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Reclamation of Coal Mining Operations: Select Issues and Legislation

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SUMMARY

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Reclamation of Coal Mining Operations: Select Issues and Legislation

In the United States, coal mining operations supported economic growth and electrical power generation needs throughout the 20th century. Prior to the enactment of the Surface Mining Control and Reclamation Act (SMCRA) in 1977, no federal law had authorized reclamation requirements for coal mining operators to restore lands and waters affected by mining practices. Title V of SMCRA authorized a federal regulatory program for coal mine operations after 1977. SMCRA also established the Office of Surface Mining Reclamation and Enforcement (OSMRE), within the Department of the Interior, as the federal agency responsible for implementing the requirements of SMCRA.

Title V of SMCRA established a federal and state framework for regulating coal mining operations after the law was enacted in 1977. SMCRA authorizes the regulation of coal mining on federal, nonfederal, and tribal lands. SMCRA authorizes state and tribal programs to regulate coal mining operations on nonfederal lands, termed *primacy*. Additionally, SMCRA authorizes a primacy state to enter into a cooperative agreement with OSMRE to regulate coal mining operations on federal lands within their state's jurisdiction. If a state or tribe has not obtained primacy under SMCRA, OSMRE would regulate surface coal mining operations within that jurisdiction.

SMCRA prohibits the mining of coal on federal and nonfederal lands without obtaining a mining permit. Regulatory requirements authorized under SMCRA apply to controlling surface mining impacts for both surface and underground coal mining operations. The mining permit includes a reclamation plan, which is required to provide information on how affected mining areas will be returned to a land use capable of supporting the uses that it was capable of supporting prior to any mining operations. In addition to the permitting and reclamation requirements under SMCRA, coal mining operators may be required to obtain additional permits under other state and federal laws. Coal mining operators are required to submit a financial assurance, or performance bond, to the regulatory authority which would be forfeited in the event that the operator was unable to complete the requirements in the reclamation plan. SMCRA authorizes regulatory authorities to accept multiple types of performance bonds, including self-bonds, which are corporate guarantees of sufficient corporate assets without the need to provide cash or other collateral resources.

Given the recent decline in domestic coal production and bankruptcies of coal mining operators, some have raised concerns with the adequacy and types of performance bonds available to complete reclamation in the case of forfeiture. In the event that forfeited performance bonds are insufficient to complete site reclamation, the coal mining operator remains liable for remaining site reclamation costs. To the extent that those performance bonds would be insufficient for the regulatory authority to complete site reclamation presents a potential issue for how, or whether, state governments would fund the remaining site reclamation needs and address potential environmental and public health hazards. This raises a policy question for Congress regarding contributing federal funding for the reclamation of coal mining operations when the operator lacks adequate financial resources to complete reclamation and the performance bond is insufficient.

Self-bonding, authorized in SMCRA, allows coal mining operators to demonstrate that they have sufficient corporate assets to complete site reclamation, without requiring cash or collateral upfront as in the case of surety or collateral bonds. Recent bankruptcies in the coal mining industry have led to increased awareness of potential issues with the adequacy of self-bonds to complete site reclamation. In the event that a self-bond may be inadequate to complete site reclamation costs, the regulatory authority may be able to recover assets of the coal mining operator or third-party guarantor to cover the outstanding reclamation costs through a settlement or other agreement. The extent to which any funding recovered by the regulatory authority could complete the site reclamation would depend on the amount of assets recovered and the remaining reclamation needs.

In addition to bonding, this report discusses potential liability under other laws and issues associated with the remining of abandoned coal refuse.

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Introduction

In the United States, domestic coal production supported economic growth and electrical power generation needs throughout the 20th century. However, prior to the enactment of the Surface Mining Control and Reclamation Act of 1977, as amended (SMCRA; P.L. 95-87),[1] there were no federal requirements for coal mining operators to reclaim lands and waters affected by coal mining activities. This resulted in a legacy of abandoned coal mine sites that may pose public health, safety, and environmental risks. As a result of these historical coal mining operations prior to 1977, Title IV of SMCRA authorized the Abandoned Mine Lands (AML) program to provide federal financial assistance to reclaim legacy sites. For coal mining operations after 1977, Title V of SMCRA authorized federal regulations for coal mining operations. SMCRA also established the Office of Surface Mining Reclamation and Enforcement (OSMRE), within the Department of the Interior, as the federal agency responsible for implementing SMCRA.

Title IV of SMCRA authorized federal funding to reclaim coal mining sites that operated prior to enactment to which no other federal or state laws applied.[2] The Abandoned Mine Reclamation Fund provides funding to eligible states and tribes for the reclamation of surface mining impacts associated with historical mining of coal. Examples of eligible AML projects include the reclamation of land subsidence, vertical openings, hazardous equipment and facilities, dangerous highways, and acid mine drainage (AMD) that originated from historical coal mining operations. OSMRE collects fees from coal mining operations regulated under Title V of SMCRA, based on coal production, and credits those fees to the Abandoned Mine Reclamation Fund. Coal mining operations regulated under Title V of SMCRA are ineligible for grants from the Abandoned Mine Reclamation Fund.

Title V of SMCRA established a federal framework for regulating coal mining operations after the enactment of SMCRA. SMCRA authorizes states and tribes to become the primary regulatory authority to issue and enforce coal mining and reclamation permits. No tribe has established a regulatory program under Title V. OSMRE, in coordination with tribes, regulates coal mining on tribal lands.

SMCRA requires coal mining operators regulated under Title V to provide a financial assurance, or *performance bond*, to the regulatory authority. This financial assurance is for completing site reclamation in the event that the coal mining operator is unable to complete reclamation requirements. The regulatory authority determines the bond amount pursuant to the requirements described in the reclamation plan. SMCRA authorizes a regulatory authority to require various types of bonds, including self-bonds. *Self-bonds* are corporate assurances of sufficient assets to complete site reclamation without providing cash or collateral performance bonds by the operator or a corporate guarantor.

SMCRA does not apply to the regulation of non-coal minerals, with the exception of OSMRE's suitability determination for non-coal mine operations on federal lands.[3] State and local governments generally regulate the siting, general operations, and reclamation of non-coal mine operations on nonfederal lands. The Bureau of Land Management (BLM) is generally responsible for regulating non-coal mining on federal public lands.[4]

[1] 30 U.S.C. Chapter 25.

[2] 30 U.S.C. Chapter 25, Subchapter IV.

[3] 30 U.S.C. Chapter 25, Subchapter VI.

[4] For more information, see CRS Report R46278, *Policy Topics and Background Related to Mining on Federal Lands*, by Brandon S. Tracy.

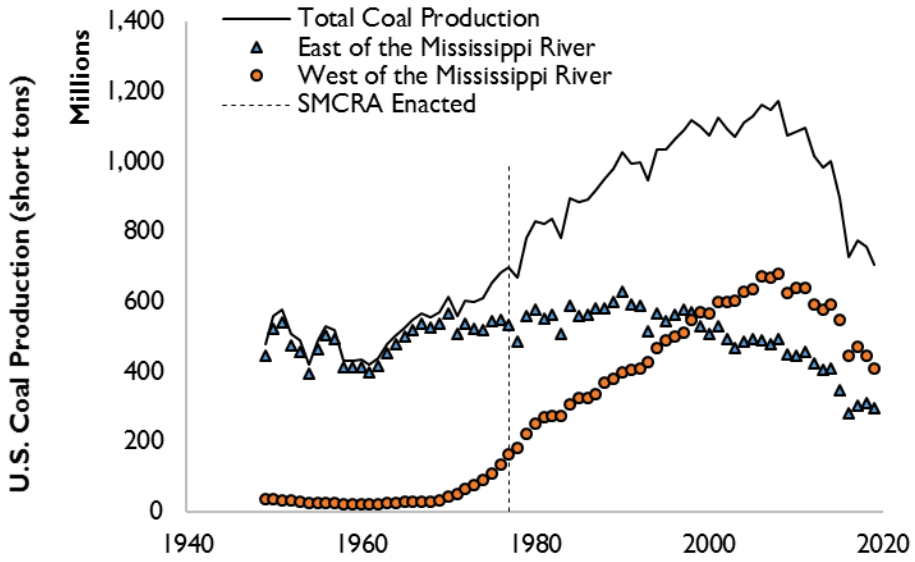
This report focuses on trends in domestic coal production, the regulatory framework for coal mining operations under SMCRA, and select issues and legislation associated with the regulation of coal mining operations under Title V of SMCRA.

Domestic Coal Production

Historically, coal production in the United States largely occurred in states east of the Mississippi River (**Figure 1**). Coal production in states west of the Mississippi River increased during the 1970s, and overtook eastern states' coal production around the turn of the century. Following the enactment of SMCRA in 1977, all coal mining operations became subject to the regulations promulgated under Title V. Coal mining prior to the enactment of SMCRA occurred primarily in eastern states. These states represent a relatively higher amount of AML reclamation needs under Title IV of SMCRA. Coal production in states west of the Mississippi River began to increase around the enactment of SMCRA. Those coal mining operations after enactment would have been subject to the requirements of Title V of SMCRA. Those states have generally reported a lesser degree of AML reclamation needs.

As of October 6, 2020, the Energy Information Administration (EIA) expects total U.S. coal production to be 525 million short tons for 2020, a projected decrease of 26% from 2019.[5] The type of coal mining techniques employed, such as underground and surface mining, may depend on site specific conditions and economically favorable methods to access those resources.

Figure 1. Domestic Coal Production: 1949-2019



Source: CRS generated this figure based on data from U.S. Energy Information Administration, *Annual Coal Report*, October 5, 2020, https://www.eia.gov/coal/annual/.

Notes: These data represent the extent of information provided by EIA in its annual report and domestic coal production prior to 1949 is not reported.

[5] U.S. Energy Information Administration, *Short-Term Energy Outlook*, October 6, 2020, https://www.eia.gov/outlooks/steo/.

Regulatory Framework

Title V of SMCRA authorized federal requirements for the siting, general operations, and reclamation of coal mining sites on federal, nonfederal, and tribal lands in the United States. In addition to the requirements in SMCRA, coal mining operations may be subject to additional state and federal laws, such as permitting under the Clean Water Act. All coal mining operations are subject to the requirements concerning worker health and safety under the Federal Coal Mine Health and Safety Act of 1969, as amended.[6]

Title V of SMCRA is not limited to surface mining. It also authorizes the regulation of underground mining, as those activities may result in impacts to surface features. In general, the goals of reclamation under Title V of SMCRA are for the coal mining operators to return the affected area to the level of land use that was acceptable prior to coal mining operations. SMCRA authorizes separate regulations and performance standards for surface and underground mining. SMCRA authorizes separate performance standards for certain coal mining techniques where this goal may not be feasible due to technical challenges or the nature of the surface disturbance, such as mountaintop removal mining.

The following sections discuss statutory provisions in Title V regarding federal and state regulatory responsibilities, surface coal mining and reclamation permits, and requirements for providing financial assurances or bonding.

Federal, State, and Tribal Roles

Title V of SMCRA established a federal-state framework for regulating coal mining operations to control the environmental impacts. Under Title V of SMCRA, OSMRE's role is to promulgate and enforce federal regulations for mining and reclamation of coal mining operations. OSMRE promulgated federal regulations pursuant to the requirements in SMCRA at 30 C.F.R. Chapter VII on March 13, 1979.[7]

SMCRA requires coal mining operators to obtain a permit prior to commencing operations. Under Section 503 of SMCRA, states may seek to obtain *primacy* allowing the state to be the lead regulatory authority over issuing and enforcing permits for coal mining operations within their respective jurisdictions under their own state regulatory programs.[8] A state with primacy acts as the principal regulatory agency in order to avoid duplication between state and federal permitting. Where states have primacy, OSMRE performs oversight and provides states with federal regulatory grants. OSMRE has granted primacy under Title V to 24 states that operate state regulatory programs (**Figure 2**).[9]

State primacy determination is based on the state program conforming to federal requirements. In order to obtain primacy over the regulation of coal mining operations, states are required to

[6] This act was originally enacted to regulate health and safety at coal mines (P.L.91-173). The act was later amended in 1977 to provide federal requirements at all mining operations under the Federal Mine Safety and Health Amendments Act (P.L. 95-164). Current law for Mine Safety and Health is codified at 30 U.S.C. Chapter 22.

[7] Department of the Interior, Office of Surface Mining, Reclamation, and Enforcement, "Surface Coal Mining and Reclamation Operations: Permanent Regulatory Program," 44 *Federal Register* 14902, March 13, 1979.

[8] 30 U.S.C. §1253.

[9] Those states are Alabama, Alaska, Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Montana, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, Texas, Utah, Virginia, West Virginia, and Wyoming.

demonstrate that their state laws and state regulations are consistent with federal law and OSMRE regulations. Additionally, states must demonstrate they have sufficient state resources to ensure that the state program is able to enforce those requirements. In the event that a state program may not be enforcing federal requirements, SMCRA authorizes OSMRE to enforce federal requirements.[10]

If a state regulatory program conflicts with federal requirements, Section 504 of SMCRA preempts state law and regulations that are inconsistent with federal law and regulations.[11] Section 505 authorizes a primacy state to promulgate state regulations that may be more stringent than federal regulations.[12]

If a state program has not obtained primacy under SMCRA, OSMRE regulates surface coal mining operations within that state's jurisdiction.[13] OSMRE regulates coal mining operations in 12 states: Arizona, California, Georgia, Idaho, Massachusetts, Michigan, North Carolina, Oregon, Rhode Island, South Dakota, Tennessee, and Washington. Of those states, EIA reported Arizona and Tennessee produced coal in 2018.[14]

Section 523(c) of SMCRA authorizes a primacy state to regulate coal mining operations on federal lands within that state pursuant to a cooperative agreement with OSMRE.[15] In the absence of a cooperative agreement under Section 523, a primacy state would be prohibited from regulating coal mining operations on federal lands. Under Section 523 agreements, a state may be the primary authority for regulating coal mining operations on federal lands, with OSMRE concurring on the final permit approval as well as ensuring compliance with other applicable federal laws. For these coal mining operations, BLM would have a role in coal leasing under the Mineral Leasing Act of 1920, as amended (P.L. 66-146).[16] Fourteen primacy states regulate coal mining operations on federal lands within their jurisdictions pursuant to cooperative agreements under Section 523(c): Alabama, Colorado, Illinois, Indiana, Kentucky, Montana, New Mexico, North Dakota, Ohio, Oklahoma, Utah, Virginia, West Virginia, and Wyoming.[17]

SMCRA authorizes a similar regulatory framework for tribes to seek primacy as the lead regulatory authority for coal mining operations on tribal lands.[18] To date, no tribe has elected to establish a regulatory program under Title V of SMCRA. OSMRE regulates coal mining operations on tribal lands, in consultation with tribal agencies, for four tribes—Crow Tribe, Hopi Tribe, the Navajo Nation, and Ute Mountain Ute Tribe. Section 710 of SMCRA authorizes regulatory grants to three tribes—Crow Tribe, Hopi Tribe, and the Navajo Nation—for the development of regulatory programs for coal mining operations.[19] Congress has not extended a similar authorization for grants to other tribes for the development of their regulatory programs.

[10] 30 U.S.C. §1254(b).

[11] 30 U.S.C. §1254(g).

[12] 30 U.S.C. §1255.

[13] 30 U.S.C. §1254.

[14] U.S. Energy Information Administration, *Annual Coal Report 2018*, Table 2, Coal Production and Number of Mines by State, County, and Mine Type, 2018, https://www.eia.gov/coal/annual/pdf/table2.pdf.

[15] 30 U.S.C. §1273(c).

[16] 30 U.S.C. Chapter 3A.

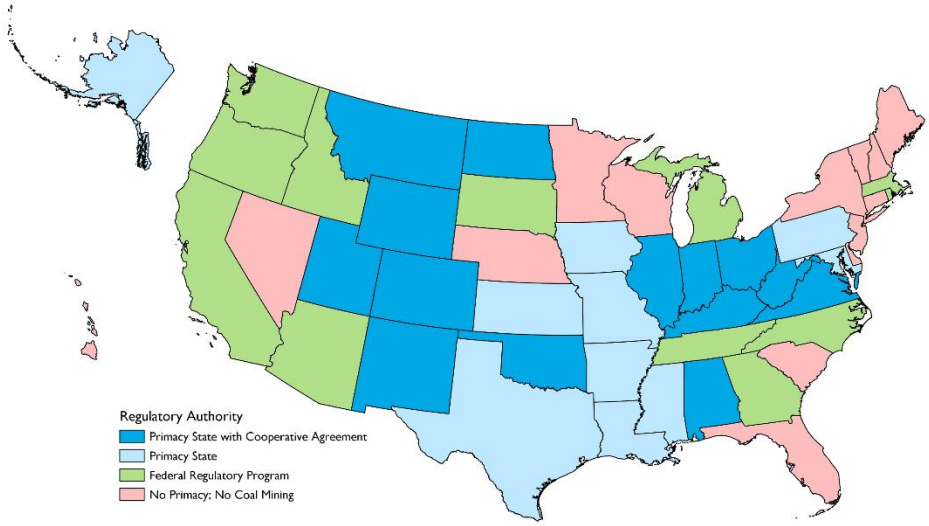
[17] Office of Surface Mining Reclamation and Enforcement, *Regulating Coal Mines*, https://www.osmre.gov/programs/RCM.shtm.

[18] 30 U.S.C. §1300(j).

[19] 30 U.S.C. §1300(i).

Figure 2. Regulatory Authority Under Title V of SMCRA

Includes States That Allow Self-Bonding



Source: Office of Surface Mining Reclamation and Enforcement, *Regulating Coal Mines*, https://www.osmre.gov/programs/rcm.shtm.

Notes: Alaska and Hawaii are not shown to scale nor geographic location.

Regulatory Grants

The total cost of a state's regulatory program would depend on a number of factors, including the number and complexity of coal mining operations that the state regulates. Section 705 of SMCRA authorizes OSMRE to provide regulatory grants to assist primacy states and tribes in carrying out their regulatory programs.[20] For primacy states, the amount of regulatory grants may not exceed 50% of a state program's total costs on an annual basis. If a state or tribe has entered into a cooperative agreement under Section 523(c) and regulates coal mining on federal lands, Section 705 authorizes OSMRE to increase the state's annual regulatory grant to what the federal government would have spent to regulate those lands.[21] These grants are subject to annual appropriations. Funding for state programs may consist also of other sources, including state funding and permit fees on coal mining operators.

Permit fees on coal mining operators are subject to the state or tribe's regulatory program, as SMCRA does not authorize OSMRE to designate the fee rates for state or tribal programs. OSMRE sets permit fees only for coal mining states in nonprimacy states and on tribal lands.

Congress appropriates funding to OSMRE annually to implement its responsibilities under Title V of SMCRA under the Office of Surface Mining Reclamation and Enforcement, *Regulation and Technology* account within the Department of the Interior, Environment, and Related Agencies Appropriations Act. For FY2020, the Further Consolidated Appropriations Act, 2020 (P.L. 116-94) appropriated $117.8 million to OSMRE to carry out the provisions of Title V under SMCRA.[22] Annual appropriations to OSMRE fund regulatory grants and training and technology

[20] 30 U.S.C. §1295.

[21] 30 U.S.C. §1295(c).

[22] P.L. 116-94.

programs, and provide funding for the agency to carry out its regulatory and oversight responsibilities under SMCRA. The President's FY2021 Budget Request included $93.1 million for the OSMRE Regulation and Technology account. Of that amount, approximately $43.1 million would be available for regulatory grants, which was a decrease of approximately $25 million from the previous fiscal year. According to OSMRE, the requested amount and expected carry-over funds would provide regulatory grants to states and tribes.[23]

In FY2020, OSMRE paid a total of $68.6 million in regulatory grants to states and tribes (**Table 1**). The cumulative total of regulatory grants for all eligible states and tribes from FY2007 to FY2020 was approximately $939.4 million in nominal dollars. The annual amount of regulatory grants varied among these states and tribes, based on differences in demonstrated needs to fund their respective regulatory programs up to the statutory cap of 50% for the federal cost-share. Annual regulatory grants increased slightly from FY2007 to FY2010, whereas funding has remained relatively steady since FY2010 (**Figure 3**). When accounting for inflation, the real dollar value of the annual regulatory grants has not increased over that time frame.

Table 1. State and Tribal Regulatory Grants

State	Regulatory Authority	FY2020 Final Distribution	Total Regulatory Grants FY2007 to FY2020
Alabama	Primacy – Cooperative Agreement	$1,420,234	$18,509,374
Alaska	Primacy	$373,008	$4,572,056
Arkansas	Primacy	$119,920	$1,971,780
Colorado	Primacy – Cooperative Agreement	$2,323,844	$32,651,860
Crow Tribe		$575,002	$5,849,545
Hopi Tribe		$390,615	$5,198,827
Illinois	Primacy – Cooperative Agreement	$3,339,928	$48,301,005
Indiana	Primacy – Cooperative Agreement	$1,602,801	$25,805,221
Iowa	Primacy	$46,557	$845,481
Kansas	Primacy	$63,737	$1,467,238
Kentucky	Primacy – Cooperative Agreement	$13,497,278	$176,527,058
Louisiana	Primacy	$266,092	$2,419,821
Maryland	Primacy	$901,705	$11,033,074
Mississippi	Primacy	$265,256	$2,597,937
Missouri	Primacy	$210,341	$2,865,030
Montana	Primacy – Cooperative Agreement	$2,137,656	$23,604,664
Navajo		$1,500,000	$17,488,320
New Mexico	Primacy – Cooperative Agreement	$843,293	$11,786,364

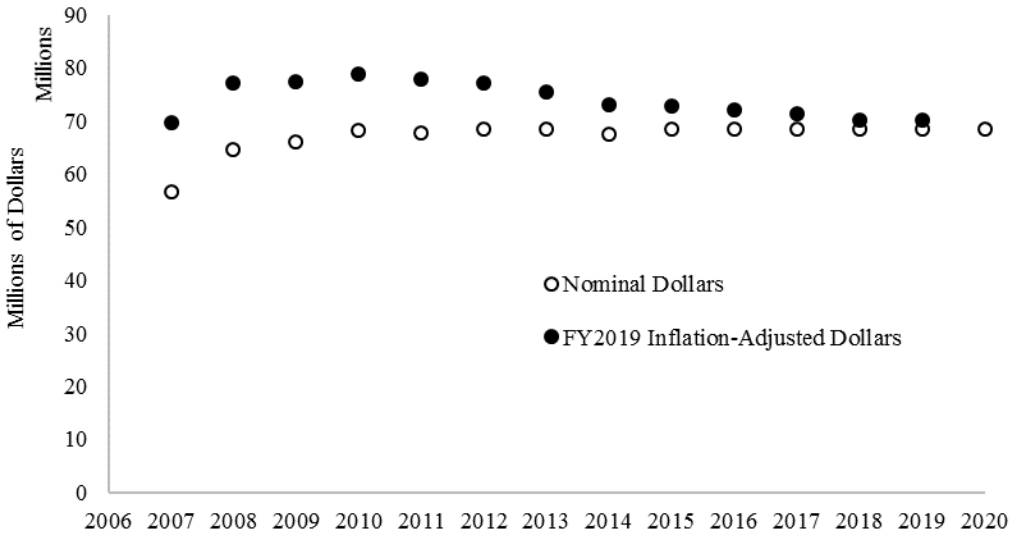
[23] Office of Surface Mining Reclamation and Enforcement, *Budget Justifications and Performance Information Fiscal Year 2021*, p. 46, https://www.doi.gov/sites/doi.gov/files/uploads/fy2021-osmre-budget-justification.pdf. ("The proposed level of regulatory grant funding, together with expected carryover funding from FY 2020, provides for the efficient and effective operations of primacy programs at a level consistent with the anticipated obligations of State and Tribal regulatory programs to account for the Nation's demand for coal mine permitting and production.")

State	Regulatory Authority	FY2020 Final Distribution	Total Regulatory Grants FY2007 to FY2020
North Dakota	Primacy – Cooperative Agreement	$1,016,025	$12,689,818
Ohio	Primacy – Cooperative Agreement	$1,449,935	$34,826,770
Oklahoma	Primacy – Cooperative Agreement	$1,326,932	$16,327,944
Pennsylvania	Primacy	$13,174,069	$171,160,536
Texas	Primacy	$2,575,034	$30,350,422
Utah	Primacy – Cooperative Agreement	$2,544,453	$30,876,208
Virginia	Primacy – Cooperative Agreement	$3,670,097	$52,900,956
West Virginia	Primacy – Cooperative Agreement	$10,488,404	$165,439,757
Wyoming	Primacy – Cooperative Agreement	$2,467,784	$31,358,604
Total		$68,590,000	$939,425,670

Source: CRS compiled annual regulatory grant information from Office of Surface Mining Reclamation and Enforcement, *Grant Resources*, https://www.osmre.gov/resources/grants.shtm.

Notes: Crow Tribe, Hopi Tribe, and the Navajo Nation do not have regulatory programs for coal mining operations within their respective jurisdictions under Title V of SMCRA. Those regulatory grants have been to provide financial support for the development of regulatory programs. CRS calculated the total regulatory grants using nominal dollars (not adjusted for inflation).

Figure 3. Total Regulatory Grants: FY2007-FY2020



Source: CRS complied information on OSMRE's Grant Resources webpage: Office of Surface Mining Reclamation and Enforcement, *Grant Resources*, https://www.osmre.gov/resources/grants.shtm.

Notes: CRS adjusted the total regulatory grant amounts for inflation in FY2019 dollars using the gross domestic product Chained Price Index from the OMB Historical Tables, Table 10.1, accompanying the President's FY2021 budget request.

Surface Coal Mining and Reclamation Permit

Prior to commencing any surface coal mining operations, coal mining operators must first obtain a surface mining and reclamation permit issued by the regulatory authority pursuant to Section 506 of SMCRA.[24] Permit requirements govern the life cycle of a coal mining operation from siting to reclamation after the mining of coal ceases. Surface coal mining and reclamation permits are generally subject to renewal every five years. SMCRA authorizes an extended permit term duration if the coal mining operator demonstrates the need for additional time to secure financing for equipment or the opening of the operation.[25] The regulatory authority may grant a longer permit term if the operator demonstrates need on a permit-by-permit basis.[26]

If no mining occurs within three years of issuance, SMCRA directs the termination of the permit unless the operator demonstrates to the regulatory authority a reasonable need for an extension.[27] Mining permit requirements under Title V are based, in part, on the experiences of reclaiming legacy abandoned coal mining sites and an increased awareness of the challenges to public health and safety and the environmental threats posed by unreclaimed sites.

Section 507 of SMCRA establishes the application requirements for coal mining and reclamation permits.[28] The application for a permit requires that coal mining operators provide detailed information regarding the proposed operation, including company information, type and method of coal mining methods employed, engineering techniques and equipment required, anticipated start and end dates, the number of acres of land to be affected, and plan to scale showing the land affected.[29] Additionally, the operator must demonstrate that they possess the legal right to enter and commence the proposed mining operations on either nonfederal or federal land.

In addition to those requirements, Section 507 requires coal mining operators provide an analysis of the potential hydrologic consequences of the coal mining operation. Coal mining operations are required to submit information regarding impacts to the watershed, streams and tributaries, and groundwater systems. This analysis includes an examination of the water quantity and quality affected by coal mining operations, intended to manage the generation and migration of acid mine drainage (AMD).[30] The extent to which AMD may affect ecosystems and human uses depends on the extent to which the waterbody may be impaired.

Reclamation Plan

As part of the mining permit application, coal mining operators are required to include a *reclamation plan.* The reclamation plan is required to provide the condition of the affected land prior to mining and how the operator proposes to reclaim affected lands to meet the intended use of that land following reclamation.

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[24] 30 U.S.C. §1256.

[25] 30 C.F.R. § 778.17.

[26] 30 U.S.C. §1256(b).

[27] 30 U.S.C. §1256(c).

[28] 30 U.S.C. §1257.

[29] 30 U.S.C. §1257(b).

[30] AMD can occur when minerals within coal are exposed to atmospheric oxygen and water, which causes a reaction generating sulfuric acid. The production of acid creates low-pH conditions in the water, enhancing the solubility of iron, sulfate, and other trace metals from the exposed ore. Those dissolved constituents may discharge to downgradient streams and water bodies, and may generate secondary minerals within the stream and on the stream beds.

Section 508 establishes reclamation plan requirements submitted as part of the permit application.[31] SMCRA authorizes that the relevant regulatory authority (e.g., state or OSMRE) determine the level of detail of information needed to meet the reclamation plan requirements. Some of the information in the reclamation plan includes the area affected by surface coal mining operations, engineering techniques used for reclamation, and plans for controlling surface water drainage. The reclamation plan requires operators to demonstrate how they will comply with other applicable state and federal laws and regulations.

Section 515 of SMCRA authorizes general environmental protection performance standards.[32] Section 102(f) of SMCRA described the intent to balance the impacts to the environment and the production of the coal as follows: "[A]ssure that the coal supply essential to the Nation's energy requirements, and to its economic and social well-being is provided and strike a balance between protection of the environment and agricultural productivity and the Nation's need for coal as an essential source of energy."[33]

SMCRA generally requires coal mining operators to return the site to the "approximate original contour," referring to the physical topology of the area affected by coal mining operations.[34] Reclamation techniques and construction may differ based on the type of coal mining operation, such as surface, underground, or mountaintop removal. Coal mining operators may employ a variety of engineering methods, such as backfilling and regrading the landscape, to complete these objectives. In addition, SMCRA requires operators to generally eliminate all highwalls, spoil piles, and depressions.[35]

SMCRA provides for exceptions to these requirements when returning the site to the approximate original contour is impractical or unachievable, such is the case at mountaintop removal mining operations. Mountaintop removal mining may substantially alter the landscape, and reclamation of the affected areas to pre-mining conditions may be unachievable.[36] Thus, OSMRE regulations for mountaintop removal mining provide exceptions for site reclamation that may not apply to other methods of coal mining.

Performance Bonds

Section 509 of SMCRA requires coal mining operators to demonstrate to the regulatory authority that they have a *performance bond* (bond, for short) to ensure adequate financial resources for implementing a reclamation plan. The regulatory authority determines the amount of the performance bond, based on an amount deemed adequate to perform the requirements in the site reclamation plan. The coal mining operator may become released from all or part of the bond once it has demonstrated the completion of site reclamation to the regulatory authority.[37] As such, mining and reclamation activities may occur simultaneously at different locations at a given coal

[31] 30 U.S.C. §1258.

[32] 30 U.S.C. §1265.

[33] 30 U.S.C. §1202(f).

[34] 30 U.S.C. §1265(b).

[35] 30 U.S.C. §1265(b)(3).

[36] The definition, and other regulations, for mountaintop removal mining are codified at 30 C.F.R. §785.14. The performance standards for mountaintop removal mining are codified at 30 C.F.R. Part 824, "Special Permanent Program Performance Standards—Mountaintop Removal." Other regulations that pertain to mountaintop removal mining are backfilling and grading (30 C.F.R. §715.14(c)), special performance standards for mountaintop removal (30 CFR 716.3), and permit renewals (30 C.F.R. §774.10).

[37] 30 C.F.R. §800.40.

mining operation. In the event that the coal mining operator is unable to complete the approved reclamation plan, the bond is forfeited to the regulatory authority to pay the costs of reclamation.[38]

Section 509 of SMCRA authorizes primacy states the discretion to determine which types of performance bonds they allow. Federal regulations pursuant to SMCRA describe the scope, information required, determination of the bond, the types of bonds, and other information regarding performance bonds.[39] The types and requirements of performance bonds are established in federal regulations.

- **Surety Bonds.** These are bonds in which the operator pays a surety company to guarantee the operator's obligation to reclaim the mine site. If the operator does not reclaim the site, the surety company must pay the bond amount to the regulatory authority, or the regulatory authority may allow the surety company to perform the reclamation instead of paying the bond amount.[40]
- **Collateral Bonds.** These include cash; certificates of deposit; liens on real estate; letters of credit; federal, state, or municipal bonds; and investment-grade rated securities deposited directly with the regulatory authority.[41]
- **Self-Bonds.** These are bonds in which the operator assures to pay reclamation costs itself based on the demonstration of sufficient corporate assets. Self-bonds are available only to operators with a history of financial solvency and continuous operation. To remain qualified for self-bonding, operators must, among other requirements, meet one of the following criteria: have an "A" or higher bond rating, maintain a net worth of at least $10 million, or possess fixed assets in the United States of at least $20 million.[42] In addition, the total amount of self-bonds any single operator can provide shall not exceed 25% of its tangible net worth in the United States.[43]

In March 2018, the Government Accountability Office (GAO) published a report of the financial assurances under SMCRA.[44] GAO reported $10.2 billion in financial assurances for coal mining operations, of which surety bonds constituted $7.76 billion, collateral bonds $1.24 billion, and self-bonds $1.16 billion (**Figure 4**).

The amount of each type of bond reported by GAO varied among states and tribes (**Table 2**). These amounts reflect the dollar amounts at the time the GAO report was published. The performance bond amounts are generally greater in states with a larger degree of coal production. The types of coal mining (i.e., surface versus underground), the nature of the mining operations, and the extent of the impact requiring reclamation may affect the bond amount. Those amounts, distribution, and allowable bond types may have subsequently changed since the publication of the GAO report, based on the current status of reclamation operations.

[38] 30 U.S.C. §1259.

[39] 30 C.F.R. § 800.

[40] 30 C.F.R. § 800.20.

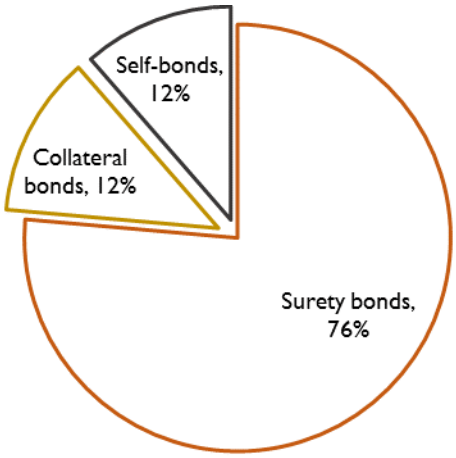
[41] 30 C.F.R. § 800.21.

[42] 30 C.F.R. § 800.23.

[43] 30 C.F.R. § 800.23(d).

[44] Government Accountability Office, *Coal Mine Reclamation, Federal and State Agencies Face Challenges in Managing Billions in Financial Assurances*, GAO-18-305, March 2018.

Figure 4. Distribution of Performance Bond Types



Source: CRS figure based on data from Government Accountability Office, *Coal Mine Reclamation, Federal and State Agencies Face Challenges in Managing Billions in Financial Assurances*, GAO-18-305, March 2018.

Note: GAO reported the total performance bond amount as $10,157,443,000.

Table 2. Type and Amount of Performance Bonds by State as of 2018

State or Tribe	Surety Bond	Collateral Bond[a]	Self-Bond[b]	Total
Alabama	$221,323,000	$18,602,000	$0	$239,925,000
Alaska	$261,000	$6,000,000	$9,617,000	$15,878,000
Arkansas	$1,126,000	$1,330,000	$0	$2,456,000
Colorado	$94,890,000	$5,196,000	$91,318,000	$191,404,000
Crow	$39,613,000	$1,703,000	$0	$41,316,000
Hopi	$0	$0	$0	$0
Illinois	$386,522,000	$10,244,000	$0	$396,765,000
Indiana[c]	$215,444,000	$2,351,000	$0	$217,795,000
Kansas	$0	$2,953,000	$0	$2,953,000
Kentucky[c]	$885,992,000	$39,414,000	$0	$925,406,000
Louisiana	$156,834,000	$0	$0	$156,834,000
Maryland[c]	$18,659,000	$36,643	$0	$22,685,000
Mississippi	$53,824,000	$0	$0	$53,824,000
Missouri	$636,000	$2,985,000	$7,266,000	$10,887,000
Montana	$470,903,000	$1,753,000	$0	$472,656,000
Navajo	$643,562,000	$0	$0	$643,562,000
New Mexico	$287,066,000	$0	$0	$287,066,000
North Dakota	$100,322,000	$21,247,000	$211,230,000	$332,799,000
Ohio[c]	$58,465,000	$3,874,000	$0	$62,339,000
Oklahoma	$16,534,000	$4,899,000	$0	$21,433,000
Pennsylvania	$976,693,000	$60,739,000	$0	$1,037,431,000

State or Tribe	Surety Bond	Collateral Bond[a]	Self-Bond[b]	Total
Tennessee	$44,426,000	$3,661,000	$0	$48,087,000
Texas	$193,980,000	$996,950,000	$249,700,000	$1,440,630,000
Utah	$57,886,000	$6,754,000	$0	$64,640,000
Ute Mountain Ute	$16,704,000	$10,000	$0	$16,714,000
Virginia[c]	$235,312,000	$3,531,000	$24,964,000	$263,807,000
Washington	$139,295,000	$6,200,000	$0	$145,495,000
West Virginia[c]	$801,910,000	$29,108,000	$140,116,000	$971,135,000
Wyoming	$1,641,061,000	$4,512,000	$425,947,000	$2,071,520,000
Total	$7,759,244,000	$1,238,041,000	$1,160,158,000	$10,157,443,000

Source: CRS modified table from Government Accountability Office, *Coal Mine Reclamation, Federal and State Agencies Face Challenges in Managing Billions in Financial Assurances*, GAO-18-305, March 2018.

Notes: The effective dates of the data range from March to August 2017 and vary by state and tribe. Financial assurance amounts are rounded to the nearest $1,000. Totals may not add due to rounding.

a. Collateral bonds include cash; certificates of deposit; liens on real estate; letters of credit; federal, state, or municipal bonds; and investment grade rated securities deposited directly with the regulatory authority.

b. Self-bonds are bonds for which the operator guarantees reclamation costs on the basis of its own finances rather than by securing a bond through another company or providing collateral.

c. State also has established an alternative bonding system, such as a bond pool. A bond pool supplements financial assurances that are posted for less than the full estimated cost of site reclamation.

Other Regulatory Requirements

In addition to the permitting and reclamation requirements under SMCRA, coal mining operators may be required to obtain additional permits under other state and federal laws such as the Clean Water Act (CWA).[45] Although SMCRA and the CWA address environment impacts of regulated activities, they provide for separate regulatory programs with different purposes and permitting requirements and procedures. For example, the CWA prohibits the discharge of pollutants from any point source (i.e., discrete conveyance) into waters of the United States (including wetlands) without a permit. Under CWA Section 402, coal mine operators are required to obtain permits for discharging pollutants in U.S. waters. These permits incorporate effluent limitations the Environmental Protection Agency (EPA) established for the coal mining industry, which reflect the maximum levels of pollutants allowed in discharges from coal mining operations.[46]

CWA Section 404 requires a separate type of permit for the discharge of dredged or fill material into waters of the United States. The U.S. Army Corps of Engineers (USACE) and two states (Michigan and New Jersey) issue CWA Section 404 permits. Thus, multiple state and federal agencies may be involved in regulating coal mining operations under SMCRA and other applicable state or federal laws.

[45] 33 U.S.C. §1251 *et seq.* See also CRS Report RL30030, *Clean Water Act: A Summary of the Law*, by Laura Gatz; and CRS Report R44150, *The Office of Surface Mining's Stream Protection Rule: An Overview*, by Claudia Copeland.

[46] 40 C.F.R. Part 434.

Selected Issues and Legislation

Total U.S. coal production has generally declined from peak levels in 2008 due to multiple factors, including the increase in market share of electricity produced from domestic natural gas and renewables.[47] That market shift has resulted from an array of factors, including decreases in the cost of natural gas relative to coal, federal and state incentives for renewables, and concerns over investments to bring existing coal-fired power plants in compliance with recent or expected environmental regulations.

Since 2008, bankruptcies of coal mining operators have raised concerns about the viability of health and pension benefits, community employment and tax revenue, reclamation obligations and funding, identifying other uses for coal and coal byproducts, and environmental regulatory burdens. The following sections discuss selected issues associated with reclamation bonding, potential liability under other laws, and proposals to remine abandoned coal refuse. Issues with health and pension benefit eligibility, employment, community and economic development, or other potential issues are not discussed in this report.[48]

Adequacy of Bonding

SMCRA requires a coal mining operator to demonstrate to the regulatory authority it has sufficient financial resources to complete reclamation with a performance bond. If a coal mining operator does not complete the reclamation plan, the performance bond would be forfeited to the regulatory authority for completing site reclamation. To the extent that those performance bonds would be insufficient for the regulatory authority to complete site reclamation presents a potential issue for how, or whether, state governments would fund the remaining site reclamation needs and address potential environmental and public health hazards. This raises a policy question for Congress regarding any potential federal role for the reclamation of coal mining operations when the operator lacks adequate financial resources to complete reclamation and the performance bond and state resources are insufficient.

In a March 2018 report, GAO identified 450 financial assurance forfeitures from coal mining operators occurring between July 2007 and June 2016.[49] Of those 450 forfeitures, GAO reported 52% of the forfeitures had sufficient financial assurances to complete site reclamation, while 22% did not have sufficient financial assurances to complete site reclamation. The sufficiency of the remaining 26% of the forfeiture cases had yet to be determined as of the publication of the GAO report. In some instances, individual coal mining operations may have multiple financial assurances; thus, the number of financial assurances may be greater than the number of operating coal mines. Of the 22% of forfeitures, GAO identified various reasons for the insufficient financial assurances, including "if an operator mined in a manner inconsistent with the approved mining plan upon which the amount of financial assurance was calculated or if mining activity

[47] U.S. Energy Information Administration, *Sixteen Mines in the Powder River Basin Produce 43% of U.S. Coal*, August 26, 2019, https://www.eia.gov/todayinenergy/detail.php?id=41053.

[48] For a discussion of the federal role in coal miner health and pension benefits, see CRS Report R46266, *The Abandoned Mine Reclamation Fund: Reauthorization Issues in the 116th Congress*, by Lance N. Larson; CRS In Focus IF10617, *Pension Benefits for United Mine Workers of America Retirees*, by John J. Topoleski; and CRS In Focus IF10616, *Health Benefits for United Mine Workers of America Retirees*, by John J. Topoleski.

[49] Government Accountability Office, *Coal Mine Reclamation, Federal and State Agencies Face Challenges in Managing Billions in Financial Assurances*, GAO-18-305, March 2018.

resulted in water pollution that was not considered when the amount of financial assurance was calculated."[50]

SMCRA does not impose liability on the federal government or states when a performance bond is insufficient and a site remains unreclaimed. In the event that a forfeited performance bond would be insufficient to complete site reclamation, the coal mining operator remains liable for remaining site reclamation costs.[51] Due to the potential financial limitations of the coal mining operator, the regulatory authority may face the challenge of acquiring additional site reclamation funds.[52] In some situations, a regulatory authority may be unable to recover the full cost for site reclamation from the coal mining operator. In such cases, the inability of the coal mining operator to complete the reclamation would present the question of whether the state may be able to complete the work. The availability of funding and authority to complete site reclamation may vary among states within their respective jurisdictions.

The reclamation of coal mining sites under Title V is ineligible for federal funding from the Abandoned Mine Reclamation Fund under Title IV of SMCRA. The use of the Abandoned Mine Reclamation Fund is limited to sites abandoned or left unreclaimed prior to 1977. Neither SMCRA nor other federal law authorizes a dedicated fund in the U.S. Treasury to finance unreclaimed coal mining operations in which financial assurances remain insufficient. Whether and how the federal government may contribute to finance these needs would be a legislative issue.

If the coal mining operator is unable to complete reclamation, the conditions of the site may pose varying degrees of hazards to public health, safety, and the environment. Sites could be left unreclaimed on federal public land, nonpublic land, or tribal lands. Based on where the site is located, the owner of the site may be responsible for long-term stewardship and potential liability under the Comprehensive Environment Response, Compensation, and Liability Act (CERCLA; see also "Potential Liability Under Other Laws"). For sites left unreclaimed on federal public land, this presents a question regarding the responsibility of the federal land management agency, including potential CERCLA ownership liability.

Self-Bonding

In addition to issues described previously with the adequacy of the estimates of performance bonds, the type of bonding may present additional issues. SMCRA authorizes states to allow coal mining operators to self-bond as a financial assurance. Self-bonding allows coal mining operators to demonstrate that they have sufficient corporate assets to complete site reclamation, without requiring cash or collateral upfront as in the case of surety or collateral bonds. For self-bonds, there are no funds for the coal mining operator to forfeit, as those self-bonds are based on the demonstration of adequate financial resources. To be eligible for self-bonding, a coal mining operator, or a corporate guarantor, is required to demonstrate sufficient assets to cover the reclamation liabilities in event of forfeiture.[53] If a coal mining operator with a self-bond files for

[50] Government Accountability Office, *Coal Mine Reclamation, Federal and State Agencies Face Challenges in Managing Billions in Financial Assurances*, GAO-18-305, March 2018.

[51] 30 C.F.R. §800.50(d).

[52] For example, GAO stated that "it might be difficult for the states or OSMRE to compel the operator to complete the site reclamation or provide additional funds to do so without having the operator go out of business or into bankruptcy." Government Accountability Office, *Coal Mine Reclamation, Federal and State Agencies Face Challenges in Managing Billions in Financial Assurances*, GAO-18-305, March 2018.

[53] 30 C.F.R. §800.23.

bankruptcy, the coal mining operator, or a corporate guarantor, remains liable for remaining reclamation costs.[54]

Recent bankruptcies in the coal mining industry have led to increased awareness of potential issues with the adequacy of self-bonds to complete site reclamation. Self-bonds would be based on estimates made during the permitting process of the costs to complete site reclamation. Over the course of the coal mine operation, various factors may change the costs of site reclamation from the initial estimates. Additionally, a coal mining operator's, or a corporate guarantor's, financial situation may change periodically for a variety of reasons, such as fluctuations in market conditions. The extent to which the actual site reclamation costs may differ from initial self-bond estimates presents an issue of the adequacy of the self-bond.

In the event that a self-bond may be inadequate to complete site reclamation costs, the regulatory authority may be able to recover assets of the coal mining operator or third-party guarantor to cover the outstanding reclamation costs through a settlement or other agreement. The extent to which any funding recovered by the regulatory authority would be sufficient to complete site reclamation would depend on the amount of assets recovered and the remaining reclamation needs. The site reclamation cost may represent a single financial obligation of the coal mining operator, and the distribution of those assets may be allotted to other corporate obligations. In some situations, a regulatory authority may be unable to recover the full cost for site reclamation from the coal mining operator. In such cases, the inability of coal mining operator to complete the reclamation would present the question of whether the state may be able to complete the work. The availability of funding and authority to complete site reclamation may vary among states within their respective jurisdictions.

States may establish additional requirements for accepting self-bonds, as long as those requirements are not inconsistent with federal requirements under SMCRA. Section 504 of SMCRA preempts state law and regulations that are inconsistent with federal law and regulations.[55]

On May 20, 2016, OSMRE began accepting comments on a petition for rulemaking[56] to amend federal requirements for self-bonding.[57] The public comment period ended on July 20, 2016.[58] On September 7, 2016, OSMRE announced its intention to develop a proposed rule to revise federal self-bonding requirements based on the review of comments on the petition for rulemaking.[59] To date, OSMRE has not proceeded with that rulemaking.

In a related action, OSMRE issued a Self-Bonding Policy Advisory on August 5, 2016, announcing that it would review the use of self-bonding by state regulatory agencies and provided

[54] 30 C.F.R. §800.50(d).

[55] 30 U.S.C. §1254(g).

[56] WildEarth Guardians, *Petition for Rulemaking Under the Surface Mining Control and Reclamation Act, 30 U.S.C. § 1211(g)*, March 3, 2016, https://www.regulations.gov/contentStreamer?documentId=OSM-2016-0006-0002&contentType=pdf.

[57] Department of the Interior, Office of Surface Mining Reclamation and Enforcement, "Petition To Initiate Rulemaking; Ensuring That Companies With a History of Financial Insolvency, and Their Subsidiary Companies, Are Not Allowed to Self-Bond Coal Mining Operations," 81 *Federal Register* 31880, May 20, 2016.

[58] Department of the Interior, Office of Surface Mining Reclamation and Enforcement, Ensuring that Companies with a History of Financial Insolvency, and Their Subsidiary Companies, Are Not Allowed to Self-Bond Coal Mining Operations, OSM-2016-0006-0035, https://beta.regulations.gov/document/OSM-2016-0006-0035.

[59] Department of the Interior, Office of Surface Mining Reclamation and Enforcement, "Petition To Initiate Rulemaking; Ensuring That Companies With a History of Financial Insolvency, and Their Subsidiary Companies, Are Not Allowed To Self-Bond Coal Mining Operations," 81 *Federal Register* 61612, September 7, 2016.

to states guidance for self-bonding decisions.[60] On October 12, 2017, the Acting Assistant Secretary for Land and Minerals Management rescinded the guidance provided in the 2016 policy advisory regarding self-bonding.[61]

As presented in **Table 2**, GAO reported self-bonding for coal mine operators represented approximately $1.2 billion of the $10.1 billion in total financial assurances for coal mining operations (11.4%). The top five states with the largest financial assurance amounts as self-bonds were Wyoming ($426 million), Texas ($250 million), North Dakota ($211 million), West Virginia ($140 million), and Colorado ($91 million). GAO recommended "that Congress consider amending SMCRA to eliminate self-bonding. Interior neither agreed nor disagreed with GAO's recommendation."[62]

In the 116th Congress, the Coal Cleanup Taxpayer Protection Act of 2019 (H.R. 4435) would amend Section 509 of SMCRA to prohibit OSMRE or primacy states from accepting new self-bonds, among other provisions. That bill would also require existing coal mining operations to replace self-bonds with other acceptable bonds prior to the renewal of the permit or any major permit modification under Section 506 of SMCRA. Additionally, within one year of enactment, that bill would require OSMRE to issue rules establishing limitations on surety bonds accepted under Section 509 of SMCRA.

Potential Liability Under Other Laws

SMCRA establishes liability in the form of enforceable permit obligations, but does not authorize a mechanism for the federal government to complete the reclamation and recover the costs from a coal mining operator. Bonding requirements are intended to demonstrate that a coal mining operator has access to financial resources to complete the site reclamation plan approved under a Title V permit. The purpose of the reclamation plan is to mitigate impacts on affected lands and waters through the regulatory framework of Title V of SMCRA, but the statute does not preclude liability for impacts covered under other federal or state laws.

Although reclamation plans are intended to mitigate environmental contamination, circumstances may arise at some sites where actions under other laws may be warranted to address potential risks. The Comprehensive Environment Response, Compensation, and Liability Act, as amended (CERCLA; P.L. 96-510), authorizes federal actions to respond to releases of hazardous substances into the environment, and establishes liability for response costs and natural resource damages.[63] Section 107 of CERCLA establishes this liability for current and former owners and operators of a site, and certain other categories of potentially responsible parties (PRPs), for hazardous substances released into the environment.[64] CERCLA liability for response costs

[60] Department of the Interior, Office of Surface Mining Reclamation and Enforcement, *OSMRE Policy Advisory: Self-Bonding*, August 5, 2016, https://www.osmre.gov/resources/bonds/DirPolicyAdvisory-SelfBond.pdf.

[61] United States Department of the Interior, *Actions to Reduce Burdens on Production of Energy Resources*, October 12, 2017, https://www.osmre.gov/resources/bonds/DirPolicyAdvisory_SelfBond_RESCIND_10.12.17.pdf.

[62] Government Accountability Office, *Coal Mine Reclamation, Federal and State Agencies Face Challenges in Managing Billions in Financial Assurances*, GAO-18-305, March 2018.

[63] 42 U.S.C. Chapter 103. CERCLA also authorizes response actions for releases of other pollutants or contaminants into the environment that may present an imminent and substantial danger to public health or welfare, but the statute does not establish liability for such pollutant or contaminant releases. For further discussion of CERCLA, see CRS Report R41039, *Comprehensive Environmental Response, Compensation, and Liability Act: A Summary of Superfund Cleanup Authorities and Related Provisions of the Act*, by David M. Bearden.

[64] 42 U.S.C. §9607. Section 107 also establishes liability for the costs of public health studies administered by the Agency for Toxic Substances and Disease Registry (ATSDR), pursuant to Section 104(i) of CERCLA.

generally is retroactive to the time of a release, but for natural resource damages is retroactive to when the statute was enacted (December 11, 1980).[65]

CERCLA liability for hazardous substance releases at a coal mining site may continue to apply to the site owner and operator after the completion of reclamation under SMCRA and the Title V permit bond is released. Section 107(j) of CERCLA excludes "federally permitted releases" covered under certain other laws from liability under CERCLA if the release is compliant with the permit.[66] However, this liability exclusion does not apply to releases that may be covered under SMCRA Title V permits.[67] Releases into U.S. waters at coal mining sites covered under Clean Water Act discharge permits are excluded from CERCLA liability as federally permitted releases if the discharges are compliant with the permit. In the event that future or unforeseen releases of hazardous substances into the environment occur at a coal mining site, the site owners and operators may be liable under CERCLA for response actions and natural resource damages, if the release is not otherwise excluded from liability.

In addition to CERCLA, coal mining operators would be subject to applicable state laws. Some states have enacted their own hazardous waste and contamination response laws, which may be similar in scope to CERCLA at the federal level. Additionally, state tort law could apply in the event of personal injury or property damages.

Abandoned Coal Refuse Remining

Some Members of Congress have expressed interest in incentivizing the remining of coal mine refuse piles abandoned prior to SMCRA, with the intention of achieving the mutual goals of spurring private investments for job creation and land reclamation. These coal refuse piles, left unreclaimed, may pose threats to public health, safety, and the environment. A number of intrinsic engineering and economic challenges with coal refuse material generally make remining of this material less economically viable. According to the EIA, in 2018, 13 refuse recovery mines produced 726 short tons of coal, approximately 0.1% of the total domestic coal production for that year.[68]

Coal mining operators may remine abandoned coal refuse for use in the generation of electricity in a coal-fired power plant. The extraction of coal from coal refuse piles is included in the regulatory definition of "surface coal mining operations," pursuant to Title V of SMCRA.[69] The extraction of coal from coal refuse would be subject to all SMCRA permitting requirements, such as bonding and reclamation, as well as any other relevant state and federal laws. Coal mines, or the extraction of coal from coal refuse piles, permitted pursuant to Title V of SMCRA would also be required to pay coal reclamation fees (through FY2021 under current law) for coal mining operations. These fees would be credited to the Abandoned Mine Reclamation Fund.

[65] Section 107(f)(1) of CERCLA precludes natural resource damage liability for "damages and the release of a hazardous substance from which such damages resulted have occurred wholly before" the enactment of the statute on December 11, 1980.

[66] 42 U.S.C. §9607(j).

[67] As the term "federally permitted release" is defined in Section 101(10) of CERCLA, the laws covered under this liability exclusion do not include permits issued under Title V of SMCRA.

[68] U.S. Energy Information Administration, *Annual Coal Report*, October 2019, p. 4, https://www.eia.gov/coal/annual/pdf/acr.pdf.

[69] Codified at 30 C.F.R. §700.5

Additionally, Congress has appropriated funding for research into technologies that recover rare earth elements (REEs)[70] from coal and coal byproducts.[71] Since FY2014, Congress appropriates monies annually to the Department of Energy (DOE) *Fossil Energy Research and Development* account for research and development (R&D) projects into recovering REEs from coal and coal byproducts. Congress appropriated $15 million annually from FY2015 to FY2018 to continue and expand these R&D efforts, and increased appropriations to $18 million for FY2019. As reported on October 22, 2019, in the 116th Congress, the American Mineral Security Act (S. 1317) would authorize appropriations of $23 million annually for continuing to fund these DOE programs for FY2020 through FY2027.

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[70] REEs are required for a variety of consumer and defense technology applications, including cell phones, computers, lasers, magnets, batteries, and medical devices.

[71] The FY2014 explanatory statement accompanying P.L. 113-76 specified "$15,000,000 to perform an assessment and analysis of the feasibility of economically recovering rare earth elements from coal and coal byproduct streams, such as fly ash, coal refuse, and aqueous effluents."