



441 G St. N.W.
Washington, DC 20548

Accessible Version

May 16, 2019

The Honorable Tom Udall
Ranking Member
Subcommittee on Interior, Environment, and Related Agencies
Committee on Appropriations
United States Senate

Hardrock Mining: Availability of Selected Data Related to Mining on Federal Lands

Dear Senator Udall:

The federal government manages about 650 million acres, or 29 percent, of the 2.27 billion acres of land in the United States. Five land management agencies—the Bureau of Land Management (BLM), Fish and Wildlife Service (FWS), National Park Service (NPS), and Bureau of Reclamation in the Department of the Interior, and the Forest Service in the Department of Agriculture—manage about 96 percent of this federal land. These agencies manage the lands under their jurisdictions for a variety of uses. For example, BLM and the Forest Service manage their lands for multiple uses, such as mining, timber, wildlife conservation, grazing, and recreation. In addition to the land management agencies, the U.S. Geological Survey (USGS), within Interior, provides science about mineral resources, natural hazards, and the effects of climate and land-use change, among other things

In April 2011, we found that the five land management agencies varied in the extent to which they collected over 100 different types of data—referred to as data elements.¹ Of these, 16 were related to hardrock mining.² These data elements included acres of federal land available for hardrock mining, the extent to which minerals have been extracted from federal lands, and the value of bonds held by agencies to ensure reclamation of hardrock mining operations.³ You asked us to update the information in the April 2011 report, focusing on data elements related to hardrock mining collected by the five federal land management agencies and USGS. This report examines the extent to which the six agencies reported collecting selected hardrock mining data and the agencies' reasons for not collecting or maintaining certain data, where applicable.

¹GAO, *Federal Land Management: Availability and Potential Reliability of Selected Data Elements at Five Agencies*, GAO-11-377 (Washington, D.C.: Apr. 20, 2011). The five agencies reviewed in this report were BLM, FWS, NPS, Reclamation, and Forest Service. We identified the list of data elements by reviewing past GAO and Congressional Research Service reports and interviewing agency officials, among other things.

²Federal minerals are commonly classified as locatable, leasable, or saleable. Locatable minerals include those minerals that are not leasable or saleable, for example, copper, lead, zinc, magnesium, gold, silver, and uranium. For the purposes of this report, we use the term hardrock minerals to refer to locatable minerals. Leasable minerals include oil, gas, and coal, and saleable minerals include common sand, stone, and gravel.

³BLM and Forest Service have issued regulations requiring all mining operators to provide financial assurances for the estimated cost of mine reclamation. 43 C.F.R. § 3809.552; 36 C.F.R. § 228.13. In the past, some operators did not reclaim federal land disturbed for exploration, mining, and mineral processing when their operations ceased. Some of these disturbed lands pose environmental and health and safety risks.

To conduct this work, we reviewed our April 2011 report on the availability and potential reliability of selected data elements at five agencies that encompassed over 100 data elements and identified 16 specific data elements related to hardrock mining. We then obtained information from these five agencies and USGS using a data collection instrument. Specifically, we collected information on (1) whether the agencies collect data on each of the 16 hardrock mining data elements; (2) where and in what format they maintain these data, if collected; and (3) reasons for not collecting or maintaining these data, if the agencies did not do so. We did not determine which of these selected data elements, if any, the agencies are required to collect. For the data elements agencies reported collecting, we asked agency officials about their views on the quality of the data, in terms of the data being accurate and reliable for the purposes for which they are used. Officials from each agency reported that the data they collect are sufficiently reliable for their purposes. We also interviewed agency officials, as needed, to clarify the responses they provided in the data collection instrument.

We conducted this performance audit from November 2018 to May 2019 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.

In Summary

Of the six agencies, BLM and the Forest Service reported collecting data on some of the 16 hardrock mining data elements. Specifically, BLM and Forest Service officials reported that they collect certain data elements consistent with their missions related to managing hardrock mining.⁴ For example, BLM and Forest Service both reported collecting data on the value of bonds held to ensure reclamation of hardrock mining operations, but differ in the other data elements they collect. (See enclosure I for a summary of which data are collected by these agencies.) The remaining four agencies reported that they do not collect these 16 data elements because they generally are not involved in hardrock mining activities on the lands they manage.

- **BLM.** As we found in our April 2011 report, BLM collects data on six of the 16 selected data elements, according to agency officials. Three of these are related to revenue generated from hardrock mining—in particular, claim maintenance fees, location fees, and cost recovery fees.⁵ In addition, the agency reported maintaining data on the percentages of total acres of federal lands that have a surface disturbance related to an approved mining operation, as well as where the surface disturbance has been reclaimed.⁶ BLM also maintains data on the value of bonds held by the agency to ensure reclamation of hardrock

⁴The Forest Service participates with BLM in managing hardrock minerals on federal lands. The Forest Service has principal responsibility for use and protection of surface resources on National Forest System lands, and to ensure such lands are reclaimed to support on-going land uses. See generally, 36 C.F.R. Part 228, Subpart A. Management of hardrock mineral resources is governed by BLM regulations at 43 C.F.R. Group 3800.

⁵To hold a claim on public land, a person making the claim (the claimant) must pay an annual maintenance fee (30 U.S.C. § 28f), and there is a fee when claimants first locate and record a claim (30 U.S.C. § 28g). In addition, in 2005, BLM's cost recovery rule established or revised fees and service charges imposed in connection with the processing of certain minerals program-related actions (70 Fed. Reg. 58854).

⁶There are two types of mining operations under BLM's surface management regulations, aside from casual-use activities: notice-level hardrock mining operations are those permitted to disturb 5 acres of land or less and plan-level hardrock mining operations are those permitted to disturb over 5 acres of land and those in certain designated areas, such as the National Wild and Scenic Rivers System.

mineral operations. (See enclosure II for a summary of information on data elements BLM collects and does not collect.)

- **Forest Service.** The Forest Service collects data on five of the 16 selected data elements—one more element than the agency collected in 2011—according to agency officials. Four of these are related to the percentage of the federal mineral estate that has been withdrawn from availability for mineral development under various statutes.⁷ In addition, the Forest Service reported in February 2019 that they now collect data on the value of bonds held by the agency to ensure reclamation of hardrock mineral operations. (See enclosure III for a summary of information on data elements the Forest Service collects and does not collect.)
- **NPS.** NPS does not collect data on the 16 selected data elements because, in general, active mining does not take place on NPS land and mining is not consistent with the agency’s mission, according to agency officials. Under the Mining in the Parks Act of 1976 and other park enabling statutes, NPS land is closed to new mining claims and few mining claims predate these statutes, according to agency officials.⁸
- **Reclamation.** Reclamation does not collect data on the 16 selected data elements. According to agency officials, in general, collecting these data is not part of the agency’s mission to deliver water and power to its customers, among other things.
- **FWS.** FWS does not collect data on the 16 selected data elements because it is not responsible for managing and tracking subsurface minerals, according to agency officials. Furthermore, mining is limited on FWS land because it is inconsistent with the agency’s mission, according to agency officials.⁹
- **USGS.** According to agency officials, USGS does not collect data on the 16 selected data elements. Officials stated that these data, if collected, would be under the purview of the federal agencies responsible for managing mining operations on federal land. However, USGS provides statistics on the worldwide supply, demand, and consumption of mineral commodities essential to the nation’s economy and national security, among other things.¹⁰ In addition, USGS collects and reports information in its U.S. Mineral Deposit Database about the locations of hardrock mineral deposits and mines that produced above certain thresholds.¹¹

⁷These statutes are the General Mining Act of 1872, the Mineral Leasing Act of 1920, the Mineral Leasing Act for Acquired Lands of 1947, and the Mineral Materials Disposal Act of 1947 (commonly known as the Materials Act of 1947). The federal mineral estate includes all sub-surface minerals in which the federal government has an ownership interest.

⁸NPS no longer actively collects the one data element they reported collecting in 2011—total acres of federal land available for hardrock mineral mining under existing land management plans. If these data are needed, NPS can obtain them from the appropriate state BLM office, which maintains a list of mining claims on NPS land that are still in good standing, according to NPS officials.

⁹On most FWS refuges, the locatable (hardrock) minerals have been withdrawn from mining. However, if the locatable (hardrock) minerals have not been withdrawn, then they may be prospected for, mined, and removed under the general mining laws. The owner of a valid mining claim has a right to occupy the surface and remove and dispose of these minerals.

¹⁰To develop these data, USGS collects production data from annual USGS mineral industry surveys and import and export data from the U.S. Census Bureau and other sources. For additional information on these data, please see, GAO, *Hardrock Mining: Trends in U.S. Reliance on Imports for Selected Minerals*, [GAO-19-434R](#) (Washington, D.C.: Apr 30, 2019).

¹¹USGS collects information from published data sources and records the location, commodity produced, mining history, and other information for mines and mineral deposits, as available, in this database, according to agency officials.

Agency Comments

We provided a draft of this product to the Department of the Interior and the Department of Agriculture for comment. The Department of the Interior provided technical comments, which we incorporated as appropriate. In its comments, reproduced in enclosure IV, the U.S. Department of Agriculture generally concurred with the report.

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We are sending copies of this report to interested congressional committees, the Secretaries of Agriculture and the Interior, and other interested parties. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-3841 or fennella@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 were Elizabeth Erdmann (Assistant Director), William Gerard, Kelsey Kennedy, Gwen Kirby, Leslie Kaas Pollock, and Anne Rhodes-Kline.

Sincerely yours,

A handwritten signature in cursive script that reads "Anne-Marie Fennell". The signature is written in black ink and is positioned above a horizontal line.

Anne-Marie Fennell
Director, Natural Resources and Environment

Enclosures

Enclosure I: Hardrock Mining Data Elements Collected by the Bureau of Land Management and the Forest Service

Table 1 provides a summary of responses on the data elements the Bureau of Land Management (BLM) and the Forest Service reported collecting related to hardrock mining.

Table 1: Hardrock Mining Data Elements Collected by the Bureau of Land Management and Forest Service

| Data Element | BLM | Forest Service |
|---|------------|-----------------------|
| 1. Potential quantity of hardrock (locatable) minerals on federal lands | No | No |
| 2. Total acres of federal lands available for hardrock (locatable) mineral mining under existing land management plans | No | No |
| 3. Extent to which hardrock (locatable) minerals have been extracted from federal lands (tonnage) | No | No |
| 4. Value of bonds held by agency to ensure reclamation of hardrock (locatable) mineral operations | Yes | Yes |
| 5. Percentage of total acres of federal lands that are under a notice or plan level hardrock (locatable) operation that have surface disturbance | Yes | No |
| 6. Percentage of total acres of federal lands that are under a notice or plan level hardrock (locatable) operation where the surface disturbance has been reclaimed | Yes | No |
| 7. Percentage of the total acres of federal lands that are under a notice or plan level hardrock (locatable) operation where surface is undisturbed | No | No |
| 8. Total acres of wildlife refuge with mineral development and production currently taking place | No | No |
| 9. Ownership of the solid mineral estate being developed on wildlife refuge (federal, state, private) | No | No |
| 10. Total percentage of federal mineral estate that has been withdrawn from mineral entry under the General Mining Act of 1872 | No | Yes |
| 11. Total percentage of federal mineral estate that has been withdrawn from mineral entry under the Mineral Leasing Act of 1920 | No | Yes |
| 12. Total percentage of federal mineral estate that has been withdrawn from mineral entry under the Mineral Leasing Act for Acquired Lands | No | Yes |
| 13. Total percentage of federal mineral estate that has been withdrawn from mineral entry under the Mineral Materials Disposal Act of 1947 ^a | No | Yes |
| 14. Claim maintenance fees for hardrock mining | Yes | No |
| 15. Location fees for hardrock mining | Yes | No |
| 16. Cost recovery fees associated with hardrock mining | Yes | No |

Legend: ● = yes; ○ = no.

Source: GAO analysis of information from the Bureau of Land Management (BLM) and the Forest Service. | GAO-19-435R

^aThis act is commonly known as the Materials Act of 1947.

Enclosure II: Information on Bureau of Land Management Hardrock Mining Data Elements

Table 2 summarizes the data elements that Bureau of Land Management (BLM) reported collecting and the data systems in which they are maintained.

Table 2: Hardrock Mining Data Elements BLM Reported Collecting and Primary Agency Data Systems in Which BLM Maintains the Data

| Bureau of Land Management (BLM) data element | Primary agency data system |
|--|--|
| Percentage of total acres of federal lands that are under a notice or plan level hardrock (locatable) operation where the surface disturbance has been reclaimed | Legacy Rehost 2000 |
| Value of bonds held by agency to ensure reclamation of hardrock (locatable) mineral operations | Legacy Rehost 2000 |
| Percentage of total acres of federal lands that are under a notice or plan level hardrock (locatable) operation that have surface disturbance | Legacy Rehost 2000 |
| Claim maintenance fees for hardrock mining | Collection and Billing System |
| Location fees for hardrock mining | Collection and Billing System |
| Cost recovery fees associated with hardrock mining | Financial and Business Management System |

Source: GAO analysis of BLM information. | GAO-19-435R

Table 3 summarizes the data elements that BLM reported that it does not collect, along with an explanation from agency officials of why the agency does not maintain them.

Table 3: Hardrock Mining Data Elements BLM Reported That It Does Not Collect and Explanation from Agency Officials

| Data element Bureau of Land Management (BLM) does not collect | Explanation from BLM officials |
|--|--|
| Potential quantity of hardrock (locatable) minerals on federal lands | BLM does not collect these data and no other federal agency currently collects this information. U.S. Geological Survey has some information on mineral inventories but the data are over 30 years old. |
| Total acres of federal lands available for hardrock (locatable) mineral mining under existing land management plans | According to information provided by BLM officials, this information is not routinely collected or readily available. BLM stores this information on plats (detailed paper maps). Efforts to collect this information by digitizing plats have been unsuccessful. Collecting and compiling this information would be very time consuming and resource intensive. |
| Extent to which hardrock (locatable) minerals have been extracted from federal lands (tonnage) | BLM does not collect these data because it does not use volume (tonnage) as a unit of measurement for the amount of hardrock (locatable) minerals that have been extracted. Information is collected on the number of acres mined. |
| Percentage of total acres of federal lands that are under a notice or plan level hardrock (locatable) operation where the surface is undisturbed | According to information provided by BLM officials, these data are not routinely collected or readily available. Collecting these data would involve—for each ongoing mine operation—reviewing field inspection reports to determine the total acres disturbed and obtaining the total acres authorized for disturbance from the Legacy Rehost 2000 database. The percentage could be calculated using this information. |
| Total acres of wildlife refuge with mineral development with mineral development and production currently taking place | According to information provided by BLM officials, these data are not routinely collected, but information may be available through BLM's state offices. BLM officials indicated that Fish and Wildlife Service (FWS) may collect this data. According to information provided by FWS officials, FWS does not routinely collect this information and it is not readily available. FWS has plans to begin collecting this information. Some of this information may be available at local FWS offices. |
| Ownership of the solid mineral estate being developed on wildlife refuge (federal, state, private) | According to information provided by BLM officials, these data are not routinely collected, but the information may be located in BLM's state offices. |
| Total percentage of federal mining estate that has been withdrawn from mineral entry under the General Mining Act of 1872 | According to information provided by BLM officials, these data are not routinely collected, but the information is located in over 500 Public Land Orders and in master plats (or detailed maps), some dating back to 1872. Compiling this information would be very resource intensive because all the land orders and plats would need to be reviewed and acres of land withdrawn would need to be calculated. |
| Total percentage of federal mining estate that has been withdrawn from mineral entry under the Mineral Leasing Act of 1920 | According to information provided by BLM officials, these data are not routinely collected or readily available. This information can be obtained from BLM land use plans. These plans are developed at the field office level. Collecting and compiling this information would be resource intensive and require a review of numerous land use plans. |
| Total percentage of federal mining estate that has been withdrawn from mineral entry under the Mineral Leasing Act for Acquired Lands | According to information provided by BLM officials, these data are not routinely collected or readily available. This information can be obtained from BLM land use plans. These plans are developed at the field office level. Collecting and compiling this information would be resource intensive and require a review of numerous land use plans. |
| Total percentage of federal mining estate that has been withdrawn from mineral entry under the Mineral Materials Disposal Act of 1947 ^a | According to information provided by BLM officials, these data are not routinely collected or readily available, but information is located in pertinent acts of Congress and over 500 Public Land Orders. Collecting and compiling this information would be very resource intensive and require months to complete. |

Source: GAO analysis of BLM information. | GAO-19-435R

^aThis act is commonly known as the Materials Act of 1947.

Enclosure III: Information on Forest Service Hardrock Mining Data Elements

Table 4 summarizes the data elements that the Forest Service reported collecting and the data systems in which they are maintained.

Table 4: Hardrock Mining Data Elements the Forest Service Reported Collecting and Primary Agency Data Systems in Which the Forest Service Maintains the Data

| Forest Service data element | Primary agency data system |
|--|--|
| Value of bonds held by agency to ensure reclamation of hardrock (locatable) mineral operations | Natural Resource Manager Locatables database |
| Total percentage of federal mining estate that has been withdrawn from mineral entry under the General Mining Act of 1872 | Lands Status Records System |
| Total percentage of federal mining estate that has been withdrawn from mineral entry under the Mineral Leasing Act of 1920 | Lands Status Records System |
| Total percentage of federal mining estate that has been withdrawn from mineral entry under the Mineral Leasing Act for Acquired Lands | Lands Status Records System |
| Total percentage of federal mining estate that has been withdrawn from mineral entry under the Mineral Materials Disposal Act of 1947 ^a | Lands Status Records System |

Source: GAO analysis of Forest Service information. | GAO-19-435R

^aThis act is commonly known as the Materials Act of 1947.

Table 5 summarizes the data elements that the Forest Service reported that it does not collect, along with an explanation from agency officials of why the agency does not maintain them.

Table 5: Hardrock Mining Data Elements Forest Service Reported That It Does Not Collect and Explanation from Agency Officials

| Data element Forest Service does not collect | Explanation from Forest Service officials |
|--|--|
| Potential quantity of hardrock (locatable) minerals on federal lands | The Forest Service does not collect this information, and does not have the authority to track it. Forest Service officials said U.S. Geological Survey (USGS) may collect these data. Bureau of Land Management (BLM) officials said no federal agency currently collects these data and pointed out that USGS has some information on mineral inventories, but the data are over 30 years old. |
| Total acres of federal lands available for hardrock (locatable) mineral mining under existing land management plans | According to information provided by Forest Service officials, the Forest Service does not routinely collect this information. The information could be calculated by subtracting the number of acres of land withdrawn from mineral entry, which is contained in the Forest Service Automated Lands Program Database, from the total acres managed by the agency. |
| Extent to which hardrock (locatable) minerals have been extracted from federal lands (tonnage) | Forest Service does not collect this information, and has no plans to collect it in the future. Forest Service does not have the authority to collect the information. Owners of mining claims are not required to report the amount of hardrock minerals extracted from Forest Service lands. In addition, the claim owners are not required to pay royalties on the amount of hardrock minerals extracted. |
| Percentage of total acres of federal lands that are under a notice or plan level hardrock (locatable) operation that have surface disturbance | According to information provided by Forest Service officials, the Forest Service collects information about the acres of disturbed or reclaimed areas for lands under a plan level operation in the Natural Resource Manager Locatables database, but this information is not readily available as a percentage of total acres of federal land. In addition, the field that stores information about actual disturbed area in the database is not a mandatory field. |
| Percentage of total acres of federal lands that are under a notice or plan level hardrock (locatable) operation where the surface disturbance has been reclaimed | According to information provided by Forest Service officials, the Forest Service collects information about the acres of disturbed or reclaimed areas for lands under a plan level operation in the Natural Resource Manager Locatables database, but this information is not readily available as a percentage of total acres of federal land. In addition, these data points are not a mandatory field in the database. |
| Percentage of total acres of federal lands that are under a notice or plan level hardrock (locatable) operation where the surface is undisturbed | According to information provided by Forest Service officials, the Forest Service collects information about the acres of proposed disturbance and actual disturbed area for lands under a plan level operation in the Natural Resource Manager Locatables database, but this information is not readily available as a percentage of total acres of federal land. In addition, the field that stores information about proposed disturbance in the database is not a mandatory field. |
| Total acres of wildlife refuge with mineral development and production currently taking place | Forest Service officials said the agency does not collect this information and they thought it might be the responsibility of Fish and Wildlife Service (FWS) to do so. According to information provided by FWS officials, FWS does not routinely collect this information and it is not readily available. Some of this information may be available at local FWS offices. |
| Ownership of the solid mineral estate being developed on wildlife refuge (federal, state, private) | Forest Service does not collect this information because it is the responsibility of agencies in Interior to do so. According to information provided by BLM, Bureau of Reclamation, FWS, and National Park Service officials, their agencies did not routinely collect this information, although BLM and FWS local offices may have some information. |
| Claim maintenance fees for hardrock mining | Forest Service does not collect this information because it does not have the authority to do so. BLM has the authority to collect claim maintenance fees for hardrock mining. |
| Location fees for hardrock mining | Forest Service does not collect this information because it does not have the authority to do so. BLM has the authority to collect location fees for hardrock mining. |
| Cost recovery fees associated with hardrock mining | Forest Service does not collect this information because it does not have the authority to do so. BLM has the authority to collect cost recovery fees associated with hardrock mining. BLM collects this information in aggregate form in the Financial and Business Management System. |

Source: GAO analysis of Forest Service information. | GAO-19-435R

Enclosure IV: Comments from the U.S. Department of Agriculture



Forest Service

Washington Office

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

File Code: 2800
Date: APR 22 2019

Ms. Anne-Marie Fennell
Director, Natural Resources and Environment
U.S. Government Accountability Office
441 G. Street, NW
Washington, DC 20548

Dear Ms. Fennell:

The U.S. Department of Agriculture (USDA) Forest Service appreciates the opportunity to respond to the U.S. Government Accountability Office (GAO) draft report "Hardrock Mining: Availability of Selected Data Related to Mining on Federal Lands, (GAO-19-435R)." The Forest Service generally agrees with the draft report. GAO did not propose any recommendations.

As noted in the draft report, the Forest Service collects five of the sixteen data elements related to hardrock mining. Four of the elements are related to the percentage of the Federal mineral estate that has been withdrawn from availability for mineral development under the General Mining Act of 1872, Mineral Leasing Act of 1920, Mineral Leasing Act for Acquired Lands, and Mineral Materials Disposal Act of 1947. The Forest Service also collects one data element on the value of bonds held by the agency to ensure reclamation of hardrock mineral operations.

Thank you again for the opportunity to review the draft report. If you have any questions, please contact Antoine L. Dixon, Chief Financial Officer, at (202) 205-0429, or by email at antoine.dixon@usda.gov.

Sincerely,


VICTORIA CHRISTIANSEN
Chief



Caring for the Land and Serving People



Text of Enclosure IV: Comments from the U.S. Department of Agriculture

Ms. Anne-Marie Fennell

Director, Natural Resources and Environment

U.S. Government Accountability Office 441 G. Street, NW

Washington, DC 20548 Dear Ms. Fennell:

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Thank you again for the opportunity to review the draft report. If you have any questions, please contact Antoine L. Dixon, Chief Financial Officer, at (202) 205-0429, or by email at antoine.dixon@usda.gov.

Sincerely,

Victoria Christensen

Chief

(103161)