

May 2012

# PHOSPHATE MINING

## Oversight Has Strengthened, but Financial Assurances and Coordination Still Need Improvement



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## Why GAO Did This Study

For over 100 years in the United States, phosphate has been mined on federal land primarily for use in fertilizer and herbicides. The Department of the Interior's Bureau of Land Management (BLM) is responsible for leasing and overseeing such mines on federal land. In 1996, selenium contamination from phosphate mines was discovered in Idaho, threatening the health of livestock and wildlife. Mines in the area are now being assessed for cleanup under the Environmental Protection Agency's (EPA) Superfund program. Agencies may require mine operators to post financial assurances, which are usually in the form of a bond, to ensure they meet their leasing and cleanup obligations. GAO was asked to determine the (1) extent to which federal oversight for phosphate operations has changed since 1996; (2) actions federal agencies and mine operators have taken to address contamination, amounts spent to date, and estimated remaining costs; and (3) types and amounts of financial assurances in place for phosphate-mining operations. GAO reviewed agency data and documents, and interviewed key agency and mine operator officials.

## What GAO Recommends

Among other things, GAO recommends that BLM document its financial assurance practice in policy and consult with the Forest Service to better protect the federal government from cleanup costs. In commenting on a draft of this report, Interior, the Forest Service, and EPA generally agreed with GAO's findings and recommendations.

View [GAO-12-505](#). For more information, contact Anu K. Mittal at (202) 512-3841 or [mittala@gao.gov](mailto:mittala@gao.gov).

## PHOSPHATE MINING

### Oversight Has Strengthened, but Financial Assurances and Coordination Still Need Improvement

## What GAO Found

Since 1996, federal agencies have taken several actions to strengthen their oversight of phosphate mining on federal land. For example, BLM now conducts more detailed environmental analysis when evaluating new mine plans; requires phosphate mine operators to provide more comprehensive plans for reclaiming mine sites (restoring the land to a stable condition that can support other uses); and requires the mine operators to provide financial assurances that are based on the full estimated cost of reclaiming mines, in contrast to BLM's previous practice of calculating financial assurances based simply on the acreage associated with mines. However, gaps remain in agency policies and coordination that could limit the agencies' efforts to address contamination from phosphate-mining operations. For example, BLM has not documented its new full-cost financial assurance practice in agency policy and therefore has limited assurance that it will be implemented consistently. BLM also has not fully coordinated with the Forest Service when establishing mine lease conditions and setting financial assurance amounts. Limited coordination is of particular concern because 16 phosphate leases in Idaho are scheduled for review and possible readjustment in the next 5 years, and once a lease is readjusted, its provisions are in effect for 20 years.

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

Federal agencies reported holding about \$80 million in financial assurances for reclaiming phosphate mines in Idaho. Most of this amount—over \$66 million—is associated with the two most recently approved phosphate mines. Agencies reported holding an additional \$11.5 million in financial assurances to cover site assessment and limited cleanup activities under EPA's Superfund program, but some of these are in the form of corporate guarantees, which the agencies have determined are riskier than other types of financial assurances. No financial assurances have been established to cover future cleanup costs because remaining cleanup actions have not yet been identified, according to agency officials.

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### Abbreviations

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
FWS	Fish and Wildlife Service
EIS	Environmental impact statement
EPA	Environmental Protection Agency
E.O.	Executive Order
IDEQ	Idaho Department of Environmental Quality
NEPA	National Environmental Policy Act
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
TMDL	Total Maximum Daily Load
Corps	U.S. Army Corps of Engineers

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United States Government Accountability Office  
Washington, DC 20548

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May 4, 2012

The Honorable Barbara Boxer  
Chairman  
Committee on Environment and Public Works  
United States Senate

The Honorable Edward J. Markey  
Ranking Member  
Committee on Natural Resources  
House of Representatives

Since the early 1900s, phosphate rock—the only economically viable source of phosphorus used to make detergents, herbicides, and fertilizer—has been mined on predominantly federal land in southeastern Idaho, which is part of the Western Phosphate Field. The Western Phosphate Field comprises about 86 million acres of land in the Rocky Mountains from Utah and Colorado stretching north into Idaho, Montana, and Wyoming. However, in 1996 selenium—a potentially toxic chemical that leached out of the waste rock taken from phosphate mines—was discovered in southeastern Idaho, and since then an estimated 600 head of livestock (including horses, cattle, and sheep) have died after ingesting plants or surface water containing high concentrations of selenium.<sup>1</sup> As was common practice at these mines, to facilitate the removal of the phosphate rock, operators had used the waste rock, called *overburden*, as backfill and placed it in large external waste rock piles or in adjacent valleys.<sup>2</sup> The selenium present in the overburden has been transported by rain and snow run-off into groundwater or into streams and rivers inhabited by native fish, and accumulated in ground cover plants that have been consumed by livestock and other animals such as deer and

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<sup>1</sup>One phosphate mine currently operates on federal land in Utah, but the discovery of selenium contamination associated with phosphate operations was limited to mining locations in Idaho. As a result, this report focuses on agency and mine operator activities in Idaho.

<sup>2</sup>For simplicity in this report, we use the term mine operators to refer to those individuals and companies that engage in activities related to phosphate mining, such as leasing federal land, obtaining regulatory approval for a phosphate mine, and operating a phosphate mine.

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elk. Much of the mining in this area has taken place on federal land,<sup>3</sup> and federal agencies are currently overseeing mining operations or selenium cleanup at 18 phosphate mines, of which 5 are active and 13 inactive.<sup>4</sup> Of the 18 mines, 16 are contaminated with selenium and most are being assessed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, for future cleanup.

The phosphate reserves being mined in southeast Idaho contain phosphate formations that are thicker and richer, on average, than in the other states and account for about 30 percent of total U.S. reserves, according to the U.S. Geological Survey. The Western Phosphate Field represents one of two commercially-viable phosphate reserves in the nation—the other is located primarily on private land in the southeastern United States. About 80 percent of the phosphate reserves in southeastern Idaho lie underneath land managed by the Department of Agriculture’s Forest Service as part of the 3-million acre Caribou-Targhee National Forest.

Phosphate deposits on these lands are leased to mine operators by the Secretary of the Interior under the Mineral Leasing Act of 1920, which, with the regulations implementing the act, creates a system to lease these resources and charge a royalty for their extraction. Interior’s Bureau of Land Management (BLM) is responsible for issuing leases for solid mineral deposits, such as phosphate, on federal land. Under the provisions of the Mineral Leasing Act, BLM issues leases for 20 years and as long thereafter as the operator maintains compliance with lease terms and other conditions, but the leases are subject to readjustment every 20 years, at which time BLM has the opportunity to modify lease terms and conditions. For federal phosphate leases, BLM is responsible for approving mine operators’ plans of operation for proposed mines and is authorized to monitor mine operations during production and to ensure the mine operators complete reclamation once the operations have

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<sup>3</sup>Federal land is used in this report to refer to federally-owned surface or subsurface land.

<sup>4</sup>There are additional, smaller phosphate mines in southeastern Idaho, none of which are currently active, where federal agencies do not have a role in overseeing mine operations or cleanup and that are considered a lower priority for cleanup. These mines are not included in our review.

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ceased.<sup>5</sup> In overseeing phosphate mining, BLM works with other federal agencies, including the Forest Service; Interior's Bureau of Indian Affairs (BIA) and Fish and Wildlife Service (FWS); the Environmental Protection Agency (EPA); and the U.S. Army Corps of Engineers (Corps). BLM also works with state agencies, including the Idaho Department of Environmental Quality (IDEQ). This involves coordinating inspections, enforcement, and mine-plan reviews and giving consideration to federal laws, such as the National Environmental Policy Act (NEPA),<sup>6</sup> Endangered Species Act,<sup>7</sup> and Clean Water Act,<sup>8</sup> as well as land-use plans that BLM and the Forest Service have developed.

BLM requires mine operators to provide financial assurances to ensure that they meet the obligations specified in their leases and permits, such as paying royalties and complying with requirements for mine operations and reclamation.<sup>9</sup> If the mine operator fails, for example, to reclaim a mine site after production has ceased or to pay federal royalties, BLM can demand payment from the financial assurance to cover the obligation. Other agencies may also hold financial assurances for activities associated with mining. For example, the Forest Service can require that mine operators post financial assurances when obtaining permits to construct roads through a national forest to access a leased site. Additionally, federal agencies, including EPA, can obtain financial assurances from mine operators to help ensure performance in

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<sup>5</sup>Reclamation generally includes restoring the land to a stable condition that can support other uses through actions such as recontouring hillsides, removing roads and structures, and planting vegetation.

<sup>6</sup>42 U.S.C. §§ 4321-4347 (2006). NEPA requires federal agencies to evaluate the likely environmental effects of a proposed project using an environmental assessment or, if the project would likely significantly affect the environment, a more detailed environmental impact statement evaluating the proposed project and alternatives.

<sup>7</sup>16 U.S.C. §§ 1531-1544 (2006).

<sup>8</sup>33 U.S.C. §1251-1387 (2006).

<sup>9</sup>These financial assurances, also referred to as bonds, can be surety or personal bonds. A surety bond is a third-party guarantee that an operator purchases from a private insurance company approved by the Department of the Treasury. The operator must pay a premium to the surety company to maintain the bond. These premiums can vary depending on various factors, including the amount of the bond and the assets and financial resources of the operator, among other factors. Personal bonds may be in the form of a check or negotiable U.S. Treasury bonds.



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accordance with settlement agreements negotiated under CERCLA for assessing and cleaning up contamination from mines.<sup>10</sup>

You asked us to review issues surrounding the oversight and cleanup of phosphate mines on federal lands. This report examines the (1) extent to which federal agencies' oversight of phosphate operations has changed since the discovery of selenium contamination in Idaho in 1996, and whether those changes appear sufficient to help the agencies prevent future contamination; (2) actions that federal agencies and mine operators have taken to assess and remediate contamination from phosphate mining on federal land, amounts they have spent on these actions, and estimated remaining costs; and (3) types and amounts of financial assurances in place for phosphate mining operations and the extent to which these assurances are likely to cover future cleanup costs.

To address the first objective, we reviewed relevant agency documents and reports created both before and after 1996. These include BLM's and the Forest Service's land-use plans; BLM records of decision for new mine plans and associated NEPA documents; and BLM lease and bond reports. We interviewed officials with BIA, BLM, FWS, and the Office of Natural Resources Revenue, within the Department of the Interior; the Forest Service; EPA; the Corps; and IDEQ. We also interviewed representatives of the three phosphate mine operators who operate in Idaho and visited the phosphate mines operating as of June 2011. To address the second objective, we reviewed BLM, Forest Service, EPA, and IDEQ documents and reports on the status of assessment and cleanup efforts, and the related settlement agreements with the mine operators. We obtained data on agency expenditures from Interior, BLM, FWS, the Forest Service, EPA, and IDEQ, including the source of the funds, and data on the amount of expenditures reimbursed by mine operators under the CERCLA settlement agreements. To evaluate the reliability of these data and determine their limitations, we reviewed the agencies' internal controls of their data systems and interviewed agency officials and determined that the expenditure data were sufficiently reliable for our purposes. To address the third objective, we obtained financial assurance data from BLM, BIA, the Forest Service, and EPA,

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<sup>10</sup>EPA and other federal agencies may accept financial assurances in the form of corporate guarantees, which are promises by mine operators, sometimes accompanied by a test of financial stability, to pay remediation costs, but they do not require that funds be set aside to pay such costs.

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including data on financial assurances held by Idaho state agencies for operations on federal land. To evaluate the reliability of the financial assurance data, we interviewed agency officials, examined agency records, and cross-checked the data with the financial assurance amounts listed in agency databases and CERCLA settlement agreements, and determined that these data were sufficiently reliable for our purposes. To obtain additional perspectives on the issue of phosphate mining, we also interviewed representatives from regionally-focused environmental advocacy groups, including the Idaho Conservation League and the Greater Yellowstone Coalition. Appendix I describes our scope and methodology in more detail.

We focused our report on agencies' and mine operators' activities in Idaho for two primary reasons. First, phosphate-mining operations on federal land are generally limited to the Western Phosphate Field, and all but one of these operations are located in Idaho. Second, the occurrence of selenium contamination resulting from phosphate mining operations on federal lands is currently limited to Idaho; similar levels of contamination have not been discovered in the neighboring state where a portion of the Western Phosphate Field is mined.

We conducted this performance audit from May 2011 through May 2012 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

Phosphate is used in the manufacture of a variety of products, including toothpaste, soft drinks, and dishwashing and laundry detergents. Over 95 percent of the phosphate produced in the United States, however, is used in the manufacture of fertilizers and animal feed supplements. This section provides information on phosphate mining in Idaho, the phosphate-leasing process, the mine plan approval process, the Clean Water Act permitting process, and the CERCLA assessment and remediation process.

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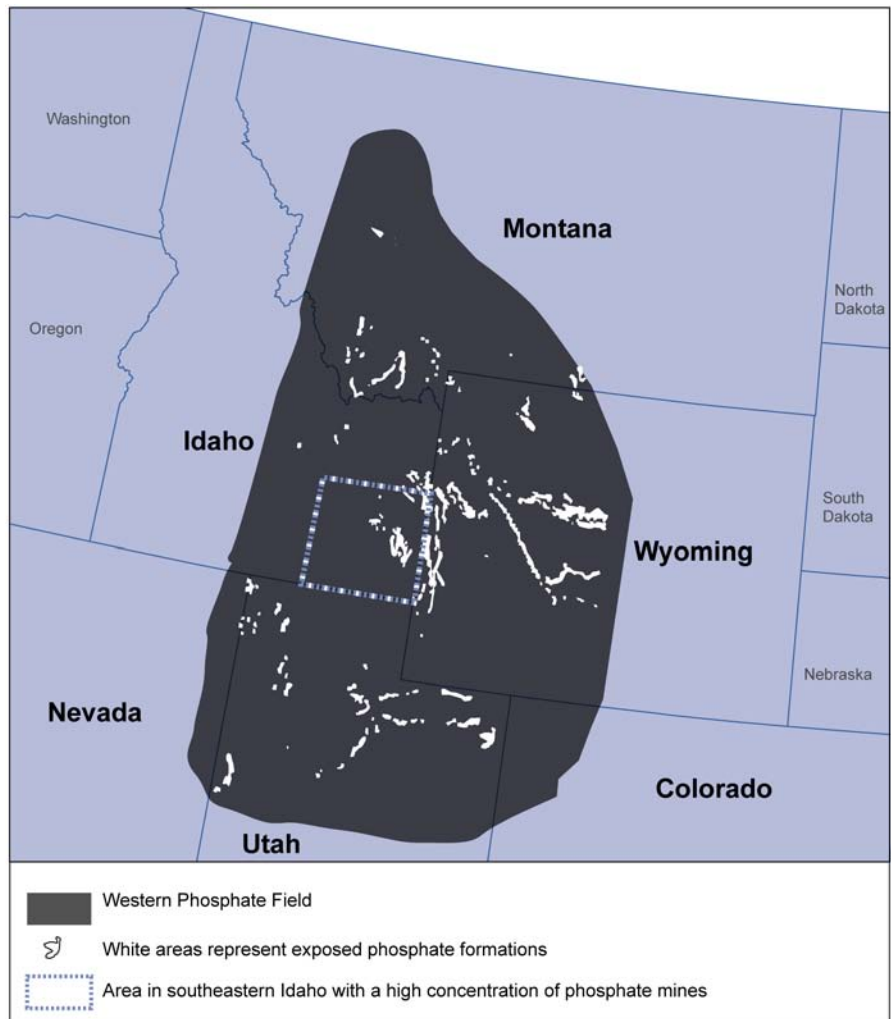
## Phosphate Mining in Idaho

Roughly 12 percent of the phosphate currently produced in the United States comes from the five active mines located in southeastern Idaho on lands managed by BLM, the Forest Service, the State of Idaho, and private landowners.<sup>11</sup> In addition, phosphate mining occurred historically on nearby lands in Idaho leased by the Shoshone-Bannock Tribes on the Fort Hall Indian Reservation. The entire area of southeastern Idaho is at the center of the Western Phosphate Field that extends into six western states. Figure 1 shows the location of the field.

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<sup>11</sup>The remaining phosphate produced in the United States comes predominantly from phosphate mines located on mostly private land in the southeastern United States, as well as from one active mine on federal land in Utah. As noted earlier, these mines are not included in our study.

**Figure 1: Map of the Western Phosphate Field**



Sources: GAO analysis of U.S. Geological Survey data; Map Resources (map).

Three mine operators currently mine phosphate at the five active mines in southeastern Idaho. At each of these mines, operators use drilling and blasting to expose the layers of phosphate ore so that it can be excavated

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and hauled by truck, train, or pipeline to a facility for processing.<sup>12</sup> Two of these operators process the phosphate ore into fertilizer products, while the third produces elemental phosphorus for use in herbicides. To access the phosphate ore, the mine operators must also remove the overburden—that is, the layers of rock that overlay, or in some cases are layered between, the phosphate ore. The overburden was historically placed in external waste dumps or used as backfill in mine pits or in nearby valleys, creating what are known as *cross-valley fills*. Figure 2 shows an active phosphate mine in southeastern Idaho, and figure 3 shows an inactive phosphate mine with a cross-valley fill.

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**Figure 2: An Active Phosphate Mine in Southeastern Idaho**



Source: GAO.

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<sup>12</sup>To transfer phosphate via pipeline, the ore must first be crushed and mixed with water to form a thick solution called slurry that can be pumped through the pipeline. The three operators also operate separate mineral processing facilities, each of which poses additional environmental issues. However, these processing facilities are not addressed in this report.

**Figure 3: An Inactive Phosphate Mine in Southeastern Idaho with a Cross-Valley Fill**

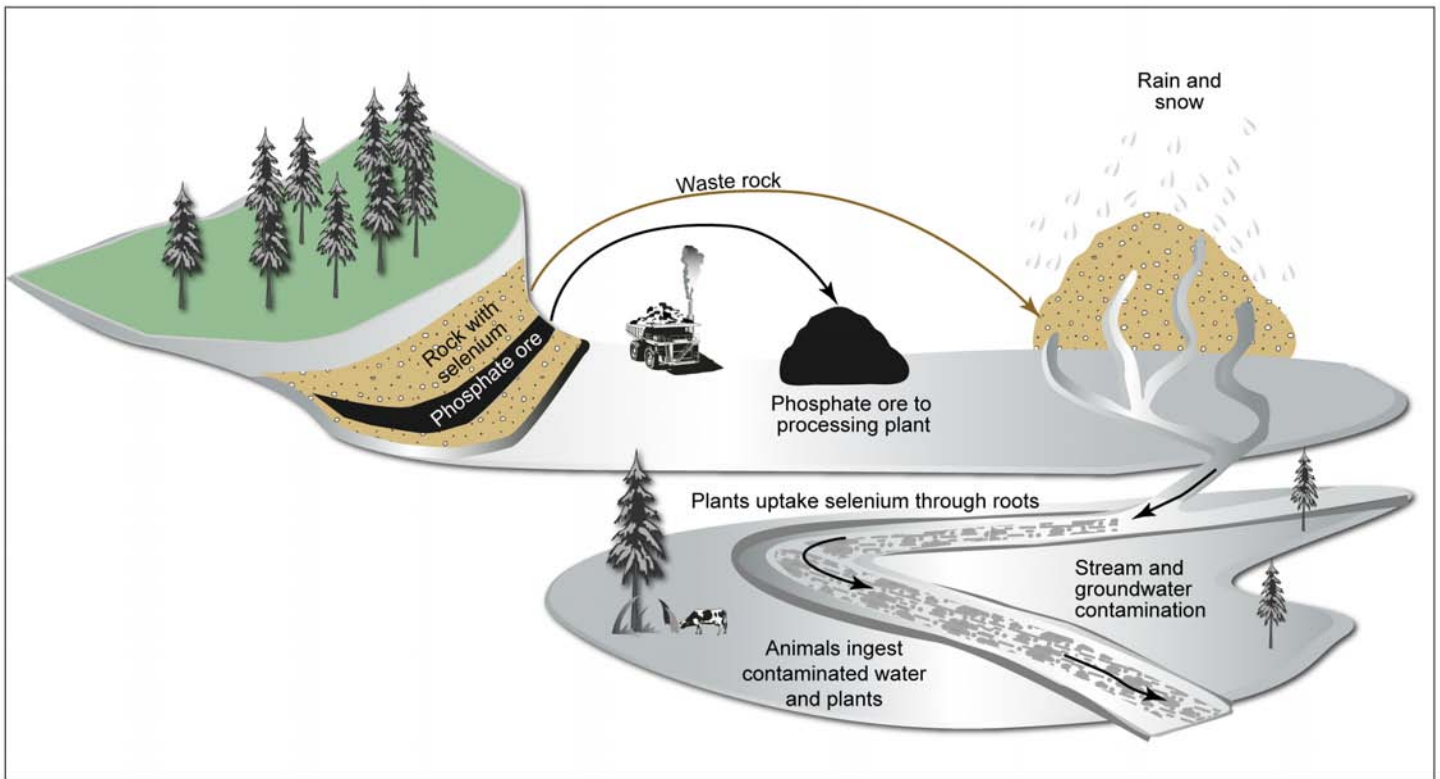


Source: Forest Service.

After horses grazing downstream from a cross-valley fill on federal land became sick and had to be euthanized in 1996, it was discovered that much of the overburden at phosphate mines in Idaho contains high concentrations of selenium—a naturally occurring element that in trace amounts is essential to the normal functioning of cells in animals but that can be poisonous in large concentrations. The selenium present in the overburden can be transported by rain and snow into the groundwater or into rivers and streams, or picked up by the roots of plants growing on the waste piles. The uptake of selenium contamination in vegetation or the frequent ingestion of selenium by animals can cause it to build up over time in a process known as *bioaccumulation*. BLM officials estimate that over 600 head of livestock have died from selenium poisoning since 1996 in the area—including a 2005 incident involving the deaths of over 30 sheep near a mine on federal land. Adverse effects due to selenium contamination have also been documented in birds and aquatic animals such as fish and invertebrates. Figure 4 shows the phosphate mining process and how it can result in the release of selenium.



**Figure 4: How Phosphate Mining Overburden Can Release Selenium**



Source: GAO analysis of BLM data; Art Explosion (clip art).

In southeastern Idaho, selenium contamination has been measured at 3 of the 5 active mines, and at all 13 of the inactive mines. Table 1 shows the 18 phosphate mines in southeastern Idaho and their production status, and the locations where selenium contamination and livestock deaths have occurred. See appendix II for more detailed information on the acres and surface land ownership of these mines.

**Table 1: Production Status and Presence of Selenium Contamination at Phosphate Mines in Southeastern Idaho**

Mine name	Active	Inactive	Selenium contamination detected	Livestock deaths or illnesses have occurred
Ballard		•	•	
Blackfoot Bridge	•			
Champ		•	•	
Conda		•	•	•
Diamond Gulch		•	•	
Dry Valley		•	•	
Dry Valley, South Extension	•			
Enoch Valley		•	•	
Gay		•	•	
Georgetown Canyon		•	•	•
Henry		•	•	
Mountain Fuel		•	•	
North Maybe		•	•	•
Rasmussen Ridge	•		•	
Smoky Canyon	•		•	
South Maybe Canyon		•	•	•
South Rasmussen	•		•	
Wooley Valley		•	•	•
<b>Total</b>	<b>5</b>	<b>13</b>	<b>16</b>	<b>5</b>

Source: BLM.

## The Phosphate-Leasing Process

BLM issues phosphate leases under the Mineral Leasing Act of 1920.<sup>13</sup> BLM is responsible for leasing on federal lands, but it must consult with the agency having jurisdiction over the surface, such as the Forest Service, with respect to surface protection and reclamation requirements. BLM will decline to issue a lease for phosphate mining if it is inconsistent with an applicable land-use plan. According to BLM officials, most of the

<sup>13</sup>A phosphate lease gives the mine operator the exclusive right to phosphate resources on the leased land, but not to the lands themselves. Use of the land is subject to the terms and conditions of the lease.



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86 phosphate leases in southeast Idaho were issued over 50 years ago,<sup>14</sup> and BLM last held a competitive lease sale in 1991. However, additional lands have been leased through lease modifications—a non-competitive process whereby a mine operator requests that BLM expand an existing lease to include lands adjacent to an active or proposed mine. Leases are for indefinite terms; however, BLM may make reasonable adjustments to the lease conditions once every 20 years. Lessees have the right to challenge the terms and conditions proposed by BLM through readjustment, including a right of appeal to the Interior Board of Land Appeals.<sup>15</sup> In addition to obtaining a lease from BLM, mine operators may need to obtain a special-use permit to use National Forest System land for off-lease activities, such as the construction of access roads. Mine operators must pay a royalty of at least 5 percent of the gross value of phosphate rock and associated minerals produced, as well as annual rent of up to \$1.00 per acre. For leases that have not been in production for 6 or more years, mine operators pay an annual royalty of \$3 per acre that includes rent. According to officials with Interior’s Office of Natural Resources Revenue, the federal government collected roughly \$7 million in royalties and rents from phosphate mine operations on federal land in fiscal year 2010.

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## The Mine Plan Approval Process

Before conducting any operations under a lease, an operator must submit to BLM a mine plan detailing the operations to be conducted. The mine plan outlines basic mine operations and mine-specific production measurement methods for calculating royalties. The mine plan also is to include information on the environmental aspects of the proposed mine, such as pollutants that may enter waters, measures to be taken to prevent air and water pollution and damage to fish or wildlife, and a reclamation plan. The reclamation plan details the steps the operator will take to restore the land to its previous condition, including action such as recontouring hillsides, removing roads and structures, and planting vegetation. BLM is required to consult with other federal agencies, such as those having jurisdiction over surface land, prior to approval and may require modifications to an approved plan if conditions warrant. For

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<sup>14</sup>Some mines are associated with multiple leases and some leases have no mining activity. As a result, the number of leases in the area—86—is greater than the number of mines where federal agencies are overseeing mining operations or cleanup activities—18.

<sup>15</sup>43 C.F.R. § 3511.26 (2011).

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example, BLM may seek to modify a mine plan if selenium is discovered at the site after operations begin. After the approval of a mine plan, BLM sets a financial assurance amount for the mining operation. Financial assurances may cover individual leases or all leases for a single lessee in a state or nationwide. The minimum amount for an operator is \$5,000 for individual leases, \$25,000 for all of the operator's leases statewide, or \$75,000 for all of the operator's leases nationwide. BLM may enter into agreements with states whereby any financial assurance provided to a state would also satisfy BLM's requirements. BLM will release a financial assurance when it determines that the operator has (1) paid all royalties, rents, penalties, and assessments; (2) satisfied all lease obligations; (3) reclaimed the site; and (4) taken effective measures to ensure that the mineral prospecting or development activities will not adversely affect surface or subsurface resources. The Forest Service may also require operators to post financial assurances for activities associated with special-use permits.

In association with the mine approval processes, BLM—in cooperation with the Forest Service if National Forest System land is involved—must evaluate the proposed mine under NEPA. NEPA requires federal agencies to evaluate the likely environmental effects of a proposed project using an environmental assessment or, if the project is likely to significantly affect the environment, a more detailed environmental impact statement (EIS). EPA officials told us that EPA is required to review, and issue written comments on, each draft EIS, which BLM may accept or reject.<sup>16</sup> As part of the NEPA process, and also to comply with the Endangered Species Act, BLM and the Forest Service may also undertake a biological assessment to identify endangered or threatened species and critical habitat that may be affected by mine operations.<sup>17</sup> If BLM and the Forest Service determine that a mine may affect an endangered or threatened species, FWS may issue a biological opinion as to whether the activity is likely to jeopardize the continued existence of the species. If FWS finds that the activity will not jeopardize the species,

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<sup>16</sup>EPA comments on each draft EIS pursuant to section 309 of the Clean Air Act.

<sup>17</sup>The purpose of the Endangered Species Act is to conserve threatened and endangered species and the ecosystems upon which they depend. The act includes provisions for listing species that need protection, designating habitat deemed critical to a listed species' survival, developing recovery plans, and protecting listed species against certain harms caused by federal and nonfederal actions. Section 7(c) of the act states that agencies may conduct a biological assessment as part of their compliance with NEPA.

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its opinion will still list measures that can be taken to minimize impacts on the species. The outcomes of these analyses may affect BLM's final decision on an operator's mining plan.

## The Clean Water Act Permitting Process

Mine operators may also need to work with other agencies to obtain additional permits or certifications before they can begin mining operations. For example, operators must obtain a permit under section 404 of the Clean Water Act from the Corps for the discharge of dredged or fill material into waters of the United States at specified disposal sites. Such discharges can include disposal of mine overburden. In addition, operators must obtain a permit under Section 402 of the Clean Water Act from EPA for discharges of storm water runoff that is contaminated by contact with certain materials such as overburden.<sup>18</sup> Under such permits, operators may need to implement technology-based controls to protect waters, but operators may also be required to implement other controls based on the quality of the water into which they are discharging.

In addition, under section 303(d) of the Clean Water Act, states must establish a Total Maximum Daily Load (TMDL) for any water body that cannot meet applicable water quality standards even after technology-based controls are applied to sources of water pollution. The TMDL represents the total amount of a pollutant that can be discharged into a water body each day without exceeding the water quality standard for that water body. The state of Idaho has identified selenium as a substance impairing water quality in some of its waters, but it has not yet established any TMDLs for selenium.<sup>19</sup> Section 401 of the Clean Water Act also provides states with the opportunity to object to the issuance of federal permits and licenses, including section 404 or 402 permits that may affect water quality in the state. Accordingly, an operator seeking a federal permit for a project that may affect water quality in Idaho must also seek section 401 certification for the proposal from IDEQ.

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<sup>18</sup> National Pollution Discharge Elimination System (NPDES) permits are generally issued by states under EPA-approved programs, but Idaho does not have a program for issuing such permits; therefore, EPA issues these permits in Idaho.

<sup>19</sup> Section 303(d) of the Clean Water Act does not provide any specific deadline for the development of TMDLs.

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## The CERCLA Assessment and Remediation Process

Environmental contamination discovered at a mine may require remediation under CERCLA, the federal government's principal program to respond to releases or substantial threats of releases of hazardous substances, pollutants, or contaminants which may present an imminent and substantial danger to the public health or welfare. Under CERCLA, the federal government has the authority to compel parties responsible for contaminating sites to clean them up, or to conduct cleanups itself and then seek reimbursement from the responsible parties. The National Priorities List (NPL) is EPA's list of the nation's most contaminated sites, and cleanups of these sites are typically expensive and lengthy. For NPL sites on Forest Service or BLM land, the land management agencies and EPA work together under interagency agreements to implement response actions. For non-NPL sites on Forest Service or BLM land, the land management agencies take the lead on implementing CERCLA response actions, except for emergencies which have been delegated exclusively to EPA.<sup>20</sup>

In enforcing CERCLA, federal agencies generally attempt to reach an agreement—known as a settlement agreement—with responsible parties (such as mine operators or other entities) to perform and pay for site cleanups once contamination has been discovered. Under these agreements, responsible parties may be required to post a financial assurance to ensure the performance of agreed-upon cleanup actions. However, there are currently no regulations that require mine operators to provide such financial assurances; agencies and responsible parties negotiate these terms in each settlement.<sup>21</sup> Under CERCLA, EPA is required to issue regulations requiring certain businesses that handle hazardous substances to demonstrate their ability to pay for environmental cleanup costs, but the agency has not yet issued such regulations. However, the agency expects to propose such a rule for certain types of mining, which could include phosphate mining, in 2013, according to EPA officials.

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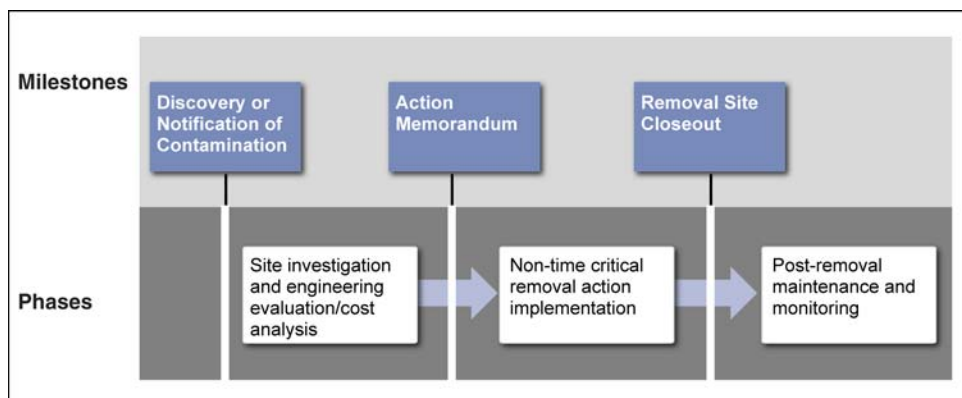
<sup>20</sup>Executive Order (E.O.) 12580, Superfund Implementation, was issued in 1987 and delegates to EPA certain regulatory authorities that the statute assigns to the President, while delegating to other federal agencies, including Interior and the Department of Agriculture for the Forest Service, authority for non-NPL remedial actions and removal actions other than emergencies on their lands, subject to section 120 and other provisions of CERCLA. See E.O. No. 12580, 52 Fed. Reg. 2923 (Jan. 23, 1987).

<sup>21</sup>EPA has model settlement agreements to help guide negotiations.

After contamination has been identified, the agency taking the lead on the cleanup initiates a process to investigate the extent of the contamination, decide on the actions that will be taken to address contamination, and implement those actions. The CERCLA program has two basic types of cleanup: (1) cleanups under the removal process, which generally address short-term threats, and (2) cleanups under the remedial action process, which are generally longer-term cleanup actions.

- *Removal actions* include (1) time-critical removals for threats requiring action within 6 months, and (2) non-time-critical removals for threats where action can be delayed to account for a 6-month planning period. As shown in figure 5, the non-time-critical removal process involves three primary phases, (1) a site evaluation, including site investigation and engineering evaluation/cost analysis, to characterize the site and identify and analyze removal alternatives; (2) selection and implementation of the removal action; and (3) monitoring and maintenance.

**Figure 5: The CERCLA Non-Time Critical Removal Assessment and Cleanup Process**



Source: GAO based on EPA data.

- The *remedial action process* begins with a remedial investigation and a feasibility study to characterize site conditions, assess the risks to human health and the environment, and to evaluate various options to address the problems identified, among other things. These findings and decisions are documented in a record of decision. Implementation of the remedial action is divided into two parts: (1) remedial design, a further evaluation of the best way to implement the chosen remedy; and (2) remedial action, the implementation of the remedy selected. When physical construction of all remedial actions is complete and

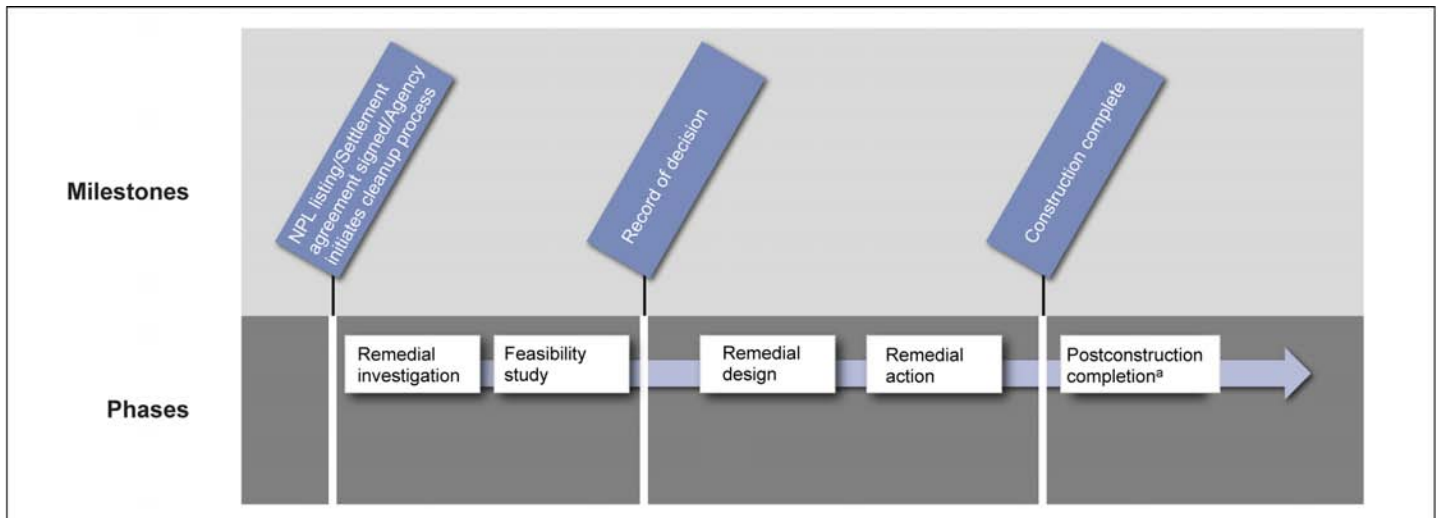
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other criteria are met, the lead agency deems the site to be construction complete. Most sites then enter an operation and maintenance phase, wherein the responsible party or the state maintains the remedy, while the lead agency conducts periodic reviews to ensure that the remedy continues to protect human health and the environment. For example, at a mine site with piles of overburden contaminated with selenium, the remedial action could consist of building a cap over the contaminated soil, while the operation and maintenance phase would consist of monitoring and maintaining the cap.<sup>22</sup> The remedial action process is a more transparent and comprehensive process with more distinct steps than the removal action process. For example, CERCLA and its implementing regulations provide more opportunities for the public to participate in the remedial action process, including participation in site-related decisions, than are required in the removal action process, which may be limited to a single comment period. The remedial investigation/feasibility study process is subject to more-detailed data requirements than the site evaluation process for a removal action, and under section 121 of CERCLA, remedial actions generally require completed sites to achieve certain cleanup standards, which is not necessarily the case for removal actions. Finally, the remedial action process favors permanent remedies over short-term abatement. Figure 6 shows the remedial action process.

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<sup>22</sup>Waste pile caps and covers can be made of synthetic or natural materials, such as compacted clay. They work to reduce the migration of contamination by preventing rain and snow run-off from transporting contamination into ground and surface water.

**Figure 6: The CERCLA Remedial Action Process**



Source: GAO analysis of EPA data.

<sup>a</sup>Postconstruction completion includes activities such as operation and maintenance, long-term response actions, and 5-year reviews, which ensure that Superfund cleanup actions provide for the long-term protection of human health and the environment.

Responsibility for selenium contamination in southeastern Idaho has been the subject of a recent CERCLA lawsuit. Under CERCLA, a party can be held liable for cleanup costs as an owner or operator of a facility where there was a release of hazardous substances or if the party arranged for disposal of hazardous substances. In 2009, a phosphate mine operator sued to compel the federal government to share the costs of cleaning up contamination under CERCLA at four mines, asserting that the government was an owner, arranger, and operator of the waste disposal sites at those mines. In the first step of the litigation, the court held in 2011 that the government was an owner, arranger, and operator.<sup>23</sup> Specifically, the court found that the government owned the mine site, owned the middle waste shale that is the source of the hazardous substance involved (selenium), had the authority to control the disposal of that substance, and exercised some actual control over the disposal of that substance. Furthermore, the government managed the design and location of waste dumps at the mines and regularly inspected the mines to ensure compliance with the mining plans and waste disposal

<sup>23</sup>Nu-West Mining, Inc. v. United States, 768 F. Supp. 2d 1082 (D. Idaho 2011).

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guidelines. The court did not determine the amount of cleanup costs the government owes, deferring that to a subsequent phase of the litigation. The parties have since agreed to settle the issues remaining in the case.<sup>24</sup>

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## Agencies Have Provided More Rigorous Oversight of Phosphate Mining Since 1996, but Oversight Gaps Remain

Federal agencies have taken steps to strengthen their oversight of phosphate mining on federal land since selenium contamination was discovered in 1996 by requiring more detailed environmental analysis and reclamation plans, requiring financial assurances that provide more coverage, hiring additional staff, and revising land-use plans. Nevertheless, oversight gaps remain that limit the agencies' ability to effectively address contamination from phosphate mining operations. These gaps include inadequate documentation of BLM's financial assurance practices, inconsistent coordination on financial assurances, an ineffective process for resolving agency disagreements on lease terms and conditions, and insufficient mechanisms for overseeing activities being conducted by third party contractors.

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## Agencies Have Strengthened Their Oversight to Address Selenium Contamination

In an effort to reduce the likelihood that new and ongoing mines will result in additional sources of selenium contamination and improve the management of ongoing CERCLA cleanups, BLM and the Forest Service have taken the following steps to strengthen their oversight of phosphate mining operations.

- *BLM requires a more detailed environmental analysis for approving mine plans.* According to BLM officials, in 1998 the agency began to prepare a full site-specific EIS when evaluating new mine plans, instead of relying on a 1977 areawide programmatic EIS and conducting site-specific environmental assessments that were more limited in scope, as had been done previously. Under the new EIS, officials told us, they conduct enhanced environmental testing and analysis to understand the potential sources of selenium at proposed mine sites, investigate how proposed mines would affect surface water and groundwater, and evaluate engineering models for options to prevent or mitigate the contamination.

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<sup>24</sup>The terms of the settlement were not available as of this report's issuance.



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- *BLM requires more comprehensive reclamation plans.* BLM officials told us that the agency now requires mine operators that propose new mine sites to develop more comprehensive reclamation plans than operators did previously. For example, mine operators are now generally required to agree to backfill open mine pits and not construct cross-valley fills; separate selenium-contaminated waste from other waste; engineer systems of natural or synthetic caps and covers for both reducing the infiltration of surface water into waste piles that can contribute to groundwater contamination and preventing the uptake of selenium by the roots of vegetation planted for reclamation; and select plants for revegetating mine sites that minimize selenium uptake and reduce the risk of ingestion by livestock and wildlife. In addition, the new mine plans provide for enhanced inspection of the mine operations in order to, among other things, monitor groundwater to detect selenium contamination early and oversee the construction of waste pile caps and covers. Since the state of Idaho decided to list parts of the Blackfoot River as impaired for selenium under section 303(d) of the Clean Water Act in 2002, BLM has also been requiring mine operators to demonstrate through their mine and reclamation plans that the mines will not add any measurable selenium contamination to the river and its tributaries.
  - *BLM requires full-cost financial assurances for new mines.* BLM officials told us that the agency decided in 2001 to set financial assurances for new mining operations using a formula based on the estimated full cost of reclaiming the site—meaning that, if the mine operator defaults on its reclamation obligation, the financial assurance would be adequate for BLM to hire contractors and incur oversight and overhead costs to perform the work—plus 3 months of estimated royalties. In the past, BLM officials told us, as agreed with the state of Idaho, BLM generally set financial assurance amounts at not more than \$2,500 per acre of surface disturbance, regardless of the potential cost of reclamation. The financial assurances for the new mines are substantially higher than those set under the per-acre calculation. For example, one mine approved in 2011 was required to provide a financial assurance valued at nearly \$22 million; based on general past practices, that financial assurance would have been set at about \$1.7 million, according to our analysis. The adequacy of these larger financial assurances for reclamation has not yet been tested, however, because all of the mines at which they have been required are still active. BLM officials told us that they generally have not increased or decreased financial assurance amounts for inactive phosphate mine operations because most of those mines will require further remediation for selenium contamination under CERCLA, and

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the costs to reclaim and remediate those sites—which would form the basis for any adjustment in the financial assurance amounts—have not yet been estimated.

- *BLM and the Forest Service have made changes to readjusted leases, and BLM has denied lease relinquishments.* To help ensure that phosphate mine operators are liable for any environmental damage they may cause, BLM and the Forest Service jointly devised a lease stipulation that has been included in every lease readjustment since 2002, covering a total of 63 leases. Under the new stipulation, the mine operator agrees to pay for certain environmental damage it causes and, when requesting that a lease be relinquished,<sup>25</sup> to conduct an environmental site assessment of the mine site to identify any possible contamination. BLM also made other changes, such as the addition of a notification to phosphate lessees that details the information that should be included in a proposed mine plan, and language stating that lessees will be required to comply with CERCLA, as well as other environmental laws. BLM officials told us they intend to use the environmental site assessment in evaluating whether to allow the operator to relinquish the lease. Until the lease is relinquished, BLM can maintain the financial assurance associated with the lease, and any terms and conditions of the lease including reclamation obligations remain in effect. BLM officials told us that their practice has been to deny lease relinquishments if there are any indications that further CERCLA cleanup may be necessary to address selenium contamination, and that they last relinquished a phosphate lease in 1997 at a site where no phosphate production had occurred. No phosphate mine operators requested a lease relinquishment from 1993 through 2003, and since 2003, BLM has not approved any of the 8 requests it has received for lease relinquishment, according to BLM officials.
- *BLM and the Forest Service have taken some steps to supplement staff resources.* Since selenium contamination was discovered in 1996, BLM and the Forest Service have combined their mine oversight field staff in southeastern Idaho into a minerals branch under an interagency initiative known as Service First. According to

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<sup>25</sup>When a lease is relinquished, the mine operator ceases operations and the terms and conditions of the lease are no longer in effect. A mine operator may relinquish a lease if BLM agrees that relinquishment is in the public interest and the mine operator pays accrued rentals and royalties and performs reclamation required by BLM.

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BLM officials, this initiative has allowed the agencies to eliminate redundant mine oversight, increase efficiency, and accomplish more work. BLM and the Forest Service have also hired additional staff to help manage the increased workload associated with overseeing new and ongoing mines. For example, the Forest Service has, among other things, created a new position to oversee its selenium remediation efforts. This position is currently held by a former EPA employee with 15 years of experience managing CERCLA cleanups. In addition, BLM has arranged to have mine operators pay for third-party contractors to support BLM staff in certain aspects of mine oversight. For example, mine operators have paid contractors to prepare EISs,<sup>26</sup> and BLM has directed two mine operators to enter into and pay for contracts with third parties to provide monitoring and other services associated with constructing and implementing cover systems for waste rock. BLM has also asked mine operators to reimburse it directly to fund two BLM positions to conduct mine oversight.<sup>27</sup> Despite these efforts, BLM officials in Idaho told us that they still face challenges in meeting their workload demands, particularly because changes in the oversight process since 1996 have required additional time and effort to implement. For example, BLM officials told us that it typically takes 5 years to complete an EIS for a proposed new mine, and this process can incur contractor costs of over \$2 million. In contrast, BLM could complete the environmental assessment process it used previously in 2 years using agency resources.

- *BLM and the Forest Service have revised their land-use plans to address contamination.* BLM began the process of revising its land-use plan for the area covering the Idaho portion of the Western Phosphate Field in 2003, and in 2010 issued a final EIS for the draft plan that provides direction for managing phosphate activities,

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<sup>26</sup>Even if a contractor prepares an EIS, BLM officials are still responsible for the scope and content of the statement, furnishing guidance to the contractor, participating in preparation, and independently evaluating the statement prior to its approval.

<sup>27</sup>The positions in question were identified by BLM officials as positions that support EIS project management. Under federal law, BLM is authorized to retain fees for processing, recording, or documenting authorizations to use public lands or resources. 43 U.S.C. § 1734a (2006). Also, under BLM regulations, the agency may set processing fees on a case-by-case basis for a plan of operations that requires the preparation of an EIS. 43 C.F.R. § 3800.5 (2011). We did not analyze whether BLM's acceptance of industry funding for salaries in this instance was consistent with these or other authorities.

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preventing contamination, and setting standards for contaminants. BLM officials told us that these changes are intended to help ensure that phosphate mine operators provide adequate financial assurances and that operators adequately reclaim mine sites, including preventing selenium contamination. BLM officials told us that they expect to approve the record of decision for the plan in 2012. Similarly, the Forest Service issued a revised forest plan for the Caribou National Forest in 2003 that set new standards and guidelines for phosphate mine development on forest lands to help detect and prevent selenium contamination. For example, the revised plan contains new standards that, among other things, stipulate that vegetation used in reclamation must be monitored for bioaccumulation of hazardous substances, such as selenium, and that financial assurances should be based on the estimated full cost of reclamation and in place before the mine operator disturbs the land surface.<sup>28</sup>

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## Oversight Gaps Remain in Agency Policy and Coordination

We identified four gaps in the agencies' oversight efforts that could limit their ability to address ongoing problems with selenium contamination. First, although BLM has strengthened its oversight of new phosphate mines by requiring that operators provide financial assurances to cover the estimated full cost of reclamation, BLM has not documented this practice in its official agency policy. In a 2002 internal evaluation of financial assurance policies, BLM recognized that its practices for phosphate mines in Idaho are not reflected in current policy and determined that the agency should revise the manual associated with this program to recognize these practices.<sup>29</sup> However, BLM officials told us that the agency has not yet done so. As noted in the *Standards for Internal Control in the Federal Government*, agency policies should be clearly documented and readily available for examination to ensure effective program management.<sup>30</sup> Without documenting its bonding practices in official agency policy, BLM cannot be assured that the current

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<sup>28</sup>U.S. Department of Agriculture, *Revised Forest Plan of the Caribou National Forest* (Idaho Falls, ID: February 2003).

<sup>29</sup>Bureau of Land Management, *Fiscal Year 2002 Program Evaluation Report—Bonding in the Non-Energy Leasable Minerals Program*, IM 2003-033 (Washington, D.C.: November 2002).

<sup>30</sup>GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: Nov. 1, 1999).

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full-cost financial assurance practices for phosphate mines in Idaho will be implemented completely and consistently.

Second, according to Forest Service officials, since at least 2006, BLM has not consistently coordinated with the Forest Service about the financial assurances for phosphate mining operations on National Forest System land. BLM must consult with the agency that administers the surface land prior to issuing a lease and, generally, regarding the surface protection and reclamation requirements of the lease.<sup>31</sup> Forest Service officials told us that they are not consistently consulted about the appropriate level of financial assurances nor made aware of the decisions regarding financial assurances being made by BLM. BLM and the Forest Service have an interagency agreement that includes procedures for coordinating on issues involving licenses, permits, and leases, but this agreement does not expressly discuss issues related to financial assurances. Similarly, BLM and the Forest Service have drafted an agreement covering the sharing of staff and resources under their Service First initiative in Idaho, but this draft agreement does not provide details on the steps the agencies should take to coordinate on financial assurances. The resulting inconsistency in coordination is of particular concern to Forest Service officials, because they consider financial assurance amounts, particularly for existing mines, to be potentially inadequate to cover the estimated reclamation costs. These officials told us that additional communication and coordination with BLM when establishing and reviewing the adequacy of financial assurances would allow them to offer relevant information that might help BLM officials in setting bond amounts. They also noted that additional coordination would help ensure that the mine operator is acting in accordance with the portions of the forest plan specifying that financial assurances should be adequate to cover the full cost of reclamation and should be in place before surface disturbance occurs. BLM officials told us that while they do coordinate with the Forest Service, it tends to be on a case-by-case basis and that in some instances they are limited in their ability to coordinate by insufficient staff.

Third, BLM and the Forest Service have not in all cases been able to reach agreement on lease terms and conditions to include when issuing new leases and readjusting existing leases. BLM and the Forest Service have

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<sup>31</sup>43 C.F.R. § 3503.20(a); 43 C.F.R. § 3590.2(h).

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an interagency agreement that states the agencies will coordinate at the local level on issues involving lease terms and conditions, and at the headquarters level on issues involving agency-wide lease terms and conditions. However, the agencies do not have a detailed process for doing so in a timely manner. For example, beginning in 2010, BLM and the Forest Service discussed potential changes proposed by the Forest Service to the terms and conditions in three existing phosphate leases. According to BLM and Forest Service officials, although BLM made some of the changes the Forest Service was seeking, most of the substantive changes being proposed by the Forest Service necessitated coordination with BLM's Washington, D.C., headquarters because they would require changes to the standard leasing forms used by BLM. Subsequently, in December 2011, the Forest Service proposed several changes to BLM's general lease terms and conditions to BLM's Washington, D.C., headquarters office that, in the Forest Service's view, would better protect the government from potential liability associated with selenium contamination in the future, particularly in light of the lawsuit noted earlier. However, as of April 2012, the agencies had not yet reached agreement on whether or how to change the general lease terms and conditions. During this period, BLM has renewed three phosphate leases for another 20 years without including the changes the Forest Service was seeking, in part to meet the deadline for renewing the leases. In commenting on a draft of this report, Interior noted that an additional reason the leases were renewed without including the Forest Service's proposed changes was a difference in professional judgment between officials of the two agencies. Without a timely process for resolving disagreements on the part of BLM and the Forest Service regarding lease terms and conditions, we are concerned that BLM may again readjust leases or issue new leases in the future without having resolved disagreements that may exist between the agencies about proposed lease terms and conditions. For Forest Service officials, this is of particular concern because 16 leases on Forest Service land are scheduled for readjustment in the next 5 years, and once a lease is readjusted, as noted earlier, its provisions are in effect for 20 years. In commenting on a draft of this report, both Interior and the Forest Service told us they have begun working to improve the coordination process.

Fourth, BLM does not have mechanisms in place for overseeing all activities that are being conducted by third-party contractors, and the agency could not identify the statutory or regulatory provisions that authorize or lay out its responsibilities with regard to directing and overseeing such arrangements. In two instances, BLM has directed mine operators to enter into and pay for contracts with third parties to provide monitoring and other services associated with the construction and

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installation of waste-pile cover systems and other related reclamation activities on mine sites.<sup>32</sup> However, in neither instance does BLM have a written agreement with the mine operators to outline expectations for the monitoring contracts or clearly define the roles and responsibilities of the various parties. BLM officials told us that even without such agreements, they believe that they have adequate controls in place and can take enforcement actions over the work being done. For example, officials noted that BLM, rather than the mine operator, selected the contractor for one mine and will do so for the second. In addition, they noted that one of the contracts between the operator and the third party is based on a statement of work BLM wrote and that this contract repeatedly states that work is being done for BLM and at BLM's direction. Further, BLM officials told us that even without such written agreements, under the applicable regulations the agency can issue enforcement orders to compel the mine operator's compliance with established requirements, including those contained in the records of decision approving the mine plans.<sup>33</sup> Nevertheless, we are concerned that without written agreements with mine operators, BLM's ability to ensure that the work is carried out to its satisfaction is unclear. For example, while BLM officials cited the agency's ability to issue enforcement orders as a useful control mechanism, agency officials have also noted limitations with this process. Specifically, they told us that an operator may take many months to comply with an enforcement order and that BLM lacks the authority to issue fines to, or impose fees on, phosphate mine operators for failing to comply with an enforcement order.<sup>34</sup> Moreover, we have broader concerns because BLM could not identify the statutory or regulatory provisions that specifically authorize or lay out its responsibility with regard to the contractual arrangements the agency has required mine operators to enter into.

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<sup>32</sup>In the first of these instances, BLM stated in its record of decision on the EIS for one mine that it would enter into a written agreement with the mine operator for monitoring the installation of a cover system to mitigate potential environmental impacts associated with the mine. In another record of decision, BLM did not specifically mention a written agreement, but stated that the operator would be responsible for certain costs associated with a similar contractual arrangement.

<sup>33</sup>43 C.F.R. § 3598.4 (2011).

<sup>34</sup>Failure of the operator to take action in accordance with an enforcement order is grounds for BLM to issue an order to cease operations or to initiate legal proceedings against the operator and cancel its lease.

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## Agencies and Mine Operators Have Focused on Assessing Contamination, Not Conducting Remediation, and Total Cleanup Costs Are Currently Unknown

Since selenium contamination was discovered in 1996, federal agencies and phosphate mine operators in Idaho have largely taken actions focused on assessing the extent of selenium contamination at the 16 mines where such contamination has been identified, and have conducted limited remediation. The federal agencies reported having spent about \$19 million on this effort, about half of which has been reimbursed by mine operators. The mine operators have incurred additional costs for assessment and remediation activities, according to agency officials, but the operators did not provide documentary evidence to support these claims. Future cleanup costs are unknown because the agencies have not selected final cleanup actions, although agency officials informally estimate these costs could amount to hundreds of millions of dollars.

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## Actions to Date to Address Selenium Contamination Have Included Lengthy Assessment Efforts and Limited Remediation

Since the discovery of selenium contamination in 1996, federal and state agencies and mine operators have worked to assess the extent of the contamination caused by phosphate mining, and have conducted some limited remediation. Agency officials described a number of factors they believe contributed to the amount of time spent on these efforts, including a shift in their cleanup approach after nearly 10 years of activity.

### Assessments Have Been Ongoing Since 1997

According to federal and state officials, in 1997 the agencies and mine operators formed a voluntary working group led by the mine operators to collaborate on efforts to investigate the selenium contamination discovered at that time. As part of this and other parallel efforts, mine operators and the agencies, including the Forest Service and the U.S. Geological Survey, spent 4 to 5 years collecting water-quality and other data and publishing reports that helped quantify the scope of the selenium problem, according to these officials. These data-gathering efforts indicated that high concentrations of selenium were widespread throughout the area.

According to Forest Service and state officials, given the broad scope of the problem and the potential risks posed by the contamination identified by these early efforts, federal and state agencies decided it would be beneficial to move from a largely voluntary effort primarily paid for by mine operators to one in which the agencies formally coordinated their actions under federal and state authorities. As a result, in 2000 the six agencies with authority over cleanup efforts—BLM, FWS, BIA, the Forest Service, EPA, and IDEQ—and the Shoshone-Bannock Tribes signed a memorandum of understanding that provided a framework for coordinating their investigations of, and responses to, the



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contamination.<sup>35</sup> The memorandum identified a two-pronged approach: agencies would conduct (1) an areawide investigation to continue the work the mine operators and agencies had initiated through the working group and (2) site-specific investigations to address contamination sources at individual mines.

The areawide investigation began in 2001 and was led by IDEQ. The agencies' costs for this investigation were to be reimbursed by the operators in accordance with the terms of a settlement agreement. The investigation included gathering available data and identifying data gaps, conducting water and other environmental sampling, completing risk assessments that identified contaminant sources and ways in which humans and wildlife could be exposed, and developing guidance based on these risk assessments for remediation goals to potentially be used in the site-specific efforts. Sampling efforts showed selenium levels above state water quality standards; as a result, IDEQ listed more than 150 miles of streams flowing near and through the mines as impaired under the Clean Water Act. According to a senior IDEQ official, water quality monitoring work under the areawide investigation continues, although the settlement agreement for the investigation expired in 2011.

Site-specific investigations began in 1998 and as of March 2012, assessment activities were continuing, according to Forest Service and EPA officials. Officials told us that the agencies originally decided to conduct this assessment work under CERCLA's non-time critical removal process, during which a site investigation and engineering evaluation/cost analysis is conducted before a removal action is selected and implemented. According to EPA officials, this process is ideally suited for isolated contamination sources that have proven remedies. Forest Service and EPA officials told us that the agencies chose this route because the officials responsible at the time believed it would be the quickest way to control and abate immediate threats posed by the contamination within waste rock dumps. From 1998 to 2004, the agencies and mine operators entered into non-time critical removal process

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<sup>35</sup>The responsible land management agencies have been delegated authority for cleanup response under CERCLA at these sites except in emergency situations. For the mines located partially on BLM land, BLM has deferred to EPA to take the CERCLA lead. For the one mine located on the Fort Hall Indian Reservation, home of the Shoshone-Bannock Tribes, the agencies determined that EPA had authority for cleanup response under CERCLA.

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settlement agreements at six mines, with final engineering evaluation/cost analysis reports issued for two of these mines in 2006 and 2011.

According to EPA and Forest Service officials, however, in 2006—after nearly 10 years of pursuing actions under the non-time critical removal process—the agencies decided to switch their approach and address the contamination issues at mine sites under the longer-term remedial action process, resulting in further clean-up delays as additional site-specific data were collected. In explaining the switch, Forest Service and EPA officials told us that information generated from the areawide and site-specific investigations conducted prior to 2006 indicated that the contamination issues at the mines were more complex and widespread than originally suspected and that many mines would likely require long-term water treatment of a kind not typically implemented as part of a non-time critical removal action. As a result, according to EPA and Forest Service officials, the approach offered by CERCLA’s remedial action process would allow a more comprehensive investigation and evaluation of the mines and remediation that would fully address long-term threats posed by selenium. Forest Service officials told us that at three of the six mines where non-time critical settlement agreements had been reached, the Forest Service decided to continue with the non-time critical removal process to address contamination at waste rock dumps, while also negotiating settlement agreements with the mine operators to address other contamination at these sites through the long-term remedial action process. At the remaining three mines that were undergoing assessment under the non-time critical removal process, EPA began negotiating settlement agreements for remedial investigations and feasibility studies rather than continuing with the non-time critical removal process.

As of March 2012, mine operators and agencies had begun work on the first step of remedial action process—conducting remedial investigations—at 7 of the 16 mines known to have selenium contamination, including 5 of the 6 mines that were being addressed under the non-time critical removal process. The agencies and mine operators are still in the early stages of this process—none had produced a complete remedial investigation report as of March 2012—and, according to officials, completing this process at all mines will likely require years of additional work before final cleanup remedies are selected. For the remaining 9 of the 16 contaminated mines, a senior Forest Service official told us officials are negotiating settlement

agreements at 3 mines but have not initiated the remedial action process at the 6 others,<sup>36</sup> either because the agencies have not had sufficient resources to begin negotiations, the agencies have not reached settlements with the mine operators, or (for two mines) the agencies are addressing the contamination under provisions of the Clean Water Act or the terms of the reclamation plan. Table 2 shows the CERCLA activities that have occurred at these 16 mines, as well as estimated dates for future activities.

**Table 2: CERCLA Activities at 16 Contaminated Mines, by Assessment Process**

Mine	Pre-Removal or Remedial Process	Non-Time Critical Removal Process			Remedial Action Process			
	Preliminary assessment <sup>a</sup>	Process initiated <sup>b</sup>	Final site investigation report	Final engineering evaluation/cost analysis report	Removal action completed	Process initiated <sup>b</sup>	Remedial investigation complete	Feasibility study complete
Ballard	-	2003	-	-	-	2009	(2013)	(2013)
Enoch Valley	-	2003	-	-	-	2009	(2014)	(2014)
Henry	-	2003	-	-	-	2009	(2013)	(2014)
North Maybe	2000	2004	-	-	2008 <sup>c</sup>	2010	-	-
Smoky Canyon	-	2003	2005	2006	2007	2009	(2013)	(2014)
South Maybe Canyon	-	1998	2007	2011	(2014)	-	-	-
Champ	2000	-	-	-	-	-	-	-
Conda	2008	-	-	2011	(2013)	2008	-	(2014)
Diamond Gulch	2007	-	-	-	-	-	-	-
Dry Valley	2008	-	-	-	-	-	-	-
Gay	2003	-	-	-	-	2010	(2015)	(2016)
Georgetown Canyon	2007	-	-	-	-	-	-	-
Mountain Fuel	2000	-	-	-	-	-	-	-

<sup>36</sup>Although these nine mines have not entered the remedial action process, varying amounts of assessment work have occurred at each mine, according to agency officials.

Rasmussen Ridge <sup>d</sup>	2002	-	-	-	-	-	-	-
South Rasmussen <sup>d</sup>	-	-	-	-	-	-	-	-
Wooley Valley	2000	-	-	-	-	-	-	-

Source: GAO analysis of agency data.

Notes: Dates in parenthesis represent estimates for future milestones. Shading indicates mines that had been initially assessed under the non-time critical removal process.

<sup>a</sup>Preliminary assessments under CERCLA are often the first step undertaken after a potentially contaminated site has been identified. They are used to identify potential threats, determine the need for further investigation under the removal or remedial process, and gather information to evaluate eligibility for the National Priorities List.

<sup>b</sup>In most cases, this process was initiated when the agencies and mine operators signed a settlement agreement.

<sup>c</sup>The action at this mine was a time-critical removal action, the need for which was discovered as part of the assessment work conducted under the non-time critical removal action process.

<sup>d</sup>This is an active mine not currently being assessed for cleanup under CERCLA.

Federal agencies have also begun using CERCLA to address harm to fish and wildlife resources from contamination associated with the phosphate mines in southeastern Idaho. According to FWS officials, in 2011 the agency initiated the first step in a CERCLA process known as natural resource damage assessment, under which the agency may ultimately seek damages for harm to natural resources caused by phosphate mining and conduct natural resource restoration activities.<sup>37</sup>

Through this process, mine operators may work cooperatively with federal agencies to develop an assessment and implement natural resource restoration activities, or the agencies may independently develop a damage claim to be resolved through settlement or litigation. FWS officials told us they are determining whether a natural resource damage assessment is warranted and are working with other agencies in the area to determine whether they are interested in participating in the process.

<sup>37</sup>Under CERCLA, a party responsible for the release of a hazardous substance is liable for injuries to natural resources resulting from the release. The regulations implementing the act designate certain federal agencies, state governments, and tribal authorities as natural resource trustees and authorize them to make claims against the parties responsible for the injuries. The federal trustees include FWS.

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Agencies and Operators Have  
Conducted Limited  
Remediation

Since selenium contamination was discovered in 1996, federal agencies and mine operators have taken some limited cleanup actions to address highly problematic sources of contamination at three phosphate mines.

- *Smoky Canyon mine.* In 2007, to help reduce the amount of selenium leaching into a creek, a mine operator built a pipeline to divert water around a contaminated waste rock dump at the Smoky Canyon mine on Forest Service land. This action was the culmination of a 2003 CERCLA settlement agreement under the non-time critical removal process. According to Forest Service officials, this waste rock dump—overburden placed into the bottom of a valley—was the source of one of the highest concentrations of selenium in the area, and the diversion appears to have substantially reduced the amount of selenium coming out of the waste dump. Officials from EPA and IDEQ, however, have voiced concerns with the effectiveness of the diversion, especially after large amounts of precipitation in 2011 caused the system to overflow, allowing water to once again flow through the waste rock and carry high amounts of selenium into the creek. The mine, including this waste rock dump, is being assessed as part of an ongoing remedial investigation and additional cleanup measures to address the waste rock dump are expected to emerge from the investigation.
- *North Maybe mine.* As part of assessment work performed under the non-time critical removal process, one mine operator identified elevated selenium levels in ponds at the bottom of a large waste rock dump at the North Maybe mine. These selenium levels posed a threat to an adjacent creek if a large amount of precipitation should cause the ponds to overflow into the creek. To mitigate this threat, in 2008 the Forest Service approved a time-critical removal action where the mine operator excavated contaminated sediments from the ponds. The operator then disposed of the sediments by adding them to a separate waste dump at the site and covering them with organic material to reduce exposure to precipitation. The Forest Service project manager reported that care was taken to ensure that this action would be consistent with potential future cleanup activities.
- *South Rasmussen mine.* After water quality monitoring revealed that a waste dump at the South Rasmussen mine was discharging selenium into a creek without a required permit, EPA took an enforcement action against the mine operator under the Clean Water Act. The mine operator agreed to pay \$1.4 million in fines and, according to an EPA official, has begun to address the discharge by capturing the outflow from the dump and storing it temporarily in ponds. According to EPA

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officials, the mine operator will need to follow up with a more permanent solution to address the contamination from the mine, but the officials have not determined the most appropriate approach for doing so. EPA officials told us they are currently determining whether other active mines in the area may also potentially be violating the Clean Water Act, but said that their efforts have been limited because EPA has not had sufficient staff or funding. EPA officials told us they may also initiate additional enforcement actions under the Clean Water Act at inactive mines if they determine that no progress is being made under CERCLA.

At a fourth mine, BLM officials told us they are working with a mine operator to arrange for additional mitigation measures to stem an ongoing selenium discharge, although such measures have not yet been taken. Specifically, BLM officials told us they are working with the operator to incorporate additional mitigation measures into a reclamation plan being implemented at a portion of the Rasmussen Ridge mine that has already been mined. BLM officials told us that they are able to take this somewhat unusual approach because other portions of the mine are still active and the operator has equipment on site that could be used to implement these mitigation measures, and undertaking these efforts now would help reduce costs for the operator. These officials also noted that the mine operator has an incentive to agree to this approach because the operator has other mine plan approvals pending with the agency and cooperating would help demonstrate willingness to address contamination resulting from this operator's mining activities.

Since 1996, mine operators have also conducted mitigation work, including testing remediation methods, outside the purview of CERCLA settlement agreements, according to operator representatives with whom we spoke. For example, these representatives told us that they took steps to restrict livestock and wildlife access to ponds and other water at their mines. In addition, according to one mine operator, the operators have supported research projects related to selenium contamination, including one that involved applying cheese whey and iron granules to contaminated soils to test whether the materials could prevent plant uptake of selenium, making it biologically unavailable.<sup>38</sup> A representative from this operator told us that some of these projects were successful,

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<sup>38</sup>Whey is the water and solid components of milk that remain after the manufacture of cheese.

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Several Factors Contributed to Lengthy Time Spent on Assessment

although further research is needed before these techniques can be applied on a large scale. Further, EPA officials also noted that mine operators have taken action to reduce the uptake of selenium in reclamation vegetation and better control stormwater runoff.

Agency officials told us that five factors have contributed to the length of time spent conducting assessments at contaminated phosphate mines in southeastern Idaho. First, the phosphate mines present complicated, large-scale contamination challenges that are unique to the area, according to agency officials. While the agencies have experience dealing with other contaminated, large-scale mines, especially hardrock mines, officials told us that the phosphate mines in southeastern Idaho feature a complex interaction of selenium in the waste rock with the surrounding surface water and groundwater. EPA officials explained that complex systems such as those found at the phosphate mines require considerable time to understand, which is why the agencies have spent—and will likely continue to spend—years assessing contamination at these mines.

Second, having multiple agencies with authority over some aspect of cleanup at the mines—including different agencies acting as the lead at different sites—has slowed down the assessment process, according to officials with these agencies. For example, EPA and Forest Service officials noted that it is time-consuming to coordinate the other agencies' involvement, including obtaining, considering, and reconciling multiple, often conflicting, opinions. EPA officials told us that technical disagreements among agencies have led to delays in reviewing some operators' assessment documents. Further, according to these officials, the situation is exacerbated at those mines located on private and federal land where decision-making authority is shared, requiring those agencies to come to full agreement before moving forward with decisions or actions that affect the entire site. In addition, the agencies' roles sometimes needed clarification. For example, at one mine located on an Indian reservation, agency officials said BIA and EPA spent 2 years negotiating which agency would take the lead in managing cleanup work under CERCLA because the agencies disagreed over which agency had the legal authority to do so.

Third, the decision to switch from the non-time critical removal process to the remedial action process resulted in delays. According to Forest Service and EPA officials, the agencies and mine operators spent additional time renegotiating settlement agreements at mines where they had begun to address contamination under the non-time critical removal process, delaying the process of negotiating new agreements at the

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mines that had not yet been addressed. These officials also told us that some of the data collected under the non-time critical removal process needed to be validated by third-party external contractors, which resulted in additional delays. Senior EPA and Forest Service officials who entered the process after the non-time critical approach was selected told us they believed the agencies could have started the CERCLA remedial action process initially, in part because of the large sizes of the mine sites and the high degree of uncertainty associated with them. EPA and Forest Service officials told us that selecting the remedial action process from the beginning may have streamlined the process of assessing contamination.

Fourth, according to EPA, Forest Service, and state officials, an individual mine operator's level of participation and cooperation influences the amount of progress that can be made at the contaminated mines, and a difficult situation with a mine operator can slow down the assessment process. According to agency officials, this has happened in several cases. For example, as noted earlier, one mine operator sued to compel the federal government to share liability for the costs of cleaning up contamination under CERCLA at four mines; Forest Service officials told us that responding to that lawsuit has taken resources and attention away from managing assessment and cleanup activities at the other mines on its land, resulting in additional delays to the assessment process. Ultimately, the difficulties associated with this situation resulted in the agency's terminating the assessment work the mine operator had been conducting at two of the mines and undertaking the work itself. In addition, EPA officials told us they have had concerns with the quality of the draft reports the mine operators produced for review by the agencies as part of the assessment process. These officials told us the agencies provided extensive comments on the draft reports, necessitating significant rework by the mine operators.

Finally, the Forest Service did not have sufficient technical and management expertise in place, or a sufficient focus on enforcement, in the early years of the assessment efforts to successfully manage those efforts under CERCLA, according to Forest Service and EPA officials. For example, according to an internal Forest Service review, the CERCLA knowledge and expertise of the Forest Service field staff were not sufficient to address the complexity of the mines, which limited cleanup progress. The review also found the agency did not hire enough technical support contractors with relevant expertise to assist with oversight. As a result, according to Forest Service officials and the review, it was difficult for the Forest Service to critically assess the mine operators' work, and



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the agency did not always conduct oversight in a timely manner. In addition, according to EPA officials, the Forest Service was not aggressive in enforcing the terms of its early settlement agreements, which led to a site assessment lasting 13 years in one case. Moreover, these officials told us they believe the lack of enforcement occurred in part because the Forest Service, unlike EPA, generally does not have experience with CERCLA enforcement.

In 2008—12 years after the contamination was first identified—the Forest Service recognized it needed staff with more CERCLA-specific experience to manage the cleanup work, and in 2009 it hired a former EPA official to manage its cleanup program. According to this official, the Forest Service also hired more experienced project managers for each mine and increased its use of technical support contractors to bolster its oversight of mine operators. EPA officials told us they believe the composition of the Forest Service staff is now appropriate for managing the cleanup work at the phosphate mines but that having the Forest Service manage the CERCLA cleanup work at the mines may continue to pose certain challenges. For example, EPA officials told us they believe the Forest Service lacks the institutional support for its CERCLA project managers that is available to EPA’s project managers.<sup>39</sup>

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### Since 2001, Agencies Have Spent About \$19 Million to Oversee Assessment and Remediation, but Costs of Mine Operators’ Activities Were Unavailable

Federal and state agencies reported having spent about \$19 million since fiscal year 2001 to oversee assessment and remediation efforts at contaminated phosphate mines in southeastern Idaho,<sup>40</sup> according to our analysis of federal and state data.<sup>41</sup> Of this amount, these agencies spent

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<sup>39</sup>Specifically, EPA officials told us that CERCLA project managers who work on EPA’s phosphate-related cleanup in Idaho have at their disposal roughly 45 full-time equivalent staff with expertise in contaminant cleanup—including chemists, biologists, and attorneys. Forest Service officials said their staff consists of five project managers and two technical support staff, including a geologist and an environmental protection specialist; they also have three attorneys available. However, these officials told us that they hire technical contractors for additional support.

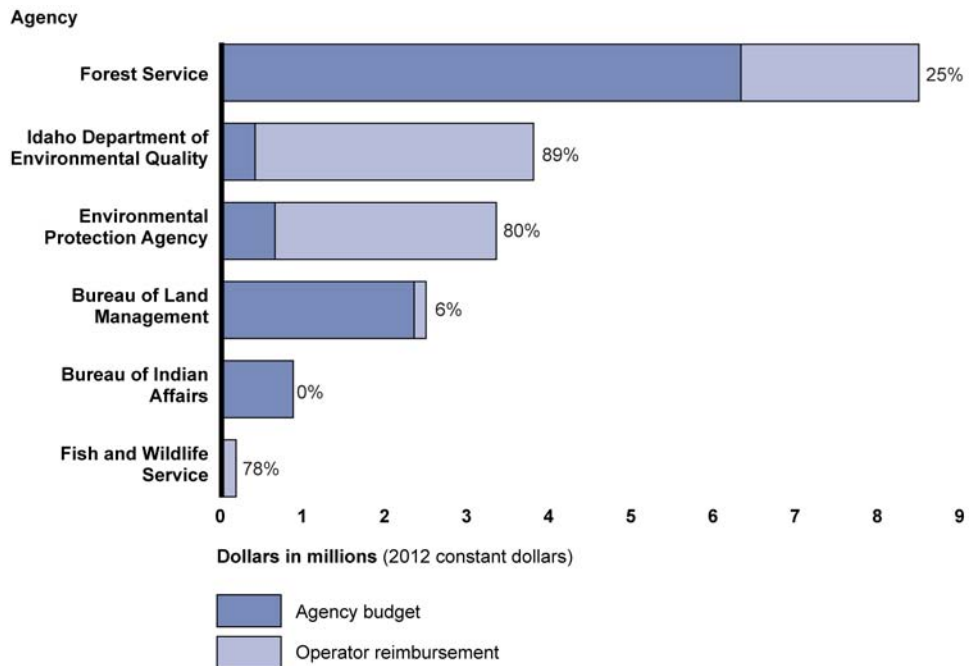
<sup>40</sup>In addition to oversight, the Forest Service has also directly conducted some limited assessment work at two mines.

<sup>41</sup>Reported spending represents agency expenditures, also referred to as outlays, in 2012 constant dollars. Also, officials from each agency told us they incurred additional expenses related to cleanup at the phosphate mines in southeastern Idaho prior to fiscal year 2001, but since not all of the agencies had records of those expenses, we are reporting expenditures beginning in 2001.

\$10 million on general project management and assessment efforts that reached across multiple mines, including time spent planning and consulting over the cleanup process and working on the areawide investigation, with the remainder spent primarily on oversight of activities at individual mines.

Agencies also reported that the mine operators, who have carried out most of the assessment and remediation efforts, have reimbursed the agencies for 44 percent of the total agency expenditures under CERCLA settlement agreements, and the rest has come from the agencies' budgets. Figure 7 shows, by agency, expenditures paid from agency budgets and expenditures reimbursed by mine operators.

**Figure 7: Total Agency Expenditures for Overseeing Phosphate Mine Assessment and Remediation, and Percentage and Amounts Reimbursed by Mine Operators, 2001-2011**



Source: GAO analysis of agency data.

Notes: In some cases, mine operators have contributed additional amounts that the agencies expect to use to defray future costs. Because the agencies have not yet expended these amounts, this figure does not reflect these amounts. Expenditures include the agencies' administrative costs.

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As figure 7 shows, the agencies reported varying amounts of expenditures and rates of reimbursement. The Forest Service, which is managing cleanup efforts at 7 of the 16 contaminated mines, reported spending the largest amount—about \$9 million—an amount that approaches the other agencies' expenditures combined. The Forest Service also reported incurring more expenditures that were not reimbursed—about \$6 million—than the other agencies, receiving reimbursement for 25 percent of its expenditures. According to Forest Service officials, the agency's relatively low reimbursement rate occurs, in part, because the Forest Service did not have cost recovery provisions in its settlement agreements for any of its oversight work until 2006. BLM and BIA also reported low overall rates of reimbursement because, for the most part, these agencies did not have cost recovery arrangements at the mines where they were most active until settlement agreements were signed in 2008 or later. Instead, they paid for oversight at these mines in the years leading up to the settlement agreements out of their budgets. In contrast, EPA has managed cleanup at five mines and reported incurring about \$3 million in expenditures, of which 80 percent has been reimbursed by mine operators. EPA officials told us that because of limited funding and staff resources, as well as other factors, EPA Region 10 (which oversees phosphate assessment and cleanup activities in Idaho) helps oversee CERCLA assessments primarily at mines where it has negotiated cost recovery mechanisms as part of settlement agreements, or expects to do so in the future. Similarly, FWS officials told us that because of the agency's own funding constraints, they have also restricted their involvement to those mines where cost recovery is available, also resulting in a high rate of reimbursement. According to the EPA and FWS officials, this approach protects the agencies financially, but it has also limited their ability to contribute their expertise across the cleanup efforts. See appendix II for more detailed information on agency expenditures and amounts reimbursed by mine operators at each of the 16 mines known to have selenium contamination.

The approximately \$19 million in expenditures for agency oversight efforts does not include the cost of assessment and remediation work the mine operators have conducted, either under the terms of settlement agreements or independently, according to agency officials. For example, the operators' costs for developing and implementing plans for water quality sampling or constructing a diversion pipeline are not included in the agencies' expenditure total. We requested documentary evidence to support the costs incurred by the mine operators but they did not provide these documents to us. Anecdotal information suggests that the mine operators have spent a significant sum on assessment and remediation

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work. For example, one mine operator representative told us his company spent \$12 million on assessment and remediation actions taken under settlement agreements from 2003 through 2011 at its three mines, and another mine operator reported it had spent about \$10 million on cleanup-related work at four of its mines. Nevertheless, without the mine operators' expenditure information, we cannot be assured of the accuracy of the amounts the mine operators reported spending on assessment and remediation work.

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### Agencies Have Not Developed Cost Estimates for Future Cleanup Actions Because Site Assessment Efforts Have Not Been Completed

According to EPA and Forest Service officials, they have not developed cost estimates for future cleanup actions at any of the 16 contaminated phosphate mines because agencies are still conducting assessment work, and these officials will not determine cleanup actions until they have completed this work. However, information from phosphate and hardrock mines provides an indication of potential future costs that are likely, and which, according to informal estimates provided by EPA officials, could total hundreds of millions of dollars, in part because several of the mines are likely to require long-term remedial actions that are typically costly to implement.

According to EPA and Forest Service officials, the following two cleanup actions, if required, would significantly influence cleanup costs at phosphate mines in southeastern Idaho:

- *Long-term water collection and treatment.* According to EPA officials, the need for long-term water collection and treatment can be the most costly remedial action at a mine site, primarily because water collection and treatment can require ongoing activity for more than 100 years. Costs for this type of action include design; the initial capital investment in infrastructure for collection, storage, and treatment of the water; ongoing infrastructure upgrades and replacements; and personnel costs for continual operation. Such costs can be significant; for example, at another cleanup site in Region 10, the Holden hardrock mine in Washington State, EPA and the Forest Service have estimated the cost for long-term water treatment will be about \$47 million. EPA officials told us that, based on information gathered to date, at least five phosphate mines may require long-term water treatment.
- *Waste rock covers.* According to EPA officials, the cost of consolidating and capping large volumes of waste rock materials can vary depending on the number of acres needing coverage, the type of cover required,

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and the topography of the area to be covered. For example, the Forest Service recently approved a cover, consisting of a clay layer, a synthetic membrane, and soil, that will be implemented as part of a non-time-critical removal action at one phosphate mine and is estimated to cost about \$17 million to cover roughly 100 acres of a cross-valley fill. A synthetic cover recently required as part of the reclamation plan at a new mine is estimated to cost about \$29 million to cover nearly 400 acres.<sup>42</sup> According to a Forest Service official, long-term monitoring and maintenance can further increase the costs of these covers.

Based on our review, several other factors add to the uncertainty about the level of cleanup that will be required in the area, and the amount and allocation of cleanup costs.

- *The selenium water quality standard is expected to change.* According to EPA officials, final remedial actions under CERCLA will be based, in part, on the state's water quality standard for selenium in rivers and streams. This standard is based on a national recommendation issued by EPA, which is in the process of updating its recommendation to better protect fish and other aquatic organisms. After the new recommendation is issued, according to EPA officials, Idaho will likely adopt a new state standard, using the recommendation as a basis. If the new standard is more stringent than the current standard, the level of cleanup required may change as well, increasing the costs associated with cleanup.<sup>43</sup>
- *A total maximum daily load for selenium has not yet been established.* Because the streams in the Blackfoot River watershed—the main watershed affected by selenium contamination in Idaho—have been listed as impaired for selenium under section 303(d) of the Clean Water Act, the state is required to establish a TMDL for selenium for

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<sup>42</sup>These estimated costs represent the cost to the government to construct the covers; according to BLM officials, the costs would be less if the operators were to perform the work.

<sup>43</sup>One phosphate mine operator is developing a proposal for a site-specific water quality standard for selenium at one of its mines, which is allowed under EPA regulations. According to EPA officials, in some locations, the nationally recommended standard may be considered under- or overprotective if the species at a site have different sensitivities than those considered for the national recommendation. EPA will ultimately decide whether to approve the site-specific standard.

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those waters. According to IDEQ and EPA officials, the state has delayed developing the TMDL, in part because the ongoing CERCLA assessment process is yielding valuable information about the sources of selenium in the watershed and how these sources interact with one another—and this information will be critical to helping the state establish a TMDL for selenium. Once a TMDL is established, it may inform pollution limits that are established for the mines that directly discharge selenium to the watershed. According to EPA officials, a TMDL would also likely help provide a road map for handling the selenium contamination at the remaining mines where CERCLA actions have not yet been initiated.

- *The government's share of future cleanup costs is not yet determined.* One outcome of the lawsuit filed against the government by a mine operator under CERCLA is that according to the court decision, the government is potentially liable for costs associated with environmental contamination at the four mine sites at issue in the litigation. However, the court has not determined the government's share of the cleanup costs. As of April 2012 the government and the mine operator were negotiating a proposed settlement regarding allocation of past and future costs that will be final once approved by the court. Because of the court's decision holding the government potentially liable, agency officials told us other mine operators may also seek to have the government share cleanup costs with them. If they are successful, the agency officials said the government's costs could ultimately be significant.

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## Agencies Hold Millions of Dollars in Financial Assurances for Site Reclamation and Assessment, but Some Are in the Form of Potentially Risky Corporate Guarantees

Federal agencies reported holding financial assurances for phosphate mine operations in southeastern Idaho for about \$91 million to cover (1) mine reclamation and related activities and (2) site assessment and limited remediation activities negotiated under CERCLA settlement agreements. Specifically, the agencies reported holding financial assurances valued at approximately \$80 million to cover mine reclamation and related activities and \$11.4 million to cover site assessment and limited remediation activities negotiated under CERCLA settlement agreements. About \$4.5 million of this amount was in the form of corporate guarantees, a type of financial assurance that both BLM and EPA have stated is potentially risky because corporate guarantees are not covered by a specific financial asset. The agencies have not entered into settlement agreements or established financial assurances to cover future cleanup costs because, as described in the prior section, they have not determined the actions that will be needed or the associated costs.

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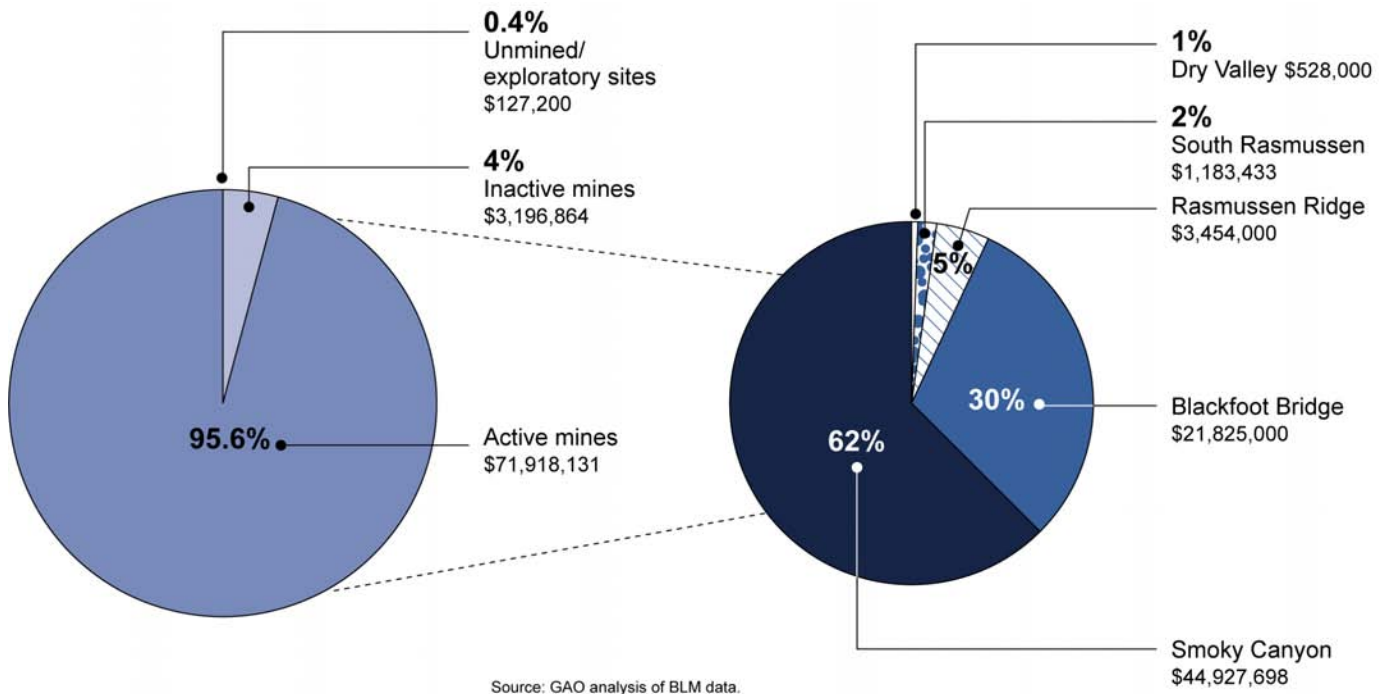
**BLM and the Forest Service Reported Holding About \$80 Million in Financial Assurances for Reclamation-Related Activities**

As of March 2012, BLM reported holding about \$75.2 million in reclamation financial assurances for 13 of the 18 phosphate mines where federal agencies are overseeing mining operations or cleanup activities.<sup>44</sup> (The five mines without BLM financial assurances are all inactive and are being assessed for cleanup under CERCLA.) Over 95 percent of this amount—almost \$72 million—is associated with the five currently active mines, and nearly all of that amount—over \$66 million—is associated with the two most recently approved active mines, the Blackfoot Bridge and Smoky Canyon mines. BLM also reported holding an additional \$127,200 in financial assurances for eight leases where the operator is engaging in exploratory activities but where mine operations have not yet commenced and other unmined sites. Figure 8 shows the amount and composition of BLM-held reclamation financial assurances for phosphate mines in Idaho, including the amounts associated with each of the five active mines.

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<sup>44</sup>This figure includes financial assurances held by the state of Idaho and BIA for phosphate operations on federal land overseen by BLM. According to BLM officials, BLM can use these financial assurances to help cover the cost of reclamation or federal royalty obligations. As a result, we have included them with the reclamation bonds held by BLM.

**Figure 8: Amount and Composition of BLM-Held Reclamation Financial Assurances, for Phosphate Mines in Idaho**



Source: GAO analysis of BLM data.

In addition, as of March 2012, the Forest Service reported holding \$5.2 million in financial assurances for reclamation of mining-related activities associated with six special-use permits. These financial assurances are for reclamation of disturbed surfaces that are associated with, but not physically located on, federal leases on Forest Service land,<sup>45</sup> through activities such as removing access roads and auxiliary structures and restoring forest land. Of this total, about 54 percent—or \$2.8 million—is for the Smoky Canyon mine.

<sup>45</sup>As noted, BLM holds financial assurances related to mining activities physically located on leased Forest Service land.



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The Forest Service and EPA Hold \$11.4 Million in CERCLA Financial Assurances for Site Assessment and Limited Remediation Activities, but Some EPA Financial Assurances May be Risky

As of March 2012, there were 6 mines undergoing CERCLA assessment for which the Forest Service and EPA reported holding financial assurances valued at \$11.4 million. Such assurances are intended to help ensure mine operators' performance under CERCLA settlement agreements. For one of these mines, the Forest Service holds a financial assurance, which is valued at about \$3.9 million and covers both a CERCLA assessment and previous remediation work at that mine to construct a water diversion pipeline, according to agency officials. For the other five mine sites, EPA holds \$7.5 million in financial assurances to cover CERCLA assessments, according to agency officials.

About \$4.5 million of the \$7.5 million in financial assurances that EPA holds for three of the five mines is in the form of corporate guarantees. Corporate guarantees are promises by mine operators, sometimes accompanied by a test of financial stability, to pay remediation costs, but these guarantees do not require that funds be set aside by the operators to pay such costs. As a result, for these three sites, EPA does not hold a financial asset that it could use to pay for the work specified in the settlement agreement should the operator fail to do so. EPA officials noted, however, that these guarantees cover only the investigation and planning stage of the process, and that the operator at these mines has already successfully completed a significant portion of the activities under an earlier removal settlement agreement. Nevertheless, EPA Region 10 has acknowledged the risk associated with corporate guarantees. In its 2009 *Region 10 Mining Financial Assurance Strategy*,<sup>46</sup> the region noted that the form of a financial assurance is as important as the amount and stated that corporate guarantees are not a secure mechanism should a company go bankrupt or have financial difficulties. As an example, the region cited a corporate guarantee that it had accepted from an operator of a mine smelter site in Washington State. When EPA requested a more secure type of financial assurance, the operator filed for bankruptcy, leaving the federal government with additional responsibility for the cleanup costs at that site. Recognizing the inherent risks associated with corporate guarantees, the region stated in its strategy that it would no longer accept them as part of CERCLA consent decrees or settlement agreements related to cleanup actions for mining operations.

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<sup>46</sup>EPA Region 10, *Region 10 Mining Financial Assurance Strategy*, (Seattle, WA: January 2009).

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Such concerns about corporate guarantees have been raised previously by others. In 2000, for example, BLM stopped accepting corporate guarantees for new mining operations, stating that they are less secure than other forms of financial assurance, particularly in light of fluctuating commodity prices and the potential for an operator to declare bankruptcy.<sup>47</sup> Moreover, as we reported in August 2005, EPA has stated that corporate guarantees offer EPA minimal long-term assurance that a company with environmental liability will be able to fulfill its financial obligations.<sup>48</sup> As a result, EPA and taxpayers may be exposed to significant financial risk, especially at mining sites where one or a few parties are liable for cleanups—as is the case for phosphate mining in Idaho. We also noted in our August 2005 report that EPA’s selection of a reliable financial assurance mechanism is particularly important given the potential for large liabilities stemming from mining sites. EPA does not have regulations on the use of corporate guarantees as financial assurances under CERCLA, however. EPA is considering promulgating regulations related to financial assurances for mining and other industries and has solicited public comments on the risks associated with corporate guarantees and the experiences of regulators who have attempted to use them. EPA expects to publish a proposed rule outlining its approach to financial assurances later in 2013, according to EPA officials.

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## Conclusions

Selenium contamination from phosphate mining has been a concern in southeastern Idaho for over 15 years. Federal agencies have taken steps to strengthen their oversight of phosphate mining on federal land since selenium contamination was discovered in 1996 by requiring more detailed environmental assessments and reclamation plans, requiring financial assurances that provide more coverage, and hiring additional staff. However, addressing the contamination has been a lengthy undertaking with many factors contributing to the length of this process, including the complexity and scale of the sites, sometimes-difficult relations with mine operators, an initial lack of expertise and resources on the part of the Forest Service, and the decision to switch to a more comprehensive cleanup approach. Nevertheless, the fact remains that after years of study and millions of dollars spent, the agencies and mine

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<sup>47</sup>65 Fed. Reg. 69998, 70004, 70074 (Nov. 21, 2000).

<sup>48</sup>GAO, *Environmental Liabilities: EPA Should Do More to Ensure that Liable Parties Meet Their Cleanup Obligations*, [GAO-05-658](#) (Washington, D.C.: Aug. 17, 2005).

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operators are still years away from fully understanding the extent of contamination in the area and many more years away from completing actual mine cleanup.

The agencies have taken important steps aimed at preventing future contamination, including BLM's use of more rigorous oversight procedures when considering or approving new mines, but gaps in agency policies and coordination may result in missed opportunities for the agencies to fully implement the approaches they have developed. For example, while BLM's practice of setting financial assurances to cover the estimated full cost of reclamation for new phosphate mines may better protect the government from future cleanup liability, the agency has not documented this practice in official agency policy—lessening the certainty that the practice will be consistently followed in the future. Likewise, the lack of established coordination practices between BLM and the Forest Service may result in cases where BLM may not give full or timely consideration to the Forest Service's input when establishing mine lease terms and conditions or setting financial assurance amounts for mines in southeastern Idaho. As a result, BLM in some cases may be basing its decisions on incomplete information. Additionally, while BLM has attempted to leverage its limited resources by requiring mine operators to pay for contractors to help oversee reclamation work, it does not have mechanisms in place to fully oversee such activities and could not identify its authorities for directing and overseeing such arrangements. And finally, EPA's acceptance of financial assurances in the form of corporate guarantees related to assessment (and, potentially, cleanup) activities leaves the federal government at increased risk of shouldering more of the financial burden for these tasks should the mine operators fail to carry them out or declare bankruptcy. In its current efforts to draft regulations for financial assurances under CERCLA, EPA has stated that it plans to assess the risks associated with different forms of financial assurances, including corporate guarantees, and the experiences of regulators to assess the adequacy of various financial mechanisms—which we believe is an important step in ensuring that the financial assurances accepted by the federal government are adequately reducing the government's exposure for cleanup costs.

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## Recommendations for Executive Action

To ensure effective oversight of phosphate-mining operations and reclamation and cleanup, we are making three recommendations to the Secretary of the Interior and one to the Administrator of EPA. Specifically, we recommend that the Secretary of the Interior direct the Director of BLM to

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- document the practice of requiring financial assurances to cover the estimated full cost of reclamation in BLM's official agency policy;
  - work with the Chief of the Forest Service to develop a coordinated process for (1) proposing and evaluating lease terms and conditions for phosphate mines in southeastern Idaho, and (2) sharing information on the amount and adequacy of financial assurances to provide better coordination between federal agencies regarding phosphate mine oversight; and
  - analyze BLM's authorities for directing operators to enter into third-party contracting mechanisms. If BLM confirms that it has the authority, it should develop a policy document to ensure consistent implementation, including a requirement that BLM reach written agreement with operators regarding arrangements for third-party contracting. Should BLM determine that it does not have the authority to use such mechanisms—and should it wish to continue the practice—it should seek appropriate legislation for doing so.

In addition, we recommend that the Administrator of EPA ensure that the agency complete its plan to assess whether corporate guarantees are an adequate financial mechanism, including giving due consideration to the experience of EPA Region 10 and BLM in using such assurances. If EPA determines that corporate guarantees are not an appropriate form of financial assurance, then their use should be prohibited in the financial assurance regulations that the agency expects to promulgate for the mining industry.

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## Agency Comments and Our Evaluation

We provided EPA and the Departments of Agriculture, Defense, and the Interior with a draft of this report for their review and comment. EPA, the Forest Service (responding on behalf of the Department of Agriculture), and Interior generally agreed with our findings and recommendations, and their written comments are reproduced in appendixes III, IV, and V respectively. Each of these agencies also provided technical comments which we incorporated as appropriate. The Department of Defense declined to provide comments.

While the Department of the Interior generally agreed with our findings and recommendations, it expressed concern that our discussion on BLM's coordination with the Forest Service on leasing activities could be misleading. Interior noted that in some instances BLM does not accept the Forest Service's recommended changes to existing phosphate leases

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because of differences in professional judgment, not because of a lack of coordination. Furthermore, Interior noted that BLM and the Forest Service have been discussing the Forest Service's proposed revisions to the standard lease terms and conditions for new leases to further protect the government from potential liability associated with selenium contamination, but that such discussions are necessarily detailed and time consuming, and the lack of agreement to date does not constitute a lack of coordination. In this context, the Forest Service also noted that it places great value on its collaborative relationship with BLM, and is committed to working with BLM to improve coordination and information sharing. We have made changes to the report to provide additional context and clarification regarding the agencies' coordination efforts. Nevertheless, while we acknowledge that BLM and the Forest Service have begun efforts to improve their coordination on these issues, we continue to believe that they would benefit from a clearer process for coordinating in a timely manner and elevating issues to the headquarters level when necessary.

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As agreed with your offices, 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 to the Secretaries of Agriculture, Defense, and the Interior; the Administrator of the Environmental Protection Agency; the Chief of the Forest Service; the Assistant Secretary for Indian Affairs; the Directors of the Bureau of Land Management and Fish and Wildlife Service; appropriate congressional committees; and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please contact me at (202) 512-3841 or [mittala@gao.gov](mailto:mittala@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix VI.



Anu K. Mittal  
Director, Natural Resources  
and Environment

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# Appendix I: Scope and Methodology

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This appendix details the methods we used to examine the issues surrounding the oversight and cleanup of phosphate mines on federal lands. Specifically, we were asked to provide information on the (1) extent to which federal agencies' oversight of phosphate operations has changed since the discovery of selenium contamination in Idaho in 1996, and whether those changes appear sufficient to help the agencies prevent future contamination; (2) actions that federal agencies and mine operators have taken to assess and remediate contamination from phosphate mining on federal land, amounts they have spent on these actions, and estimated remaining costs; and (3) types and amounts of financial assurances in place for phosphate mining operations and the extent to which these assurances are likely to cover future cleanup costs.

For all objectives, we focused our report on agencies' and mine operators' activities in Idaho for two primary reasons. First, phosphate-mining operations on federal land are generally limited to the Western Phosphate Field, and all but one of these operations are located in Idaho. Second, the occurrence of selenium contamination resulting from phosphate-mining operations on federal lands is currently limited to Idaho; such contamination has not been discovered in neighboring states containing portions of the Western Phosphate Field.

To address the first objective, we reviewed federal laws and regulations relevant to the federal agencies' oversight of phosphate-mining operations on federal land in Idaho, including the National Environmental Policy Act (NEPA), the Mineral Leasing Act, the Clean Water Act, and the Endangered Species Act. In addition, we reviewed relevant agency documents and reports created both before and after 1996. These include Bureau of Land Management (BLM) and Forest Service land-use plans; BLM records of decision for new mine plans, and associated NEPA documents; BLM instructional memorandums; BLM lease and bond abstracts; and correspondence between BLM and the Forest Service regarding lease stipulations. We interviewed officials with the Bureau of Indian Affairs (BIA), BLM, the Fish and Wildlife Service (FWS), and the Office of Natural Resources Revenue within Interior; the Forest Service; the Environmental Protection Agency (EPA); the Army Corps of Engineers; and the Idaho Department of Environmental Quality (IDEQ). We also interviewed representatives of the three Idaho phosphate mine operators and visited the three phosphate mines operating as of June 2011, and twelve of the sixteen mines where selenium contamination has been detected. To obtain additional perspectives beyond those offered by agency officials and mine operators, we also interviewed representatives from the Shoshone-Bannock Tribes, on whose reservation one of the

largest phosphate mines is located, and from regionally-focused environmental advocacy groups, including the Idaho Conservation League and the Greater Yellowstone Coalition.

To address the second objective, we interviewed officials from BIA, BLM, FWS, the Forest Service, EPA, IDEQ, the mine operators, and the Shoshone-Bannock Tribes, and reviewed documents and reports on the status of assessment and cleanup efforts and related settlement agreements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). To determine the amount federal and state agencies have spent on these actions and the amount each agency received in reimbursement from mine operators, we obtained expenditure and collections data from each agency where available from fiscal year 2001 through fiscal year 2011. Specifically, for EPA, we collected data from EPA's Superfund Cost Recovery Package Imaging and On-Line System, which included EPA's expenditures at each mine, as well as information on funds received from mine operators. For BLM, we received data from BLM's Management Information System for fiscal years 2001–2008 and from Interior's Financial and Business Management System for fiscal years 2009–2011. Because BLM's data from these systems applied to cleanup work at Idaho phosphate mines generally, we also collected mine-specific expenditure information where available, including from the cost documentation packages that BLM submitted to the mine operators for six mines as part of settlement agreements to which BLM was a party. We received information on funds BLM received from mine operators from Interior's Federal Financial System. For the Forest Service, we received data from the Forest Service's Foundation Financial Information System, which included the Forest Service's expenditures at each mine and funds received from mine operators. For FWS, we collected data from cost documentation packages submitted to the mine operators for five mines and the areawide investigation where FWS was a party to a settlement agreement, and from the Federal Financial System for additional expenditures as well as funds received from mine operators. For BIA, officials estimated their annual expenditures based on records kept internally showing hours worked on cleanup at phosphate mines in Idaho. For IDEQ, we received data from the department's General Online Reporting System, which included IDEQ's costs as well as funds received from mine operators.

To evaluate the reliability of these data and determine their limitations, we reviewed the data obtained from each agency's system as well as the cost documentation packages generated by the agencies and sent to

mine operators. For each of these data sources, we analyzed related documentation, examined the data to identify obvious errors or inconsistencies, and compared the data we received with other published data sources, where possible. We also interviewed officials from each agency to obtain information on the internal controls of their data systems. On the basis of our evaluation of these sources, we concluded that the expenditure data we collected and analyzed were sufficiently reliable for our purposes.

For all agencies, at least some of the expenditures they reported included expenses paid to cover indirect costs associated with work performed by the agencies, which is in accordance with the terms of many of the settlement agreements. However, these indirect costs were not included in all of the expenditure data shared with us. Therefore, in order to report similar types of expenditures across agencies, we applied agency-specific historic annual indirect cost rates to those expenditures we received where it was not already included. In order to determine costs in constant 2012 dollars, we adjusted the amounts reported to us for inflation by applying the fiscal year chain-weighted gross domestic product price index, with fiscal year 2012 as the base year.

To determine estimated remaining costs for future cleanup actions at the sites, we interviewed EPA, Forest Service, and BLM officials, and reviewed reports from phosphate mines where CERCLA removal actions have occurred or have been approved and mines with recently approved reclamation plans that include measures to prevent selenium contamination. EPA and Forest Service officials provided information regarding likely cost drivers for cleanup at phosphate mines, and, to provide context, EPA officials identified hardrock mines in the region with similar general characteristics where these cost drivers are expected to be applied.

To address the third objective, we first reviewed BLM, Forest Service, and EPA regulations; BLM and Forest Service manuals; and BLM memorandums to obtain agency financial assurance standards and procedures. We then obtained financial assurance data from records maintained by Idaho-based officials with BLM, the Forest Service, and EPA, which included data on bonds held by Idaho state agencies for operations on federal land. We also interviewed officials from these agencies to obtain insights into agency financial assurance practices and the extent to which current financial assurances are sufficient to cover future cleanup actions. We evaluated the reliability of BLM financial assurance data by interviewing BLM officials and corroborating the data



maintained by BLM officials in Idaho with data maintained in BLM's centralized database, known as LR2000. We evaluated the reliability of Forest Service and EPA data by interviewing agency officials, examining agency records, and cross-checking these data to the bonds amounts listed in CERCLA settlement agreements. We determined that the financial assurance data from BLM, the Forest Service, and EPA were sufficiently reliable for the purpose of determining the types and amounts of financial assurances in place for phosphate mining operations in Idaho.

We conducted this performance audit from May 2011 through April 2012 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 on 18 Phosphate Mines Overseen by Federal Agencies in Southeastern Idaho, and CERCLA Cleanup Expenditures

This appendix provides information on the acres disturbed, CERCLA lead agency, and surface land ownership at 18 phosphate mines in southeastern Idaho (table 3), and the agency assessment and cleanup expenditures at the 16 of those mines with selenium contamination (table 4).

**Table 3: Acres Disturbed, CERCLA Lead Agency, and Surface Land Ownership at 18 Phosphate Mines in Southeastern Idaho**

Mine	Acres disturbed <sup>a</sup>	CERCLA lead agency	Surface Land Ownership				
			BLM	Forest Service	Tribal	State	Private
Ballard	640	EPA				•	•
Blackfoot Bridge <sup>b</sup>	90		•				•
Champ	390	Forest Service		•			
Conda	1,510	EPA	•				•
Diamond Gulch	30	Forest Service		•			
Dry Valley	340	IDEQ	•				•
Dry Valley, South Extension <sup>b</sup>	540		•	•		•	•
Enoch Valley	580	EPA		•			•
Gay	4,740	EPA			•		
Georgetown Canyon	250	IDEQ		•			•
Henry	1,070	EPA	•			•	•
Mountain Fuel	720	Forest Service		•			
North Maybe	600	Forest Service		•			•
Rasmussen Ridge <sup>b</sup>	760			•		•	
Smoky Canyon	2,510	Forest Service		•			•
South Maybe Canyon	600	Forest Service		•			
South Rasmussen <sup>b</sup>	390			•		•	
Wooley Valley	810	Forest Service	•	•			•

Source: BLM, Forest Service, and IDEQ.

<sup>a</sup>Acres disturbed represent estimates as of December 31, 2011, and include all acreages that have also been reclaimed.

<sup>b</sup>This is an active mine that is not being assessed under CERCLA.

**Appendix II: Information on 18 Phosphate  
Mines Overseen by Federal Agencies in  
Southeastern Idaho, and CERCLA Cleanup  
Expenditures**

**Table 4: Assessment and Cleanup Expenditures at the 16 Contaminated Phosphate Mines in Southeastern Idaho, from Fiscal Years 2001 through 2011**

Dollars in thousands (2012 constant dollars).

Mine	FS	IDEQ	EPA	BLM	BIA	FWS	Total agency expenditures <sup>a</sup>	Total reimbursed by mine operators <sup>b</sup>
Ballard/ Enoch Valley/ Henry <sup>c</sup>	\$377	\$405	\$1,496	\$11	\$0	\$20	\$2,310	\$1,806
North Maybe	1,735	88	85	80	0	32	2,019	1,671
Smoky Canyon	1,263	168	335	39	0	57	1,862	1,094
Conda	0	427	902	65	0	37	1,432	1,321
Gay	0	0	224	37	380	10	650	179
South Maybe Canyon	336	3	0	13	0	0	352	113
Wooley Valley/ Diamond Gulch <sup>c</sup>	172	37	1	0	0	0	210	0
Rasmussen Ridge	85	0	0	77	0	0	162	0
Champ/ Mountain Fuel <sup>c</sup>	122	1	0	7	0	0	131	8
South Rasmussen	0	40	0	0	0	0	40	0
Georgetown Canyon	2	15	0	0	0	0	18	0
Dry Valley	4	0	0	0	0	0	4	0
Activity								
Project management <sup>d</sup>	4,410	0	319	2,178	0	0	6,908	0
Areawide investigation	0	2,630	0	0	551	38	3,179	2,349
Total agency expenditures	\$8,506	\$3,815	\$3,362	\$2,507	\$891	\$195	\$19,276	-
<b>Total reimbursed by mine operators</b>	<b>\$2,166</b>	<b>\$3,388</b>	<b>\$2,693</b>	<b>\$143</b>	<b>\$0</b>	<b>\$152</b>	<b>-</b>	<b>\$8,542</b>

Source: GAO analysis of agency data.

Notes: Numbers may not total because of rounding.

<sup>a</sup>Expenditures and reimbursements include agency-specific administrative, or indirect, costs.

<sup>b</sup>In some cases, mine operators have contributed additional amounts that the agencies expect to use to defray future costs. Because the agencies have not yet expended these amounts, this table does not reflect these amounts.

<sup>c</sup>Expenditures for these mines were reported as combined by one or more agencies.

<sup>d</sup>Project management includes activities that spanned multiple mines—for example, planning and consulting over the overall cleanup process in the area. For BLM, this category also includes all mine-specific work that was not covered by a cost recovery agreement with a mine operator.

# Appendix III: Comments from EPA



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

APR 20 2012

OFFICE OF  
SOLID WASTE AND  
EMERGENCY RESPONSE

Ms. Anu K. Mittal, Director  
Natural Resources and Environment  
Government Accountability Office  
Washington, D.C. 20548

Dear Ms. Mittal:

Thank you for the opportunity to comment on the draft report entitled "Phosphate Mining: Oversight Has Strengthened, but Financial Assurances and Coordination Still Need Improvement" (GAO-12-505). The draft report presents one recommendation to the U.S. Environmental Protection Agency (EPA) Administrator and three recommendations to the Secretary of the Interior. We have responded below to the recommendation presented to the EPA. Other specific comments on the draft report are included in the Enclosure.

We appreciate GAO incorporating most of our previous comments on the Statement of Facts, which preceded the development of this draft report and for the collegial working relationship and dialogue with our staff at the EPA.

#### **GAO Recommendation**

GAO recommends that "the Administrator of EPA ensure that the agency complete its plan to assess whether corporate guarantees are an adequate financial mechanism, including giving due consideration to the experience of EPA Region 10 and BLM in using such assurances. If it determines that they are not an appropriate form of financial assurance, then their use should be prohibited in the financial assurance regulations that the agency expects to promulgate for the mining industry."

#### **EPA Response**

EPA agrees with GAO's recommendation. As was noted in GAO's draft report, EPA is currently developing proposed regulations under Section 108(b) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) that would require financial responsibility for classes of facilities within the hardrock mining industry.

Section 108(b)(2) of CERCLA includes a guarantee mechanism and qualification as a self insurer in a list of mechanisms that may be used to establish financial responsibility. That

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section states:

...Financial responsibility may be established by any one, or any combination, of the following: insurance, guarantee, surety bond, letter of credit, or qualification as a self-insurer...

Thus, as part of development of the proposed regulations, EPA is evaluating the use of a financial test by an owner or operator and by a corporate guarantor. EPA is considering its experience in implementing financial responsibility requirements, including the financial test and corporate guarantee, as part of that evaluation. In addition, EPA will consult with federal land managers, including BLM, as the Agency develops the proposed rule. The Agency will consider a range of factors in its evaluation of financial responsibility mechanisms, including corporate guarantees. EPA will include an evaluation of the potential risks and benefits to the federal government associated with each financial responsibility mechanism, including the financial test.

In closing, we believe that there is substantial useful information in this report. Please feel free to contact me or your staff may contact Shahid Mahmud in EPA's Office of Superfund Remediation and Technology Innovation, at 703-603-8789 with additional questions.

Sincerely,



Mathy Stanislaus  
Assistant Administrator

Enclosure

cc: Cynthia Giles, OECA  
Barry Breen, OSWER  
Lisa Feldt, OSWER  
Susan Bromm, OFA  
Dan Opalski, EPA Region 10  
Suzanne Rudzinski, OSWER/ORCR  
James Woolford, OSWER/OSRTI  
Bobbie Trent, OSWER  
Johnsie Webster, OSWER

# Appendix IV: Comments from the Department of Agriculture



Forest Service  
Washington Office

1400 Independence Avenue, SW  
Washington, DC 20250

File Code: 1420

Date:

APR 6 2012

Ms. Anu K. Mittal  
Director, Natural Resources and Environment  
U.S. Government Accountability Office  
441 G. Street, N.W.  
Washington, DC 20548

Dear Ms. Mittal:

Thank you for the opportunity to review and provide comments on the draft U.S. Government Accountability Office (GAO) Report on "Phosphate Mining: Oversight Has Strengthened, but Financial Assurances and Coordination Still Need Improvement" (GAO-12-505). The Forest Service has reviewed the report and generally agrees with its findings and recommendations.

The Forest Service is committed to working with the Bureau of Land Management (BLM) to improve coordination related to proposing and evaluating lease terms and conditions, and sharing information on the amount and adequacy of financial assurances. Such coordination was recently initiated by a conference call between the two agencies at the Washington Office level with additional coordination planned relative to phosphate lease terms. The report and its recommendations also bring to mind that it is a good time to closely review and update if needed the Memorandum of Understanding that the FS has with the BLM.

The Forest Service places great value on our collaborative relationship with the BLM and our joint roles in providing for and producing mineral resources for the needs of the American public. We are committed to improve our efforts and coordination with BLM to limit any future liabilities related to mining activities.

Thank you again for the opportunity to review your draft report. If you have any questions, please contact Thelma Strong, Acting Chief Financial Officer, at 202-205-1321 or [tstrong@fs.fed.us](mailto:tstrong@fs.fed.us).

Sincerely,

*FOR Mary Wagner*  
THOMAS L. TIDWELL  
Chief



Caring for the Land and Serving People

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# Appendix V: Comments from the Department of the Interior



## United States Department of the Interior

OFFICE OF THE SECRETARY  
Washington, DC 20240

APR 20 2012

Ms. Anu K. Mittal  
Director, Natural Resources and Environment  
U. S. Government Accountability Office  
441 G Street, N.W.  
Washington, D.C. 20548

Dear Ms. Mittal:

Thank you for the opportunity to review and comment on the Government Accountability Office (GAO) draft report entitled, *PHOSPHATE MINING: Oversight Has Strengthened, but Financial Assurances and Coordination Still Need Improvement* (GAO-12-505). The draft GAO report includes three recommendations for the Secretary of the Interior that are intended to strengthen oversight of phosphate mining in southeast Idaho. More specifically, the GAO's recommendations address financial assurances, coordination with the U.S. Forest Service (FS), and third party contracting guidelines. Responses to each recommendation are provided below. In addition, we are enclosing some additional technical comments on the draft report.

Before addressing each of the recommendations, the Department of the Interior (Department) would like to provide some additional context for the relationship between the Bureau of Land Management (BLM) and the FS. The Department is concerned that the portrayal of consultation between the BLM and the FS on leasing activities as outlined on pages 25 and 26 of the draft report could be misleading, particularly with respect to lease readjustments.

Within the Department, the BLM is responsible for administering the leasing and development of Federal phosphate resources. In that role, as the draft report acknowledges, the BLM coordinates with the FS based on procedures outlined in two BLM/FS interagency agreements executed in 1984 and 1987. These documents identify each agency's responsibilities for overseeing the leasing and development of leasable minerals, including phosphate. These documents provide the framework in which the BLM has consistently operated when coordinating with the FS on leasing, plan approvals, and lease readjustments.

The draft report expresses concern about the BLM readjusting leases in the future without the two agencies having reached agreement about lease terms and conditions and recommends that the agencies develop a coordinated process for proposing and evaluating those terms and conditions. While there are circumstances in the normal course of lease readjustments in which the BLM does not accept some recommendations from the FS, those circumstances do not arise because of a lack of coordination. Instead, they occur because of differences in professional judgment between the BLM, which has primary responsibility for leasing activities, and the FS as the surface managing agency. Although the two agencies may have professional disagreements, the BLM recognizes the FS mission and responsibilities for

National Forest System lands and generally accepts the agency's recommendations, consistent with the agencies' statutory and regulatory requirements.

Pages 25 and 26 of the draft report also refer to the BLM's Washington, D.C. headquarters office's receipt of correspondence from the FS in December 2011, which proposes a significant number of substantive changes to the BLM's overall general lease terms and conditions. The fact that the agencies have not yet had a meeting of the minds with respect to all of the FS's proposals seems to be offered as an example of the BLM failing to coordinate with the FS on lease readjustments. However, those proposed changes will require a considerable amount of time to evaluate, and the BLM could not have reasonably incorporated them into the specific lease readjustments that it recently completed, even if the BLM concurred with the recommendations.

As the December 2011 correspondence notes, the agencies' senior management at headquarters, as well as their respective legal counsel, had been in discussions about how to reduce the Federal Government's potential liability under the Comprehensive Environmental Response Compensation and Liability Act *before* the December 2011 correspondence. The BLM expects these discussions to move forward, with the goal of having consulted fully with the FS on its proposed changes to the BLM's general lease terms and conditions in advance of the next round of readjustments scheduled for next year.

Nevertheless, the Department recognizes there are opportunities to refine coordination efforts between the BLM and the FS on evaluating lease terms and conditions and financial assurances for phosphate mines in southeastern Idaho. The Department also recognizes that improvements can be made with respect to clarity and consistency of third party contracting. Accordingly, the Department concurs with all the recommendations outlined in the draft report.

With respect to Recommendation 1, the Department acknowledges GAO's concerns about the need for a formal policy to document the BLM's practice of requiring full bonding of phosphate mines. The BLM has required full bonding of all new phosphate mines approved since 2001. The BLM will develop written policy to document its practice of requiring financial assurances to cover the full estimated-cost of reclamation.

With respect to Recommendation 2, the BLM will work with the FS to improve the coordination process for proposing and evaluating lease terms and conditions. If appropriate, the agencies will refine their current interagency agreements or develop a new regional interagency agreement to address leasing activities in the Idaho phosphate field.

Regarding financial assurances, the BLM and the FS established a Service First joint minerals branch at the Idaho BLM's Pocatello Field Office to process mine and reclamation plan proposals on both BLM- and FS-managed lands. The joint BLM-FS minerals branch reviews reclamation cost estimates provided by applicants, and then the BLM determines the amount of the full estimated-cost of reclamation bonds that applicants must post. The BLM will work with the joint minerals branch to ensure that management of both agencies are consistently informed of the reclamation cost estimates and the full estimated cost of




reclamation bonds to be required. Moreover, when evaluating potential refinements to its current interagency agreements, the BLM will also work with the FS to consider including provisions regarding coordination efforts on financial assurances.

For Recommendation 3, the GAO requests that the BLM analyze its authorities for directing operators to enter into third party contracting mechanisms. The BLM has well established authority and policy guidance for use of third party contractors, under agency oversight, to develop documents to comply with the National Environmental Policy Act. In response to this recommendation, the BLM, in consultation with the Department's Office of the Solicitor, will evaluate existing authorities to assess whether operators can be required to fund third party contractors, under BLM supervision, to monitor construction activities and the implementation of waste rock cover systems. Based upon that evaluation, the BLM will either (1) develop policy concerning written agreements with operators regarding arrangements for such third party contracting, or (2) through the Department, request legislation to provide the BLM with the appropriate authority.

The Department hopes that these comments will assist you in preparing the final report and appreciates your suggestions for improving the regulatory oversight of Federal phosphate development. If you have any questions, please contact Mitchell Leverette, Chief, Division of Solid Minerals, at (202) 912-7113, or LaVanna Stevenson, BLM Audit Liaison Officer, at (202) 912-7077.

Sincerely,

  
Marcilynn A. Burke  
Acting Assistant Secretary  
Land and Minerals Management

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# Appendix VI: GAO Contact and Staff Acknowledgments

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## GAO Contact

Anu K. Mittal, (202) 512-3841 or [mittala@gao.gov](mailto:mittala@gao.gov)

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## Acknowledgments

In addition to the contact named above, Steve Gaty (Assistant Director), Andrea Wamstad Brown, Casey L. Brown, Antoinette Capaccio, Leslie K. Pollock, Rebecca Shea, Carol Herrnsstadt Shulman, and Rajneesh Verma made key contributions to this report.

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