



January 2023

# ABANDONED HARDROCK MINES

## Land Management Agencies Should Improve Reporting of Total Cleanup Costs

Accessible Version

# GAO Highlights

Highlights of [GAO-23-105408](#), a report to the Ranking Member, Committee on Natural Resources, House of Representatives

## Why GAO Did This Study

There are at least 22,500 known abandoned hardrock mine features—e.g., pits or tunnels—on federal lands. They pose risks to human health and the environment because they can leak toxic chemicals, such as arsenic, into nearby waterways.

Interior and USDA may pay for the cleanup of abandoned mine contamination on federal lands if no viable potentially responsible party is identified. Federal accounting standards direct agencies to estimate and report certain future cleanup costs in their financial statements.

GAO was asked to provide information about agency cleanup of abandoned hardrock mines. This report describes (1) what Interior and USDA have spent to clean up environmental contamination at abandoned hardrock mines from fiscal years 2017 through 2021; (2) the extent to which agencies communicated estimated cleanup costs; and (3) Interior's steps to implement the abandoned hardrock mine land program, and the extent to which Interior followed leading practices for program management.

GAO reviewed federal accounting standards, laws, regulations, and agency documents; analyzed mine cleanup expenditure and cost estimation data; and interviewed agency officials.

## What GAO Recommends

GAO is making four recommendations, including for Interior and USDA to improve reporting of total cleanup costs and for Interior to develop performance measures. Interior and USDA agreed with GAO's recommendations.

View [GAO-23-105408](#). For more information, contact Nathan Anderson or Cardell Johnson at (202) 512-3841, [AndersonN@gao.gov](mailto:AndersonN@gao.gov), or [JohnsonCD1@gao.gov](mailto:JohnsonCD1@gao.gov).

January 2023

## ABANDONED HARDROCK MINES

### Land Management Agencies Should Improve Reporting of Total Cleanup Costs

## What GAO Found

The U.S. Departments of the Interior (Interior) and Agriculture (USDA) spent approximately \$109 million and \$10 million, respectively, from fiscal years 2017 through 2021, to clean up contamination at abandoned hardrock mines on the lands they manage. Both agencies said they have more abandoned hardrock mines than funds to clean them up.

#### Molybdenum Mine Cleanup on Federal and Private Lands in New Mexico



Source: GAO. | GAO-23-105408

Note: Molybdenum is a hardrock mineral used in the production of steel and other materials.

Interior and USDA included certain estimated costs for cleaning up abandoned hardrock mines in their financial statements, consistent with federal accounting standards. However, while not required to do so by the accounting standards, the agencies did not clearly identify which costs were specific to abandoned hardrock mines. Further, Interior and USDA budget materials did not communicate known information about implicit exposures related to abandoned hardrock mines—cleanup costs where there is an expectation that the government will provide assistance beyond the legally required amount. GAO's work on fiscal exposures demonstrates the importance of agencies providing decision makers with a comprehensive picture of the federal government's future financial obligations. Without Interior and USDA clearly communicating specific information on known potential future cleanup costs for abandoned hardrock mines, decision makers may not be able to make fully informed cleanup decisions.

Interior has taken some steps to implement the abandoned hardrock mine land program established under the Infrastructure and Investment Jobs Act to conduct certain activities, including inventory and cleanup, on mines on federal land, and provide grants for those activities to states and tribes with jurisdiction over abandoned hardrock mine land. For example, in collaboration with federal and nonfederal partners, Interior has begun developing a national inventory of mines and has drafted high-level goals and objectives for the program. As Interior continues building the program, it could benefit from developing performance measures—as described in leading practices for program management—to help officials fully assess progress toward achieving its goals and objectives.



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**Abbreviations**

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
FWS	Fish and Wildlife Service
IJJA	Infrastructure Investment and Jobs Act
Interior	U.S. Department of the Interior
NEAT	National Environmental Accomplishment Tracking
NPS	National Park Service
USDA	U.S. Department of Agriculture

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January 13, 2023

The Honorable Raúl M. Grijalva  
Ranking Member  
Committee on Natural Resources  
House of Representatives

Dear Mr. Grijalva:

Releases of hazardous substances from abandoned hardrock mines have contributed to the contamination of 40 percent of the country's rivers and 50 percent of all lakes, according to the Environmental Protection Agency.<sup>1</sup> The contamination can pose risks to human health and the environment, and cleanup can be expensive and complicated.<sup>2</sup> For example, releases of hazardous substances from the Questa mine, a molybdenum mine located in northern New Mexico, contaminated the local groundwater with lead and arsenic, among other substances. This contamination threatened the village of Questa, which is 9 miles away, as well as the ecology in the area.<sup>3</sup> Cleanup of the Questa mine site was underway as of October 2022, and the total project is expected to cost approximately \$1 billion, according to mine site documentation (see fig. 1).

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<sup>1</sup>Environmental Protection Agency, "Fact Sheet: Water Quality Credits a Former Mine lands: Improving America's Water Resources, Reclaiming Lost Landscapes" (Washington, D.C.), accessed August 2022, <https://semspub.epa.gov/work/11/176035.pdf>. Federal minerals are commonly classified as locatable, leasable, or saleable. For the purposes of this report, unless indicated otherwise, we use the term "hardrock mining" to refer to the mining of locatable minerals. Locatable minerals include, for example, copper, lead, zinc, magnesium, gold, silver, and uranium—those minerals that are not leasable or saleable. Leasable minerals include oil, gas, coal, phosphate, and potash. Saleable minerals include common varieties of sand, stone, and gravel, typically used to construct roads, bridges, dams, and buildings. This report focuses on abandoned hardrock mines. Abandoned leasable and saleable mineral mines, such as abandoned coal mines and stone quarries, are out of the scope of this report. Furthermore, defense-related uranium is outside the scope of this report.

<sup>2</sup>For the purposes of this report, the term "cleanup" refers to responding to releases of hazardous substances from abandoned hardrock mines.

<sup>3</sup>For example, it was reported in 2000 that the contamination had eliminated the trout population in the Red River. *High Country News* and Ernest Atencio, "The Mine that Turned the Red River Blue" (Paonia, CO: 2000), accessed August 2022, <https://www.hcn.org/issues/184/5962>.

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**Figure 1: Molybdenum Mine Cleanup Site Located Near Questa, New Mexico**



Source: GAO. | GAO-23-105408

Thousands of abandoned hardrock mines are located on federal lands managed by the U.S. Department of the Interior (Interior) and the U.S. Department of Agriculture (USDA). The USDA's Forest Service and Interior's Bureau of Land Management (BLM) and National Park Service (NPS) operate programs to address the environmental hazards found at abandoned hardrock mines on the federal lands they manage.<sup>4</sup> In addition, Interior's Bureau of Indian Affairs (BIA) has a role related to

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<sup>4</sup>For purposes of this report, we refer to the Forest Service, Bureau of Indian Affairs (BIA), BLM, Fish and Wildlife Service (FWS), and NPS as "bureaus" and the Interior and USDA as "agencies." When we use the term "federal land management agencies," we are referring to BLM, FWS, NPS, and Forest Service. FWS has taken steps to address the few mines located on the lands it manages but does not have a centralized, bureau-wide abandoned hardrock mine program. The Environmental Protection Agency also has a role related to cleaning up abandoned hardrock mine contamination, but it is not a federal land management agency and, thus, is not included in our scope.



addressing the hazards at abandoned hardrock mines located on tribal lands, specifically trust and restricted fee lands.<sup>5</sup>

Until the federal government established requirements in the 1970s under which hardrock mine operators must reclaim the land after their operations cease, an operator could extract hardrock minerals and abandon the mine without reclaiming it.<sup>6</sup> This has led to the abandonment of mines with at least 140,000 known pits, tunnels, and other mine features on federal lands, as of 2019, according to a previous GAO report.<sup>7</sup> Of these, about 22,500 pose or may pose environmental hazards—risks to human health or wildlife from long-term exposure to harmful substances. However, we reported in 2020 that agencies estimated that there could be more than 390,000 abandoned mine features not captured in federal databases.<sup>8</sup> If no viable responsible party exists to pay for the cleanup of an abandoned hardrock mine’s contamination, the federal government may pay for the cleanup.

Federal accounting standards require federal agencies to estimate and report certain future cleanup costs as environmental liabilities in their

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<sup>5</sup>The federal government holds legal title to lands held in trust for tribes (tribal trust lands), but the Indian tribes retain the benefits of land ownership. Indian tribes hold title to tribal restricted fee lands, but there are legal restrictions against alienation or encumbrance of the land (the land cannot be sold, leased, or conveyed without the approval of the Secretary of the Interior). For the purposes of this report, we use the term “tribal lands” to refer to tribal trust and restricted fee lands. While mining on tribal lands is generally not subject to the General Mining Act of 1872, we include mining on tribal lands in the scope of our report. For more information about mining on tribal lands, see GAO, *Hardrock Mining Management: Selected Countries, U.S. States and Tribes Have Different Governance Structures but Primarily Use Leasing*, [GAO-21-298](#) (Washington, D.C.: June 30, 2021).

<sup>6</sup>Reclamation is a process that includes activities such as environmental restoration and the mitigation of safety hazards. Under the Federal Land Policy and Management Act of 1976, the Bureau of Land Management issued regulations, effective in 1981, that required mining operators to reclaim the bureau’s land disturbed by hardrock mining. See 45 Fed. Reg. 78,902 (Nov. 26, 1980) (codified as amended at 43 C.F.R. pt. 3800, subpt. 3809). The Forest Service began requiring reclamation and financial assurances in 1974. See 39 Fed. Reg. 31,317 (Aug. 28, 1974) (codified as amended at 36 C.F.R. pt. 228).

<sup>7</sup>See GAO, *Abandoned Hardrock Mines: Information on Number of Mines, Expenditures, and Factors That Limit Efforts to Address Hazards*, [GAO-20-238](#) (Washington, D.C.: Mar. 5, 2020).

<sup>8</sup>This amount includes mine features that may pose environmental and physical safety hazards. See [GAO-20-238](#). In this report, we focused on environmental contamination from abandoned hardrock mines and not physical safety hazards.

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annual financial statements.<sup>9</sup> Reported environmental liabilities have been growing for the past 20 years. The federal government's total reported environmental liabilities increased about 32 percent, from \$465 billion to \$613 billion, from fiscal years 2017 through 2021.<sup>10</sup> In 2017, we identified the federal government's environmental liabilities as a high-risk issue, in part because environmental liabilities represent the fourth-largest liability on the federal government's financial statements and because of their continued growth.<sup>11</sup>

The Infrastructure Investment and Jobs Act (IIJA), enacted in November 2021, required, among other things, Interior to establish a program to conduct certain eligible activities, including inventorying and reclaiming, on abandoned hardrock mine land, as well as to provide grants to states and tribes to conduct eligible activities on abandoned hardrock mine land under their jurisdiction—a first-of-its-kind, nationwide program.<sup>12</sup> In addition to authorizing Interior to conduct these activities, the IIJA also authorizes Interior to transfer funding to USDA for eligible activities on National Forest System lands.

You asked us to provide information about agency cleanup of abandoned hardrock mines. This report (1) describes what Interior and USDA spent to clean up environmental contamination at abandoned hardrock mines from fiscal years 2017 through 2021; (2) assesses the extent to which the agencies communicated estimated cleanup costs for, and federal fiscal

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<sup>9</sup>Federal Accounting Standards Advisory Board, *FASAB Handbook of Federal Accounting Standards and Other Pronouncements, as Amended* (Washington, D.C.: June 30, 2022).

<sup>10</sup>The federal government's environmental liabilities also include estimated costs for disposal of hazardous waste associated with federal property, plant, and equipment.

<sup>11</sup>GAO, *High-Risk Series: Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others*, [GAO-17-317](#) (Washington, D.C.: Feb. 15, 2017). GAO's High-Risk Series identifies federal programs and operations that are high - risk due to their vulnerabilities to fraud, waste, abuse, and mismanagement or that need transformation.

<sup>12</sup>Pub. L. No. 117-58, § 40704, 135 Stat. 429, 1093 (2021) (codified at 30 U.S.C. § 1245). Specifically, the IIJA calls for Interior to establish a program to inventory, assess, decommission, reclaim, respond to hazardous substance releases on, and remediate abandoned hardrock mine land based on conditions including need, public health and safety, potential environmental harm, and other land use priorities. The IIJA further provides that funding made available for this program may only be used for federal, state, tribal, local, and private land that has been affected by past hardrock mining activities, and for water resources that traverse, or are contiguous to, such land. The IIJA authorized \$3 billion for this program, 50 percent of which is for grants to states and tribes that have jurisdiction over abandoned hardrock mine land for eligible activities to reclaim that land, and 50 percent is for Interior for eligible activities on federal land.

exposure from, abandoned hardrock mines in their financial statements and budget materials; and (3) describes the steps Interior has taken to implement the IJJA's abandoned hardrock mine land program, and assesses the extent that it has followed leading practices for program management.

To describe what Interior and USDA spent to clean up abandoned hardrock mines from fiscal years 2017 through 2021, we summarized expenditure data from relevant departmental offices and bureaus within Interior and USDA for the most recent 5 fiscal years prior to the start of our review—fiscal years 2017 through 2021. To assess the reliability of the data obtained from these federal agencies, we tested the data for accuracy by checking for missing data and errors and requested information about the data systems used and any limitations from the agencies. We determined that the data were sufficiently reliable for describing agencies' expenditures to clean up abandoned hardrock mines. We also analyzed agency documentation on prioritizing cleanup projects and tools that contain criteria used in decision-making.

To assess the extent to which the agencies communicated estimated cleanup costs for, and federal fiscal exposure from, abandoned hardrock mines in their financial statements and budget materials, we analyzed Interior and USDA documents for fiscal years 2017 through 2021. These documents included agency financial statements and budget materials, which included Interior's budget in briefs as well as USDA's budget justifications and explanatory notes.<sup>13</sup> In addition, we reviewed our previous work on reporting federal fiscal exposures and the 2017 High-Risk Series related to the U.S. government's environmental liabilities.<sup>14</sup>

Furthermore, we analyzed data sources that the agencies used to track mine site information, such as Interior's Environmental and Disposal Liability database, as well as USDA's Management Schedule Legal Letters and National Environmental Accomplishment Tracking (NEAT) database, to identify any cost estimates that officials said they either

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<sup>13</sup>We also reviewed Interior's and USDA's budget materials for fiscal year 2022 to see if the amount of funding that the agencies requested changed because of the enactment of the IJJA in November 2021.

<sup>14</sup>GAO, *Fiscal Exposures: Improving Cost Recognition in the Federal Budget*, [GAO-14-28](#) (Washington, D.C.: Oct. 29, 2014); *Fiscal Exposures: Improving the Budgetary Focus on Long-Term Costs and Uncertainties*, [GAO-03-213](#) (Washington, D.C.: Jan. 24, 2003); *Long-Term Commitments: Improving the Budgetary Focus on Environmental Liabilities*, [GAO-03-219](#) (Washington, D.C.: Jan. 24, 2003); and [GAO-17-317](#).

included or did not include in their financial statements. To assess the reliability of the data, we checked for missing data and errors, reviewed documents about the data systems, asked agency officials about the data and any limitations, and reviewed their written responses. We determined that the data were sufficiently reliable for the purposes of describing estimated cleanup costs included in financial statements and budget materials. However, we also found that not all data fields in NEAT are required to be populated, and we discuss these findings in the report.

To describe the steps Interior has taken to implement the IJJA's abandoned hardrock mine land program, we reviewed the IJJA and Interior's fiscal year 2022 appropriations. To help us identify any goals, objectives, and performance measures for Interior's new abandoned hardrock mine land program, we analyzed its strategic plan for fiscal years 2022 through 2026, draft abandoned hardrock mine land program documentation and guidance, and interagency working group meeting documentation.<sup>15</sup> To assess the extent that Interior followed leading practices for program management, we analyzed Interior's development of goals, objectives, and performance measures and compared them with leading practices for program planning and development from the Project Management Institute's *The Standard for Program Management*.<sup>16</sup>

To obtain information for this report, we interviewed officials from Interior's Office of Environmental Policy and Compliance, BLM, BIA, FWS, and NPS, as well as officials from USDA's Environmental Management Division and the Forest Service. We also selected a sample of eight mine sites to use as illustrative examples throughout the report.<sup>17</sup> To select these sites, we used a list of factors that may affect agencies' estimates of potential cleanup costs for abandoned hardrock mine sites and then the following criteria to identify the sites: (a) mines that exemplified multiple factors; (b) at least one mine that was reported as an environmental liability in agencies' fiscal years 2017 through 2021

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<sup>15</sup>This new Abandoned Mine Land Technical working group is supporting the development of the abandoned hardrock mine land program, according to Interior officials, and comprises federal partners, including the Forest Service and the Environmental Protection Agency.

<sup>16</sup>Project Management Institute, Inc., *The Standard for Program Management*, Fourth Edition (2017). The Project Management Institute is a not-for-profit association that, among other things, provides standards for managing various aspects of projects, programs, and portfolios.

<sup>17</sup>These sites included the Questa, Josephine, Red Devil, Gold King/Brooklyn, Holden, Blue Ledge, Grant-Kohrs Ranch/Clark Fork River, and Nacimiento mines.



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financial statements and one that was not; (c) no mines that were from the same geographic location; and (d) mines that had high estimated costs reported in fiscal year 2021 financial statements.

For each of the eight sites, we reviewed documents that described the site's history and that agencies used to assess the mine and any associated contamination. From the list of eight sites, we chose to visit two—the Nacimiento and Questa mines in northern New Mexico—in June 2022, based on geographic location and agency availability to facilitate site visits. Findings from our review of the mine sample cannot be generalized to all mines. For further details on our objectives, scope, and methodology, see appendix I.

We conducted this performance audit from September 2021 to January 2023 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Background

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### General Mining Act of 1872 and Liability for Funding Mine Cleanup

The General Mining Act of 1872 grants individuals and operators the statutory right to explore, develop, and mine valuable mineral deposits—such as copper, gold, silver, and uranium—on lands managed by USDA and Interior that are open to mineral entry. However, until the 1970s, when the Federal Land Policy and Management Act of 1976 was enacted and the Forest Service began requiring reclamation and financial assurances, mining operators could disturb land while mining without reclaiming the land.<sup>18</sup> Thus, for mining that occurred prior to the legal and regulatory changes in the 1970s, the federal government (and, thus, taxpayers) may clean up those mines if the original operator of the abandoned mines is deceased, or the mining company has dissolved.

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<sup>18</sup>As noted previously, BLM issued regulations, which became effective in 1981, that required mining operators to reclaim land.

Mines that ceased operating prior to promulgation of the federal land managing agencies' regulations did not have to provide any bonding or financial assurances, such as cash or certificates of deposit, to cover the costs of reclamation.<sup>19</sup>

## Impacts of Mining

Since the advent of relatively widespread mining on federal lands in the mid-1800s, mining has had the potential to create significant impacts to human health, safety, and the environment. For example, some “legacy” hardrock mines—that is, areas mined before the advent of modern environmental laws and regulations—have generated large quantities of hazardous substances, often over hundreds of square miles. This occurred when, for example, operators dug into the earth’s crust to reach and extract mineral deposits that are found deep in the ground or used toxic chemicals, such as a sodium cyanide solution, to leach gold from ore by spraying it over large piles of crushed ore. In some instances, legacy areas have released acidic water carrying heavy metals and pollutants such as arsenic, mercury, and lead. Such releases have contaminated groundwater and surface water, exposing people and wildlife to harmful substances, as we previously reported.<sup>20</sup>

The extent and type of work required to clean up abandoned hardrock mines can vary widely, depending on the extent, type, and concentration of contaminants. This cleanup could include treating contaminated water on a short- or long-term basis, covering disturbed areas with soil and vegetation, removing hazardous substances, or other response actions, with the goal of cleaning up the mine site for alternative land uses that are consistent with federal requirements, such as recreation or conservation.

### Abandoned Mines Can Significantly Impact Communities and the Environment

The Gold King mine is in the Bonita Peak Mining District in southwestern Colorado. This gold and silver mine produced about 700,000 tons of ore while in operation between 1887 and 1922, but the mine has since been abandoned. The metal-laden water and sediments from the abandoned mine were being released into nearby creeks and streams. A 2015 mine investigation led by the Environmental Protection Agency triggered a rapid release of about 3 million gallons of contaminated water into the Cement Creek. This leak affected rivers in three states and the Navajo Nation in various ways, such as contaminating farm irrigation water.

The federal government, along with some mining operators, has already contributed millions of dollars to clean up the Gold King mine. In addition, New Mexico and the Navajo Nation have settlement agreements in place and will receive \$32 million and \$31 million in compensation, respectively, from the federal government to address harms to their communities.

### Settling Ponds Near the Gold King Mine



Source: Environmental Protection Agency. | GAO-23-105408

<sup>19</sup>Under current requirements, mine operators must obtain approval of a plan of operations from federal land managers for operations over a certain level of activity. Such plans must include, among other things, a plan for reclaiming the site and financial assurances to cover the estimated reclamation costs to the federal government should the operator fail to do so, thus potentially reducing the risk that the federal government will need to pay for cleanup.

<sup>20</sup>GAO, *Federal Land Management: Key Differences and Stakeholder Views of the Federal Systems Used to Manage Hardrock Mining*, [GAO-21-299](#) (Washington, D.C.: July 21, 2021).

## Department and Bureau Responsibilities Related to Hardrock Mine Cleanup

The U.S. Departments of the Interior and Agriculture, as well as some bureaus within them, collect information about abandoned hardrock mine sites, features, and the associated hazards on lands under their jurisdiction.<sup>21</sup>

### Costly Water Treatment Systems at Some Mine Sites Are Necessary in Perpetuity

Molybdenum mining began at the Questa mine on 3,622 acres of public and private lands in northern New Mexico in 1920 and occurred intermittently until 2014. Both underground and open pit mining occurred at the site. Mining operations contaminated soil, sediment, surface water, and groundwater. While the mine was operating, about 328 million tons of acid-generating waste rock were excavated and deposited in nine large waste rock piles.

To treat the water emanating from these piles, a complicated system was constructed at the mine site and is expected to run in perpetuity because of the level of contamination. The estimated cost for 30 years of water treatment is about \$156 million, according to mine site documentation.

#### Questa Mine's Water Treatment System



Source: GAO. | GAO-23-105408

- At Interior's department level, the Office of Environmental Policy and Compliance manages the Central Hazardous Materials Fund, as well as the environmental and disposal liabilities program.<sup>22</sup> Within Interior, BLM and NPS have programs that aim to address environmental hazards posed by abandoned mines, among other objectives.<sup>23</sup> In addition, BIA may assist tribes affected by hazardous substance releases or other environmental contamination, such as from abandoned hardrock mines, on tribal lands, among other activities.<sup>24</sup>
- At USDA's department level, the Hazardous Materials Management Program provides leadership and policy in various areas, such as establishing annual funding priorities, funding hazardous material cleanups on USDA-managed lands, and tracking cost recovery from polluters. Within USDA, the Forest Service has the Safety and Environmental Restoration program that oversees the agency's work to address environmental hazards caused by abandoned hardrock mines, among other activities.

<sup>21</sup>Federal land management agencies typically began developing their inventories of abandoned hardrock mines in the 1980s and 1990s, basing them on historic maps, mine records, and surveys.

<sup>22</sup>The Central Hazardous Materials Fund is Interior's principal source of funds for the cleanup of highly contaminated sites located within national parks, national wildlife refuges, and other department-managed lands. The environmental disposal liabilities program is designed to assist bureaus in establishing the completeness, accuracy, and validity of their accounts.

<sup>23</sup>FWS officials told us that there are a limited number of abandoned hardrock mines on the lands they manage. In addition, Interior officials said that most National Wildlife Refuges and other lands managed by FWS are not currently subject to the General Mining Act of 1872. See 50 C.F.R. § 27.64 (stating that prospecting, locating, or filing mining claims on national wildlife refuges is prohibited unless otherwise provided by law).

<sup>24</sup>In comparison to federal land management agencies for the lands they manage, BIA does not maintain an inventory of abandoned hardrock mines on tribal lands. Other agencies, such as the Environmental Protection Agency, may also assist tribes in addressing contamination from mines.

When executing abandoned mine cleanup projects, Interior and USDA may use their authority under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, to respond to releases or threatened releases of hazardous substances, pollutants, or contaminants on the lands they manage.<sup>25</sup> CERCLA authorized two kinds of response actions to clean up contaminated sites: (1) removal and (2) remedial actions. Removal actions tend to be shorter-term actions that address more immediate risks, whereas remedial actions tend to be longer-term actions that offer a more permanent solution, according to a Congressional Research Service report.<sup>26</sup> This report also states that because of the typically greater extent and cost of remedial actions, they are subject to more in-depth review in the form of remedial investigations and feasibility studies. After these are completed, agencies are to produce a record of decision, which describes how the releases will be addressed and the estimated costs, among other things.<sup>27</sup>

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## Environmental Liabilities and Federal Accounting Standards

Federal agencies are required to report certain cost estimates for addressing contamination at various sites, called environmental liabilities, on their annual financial statements, according to the federal accounting standards.<sup>28</sup> These standards say that costs for cleanup work should be reported as environmental liabilities when they are both probable and

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<sup>25</sup>Pub. L. No. 96-510, 94 Stat. 2767 (1980) (codified as amended at 42 U.S.C. §§ 9601-9675). Specifically, Executive Order 12580, as amended, delegates the authority of the President under CERCLA section 104 to federal agencies to, among other things, take remedial actions for releases or threatened releases of hazardous substances, pollutants, or contaminants from any facility or vessel under the federal agency's jurisdiction, custody, or control. Exec. Order No. 12580, § 2(e)(1), 52 Fed. Reg. 2923, 2924 (Jan. 29, 1987).

<sup>26</sup>Congressional Research Service, *Comprehensive Environmental Response, Compensation, and Liability Act: A Summary of Superfund Cleanup Authorities and Related Provisions of the Act*, 7-5700, R41039 (Washington, D.C.: June 14, 2012), 8.

<sup>27</sup>Officials from USDA stated that most of the abandoned mine cleanups on the lands they manage are completed using removal actions and that they use CERCLA's remedial action process for complex mine cleanup projects.

<sup>28</sup>Federal Accounting Standards Advisory Board, *FASAB Handbook of Federal Accounting Standards and Other Pronouncements, as Amended*. For the purposes of this report, we refer to environmental and disposal liabilities as "environmental liabilities."



reasonably estimable.<sup>29</sup> In addition, agencies may need to include an estimate of contingent liabilities.

- In determining whether an agency's environmental cleanup responsibilities meet the probable criterion, the agency must first establish its legal liability or acceptance of financial responsibility for a project, such as cleaning up abandoned hardrock mine sites. The determination of whether it is probable depends on whether the cleanup is government related (i.e., the federal government is responsible or legally liable for the cleanup) or government acknowledged (i.e., the federal agency is not legally liable, but chooses to perform the cleanup).<sup>30</sup> For projects that do not meet the level of probable, the federal accounting standards do not require an environmental liability and associated costs to be reported in the agency's financial statements. However, agencies have the discretion to disclose these costs in the notes to its financial statements.
- Once the federal accounting standards' probable criterion is met, agencies are to determine whether cleanup costs are reasonably estimable. In determining whether costs are reasonably estimable for government-related cleanup, agencies are to consider a completed study—such as a remedial investigation and feasibility study—or prior experience with a similar site or similar site conditions. If a study has been completed, or the agency has experience with a similar site or similar site conditions, then the agency is to record its best estimate of the cleanup liability for financial statement purposes, provided that

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<sup>29</sup>The standards also say that an agency is required to recognize a liability for environmental cleanup costs as a result of past transactions or events (e.g., environmental contamination) when a future outflow or other sacrifice of resources is probable and reasonably estimable. "Reasonably estimable" relates to the ability to reliably quantify in monetary terms the outflow of resources that will be required.

<sup>30</sup>Government-related cleanup, as it relates to environmental damage or contamination, means that a governmental entity either caused contamination (i.e., contribution of waste) or is otherwise related to it in such a way that it is legally liable to clean up the contamination. If the agency believes that it is more likely than not that it will be legally liable, then the probability criterion is met. For government-acknowledged cleanup, costs are probable only to the extent that the agency is authorized to formally accept financial responsibility for cleanup; has appropriations; and either actual cleanup activities have been performed but not yet paid for, or there are amounts that are otherwise due and payable (e.g., grants).

technology exists to clean up the site.<sup>31</sup> If the estimate is a range, the agency records a liability for the low end of the estimated range and discloses the range in a note to the financial statements.<sup>32</sup> When reasonable estimates cannot be generated, such as cleanup costs at sites where no feasible remedy exists, then an explanation is to be disclosed in the notes to the financial statements. Information in the notes needs to include the nature of the environmental damage and an estimate of the possible liability, an estimate of the range of the possible liability, or a statement that such an estimate cannot be made. For government-acknowledged cleanup, the liability is the estimated cost of (1) actual cleanup activities that have been performed but not yet paid for and (2) any amounts that are otherwise due and payable (e.g., grants).

- Agencies may need to include contingent liabilities related to pending or threatened litigation or possible claims or assessments in their financial statements. Contingencies include potential liabilities resulting from litigation, where it is uncertain whether the agency is legally liable for the cleanup of the contamination.<sup>33</sup> Contingencies may be recognized as liabilities in the financial statements; disclosed

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<sup>31</sup>If there is no completed study or comparable site or condition, remediation costs for a site would not be considered reasonably estimable at that time, but the agency would recognize the anticipated cost of conducting a future study, if required, plus any other identifiable costs. If no remediation technology exists, then remediation costs would not be reasonably estimable, but the agency would be required to recognize the costs to contain the contamination and any other relevant costs, such as costs of future studies.

<sup>32</sup>When faced with uncertainty about cleanup costs, agencies said that they develop a range of costs representing the high and low cost estimates and disclose the range in the notes to their financial statements. This may occur when agencies do not have specific cost estimates for all sites. Federal accounting standards direct agencies to report the lower limit of all ranges for probable liabilities, which can be \$0, when no amount within the range is a better estimate than any other amount, and to disclose the range in the notes to the financial statements.

<sup>33</sup>Federal Accounting Standards Advisory Board, *FASAB Handbook of Federal Accounting Standards and Other Pronouncements, as Amended*, Statement of Federal Financial Accounting Standards 5: Accounting for Liabilities of The Federal Government (Washington, D.C.: June 30, 2022). "Contingencies" are existing conditions, situations, or sets of circumstances involving uncertainty as to the possible gain or loss to an entity that will ultimately be resolved when one or more future events occur or fail to occur.

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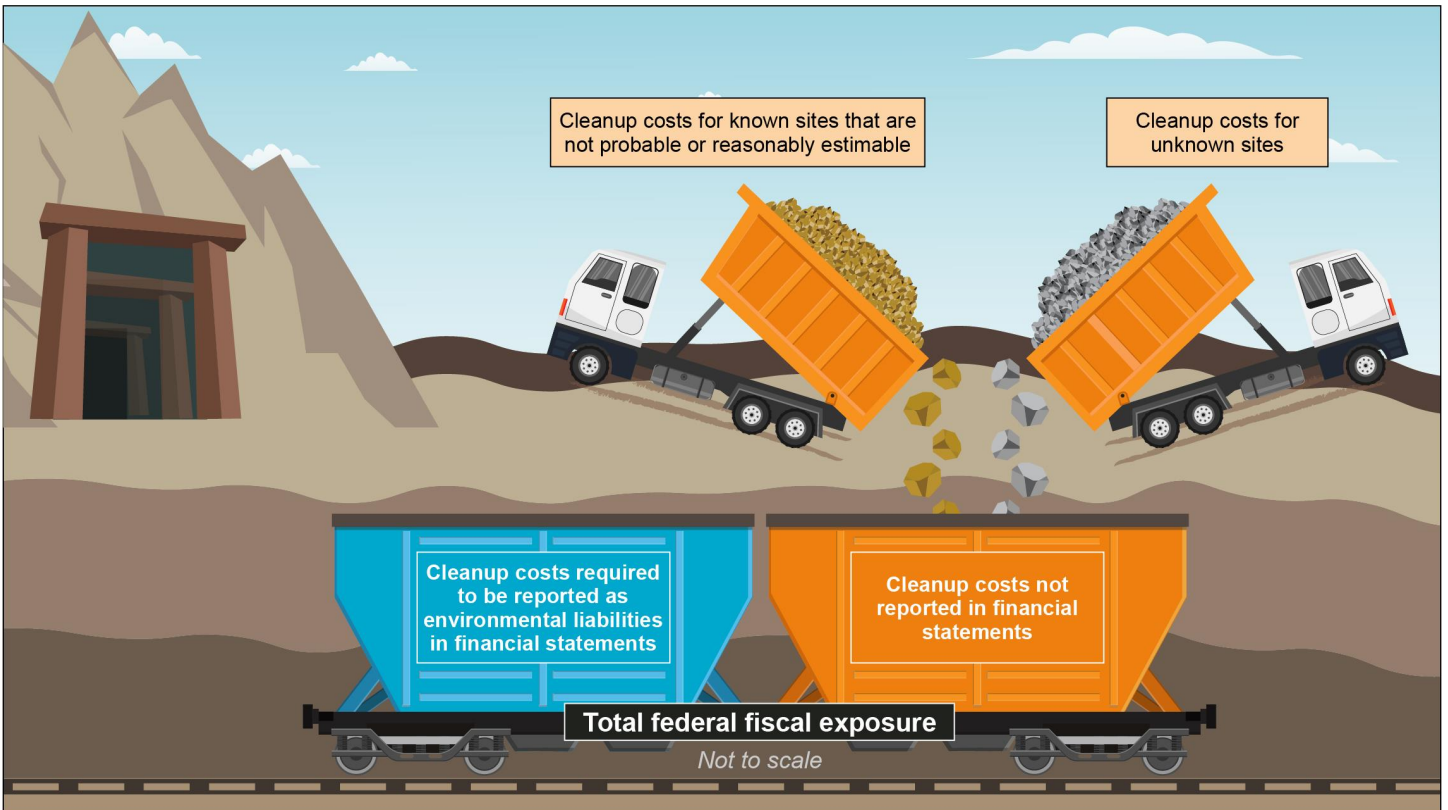
in the notes; or not be reported at all, depending on the circumstances.<sup>34</sup>

While the federal accounting standards require certain environmental liabilities and contingencies to be reported or disclosed in federal agencies' financial statements, these do not comprise the total federal fiscal exposure, or the total amount that the federal government may have to pay. In addition to the liabilities and contingencies in financial statements, there are other components that, when combined, account for total federal fiscal exposure (see fig. 2). These include costs to clean up known sites that are not currently probable or not reasonably estimable and costs to clean up unknown sites.

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<sup>34</sup>The accounting standards say that contingencies should be recognized as a liability when a past transaction or event has occurred (e.g., environmental contamination) and future expending of resources is probable and measurable. For contingencies pertaining to pending or threatened litigation and unasserted claims, "probable" means that a future outflow or other sacrifice of resources is "likely to occur." A contingency should be disclosed in the notes if any of the conditions for liability recognition are not met and there is a reasonable possibility that a loss or an additional loss may have been incurred. The estimated liability may be a specific amount or a range of amounts. If some amount within the range is a better estimate than any other amount within the range, that amount is recognized. If no amount within the range is a better estimate than any other amount, the minimum amount in the range is recognized, and the range and a description of the nature of the contingency is disclosed.

**Figure 2: Components of Total Federal Fiscal Exposure**



Sources: GAO; borodatch/stock.adobe.com. | GAO-23-105408

Notes: Federal agencies are required to report certain cost estimates for addressing contamination at various sites, called “environmental liabilities,” on their annual financial statements, according to the federal accounting standards. Fiscal exposure includes amounts in financial statements or accompanying notes, as well as responsibilities and expectations for government spending that are not included in financial statements. Environmental liabilities may also include contingent liabilities, which are potential liabilities in litigation, where it is uncertain whether the agency is legally liable for the cleanup of the contamination.

Fiscal exposures vary widely as to source; likelihood of occurrence; magnitude; and strength of the government’s legal obligation, as we have previously reported.<sup>35</sup> Given this breadth, it is useful to think of fiscal exposures as lying on a spectrum extending from explicit to implicit

<sup>35</sup>We use the term “fiscal exposure” to provide a conceptual framework for considering the wide range of responsibilities, programs, and activities that may explicitly or implicitly expose the federal government to future spending. Fiscal exposures include not only liabilities, contingencies, and financial commitments that are identified on the financial statements or accompanying notes but also responsibilities and expectations for government spending that do not meet the reporting or disclosure requirements for the financial statements. See [GAO-03-213](#).



exposures. Fiscal exposures may be explicit, in that the federal government is legally required to pay for the cleanup. Alternatively, they may be implicit, in that the exposures arise from expectations based on current policy or past practices, and there may be an expectation that the government will provide assistance beyond the amount legally required. For the purposes of this report, abandoned hardrock mine site liabilities, contingencies, and reasonably possible cleanup costs included in agency financial statements—either in the financial statements or in the notes—are described as explicit exposures.<sup>36</sup> The known mine sites where agencies consider the cleanup remedies to not be probable or to not be reasonably estimable, as well as unknown mine sites that are not included in agency financial statements, are described in this report collectively as “implicit exposures” because they may encumber future budgets or reduce fiscal flexibility.<sup>37</sup>

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## Interior and USDA Spent an Average of about \$22 Million and \$2 Million per Year from Fiscal Years 2017 through 2021, Respectively, to Clean up Contamination at Abandoned Hardrock Mines

To clean up contamination at abandoned hardrock mines from fiscal years 2017 through 2021, Interior’s and USDA’s documents indicate that together they spent an average of approximately \$24 million per year and used information such as the mine’s risk to human health and the environment to prioritize cleanup funding. Specifically, Interior’s documents show that the agency and bureaus spent about \$109 million,

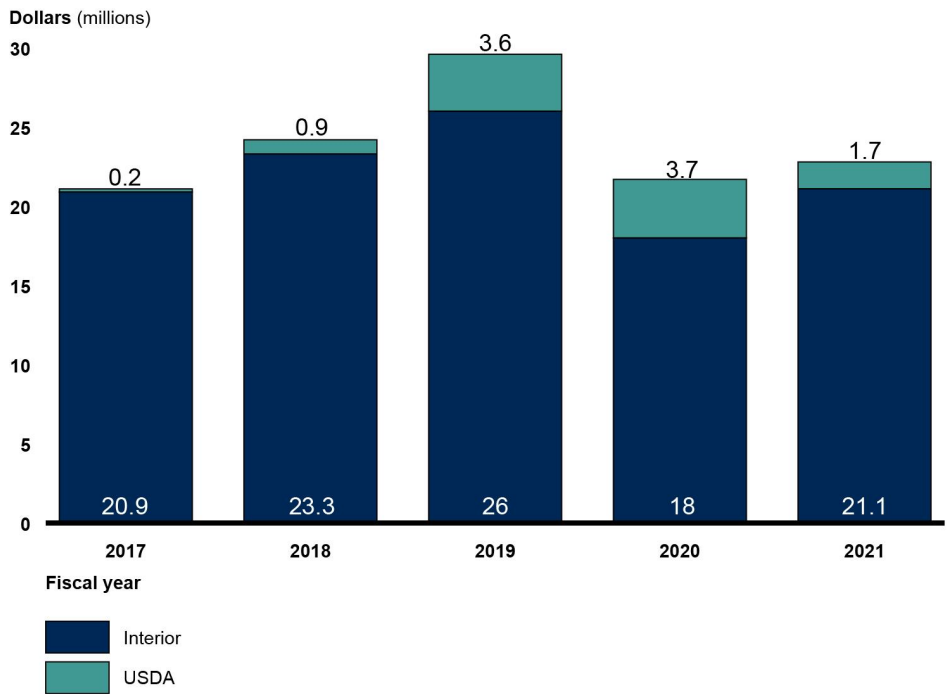
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<sup>36</sup>The accounting standards state that “reasonably possible” means the chance of the future confirming event or event occurring is more than remote but less than probable.

<sup>37</sup>[GAO-03-213](#).

and USDA's documents show that the agency and the Forest Service spent about \$10 million (see fig. 3).<sup>38</sup>

**Figure 3: U.S. Departments of the Interior (Interior) and Agriculture (USDA) Expenditures to Clean up Abandoned Hardrock Mines, Fiscal Years 2017 through 2021**



Source: GAO analysis of Interior and USDA documents. | GAO-23-105408

**Illustrative Example of Forest Service Expenditures on a Cleanup Project in New Mexico**

The Forest Service spent about \$870,000 from fiscal years 2017 through 2021 to clean up the Nacimiento copper mine in northern New Mexico. The mine cleanup has involved

<sup>38</sup>These amounts include expenditures to clean up environmental contamination from abandoned hardrock mines. They also include expenditures at both the department and bureau levels within each agency. About \$38 million of Interior's expenditures could not be separated from other expenditures, so this amount includes BLM's labor for cleaning up abandoned hardrock mines, as well as other labor categories, such as safety assessments. Since the agency does not separate some expenditures, BLM used budgeted amounts for some of the data provided to GAO. Because of varying definitions of hardrock mining, agency expenditures may not include those amounts that are not associated with mining claims under the General Mining Act of 1872.

pumping and treating groundwater contaminated from toxic chemicals, such as sulfuric and ferric acid, that mine operators injected into the ground to extract copper. The acid caused the metals to dissolve into the groundwater, so over the course of the project, the Forest Service installed a bioreactor and settling ponds to remove the contamination. In a bioreactor, liquids are added to solid waste to help bacteria break down the waste and stimulate biodegrading.

**Nacimiento Mine’s Bioreactor and Settling Pond**



Source: GAO. | GAO-23-105408

Fiscal year	Department of the Interior	Department of Agriculture
<i>Dollars (millions)</i>		
2017	20.9	0.2
2018	23.3	0.9
2019	26	3.6
2020	18	3.7
2021	21.1	1.7

Note: These amounts include expenditures, at both the department and bureau levels within each agency, to clean up environmental contamination from abandoned hardrock mines. About \$38 million of Interior’s expenditures could not be separated from other expenditures, so this amount includes Bureau of Land Management (BLM) labor for cleaning up abandoned hardrock mines, as well as other labor categories, such as safety assessments. Since the agency does not separate some expenditures, BLM used budgeted amounts for some of the data provided to GAO. Because of varying definitions of hardrock mining, agency expenditures may not include those amounts that are not associated with mining claims under the General Mining Act of 1872. Amounts have been rounded to the nearest thousand.

In addition to expenditures for cleaning up certain mines, both Interior and USDA work to identify potentially responsible parties (e.g., mine operators) and recover cleanup costs. Interior and USDA officials said that potentially responsible parties reimbursed their agencies \$881,000 and \$3.2 million, respectively, from fiscal years 2017 through 2021.<sup>39</sup>

Furthermore, Interior and USDA officials said that they have more abandoned hardrock mines on the lands they manage than funds to clean them up and that they used similar information to determine on which mines to spend their annual appropriations. Specifically, Interior and USDA considered funding mine cleanup projects based on information

<sup>39</sup>Interior documentation showed that this amount was reimbursed to the agency’s Central Hazardous Materials fund. USDA officials said that this amount was reimbursed to the agency’s Hazardous Materials Management Program fund, as well as to the Forest Service’s Safety and Environmental Restoration program.

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such as the mine's risk to human health and the environment.<sup>40</sup> While the USDA and the Forest Service used this information to prioritize abandoned mine cleanup projects, USDA department officials said that they had ceased using this information in 2022 because the agency's budget office said that funding would no longer be provided from the Hazardous Materials Management Program for any Forest Service cleanup projects, including for mine cleanups.<sup>41</sup>

See appendix II for a comparison of the information that Interior and USDA used when prioritizing funding for mine cleanup.

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## Agencies' Financial Statements Included Certain Cleanup Costs, but Financial Statements and Supplemental Reports Did Not Communicate Implicit Exposures

Interior and USDA included certain estimated cleanup costs, or explicit exposures, for abandoned hardrock mines in the aggregated total environmental liabilities reported in their financial statements, consistent with federal accounting standards. However, Interior and USDA budget materials did not communicate known information about implicit

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<sup>40</sup>Interior's guidance says that its core priorities for its funding prioritization process are to consider risks to human health and the environment, legal obligations, and secretarial and mission priorities. Interior assesses projects using 11 criteria, such as the mine's proximity to population and threat to water bodies and whether there is a known toxic substance and the possibility that it could migrate off Interior-managed lands. Interior has a departmental-level process to prioritize funds to clean up contaminated sites, which may include abandoned hardrock mine sites, and BIA, BLM, FWS, and NPS can use this process if they choose to do so. BIA and FWS have chosen to do so, while BLM and NPS have developed their own frameworks. However, these frameworks are largely based on the departmental-level prioritization process, according to officials.

<sup>41</sup>USDA officials said that they funded abandoned mine cleanup projects through their Hazardous Materials Management Program and Forest Service-funded mine cleanup projects through their Safety and Environmental Restoration program. USDA assesses projects using five criteria, such as the presence of legal risks and the proximity to watersheds. Agency officials said that any money received from potentially responsible parties (e.g., mine operators) under the Hazardous Materials Management Program to clean up specific mines would be spent as agreed upon in any associated legal settlements. However, if there are any funds remaining after that site has been cleaned up, and all ongoing obligations—such as for maintenance and monitoring—have been met, these funds can be used to address other mine sites, according to officials.

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exposures specifically for abandoned hardrock mines.<sup>42</sup> USDA does not consistently track potential cleanup costs for abandoned hardrock mines in a manner that allows the agency to generate a more precise estimate for communicating its fiscal exposure to Congress and the public.

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### Agencies Included Certain Explicit Exposures in Their Financial Statements but Did Not Specify Which of These Pertain to Abandoned Hardrock Mines

Interior and USDA reported or disclosed the explicit exposures posed by certain abandoned hardrock mines in their financial statements, consistent with federal accounting standards. For the purposes of this report, explicit exposures are liabilities, contingencies, and reasonably possible cleanup costs in agency financial statements or in the notes. However, these explicit exposures were aggregated together with other liabilities and contingencies, and the financial statements did not specify the amount that pertains to abandoned hardrock mines or some other types of sites. For example, Interior and USDA reported and disclosed about \$1.2 billion and \$0.8 billion in explicit exposures, respectively, in their agency financial statements in 2020.<sup>43</sup> These costs included abandoned hardrock mine cleanup costs, combined with other types of hazardous substances cleanup costs, a practice that is consistent with federal accounting standards.

Because agency financial statements did not specify which estimated costs were for abandoned hardrock mine cleanup, we analyzed Interior

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<sup>42</sup>Budget materials included Interior's budget in briefs, as well as USDA's budget justifications and explanatory notes. Known mine sites where agencies consider the cleanup remedies to not be probable or to not be reasonably estimable, as well as unknown sites that are not included in agency financial statements, are described in this report as implicit exposures because they may encumber future budgets or reduce fiscal flexibility.

<sup>43</sup>In fiscal year 2020, Interior reported about (a) \$988 million for probable environmental and disposal liabilities, (b) \$177 million for the lower end of the range of reasonably possible environmental and disposal costs, (c) \$2 million for probable environmental contingent liabilities, and (d) \$10 million for reasonably possible environmental contingent costs. USDA reported about (a) \$239 million for probable environmental and disposal liabilities, (b) \$47 million for the lower end of the range of reasonably possible environmental and disposal costs; and Forest Service reported (c) \$451 million for probable environmental contingent liabilities, and (d) \$0 for reasonably possible environmental contingent costs. However, USDA does not track the amount specifically related to probable and reasonably possible environmental contingent liabilities.

and USDA documents, reviewed databases, and interviewed officials to understand which reported explicit exposures were for abandoned hardrock mines. For example, abandoned hardrock mines accounted for \$221 million—or about 19 percent—of Interior’s explicit exposures in fiscal year 2020.<sup>44</sup> For USDA, abandoned hardrock mines accounted for about \$441 million—or 60 percent—of USDA’s explicit exposures in fiscal year 2020.<sup>45</sup>

Interior’s total explicit exposures for abandoned hardrock mines increased from \$83 million in fiscal year 2017 to \$301 million in fiscal year 2021, according to our analysis of Interior’s data.<sup>46</sup> In addition, the number of abandoned hardrock mine sites included in Interior’s explicit exposures increased from 158 sites in fiscal year 2017 to 203 sites in fiscal year 2021, which is an increase of 28.5 percent.<sup>47</sup> Figure 4 illustrates what BLM, NPS, and BIA reported as their explicit exposures for abandoned hardrock mines on lands they manage, or on tribal lands.<sup>48</sup>

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<sup>44</sup>Of the \$221 million, Interior’s environmental liabilities database showed that the agency considered about \$67 million to be probable costs and about \$154 million to be reasonably possible costs.

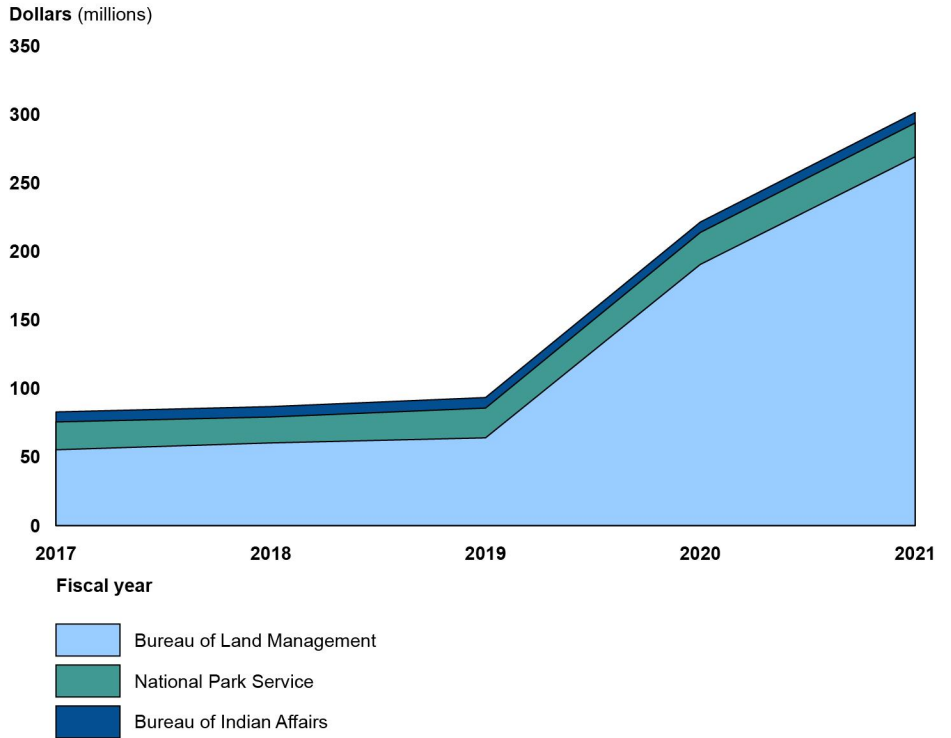
<sup>45</sup>USDA data showed that the agency considered the \$441 million to be probable costs.

<sup>46</sup>Interior officials said that they reported the agency’s costs, for the mines that Interior is cleaning up, in Interior’s financial statements, as well as any potential future cleanup costs for mines where cleanup is already underway but will take multiple years to complete. This amount includes both probable and reasonably possible costs.

<sup>47</sup>These sites were included in Interior’s abandoned hardrock mine cleanup cost estimates reported in the main body of its financial statements and disclosed in the notes. As we previously reported, BLM and NPS said that there are 6,446 mine sites or features with either confirmed or unconfirmed environmental hazards on the lands they manage, which is likely an underestimate. See [GAO-20-238](#).

<sup>48</sup>FWS did not have any explicit exposures for hardrock mines for fiscal years 2017 through 2021, according to Interior data, because of the limited number of mines on the lands it manages.

**Figure 4: U.S. Department of the Interior’s (Interior) Estimated Cleanup Costs for Abandoned Hardrock Mines Included in Its Financial Statements, Fiscal Years 2017 through 2021**



Source: GAO analysis of Interior information. | GAO-23-105408

Fiscal year	Bureau of Land Management	National Park Service	Bureau of Indian Affairs
<i>Dollars (millions)</i>			
2017	55.2	20.3	7.3
2018	60.2	18.9	7.6
2019	63.9	21.7	7.7
2020	190.4	23.3	7.6
2021	268.9	24.6	7.6

Note: These amounts included Interior’s abandoned hardrock mine cleanup cost estimates reported as probable liabilities in the main body of its financial statements and disclosed as reasonably possible in the notes.

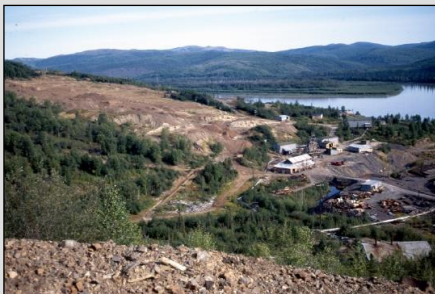
According to agency officials, the increase in environmental liabilities for abandoned hardrock mines was largely driven by BLM and NPS adding new sites and updating mine site assessments to develop a more accurate picture of future costs. We have previously reported that uncertainty about cost estimates is higher in the initial stages of



**Limited Accessibility of Mine Sites Can Affect Agencies' Development of Cost Estimates**

Officials from the U.S. Department of the Interior and the U.S. Department of Agriculture said that limited accessibility of sites in remote locations can affect cost estimates because it can be difficult to perform site inspections to determine the extent of contamination. Inaccessibility can stem from remoteness, weather conditions, road conditions, or safety concerns. For example, the Red Devil mine, which is located in a remote area of Alaska, has no road or rail connection to the mine site, so it is only accessible by boat, plane, or all-terrain vehicle, and only during summer. This limited accessibility has made cost estimating challenging, according to Bureau of Land Management officials.

**Red Devil Mine**



Source: U.S. Geological Survey. | GAO-23-105408

developing an estimate when there is less information available about resource needs and requirements.<sup>49</sup> As Interior officials further assess

abandoned hardrock mine sites, they said that some factors affect the development of cost estimates, such as the type and extent of contamination present at a site, the limited accessibility of sites in remote locations, the availability of funding to conduct site cleanups, and the availability of subject matter experts to manage cleanups at mine sites.<sup>50</sup>

According to our analysis and USDA officials, the agency's contingent liabilities included abandoned hardrock mine cleanup costs of \$441 million annually for fiscal years 2017 through 2020 and \$0 as the minimum amount of a range in fiscal year 2021—reflecting a change in USDA's determination of its liability for the costs.<sup>51</sup> The contingent liabilities of \$441 million per year for fiscal years 2017 through 2020 reflected estimated cleanup costs for one mine site—the Questa mine in

<sup>49</sup>Further, we reported that cost estimates tend to increase over time as more knowledge is gained about resource needs and requirements. GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Program Costs*, GAO-20-195G (Washington, D.C.: Mar. 12, 2020).

<sup>50</sup>USDA officials also told us that some of these factors affect their ability to develop cleanup cost estimates of abandoned hardrock mines.

<sup>51</sup>Contingencies are reported for potential liabilities related to pending or threatened litigation, where it is uncertain whether the agency is legally liable for the cleanup of the contamination. As a result, contingencies may be recognized, disclosed, or not be reported at all, depending on the circumstances, according to federal accounting standards.

New Mexico.<sup>52</sup> In USDA's fiscal year 2021 financial statements, the range of cleanup costs of \$0 to about \$715 million for this mine site, as well as two other sites, was included as probable contingencies in its notes, consistent with federal accounting standards.<sup>53</sup>

According to a USDA official and agency data, USDA has not included in the agency's financial statements the estimated costs for the roughly 5,300 mines they anticipate needing cleanup, some of which they have already started cleaning up.<sup>54</sup> USDA officials said that their determinations regarding which mine cleanup projects' costs to include in the agency's financial statements are based on a 2002 memorandum, which cited federal case law at the time, establishing the Forest Service's position that abandoned hardrock mines should not be considered CERCLA liabilities.<sup>55</sup> The memorandum further stated that unless there is no existing viable responsible party, the Forest Service will have no cleanup costs at such mine sites. While there have been developments in federal case law since the 2002 memorandum, including a case involving

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<sup>52</sup>The Questa mine site has been the subject of extensive litigation. In 2017, the Tenth Circuit found that under the facts in that case, the federal government was liable as an owner under CERCLA for its equitable portion of the costs necessary to remediate the contamination arising from mining activity on federal lands. *Chevron Mining, Inc. v. U.S.*, 863 F.3d 1261 (10th Cir. 2017). On remand to the district court to address equitable allocation, the U.S. District Court for the District of New Mexico held in June 2022 that the U.S. government is liable for 30 percent of all past and future eligible response costs at the Questa mine site. The U.S. Departments of the Interior and Agriculture appealed the judgment and, in November 2022, the Tenth Circuit dismissed the appeal.

<sup>53</sup>As noted previously, agencies may track a range of costs representing the high and low cost estimates and disclose the range in the notes to their financial statements.

<sup>54</sup>This amount is out of about 16,000 mine sites with either confirmed or unconfirmed environmental hazards on the lands that the Forest Service manages, as we previously reported. [GAO-20-238](#). For government-acknowledged cleanup (i.e., the federal agency is not legally liable, but chooses to perform the cleanup), cleanup costs are reported as liabilities only to the extent that the agency is authorized to formally accept financial responsibility for cleanup; has appropriations; and either actual cleanup activities have been performed but not yet paid for, or there are amounts that are otherwise due and payable (e.g., grants). According to USDA officials, because USDA does not report government-acknowledged liabilities, USDA environmental liabilities do not include the estimated long-term cleanup costs related to government-acknowledged site cleanup.

<sup>55</sup>The memorandum relied upon a series of federal district court decisions from 1994 to 2001 that each found that the government could not be held liable as an owner under CERCLA. See *U.S. v. Friedland*, 152 F. Supp. 2d 1234 (D. Colo. 2001); *U.S. v. Iron Mountain Mines*, 987 F. Supp. 1263 (E.D. Cal. 1997); *Idaho v. Hanna Mining* (D. Idaho 1994) (slip op.). USDA considers such mine sites to be government acknowledged for the purposes of whether to include them in its financial statements, according to USDA officials.

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the Questa mine site, as mentioned above, USDA officials stated that the agency has not updated the memorandum or developed additional guidance regarding reporting abandoned hardrock mine cleanup costs.<sup>56</sup> However, agency officials said that following these developments, the Forest Service began to report the estimated cleanup costs for certain similar sites as probable contingencies.<sup>57</sup>

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### Agencies Did Not Communicate Known Implicit Exposures for Abandoned Hardrock Mines to Congress in Budget Materials

Interior and USDA budget materials did not communicate known cost information about implicit exposures—cleanup costs where there is an expectation that the government will provide assistance beyond the amount legally required—specifically for abandoned hardrock mines. Agencies may communicate information on total estimated cleanup costs in budget materials that discuss information about the financial state of programs. In addition, USDA does not consistently track potential cleanup costs for abandoned hardrock mines, which impedes its ability to communicate precise estimates to Congress and the public.

#### Agencies Did Not Communicate Known Implicit Exposures for Abandoned Hardrock Mines

Interior did not communicate information about implicit exposures specifically for abandoned hardrock mines in its department-wide or

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<sup>56</sup>As noted previously, in 2017, the Tenth Circuit found that under the facts in that case, the federal government was liable as an owner under CERCLA for its equitable portion of the costs necessary to remediate the contamination arising from mining activity on federal lands. *Chevron Mining*, 863 F.3d at 1266. See also *El Paso v. U.S.*, No. CV-14-08165, 2017 WL 3492993, at \*7 (D. Ariz. Aug. 17, 2017) (finding the federal government to be an owner for the purposes of CERCLA).

<sup>57</sup>USDA officials stated that following the *Chevron Mining* decision, the Forest Service began to report other similar sites as probable contingencies when the agency is in active enforcement or cost recovery against a responsible party and where that party has asserted counterclaims against the Forest Service. According to our review of USDA documentation, in fiscal year 2021 this resulted in USDA reporting two other mines as probable contingencies. In December 2022, USDA officials said that their determinations regarding which mine cleanup project costs to include in the agency's financial statements depend on several key mine site-specific factors, including USDA's potential liability at a particular site, total estimated known cleanup costs, and USDA's potential share of such costs.

bureau-level budget materials that would help inform Congress and the public about its potential future cleanup responsibilities. Interior's budget requests for activities that include the cleanup of abandoned hardrock mines have been relatively small when compared with its explicit exposures. As previously noted, Interior's explicit exposures for abandoned hardrock mines increased from \$83 million in fiscal year 2017 to \$301 million in fiscal year 2021. For fiscal years 2017 through 2021, Interior requested an average of \$29.8 million per year for appropriations that could be used to clean up abandoned hardrock mines, as well as other activities, such as the cleanup of abandoned coal mines or orphaned oil and gas wells.<sup>58</sup> Interior's documents do not specify what portion of these requested amounts would be used specifically to clean up abandoned hardrock mines.

USDA's budget materials from fiscal years 2018 through 2021 contained a rough estimate of \$4 billion to \$6 billion needed for abandoned hardrock mine cleanup.<sup>59</sup> However, this estimate was not based on known cleanup costs from mine site investigations, documents, or studies. Rather, as we previously reported, this 2014 estimate is based on a series of assumptions and has not been updated in the past 8 years.<sup>60</sup> This estimate has not been updated since 2014 because the amount of funding that the Forest Service is appropriated annually—approximately \$5 million—will not address the estimated \$4 billion to \$6 billion needed for cleanup, according to Forest Service officials. Therefore, the officials said that they do not think it is worth expending the resources to update the total cost estimate. For fiscal years 2017 through 2021, USDA requested an average of \$3.5 million per year for activities that may include efforts to clean up abandoned hardrock mines.<sup>61</sup> USDA and Forest Service documents do not specify what portion of this requested

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<sup>58</sup>For fiscal years 2022 and 2023, Interior requested \$254.6 million and \$137.2 million, respectively, for activities that include, among other things, the cleanup of abandoned hardrock mines under Interior's IJJA abandoned hardrock mine land program.

<sup>59</sup>USDA's budget materials for fiscal year 2017 did not include an estimate for abandoned hardrock mine cleanup.

<sup>60</sup>[GAO-20-238](#).

<sup>61</sup>For fiscal years 2022 and 2023, USDA requested about \$6.5 million in appropriated hazardous material management account funds for USDA cleanup projects. However, as previously noted, the agency's budget office said that as of fiscal year 2022 funds can no longer be used from the Hazardous Materials Management Program for any Forest Service cleanup projects, including for abandoned hardrock mine cleanup projects. For fiscal year 2022, the Forest Service requested \$100 million under the IJJA.

amount would be used specifically to clean up abandoned hardrock mines.

In 2013, we found that budget reporting does not always fully capture or require consideration of federal fiscal exposures.<sup>62</sup> In such cases, we have recommended the use of supplemental reporting—that is, communicating information about fiscal exposures in budget materials—to provide policymakers with a more complete understanding of explicit exposures and implicit fiscal exposures.<sup>63</sup> We also found that expanding the availability and use of supplemental reports, including information on measures that can signal significant changes in the magnitude of fiscal exposures, can be important to enhancing transparency and oversight over federal resources, as well as aid in monitoring the financial condition of programs over the longer term.<sup>64</sup>

Since 2003, we have reported on the importance of agencies improving recognition of implicit exposures and providing Congress and the public with a more comprehensive picture of the federal government's future financial obligations.<sup>65</sup> For example, in October 2013, we found that for some fiscal exposures, agency budget submissions might communicate incomplete information or potentially misleading signals about the government's future financial obligations.<sup>66</sup> In our 2017 High-Risk Series report, we stated that some departments and agencies may need to improve the completeness of information about long-term cleanup responsibilities and their associated costs so that decision makers, including Congress, can consider the full scope of the federal government's cleanup obligations.<sup>67</sup>

Transparency through reporting in budget materials is an essential element for providing Congress with a more comprehensive picture of fiscal exposures for abandoned hardrock mines. Without additional information about both agencies' known fiscal exposures specifically for abandoned hardrock mines, policy makers may not be able to make fully

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<sup>62</sup>[GAO-14-28](#).

<sup>63</sup>[GAO-03-219](#) and [GAO-14-28](#).

<sup>64</sup>[GAO-14-28](#).

<sup>65</sup>[GAO-14-28](#), [GAO-03-213](#); and [GAO-03-219](#).

<sup>66</sup>[GAO-14-28](#).

<sup>67</sup>[GAO-17-317](#).

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informed decisions that could, for example, help Interior implement the new abandoned hardrock mine land program called for by the IIJA. Expanding the availability of information on agencies' estimated cleanup costs specifically for abandoned hardrock mines in supplemental reports, that is not available elsewhere, could also help decision makers to monitor and have a clearer picture of the federal government's fiscal exposure. This information could include any potential future cleanup costs for mines where cleanup is already underway, as well as those estimates available in mine site investigations, documents, or studies. By more fully reporting on their fiscal exposure, Interior and USDA could help ensure that decision makers—including Congress, Interior, and USDA—are better equipped to make important mine cleanup funding decisions.

#### USDA's Estimated Cleanup Costs Are Not Tracked Consistently

USDA does not consistently track potential cleanup costs for abandoned hardrock mines in a manner that allows the agency to generate a more precise estimate than the \$4 billion to \$6 billion estimate previously discussed for communicating its fiscal exposure to Congress and the public. USDA's Office of the General Counsel currently tracks contingencies where there is a probable and reasonably possible chance that a court will determine that the federal government is liable for cleanup, according to USDA officials. As a result, in fiscal year 2021, USDA included three mines in its contingency-tracking document, out of the approximately 16,000 abandoned hardrock mines on lands managed by the Forest Service with either known or suspected contamination.<sup>68</sup> In addition, Forest Service officials told us that the documentation they use to comply with CERCLA, such as remedial investigations and feasibility studies, as well as records of decision, contain mine site cleanup estimates, but estimates from these documents are not regularly included

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<sup>68</sup>In comparison, Interior tracks abandoned mine cleanup costs by site in a department-wide database and then reports known amounts in its financial statements, according to agency documents.

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in NEAT—the department-level database for managing USDA’s site cleanup program.<sup>69</sup>

While USDA maintains NEAT, the database is not being used as a tool for tracking estimated cleanup costs.<sup>70</sup> NEAT includes data fields, such as site description, whether the site has mixed ownership, whether the site is reported as an environmental liability in USDA’s financial statements, fiscal year funded, funding amount, activity phase, and estimated cost of activity. However, USDA officials told us that these fields are optional for entry by staff, so when data on estimated cleanup costs are available—for example in site assessment studies or records of decision—they are not regularly entered into NEAT or used for tracking estimated cleanup costs.<sup>71</sup> USDA officials further stated that these fields are optional to ensure that a small number of priority data fields, such as the site’s status, are entered into NEAT. However, the optional nature of certain fields, such as the estimated cost of activities, results in inconsistent data collection and affects USDA’s ability to access readily available information.

USDA has information quality guidelines that apply to all types of information disseminated by USDA agencies and offices.<sup>72</sup> According to these guidelines, USDA is to ensure the quality, objectivity, utility, and integrity of the information that USDA’s agencies and offices disseminate to the public. By not having more precise and readily available information on estimated cleanup costs in the NEAT database, USDA officials may

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<sup>69</sup>Under the CERCLA process, site investigation studies include remedial investigation and feasibility studies, which seek to determine the nature and extent of contamination at a site, test whether certain technologies are capable of treating the contamination, and evaluate the cost and performance of technologies that could be used to clean up the site. A record of decision identifies the selected remedy for addressing the site’s contamination and a cost estimate for implementing the remedy, among other things.

<sup>70</sup>USDA began using NEAT in 2018 in response to a GAO recommendation to ensure that USDA has information needed to better identify potentially contaminated sites, including abandoned hardrock mines. USDA officials said that NEAT’s primary purpose is to track agency progress and accomplishments in evaluating and cleaning up hardrock mine sites. See GAO, *Hazardous Waste: Agencies Should Take Steps to Improve Information on USDA’s and Interior’s Potentially Contaminated Sites*, [GAO-15-35](#) (Washington, D.C.: Jan. 16, 2015).

<sup>71</sup>According to USDA officials, staff entering information into NEAT include officials from USDA headquarters, USDA agencies, and the nine Forest Service regional offices.

<sup>72</sup>U.S. Department of Agriculture, “Information Quality Activities,” accessed April 29, 2022, <https://www.usda.gov/ocio/guidelines-and-compliance-resources/information-quality-activities>.



not be able to consistently track agency progress in achieving its abandoned hardrock mine program's objectives and make informed decisions. Officials said that tracking potential cost estimates in NEAT is possible for a subset of their roughly 16,000 mines with either known or suspected contamination, where assessments have been completed, and that it could be a helpful tool that would allow them to capture this information more systematically.

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## Interior Has Taken Some Steps to Implement the New Abandoned Hardrock Mine Program but Has Not Yet Developed Performance Measures to Help It Evaluate Program Results

Interior has taken some steps to implement the abandoned hardrock mine land program called for under the IIJA, and it has not yet developed performance measures to allow it to assess the results of the program's efforts and achieve its goals.<sup>73</sup> According to Interior officials and draft program documentation, as of October 2022, the department was in the early stages of defining and planning this program. The program will include a component to address abandoned hardrock mines on federal lands, as well as a grant component to address mines on state, tribal, local, or private lands, according to draft program documentation.<sup>74</sup>

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<sup>73</sup>Specifically, the IIJA directs the Secretary of the Interior to establish a program to inventory, assess, decommission, reclaim, respond to hazardous substance releases on, and remediate abandoned hardrock mine land based on conditions including need, public health and safety, potential environmental harm, and other land use priorities. Pub. L. No. 117-58, § 40704(a), 135 Stat. 429, 1093 (2021).

<sup>74</sup>The IIJA calls for the Secretary of the Interior, subject to the availability of funds, to provide grants on a competitive or formula basis to states and tribes that have jurisdiction over abandoned hardrock mine land to reclaim that land. § 40704(b), 135 Stat. at 1093. Amounts made available for this program may only be used for federal, state, tribal, local, and private land that has been affected by past hardrock mining activities and water resources that traverse or are contiguous to such land. § 40704(c), 135 Stat. at 1093. According to Interior officials, for purposes of the IIJA program, "abandoned hardrock mine land" encompasses lands that contain features resulting from the past exploration, development, mining, or processing of noncoal solid minerals, and associated facilities. This includes sand and gravel pits and abandoned uranium mines on federal, state, tribal, and other nonfederal lands, according to officials.

Interior received \$5 million in fiscal year 2022 appropriations,<sup>75</sup> which officials stated enabled it to take the following steps:

- **Developing an inventory of abandoned hardrock mines.** As directed by the IJJA, Interior has taken some steps to inventory abandoned hardrock mines by starting development of a national abandoned mine inventory database, in coordination with other federal agencies, states, and tribes. Interior is using an existing geospatial platform developed by the U.S. Geological Survey as the foundation for the database, according to Interior officials and draft documentation.<sup>76</sup> In spring 2022, federal and state stakeholders proposed lists of fields for inclusion in the database, which were provided to the involved parties for feedback.<sup>77</sup> Interior officials told us in July 2022 that continued development of the database is constrained by funding and staff limitations.
- **Establishing an interagency working group.** Interior officials told us that they established an interagency working group for the program to obtain input on program implementation from partners.<sup>78</sup> According to Interior officials and meeting documentation, initial meetings of the abandoned hardrock mine interagency working group have focused on determining program goals.
- **Establishing programmatic goals and objectives.** Interior has developed draft goals and objectives for the abandoned hardrock mine land program, according to draft documentation on program implementation. The program's goals include providing funds to

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<sup>75</sup>Specifically, the \$5 million appropriated by the Consolidated Appropriations Act, 2022 could be used for this program or another Interior program established under the IJJA—the orphaned oil and gas well program. Pub. L. No. 117-103, 136 Stat. 49, 370. According to Interior officials, Interior used all \$5 million for the abandoned hardrock mine land program. Interior officials also noted that the \$5 million was in addition to other funds the Department received to use for the abandoned hardrock mine land program.

<sup>76</sup>U.S. Geological Survey's USMIN Mineral Deposit Database is a national-scale geospatial database that provides information on mines, mineral deposits, and mineral districts of the United States. U.S. Geological Survey, "USMIN Mineral Deposit Database," accessed Sept. 9, 2022, <https://www.usgs.gov/centers/ggsc/science/usmin-mineral-deposit-database#overview>.

<sup>77</sup>These stakeholders included officials from the U.S. Geological Survey, BIA, NPS, the Interstate Mining Compact Commission, the Nevada Division of Minerals, BLM, the Forest Service, and Interior.

<sup>78</sup>These partners included federal agencies, such as the Forest Service and the Environmental Protection Agency.

support federal, state, and tribal abandoned mine land programs and establishing an interagency technical work group to assist with policy development and funding decisions. While the draft program documentation does not include goals or objectives related to reducing Interior's fiscal exposure from abandoned hardrock mines, Interior officials said that their efforts to clean up abandoned hardrock mines under the program may help reduce the agency's environmental liabilities.<sup>79</sup>

- **Developing plans to award grant funding.** Interior officials told us that they started preliminary discussions on how to prioritize funding for the federal land component of the abandoned hardrock mine land program, including drafting a matrix for prioritizing funds and developing implementation guidance. Draft program implementation documents also include a framework for establishing the state and tribal grant-funding component of the program. In addition, Interior officials stated that they plan to develop an implementation plan for the federal component in fiscal year 2023.

While Interior has taken some steps to implement the new program, Interior's draft documentation did not include performance measures for the new abandoned hardrock mine land program, among other program outcomes and benefits that can be used for measuring the program's progress in meeting its goals.<sup>80</sup> Interior officials told us that the agency plans to develop and model the financial and program management documentation for the federal abandoned hardrock mine land program after similar documentation developed for Interior's orphaned oil and gas well program, also established under the IIJA.<sup>81</sup> However, Interior did not have performance measures for the orphaned oil and gas well program in its documentation, as of November 2022. Interior officials told us that the

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<sup>79</sup>Reducing the environmental liabilities from abandoned hardrock mine sites is not a specific requirement of the abandoned hardrock mine land program authorized under the IIJA. Interior officials stated that the program's ability to reduce environmental liabilities is dependent on receiving sufficient funding and the precedence in addressing sites with environmental contamination.

<sup>80</sup>The documentation we reviewed included financial and program management guidance for the orphaned oil and gas well program, program budget documents, and the agency's strategic plan for fiscal years 2022 through 2026.

<sup>81</sup>Specifically, the IIJA called for Interior to establish a program to plug, remediate, and reclaim orphaned wells located on federal land, as well as to provide grants to states and tribes. Pub. L. No. 117-58, § 40601, 135 Stat. 429, 1080 (2021). In addition to authorizing funding for the program, the IIJA appropriated nearly \$4.7 billion for the orphaned oil and gas well program.

agency's ability to further develop and implement the abandoned hardrock mine land program is dependent on the availability of additional program funding and staff resources. Officials stated that because the orphaned oil and gas well program received the full \$4.7 billion in appropriations that was authorized in the IIJA in fiscal year 2022, they have prioritized the development of that program, while doing some planning for the abandoned hardrock mine land program.

As Interior continues developing and implementing its abandoned hardrock mine land program, it could benefit from developing quantitative performance measures based on leading practices for program management. In 2011 and 2019, we reported that performance measures are important for tracking progress in achieving goals and are a key element of effective strategic planning.<sup>82</sup> Likewise, we have previously reported that the Project Management Institute's *The Standard for Program Management* provides generally recognized leading practices for program management.<sup>83</sup> *The Standard for Program Management* provides an overview of a program's three life cycle phases and associated actions with each phase. Interior is currently in the first phase—program definition—as it undertakes activities to formulate and plan program activities. This phase includes authorizing the program, developing its roadmap required to achieve the expected results, as well as defining the key performance indicators and associated quantitative measures required to effectively monitor the delivery of program benefits.<sup>84</sup> This phase's purposes are to progressively elaborate the goals

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<sup>82</sup>GAO, *Environmental Justice: EPA Needs to Take Additional Actions to Help Ensure Effective Implementation*, [GAO-12-77](#) (Washington, D.C.: Oct. 6, 2011); and *Environmental Justice: Federal Efforts Need Better Planning, Coordination, and Methods to Assess Progress*, [GAO-19-543](#) (Washington, D.C.: Sept. 16, 2019).

<sup>83</sup>GAO, *Columbia River Basin: Additional Federal Actions Would Benefit Restoration Efforts*, [GAO-18-561](#) (Washington, D.C.: Aug. 24, 2018). Program management planning ensures that a program is continually aligned with an organization's strategic priorities to deliver the expected benefits, according to *The Standard for Program Management*. Aspects of program management include developing plans to engage stakeholders, communicating internally and externally, managing resources, and managing risks. See Project Management Institute, Inc., *The Standard for Program Management*, Fourth Edition (2017). The Project Management Institute is a not-for-profit association that, among other things, provides standards for managing various aspects of projects, programs, and portfolios.

<sup>84</sup>According to *The Standard for Program Management*, the second phase of the life cycle is program delivery, and the third phase is program closure.

and objectives to be addressed by the program and define the expected program outcomes and benefits, among other things.

Consistent with the practices established in *The Standard for Program Management*, an important next step to move forward with implementing the abandoned hardrock mine land program will be to define quantitative performance measures that help program officials fully and accurately assess their progress toward achieving their goals. Doing so could help Interior create a foundation for assessing the new program's performance as the agency progresses in (1) cleaning up abandoned hardrock mines on federal lands, which may reduce its fiscal exposure; and (2) awarding grants to states and tribes to clean up abandoned hardrock mines on lands subject to their jurisdiction.

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## Conclusions

Certain abandoned hardrock mines on lands managed by Interior and USDA contribute to the federal government's fiscal exposure. These mines can cause environmental degradation and hazardous conditions that pose risks to human health and the environment. The federal government may pay for their cleanup, which could run into the billions of dollars per mine site, if no other viable potentially responsible parties are identified.

Interior and USDA did not clearly identify which explicit exposures are specifically for abandoned hardrock mines when they included them in their financial statements. In addition, neither agency communicated known information about implicit exposures in their budget materials. If the agencies communicated more specific and precise information in their budget materials, Congress and the public could have a more complete picture of Interior's and USDA's long-term cleanup responsibilities and their anticipated costs from abandoned hardrock mines.

USDA does not consistently populate certain information, such as cleanup cost estimates, from its mine site documentation into its NEAT database. If the agency required available mine cleanup cost estimation data to be regularly entered into NEAT, this information would be available for decision-making and informing Congress and the public of USDA's fiscal exposure from abandoned hardrock mines.

Interior has taken steps to implement a first-of-its-kind abandoned hardrock mine land program called for by the IIJA, but it has not yet

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established performance measures to achieve its cleanup goals. By doing so, Interior could monitor whether it is achieving its goals to clean up mines.

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## Recommendations for Executive Action

We are making a total of four recommendations, two to Interior and two to USDA:

The Secretary of the Interior should expand the information available to Congress regarding the agency's fiscal exposure from abandoned hardrock mines by clearly identifying the amount of known cleanup cost estimates specifically for such mines in supplemental reports or other budget materials. (Recommendation 1)

The Secretary of Agriculture should expand the information available to Congress regarding the agency's fiscal exposure from abandoned hardrock mines by clearly identifying the amount of known cleanup cost estimates specifically for such mines in supplemental reports or other budget materials. (Recommendation 2)

The Secretary of Agriculture should require the inclusion of available cleanup cost estimates from documents, such as records of decision and site investigation studies, in NEAT, so that more precise information can be considered for program management and decision-making. (Recommendation 3)

The Secretary of the Interior should develop quantitative performance measures for the IJJA abandoned hardrock mine land program, as the agency continues to design and implement the program, to enable the agency to assess its progress toward meeting its program goals. (Recommendation 4)

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## Agency Comments

We provided a copy of this report to the U.S. Departments of Agriculture and the Interior for review and comment. In their comments, reproduced in appendixes III and IV, both agencies stated that they concurred with our recommendations. Both agencies also provided technical comments, which we incorporated as appropriate.

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As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of this report to the appropriate congressional committees, the Secretary of the Interior, Secretary of Agriculture, and other interested parties. In addition, the report is available at no charge on the GAO website at <https://www.gao.gov>.

If you or your staff have any questions about this report, please contact us at (202) 512-3841 or [AndersonN@gao.gov](mailto:AndersonN@gao.gov) or [JohnsonCD1@gao.gov](mailto:JohnsonCD1@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made contributions to this report are listed in appendix V.

Sincerely yours,



Nathan Anderson  
Director, Natural Resources and Environment



Cardell Johnson  
Acting Director, Natural Resources and Environment



# Appendix I: Objectives, Scope, and Methodology

This report (1) describes what the U.S. Departments of the Interior (Interior) and Agriculture (USDA) spent to clean up environmental contamination at abandoned hardrock mines from fiscal years 2017 through 2021; (2) assesses the extent to which the agencies communicated estimated cleanup costs for and federal fiscal exposure from abandoned hardrock mines in their financial statements and budget materials; and (3) describes the steps Interior has taken to implement the Infrastructure Investment and Jobs Act's (IIJA) abandoned hardrock mine land program, and assesses the extent that it has followed leading practices for program management.

To describe what Interior and USDA spent to clean up abandoned hardrock mines from fiscal years 2017 through 2021, we analyzed expenditure information from Interior's Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), Fish and Wildlife Service (FWS), National Park Service (NPS), and Office of Environmental Policy and Compliance, and USDA's Environmental Management Division and the Forest Service for the most recent 5 fiscal years prior to the start of our review—fiscal years 2017 through 2021. For examples of ways that agencies expended funds to clean up hardrock mines, we reviewed agency documentation, such as historical reports and documentation issued to comply with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended. To assess the reliability of the data obtained from these federal agencies, we tested the data for accuracy by checking for missing data and errors and requested information about the data systems used and any limitations from the agencies. We determined that the data were sufficiently reliable for describing agencies' expenditures to clean up abandoned hardrock mines. In addition, we reviewed and summarized federal agency guidance containing the processes that each use when determining which abandoned hardrock mine cleanup projects to fund. We also reviewed scoring tools, such as matrixes, which contain criteria that are used to rank and select mines to fund for cleanup.

To assess the extent to which the agencies communicated estimated cleanup costs for, and federal fiscal exposure from, abandoned hardrock

mines in their financial statements and budget materials, we reviewed and summarized relevant sections of the federal accounting standards. We analyzed government documents for fiscal years 2017 through 2021. These documents included agency financial statements and budget materials, which included Interior's budget in briefs as well as USDA's budget justifications and explanatory notes.<sup>1</sup> We also reviewed the body of work where GAO has discussed the importance of agencies improving recognition of fiscal exposures and providing a comprehensive picture of the federal government's future financial obligations.<sup>2</sup> These reports discussed a conceptual framework for fiscal exposures that was developed from information found in sources such as the federal accounting standards, literature reviews, discussions with budget experts and federal agencies, and experiences of other nations. We also reviewed our 2017 High-Risk Series report, which discussed the federal government's environmental liabilities and the need for some agencies to improve the completeness of information about long-term cleanup responsibilities and their associated costs so that decision makers, including Congress, can consider the full scope of the federal government's cleanup obligations.<sup>3</sup>

We also analyzed data sources that the agencies used to track mine site information, such as Interior's Environmental and Disposal Liability database, as well as USDA's Management Schedule Legal Letters and National Environmental Accomplishment Tracking (NEAT) database, to identify any cost estimates that officials said they either included or did not include in their financial statements. We also reviewed USDA's information quality guidelines to determine whether the agency followed them when entering cost estimate data for abandoned hardrock mines into the NEAT database. We assessed the data fields in USDA's NEAT

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<sup>1</sup>Explanatory notes include budget information. We also reviewed Interior's and USDA's budget materials for fiscal year 2022, although fiscal year 2022 was not in the scope of this report, to see if the amount of funding that the agencies requested changed because of the enactment of the IIJA in November 2021. We describe this information in our findings.

<sup>2</sup>GAO, *Fiscal Exposures: Improving Cost Recognition in the Federal Budget*, [GAO-14-28](#) (Washington, D.C.: Oct. 29, 2014); *Fiscal Exposures: Improving the Budgetary Focus on Long-Term Costs and Uncertainties*, [GAO-03-213](#) (Washington, D.C.: Jan. 24, 2003); and *Long-Term Commitments: Improving the Budgetary Focus on Environmental Liabilities*, [GAO-03-219](#) (Washington, D.C.: Jan. 24, 2003).

<sup>3</sup>GAO, *High-Risk Series: Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others*, [GAO-17-317](#) (Washington, D.C.: Feb. 15, 2017).

database to determine the extent to which the data provide quality information on potential cleanup cost estimates.

To assess the reliability of the data used to report estimated cleanup costs for abandoned hardrock mines in the agencies' financial statements, we checked for missing data and errors, reviewed documents about the data systems, asked agency officials about the data and any limitations, and reviewed their written responses. We also interviewed Interior and USDA Offices of Inspector General to determine whether their audit findings for fiscal years 2017 through 2021 cast doubt on the reliability of the data. While we determined that the data were sufficiently reliable for the purposes of this report, not all data fields in NEAT are required to be populated. We describe these findings in the report.

To provide further context to the cost estimates reported, we reviewed a previous GAO report that identified in 2020 the estimated number of mine features with known or unknown environmental contamination on Interior- and USDA-managed lands.<sup>4</sup>

To describe the steps Interior has taken to implement the IJJA's abandoned hardrock mine land program, we reviewed the IJJA and Interior's fiscal year 2022 appropriations. To help us identify any goals, objectives, and performance measures for Interior's new abandoned hardrock mine land program, we analyzed its strategic plan for fiscal years 2022 through 2026, draft abandoned hardrock mine land program documentation and guidance, and interagency working group meeting documentation.<sup>5</sup> To assess the extent that Interior has followed leading practices for program management, we analyzed Interior's development of goals, objectives, and performance measures and compared them with leading practices for program planning and development from the Project Management Institute's *The Standard for Program Management*.<sup>6</sup>

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<sup>4</sup>GAO, *Abandoned Hardrock Mines: Information on Number of Mines, Expenditures, and Factors That Limit Efforts to Address Hazards*, [GAO-20-238](#) (Washington, D.C.: Mar. 5, 2020).

<sup>5</sup>This working group is described in our findings.

<sup>6</sup>Project Management Institute, Inc., *The Standard for Program Management*, Fourth Edition (2017). The Project Management Institute is a not-for-profit association that, among other things, provides standards for managing various aspects of projects, programs, and portfolios.

To select mines to visit and use as illustrative examples throughout the report, we

1. developed a preliminary list of factors that may affect agencies' estimates of potential cleanup costs for abandoned hardrock mine sites by reviewing previous GAO reports and conducting interviews with Interior and USDA officials;
2. confirmed these factors with the agencies through another round of interviews where officials also provided mine site examples of these factors, where applicable;
3. summarized and analyzed the list of 13 factors and associated mine site examples;<sup>7</sup> and
4. used the following criteria to select a nongeneralizable list of eight abandoned hardrock mine sites: (a) mines that exemplified multiple factors; (b) at least one mine that was reported as an environmental liability in agencies' fiscal years 2017 through 2021 financial statements and one that was not; (c) no mines that were from the same geographic location; and (d) mines that had high estimated costs reported in fiscal year 2021 financial statements.

We selected eight mine sites, which included the Questa, Josephine, Red Devil, Gold King/Brooklyn, Holden, Blue Ledge, Grant-Kohrs Ranch/Clark Fork River, and Nacimiento mines. For each of the eight sites, we reviewed documents that described the site's history and agencies used to assess the mine and any associated contamination. From these eight, we chose to visit two mine sites, the Nacimiento and Questa mines in northern New Mexico, in June 2022, based on geographic location and agency availability to facilitate site visits. Findings from our review of the mine sample cannot be generalized to those we did not select or include in our review.

To obtain information for this report, we interviewed officials from Interior's Office of Environmental Policy and Compliance, BLM, BIA,

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<sup>7</sup>These 13 factors included (1) the type and extent of contamination; (2) limited staff and subject matter expertise available to manage cleanup; (3) limited funding available for cleanup; (4) accessibility of sites in remote locations; (5) unsure of cleanup costs at a particular cleanup phase; (6) readily available technology to remediate a site; (7) management may not prioritize estimating costs; (8) standards, responsibilities, laws, and regulations for cleanup may not yet exist, change as the environment changes, or change cleanup standards; (9) officials may not always schedule cleanup activities in a timely manner; (10) land ownership complications; (11) some officials managing mine site cleanup may choose remedies that are more extensive and costly than required or are not consistent between sites; (12) incomplete data; and (13) legal liability concerns over sites.

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FWS, and NPS, as well as officials from USDA's Environmental Management Division and the Forest Service.

We conducted this performance audit from September 2021 to January 2023 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

# Appendix II: Information That Interior and USDA Used to Make Funding Decisions for Cleanup of Abandoned Hardrock Mines

The U.S. Department of the Interior (Interior) and the U.S. Department of Agriculture (USDA) used similar information to make funding decisions for abandoned hardrock mine cleanup projects. For example, they both prioritized funds based on the mine’s risk to human health and the environment. See table 1 for a comparison of the information that Interior and USDA used to fund mine cleanup projects.

**Table 1: Examples of Information That the U.S. Department of the Interior (Interior) and the U.S. Department of Agriculture (USDA) Used to Make Funding Decisions for Abandoned Hardrock Mine Cleanup Projects, as of November 2022**

Information	Interior	USDA
Environmental justice	Yes	Yes
Human health threat or risk	Yes	Yes
Ecological threat or risk	Yes	Yes
Near watershed	Yes	Yes
Enforcement or legal risk	Yes	Yes
National Priorities List site <sup>a</sup>	Yes	Yes
Soil or air release pathway	Yes	Yes
Cost recovery or partnership potential	Yes	Yes
Regulatory factors driving need for site funding	Yes	Yes
Secretarial or mission priorities	Yes	Yes
Whether the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, has a role	Yes	Yes
Toxicity of contaminants	Yes	Yes
Level of urgency to address	Yes	Yes

Source: GAO analysis of Interior and USDA documents. | GAO-23-105408

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**Appendix II: Information That Interior and  
USDA Used to Make Funding Decisions for  
Cleanup of Abandoned Hardrock Mines**

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<sup>a</sup>The National Priorities List includes sites of national priority among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the U.S. and its territories, according to the Environmental Protection Agency.



# Appendix III: Comments from the U.S. Department of Agriculture



United States  
Department of  
Agriculture

Forest  
Service

Washington Office

1400 Independence Avenue, SW  
Washington, D.C. 20250

File Code: 2160

Date: January 5, 2023

Mr. Cardell Johnson  
Director, Federal Lands and Water  
Natural Resources and Environment  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548

Dear Mr. Johnson:

The U.S. Department of Agriculture (USDA) appreciates the opportunity to respond to the U.S. Government Accountability Office (GAO) draft report, "Abandoned Hardrock Mines: Land Management Agencies Should Improve Reporting of Total Cleanup Costs (GAO-23-105408)." USDA generally agrees with the GAO draft report and recommendations.

As noted by GAO on page 18 of the draft report, "USDA included certain estimated cleanup costs, or explicit exposures, for abandoned hardrock mines in the aggregated total environmental liabilities reported in their financial statements, consistent with federal accounting standards."

Thank you again for the opportunity to review the draft report. If you have any questions, please contact Robert Velasco, Chief Financial Officer, at [robert.velasco@usda.gov](mailto:robert.velasco@usda.gov).

Sincerely,

RANDY MOORE  
Chief



Caring for the Land and Serving People

Printed on Recycled Paper



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## Agency Comment Letter

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### Text of Appendix III: Comments from the U.S. Department of Agriculture

Date: January 5, 2023

Mr. Cardell Johnson  
Director, Federal Lands and Water  
Natural Resources and Environment  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548

Dear Mr. Johnson:

The U.S. Department of Agriculture (USDA) appreciates the opportunity to respond to the U.S. Government Accountability Office (GAO) draft report, “Abandoned Hardrock Mines: Land Management Agencies Should Improve Reporting of Total Cleanup Costs (GAO-23-105408).” USDA generally agrees with the GAO draft report and recommendations.

As noted by GAO on page 18 of the draft report, “USDA included certain estimated cleanup costs, or explicit exposures, for abandoned hardrock mines in the aggregated total environmental liabilities reported in their financial statements, consistent with federal accounting standards.”

Thank you again for the opportunity to review the draft report. If you have any questions, please contact Robert Velasco, Chief Financial Officer, at [robert.velasco@usda.gov](mailto:robert.velasco@usda.gov).

Sincerely,

Randy Moore  
Chief

# Appendix IV: Comments from the U.S. Department of the Interior



## United States Department of the Interior

OFFICE OF THE SECRETARY  
Washington, DC 20240

Cardell Johnson  
Director, Natural Resources and Environment  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548

Dear Mr. Johnson:

Thank you for providing the Department of the Interior (Department) an opportunity to review and comment on the draft Government Accountability Office (GAO) draft report titled, *Abandoned Hardrock Mines: Land Management Agencies Should Improve Reporting of Total Cleanup Costs* (GAO-23-105408). We appreciate GAO's review of the Department's management of hardrock liabilities and accounting procedures.

The Department concurs with the following recommendation(s) issued by GAO.

**Recommendation 1: The Secretary of the Interior should expand the information available to Congress regarding the agency's fiscal exposure from abandoned hardrock mines by clearly identifying the amount of known cleanup cost estimates specifically for such mines in supplemental reports or other budget materials.**

**Response:** Concur. The Department reports environmental liabilities as required by Federal Accounting Standards Advisory Board (FASAB), requirements and the June 30, 2022, FASAB Handbook of Federal Accounting Standards and Other Pronouncements, as amended (or current version) and OMB Circular A-136, Financial Reporting Requirements. In addition to this reporting, the Department will include the value of known environmental liabilities associated with abandoned hardrock mine land in reports related to Section 40704 the Infrastructure Investment and Jobs Act (IIJA), supplemental reports or other budget materials.

**Responsible Official:** Director, Office of Environmental Policy and Compliance

**Target Date:** June 30, 2023

**Recommendation 4: As the agency continues to design and implement the IIJA abandoned hardrock mine land program, the Secretary of the Interior should develop quantitative performance measures for the program to enable the agency to assess its progress toward meeting its program goals.**

**Response:** Concur. The Department drafted Agency Priority Goals (APGs) as quantitative and qualitative performance measures for fiscal year 2023. The APGs include mitigating high priority abandoned hardrock mine land to eliminate dangerous environmental conditions and

pollution caused by past mining. Reclamation and remediation of abandoned hardrock mine lands will address the health and safety hazards and environmental degradation of abandoned mines.

**Responsible Official:** Director, Office of Environmental Policy and Compliance

**Target Dates:** June 30, 2023

The attached enclosure contains technical comments and proposed corrections to incomplete information for your consideration while finalizing the report.

If you should have any questions or need additional information, please contact the PFM AM team at [DOI\\_PFM\\_AM@ios.doi.gov](mailto:DOI_PFM_AM@ios.doi.gov).

Sincerely,

**JOAN  
MOONEY**

Joan M. Mooney  
Principal Deputy Assistant Secretary  
Exercising the Delegated Authority of the  
Assistant Secretary for Policy, Management  
and Budget

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MOONEY  
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Enclosure

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## Agency Comment Letter

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### Text of Appendix IV: Comments from the U.S. Department of the Interior

Cardell Johnson  
Director, Natural Resources and Environment  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548

Dear Mr. Johnson:

Thank you for providing the Department of the Interior (Department) an opportunity to review and comment on the draft Government Accountability Office (GAO) draft report titled, Abandoned Hardrock Mines: Land Management Agencies Should Improve Reporting of Total Cleanup Costs (GAO-23-105408). We appreciate GAO's review of the Department's management of hardrock liabilities and accounting procedures.

The Department concurs with the following recommendation(s) issued by GAO.

Recommendation 1: The Secretary of the Interior should expand the information available to Congress regarding the agency's fiscal exposure from abandoned hardrock mines by clearly identifying the amount of known cleanup cost estimates specifically for such mines in supplemental reports or other budget materials.

Response: Concur. The Department reports environmental liabilities as required by Federal Accounting Standards Advisory Board (FASAB), requirements and the June 30, 2022, FASAB Handbook of Federal Accounting Standards and Other Pronouncements, as amended (or current version) and OMB Circular A-136, Financial Reporting Requirements. In addition to this reporting, the Department will include the value of known environmental liabilities associated with abandoned hardrock mine land in reports related to Section 40704 the Infrastructure Investment and Jobs Act (IIJA), supplemental reports or other budget materials.

Responsible Official: Director, Office of Environmental Policy and Compliance

Target Date: June 30, 2023

Recommendation 4: As the agency continues to design and implement the IJJA abandoned hardrock mine land program, the Secretary of the Interior should develop quantitative performance measures for the program to enable the agency to assess its progress toward meeting its program goals.

Response: Concur. The Department drafted Agency Priority Goals (APGs) as quantitative and qualitative performance measures for fiscal year 2023. The APGs include mitigating high priority abandoned hardrock mine land to eliminate dangerous environmental conditions and pollution caused by past mining. Reclamation and remediation of abandoned hardrock mine lands will address the health and safety hazards and environmental degradation of abandoned mines.

Responsible Official: Director, Office of Environmental Policy and Compliance

Target Dates: June 30, 2023

The attached enclosure contains technical comments and proposed corrections to incomplete information for your consideration while finalizing the report.

If you should have any questions or need additional information, please contact the PFM AM team at DOI\_PFM\_AM@ios.doi.gov.

Sincerely,

Joan M. Mooney

Principal Deputy Assistant Secretary  
Exercising the Delegated Authority of the  
Assistant Secretary for Policy, Management  
and Budget

Enclosure

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# Appendix V: GAO Contacts and Staff Acknowledgments

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## GAO Contacts

Nathan Anderson at (202) 512-3841 or [AndersonN@gao.gov](mailto:AndersonN@gao.gov),  
or Cardell D. Johnson at (202) 512-3841 or [JohnsonCD1@gao.gov](mailto:JohnsonCD1@gao.gov)

---

## Staff Acknowledgments

In addition to the contacts named above, Casey L. Brown (Assistant Director), Janice Poling (Assistant Director), Keesha Luebke (Analyst in Charge), Adrian Apodaca, Tammy Beltran, Robert Dacey, Cindy Gilbert, Susan Irving, Jason Scott Kirwan, Kristen Kociolek, Jordan Kudrna, Barbara Lancaster, Jessica Lemke, Benjamin Licht, Joseph Maher, Phillip McIntyre, Jordan Miller, Patricia Moye, Katrina Pekar-Carpenter, Leslie Pollock, Emily Ryan, Caitlin Scoville, Jeanette Soares, and Christopher Spain made contributions to this report.

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