

January 2010

OIL AND GAS BONDS

Bonding Requirements and BLM Expenditures to Reclaim Orphaned Wells



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Highlights

Highlights of [GAO-10-245](#), a report to congressional requesters

Why GAO Did This Study

The Federal Land Policy and Management Act of 1976 directs the Department of the Interior (Interior) to manage lands for multiple uses while also taking any action to prevent “unnecessary or undue degradation” of the land. To do this, Interior’s Bureau of Land Management (BLM), among other things, requires oil and gas operators to reclaim the land they disturb and post a bond to help ensure they do so. Despite these requirements, not all operators perform reclamation. If the bond is not sufficient to cover well plugging and surface reclamation and there are no responsible or liable parties, the well is considered “orphaned,” and BLM uses federal dollars to fund reclamation. The 12 western states where most oil and gas production occurs and other Interior agencies also require bonds to ensure reclamation.

GAO was asked to (1) determine the number, value, and coverage of bonds held by BLM for oil and gas operations; (2) determine the amount that BLM has paid to reclaim orphaned wells over the past 20 years and the number of orphaned wells BLM has identified but has not yet reclaimed; and (3) compare BLM’s bonding requirements for oil and gas operations with those the 12 western states use for oil and gas operations on state and private lands and other Interior agencies’ bonding requirements for other resources. Among other things, GAO analyzed BLM data on wells and BLM-held bonds, and interviewed BLM officials.

View [GAO-10-245](#) or [key components](#). For more information, contact Anu K. Mittal, (202) 512-3841 or mittala@gao.gov.

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What GAO Found

According to GAO’s analysis of BLM data, as of December 2008, oil and gas operators had provided 3,879 bonds, valued at \$162 million, to ensure compliance with lease terms and conditions for 88,357 wells. BLM regulations establish minimum bond amounts: \$10,000 for an individual lease, \$25,000 to cover all leases of a single operator in a state, and \$150,000 to cover all leases of a single operator nationwide. The bond amount for individual leases was set in 1960, while the statewide and nationwide bond amounts were set in 1951.

For fiscal years 1988 through 2009, BLM spent about \$3.8 million to reclaim 295 orphaned wells in 10 states and has identified an additional 144 orphaned wells in 7 states that need to be reclaimed, according to BLM. The amount spent per reclamation project varied greatly, from a high of \$582,829 for a single well in Wyoming in fiscal year 2008 to a low of \$300 for 3 wells in Wyoming in fiscal year 1994. BLM reclamation cost estimates were not available for all of the wells it has yet to reclaim, but BLM field office officials have completed reclamation cost estimates of approximately \$1.7 million for 102 of the 144 orphaned wells.

The 12 western states (Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming) and other Interior agencies and offices have bonding approaches that differ from BLM’s oil and gas bonding requirements. The states generally require higher bond amounts than the minimum amounts established by BLM regulations for individual and statewide oil and gas leases. Regulations governing the extraction or use of other federally owned resources generally require bond amounts based on the cost of reclamation or use minimum amounts that were established more recently than the bond amounts for oil and gas.

GAO provided a draft of this report to the Department of Interior for review and comment. The Department provided technical comments, which were incorporated as appropriate.

Oil Wells on BLM Land Southwest of Ely, Nevada



Source: Bureau of Land Management.

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Abbreviations

AFMSS	Automated Fluid Minerals Support System
BLM	Bureau of Land Management
FLPMA	Federal Land Policy and Management Act of 1976
Interior	Department of the Interior
MMS	Mineral Management Service
NPR-A	National Petroleum Reserve, Alaska
OSM	Office of Surface Mining Reclamation and Enforcement

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January 27, 2010

Congressional Requesters

The Federal Land Policy and Management Act of 1976 (FLPMA), as amended, directs the Secretary of the Interior to manage federal lands for multiple uses, including recreation and mineral extraction, while also taking any action required to prevent the “unnecessary or undue degradation” of public land, including federal land that has been leased for oil and gas operations. Over the past decade, the total number of new wells drilled more than doubled, which has raised concerns about the impact of these operations on federal land. Operators are required to reclaim the leased land in the interest of conservation of surface resources.¹ Reclamation is intended to return land disturbed by oil and gas operations to as close to its original condition as is reasonably practical, including reshaping and revegetating, removing structures, and plugging wells.

The Department of the Interior’s (Interior) Bureau of Land Management (BLM) is responsible for implementing FLPMA on BLM land. To carry out this responsibility, BLM, among other things, requires oil and gas operators to provide a bond to the agency before beginning certain drilling operations under an oil and gas lease.² These bonds are intended to ensure that operators perform the required reclamation, as well as the lease’s other terms and conditions, such as the payment of federal royalties. These bonds may be surety bonds, a third-party guarantee that an operator purchases from a private insurance company; or personal bonds accompanied by a financial instrument, such as a cashier’s check or negotiable Treasury security. Having operators post bonds to help ensure reclamation after mineral production has ceased is a common practice. The 12 western states where most oil and gas production occurs also require bonds for oil and gas wells on their lands.³ In addition, BLM and

¹For the purposes of this report, the term operator refers to lessees, owners of operating rights, and operators of an oil or gas operation, unless indicated otherwise.

²BLM is responsible for managing 261 million acres of surface federal lands, as well as approximately 700 million acres of subsurface lands. Approximately 58 million acres of these federal subsurface lands are located beneath privately owned lands—a situation commonly known as a split estate.

³The 12 western states include Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

other Interior agencies require bonds for the extraction of other resources, such as gold and coal, which are located on federal land or owned by the federal government.

Although all operators are required to complete reclamation, they do not always do so. In these circumstances, BLM may use the bond to help defray some of the cost of completing reclamation. If the bond is not sufficient to cover well plugging and surface reclamation and there are no responsible or liable parties, the well is considered “orphaned.” In these cases, BLM uses appropriated funds to complete the reclamation.

In this context, you asked us to study a range of issues concerning BLM’s bonding requirements and efforts to ensure that operators reclaim their oil and gas operations. This report provides the results of the first phase of our work.⁴ For this phase, we (1) determined the number, value, and coverage of bonds held by BLM for oil and gas operations;⁵ (2) determined the amount that BLM has paid to reclaim orphaned wells over the past 20 years and the number of orphaned wells BLM has identified but has not yet reclaimed; and (3) compared BLM’s bonding requirements for oil and gas operations with the bonding requirements the 12 western states use for oil and gas operations on state and private lands and other Interior agencies’ bonding requirements for other resources.

To address these objectives, we reviewed federal regulations and BLM guidance on bonding for oil and gas leases. We discussed this guidance and a broad range of issues related to how BLM oversees bonding for oil and gas leases with bonding officials at BLM state offices and field offices in Colorado and Wyoming, which have a large number of oil and gas wells and administer bonds that account for a significant amount of the value of BLM-held bonds. To determine the number of bonds, their value, and coverage as of December 2008, we analyzed data from BLM’s Bonding and Surety System—an electronic system containing bond information for oil and gas operations, as well as for other BLM resource extraction programs. We also analyzed data from BLM’s Automated Fluid Minerals Support System (AFMSS)—a database that BLM uses to track oil and gas

⁴During the next phase of our work, we will address the remaining aspects of your request, which primarily concern whether BLM is adequately managing the potential estimated liability for reclaiming nonproducing wells.

⁵For the purposes of this report, coverage refers to the total number of wells covered by bonds held by BLM.

information on public and Indian land. It contains data on, among other things, lease ownership, and well identification, location, and production. To assess the reliability of the data we used from these systems, among other things, we electronically tested all fields related to our analysis and met with agency officials who administer the systems. We found that these data were sufficiently reliable for the purpose of this report. For orphaned wells, we obtained information from BLM for fiscal years 1998 through 2009 on the federal dollars paid to reclaim orphaned wells, and the number of orphaned wells and estimated reclamation costs by state. We also analyzed state oil and gas bonding regulations, as well as federal bonding regulations for the extraction of other resources, such as gold and coal, to compare these bonding regulations with BLM's bonding regulations for onshore oil and gas operations. Appendix I describes our scope and methodology in more detail.

We performed our work from January 2009 to January 2010 in accordance with all sections of GAO's Quality Assurance Framework that are relevant to our objectives. The framework requires that we plan and perform the engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analysis conducted, provide a reasonable basis for our findings.

Background

BLM is responsible for managing, as of July 2008, approximately 700 million acres of subsurface mineral resources: 655.5 million of these acres are not affected by oil and gas production and 44.5 million acres are leased for oil and gas operations. Of these 44.5 million acres, 11.7 million acres are in oil and gas producing status and 472,000 acres have surface disturbance related to oil and gas production. To manage BLM programs and land, the agency maintains a network of state offices, which generally conforms to the boundary of one or more states. The state offices are Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Wyoming, and Eastern States. BLM has little land in the eastern half of the United States, consequently, the Eastern States state office, in Springfield, Virginia, is responsible for managing land in 31 states. Figure 1 shows the boundaries of the 12 BLM state offices.

Figure 1: Boundaries of the 12 BLM State Offices



Sources: GAO analysis of BLM data; Map Resources (map).

When operators drill oil and gas wells, they typically remove topsoil from the well site and lay a well pad, where the drilling rig is located. Other equipment on site can include generators and fuel tanks. In addition, reserve pits are often constructed to store or dispose of water, mud, and other materials that are generated during drilling operations, and roads and access ways are often built to move equipment to and from the wells. Generally, these activities can degrade the environment in three ways:

- *Air quality.* Newly graded roads can produce dust, impairing air quality and visibility in the immediate area and downwind. Nitrogen oxides from diesel engines and compressors used at drilling sites can also degrade air quality.
- *Water quality.* Water draining off newly graded surfaces and roads or oil or water accidentally discharged during oil and gas production can increase the amount of sediment, salt, and pollutants discharged into rivers and streams, thereby degrading them. In addition, shallow aquifers can be polluted if required protective measures are not in place, and the production of methane gas from coal beds can deplete shallow aquifers that serve as domestic water sources.⁶
- *Habitat.* A high density of drilling and production equipment can, in extreme situations, change the appearance of the landscape from a natural setting to an industrial zone. In addition, the noises, smells, and lights from trucks, drilling and construction equipment, and production facilities can disturb wildlife and people living nearby.

Under FLPMA, BLM must manage federal lands for multiple uses, including recreation and mineral extraction, as well as for sustained yield. To that end, FLPMA requires BLM to develop resource management plans, known as land use plans. In developing its land use plans, BLM determines, among other things, which parcels of land will be available for oil and gas development. According to BLM officials, parties interested in leasing federal minerals submit an Expression of Interest or pre-sale offer on those lands they are interested in leasing. These are then reviewed and if the lands are eligible to be leased, are placed up for competitive oil and gas lease sale. Leases can vary in size reaching 2,560 acres for lands in the lower 48 states and 5,760 acres for lands in Alaska.

⁶To produce methane gas from a coal bed, operators have to pump water from underground deposits in order to release the methane gas contained in the subsurface coal.

Operators that have obtained a lease must submit an application for a permit to drill to BLM before beginning to prepare land or drilling any new oil or gas wells. The complete permit application package is a lengthy and detailed set of forms and documents, which, among other things, must include proof of bond coverage and a surface use plan of operations; this surface use plan must include a reclamation plan that details the steps operators propose to take to reclaim the site. However, operators generally do not have to submit cost estimates for completing the reclamation.

The Mineral Leasing Act of 1920, as amended, requires that federal regulations ensure that an adequate bond or surety is established before operators begin to prepare land for drilling. The bond is intended to ensure complete and timely reclamation. Accordingly, federal regulations require the operator to submit a surety or personal bond to BLM, which is intended to ensure compliance with all of the lease's terms and conditions, including reclamation requirements. Surety bonds are a third-party guarantee that an operator purchases from a private insurance company approved by the Department of the Treasury, and personal bonds must be accompanied by one of the following five financial instruments:

- certificates of deposit issued by a financial institution whose deposits are federally insured;
- cashier's checks;
- certified checks;
- negotiable Treasury securities, including U.S. Treasury notes or bonds, with conveyance to the Secretary of the Interior to sell the security in case of default in the performance of the lease's terms and conditions; and
- irrevocable letters of credit that are issued for a specific term by a financial institution whose deposits are federally insured, and meet certain conditions.

In reviewing the application for a permit to drill, BLM (1) evaluates the operator's proposal to ensure that the proposed drilling plan conforms to the land use plan and applicable laws and regulations and (2) inspects the proposed drilling site to determine if additional site-specific conditions must be addressed before the operator can begin drilling. After BLM

approves a drilling permit, the operator can drill the well and commence production.⁷

After drilling the well, the operator may perform interim reclamation—the practice of reclaiming surfaces that were disturbed to prepare a well for drilling but that are no longer needed. For example, operators may need a 10-acre drill pad to safely drill a series of wells. However, once the wells are drilled, operators may only need 4 acres to safely service the wells over their lifetime. In this case, the operator could reseed and regrade the 6 acres of the initial pad that are no longer needed. While BLM does not generally require interim reclamation in all permits it issues, it may decide to add interim reclamation as a requirement in drilling permits for specific oil and gas developments.

Final reclamation occurs when an operator determines, and BLM agrees, that a well has no economic value. The terms of final reclamation are included in the lease and the drilling permit.⁸ The operator must follow the agreed-upon final reclamation plan, including plugging the wells, removing all visual evidence of the well and drill pad, recontouring the affected land, and revegetating the site with native plant species. In general, the goal is to reclaim the well site so that it matches the surrounding natural environment to the extent possible. BLM then inspects the site to monitor the success of the reclamation, a process that typically takes several years. Once BLM determines that reclamation efforts have been successful, it approves a Final Abandonment Notice.⁹

However, in some circumstances, the operator may delay performing reclamation and instead allow the well to remain idle for various reasons. For example, expected higher oil and gas prices may once again make the well economically viable to operate, or the operator may decide to use the well for enhanced recovery operations, for example using the well to

⁷In some circumstances, approval from state officials may also be required before operators can commence drilling and production.

⁸For the purposes of this report, use of the term reclamation refers to the final reclamation process.

⁹In circumstances where the surface land is managed by another surface management agency, that agency inspects the site to monitor reclamation. In addition, prior to approving the Final Abandonment Notice, BLM gets the approval of the surface management agency or in cases involving split estates, the private surface owner.

inject water into the oil reservoir and push any remaining oil to operating wells.

Under BLM policy, the agency must periodically review the status of these idle wells to ensure that the operator has legitimate reasons for allowing the wells to remain idle. According to BLM officials, the primary purpose of idle-well reviews is to ensure that these wells do not become orphaned—that is, they lack a bond sufficient to cover reclamation costs and there are no responsible or liable parties to perform reclamation.

States have adopted laws and regulations governing oil and gas development on state and private lands, including bond and reclamation requirements. In addition, other Interior programs and offices that are responsible for managing the extraction of other federally owned resources have bond and reclamation requirements. Specifically, those programs and offices are:

- *BLM Geothermal Resource Leasing.* BLM issues leases for the development of geothermal resources on federal lands; these resources are used to develop electricity by capturing the geothermal heat generated in the earth's core.
- *BLM Hardrock Minerals Claims.* BLM oversees the process for staking claims and extracting hardrock minerals on the lands it manages. These minerals are also referred to as locatable minerals and include gold, silver, and copper, among others.
- *BLM Mineral Materials Sales.* BLM oversees the sale of these minerals, such as sand and gravel, from federal lands. These minerals are also sometimes referred to as salable minerals.
- *BLM Solid Minerals Leasing.* BLM issues leases for the extraction of these minerals on federal lands; solid minerals are minerals other than coal and oil shale, and include silicates, potash, and phosphate. Solid minerals are also sometimes referred to as leasable minerals.
- *Minerals Management Service (MMS) Offshore Oil and Gas Leasing.* MMS issues leases to develop offshore oil and gas resources in the Gulf of Mexico, off the Atlantic coast, and off the Pacific coast states of California, Oregon, Washington, and Hawaii.
- *Office of Surface Mining Reclamation and Enforcement (OSM) Coal Leasing.* OSM regulates the surface mining of coal. States can choose to

develop their own programs to regulate surface mining if that program is in accordance with federal law and approved by OSM. OSM is charged with enforcing states' adherence to their approved programs or implementing a federal program if the state fails to submit, implement, or enforce its program.¹⁰

BLM Holds Nearly 4,000 Bonds, Valued at \$162 Million, but Amounts Are Based on Regulatory Minimums and Not on Full Reclamation Costs

As of December 2008, oil and gas operators had provided 3,879 surety and personal bonds, valued at approximately \$162 million, to ensure compliance with all lease terms and conditions for 88,357 wells, according to our analysis of BLM data. BLM officials told us that the bond amounts are generally not based on the full reclamation costs for a site that would be incurred by the government if an operator were to fail to complete the required reclamation. Rather, the bond amounts are based on regulatory minimums intended to ensure that the operator complies with all the terms of the lease, including paying royalties and conducting reclamation.

BLM Holds \$162 Million in Surety and Personal Bonds for 88,357 Wells

As of December 1, 2008, the 88,357 oil and gas wells were covered by 16,809 leases,¹¹ with 70 percent of all wells located in New Mexico and Wyoming. Cumulatively, Wyoming and New Mexico have more than four times as many wells as the total number of wells in Utah and California, which are the states with the third and fourth most wells at 7,388 and 7,215, respectively. Table 1 shows the number of oil and gas wells and leases located in the nine BLM state offices.

¹⁰States with an approved state program that meet other qualifications can enter into a cooperative agreement with the Secretary of the Interior to enforce the state's program on federal lands within the state. In these cooperative agreements, OSM delegates responsibility for the establishment and release of bonds required for surface coal mining and reclamation operations on federal lands to the state regulatory authority, although OSM must concur in the release. In addition to this bond required by OSM or the approved state regulatory authority, BLM will not issue a coal lease until the prospective lessee has posted a bond. However, these lease bonds do not cover reclamation unless the state in which the mining will occur does not have a cooperative agreement with the Secretary.

¹¹For the purposes of this report, unless stated otherwise, leases refer to producing leases—leases that have a well. We are not including leases that do not have a well in our total.

Table 1: Number of Wells and Leases, by BLM State Office, as of December 1, 2008

BLM State Office	Number of wells	Number of leases
New Mexico	31,184	5,664
Wyoming	30,451	6,005
Utah	7,388	1,274
California	7,215	308
Colorado	5,809	1,382
Montana	3,875	1,363
Eastern states	2,122	728
Alaska	176	33
Nevada	137	52
Total	88,357	16,809

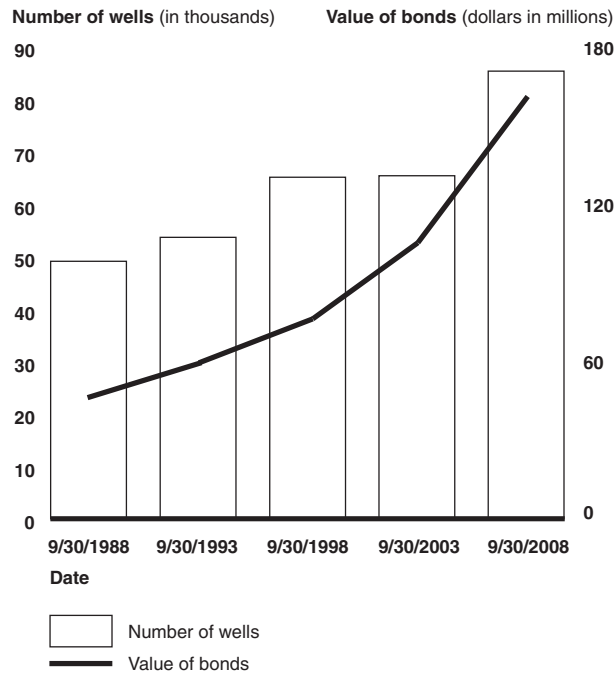
Source: GAO analysis of BLM data.

According to our analysis of BLM’s data, as of December 1, 2008, oil and gas operators had 3,879 bonds valued at approximately \$162 million to ensure compliance with lease terms and conditions for 88,357 wells on federal land. Fifty-two percent of these bonds—2,086—were surety bonds valued at approximately \$84 million, and 48 percent—1,793—were personal bonds valued at almost \$78 million.

The number of wells and the value of bonds held by BLM have increased over the past 20 years. The value of bonds increased from approximately \$69 million as of September 30, 1988, to approximately \$164 million as of September 30, 2008, as the number of wells increased from almost 50,000 to more than 85,000.¹² As figure 2 shows, this increase in the number of wells occurred primarily in the last decade.

¹²We calculated BLM bond values by fiscal year to correspond to the available BLM data on the total number of wells, which is only available by fiscal year.

Figure 2: Number of Wells and Value of Bonds, September 1988 to September 2008



Source: GAO analysis of BLM data.

Notes:

Total bond values and the number of wells are provided as of the end of the fiscal year. Value of bonds are presented in current year dollars.

Minimum Bond Amounts Were Last Set in the 1950s and 1960s to Ensure Operators Meet Legal Requirements, including Reclamation

The Mineral Leasing Act of 1920, as amended, requires that federal regulations ensure that an adequate bond or surety is established that ensures complete and timely reclamation. Under BLM regulations, bonds are conditioned upon compliance with all of the terms and conditions of the lease, including but not limited to, paying royalties, plugging wells, reclaiming disturbed land, and cleaning up abandoned operations. To ensure operators meet legal requirements, including reclamation, BLM regulations require them to have one of the following types of coverage:

-
- *individual lease bonds*, which are to cover all wells an operator drills under one lease;¹³
 - *statewide bonds*, which are to cover all of an operator's leases in one state;¹⁴
 - *nationwide bonds*, which are to cover all of an operator's leases in the United States;¹⁵ and
 - *other bonds*, which include both unit operator bonds that cover all operations conducted on leases within a specific unit agreement,¹⁶ and bonds for leases in the National Petroleum Reserve in Alaska (NPR-A).¹⁷

BLM regulations establish a minimum bond amount in order to ensure compliance with all legal requirements and also authorize or require BLM to increase the bond amount in certain circumstances. These minimum bond amounts were set in the 1950s and 1960s and have not been updated. Specifically, the bond minimum of \$10,000 for individual bonds was last set in 1960, and the bond minimums for statewide bonds—\$25,000—and for nationwide bonds—\$150,000—were last set in 1951. If adjusted to 2009 dollars, these amounts would be \$59,360 for an individual bond, \$176,727 for a statewide bond, and \$1,060,364 for a nationwide bond. Figure 3 shows the current amounts set in 1951 and 1960 and what these amounts would be if adjusted to 2009 dollars.

¹³With the consent of the surety provider, an individual lease bond posted by a lessee may cover all operators on a lease. Otherwise, each operator on a lease must provide a separate bond covering just the wells they operate. According to BLM officials, most leases have only one operator.

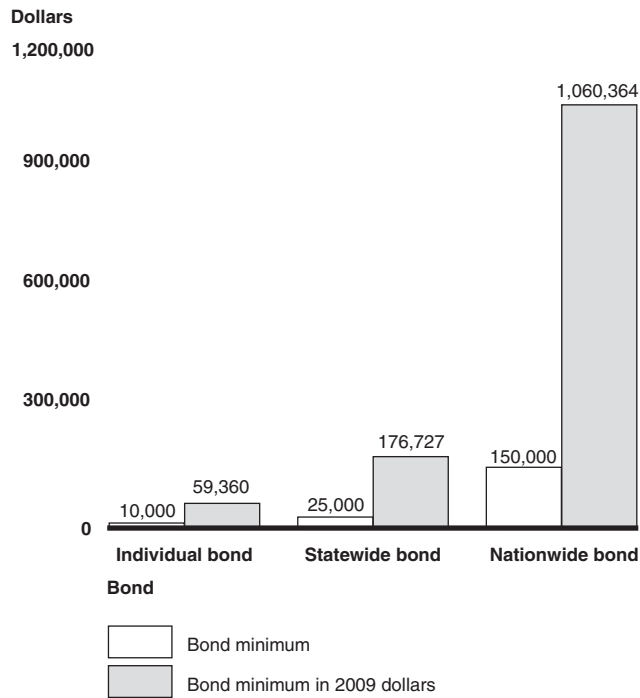
¹⁴A statewide bond posted by a lessee can cover all well operators with the consent of the surety provider.

¹⁵A nationwide bond posted by a lessee can cover all well operators with the consent of the surety provider.

¹⁶Unit agreements refer to multiple lessees who unite to adopt and operate under a unit plan for the development of any oil or gas pool, field, or like area.

¹⁷The amount of a unit operator bond is determined on a case-by-case basis by BLM officials, and the minimum amount of a NPR-A bond is set in regulation—not less than \$100,000 for a single lease or not less than \$300,000 for a reservewide bond (submitted separately or as a rider to an already existing nationwide bond).

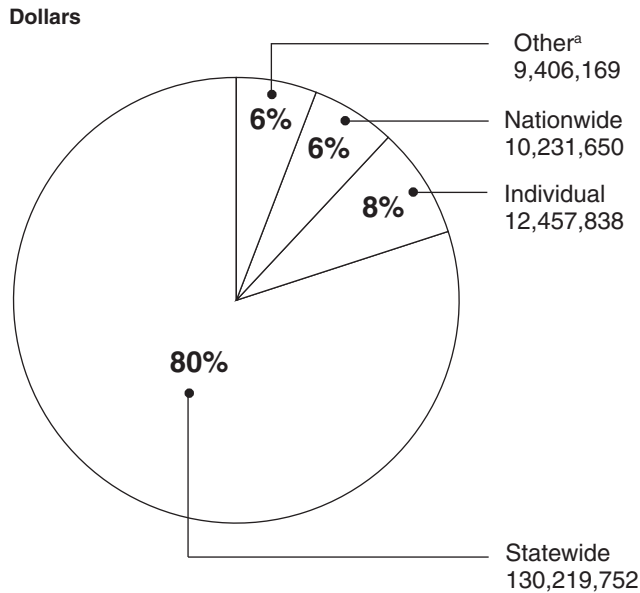
Figure 3: Individual, Statewide, and Nationwide Current Bond Minimums and Adjusted to 2009 Dollars



Source: GAO analysis of BLM data.

Of the three primary bond categories—individual, statewide, and nationwide—statewide bonds accounted for most of the bonds covering oil and gas wells. Figure 4 shows the value and percentage distribution of the bonds by type.

Figure 4: Total Value of All Bond Categories, and Percentage of Total Bond Value, as of December 1, 2008



Source: GAO analysis of BLM data.

^aIncludes unit and NPR-A bonds.

Appendix II provides more detailed information on the number and value of BLM-held bonds by state.

While BLM regulations set minimum amounts for bonds, they also require bonds in an increased amount in certain circumstances and authorize BLM to require an increased bond amount when the operator poses a risk due to certain factors. First, when an operator who has failed to plug a well or reclaim lands in a timely manner that resulted in BLM making a demand on a bond in the prior 5 years applies for a new permit to drill, BLM must require a bond in an amount equal to the BLM cost estimate for plugging the well and reclaiming the disturbed area if the cost estimate is higher than the regulatory minimum.¹⁸ Second, BLM officials may require an increase in the amount of any bond when the operator poses a risk due to factors that include, but are not limited to, a history of previous violations, a notice from MMS that there are uncollected royalties due, or the fact that

¹⁸This requirement applies only to operators, and not lessees or owners of operating rights.

the total cost of plugging existing wells and reclaiming lands exceeds the present bond amount based on BLM estimates.¹⁹

BLM Spent Nearly \$4 Million to Reclaim 295 Orphaned Wells since Fiscal Year 1988 and Has Identified Another 144 Orphaned Wells to Be Reclaimed

According to BLM data, the agency spent about \$3.8 million to reclaim 295 orphaned wells in 10 states from fiscal years 1988 through 2009. The 10 states where orphaned wells were reclaimed include California, Colorado, Montana, New Mexico, North Dakota, Oklahoma, Ohio, Utah, West Virginia, and Wyoming. Some of these states, such as Ohio and West Virginia, do not currently produce high volumes of oil and gas compared with other states in the West, although they did in the late 1800s and early 1900s. Although reclamation costs averaged \$12,788 per well, the amount spent to reclaim wells varied by reclamation project, state, and fiscal year. For example:

- *Cost per project.* The amount spent per reclamation project varied from a high of \$582,829 for a single well in Wyoming in fiscal year 2008, to a low of \$300 for three wells in Wyoming in fiscal year 1994. These variations are due to differences in the amount of surface and subsurface disturbance and the amount of effort required to reclaim these wells.
- *Number of wells and spending by state.* The number of wells reclaimed and the amount spent in each state also varied considerably. California had the most orphaned wells reclaimed—140 of the 295 wells reclaimed, or about 47 percent—while Colorado and West Virginia had the fewest, each with 1 reclaimed well. However, over one-third of the amount spent to reclaim orphaned wells—about \$1.3 million—went toward reclaiming 44 wells in Wyoming.
- *Amount spent per year.* In the fiscal years that BLM spent funds to reclaim orphaned wells, the amount spent in each fiscal year varied from a high of \$632,829 to reclaim two wells in 2008, to a low of \$24,962 to reclaim a single well in Ohio in fiscal year 2001. BLM had no expenditures to reclaim orphaned wells in fiscal years 1989 through 1991, 1996 through 1998, or in 2005. BLM officials explained that orphaned wells were not reclaimed in those years because the decision to do so is left to the discretion of BLM state office officials. Further, there is no dedicated budget line item to fund orphaned well reclamation; instead, it is dependent on whatever funds are available from BLM state offices and the BLM Washington office.

¹⁹This requirement applies only to operators, and not lessees or owners of operating rights.

Table 2 provides a summary of the number of wells reclaimed, the expenditures per year, and the states where reclamation occurred by year; table 3 shows the number of wells reclaimed and expenditures by state.

Table 2: Number of Wells, BLM Expenditures to Reclaim Orphaned Wells, and States Where Reclamation Occurred, Fiscal Years 1988–2009

Fiscal year	Wells	BLM expenditures	State where reclamation occurred
1988	1	\$475,279	North Dakota
1989	0	0	
1990	0	0	
1991	0	0	
1992	23	565,807	California, Montana, New Mexico, Utah, Wyoming
1993	26	445,253	California, Colorado, Montana, North Dakota, Oklahoma, Wyoming
1994	74	233,223	California, New Mexico, Utah, Wyoming
1995	22	386,033	California, Montana, Ohio
1996	0	0	
1997	0	0	
1998	0	0	
1999	15	110,516	Ohio, Wyoming
2000	1	80,987	Utah
2001	1	24,962	Ohio
2002	16	106,758	California
2003	104	250,080	California, Ohio
2004	3	48,000	Ohio, Utah
2005	0	0	
2006	2	259,378	Ohio, West Virginia
2007	2	27,000	Wyoming
2008	2	632,829	Utah, Wyoming
2009	3	126,583	Wyoming
Total	295	\$3,772,688	

Source: GAO analysis of BLM data.

Table 3: Number of Wells and BLM Expenditures to Reclaim Orphaned Wells, by State, Fiscal Years 1988–2009

State	Wells	BLM expenditures
California	140	\$624,813
Colorado	1	8,746
Montana	15	451,994
New Mexico	14	93,230
North Dakota	2	497,852
Ohio	19	225,168
Oklahoma	3	18,660
Utah	56	351,987
West Virginia	1	211,218
Wyoming	44	1,289,020
Total	295	\$3,772,688

Source: GAO analysis of BLM data.

BLM has identified an additional 144 orphaned wells on BLM and other federal land that need to be reclaimed in seven states. Although BLM reclamation estimates were not available for all of these wells, officials in BLM field offices have completed reclamation cost estimates for 102 of the 144 wells, for a total estimated cost of \$1,683,490. More than half of these wells for which BLM has estimated costs are in Oklahoma—the state with the highest concentration of orphaned wells. The estimated reclamation costs in each state differ substantially—from an average cost per well in Wyoming of \$93,641 to a low of \$9,100 in Arizona. These differences are due to such factors as well age, well depth, the amount of surface disturbance, and costs for materials and labor. Table 4 shows the orphaned wells and the estimated reclamation costs by state; table 5 shows the wells by surface management agency.

Table 4: Number of Orphaned Wells, Wells with a Reclamation Cost Estimate, and Estimated Reclamation Costs, by State

State	Wells	Number of wells with a reclamation cost estimate	Total estimated reclamation costs
Arizona	4	4	\$36,400
California	25	23	380,000
New Mexico	34	8	127,900
Ohio	9	8	154,530
Oklahoma	54	54	516,455
Utah	13	0	Unknown
Wyoming	5	5	468,205
Total	144	102	\$1,683,490

Source: GAO analysis of BLM data.

Table 5: Number of Orphaned Wells, Number of Wells with a Reclamation Cost Estimate, the Estimated Reclamation Costs, and States where the Wells Are Located, by Surface Management Agency

Surface management agency	Wells	Number of wells with a reclamation cost estimate	Total estimated reclamation costs	States
BLM ^a	134	93	\$1,468,960	Arizona, California, New Mexico, Oklahoma, Utah, Wyoming
National Park Service	7	7	\$147,030	Ohio
Forest Service	3	2	\$67,500	California, Ohio
Total	144	102	\$1,683,490	

Source: GAO analysis of BLM data.

^aIncludes split estate lands.

In addition, BLM is responsible for reclaiming 67 wells in Alaska that are commonly referred to as legacy wells. Unlike orphaned wells, which were drilled by private-sector operators, legacy wells were drilled by the U.S. Navy and the U.S. Geological Survey from the early 1900s to 1981 on what was then the Naval Petroleum Reserve No. 4—a 23-million-acre roadless area 200 miles north of the Arctic Circle. The wells were drilled to evaluate the mineral potential of the area and to test arctic oil and gas exploration and engineering practices. In 1976, the reserve was renamed the National

Petroleum Reserve-Alaska (NPR-A) and its administration was transferred to BLM—including responsibility for reclaiming those wells drilled prior to the transfer. Because of the remote location and difficult weather conditions in the NPR-A, mobilizing equipment and personnel to perform reclamation can be unusually expensive. For example, BLM estimates that reclaiming one well—known as Drew Point #1—will cost \$23.6 million, owing in part to the well’s close proximity—less than 500 feet—to the Arctic Ocean, which is eroding the shore nearby. Although estimates are not available for reclaiming all 67 of these legacy wells, BLM estimated in 2004 that reclaiming 37 high-priority legacy wells would exceed \$40 million.²⁰

BLM Oil and Gas Bonding Requirements Differ from States’ Requirements and from Federal Bonding Requirements for Other Resources

Like BLM, states have bonding requirements for oil and gas operations.²¹ However, in most states, bond amounts reflect some of the well’s characteristics and are generally higher than BLM’s minimum amounts. The states with regulatory minimum bond amounts not based on well characteristics generally have minimum amounts higher than BLM’s minimum amounts. In addition, federal regulations for other resources generally require the bonds to reflect the cost of reclamation or have minimum bond amounts that have been more recently established.

States Have Different Approaches for Determining Bonding Amounts and Generally Require Bond Amounts Equal to or Higher Than Those of BLM

The 12 western states have bonding requirements for oil and gas operations that differ in their approach from BLM’s onshore oil and gas bonding requirements. The states use bonds that cover either all wells in the state (similar to BLM’s statewide bond but referred to as statewide blanket bonds), multiple wells in the states (referred to as blanket bonds), or an individual well. Regarding the amount of bond required, the 12 western states generally either use a minimum bond amount established by regulation regardless of the well’s characteristics or determine bond amounts based either on the depth of the well(s) or on the total number of

²⁰Rob Brumbaugh and Stan Porhola, *Alaska Legacy Wells Summary Report: National Petroleum Reserve-Alaska*, BLM/AK/ST-05004+2360+941, Department of the Interior, Bureau of Land Management, Alaska State Office, November 2004.

²¹In addition to a bond for well plugging, abandonment, and site reclamation, some states, like Colorado, require additional bonds to protect the surface land owner in certain split estate situations.

wells covered by the bond. The latter approach is often more complex than the regulatory minimum requirements and triggers increases in bond amounts when certain additional factors come into play. For example:

- For individual wells, Wyoming determines bond amounts based on well depth. If the well is less than 2,000 feet deep, the state requires a bond of at least \$10,000, and if the well is 2,000 feet or deeper, the state requires a bond of at least \$20,000. For statewide bonds, the minimum bond amount is \$75,000. However, Wyoming may require an additional bond, currently in the amount of \$10 per foot of well depth, when a well is not producing, injecting, or disposing after an operator's total footage of idle wells reaches a certain threshold.²² Finally, the amount of this additional bond will increase every 3 years in accordance with the percentage change in Wyoming consumer price index.
- For statewide bonds, California uses an approach that considers the number of wells and imposes an additional requirement on operators with idle wells. If an operator has 50 or fewer wells, then the bond amount is set at \$100,000; if an operator has more than 50 wells exclusive of properly abandoned wells, the bond amount is set at \$250,000. In addition to these bond amounts, operators must either (1) pay an annual fee for each idle well, (2) establish an escrow account of \$5,000 for each idle well, (3) provide a \$5,000 bond per idle well, or (4) have filed a management and elimination plan for all long-term idle wells. In lieu of complying with this requirement for idle wells, operators can post a \$1 million statewide bond.

In contrast, BLM's method for deciding when and how much to increase the minimum bond amount is not automatic, unless the operator has previously failed to plug a well or reclaim lands; rather, it is based on the judgment of field and state office officials.

Table 6 shows the 12 western states' bonding requirements.

²²In lieu of this additional bond, the Wyoming Oil and Gas Conservation Commission may accept a detailed plan of operation which includes a time schedule to permanently plug and abandon idle wells or otherwise remove the well from idle status. In addition, an operator can request a different bond amount based on an evaluation of the specific well conditions and circumstances.

Table 6: The 12 Western States' Bonding Requirements

State	Approaches for determining the bond amount		
	Minimum amount	Based on well depth	Based on number of wells
Alaska			
Individual well bond	• ^a		
Statewide bond	•		
Arizona			
Individual well bond		•	
Blanket bond			•
California			
Individual well bond		•	
Statewide bond			• ^b
Colorado			
Individual well bond		• ^c	
Statewide bond			• ^c
Idaho			
Individual well bond	•		
Statewide bond	•		
Montana			
Individual well bond		• ^c	
Blanket bond	• ^d		
Nevada			
Individual well bond	•		
Statewide bond	•		
New Mexico			
Individual well bond		•	
Statewide bond	• ^e		
Oregon			
Individual well bond		•	
Blanket bond		•	
Utah			
Individual well bond		• ^f	
Statewide bond		• ^f	
Washington			
Individual well bond	•		
Statewide bond	•		

State	Approaches for determining the bond amount		
	Minimum amount	Based on well depth	Based on number of wells
Wyoming			
Individual well bond		•	
Statewide bond	•		
Total			
Individual well bond	4	8	0
Blanket or statewide bond	7	2	3

Source: GAO analysis of state laws and regulations.

^aState regulators are authorized to allow bond coverage in a lesser amount for a specific well under certain circumstances.

^bBond amounts are based in part on the number of wells covered by the bond.

^cState regulations establish bond amounts but authorize regulators to increase that amount under certain circumstances.

^dState regulations set the bond amount at \$50,000 but authorize an increase to \$100,000 when the factual situation warrants it. In addition, the state Board of Oil and Gas Conservation can limit the number of wells covered by a blanket bond.

^eUnder state law, statewide bonds cannot exceed \$50,000, which is the amount specified in the regulation.

^fState regulations establish minimum bond amount based on well depth but authorize regulators to allow bond coverage in a lesser amount for a specific well under certain circumstances and greater amounts when the regulatory minimum amount will be insufficient to cover the costs of plugging the well and restoring the well site.

The 12 western states generally require bond amounts that are at least equal to or higher than the minimum amount BLM requires for its individual lease and statewide bonds, or determine the bond amount based on well depth or number of wells covered by the bond. For example:

- The 4 states that require minimum bond amounts for individual wells regardless of well depth—Alaska, Idaho, Nevada, and Washington—set minimum bond amounts at \$100,000, \$10,000, \$10,000, and \$50,000 per well, respectively. Because these bond amounts are required for each well, in most circumstances they are generally higher than BLM’s minimum amount of \$10,000 for individual lease bonds since most BLM leases have more than one well.
- The 7 states whose regulations establish a bond amount or minimum bond amount for statewide or blanket bonds regardless of a well’s characteristics—Alaska, Idaho, Montana, Nevada, New Mexico, Washington, and Wyoming—have amounts that range from a high of \$250,000 in Washington to low of \$25,000 in Idaho.

-
- All states except Alaska, Idaho, Nevada, and Washington determine the amount of individual well bonds based, at least in part, on well depth. Three of the 9 states whose regulations provide for statewide bonds—California, Colorado, Utah—also determine the amount based on well depth or the number of wells covered by the bond.²³ Because of the nature of these approaches, it is difficult to compare them with BLM’s bonding requirements to determine which would result in the higher bond amount. However, these approaches are generally more sophisticated than minimum requirements in that they associate the bond amount with the amount of drilling, which may reduce the potential liability to the states in cases where the operator fails to perform the necessary reclamation.

See appendix III for detailed information on the bonding requirements in each of the 12 western states.

Federal Regulations for Other Resources Generally Require Bond Amounts That Cover Reclamation Costs or the Minimum Bond Amounts Have Been More Recently Set

Regulations governing the extraction of other resources owned by the federal government generally require (1) bond amounts that consider the cost of reclamation, which reduces the government’s potential liability for reclamation costs; or (2) use minimum amounts that were established more recently than the amounts for BLM oil and gas bonds.

First, bonding requirements for the extraction of coal and hardrock minerals—such as gold, silver, and copper—require operators to post bonds that cover the full estimated cost of reclamation. These requirements reduce the potential reclamation liability to the federal government should the operations fail to perform the necessary reclamation.

Second, for the remaining types of federally owned resources, minimum bond amounts are established by regulation. These regulations are similar to BLM’s regulations; however, these regulatory minimum amounts generally have all been established or updated since BLM established its current regulatory minimums for oil and gas leases in 1951 for statewide and nationwide bonds, and in 1960 for individual lease bonds. Table 7 provides a summary of the type and amount of bonds required for the extraction or use of federally owned resources. Additional detail on the structure, amount, and types of bonds permitted is contained in appendix IV.

²³Arizona, Montana, and Oregon do not have bonds that cover all of an operator’s wells within a state; rather they have blanket bonds that cover multiple wells.

Table 7: Summary of Bonding Requirements for the Extraction of Federally Owned Resources, by Agency

Agency and program	Type and amount
BLM Geothermal Resource Leasing	<p>Minimum amounts established by regulation:^a</p> <p><u>Drilling Operations (established in 1973)</u></p> <ul style="list-style-type: none"> • Single lease: \$10,000 • Statewide: \$50,000 • Nationwide: \$150,000 <p><u>Utilization Operations (such as electricity generation)</u></p> <ul style="list-style-type: none"> • Electrical Generation Facility: \$100,000 (established in 1979) <p>Direct Use Facility: BLM will specify amount</p>
BLM Hardrock Minerals (also known as locatable minerals—includes minerals such as gold, silver, and copper)	<p>Regulations promulgated in 2000 established that the bond amount will be based on the estimated costs as if BLM were to contract with a third party to reclaim the operations according to the reclamation plan.</p>
BLM Mineral Materials (also known as salable minerals—includes materials such as sand and gravel)	<p>Bond amount based on sales contract amount:</p> <ul style="list-style-type: none"> • No bond is required if contract utilizes a community pit or common use area and party pays a reclamation fee. (Established in 1983) • For contracts of \$2,000 or more, BLM will establish bond amount to ensure it is sufficient to meet the contract’s reclamation standards. However, the amount must be at least \$500. (Established in 2001) • For contracts of less than \$2,000, BLM may require a bond. If BLM requires a bond it cannot exceed an amount greater than 20 percent of the total contract value. (Established in 1983)^b
BLM Solid Minerals (other than coal and oil shale, also known as leasable minerals—includes minerals such as silicates, potash, and sulfur)	<p>Minimum amounts established by regulation:</p> <ul style="list-style-type: none"> • Individual lease: \$5,000 (established in 1949 for phosphate, in 1954 for potassium and sodium, 1956 for sulfur, and in 1984 for all other solid minerals other than coal and oil shale, such as vein type solid hydrocarbons) • Statewide (for a specific mineral): \$25,000 (established in 1967 for most solid minerals other than coal and oil shale and extended to all solid minerals other than coal and oil shale in 1984) • Nationwide (for a specific mineral): \$75,000 (established in 1984)
MMS Offshore Oil and Gas Leasing	<p>Minimum amounts, determined by the stage of development/activity, established by regulation:</p> <p><u>General Lease Bond (established in 1969)^c</u></p> <ul style="list-style-type: none"> • Individual lease: \$50,000 • Areawide:^d \$300,000 <p><u>Lease Exploration Bond (established in 1993)</u></p> <ul style="list-style-type: none"> • Individual lease: \$200,000 • Areawide:^d \$1 million <p><u>Development and Production Activities Bond (established in 1993)</u></p> <ul style="list-style-type: none"> • Individual lease: \$500,000 • Areawide:^d \$3 million

Agency and program**Type and amount**OSM Coal Leasing^e

Bond amount based on, but not limited to, the estimated reclamation costs submitted by the operator or owner and reflects the probable difficulty of reclamation. The amount of the bond must be sufficient to assure the completion of the reclamation plan if the work has to be performed by the regulatory authority. The regulatory authority must adjust the bond amount from time to time as the area requiring bond coverage is increased or decreased or where the cost of future reclamation changes.

OSM regulations were promulgated in 1983.

Source: GAO analysis of federal regulations.

^aBLM is authorized to increase the bond amount under certain circumstances, including when the amount will not cover the estimated reclamation cost.

^bPrior to 1983, BLM regulations authorized a bond amount for contracts less than \$2,000 but did not impose a maximum bond amount.

^cA general lease bond does not have to be posted if a lease exploration or development and production activities bond is posted. The latter categories of bonds were established in 1993 because the level of the general lease bond coverage could no longer provide assurance of safety and effective protection to the environment.

^dAreawide bonds cover an operator's or owner's leases in one of three areas: (1) the Gulf of Mexico and the area off the Atlantic coast; (2) the area offshore the Pacific Coast states of California, Oregon, Washington, and Hawaii; and (3) the area off the shore of Alaska.

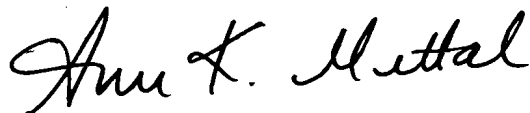
^eUnder the Surface Mining Control and Reclamation Act of 1977, OSM regulates surface coal mining, however, the act also allows states to develop their own regulatory program if those programs are in accordance with the act's requirements and approved by OSM. States with an approved state program and that meet other qualifications can enter into a cooperative agreement with the Secretary of the Interior to enforce the state's program on federal lands within the state. In these cooperative agreements, OSM delegates responsibility for the establishment and release of bonds required for surface coal mining and reclamation operations on federal lands to the state regulatory authority, although OSM must concur in the release. In addition to this bond required by OSM or the approved state regulatory authority, BLM will not issue a coal lease until the prospective lessee has posted a bond. However, these lease bonds do not cover reclamation unless the state in which the mining will occur does not have a cooperative agreement with the Secretary.

Agency Comments and Our Evaluation

GAO provided Interior with a draft of this report for its review and comment. Interior provided technical comments, which we incorporated as appropriate.

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 interested congressional committees; the Secretary of the Interior; and the Director of the Bureau of Land Management. The report also is available at no charge on the GAO Web site 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. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix V.



Anu K. Mittal
Director, Natural Resources
and Environment

List of Requesters

The Honorable Jeff Bingaman
Chairman
Committee on Energy and Natural Resources
United States Senate

The Honorable Nick Rahall
Chairman
Committee on Natural Resources
House of Representatives

The Honorable Jim Costa
Chairman
Subcommittee on Energy and Mineral Resources
Committee on Natural Resources
House of Representatives

Appendix I: Objectives, Scope, and Methodology

This appendix details the methods we used to examine three aspects of the Department of the Interior's (Interior) Bureau of Land Management (BLM) bonding requirements for BLM oil and gas leases and reclamation of oil and gas wells. Specifically, we were asked to (1) determine the types, value, and coverage of bonds held by BLM for oil and gas operations; (2) determine the amount that BLM has paid to reclaim orphaned wells over the past 20 years, and the number of orphaned wells BLM has identified but has not yet reclaimed; and (3) compare BLM's bonding requirements for oil and gas operations with the bonding requirements the 12 western states use for oil and gas operations on state and private lands and other Interior agencies' bonding requirements for other resources.

Overall, we reviewed federal regulations and BLM guidance on bonding for oil and gas leases, and discussed this guidance and a broad range of issues related to how BLM oversees bonding for oil and gas leases during interviews with bonding officials at BLM state offices and field offices in Colorado and Wyoming—two states that have a large number of oil and gas wells and administer bonds that account for a significant amount of the value of BLM-held bonds.

For objective one—to determine the number, value, and coverage of bonds, as of December 2008—we analyzed data from BLM's bond and surety system, and Automated Fluid Minerals Support System (AFMSS), and met with agency officials who administer the systems. From the bond and surety system, we received 13 tables from BLM containing 747,926 records on bonds from June 19, 1925, to December 17, 2008. We also received 9 tables containing 106,705 records on wells from January 7, 1930, to August 20, 2009 from BLM's AFMSS. Because the bond and surety system contains records on bonds that have been terminated and do not have any well liability attached, we first determined which records contained active bonds. Because bond data were limited to records before December 17, 2008, we selected the first day of the final month for which we had data, December 1, 2008. We corroborated the number of active bonds using a range of different methodologies that uses other data in the bond and surety system and confirmed that the list of active bonds was sufficiently complete for the purposes of our analysis.

To determine the number of bonds, we selected all active bonds as of December 1, 2008, in the bond and surety system and grouped them by bond type into surety or personal bonds. BLM's data further identified personal bonds as letter of credit, time deposit, Treasury security, and guaranteed remittance. We analyzed 43 C.F.R. § 3104.1, which addresses

bond types, and spoke to BLM officials, before deciding to group the various types of personal bonds into a single personal bond category.

To determine the value of bonds, we selected all active bonds as of December 1, 2008, in the bond and surety system and grouped them by unique bond file number. To calculate the total value of all active bonds, we summed the bond amount for all unique bonds. We also grouped bonds by bond type and bond coverage type to calculate the value for each group. Finally, we grouped all bonds by BLM state office using the administrative state field in the bond and surety system and summed the amount of all bonds for each BLM state office, as well as categorizing bonds by bond type and bond coverage type.

For bond coverage, we selected active bonds as of December 1, 2008, from the bond and surety system and grouped them by the following categories: individual, statewide, nationwide, and other. The other category included collective (unit), blanket bonds, and bonds for the National Petroleum Reserve in Alaska. We analyzed 43 C.F.R. §§ 3104.2-3104.4 and spoke with BLM officials to determine the appropriate bond coverage type categories, creating the other category for the 6 percent of bonds not typically used for current wells.

To determine the number of wells, we received and analyzed data BLM generated from the AFMSS database that included records current as of August 20, 2009. The set of data received from BLM excluded all wells that had been reclaimed prior to this date and whose bonds had been released, helping to ensure that our data only included wells that required a bond. To have the well data match the bonding data, we selected all well records in AFMSS that were drilled before December 1, 2008. We identified wells using the well's unique American Petroleum Institute number, which is assigned when the well is drilled. In addition to information on producing wells, the data also included information on wells that were shut in (i.e., could return to production) and temporarily abandoned (i.e., could be used for a purpose other than producing oil or gas). We also grouped these wells by their BLM state office using a location field in AFMSS. To determine the number of leases, we grouped the number of wells listed before December 1, 2008, by unique lease number, and analyzed these leases by state using the location field of the lease within AFMSS. Because the AFMSS system can generate current data only, our analysis excludes those wells that were reclaimed between December 1, 2008, and August 20, 2009. Although these wells were not included in our totals, we concluded the data were sufficiently reliable for the purpose of our analysis, as data published in BLM's Public Land Statistics show that only

231 wells were plugged and abandoned in all of fiscal year 2008.²⁴ We also compared our total number of wells with the total number of wells in the fiscal year 2008 BLM Public Land Statistics. We determined that the difference between our total for December 1, 2008, and BLM's total for September 30, 2008—a difference of about 3 percent—did not significantly affect our analysis.

For figure 2 in the report—the number of wells and value of bonds, from September 30, 1988, to September 30, 2008 (the most current date for which BLM data were available)—we selected five dates at 5-year intervals for the past 20 years, and calculated the total value of all bonds using data in the bond and surety system and the number of wells from BLM Public Land Statistics. We used the following dates to assess coverage: September 30, 2008; September 30, 2003; September 30, 1998; September 30, 1993; and September 30, 1988. For each of these dates, we selected all active bonds, providing us with those bonds that were accepted, but not terminated, before each of the five dates. To calculate the total value of these bonds, we grouped unique bonds for each of the five dates, and summed the bond amount field in the bond and surety system. To calculate well totals, we were limited by the dynamic nature of AFMSS, which restricted us from calculating the number of active wells for specific dates in the past. Due to this limitation, we relied on BLM's Public Land Statistics for the well totals for our specified dates.

For figure 3 in the report—individual, statewide, and nationwide current bond minimums adjusted to 2009 dollars—we used the bond minimums established in 43 C.F.R. §§ 3104.2, 3104.3 and searched the *Federal Register* to determine the dates the bond minimums were established. We then calculated the amount of each bond minimum in 2009 dollars.

We reviewed the reliability of the data we used from the bond and surety system and AFMSS and found these data sufficiently reliable for the purpose of our review, including: total number of bonds, total number of wells, number and value of bonds by bond type, number and value of bonds by coverage type, number of wells by state, number of leases by state, number and value of bonds by state, average value of bonds by state office, number and value of bond types by state office, and number and value of coverage types by state office. To test the sufficiency of the bond

²⁴*Public Land Statistics 2008*, Vol. 193, BLM/OC/ST-09/001-1165, Department of the Interior, Bureau of Land Management, May 2009.

and surety system and AFMSS data used to calculate the number, types, values, and coverage of bonds, we electronically tested the database and conducted interviews with BLM staff responsible for the integrity of the data. We also electronically tested all fields related to our analysis, including tests for null values, duplicate records, accurate relationships between code and text fields, and outliers. We also conducted 20 interviews with BLM staff between December 12, 2008, and November 13, 2009, on the following topics: data entry, use of data, completeness of data, accuracy of data, edit checks, supervisory oversight, internal reviews, different data fields, and data limitations. We determined that there were no significant issues with the bond and surety system and AFMSS data we used to calculate the number, types, value, and coverage of bonds.

To address our second objective—determine how much BLM has paid to reclaim orphaned wells over the past 20 years, and how many wells BLM has yet to reclaim—we obtained data collected by BLM officials from BLM field and state offices. To determine the expenditures for reclaiming orphaned wells, we obtained data for fiscal years 1988 through November 30, 1994, from a 1995 BLM report.²⁵ We obtained data through fiscal year 2009 from BLM officials. These data included federal dollars paid to reclaim orphaned wells, the number of wells reclaimed, and their location. To determine the number of orphaned wells yet to be reclaimed, we reviewed BLM’s Instructional Memorandum No. 2007-192, which directs BLM field office staff to report data on orphaned wells to BLM’s Washington Office. The Instructional Memorandum directs field office staff to complete an “Orphaned Well Scoring Checklist” for each orphaned well identified. This checklist asks for such information as the well’s location; well name; and other factors relating to reclamation, such as the well depth or estimated reclamation cost. We reviewed these checklists and analyzed all available estimated reclamation amounts. We then calculated and summarized estimated reclamation cost data by state and surface management agency.

To address our third objective—compare BLM’s bonding methods with those used by the 12 western states and other Interior agencies—we analyzed state oil and gas bonding laws and regulations, as well as federal bonding regulations for the extraction or use of other federally owned

²⁵ *BLM Oil and Gas Program: Bonding/Unfunded Liability Review*, Bureau of Land Management, Department of the Interior, March 1995.

resources. These federal agencies and resources included BLM Geothermal Energy, BLM Hardrock Minerals, BLM Mineral Materials, BLM Solid Minerals, Mineral Management Service Offshore Oil and Gas Leasing, and Office of Surface Mining Reclamation and Enforcement Coal Leasing. We summarized the bonding requirements, including scope, structure, amount, and method for determining bond amounts.

We conducted our work from January 2009 to January 2010 in accordance with all sections of GAO's Quality Assurance Framework that are relevant to our objectives. The framework requires that we plan and perform the engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analysis conducted, provide a reasonable basis for any findings and conclusions.

Appendix II: Information on BLM Held Oil and Gas Bonds

This appendix provides information on BLM held oil and gas bonds from BLM's AFMSS and bond and surety systems, including the number, value, and average value of all BLM held bonds (table 8); the number and value of surety and personal bonds (tables 9 and 10); and the number and value of individual, statewide, nationwide, and other bonds (tables 11 and 12).

Table 8: Number, Total Value, and Average Value of BLM Held Bonds, by BLM State Office

BLM state office	Number of bonds	Total value	Average value
Alaska	17	\$2,625,000	\$154,412
Arizona	8	576,000	72,000
California	158	7,773,000	49,196
Colorado	312	12,633,419	40,492
Eastern states	413	16,759,630	40,580
Montana	277	12,592,605	45,461
Nevada	55	1,365,000	24,818
New Mexico	1,297	40,145,825	30,953
Oregon	4	350,000	87,500
Utah	253	9,011,653	35,619
Wyoming	1,085	58,483,277	53,902
Total	3,879	\$162,315,409	\$41,845

Source: GAO analysis of BLM data.

Table 9: Number of Surety and Personal Bonds, by BLM State Office

BLM state office	Surety bonds	Personal bonds
Alaska	6	11
Arizona	1	7
California	63	95
Colorado	170	142
Eastern states	164	249
Montana	162	115
Nevada	35	20
New Mexico	700	597
Oregon	2	2
Utah	171	82
Wyoming	612	473
Total	2,086	1,793

Source: GAO analysis of BLM data.

Appendix II: Information on BLM Held Oil and Gas Bonds

Table 10: Value of Surety and Personal Bonds Administered by BLM State Offices, by State

BLM state office	Surety bonds	Personal bonds
Alaska	\$425,000	\$2,200,000
Arizona	25,000	551,000
California	4,150,000	3,623,000
Colorado	4,379,000	8,254,419
Eastern states	6,586,000	10,173,630
Montana	4,679,000	7,913,605
Nevada	1,030,000	335,000
New Mexico	19,598,205	20,547,620
Oregon	50,000	300,000
Utah	4,364,968	4,646,685
Wyoming	39,049,056	19,434,221
Total	\$84,336,229	\$77,979,180

Source: GAO Analysis of BLM data.

Table 11: Number of Statewide, Nationwide, Individual, and Other Bonds Administered by BLM State Offices, by State

BLM state office	Statewide	Nationwide	Individual	Other^a
Alaska	13	1		3
Arizona	7			1
California	89	8	10	51
Colorado	230	26	13	43
Eastern states	215	57	119	22
Montana	189	23	16	49
Nevada	26	7	3	19
New Mexico	911	210	96	80
Oregon	4			0
Utah	150	30	10	63
Wyoming	718	31	260	76
Total	2,552	393	527	407

Source: GAO Analysis of BLM data.

^aOther includes the following bond coverage types: blanket bond, collective (Unit), and NPR-A (National Petroleum Reserve, Alaska).

Appendix II: Information on BLM Held Oil and Gas Bonds

Table 12: Value of Statewide, Nationwide, Individual, and Other Bonds Administered by BLM State Offices, by State

BLM state office	Statewide	Nationwide	Individual	Other^a
Alaska	\$2,100,000	\$300,000		\$225,000
Arizona	575,000			1,000
California	5,725,000	395,000	283,000	1,370,000
Colorado	10,687,056	560,000	516,363	870,000
Eastern states	12,615,630	1,105,000	2,765,000	274,000
Montana	10,502,605	745,000	355,000	990,000
Nevada	720,000	220,000	100,000	325,000
New Mexico	31,060,354	5,374,300	2,124,171	1,587,000
Oregon	350,000			
Utah	6,675,218	753,350	175,000	1,408,085
Wyoming	49,208,889	779,000	6,139,304	2,356,084
Total	\$130,219,752	\$10,231,650	\$12,457,838	\$9,406,169

Source: GAO Analysis of BLM data.

^aOther includes the following bond coverage types: blanket bond, collective (Unit), and NPR-A (National Petroleum Reserve, Alaska).

Appendix III: Information on the Requirements the 12 Western States Use for Oil and Gas Bonds

State	Scope of bond	Approach	Amount	Types permitted
Alaska	To ensure that each well is drilled, operated, maintained, repaired, and abandoned (plugged) and each location is cleared in accordance with state laws and regulations. ¹	<ul style="list-style-type: none"> • Single well bond. • Blanket bond covering all of the operator's wells in the state. 	<p>Single well bond</p> <ul style="list-style-type: none"> • Not less than \$100,000, unless the applicant demonstrates that the cost of well abandonment (plugging) and location clearance will be less than \$100,000. <p>Blanket bond</p> <ul style="list-style-type: none"> • Not less than \$200,000. 	<ul style="list-style-type: none"> • Surety bond by an authorized insurer who is in good standing. • Personal bond and security in the form of (1) a certificate of deposit, (2) irrevocable letter of credit, or (3) an otherwise adequate security.
Arizona	<p>Conditioned on drilling, plugging dry or abandoned wells, repairing wells causing waste or pollution, maintaining and restoring well sites, and acting in accordance with the applicable laws and regulations.</p> <p>Although the state Oil and Gas Conservation Commission is authorized to issue a rule requiring an additional bond if the surface landowner is not in a contractual relationship with drilling permittee, no such rule has been issued.</p>	<ul style="list-style-type: none"> • Individual well bond. • Blanket bond to cover multiple wells. 	<p>Individual well bond</p> <ul style="list-style-type: none"> • \$10,000 for wells 10,000 feet or less deep. • \$20,000 for wells deeper than 10,000 feet. <p>Blanket bond</p> <ul style="list-style-type: none"> • \$25,000 for 10 or fewer wells. • \$50,000 for more than 10 but fewer than 50 wells. • \$250,000 for 50 or more wells. 	<ul style="list-style-type: none"> • Surety bond by a corporate surety authorized to do business in Arizona. • Certified check. • Certificate of deposit from a bank whose deposits are federally insured.
California	Conditioned on compliance with all statutory requirements for drilling, redrilling, deepening, or permanently altering the casing of the well. ²	<ul style="list-style-type: none"> • Individual indemnity bond. • Blanket indemnity bond covering all wells in the state. • Idle well indemnity bond. 	<p>Individual indemnity bond</p> <ul style="list-style-type: none"> • \$15,000 for wells less than 5,000 feet deep. • \$20,000 for wells at least 5,000 feet deep but less than 10,000 feet deep. • \$30,000 for each well 10,000 or more feet deep. 	<ul style="list-style-type: none"> • Indemnity bond. • Certificate of deposit that (1) does not exceed the federally insured amount, (2) is insured, and (3) is issued by a bank or savings association authorized to do business in California.

¹The bond or bond and security remain in effect until the abandonment of all the wells covered by them and the Alaska Oil and Gas Conservation Commission approves final clearance of the locations.

²The bond should secure the state against all losses, charges, and expenses incurred by it to obtain such compliance.

Appendix III: Information on the Requirements the 12 Western States Use for Oil and Gas Bonds

State	Scope of bond	Approach	Amount	Types permitted
			<p>Blanket indemnity bond</p> <ul style="list-style-type: none"> \$250,000 plus the idle well bond. If a bond was provided prior to Jan. 1, 1999, its amount must be increased by a minimum of \$30,000 per year beginning on Jan. 1, 2000, until the bond reaches \$250,000. \$100,000 plus the idle well bond for operators having 50 or fewer wells, exclusive of properly abandoned wells. \$1 million dollars. <p>Idle well indemnity bond</p> <ul style="list-style-type: none"> \$5,000 per well, if the operator chooses to post a bond rather than pay an annual fee, open an escrow account, or have filed a management plan by July 1, 1999. 	<ul style="list-style-type: none"> Savings accounts and evidence of the deposit in the account. The account cannot exceed the federally insured amount, must be federally insured and with a bank authorized to do business in California. Investment certificates or share accounts issued by savings associations authorized to do business in California. The account's balance cannot exceed the federally insured amount and must be insured. Certificates for funds or share accounts issued by credit unions whose share deposits are guaranteed. The account's balance cannot exceed the guaranteed amount.
Colorado	Every operator must provide assurance that it is financially capable of fulfilling applicable requirements (1) to protect the health, safety, and welfare of the general public in the conduct of the oil and gas operations; (2) to ensure proper reclamation of the land and soil affected by oil and gas operations and to ensure the protection of the topsoil of said land during such operations; and (3) associated with terminating operations and permanent closure.	<p>(1) Surface Owner Protection Financial Assurance: individual well or statewide blanket bond.</p> <p>To protect surface owners who are not parties to a lease or other agreement with the operator from unreasonable crop loss or land damage.</p> <p>(2) Soil Protection, Plugging, Abandonment and Site Reclamation Financial Assurance: individual or statewide blanket bond.</p>	<p>The Oil and Gas Conservation Commission has the authority to increase any of these amounts for an operator under certain circumstances.³</p> <p>(1) Surface Owner Protection</p> <p>Individual well</p> <ul style="list-style-type: none"> \$2,000 per well for non-irrigated land. \$5,000 per well for irrigated land. 	<ul style="list-style-type: none"> Demonstration that operator has sufficient net worth to guarantee performance, which the Commission must review annually. Certificate of general liability insurance. Bond or other surety instrument. Letter of credit. Certificate of deposit. Other financial instrument.

³When the Oil and Gas Conservation Commission's Director has reasonable cause to believe that the Commission may become burdened with the costs of fulfilling an operator's statutory requirements because (1) the operator has demonstrated a pattern of noncompliance with oil and gas regulations in Colorado or other states; (2) special geologic, environmental, or operational circumstances exist which make the plugging and abandonment of particular wells more costly; or (3) other special and unique circumstances exist, he may petition the Commission for an increased financial assurance.

Appendix III: Information on the Requirements the 12 Western States Use for Oil and Gas Bonds

State	Scope of bond	Approach	Amount	Types permitted
			<p align="center">Statewide</p> <ul style="list-style-type: none"> \$25,000. <p>(2) Soil Protection, Plugging, Abandonment and Site Reclamation⁴</p> <p align="center">Individual well bond</p> <ul style="list-style-type: none"> \$10,000 per well for wells less than 3,000 feet deep. \$20,000 per well for wells greater than or equal to 3,000 feet deep. <p align="center">Statewide bond</p> <ul style="list-style-type: none"> \$60,000 for less than 100 wells. \$100,000 for 100 or more wells. <p>If the operator has excess inactive wells,⁵ the financial assurance amount increases by</p> <ul style="list-style-type: none"> \$10,000 for each excess inactive well less than 3,000 feet deep. \$20,000 for each excess inactive well greater than or equal to 3,000 feet deep. <p>The Commission can modify or waive this increase if the operator submits a plan for (1) returning the wells to production in a timely manner or (2) plugging and abandoning the wells on an acceptable schedule.</p> <p>Additional finance assurances required for off-</p>	<ul style="list-style-type: none"> Escrow account or sinking fund. Lien or other security interest in real or personal property of the operator that is acceptable to the Commission and reviewed annually.

⁴All wells whose financial assurances were posted prior to April 1, 2009, must have had financial assurances that meet these requirements by July 1, 2009.

⁵An operator has excess inactive wells if its inactive well count exceeds the operator's financial assurance amount divided by (1) \$10,000 for inactive wells less than 3,000 feet deep or (2) \$20,000 for inactive wells greater than or equal to 3,000 feet deep.

Appendix III: Information on the Requirements the 12 Western States Use for Oil and Gas Bonds

State	Scope of bond	Approach	Amount	Types permitted
			site, centralized exploration and production waste management facility and seismic operations.	
Idaho	Conditioned upon compliance with the legal and regulatory requirements for drilling, maintaining, operating, and plugging of each oil and gas well.	<ul style="list-style-type: none"> Individual well bond. Statewide blanket bond. 	Individual bond of not less than \$10,000 per well. Blanket bond of not less than \$25,000 for all wells in the state. Separate bond requirements govern wells on state and school lands.	<ul style="list-style-type: none"> Surety bond by a corporate surety authorized to do business in Idaho. Cash.
Montana	Conditioned on properly plugging each dry or abandoned well and restoring the surface of the location.	<ul style="list-style-type: none"> Single well bond. Multiple well bond. 	Single well bond <ul style="list-style-type: none"> \$1,500 if the well's depth is 2,000 feet or less. The Board of Oil and Gas Conservation can increase the bond requirement to \$3,000 under certain circumstances.⁶ \$5,000 if the well's depth is greater than 2,000 feet and less than 3,501 feet. The Board can increase this amount to \$10,000 under certain circumstances.⁷ \$10,000 where the well's depth is 3,501 feet or more. The Board can increase this amount to \$20,000 under certain circumstances.⁸ 	<ul style="list-style-type: none"> Surety bond issued from a company licensed to do business in Montana. Federally insured certificate of deposit held by a Montana bank. Letter of credit issued by a Montana commercial bank whose deposits are FDIC insured.

⁶The bond amount can be increased when the Board finds that the factual situation warrants such an increase in order for the owner or operator to comply with the Board's rules.

⁷The bond amount can be increased when the Board finds that the factual situation warrants such an increase in order for the owner or operator to comply with the Board's rules

⁸The bond amount can be increased when the Board finds that the factual situation warrants such an increase in order for the owner or operator to comply with the Board's rules

Appendix III: Information on the Requirements the 12 Western States Use for Oil and Gas Bonds

State	Scope of bond	Approach	Amount	Types permitted
			Multiple well bonds	
			<ul style="list-style-type: none"> \$50,000. The Board can increase this amount to \$100,000 under certain circumstances and/or limit the number of multiple wells that can be covered by a multiple bond.⁹ If existing wells are covered by a bond with an amount less than \$25,000, the owner or operator must increase coverage to \$25,000. 	
Nevada	Conditioned on (1) dry or abandoned well being plugged in accordance with state regulations and (2) operation and repair of well in a manner that does not cause waste.	<ul style="list-style-type: none"> Individual well bond. Blanket statewide bond. 	Individual well bond of not less than \$10,000. Blanket statewide bond of not less than \$50,000.	<ul style="list-style-type: none"> Bond issued by a corporate surety authorized to do business in Nevada and approved by the state regulatory agency. Cash deposit. Savings certificate or time certificate of deposit issued by a bank or savings or loan association in Nevada.
New Mexico	Conditioned on the well being plugged and abandoned and the location restored and remediated in compliance with applicable rules. The financial assurance is not to secure payment for damages to livestock, range, crops or tangible improvements or any other purpose.	<ul style="list-style-type: none"> One-well financial assurance. Blanket financial assurance for all wells statewide. 	One-well financial assurance ¹⁰ <ul style="list-style-type: none"> \$5,000 plus \$1 per foot of well depth in certain counties.¹¹ \$10,000 plus \$1 per foot of well depth in all other counties. Blanket financial assurance <ul style="list-style-type: none"> \$50,000. 	<ul style="list-style-type: none"> Irrevocable letter of credit that meets certain conditions. Cash deposited into a federally insured account in New Mexico. Surety bond that meets certain conditions. Insurance policy that meets certain requirements.

⁹The bond amount can be increased when the Board finds that the factual situation warrants such an increase in order for the owner or operator to comply with the Board's rules.

¹⁰The Oil Conservation Commission was required to establish this financial assurance in amounts determined sufficient to reasonably pay the cost of plugging the well, considering the depth of the well, among other things.

¹¹The counties are: Chaves, Eddy, Lea, McKinley, Rio Arriba, Roosevelt, Sandoval, and San Juan.

Appendix III: Information on the Requirements the 12 Western States Use for Oil and Gas Bonds

State	Scope of bond	Approach	Amount	Types permitted
			Wells that have been in temporary abandonment for more than 2 years must be covered by a one-well financial assurance, unless the well is shut-in because of the lack of a pipeline connection.	
Oregon	Bond will not be released unless well has been properly abandoned, including site reclamation.	<ul style="list-style-type: none"> • Single well bond. • Blanket bond for multi-well operations. 	<p>Single well bond</p> <ul style="list-style-type: none"> • \$10,000 for wells less than 2,000 feet deep. • \$15,000 for wells between 2,000 and 5,000 feet deep. • \$25,000 for wells greater than 5,000 feet deep. <p>Blanket bond</p> <ul style="list-style-type: none"> • Amount equals the sum of individual bonds required for the wells, although some wells might be excluded from this calculation.¹² • Minimum amount of \$100,000. 	<ul style="list-style-type: none"> • Surety bond. • The Department of Geology and Mineral Industries has the discretion to accept an irrevocable letter of credit or other form of financial security.
Utah	Conditioned upon the operator plugging each dry or abandoned well, repairing each well causing waste or pollution, and maintaining and restoring the well site.	<ul style="list-style-type: none"> • Individual well bond. • Statewide blanket bond. 	<p>Individual well bond</p> <ul style="list-style-type: none"> • At least \$1,500 for a well less than 1,000 feet deep. • At least \$15,000 for a well more than 1,000 feet deep but less than 3,000 feet deep. • \$30,000 for a well more than 3,000 feet deep but less than 10,000 feet deep. • At least \$60,000, for wells more than 10,000 feet deep. 	<ul style="list-style-type: none"> • Surety bond with performance guarantee of a corporation that meets certain requirements. • Collateral bond supported by one or more of the following: (1) a cash account at a federally insured bank authorized to do business in Utah or with the Division that does not exceed the FDIC insurance limits; (2) negotiable bonds of the United States, a state, or municipality;

¹²The following wells may be excluded from this computation: (1) wells that have a gross annual wellhead production during the past 12 months that is greater than the amount of the required individual well bond and (2) wells that have been used as disposal or service wells in the past 12 months.

Appendix III: Information on the Requirements the 12 Western States Use for Oil and Gas Bonds

State	Scope of bond	Approach	Amount	Types permitted
			<p>Blanket Bond</p> <ul style="list-style-type: none"> At least \$15,000 for wells less than 1,000 feet deep. At least \$120,000 for wells more than 1,000 feet deep. <p>If the Division determines that these amounts will be insufficient to cover the costs of well plugging and site restoration, a change in the form or amount of bond coverage may be required.</p> <p>The Board has the discretion to allow bond coverage in a lesser amount for a specific well.</p> <p>If the Division finds that a well is violating regulatory requirements for shut-in and temporarily abandoned wells, the required bond amount increases to the cost of actual plugging and site restoration costs.</p>	<p>(3) negotiable certificates of deposit issued by a federally insured bank authorized to do business in Utah that do not exceed FDIC insurance limits; (4) irrevocable letter of credit that meets certain requirements. Since July 1, 2003, operators who want to establish a new blanket bond that consists either fully or partially of a collateral bond must be qualified by the Division first.¹³</p> <ul style="list-style-type: none"> A combination of a surety and collateral bond.
Washington	Conditioned on plugging each dry or abandoned well, reclaiming and cleaning up the well drilling site, repairing wells that cause waste, and complying with all applicable laws, regulations, orders, and permit conditions, including regulations and guidelines for reclamation of land impacted by oil and gas drilling and production activities.	<ul style="list-style-type: none"> Individual well bond. Statewide blanket bond. 	<p>Individual well bond</p> <ul style="list-style-type: none"> Not less than \$50,000 for most wells. \$20,000 for wells less than 2,000 feet deep drilled solely to obtain subsurface geological data. <p>Statewide blanket bond</p> <ul style="list-style-type: none"> Not less than \$250,000. 	<ul style="list-style-type: none"> Surety bond that meets certain requirements. Cash deposit. Savings account assigned to the state. Certificate of deposit in a Washington bank and guarantee of payment of the principal in the event penalties are assessed for early redemption. Letter of credit from bank acceptable to the State Oil and Gas Supervisor.

¹³Qualification consists of the Division finding, as evidenced by audited financial statements for the previous 2 years and the most current quarterly financial report, that the operator's ratio of (1) current assets to current liabilities is 1.20 or greater; and (2) total liabilities to stockholder's equity is 2.50 or less.

Appendix III: Information on the Requirements the 12 Western States Use for Oil and Gas Bonds

State	Scope of bond	Approach	Amount	Types permitted
Wyoming	Conditioned on (1) the well being operated and maintained so as not to cause waste or damage to the environment; (2) plugging each permanently abandoned well in accordance with regulations; (3) reclamation of area affected by the oil or gas operations; and (4) compliance with all applicable laws, regulations, and orders. ¹⁴	<ul style="list-style-type: none"> • Individual well bond. • Statewide blanket bond. • Split estate bonds <p>To secure payment of damages to the surface owner. Instead of posting a bond, the operator can execute an agreement with a surface owner (1) addressing compensation for damages to land and improvements; or (2) waiving the surface owner's right to seek damages.</p>	<p>The state Oil and Gas Conservation Commission can increase the amounts listed below after notice and a hearing if good cause can be shown.</p> <p>Individual well</p> <ul style="list-style-type: none"> • Minimum amount of \$10,000 for wells less than 2,000 feet deep. • Minimum amount of \$20,000 for wells 2,000 feet or more deep. <p>Blanket bond</p> <ul style="list-style-type: none"> • Minimum amount of \$75,000.¹⁵ <p>Idle well bond increase</p> <p>An increased bond level up to \$10 per foot may be required for each idle well once the operator's total footage of idle wells exceeds a certain threshold.¹⁶</p> <p>The level of additional bonding will increase every 3 years in accordance with the percentage change in the Wyoming consumer price index.</p> <p>The operator can request a different bonding level based on evaluation of specific well conditions and circumstances.</p> <p>In lieu of additional bonding,</p>	<ul style="list-style-type: none"> • Surety bond. • Cashier's check and binding, first-priority pledge agreement. • Certificate of deposit for an initial term of not less than 1 year that renews automatically and a binding, first-priority pledge agreement. • Letter of credit issued by an FDIC-insured bank with an initial expiration date of not less than 1 year from date of issuance and that is automatically renewed.

¹⁴Site reclamation must be initiated within 1 year of permanent abandonment of the well or last use of a pit. Reclamation must be completed in accordance with the landowner's reasonable requests and/or resemble the original vegetation and contour of adjoining lands. All disturbed state lands must be recontoured and reseeded in accordance with Commission regulations unless the Office of State Lands and Investments approves otherwise.

¹⁵Operators with blanket bonds of \$25,000 in place prior to July 1, 2000, do not need to increase their bond coverage or post additional coverage.

¹⁶The total footage of idle wells threshold is 2,500 feet or 7,500 feet depending on the level of blanket bond in place. An idle well is one which is not producing, injecting, or disposing.

Appendix III: Information on the Requirements the 12 Western States Use for Oil and Gas Bonds

State	Scope of bond	Approach	Amount	Types permitted
			<p>the supervisor may accept a detailed plan of operation which includes a time schedule to permanently plug and abandon idle wells.</p> <p>Split estate bonds</p> <ul style="list-style-type: none"> • Individual well bond of not less than \$2,000 per well on the land. • Blanket bond amount is determined by the oil and gas supervisor. <p>The state's oil and gas supervisor has discretion in establishing the amount of these bonds.</p>	

Source: GAO analysis of state laws and regulations.

Appendix IV: Bonding Requirements for the Extraction of Federally Owned Resources, by Agency and Resource

Agency and resource being extracted	Scope of bond	Approach	Amount	Types permitted
Office of Surface Mining Reclamation and Enforcement (OSM) Coal Leasing	Conditioned upon compliance with all applicable laws, regulations, the permit, and regulatory program, including the reclamation plan.	<ul style="list-style-type: none"> • Performance bond for the entire permit area. • Cumulative bond schedule and the performance bond required for full reclamation of the initial area to be disturbed. • Incremental bond schedule and the performance bond required for the first increment in the schedule. • Alternative bonding system if it achieves certain objectives and purposes. 	<ul style="list-style-type: none"> • The amount of the bond required for each bonded area shall (1) be determined by the regulatory authority; (2) depend upon the requirements of the approval permit and reclamation plan; (3) reflect the probable difficulty of reclamation, given consideration to such factors as topography, geology, hydrology, and revegetation potential; and (4) be based on, but not limited to, the estimated cost submitted by the permit applicant. • The amount of the bond shall be sufficient to assure the completion of the reclamation plan if the work has to be performed by the regulatory authority in the event of forfeiture. • In no case shall the total bond initially posted for the entire area under one permit be less than \$10,000. • The regulatory authority must adjust the bond amount from time to time as the area requiring bond coverage is increased or decreased or where the cost of future reclamation changes. 	<ul style="list-style-type: none"> • Surety bond that meets certain requirements. • Collateral bond (including cash; cash accounts that do not exceed FDIC insurable limits; certificates of deposit that do not exceed FDIC insurable limits and meet other requirements; a first mortgage, first deed of trust, or perfected first-lien security interest in real property; and irrevocable letters of credit that meet certain requirements). • Self-bond (indemnity agreement executed by the applicant or the applicant and a corporate guarantor that meets certain requirements). • A combination of any of these types.

**Appendix IV: Bonding Requirements for the
Extraction of Federally Owned Resources, by
Agency and Resource**

Agency and resource being extracted	Scope of bond	Approach	Amount	Types permitted
Minerals Management Service (MMS) Offshore Oil and Gas Leasing	To guarantee compliance with all terms and conditions of the lease, including structure removal and site clearance.	<ul style="list-style-type: none"> Lease specific bond. Areawide bond.¹ 	<p>Amount of bond is determined by stage of development/activity. Posting a lease exploration bond exempts owner/operator from posting a general lease bond. Posting a development and activities bond exempts the owner/operator from posting a general lease bond and lease exploration bond.</p> <p>General lease bond</p> <ul style="list-style-type: none"> \$50,000 lease specific bond. \$300,000 areawide bond. <p>Lease exploration bond</p> <ul style="list-style-type: none"> \$200,000 lease specific bond. \$1 million areawide bond. <p>Development and production activities bond</p> <ul style="list-style-type: none"> \$500,000 lease specific bond.² \$3 million areawide bond. <p>Additional security</p> <p>MMS can require an additional security if it determines that it is necessary to ensure compliance. Such a determination is based on an evaluation of the lessee's ability to carry out present and future financial obligations.³</p> <p>In lieu of an additional bond, MMS may authorize the lessee to establish a lease-specific abandonment account or third-party guarantee.</p>	<ul style="list-style-type: none"> Surety bond issued by a surety company approved by the Department of the Treasury (Treasury). Treasury securities.⁴ Alternative types of securities provided the MMS Regional Director determines that the alternative protects the interest of the United States to the same extent as the required bond.⁵ A combination of these types.

¹Areawide bonds cover all leases in one of three areas: (1) the Gulf of Mexico and the area off the Atlantic Coast; (2) the area offshore the Pacific Coast states of California, Oregon, Washington, and Hawaii; and (3) the area off the shore of Alaska.

²MMS may accept a bond in a lesser amount when the lessee can demonstrate that the wells and platforms can be abandoned and removed and the drilling and platform sites cleared of obstructions for less than the amount of the bond.

**Appendix IV: Bonding Requirements for the
Extraction of Federally Owned Resources, by
Agency and Resource**

Agency and resource being extracted	Scope of bond	Approach	Amount	Types permitted
BLM Onshore Oil and Gas	To ensure compliance with the Mineral Leasing Act of 1920 as amended, including complete and timely plugging of the well(s), reclamation of the lease area(s), and the restoration of any lands or surface waters adversely affected by lease operations.	<ul style="list-style-type: none"> Individual lease bond. Statewide bond. Nationwide bond. 	<ul style="list-style-type: none"> Individual lease: not less than \$10,000 Statewide: not less than \$25,000 Nationwide: not less than \$150,000 <p>If an operator has forfeited a financial assurance in the previous 5 years because of failure to plug a well or reclaim lands in a timely manner, BLM must require a bond in an amount equal to the estimated costs of plugging the well and reclaiming the disturbed area before approving an application for a permit to drill.</p> <p>BLM has the authority to require an increase in the bond amount whenever it determines that the operator poses a risk due to factors including, but not limited to, a history of previous violations, a notice from MMS that there are uncollected royalties due, or that total cost of plugging existing wells and reclaiming lands exceeds the present bond amount.⁵</p>	<ul style="list-style-type: none"> Surety bond issued by a qualified surety company approved by Treasury. Personal bonds accompanied by (1) certificate of deposit issued by an institution whose deposits are federally insured; (2) cashier's check; (3) certified check; (4) negotiable Treasury securities; or (5) irrevocable letter of credit that meets certain conditions.
BLM National Petroleum Reserve, Alaska (NPR-A)	To ensure compliance with the all the lease terms, including rentals and royalties, conditions, and stipulations.	<ul style="list-style-type: none"> Individual lease bond. Reserve-wide bond. 	<ul style="list-style-type: none"> Individual lease: \$100,000. Reserve-wide \$300,000 (either as a rider to existing nationwide bond or a separate bond). 	<ul style="list-style-type: none"> Surety bond issued by a qualified surety company approved by Treasury. Personal bonds secured by (1)

³MMS will evaluate a lessee's (1) financial capacity substantially in excess of existing and anticipated lease and other obligations; (2) projected financial strength significantly in excess of existing and future lease obligations; (3) business stability based on 5 years of continuous operation and production; (4) reliability in meeting obligations based on credit ratings or trade references; and (5) record of compliance with laws, regulations, and lease terms.

⁴If the market amount of the security falls below the level of bond coverage required, the lessee must pledge an additional security.

⁵If the market amount of the security falls below the level of bond coverage required, the lessee must pledge an additional security.

⁶The increased bond amount cannot exceed the total of the estimated costs of plugging and reclamation, the amount of uncollected royalties due to MMS, plus the amount of monies owed to the lessor due to previous violations remaining outstanding.

**Appendix IV: Bonding Requirements for the
Extraction of Federally Owned Resources, by
Agency and Resource**

Agency and resource being extracted	Scope of bond	Approach	Amount	Types permitted
BLM Geothermal Energy	To cover (1) any activities related to exploration, drilling, utilization, or associated operations on a federal lease; (2) reclamation of the surface and other resources; (3) rental and royalty payments; (4) compliance with applicable laws, regulations, notices, orders, and lease terms.	<ul style="list-style-type: none"> Individual lease bond. Statewide activity bond. Nationwide activity bond. 	<p>BLM has the authority to increase the following bond amounts when (1) the operator has a history of noncompliance; (2) BLM previously made a claim against a surety company because someone covered by the current bond failed to plug and abandon a well and reclaim the surface in a timely manner; (3) a person covered by the bond owes uncollected royalties; or (4) the bond amount will not cover the estimated reclamation cost.</p> <p>Drilling operations</p> <ul style="list-style-type: none"> Individual: \$10,000. Statewide: \$50,000. Nationwide: \$150,000. <p>Utilization operations</p> <ul style="list-style-type: none"> Electrical Generation Facility: at least \$100,000. Direct Use Facility: BLM will specify amount. 	<p>certificate of deposit issued by an institution whose deposits are federally insured; (2) cashier's check; (3) certified check; (4) negotiable Treasury securities; or (5) irrevocable letter of credit that meets certain conditions.</p> <ul style="list-style-type: none"> Corporate surety bond issued by a surety company approved by Treasury. Personal bonds secured by (1) certificate of deposit issued by a federally insured financial institution authorized to do business in the United States; (2) cashier's check; (3) certified check; (4) negotiable securities, such as Treasury notes; and (5) irrevocable letter of credit that meet certain conditions.
BLM Solid Minerals (other than coal and oil shale, also known as leasable minerals)	Released when (1) all royalties, rentals, penalties, and assessments are paid; (2) all permit or lease obligations are satisfied; (3) site reclaimed; and (4) effective measures are taken to ensure that the mineral prospecting or development activities will not adversely affect surface or subsurface resources.	<ul style="list-style-type: none"> Individual lease bond. Statewide bond (to cover all leases of the same mineral). Nationwide bond (to cover all leases of the same mineral). 	<p>BLM determines bond amounts considering the cost of complying with all permit and lease terms, including royalty and reclamation requirements.</p> <ul style="list-style-type: none"> Individual lease: minimum \$5,000 (minimum \$1,000 for prospecting permits). Statewide: minimum \$25,000. Nationwide: minimum \$75,000. 	<ul style="list-style-type: none"> Surety bond issued by a qualified company approved by Treasury. Personal bonds in the form of a (1) cashier's check; (2) certified check; (3) or negotiable Treasury bond.

**Appendix IV: Bonding Requirements for the
Extraction of Federally Owned Resources, by
Agency and Resource**

Agency and resource being extracted	Scope of bond	Approach	Amount	Types permitted
BLM Mineral Materials (also known as salable minerals)	To meet the reclamation standards specified in the mineral materials sales contract.	<ul style="list-style-type: none"> • Performance bond for contract. • No performance bond required if sales contract from a community pit⁷ or common use area and party pays a reclamation fee. 	<p>Sales contract</p> <ul style="list-style-type: none"> • For contracts of \$2,000 or more, BLM will establish bond amount to ensure it is sufficient to meet the contract's reclamation standards. However, the amount must be at least \$500. • For contracts of less than \$2,000, BLM may require a bond. If BLM requires a bond, it cannot exceed an amount greater than 20 percent of the total contract amount. <p>Community pit and common use area contracts</p> <ul style="list-style-type: none"> • If party pays reclamation fee, no performance bond is required. 	<ul style="list-style-type: none"> • Corporate surety bond issued by a company approved by Treasury. • Certificate of deposit that is issued by an institution whose deposits are insured and does not exceed the maximum FDIC insurable amount. • Cash bond. • Irrevocable letter of credit from a bank or financial institution organized or authorized to do business in the United States. • Negotiable Treasury bond of the United States.
BLM Hardrock Minerals (also known as locatable minerals)	To cover the estimated cost, as if BLM were to contract with a third party, to reclaim the operations according to the reclamation plan, including construction and maintenance costs for any treatment facilities necessary to meet federal and state environmental standards. The financial guarantee must also cover any interim stabilization and	<ul style="list-style-type: none"> • Individual financial guarantee covering a single notice or plan of operations.⁸ • Blanket financial guarantee covering a statewide or nationwide operations. 	<ul style="list-style-type: none"> • Amount is based on the estimated cost as if BLM were to contract with a third party to reclaim the operations according to the reclamation plan, including construction and maintenance costs for any treatment facilities necessary to meet federal and state environmental standards. • BLM may determine that a bond is not required where mining operations would cause nominal 	<p>If accepted by the BLM state director:</p> <ul style="list-style-type: none"> • Surety bonds that meet certain requirements. • Cash maintained in a federal depository account of the U.S. Treasury. • Irrevocable letters of credit from a financial institution organized or authorized to do business in the

⁷A community pit supplies mineral materials to small contractors and to the general public for private use.

⁸A notice of operations is required for exploration activities that disturb 5 acres or less. Although BLM must receive notice prior to any surface disturbance, BLM does not need to grant approval for notice-level operations. A plan of operations is required for any operation greater than casual use, except for notice-level operations, and operations causing surface disturbance greater than casual use in special status areas, such as designated wilderness areas and national monuments.

**Appendix IV: Bonding Requirements for the
Extraction of Federally Owned Resources, by
Agency and Resource**

Agency and resource being extracted	Scope of bond	Approach	Amount	Types permitted
	<p>infrastructure maintenance costs needed to maintain the area of operations in compliance with applicable environmental requirements while third-party contracts are developed and executed.</p>		<p>environmental damage or the operator has an excellent past record for reclamation.</p> <ul style="list-style-type: none"> In addition to the financial guarantee, BLM may require the establishment of a trust fund or other funding mechanism to ensure the continuation of long-term treatment to achieve water quality standards and for other long-term, post-mining maintenance requirements. The funding must be adequate to provide for construction, long-term operation, maintenance, or replacement of any treatment facilities and infrastructure, for as long as the treatment and facilities are needed after mine closure. 	<p>United States.</p> <ul style="list-style-type: none"> Certificates of deposit or savings accounts not in excess of the FDIC insurable amount. Negotiable U.S. government, state, and municipal securities or bonds maintained in a Securities Investors Protection Corporation-insured trust account by a licensed securities brokerage firm. Investment grade securities having a Standard and Poor's rating of AAA or AA or an equivalent rating from a nationally recognized securities rating service that are maintained in a Securities Investors Protection Corporation-insured trust account by a licensed securities brokerage firm. Certain forms of insurance that meet regulatory requirements. Certain existing financial assurances under state law or regulation. Trust funds or other funding mechanisms.

Source: GAO analysis of federal regulations.

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

Anu K. Mittal (202) 512-3841 or mittala@gao.gov

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In addition to the contact named above, Andrea Wamstad Brown (Assistant Director), Jeffrey B. Barron, Casey L. Brown, Jerome Sandau, Jeanette Soares, Anne Stevens, Carol Herrnsstadt Shulman, and Walter Vance made key contributions to this report.

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