little progress has been made to encourage the reprocessing of mine wastes as a component of site cleanups or to provide information to stakeholders on the availability of grants for mine site remediation. See Appendix D for a summary table of the results.

On the other hand, our survey responses indicate that some actions have been taken on implementing some recommendations and action items. For example, EPA regions which have significant hardrock mining activity (i.e., Regions 8, 9, and 10) have developed regional mining strategies; the Agency had prepared guidance and provided some training on site assessment, investigation, and screening tools (e.g., Office of Emergency and Remedial Response issued an Abandoned Mine Site Characterization and Cleanup Handbook in 2001); efforts have been made to integrate permitting and site evaluation activities where possible; regions have encouraged cleanup actions by responsible parties at mine sites; and the Office of Water issued a final Clean Water Act 404 rule in May 2002 that includes a definition for "fill material" in the context of Section 404 permitting.

EPA Has Limited Authority to Regulate Hardrock Mining Activities

The nature of hardrock mining laws and regulations and how they are implemented present obstacles to what EPA can realistically accomplish in terms of preventing or minimizing environmental impacts during the earliest stages of mining operations. Although EPA's explicit goal in developing the Framework was not to attempt to broaden Agency authorities, this was not a realistic assumption given the Framework's broad goal to protect human health and the environment at hardrock mining sites on Federal lands and at active or proposed hardrock mining operations --- where EPA has very limited or no direct regulatory authority.[6]

Hardrock mining occurs on both public (i.e., Federal) and private lands, although the majority of it occurs on public lands in western States. EPA's role and authority in regulating hardrock mining activities is different on public and private lands (see Figures 2.1 and 2.2), and many sites in the western United States have a combination of Federal and private ownership, making regulatory efforts that much more complex. Further, the Agency has limited authority to directly establish up-front pollution controls at hardrock mining sites in order to prevent or control environmental impacts. Existing authorities (i.e., Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA]) largely

[6]Ten of 15 survey respondents (67 percent) who addressed the survey question on the viability of the Framework considered it to be viable or potentially viable under current Agency authorities. That is, most respondents believed that EPA had the appropriate authority to accomplish the tasks outlined in the Framework. We did not independently verify whether EPA has the authority to accomplish specific tasks outlined in the Framework. Rather, we evaluated the likelihood that EPA could achieve the broad goals of the Framework given the Framework's objectives and EPA's authorities.

allow the Agency to respond after environmental problems have occurred. Other EPA pollution permitting authorities are delegated to the States through major environmental laws (i.e., Clean Air Act, Clean Water Act, and RCRA).[7] However, there are many cases where State permitting and enforcement programs have not been effective for the various environmental programs that have been delegated to the them. In addition, little mining waste is subject to RCRA regulation as hazardous waste. The various authorities that provide EPA some ability to regulate or clean up environmental impacts of hardrock mining are discussed briefly in the following pages.[8]

[7]Under the Surface Mining Control and Reclamation Act, States that have coal mining activity may also receive some funds to remediate safety and environmental hazards at abandoned hardrock mines. The Act established a Federal mechanism to encourage States to remediate hazardous conditions caused by abandoned coal mines. After eligible States have completed reclamation of abandoned coal mines, they may use funds under the Act to remediate environmental hazards at abandoned hardrock mines.

[8]Generally, these authorities will apply to hardrock mining operations that began after the various laws were passed and regulations were promulgated. Due to limitations in existing data, it was not possible for us to determine the percent or number of hardrock mining sites (active or abandoned) that fall outside existing regulations.

Figure 2.1. EPA's Role in Regulating Hardrock Mining on Public (Federal) Lands

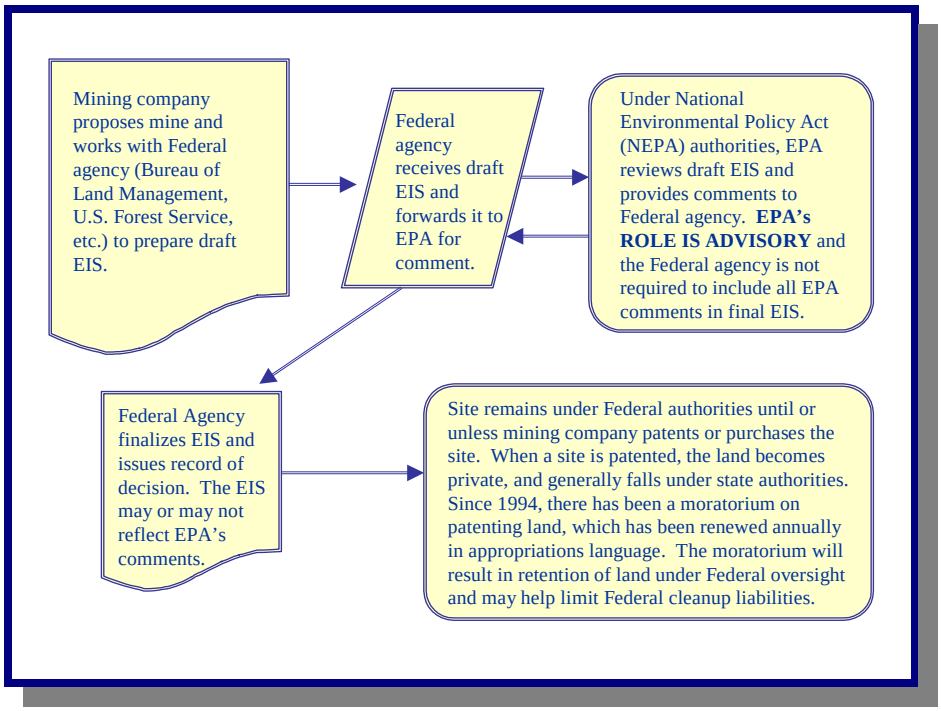
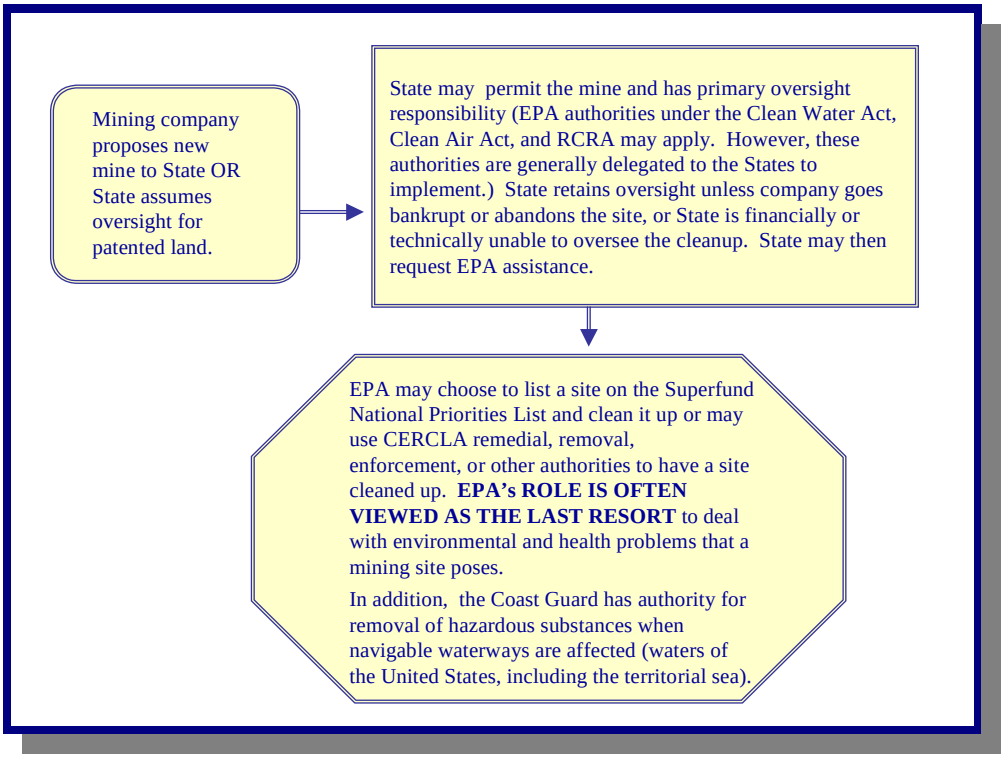


Figure 2.2. EPA's Role in Regulating Hardrock Mining on Private Lands



Limiting Factors for EPA: Nature of Environmental Laws and Mining Regulations

The **Clean Water Act** provides for regulation of discharges of pollutants into U.S. waters via the NPDES permit program. An NPDES permit obtained for a mining site would establish standards for pollutants discharged from the site. The Clean Water Act allows EPA to delegate many permitting, administrative, and enforcement aspects of the law to the States, and all but four States have been authorized to administer the NPDES program.[9]

RCRA is designed to ensure that solid wastes (including hazardous wastes) are managed in a manner that is protective of human health and the environment. RCRA has rulemaking designed to determine which mining wastes should be regulated as "hazardous waste." As a result of the 1980 RCRA Bevill amendment and subsequent EPA action regarding waste produced from the extraction, beneficiation, and processing of ores and minerals, relatively little mining waste is subject to RCRA regulation as hazardous waste.

Under the **National Environmental Policy Act** (NEPA), Federal agencies prepare EISs for major actions that can have a significant effect on environmental quality, such as a mining operation. EPA can comment on EISs developed by other agencies but cannot compel other agencies to address EPA concerns during the EIS and permitting process. When other agencies finalize an EIS for mine sites, these sites generally remain under the other agencies' authorities until the mine land is patented (purchased), when they become private land and States assume the lead role in regulating them. (As noted in Figure 2.1, since October 1994, there has been a moratorium on patenting land.)[10]

The **Clean Air Act** gives EPA authority to set national standards to protect human health and the environment from emissions that pollute ambient (outdoor) air. The Act assigns primary responsibility for ensuring adequate air quality to the States and not EPA. Generally, pursuant to the Clean Air Act, States require permits at most hardrock mining operations. These permits may include controls for fugitive dust, particulate matter, sulfur dioxide emissions, certain metals, and

[9]In an August 2001 review, the National State Auditors Association found that several States had not effectively administered some aspects of their water programs.

[10]Information provided to us from Western Governors' Association officials indicates that the Association recommended that EPA become more involved in mine permitting from the beginning of the process, rather than at later stages, when the Agency's participation might be disruptive and could lengthen the process. In addition, the National Research Council observed that active stakeholder participation through the NEPA process rarely occurred in a timely fashion, and noted that the decisionmaking process was more effective the earlier that joint involvement occurred.

volatile organic compounds. Again, EPA would not have a primary regulatory role where States are delegated authority.[11]

CERCLA authorizes EPA and other Federal agencies to respond to environmental threats at mineral mining and processing sites through emergency removal actions and longer-term site remediation or cleanup.[12]

Other Federal agencies, including the Bureau of Land Management, U.S. Forest Service, and National Park Service, have authority for helping to prevent environmental degradation at hardrock mining sites. However, prior research has shown that land management statutes and regulations for ensuring environmentally responsible resource development had not been consistently implemented by Federal agencies.[13]

Other Limiting Factors for EPA: Financial Assurance Requirements

Financial assurance, or the amount of money mine owners or operators are required to provide for cleanup in the event of owner bankruptcy or mine abandonment, is regulated by the States. Inadequate financial assurance for hardrock mine cleanup has resulted in higher costs to Superfund and EPA. Some States set a ceiling on the amount of financial assurance that they will collect. Also, some States base the amount of financial assurance on the number of acres of land disturbed, rather than on potential environmental damage. In addition, CERCLA may have the unintended effect of imposing an artificial limitation on the amount of financial assurance States may require. CERCLA 104(c)(3)(C) requires that States fund 10 percent of the cost of an EPA-financed cleanup. States may be motivated to require only that amount of financial assurance that would cover 10 percent (the State share) of the estimated cleanup costs, rather than require financial assurance for the total estimated costs. While we have not

[11]Not all States may exercise this authority properly, as shown by a March 2002 Legislative Auditor for the State of Louisiana report that the State's Department of Environmental Quality had not inspected 15 percent of all major source air facilities for a period of 3 years or more, and that 22 percent of sampled required self-monitoring reports required under facility permits had not been submitted to the Department.

[12]CERCLA's long-term liability provisions can be a disincentive to voluntary cleanup of abandoned mine sites by new mine operators. Consequently, voluntary cleanup opportunities are missed, Federal liability remains, and undisturbed lands may be selected instead for new mining operations. Although the Western Governor's Association has proposed Good Samaritan legislation to protect voluntary parties from liability for continuing discharges at abandoned mine sites, a representative in the Agency's Office of Water told us the Agency had not been actively involved in discussions regarding this potential legislation.

[13]In its 1999 report, the National Research Council noted that implementation could be improved by better information management. For example, there was a lack of data needed to characterize lands available for mineral development and to track mining and regulatory compliance. The National Research Council also found a need for better understanding of current laws and regulations and improved efficiency in completing environmental reviews under NEPA and issuing operating permits. Ultimately, it appears other Federal agencies have experienced the same types of problems that have hampered EPA's effective implementation of the Framework.

conducted an independent review of this, an obvious incentive is that by requiring less financial assurance, a State may attract more mining companies, resulting in more jobs and additional tax revenue for the State.

Data Gaps Constrain Framework Implementation

Based on our analysis of survey responses and information obtained from interviews, we determined that there are gaps in the Framework. These gaps impede EPA efforts to understand and address the environmental problems posed by hardrock mining activities and achieve desired environmental improvements or protections.

A lack of data regarding the financial and environmental impacts of hardrock mining makes it difficult to determine appropriate management strategies and actions to address potential problems. A key implementation action in the Framework involves collecting information to determine the extent and significance of mining activity. However, these actions have not occurred systematically: only three of the seven regions (8, 9, and 10) that completed our survey developed Mining Strategies as recommended in the Framework, and only Regions 9 and 10 had developed regional Mining Profiles. However, information included on inactive and abandoned mines in the profiles as recommended in the Framework was limited. In addition, the profiles had not been updated since they were first completed (1996 for Region 10 and 2000 for Region 9). In its 1999 report, the National Research Council also noted a lack of reliable information regarding mining on Federal lands. In addition, the NMA told us that the Framework does not accurately portray the current hardrock mining industry. They said the Framework needs to be updated because it cites historical impacts of mining and implies that these exist at currently operating mines.

Also, the Framework did not mention the importance of considering future land use at mine sites when planning for reclamation. The National Research Council has stated that reclamation decisions should carefully weigh potential future uses of mine lands.

Conclusions

EPA's Hardrock Mining Framework was considered by many of those surveyed and interviewed as having program management value. The Framework was seen as a useful guidance document, coordination mechanism, and educational tool for helping to deal with the environmental concerns posed by some hardrock mining activities. The Framework is considered a substantial improvement over previous fragmented efforts to deal with the impacts of hardrock mining. However, although EPA spent 3 years developing the Framework to help address human health and environmental concerns posed by hardrock mining, and the Framework has been available for 5 years, we found little evidence that the Framework

contributed to environmental improvements or protections at specific hardrock mining sites.

There are regulatory and nonregulatory reasons why the Framework has been unable to demonstrate environmental results. Addressing and resolving the regulatory and nonregulatory issues will provide a more realistic context for determining the current likelihood of achieving environmental goals associated with the existing framework. Specifically:

- Although EPA was perceived to have adequate authority to implement the Framework, the nature of hardrock mining and environmental laws and regulations and the manner in which they are implemented present obstacles to what the Agency can realistically accomplish in preventing or minimizing the environmental impacts of hardrock mining.

- EPA did not provide an effective strategy for implementing the Framework, management did not support it, and there was inadequate coordination within the Agency and between EPA and other agencies.

- Current, accurate data on the extent of financial and environmental challenges posed by hardrock mining activities is needed to assist management in determining appropriate strategies and actions to address existing and potential problems and to consider the viability and relevance of the existing Framework.

The Agency could consider modifying existing policies and regulations to help achieve the environmental protection goals of the Framework if current program management supports the utility and relevance of the Framework.

Recommendations

Because the Agency indicated in its response to our draft report that the Framework has current utility in helping to achieve the goals of protecting human health and the environment at hardrock mining sites, and they acknowledged that effective implementation of the Framework requires the participation of several EPA program offices, we recommend that:

2-1. The Principal Deputy Assistant Administrator for Solid Waste and Emergency Response, consistent with key implementation actions identified in the 1997 Framework, determine the estimated financial, human health, and environmental impacts associated with hardrock mining sites where the Agency currently has primary responsibility for handling cleanup (EPA-lead National Priority List sites), as well as hardrock mining sites where there is a future likelihood that EPA may have lead cleanup responsibility, such as sites with no other plausible lead, including a potentially responsible party lead. In addition, at minimum, EPA should indicate which Regions have relatively substantial hardrock

mining activity and the status of mining operations or sites in these Regions (e.g., active, inactive, abandoned).

2-2. The Acting Deputy Administrator direct the relevant EPA offices to develop effective implementation strategies that account for existing gaps in the Framework, lack of necessary coordination, and regulatory challenges. Specifically address:

(a) Lack of a Framework implementation plan.

(b) Lack of internal and external Agency coordination among key stakeholders in hardrock mining.

(c) Lack of accountable and lead offices, Framework milestones, and performance measures.

(d) Limits in EPA regulatory authority, including those posed by provisions or implementation of existing environmental statutes (e.g., RCRA) that may hinder progress in achieving environmental goals of the Framework at hardrock mining sites.

Agency Comments and OIG Evaluation

In its response to our draft report, EPA management indicated that the Hardrock Mining Framework has utility. They partially agreed that the Agency lacked current, accurate data on the extent of financial and environmental challenges posed by hardrock mining activities. EPA agreed that it had not been successful in implementing the National Interagency Coordinating Committee and that an implementation plan for the Framework was needed. The Agency also agreed that it has limited authority to regulate solid waste from mining because of the Bevill amendment to RCRA.

The Agency did not respond to our recommendation on the need for accountable and lead offices, milestones, and performance measures for implementing the Framework. We believe the Agency needs to take action on our recommendations to develop effective implementation strategies and plans and determine the estimated financial, human health, and environmental impacts associated with hardrock mining sites where the Agency currently has primary responsibility for handling cleanup as well as hardrock mining sites where there is a future likelihood that EPA may have lead cleanup responsibility.

EPA did not disagree that it was useful to examine the current utility of the Hardrock Mining Framework and concluded that the Framework has utility.

The Agency partially agreed with Recommendation 2-1 and our conclusion that EPA lacked current, accurate data on the extent of financial and environmental challenges posed by hardrock mining activities. Specifically, Agency officials

agreed that they need to improve their understanding of the number, location, and scope of high-risk abandoned mine lands. Except for abandoned mine lands, the Agency believes it has enough information documenting the nature and scope of environmental impacts from mining. Further, the Agency stated that the Framework did not identify the collection of this type of information as critical for implementing its mining program. However, the Framework did recommend collecting information that we consider critical for developing strategies for addressing environmental concerns at hardrock mining sites. For example, the Framework recommended:

- Developing and periodically updating regional mining profiles to assess the scope of mines in the regions, identifying environmental issues, and understanding the concerns and capabilities of regional stakeholders (Implementation Action #3).

- Promoting improvement of scientific tools for evaluating the impacts of mine sites (Recommendation #1).

- Evaluating the adequacy of EISs in predicting the long-term impacts of mining operations (Recommendation #11).

- Working with stakeholders to develop methods for characterizing and analyzing environmental impacts of mine sites and predicting and verifying acid mine drainage and metals mobility (Recommendation #14).

In addition, the Agency stated that it had collected a significant amount of information on the environmental impacts from mining under various EPA programs. This includes:

- environmental impact data on National Priorities List mine sites;
- updated mining impact data in Land Disposal Restriction Phase IV technical background documents;
- characterization of mining impacted waters when issuing mine site NPDES permits;
- evaluation of the potential for adverse environmental impacts during section 309 review of mine site EISs;
- characterization of radiological impacts of mining on Navajo lands; and
- information on environmental releases from mine sites through the Toxics Release Inventory program.

This information may be useful to the Agency for a variety of regulatory or planning purposes. However, the Mining Framework identified additional data requirements, as cited above (e.g., predicting and verifying acid mine drainage, updating regional mining profiles) that still need to be addressed.

The Agency agreed with Recommendation 2-2 (a), that an implementation plan for the Framework was needed and indicated that it was currently developing a plan and expected to complete it by December 2003. Despite their agreement with us, the Agency made several comments regarding Framework implementation that send a mixed message on the Agency's position. For example, on page 1 of its response, the Agency indicated that the Framework was considered to be "self-implementing," while on page 2, the Agency noted that the National Mining Team (NMT) recognized that implementation of the Framework would be better served by creating a group dedicated to cleanup and redevelopment of abandoned mine lands. We believe that the Agency is correct in developing an implementation plan and should be sending a consistent message.

Regarding Recommendation 2-2 (b) to address lack of internal and external Agency coordination, the Agency indicated that it engaged in some coordination activities, as follows:

- established a National Mining Team of cross program mining experts from headquarters and regional offices and conducted monthly conference calls;

- formed regional mining teams in Regions 8, 9, and 10; and

- organized and convened interagency national mining meetings (Fed Fest) every 3 years since 1998.

The Agency acknowledged that it had not been successful in implementing meetings of the National Interagency Coordinating Committee (NICC), although it considered this senior level forum for overarching mining issues to have merit. The NICC was considered by several NMT members as crucial for effectively communicating and coordinating with other Federal agencies on hardrock mining issues. The Agency indicated it would interact with the Federal land management agencies to further evaluate the idea of an NICC, but did not provide timeframes or milestone dates and did not indicate it would ultimately support the NICC. Given the major role other Federal agencies play in managing or permitting hardrock mining operations, EPA needs to indicate when the interagency evaluation of the NICC will be completed and when it will make its final decision regarding the NICC.

EPA did not respond to Recommendation 2-2 (c) on the need for accountable and lead offices, milestones, and performance measures for implementing the Framework. Since the Agency indicated the Framework has utility, and it is developing an implementation plan, the Agency needs to specify responsible offices, milestone dates, and measures or indicators by which it will demonstrate effective implementation of the Framework.

Regarding Recommendation 2-2 (d), the Agency stated that it continues to assess how to more effectively exercise existing authorities to be environmentally preventive, instead of relying on its cleanup authority under CERCLA. EPA acknowledged that it has limited authority to regulate solid wastes from mining because of the Bevill amendment to RCRA. The Agency indicated that it has broader regulatory authority over mining activities under the Clean Water Act and Clean Air Act. EPA did not address the fact that authority under the Clean Water Act and Clean Air Act has largely been delegated to the States and that there have been problems with some State programs. The Agency also did not indicate how it plans to deal with current limits in its authority, especially those imposed by the Bevill amendment, and weaknesses in State water and air programs. EPA needs to indicate how it will evaluate methods for more effectively exercising its existing authorities, identify which offices are responsible for this, and provide milestone dates or timeframes.

Because the Agency considers the Framework to have current utility, Recommendation 2-3 contained in the draft report no longer applies.

The full text of EPA's comments (with reference numbers to our responses) are in Appendix E. Our responses to significant comments that are not addressed above are summarized in Appendix F. In its detailed comments, the Agency provided numerous examples of activities, actions, or environmental results it believes are attributable to implementation of the Mining Framework. Where our data indicated that a Framework recommendation or action item was implemented, or that an environmental result is attributable to the Framework, we reported it. Generally, Agency statements that framework recommendations or actions were implemented, and results attributable to the Framework were achieved, could not be supported by our data.

Although EPA stated that it has taken steps to implement each of the 14 Framework recommendations, it did not indicate actions taken to address implementation action items (6) through (10). We request that the Agency indicate what actions are planned or have been taken to address these action items.

Appendix A

National Hardrock Mining Framework Recommendations and Action Items

Recommendations

Achieving Improved Environmental Protection

1. Promote improvement of scientifically-based predictive tools (e.g., acid mine drainage and metals mobility) used in evaluating the environmental impacts of mine sites.

2. Integrate NPDES permitting and NEPA site evaluation activities, where EPA has jurisdiction.

3. Promote an adequate consideration of environmentally protective standards and preferred alternatives in EISs.

4. Evaluate the adequacy of current waste management practices and promote standards of practice that achieve risk-based, long-term environmental goals.

Using Resources More Effectively

5. Promote utilization of a geographic/risk-based approach to prioritize inactive/abandoned mine cleanup.

6. Use targeted enforcement/compliance approaches to better focus resources on highest priority operations.

7. Work with the Army Corps of Engineers to consistently define “fill” and to apply the waste treatment exclusion.

8. Prepare guidance and provide training on CERCLA site assessment, investigation, and screening tools.

9. Compile and update information regarding grants available to fund remediation projects and distribute to stakeholders.

Promoting Fiscal Responsibility

10. Encourage development of cost-effective environmental control technologies for both active and inactive mine sites.

11. Evaluate the adequacy of mining EISs with regard to the provision of financial assurance for long-term support of environmental management systems.

12. Encourage reprocessing of historic mine wastes in conjunction with or as a component of site cleanup.

13. Develop or support legal/administrative mechanisms to encourage implementation of environmentally beneficial response actions at mine sites (e.g., Good Samaritan).

14. Work cooperatively to develop standardized methods for characterizing/analyzing environmental concerns, predicting geochemical changes, and establishing performance standards.

Action Items[14]

1. Regions form cross-program mining teams and establish Regional Mining Coordinators.

2. Headquarters establish a cross-program mining team.

3. Develop Regional Mining Profiles, meet with stakeholders to gather relevant data.

4. Develop Regional Mining Strategies to guide mining program improvements.

5. Headquarters promote the National Interagency Coordinating Committee on Mining as a forum for development of consensus approaches to critical technical and policy issues.

6. EPA sponsor periodic workshops on the "toolbox" approach to foster innovative problem solving, technology transfer, and stakeholder involvement.

7. Regions sponsor workgroups for methodology development for mine site characterization.

8. Regions hold workshops on Good Samaritan, reprocessing/remining, or legal/administrative obstacles.

9. Regions screen/prioritize upcoming mining EISs and become actively involved in all major mining EISs.

10. Headquarters requests comments on whether a reexamination of high risk Bevill wastes is warranted for future RCRA Land Disposal rulemakings. Consider revival of Policy Dialogue Committee.

[14]To limit the amount of time required by respondents to complete our survey questionnaire, we asked them to provide information on the progress made on Framework action items 1, 2, 3, 4, 5, and 10. The survey respondents did not provide any comments or information on the action items we did not include (6, 7, 8, and 9).

Appendix B

National Hardrock Mining Framework
Survey Questionnaire

Please complete the questions listed below. In completing the survey, we ask that you complete all questions that apply to you. For those questions that do not apply, please indicate by placing "not applicable" in the space provided.

For this survey to be meaningful, please be as specific as possible when answering each question. For example, where applicable, please indicate the names of mine sites in your responses. Also, include details on specific improvements which can be attributed to the Mining Framework as well as detailed information on any barriers to accomplishing framework goals, recommendations, and action items. Please cite actual examples to the extent possible.

If you have any questions about the use of this database please contact Tom Reilly at (202) 260-7844.
Thank you.

Submitted by: **Frank Fennell** on: **07/10/2002 04:10 PM**

Help Select Additional Readers:

Select Additional Editors:

Submitting for:

○ Region ○ HQ

Overall Questions

- Is the mining framework viable under existing EPA and governmental authority? Please explain.
- Which office within EPA headquarters and/or within your region has the lead for implementation of the mining framework?
- What is your role in implementing the framework?
- What, if any, gaps are there with the existing framework (i.e., fragmented authorities, limited interagency coordination, etc...)?
- Is the mining framework effective in helping to resolve environmental concerns associated with hardrock mining activities? What human health and environmental concerns at hardrock mining sites have been or will be addressed by implementing the hardrock mining framework?
- How are you measuring your successes in implementing the mining framework?
- What barriers, if any, may prevent achievement of framework goals? What are EPA's limitations?
- How has EPA headquarters (or your specific region) identified joint cross program priorities that result in more efficient cross program solutions?
- What, if any, improvements can be made to the existing framework?

- Should a comprehensive national hardrock mining strategy be established (i.e., one which includes roles of other federal and state agencies)? If so, how could this best be accomplished (i.e. what specific actions are needed to establish such a strategy)?

Framework-Specific Questions

RECOMMENDATIONS

Achieving Improved Environmental Protection

1. What has EPA headquarters (or your specific region) done to promote improvement of scientifically-based predictive tools used to evaluate environmental impacts of mine sites?

2. What has EPA headquarters (or your specific region) done to integrate permitting and NEPA site evaluation functions in those states where EPA retains NPDES responsibilities?

3. What has EPA headquarters (or your specific region) done to promote an adequate consideration of environmentally protective standards and preferred alternatives at proposed mine sites during EIS development?

4. What has EPA headquarters (or your specific region) done to evaluate the adequacy of current mine waste management practices and promote standards of practice that achieve risk-based, long-term, environmental protection goals?

Using Resources More Efficiently

5. What has EPA headquarters (or your specific region) done to promote use of geographic/risk-based approaches to determine priorities for inactive and abandoned mine reclamation?

6. How has EPA headquarters (or your specific region) used targeted enforcement and compliance approaches to focus resources on the highest priority mining operations?

7. How has EPA coordinated with the Army Corps of Engineers to:

   [a] Develop a consistent approach to defining "fill material" (in context of Section 404 permitting)?

   [b] Determine applicability of waste treatment exclusion to certain mining activities?

8. What guidance and training have been provided to state and federal agencies on the use of CERCLA site assessment, investigation, and screening tools for mine sites?

9. What has your region done to provide information to site management partners on grants available for mining remediation projects?

Promoting Fiscal Responsibility

10. How has EPA headquarters (or your specific region) encouraged development of cost-effective environmental control technologies for active and inactive mines

11. What has EPA headquarters (or your specific region) done to evaluate the adequacy of EISs for mining operations in predicting long-term environmental impacts of mining operations?

12. What has EPA headquarters (or your specific region) done to encourage reprocessing of historic hardrock mine wastes in conjunction with, or as a component of, site cleanup?

13. What legal and administrative mechanisms has EPA developed to encourage implementation of environmentally beneficial response actions at mine sites?

14. How has EPA headquarters (or your specific region) worked with other mining stakeholders to develop standardized methods for characterizing and analyzing environmental impacts at mine sites, predicting and verifying acid mine drainage and metals mobility, and establishing environmental performance standards?

ACTION ITEMS:

- What has headquarters done to establish a cross-program mining team to foster effective working relationships with stakeholders at the national level (including other federal agencies) and provide appropriate support to the regions?

- What steps has headquarters taken to promote the National Interagency Coordinating Committee on mining as a forum to develop consensus approaches to critical technical and policy issues?

- What has headquarters done to solicit comments on whether a reexamination of high risk Bevill wastes is warranted with the possibility of bringing some high-risk waste streams under Subtitle C in a future rulemaking?

- If your region has significant mining activity, what has the region done to:

  (1) establish a Regional Mining Coordinator and a cross-program mining team?;

- (2) develop a Regional Mining Profile to assess the scope of proposed, active, and inactive and abandoned abandoned mines in the region?; and

- (3) develop Regional Mining Strategies to guide mining program improvements?

National Mining Association Summary of Comments

The National Mining Association (NMA) submitted extensive comments to OIG regarding EPA's National Hardrock Mining Framework. NMA's comments are summarized below.

- NMA considered the Framework to be essentially a command-and-control strategy designed to position EPA as the "lead agency" for any environmental matter involving hardrock mining. The document did not recognize the leading role played by States and other Federal agencies in regulating potential environmental concerns related to hardrock mining. There was no discussion of State and Federal mining and reclamation programs and State agencies having primacy over several environmental programs, such as the Clean Air Act and Clean Water Act.

- NMA indicated that the Framework did not appear to be reasonable or necessary. The Framework failed to recognize how environmental concerns are already being addressed by numerous other Federal and State regulatory programs. NMA believed EPA should have a secondary or support role to the other Federal and State agencies and to assist if, and when, called upon.

- The Framework unfairly focused on an industry already extensively regulated in many environmental media areas, including air, water, waste management, and site reclamation and closure. Most current environmental protection activities at hardrock mine sites are being done voluntarily or under State or local programs.

- The Framework should not have suggested an expansion of EPA's authorities in the area of hardrock mining and should have adhered to its stated purpose, that is, understanding and improving the use of existing authorities to address environmental concerns posed by hardrock mining. As an example, the Framework suggested reexamining "high-risk" Bevill mining wastes with the possibility of including such wastes under RCRA Subtitle C - hazardous waste regulation. NMA strongly believed that this would be an unwarranted expansion of EPA authority.

- The Framework did not accurately portray the modern hardrock mining industry and did not describe the true effect the Framework could have on the economic health of the industry. The document cited historical impacts of mining and inferred that such impacts exist at currently operating mines. NMA noted that many mining sites on the Superfund National Priorities List were historic mining sites which were never regulated under existing local, State, and Federal law. NMA said that the programs of other Federal and State agencies adequately address the potential impacts at current sites.

- NMA indicated that the Framework should include more information on the benefits derived from hardrock mining.

Appendix D

Breakout of Survey Responses Regarding Implementation of EPA National Hardrock Mining Framework Recommendations and Action Items

Recommendations

Survey Question/Recommendation	No. of surveys indicating efforts were made to implement recommendation	No. of surveys where it did not appear efforts were made to implement recommendation	No. of surveys where no response was given, response was "N/A," or survey question was not addressed	No. of surveys where it was unclear efforts were made to implement recommendation
(1) What has EPA headquarters (or your region) done to promote improvement of scientifically-based predictive tools used to evaluate environmental impacts of mine sites?	8		6	2
(2) What has EPA (or your specific region) done to integrate permitting and NEPA site evaluation functions in those States where EPA retains NPDES responsibilities?	5	2	9	
(3) What has EPA headquarters (or your specific region) done to promote an adequate consideration of environmentally protective standards and preferred alternatives at proposed mine sites during EIS development?	6	2	8	
(4) (a) What has EPA headquarters (or your specific region) done to evaluate the adequacy of current mine waste management practices?	2	2	12	
(4) (b) What has EPA headquarters (or your specific region) done to promote standards of practice that achieve risk-based, long-term, environmental protection goals?	5	2	9	
(5) What has EPA headquarters (or your specific region) done to promote use of geographic/risk-based approaches to determine priorities for inactive and abandoned mine reclamation?	5	1	9	1
(6) How has EPA headquarters (or your specific region) used targeted enforcement and compliance approaches to focus resources on the highest priority mining operations?	6	3	7	
(7) (a) Has EPA coordinated with the Army Corps of Engineers to: Develop a consistent approach to defining "fill material" (in context of Section 404 permitting)?	1	5	10	

Survey Question/Recommendation	No. of surveys indicating efforts were made to implement recommendation	No. of surveys where it did not appear efforts were made to implement recommendation	No. of surveys where no response was given, response was "N/A," or survey question was not addressed	No. of surveys where it was unclear efforts were made to implement recommendation
(7) (b) Has EPA coordinated with the Army Corps of Engineers to: Determine applicability of waste treatment exclusion to certain mining activities?		5	11	
(8) What guidance and training have been provided to State and Federal agencies on the use of CERCLA site assessment, investigation, and screening tools for mine sites?	9		7	
(9) What has your region done to provide information to site management partners on grants available for mining remediation projects?		2	13	1
(10) How has headquarters (or your specific region) encouraged development of cost-effective environmental control technologies for active and inactive mines?	7		9	
(11) What has EPA headquarters (or your specific region) done to evaluate the adequacy of EISs for mining operations in predicting long-term environmental impacts of mining operations?	4	2	8	2
(12) What has EPA headquarters (or your specific region) done to encourage reprocessing of historic hardrock mine wastes in conjunction with, or as a component of, site cleanup?	3	3	8	2
(13) What legal and administrative mechanisms has EPA developed to encourage implementation of environmentally beneficial response actions at mine sites?	6	1	8	1
(14) How has EPA headquarters (or your specific region) worked with other mining stakeholders to develop standardized methods for characterizing and analyzing environmental impacts at mine sites, predicting and verifying acid mine drainage and metals mobility, and establishing environmental performance standards?	5	1	9	1

Action Items

Survey Question/Action Item	No. of surveys indicating efforts were made to implement action item	No. of surveys where it did not appear efforts were made to implement action item	No. of surveys where no response was given, response was "N/A", or survey question was not addressed	No. of surveys where it was unclear efforts were made to implement the action item
What has headquarters done to establish a cross-program mining team to foster effective working relationships with stakeholders at the national level (including other Federal agencies) and provide appropriate support to the regions?	7	2	7	
What steps has headquarters taken to promote the National Interagency Coordinating Committee on mining as a forum to develop consensus approaches to critical technical and policy issues?	1	8	7	
What has headquarters done to solicit comments on whether a reexamination of high-risk Bevill wastes is warranted with the possibility of bringing some high-risk waste streams under Subtitle C in a future rulemaking?	1	2	9	4
If your region has significant mining activity, what has the region done to establish a Regional Mining Coordinator and cross-program mining team?	6	1	9	
If your region has significant mining activity, what has your region done to develop a Regional Mining Profile to assess the scope of proposed, active, and inactive and abandoned mines in the region?	2	3	10	1
If your region has significant mining activity, what has your region done to develop Regional Mining Strategies to guide mining program improvements?	3	2	11	

Agency Response to Draft Evaluation Report

June 3, 2003

MEMORANDUM

SUBJECT: Response to the Office of Inspector General's Evaluation Report entitled "Implementation, Information, and Statutory Obstacles Impede Achievement of Environmental Results from EPA's National Hardrock Mining Framework"

FROM: Marianne Lamont Horinko/s/
Assistant Administrator

TO: Kwai Cheung-Chan
Assistant Inspector General
Office of Program Management

This memorandum transmits the consolidated response from the Office of Solid Waste and Emergency Response (OSWER), EPA National Hardrock Mining Team (NMT), the Office of Research and Development (ORD), the Office of Radiation and Indoor Air (ORIA), the Office of Federal Activities (OFA) and the Office of Water (OW) on the Office of Inspector General's (OIG) Draft Evaluation Report entitled "Implementation, Information, and Statutory Obstacles Impede Achievement of Environmental Results from EPA's Nation Hardrock Mining Framework," dated April 21, 2003. We would like to convey our appreciation for the significant effort the OIG staff put into gathering information, developing findings and providing recommendations. Additionally, we appreciate the time the OIG staff spent with us discussing their progress during the course of the review.

In reviewing the draft, we are concerned that there is a misunderstanding as to the goals of the National Hardrock Mining Framework. Section 1.4 of the Framework stated, "This EPA Hardrock Mining Framework is intended primarily to assist EPA staff in implementing an effective multi-media/multi-statute mining program." When the Agency issued the Framework in 1997, we believed that it was self-implementing and as a consequence resulted in the: 1) coordination of agency-wide technical skill and financial resources to assure better decision making; 2) preparation of mine waste guidance documents; 3) coordination of mine waste research; and 4) coordination of mine waste issues with other federal agencies. **{See OIG response 1, Appendix F}**

The OIG report should have noted these accomplishments resulting from our implementation of the Framework. These accomplishments have improved federal decisions and coordination at specific sites and have led to environmental improvement and reduced liability.

Examples of the implementation of the Framework are:

- The Agency, in1998, established the NMT comprising cross-program mining experts from headquarters and regional offices. Since its establishment, the NMT has conducted 50 monthly conference calls to coordinate and provide technical expertise for mine permitting, the review of Environmental Impact Statements (EISs), and Superfund site characterization and cleanup activities. This was the first self-directed, multi-program EPA team and continues to serve as the main clearinghouse for all national and international mining related issues.

- The NMT realized, in 2000, that implementation of the Framework would be better served by creating a group solely devoted to the cleanup and redevelopment of Abandoned Mine Lands (AMLs). Prior to the OIG initiating its study, the Office of Emergency and Remedial Response (OERR), in 2001, had already created the Abandoned Mine Lands Team (AMLT), a subgroup of the NMT. Furthermore, the AMLT initiated the development of an action plan, which has led to the issuance of specific guidance for the characterization and cleanup of AMLs. The AMLT is currently working with the Superfund Revitalization Initiative (RI) and the Brownfields program to promote the redevelopment and reuse of AMLs. Working with these programs, the AMLT identified 4 redevelopment pilot initiatives at mining sites and developed a definition of "Mine Scarred Lands" to maximize Brownfields funding opportunities at mine sites. Finally, EPA Region 7 is cooperatively working with US DOT and Missouri DOT to reuse mine waste materials (chat) from the Jasper County Superfund site as interstate highway roadbed material. **{See OIG response 2, Appendix F}**

- The CERCLA Program has addressed or is in the process of addressing 87 AML sites on the National Priorities List. The program has also undertaken hundreds of removal actions at AMLs sites. Since 1998, the NMT has provided technical input at over a dozen active and inactive mining sites. For instance, the NMT and the AMLT have provided expertise and input to the Superfund alternative site initiative at the Copper Basin Mine site in Tennessee and the Rio Tinto and Anaconda Mine Sites in Nevada . **{See OIG response 3, Appendix F}**

- EPA Regions 8, 9, and 10, formed regional mining teams in 1998. These cross-programmatic regional teams, as envisioned in the Framework, have not only developed two to three year self implementation plans but they have also developed critically important mining guidance such as Region 10's *EPA and Hardrock Mining: A Source Book for Industry in the Northwest and Alaska.* Since 1999, Regions 8 &10 mining teams meet annually with the Bureau of Land Management (BLM), US Forest Service (USFS), Mining Industry, Tribes and States to coordinate mining activities on a cross program regional basis in order to better coordinate federal decision making at mine sites. **{See OIG response 4, Appendix F}**

- As a natural outgrowth of the Framework, the NMT organized and convened interagency national mining meetings (Fed Fest) every three years since 1998 to better coordinate each agency's mining programs. **{See OIG response 5, Appendix F}** These meetings have

become the main forum to share interagency experience and expertise on mining issues between EPA the other federal land management agencies (FLMA), such as the USFS, BLM, Office of Surface Mining (OSM), National Park Service (NPS) and the US Fish and Wildlife Service. Based on initial discussions at these meetings, the agency subsequently reached a joint multi-agency agreement at the Lutrell Pit site in Montana. This joint agreement led to the creation of a single mine waste repository as opposed to the development of multiple mine waste dumps throughout the watershed. The use of a single repository resulted in improved water quality and reduced disturbance impacts. **{See OIG response 6, Appendix F}**

- The NMT has worked extensively, since 1998, with the Office of Prevention, Pesticides and Toxic Substances to expand the Toxics Release Inventory to include reporting of releases to the environment from the mining sector. The mine waste release information indicates that this sector is the largest single contributor to all releases to the environment. For example, use of this data has led to a Nevada Mining Association/EPA Region 9 voluntary program to reduce mercury releases from gold mines.

- Since 1998, the NMT has promoted sound decision making through the issuance of the following guidance documents:

  – Region 10's 2003 guidance -- *EPA and Hardrock Mining: A Source Book for Industry in the Northwest and Alaska.* This handbook is the first Agency document, which provides a hands-on guide on how to manage water discharges from active mines located in high rainfall environments. The document promotes a multi-media and multi-program approach for the management of environmental effects from active mines.

  (1) ORIA's 2003 guidance -- *Potential for Radiation Contamination Associated With Mineral and Resource Extraction Industries*. This is the first guidance document which recommends best management approaches to characterize the nature and extent of radiological contaminants at hardrock mining sites. The extent of radiation contamination other than that found at uranium mines was not well understood until the issuance of this document. This document has been widely distributed across EPA to regional Superfund staff, On-Scene Coordinators, NMT, and field RCRA and Water Office inspection staff, and has been provided on request to other State and Federal agencies involved in abandoned mine site investigations and cleanup. **{See OIG response 7, Appendix F}**

Office of Solid Waste and Emergency Response 2001 guidance -- *Abandoned Mine Site Characterization and Cleanup Handbook.* **{See OIG response 8, Appendix F}** This document is the first Superfund document solely devoted to the most cost effective and state of the art characterization and cleanup approaches for abandoned mine sites. Prior to the issuance of this document, there was no Agency-wide guidance for use by the FLMA and states in their decision making at AMLs.

- The Framework specifically noted that there was a need for additional research on mine waste issues. To meet this need, ORD sponsored a series of national hardrock mining technical conferences the included: Hardrock Mining Conference 1998, Mining Impacted Pit Lakes Workshop 2000, Mercury in Mining Technical Workshop 2000, Arsenic Technical Workshop 2001, and the Hardrock Mining Conference 2002. In 2003, ORD created a Hazardous

Substance Research Center for Mining (CSM, CSU, Montana Tech), whose sole purpose is to address agency directed mine waste research needs. The AMLT and ORD are co-sponsoring a Mining on Tribal Lands Conference in September 2003, which will bring together and Federal and State agencies to discuss mine waste issues unique to tribal lands. The proceedings from the technical conferences sponsored by ORD, since 1998, have become some of the most important technical information used by the EPA and other agencies for addressing mine sites.

ORD has also provided on the ground technical (investigation and technology demonstration and selection) support at various mining sites including, but not limited to, the Elizabeth mine site in Vermont, the Luttrell Pit Site in Montana, the Rio Tinto and Anaconda mine sites in Nevada and the Leviathan Mine site in California. **{See OIG response 9, Appendix F}**

As a result of reassessment of the Framework, OERR's AMLT has been working with other program offices and the regions for over a year to develop an implementation plan for addressing hard rock mining sites. We expect to finalize this plan by December 2003. Such an effort would fulfil your recommendation that the Agency develop a specific implementation strategy that accounts for existing gaps in the Framework. **{See OIG response 10, Appendix F}**

The report concluded that the Agency has limited regulatory control over active mining sites. That is accurate with regard to the regulation of solid wastes from mining (the Bevill amendment); however, the Agency has broader regulatory authority over mining activities under the Clean Water Act (CWA) and the Clean Air Act. The Agency continues to assess how it can better exercise its existing authorities to be environmentally preventive rather than rely on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

The report concludes that the Agency does not have enough information documenting the nature and scope of the environmental impacts from mining. The Agency does not agree with this conclusion. Furthermore, the Framework did not identify the collection of this type of information as being critical to the implementation of its mining program. Nevertheless, the Agency did in fact collect a significant body of information related to the environmental impacts from mining under the Superfund Program, RCRA, OFA, ORIA, Office of Prevention, Pesticides and Toxic Substances (OPPT) and OW. For example, the Superfund program has collected a significant amount of environmental impact data at mine sites placed on the National Priorities List (NPL) as well as information collected during remedial responses. RCRA updated 1985 and 1991 mining impact data in the Land Disposal Restriction Phase IV technical background documents in 1998. The water program characterizes mining impacted water in its routine issuance of mine site NPDES permits process and under its impaired waters program. Furthermore, during OFA's section 309 review of EIS's for mine sites, they routinely evaluate the potential for adverse environmental impacts at operating and proposed facilities. ORIA dedicated significant efforts to characterize radiological impacts of mining on Navajo lands. Finally, OPPT has collected a broad range of information on environmental releases from mine sites through the Toxics Release Inventory (TRI) program.

The Agency acknowledges, however, that our understanding of the number, location and scope of high risk AMLs sites solely within our jurisdiction needs improvement. To address this need, the AMLT is currently finalizing grants to Missouri and Virginia to identify priority AMLs

in those states. The AMLT is working with the Regions to update the AML information currently found in CERCLIS and has internally reviewed the status of State and other Federal program AMLs inventories.

The Agency acknowledges that we have not been successful in implementing the meetings of the National Interagency Coordinating Committee (NICC). The Agency continues to believe that the formation of a senior level group serving as a forum for overarching mining issues, continues to have merit. The NMT will continue to interact with FLMA to further evaluate this matter.

EPA program management believes the Framework has utility and is being implemented as outlined above. The programs agree that a strategic plan for implementation of regional aspects of the Framework is appropriate and work is already underway on such a strategy. **{See OIG response 11, Appendix F}**

More detailed responses to the draft report conclusions and recommendations are provided in Attachment 1.

We appreciate the opportunity to comment on this draft report. Again, we are currently implementing recommendations and action items laid out in the Framework. Furthermore, the AMLT is currently developing a mining strategy which would address the Framework implementation concerns noted in your report. Should you have any questions concerning the comments, you may contact Shahid Mahmud at (703) 603-8789 or Johnsie Webster, OSWER Audit Liaison, at (202)-566-1912.

Attachment

ATTACHMENT 1 DETAILED RESPONSES

A. Primary Comments on Conclusions and Recommendations:

1. Implementation of the Framework has improved federal decisions and coordination regarding specific sites and has ultimately resulted in environmental improvement and reduced liability. Improvements in Federal decision making are as follows:

   - The Agency, in1998, established a headquarters hardrock mining team composed of senior staff from most program offices that had mining jurisdiction. That group conducted 50 monthly conference calls for cross program and regional mining experts to coordinate mining issues. As an outgrowth of these calls, in 1999, the team provided technical support to EPA Region 4 during its inquiry into the nature and scope of mining impacts at the Copper Basin site in Tennessee and encouraged the development of guidance on site assessment of radioactivity at AMLs mine sites. Additionally, in regions without Regional Mining Teams (1,4,5, and 6), the NMT has provided technical guidance to assist these regions in addressing hardrock mining issues within their respective regions on an as needed basis. Finally, as a result of these calls, the team also recently assisted in the preparation of a detailed financial assurance evaluation for a mining EIS) at the Phoenix mine in Nevada which was another key goal of the Framework.

   - Under the Framework, Regions 8, 9, and 10 formed regional mining teams and regional mining coordinators. For example, the Region 10 mining team has strengthened integration between the CWA and Superfund Programs, resulting in improved oversight, better decisions, and more flexibility at over a dozen active and inactive mining sites where both Superfund and CWA authorities are being used to achieve environmental improvements (e.g., CdA Basin, Hecla Grouse Creek, various active phosphate mines). Finally, better integration of Superfund and CWA authorities in Region 10 has influenced how we oversee active mining sites by focusing attention on long-term and underbonded environmental liabilities (e.g., Kinross DeLamar Mine, Thompson Creek Mine).

     Region 8, among other activities, has used the Superfund Site assessment program with the Water program to develop risk-based prioritizations of mine sites on a watershed basis (e.g., Left-hand Canyon, Animas's Total Maximum Daily Load, Willow Creek-Creede and French Gulch , Clear Creek, and Arrastra Gulch in Colorado).

   - The team has organized and held agency-wide cross-program national technical mining meetings for our staff three times over the last five years and hosted the "fed fest," where key federal agencies meet to coordinate their mining programs. The draft report's inference that the Framework's focus on coordination has no environmental value is not accurate, since coordination of our expertise and resources has, in fact, led to better cross program participation and decision making by our staff in mining issues throughout the country. **{See OIG response 12, Appendix F}**

   - We believe that implementation of the Framework has led to improved federal decisions and coordination regarding specific sites that ultimately result in environmental improvement and reduced liability. For example, we believe the use of the recently released Region 10 *EPA and Hardrock Mining: A Source Book for Industry in the*

Northwest and Alaska (AKA the "Source Book") will result in a more protective mine plan, and ultimately environmental improvement and reduced environmental liability. Similarly, the development and use of the OSWER's *Abandoned Mine Site Characterization and Cleanup Handbook (March 2001),* combined with improved training, will result in improved and streamlined decision-making at many abandoned mine sites.

2. The OIG report concluded that there was a lack of documentation on the success of the Framework. The Agency asserts that the report failed to identify the success of the Framework. **{See OIG response 13, Appendix F}** We believe that this failure is due to the use of a survey, which contains imprecise questions **{See OIG response 14, Appendix F}** and an evaluation limited by a 15 response sample size. The Agency questions how conclusions could be reached on a sample size that may not be statistically significant. **{See OIG response 15, Appendix F}**

   The OIG survey questions focused on EPA's national level activities, while the report failed to focus on EPA Regional activities or on cooperation with others federal and state agencies. **{See OIG response 16, Appendix F}** An example of how the report failed to identify this type of cooperation with other agencies at AMLs is our activities in Montana. The Lutrell Pit project in Montana is a joint agreement between EPA, USFS, BLM and the State of Montana, which has resulted in combining mine waste into one location rather than several sites throughout the watershed. This interagency cooperation has resulted in improved water quality and reduced disturbance impacts by having a single site repository. **{See OIG response 17, Appendix F}**

3. The national mining team has met with stakeholders on an regular basis for the last six years.

4. As noted earlier, the Agency acknowledges that we have not been successful in implementing the meetings of the National Interagency Coordinating Committee (NICC). The Agency continues to believe that the formation of a senior level group, serving as a forum for overarching mining issues, continues to have merit. The NMT will continue to interact with Federal Land Management Agencies to further evaluate this matter.

5. The report gives the impression that the Agency's statutes have limited regulatory reach to address mining. Under the Clean Air Act, the Agency was able to establish regulations for the control of radioactive mine waste from the phosphate industry. The CWA currently has regulatory authority over point source discharges from mines, but does not regulate non-point discharges. CERCLA has clear jurisdiction over all hazardous constituents found in mining waste. The Agency has limited authority under RCRA due to the Bevill Amendments. **{See OIG response 18, Appendix F}**

B. Agency Implementation of Specific National Hardrock Mining Framework Recommendations

Recommendation #1:

Promote improvement of scientifically-based predictive tools (e.g., acid mine drainage and metals mobility) used in evaluating the environmental impacts of mine sites.

Agency Action:

The NMT continues to support the allocation of Agency resources for the Region 3 acid rock drainage consortium. That consortium continues to address research related to acid rock drainage and the Hardrock team continues to support this effort in any way it can. **{See OIG response 19, Appendix F}**

Recommendation #2:

Integrate NPDES permitting and NEPA site evaluation activities, where EPA has jurisdiction.

Agency Action:

The NMT continues to work directly with regional NPDES permit writers to fulfil their need for mining related technical support. We have provided technical support to Regions 8, 9, and 10 related to NPDES or TMDL activities. For example, Region 10 has made a concerted effort to integrate NEPA and NPDES permitting, along with other major State and Federal permits as seen in the recently released Pogo Gold Mine Draft Environmental Impact Statement (DEIS). EPA is the lead agency and was able to include draft NPDES and State solid waste, access and land use permits in its document.

Recommendation #3:

Promote an adequate consideration of environmentally protective standards and preferred alternatives in EISs.

Agency Action:

The Framework has led to improvements in EPA's NEPA compliance and section 309 EIS review process at mine sites. For example, the use of a multi-disciplinary mining team in Region 10, with staff that had experience in all phases of mining (from permitting, to operation, to cleanup), has resulted in comprehensive and detailed comments and recommendations on every EIS for proposed projects we have evaluated in the past five years (e.g., Kensington, Formation Capital, several large phosphate mines, Thompson Creek, and others).

Recommendation #4

Evaluate the adequacy of current waste management practices and promote standards of practice that achieve risk-based, long-term environmental goals.

Agency Action:

The AMLT is currently developing guidance on the proper design and operation of tailings ponds and waste rock piles as well as a guidance on how to properly calculate water balances at mine sites. **{See OIG response 20, Appendix F}**

Recommendation #5:

Promote utilization of a geographic/risk-based approach to prioritize inactive/abandoned mine cleanup.

Agency Action:

Region 8's current geographic initiative grants program, focusing on Mining Headwaters, is a result, in part, of the Framework. Under this program many new and innovative techniques for avoiding or mitigating impacts from mining were developed (for example, the Mary Murphy Mine, demonstrated new technologies for evaluating and implementing in-mountain diversions to prevent pollution from occurring). **{See OIG response 21, Appendix F}**

Recommendation #6:

Use targeted enforcement/compliance approaches to better focus resources on highest priority operations.

Agency Action:

The NMT has provided technical support to enforcement actions at mines in Utah, California, Alaska, and Arizona.

Recommendation #7:

Work with the Army Corps of Engineers to consistently define "fill" and to apply the waste treatment exclusion.

Agency Action:

The OW issued a final CWA 404 rule on May 9, 2002 (67 Fed. Reg. 31129). This rule was developed jointly with the US Army Corps of Engineers (USACE) and has resulted in a single consistent definition of fill material. **{See OIG response 22, Appendix F}**

Recommendation #8:

Prepare guidance and provide training on CERCLA site assessment, investigation, and screening tools.

Agency Action:

The AMLT issued the Abandoned Mine Lands Site Characterization and Clean-up Handbook in March 2001, which directly meets this goal. ORIA has recently issued guidance, *Potential for Radiation Contamination Associated with Mineral and Resource Extraction Industries*, which provides a means for staff to determine if sites are potentially radioactive.

Recommendation #9:

Compile and update information regarding grants available to fund remediation projects and distribute to stakeholders.

Agency Action:

The AMLT is currently compiling a list of available Federal and State funding mechanisms for remediation of mine sites. As soon as this effort is complete, this information will be made publicly available. To further aid in the dissemination of this type of information, the AMLT is also developing a AMLT website. The AMLT is currently finalizing grants with the States of Missouri and Virginia to better characterize AMLs. These grants will be issued by September 2003. **{See OIG response 23, Appendix F}**

Recommendation #10:

Encourage development of cost-effective environmental control technologies for both active and inactive mine sites.

Agency Action:

The NMT participates in and supports TIO's pilot remediation evaluations and also supports the ongoing EPA's Superfund Innovative Technology Evaluation (SITE) program within OERR. The Hardrock team worked with ORD in ORD's creation, in 2002, of a Hazardous Substance Research Center, run by the Colorado School of Mines, to focus research on the remediation of active and abandoned mines. **{See OIG response 24, Appendix F}**

Recommendation #11:

Evaluate the adequacy of mining EISs with regard to the provision of financial assurance for long-term support of environmental management systems.

Agency Action:

The NMT routinely provides technical support to EPA regional EIS review teams. The team contributed significantly in the preparation of comments on the proposed Phoenix gold mine in Nevada, specifically related to the need for financial assurance at this site. The Mining Framework, related meetings and training increased EPA's ability to participate early in the EIS process for large mine projects. EPA's comments, pursuant to its 309 review authority, are now more nationally consistent due to increased access to staff with technical mining expertise on issues such as acid rock drainage (ARD), mine design, and financial assurance. Examples of mine site EISs that utilized NMT expertise include: Kinross-DeLamar Mine, Thompson Creek Mine, Phoenix Mine, Pogo Gold Mine, Kensington, and Formation Capital.

Recommendation #12:

Encourage reprocessing of historic mine wastes in conjunction with or as a component of site cleanup.

Agency Action:

The NMT worked with the OW in its development of a coal remining effluent standard issued two years ago. (40 CFR 434 Coal Remining Effluent Guidelines). **{See OIG response 25, Appendix F}**

Recommendation #13:

Develop or support legal/administrative mechanisms to encourage implementation of environmentally beneficial response actions at mine sites (e.g., Good Samaritan).

Agency Action:

The NMT, in conjunction with OW, is currently reviewing various Congressional approaches to passing a Good Samaritan bill to encourage voluntary cleanups of mines. **{See OIG response 26, Appendix F}**

Recommendation #14:

Work cooperatively to develop standardized methods for characterizing/analyzing environmental concerns, predicting geochemical changes, and establishing performance standards.

Agency Action:

In 2001, the Agency issued the OERR Abandoned Mine Site Characterization and Cleanup Handbook, which includes methods to better characterize mine wastes and their associated impacts. Region 10 has recently issued its Hardrock Mining Sourcebook to promote better characterization and analyses of mining wastes. For the last five years, Regions 3 and 8, as well as ORD, have participated in the Acid Drainage Technology Initiative which promotes the characterization, prediction, and clean-up of acid mine drainage.

OIG Response to Agency Comments on Draft Report

Item	Agency Comment / OIG Response
{1}	**In reviewing the draft, we are concerned that there is a misunderstanding as to the goals of the National Hardrock Mining Framework. . . . When the Agency issued the Framework in 1997, we believed that it was self-implementing and as a consequence resulted in the: 1) coordination of agency-wide technical skill and financial resources to assure better decision making; . . . and 4) coordination of mine waste issues with other federal agencies.** There is no misunderstanding regarding the goals of the Framework. We cited the goals presented in the Framework indicating that it was designed to help EPA implement a multi-media, multi-statute approach to dealing with the environmental concerns posed by hardrock mining and improving environmental protection, using resources more efficiently, and promoting fiscal responsibility. We do not understand how the Framework was considered to be "self-implementing." The Framework contained 14 recommendations and 10 implementation actions that required significant efforts by the Agency. Regarding agency-wide coordination of technical skills and financial resources, two major concerns of many of those surveyed were a lack of intra-agency coordination and a lack of financial resources to effectively implement the Framework. In reference to coordination of mine waste issues with other Federal agencies, little, if anything, has been done to support the NICC, as noted in the Agency's response to our draft report.
{2}	**. . . EPA Region 7 is cooperatively working with US DOT (U.S. Department of Transportation) and Missouri DOT to reuse mine waste materials (chat) from the Jasper County Superfund site as interstate highway roadbed material.** Region 7 indicated in its response to our survey questionnaire that it does not use the Hardrock Mining Framework. The Agency needs to indicate when Region 7 began working with the U.S. and Missouri Departments of Transportation to reuse mine waste materials, and report on the status of this effort.
{3}	**The CERCLA Program has addressed or is in the process of addressing 87 AML (Abandoned Mine Lands) sites on the National Priorities List. The program has also undertaken hundreds of removal actions at AMLs sites. Since 1998, the NMT has provided technical input at over a dozen active and inactive mining sites. For instance, the NMT and the AMLT (Abandoned Mine Lands Team) have provided expertise and input to the Superfund alternative site initiative at the Copper Basin Mine site in Tennessee and the Rio Tinto and Anaconda Mine Sites in Nevada.** The point is that there are a large number of abandoned hardrock mine sites on the National Priorities List and cleanup will be very costly. Technical assistance provided by the NMT and AMLT at the Copper Basin Mine site in Tennessee was not cited in the responses to our survey questionnaire or during interviews, although we asked for specific site examples. The Rio Tinto Mine and Anaconda sites in Nevada were mentioned in one survey response, but only in the context that the sites had been proposed for listing.

Item	Agency Comment / OIG Response
{4}	**. . . Since 1999, Regions 8 & 10 mining teams meet annually with the Bureau of Land Management (BLM), US Forest Service (USFS), Mining Industry, Tribes and States to coordinate mining activities on a cross program regional basis in order to better coordinate federal decision making at mine sites.**
	Our survey data do not support this.
{5}	**As a natural outgrowth of the Framework, the NMT organized and convened interagency national mining meetings ("Fed Fest") every three years since 1998 to better coordinate each agency's mining programs.**
	This information was not provided to us in survey responses or during interviews.
{6}	**. . . the agency subsequently reached a joint multi-agency agreement at the Lutrell Pit site in Montana. This joint agreement led to the creation of a single mine waste repository as opposed to the development of multiple mine waste dumps throughout the watershed. . . resulted in improved water quality and reduced disturbance impacts.**
	The Lutrell Pit site in Montana was not cited as an example of a site that benefitted from implementation of the Mining Framework in the responses provided to our survey questionnaire.
{7}	**ORIA's (Office of Radiation and Indoor Air's) 2003 guidance – *Potential for Radiation Contamination Associated With Mineral and Resource Extraction Industries*. This is the first guidance document which recommends best management approaches to characterize the nature and extent of radiological contaminants at hardrock mining sites. . . . This document has been widely distributed across EPA. . . .**
	The Office of Radiation and Indoor Air's 2003 guidance was never mentioned in the responses to our survey questionnaire or during discussions with NMT members. The Office of Air and Radiation, which includes the Office of Radiation and Indoor Air, was one of two headquarters offices that did not respond to the OIG survey.
{8}	**Office of Solid Waste and Emergency Response 2001 guidance – *Abandoned Mine Site Characterization and Cleanup Handbook*. This document is the first Superfund document solely devoted to the most cost effective and state of the art characterization and cleanup approaches for abandoned mine sites. Prior to the issuance of this document, there was no Agency-wide guidance. . . .**
	We acknowledged the Office of Solid Waste and Emergency Response's Abandoned Mine Site Characterization and Cleanup Handbook in the report, to note a positive action taken.

Item	Agency Comment / OIG Response
{9}	**The Framework specifically noted that there was a need for additional research on mine waste issues. To meet this need, ORD (Office of Research and Development) sponsored a series of national hardrock mining technical conferences . . . The proceedings from the technical conferences sponsored by ORD, since 1998, have become some of the most important technical information used by the EPA and other agencies for addressing mine sites. . .**
	We did not receive specific information on the activities the Office of Research and Development is involved in relating to the Framework. The Office of Emergency and Remedial Response indicated it was working with the Office of Research and Development in a general way to explore and identify tools to evaluate impacts from mine sites. At the time of our survey, the Office of Research and Development was not identified by EPA's National Mining Team as an office to contact regarding the Framework.
{10}	**As a result of reassessment of the Framework, OERR's (Office of Emergency and Remedial Response's) AMLT has been working with other program offices and the regions for over a year to develop an implementation plan for addressing hard rock mining sites. We expect to finalize this plan by December 2003. . .**
	During fieldwork, we received no information that the Office of Emergency and Remedial Response (recently renamed the Office of Superfund Remediation and Technology Innovation) had been working with other program offices for more than a year to develop an implementation plan for addressing hardrock mining sites. On the contrary, many respondents, including Office of Emergency and Remedial Response staff, indicated that little had been done to implement the existing Mining Framework due to lack of management support and dedicated resources. We encourage the development and completion of a framework implementation plan.
{11}	**EPA program management believes the Framework has utility and is being implemented as outlined above. The programs agree that a strategic plan for implementation of regional aspects of the Framework is appropriate . . .**
	See comment {10}.
{12}	**The draft report's inference that the Framework's focus on coordination has no environmental value is not accurate, since coordination of our expertise and resources has, in fact, led to better cross program participation and decisionmaking by our staff in mining issues throughout the country.**
	We reported that there was a lack of internal and external Agency coordination among key stakeholders in hardrock mining, which was a major impediment to effective implementation of the Framework.
{13}	**The OIG report concluded that there was a lack of documentation on the success of the Framework. The Agency asserts that the report failed to identify the success of the Framework.**
	We asked the survey respondents to provide specific examples of successes that could be attributed to implementation of the Framework, including site names whenever possible. We received some specific information on accomplishments, which we cited in the report, but the information provided was not extensive. Several respondents did not provide any examples of accomplishments that resulted from Framework implementation.

Item	Agency Comment / OIG Response
{14}	**We believe that this failure is due to the use of a survey, which contains imprecise questions . . .**
	At the time we started our work, the Agency had no available information regarding implementation of its Hardrock Mining Framework. The only feasible option for the OIG was to survey and interview those knowledgeable within and outside the Agency. The first section of the survey included overall questions related to accomplishments, gaps in the Framework, implementation barriers, and ideas for improvement. The second section included questions regarding the status of actions taken on Framework recommendations and action items, and were taken from the Framework. We involved relevant EPA staff and senior managers at all stages of the survey development. We did not receive information that the questions were imprecise. At our request, in April 2002, a co-chair of EPA's NMT provided a list of the NMT members in EPA headquarters and regional offices who were the most knowledgeable on hardrock mining issues, the implementation of the Framework, and any results attributable to it. In May 2002, we provided our draft survey questions for review and comment to NMT members in EPA Regions 8, 9, and 10, where the vast majority of hardrock mining in the United States occurs. These individuals were also identified by a co-chair of the NMT as those who could provide the most useful feedback on our draft survey. These NMT members indicated that the questions were good, specific, and "well thought out." The Assistant Administrator for the Office of Solid Waste and Emergency Response was notified by memorandum on the survey's contents and purpose before the survey was implemented.
{15}	**. . . and an evaluation limited by a 15 response sample size. The Agency questions how conclusions could be reached on a sample size that may not be statistically significant.**
	We believe our methodology and conclusions were appropriate. It should be noted that distribution of our survey was not based on a statistical sample. Rather, we distributed the survey to 9 of the 10 EPA regions, plus the 6 key EPA headquarters offices that are involved with hardrock mining. Therefore, we believe our conclusions are in fact highly meaningful and appropriate. The Agency's concerns regarding statistical significance are not clear.
{16}	**The OIG survey questions focused on EPA's national level activities, while the report failed to focus on EPA Regional activities or on cooperation with other federal and state agencies.**
	The document we evaluated is the Agency's ***National*** Hardrock Mining Framework. Nonetheless, we considered both headquarters and regional activities, since both are required for successful implementation of the Framework. We distributed our survey to knowledgeable representatives in nine EPA regions and six headquarters offices. We also contacted other Federal agencies. The general consensus was that there was of lack of interagency coordination among EPA regional and headquarters offices and with other Federal agencies.
{17}	**The Lutrell Pit project in Montana is a joint agreement between EPA, USFS (U.S. Forest Service), BLM (Bureau of Land Management), and the State of Montana, which has resulted in combining mine waste into one location rather than several sites throughout the watershed.**
	We received several survey responses from staff in Region 8. However, no one mentioned in survey responses or during discussions the joint agreement between EPA, U.S. Forest Service, Bureau of Land Management, and the State of Montana to consolidate waste at one location for the Lutrell Pit project. Our data do not indicate that this action can be attributed to the Framework.

Item	Agency Comment / OIG Response
{18}	**The report gives the impression that the Agency's statutes have limited regulatory reach to address mining. Under the Clean Air Act, the Agency was able to establish regulations for the control of radioactive mine waste. . . CWA (Clean Water Act) currently has regulatory authority over point source discharges from mines, . . . CERCLA has clear jurisdiction over all hazardous constituents. . . . The Agency has limited authority under RCRA due to the Bevill Amendments.**
	The Agency assumed no legislative changes were needed to implement the Framework. This assumption is questionable. Much of the responsibilities for administering environmental laws that are preventive in nature (e.g., Clean Water Act, Clean Air Act) have been delegated to the States. Moreover, the Agency fails to acknowledge that some States have not been that effective in administering these laws, as noted in the August 2001 National State Auditors Association report and the March 2002 report issued by the Legislative Auditor for the State of Louisiana, which were cited in our report. On Federal lands, most authority rests with the Federal land management agencies, not EPA.
{19}	**The NMT continues to support the allocation of Agency resources for the Region 3 acid rock drainage consortium. . . .**
	Region 3 provided a two-paragraph response to our survey stating that they were not involved in hardrock mining. The Region 3 acid rock drainage consortium deals with coal mining, not hardrock mining.
{20}	**The AMLT is currently developing guidance on the proper design and operation of tailings ponds and waste rock piles as well as guidance on how to properly calculate water balances at mine sites.**
	During our fieldwork, we did not receive any information that the AMLT is currently developing guidance on the proper design and operation of tailings ponds and waste rock piles. The Agency needs to indicate when this effort began and when it is expected to be completed.
{21}	**Region 8's current geographic initiative grants program, focusing on Mining Headwaters, is a result, in part, of the Framework. . . .**
	We did not receive any information from Region 8 that there is an initiative grants program, focusing on Mining Headwaters, as a result of the Framework.
{22}	**The Office of Water issued a final Clean Water Act 404 rule on May 9, 2002 (67 Fed. Reg. 31129).**
	We acknowledge the final Clean Water Act 404 rule issued by the Office of Water in the final report.
{23}	**The AMLT is currently compiling a list of available Federal and State funding mechanisms for remediation of mine sites. . . . the AMLT is also developing a AMLT website. The AMLT is currently finalizing grants with the States of Missouri and Virginia to better characterize Abandoned Mine Lands. . .**
	The Agency needs to indicate when the AMLT website will be available for providing information on Federal and State funding mechanisms for mine site remediation.

Item	Agency Comment / OIG Response
{24}	**. . . The Hardrock team worked with ORD (Office of Research and Development) in ORD's creation, in 2002, of a Hazardous Substance Research Center, run by the Colorado School of Mines, to focus research on the remediation of active and abandoned mines.**
	During our fieldwork, we were not provided any information regarding the NMT working with the Office of Research and Development to create a Hazardous Substance Research Center in conjunction with the Colorado School of Mines.
{25}	**The NMT worked with the OW (Office of Water) in its development of a coal remining effluent standard issued two years ago. (40 CFR 434 Coal Remining Effluent Guidelines).**
	Our evaluation focuses on hardrock mining, while 40 CFR 434 Coal Remining Effluent Guidelines refers to coal mining.
{26}	**The NMT, in conjunction with OW (Office of Water), is currently reviewing various congressional approaches to passing a Good Samaritan bill to encourage voluntary cleanup of mines.**
	During our fieldwork, we were informed that little was being done at EPA regarding passage. The Agency needs to indicate when the process will be completed for reviewing various Congressional approaches to passing a Good Samaritan bill to encourage voluntary cleanups of mines.

Appendix G

Distribution

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