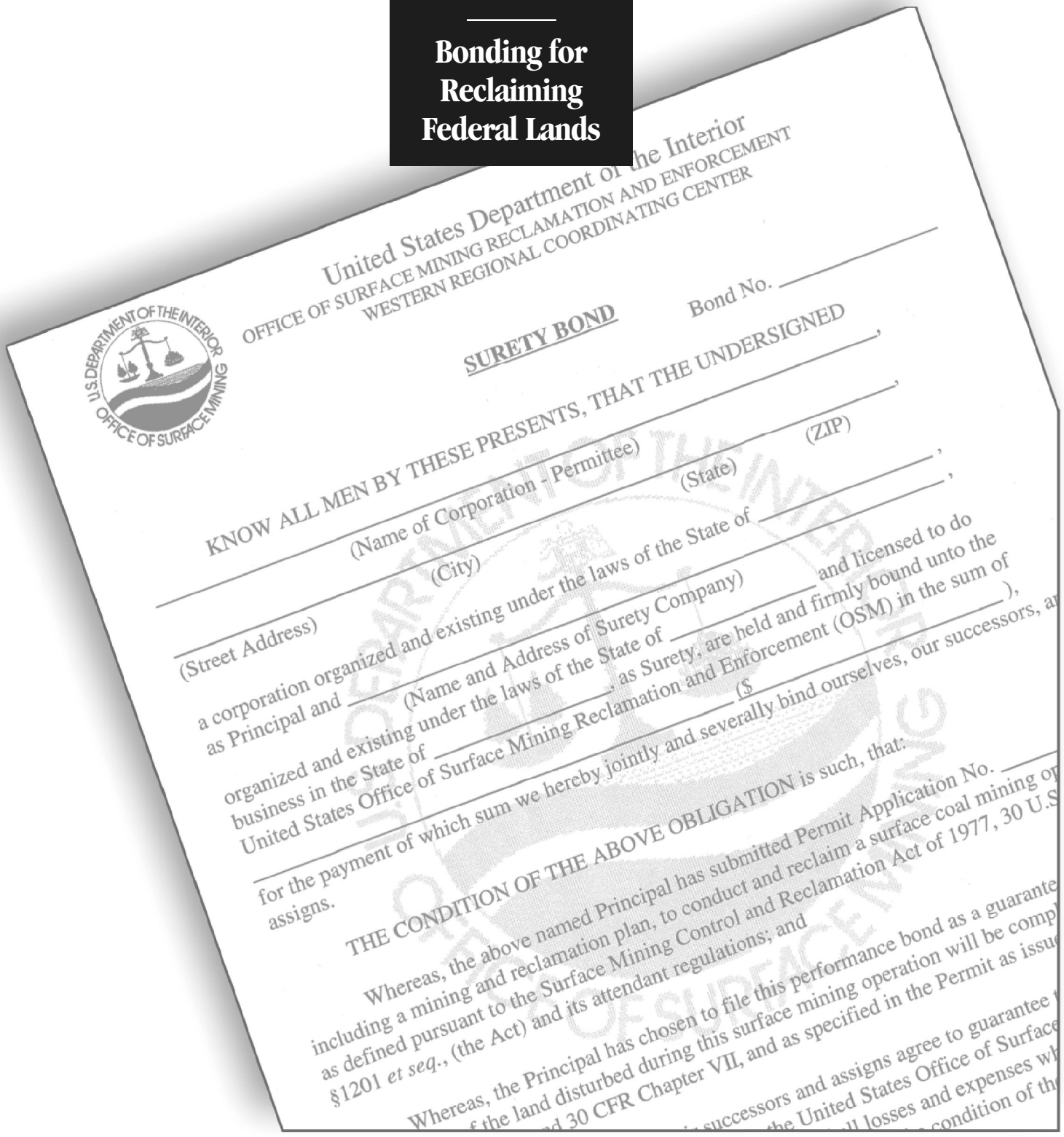
CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

A
CBO
PAPER

OCTOBER 2003

Bonding for Reclaiming Federal Lands


United States Department of the Interior
OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT
WESTERN REGIONAL COORDINATING CENTER

SURETY BOND Bond No. _____

KNOW ALL MEN BY THESE PRESENTS, THAT THE UNDERSIGNED

_____,
(Name of Corporation - Permittee)

_____,
(Street Address) (City) (State) (ZIP)

a corporation organized and existing under the laws of the State of _____,
as Principal and _____
(Name and Address of Surety Company)

organized and existing under the laws of the State of _____ and licensed to do
business in the State of _____, as Surety, are held and firmly bound unto the
United States Office of Surface Mining Reclamation and Enforcement (OSM) in the sum of
_____ ($ _____),
for the payment of which sum we hereby jointly and severally bind ourselves, our successors, a
assigns.

THE CONDITION OF THE ABOVE OBLIGATION is such, that:

Whereas, the above named Principal has submitted Permit Application No. _____
including a mining and reclamation plan, to conduct and reclaim a surface coal mining op
as defined pursuant to the Surface Mining Control and Reclamation Act of 1977, 30 U.S
§1201 *et seq.*, (the Act) and its attendant regulations; and

Whereas, the Principal has chosen to file this performance bond as a guarante
of the land disturbed during this surface mining operation will be compl
and 30 CFR Chapter VII, and as specified in the Permit as issue

successors and assigns agree to guarantee
the United States Office of Surface
all losses and expenses wh
condition of th

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Bonding for Reclaiming Federal Lands

October 2003

The Congress of the United States ■ Congressional Budget Office

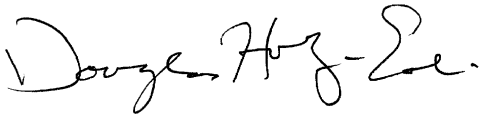
PREFACE

The federal government requires mining and oil and gas companies that operate on public lands to restore (or "reclaim") the environmental condition of the lands once the companies complete their activities—and to demonstrate that they have the financial resources for the reclamation before they initiate their activities. For such financial assurance, many operators have traditionally posted surety bonds, but a contraction in the supply of reclamation surety bonds in recent years has led to proposals for the federal government to expand its acceptance of alternative forms of financial assurance. While those alternatives would be less expensive for operators than surety bonds, they could prove insufficient to cover reclamation costs—leaving the public sector to bear the costs of reclamation or to accept the damaged condition of the federal lands.

This Congressional Budget Office (CBO) paper—written at the request of the House Committee on Resources—provides background information on surety bonds and other forms of financial assurance for the reclamation of federal lands after mining and oil and gas operations. It also examines conditions in the market for reclamation surety bonds and the factors that affect the supply of those bonds. Finally, it analyzes the implications of prominent proposals for addressing the limited supply of the bonds. In keeping with CBO's mandate to provide objective, impartial analysis, the paper makes no recommendations.

Natalie Tawil of CBO's Microeconomic and Financial Studies Division wrote the paper, under the supervision of David Moore and Roger Hitchner. The author received helpful comments from Angelo Mascaro and David Torregrosa of CBO and James Boyd of Resources for the Future. Richard Moore of Aon Corporation; Rick Deery, Andrea Hauger, Eugene Hay, Dennis Rice, and Barbara Russell of the Department of the Interior; Greg Conrad of the Interstate Mining Compact Commission; Hal Quinn of the National Mining Association; Jonathan Brown of the Nevada Mining Association; and Robert Duke of the Surety Association of America provided valuable information.

John Skeen edited the paper, and Christine Bogusz proofread it. Maureen Costantino produced the cover and the figures, Christian Spoor prepared the paper for publication, Lenny Skutnik produced the printed copies, and Annette Kalicki prepared the electronic versions for CBO's Web site (www.cbo.gov).



Douglas Holtz-Eakin
Director

October 2003

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Mining and oil and gas companies that operate on federal lands are obligated to restore (or reclaim) the environmental condition of those lands. The federal government requires operators to demonstrate, before they begin their activities, that they have the financial resources to accomplish the reclamation. To provide such financial assurance, many operators have traditionally purchased surety bonds, which the federal government can claim in the event that the operators fail to perform the reclamation.[1] Using a specialized underwriting process under which they assess operators' financial strength and ability to perform the reclamation, surety companies can generally provide operators with bonds at prices below those the operators face when borrowing from lenders that lack such expertise.

In the past few years, the supply of reclamation surety bonds has contracted because of factors in the surety industry, the broader property and casualty insurance industry, and the mining industry itself. Surety companies' capacity (or level of capital) has been reduced by large, unanticipated losses on construction and financial guarantee bonds because of an increase in bankruptcies among clients. In the broader property and casualty insurance market, which helps determine the climate in the surety industry, capacity has also been reduced by declining investment earnings and a more restrictive reinsurance market in the wake of September 11. Such reduced capacity means that insurers stop offering existing services at existing prices. To the extent that insurers can easily shift capacity among lines of business, they direct limited capacity away from the lines that are the riskiest. Reclamation bonds, which constitute only about 1 percent of the surety industry and only 0.01 percent of the property and casualty insurance industry, are one such line for several reasons. Recent years have seen lower prices for mined resources. Moreover, the long time from the point at which a bond is posted at the beginning of an operation to the point at which an operator must reclaim the site bespeak uncertainty and, therefore, increased risk—as does the possibility of acid mine drainage, which requires extended treatment and, therefore, brings extended liability.

Citing sharp price increases for reclamation bonds and surety companies' withdrawal from the market over the past few years, mining firms assert that obtaining the financial assurance required for operations on federal lands has become significantly more expensive than it was in the previous decade. Consequently, mining groups have proposed that the federal government expand the types of financial assurance that it is willing to accept. However, those proposals would have the government and, therefore, taxpayers bear more risk.

One proposal would allow operators on lands managed by the Bureau of Land Management, which is within the Department of the Interior, to provide corporate guarantees, as some were able to do under pre-2001 regulations.[2]

1. Unlike traditional insurance, the surety bond agreements do not transfer ultimate responsibility for the reclamation from the operator to the surety company, regardless of the solvency of the operator.

2. As of January 20, 2001, the Bureau of Land Management, which had not expressly authorized corporate guarantees but did accept them under the terms of a cooperative agreement with the state of Nevada, stopped allowing mining companies to provide corporate guarantees to fulfill financial assurance requirements, following the bankruptcies of companies using such guarantees. (One such company, Galactic Resources, abandoned its reclamation obligations for the Summitville mine in Colo-

A corporate guarantee lets an operator use independent audit reports to document the financial strength of the company, parent corporation, or affiliate—instead of providing a more tangible form of financial assurance dedicated exclusively to reclamation. Another proposal endorses the use of bond pools funded by operators' payments to provide financial assurance. Such payments are generally structured so that the pools can cover some participants' obligations for reclamation if they default, but not all participants'. A third proposal would allow operators to incrementally fund trusts. Over time, an operator would make a predetermined series of payments into a trust dedicated specifically to fully funding its ultimate obligations for reclamation. But if the operator defaulted before the trust was fully funded, it would be abandoning some portion of its obligations. Although all three of those proposed forms of assurance could be less expensive for operators than surety bonds, they could prove insufficient to cover reclamation costs if companies or the industry faced difficult circumstances. In that case, the public sector would be left to bear the costs or accept the damaged condition of the federal lands.

Having the public bear risks in support of reclamation implies that some costs of the production of mined resources and oil and gas are not incorporated in their market prices. However, prices that incorporate the full costs of production contribute to the efficient allocation of society's resources. Furthermore, shifting the risks of private activities to the public also undermines incentives for innovation and development in private financial assurance markets. To the extent that the short supply of reclamation surety bonds is attributable to reduced capacity in insurance markets generally, it is a self-correcting phenomenon.[3] To the extent that the shortage is attributable to conditions in the mining industry and the risks are retained in the private sector, private financial assurance markets will develop appropriate instruments. The supply of coverage will rebound accordingly.

Finally, some industry participants have suggested variations that, unlike the other proposals, do not necessarily involve public risk-bearing. Following those suggestions, the federal government would consider regulatory changes for mining operations that helped separate requirements for short-term obligations from those that involve longer time horizons and greater uncertainty. Short-term obligations for reclamation such as regrading and reshaping the land may be best addressed by surety bonds, while longer-term obligations involving successful revegetation and water treatment made necessary by acid mine drainage may be more appropriately addressed by other kinds of instruments. Regulatory changes such as allowing companies to post incremental financial assurances as phases of work proceeded and clarifying the circumstances under which the government could claim, or retain, bonds (rather than release them) could increase the availability of surety bonds to address short-term aspects of reclamation, while leaving the longer-term, more uncertain aspects as targets for innovative financial assurance products.

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rado. Now the mine is a national Superfund site, and the cleanup may eventually cost the public well over $100 million.) However, the two other agencies involved in overseeing reclamation—the Minerals Management Service and the Office of Surface Mining, both also of the Department of the Interior—continue to accept such guarantees. The former accepts them from offshore oil and gas operators, and the latter, along with most of the states that have assumed primary regulatory responsibility for the administration of the Surface Mining Control and Reclamation Act of 1977, accepts them from coal-mining companies.

Financial assurance requirements for reclamation are detailed in the appendix.

3. See Congressional Budget Office, *Federal Reinsurance for Disasters* (September 2002).

Bonding for Reclaiming Federal Lands

Background

Internalizing the cost of production in market prices contributes to the efficient allocation of resources in society. When mining and oil and gas operators undertake work on federal lands, the federal government fosters that internalization of costs by requiring the companies to demonstrate that they have the financial resources to restore (or "reclaim") the sites afterward (see the appendix). Those requirements vary among the industries, as the regulatory authorities responsible for operations for oil and gas, coal, and locatable minerals accept different forms of financial assurance.[1] Financial assurance instruments that hold funds or collateral in reserve to pay for reclamation, and deprive the operator of those assets in the event of a default, keep the risk of having to cover the cost of reclamation from being transferred to the public. Other instruments that provide less certainty of the operator's assets being available to cover reclamation costs allow the transfer of some of that risk.

An operator will often provide the required financial assurance for its reclamation obligations—with the value determined by agreement with the federal government on the expected costs of fully reclaiming the site—by paying a private insurer to post a bond, known as a surety bond.[2] Once the operator completes the reclamation, the government releases the bond. However, in the event that the operator becomes insolvent and fails to perform the reclamation, the government can claim the bond. Surety bonds thus protect the public from bearing the costs of restoring federal lands when operators default on their obligations to reclaim the lands, at least to the extent that the costs have been accurately anticipated.

The Value of Reclamation Obligations

In 2002, the Department of the Interior estimated the face value of the financial assurances that it held (in many different forms) at $2.9 billion for all purposes. The portion for the reclamation of federal lands is not easily identified because financial assurances are also held for purposes other than reclamation and because mines may be jointly sited on federal and nonfederal lands. But more than $1.2 billion was for the reclamation of federal lands. In addition, states that have assumed regulatory responsibility for coal mining in the federal government's stead held financial assurances for the reclamation of coal mines.

In particular, in 2002, the department's Bureau of Land Management held $1.3 billion in financial assurances associated with various purposes, the great majority of which, or about $1.2 billion, were for the reclamation of mining sites for locatable minerals. The department's Minerals Management Service held $1.0 billion in assurances posted by offshore oil and gas operators. The proportion of the total dedicated to reclamation is not known because the assurances covered all "end-of-lease" activities—reclamation and outstanding royalties. The department's Office of Surface Mining held an estimated $0.6 billion in financial assurances for the reclamation of coal operations on Indian lands and (chiefly private) lands for which it remained the regulatory authority under the Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87). The 24 states that have assumed primary responsibility for the administration of that law held

1. Locatable minerals are precious, base, light, ferrous, and nonferrous metals.

2. Even though the financial assurance represents the agreed-upon expected costs of the reclamation, it does not represent a ceiling (or a floor) on the operator's ultimate expenditures for reclaiming the site.

$2.5 billion in financial assurances for the reclamation of coal mines that were at least partly on federal lands.[3]

As for the reclamation of sites on federal lands that is unfunded, no estimate of the costs exists. Many unreclaimed sites were abandoned before federal requirements for financial assurance were established in the mid to late 1970s. One study in the early 1990s estimated cleanup costs for all mines abandoned in the United States on both federal and nonfederal lands at $32 billion to $72 billion.[4] A 1986 study by the General Accounting Office of a sample of surveyed hardrock mining sites on the Bureau of Land Management's lands found that about 40 percent of 246 sites had not been reclaimed.[5] In the mid-1990s, the Bureau of Land Management began inventorying abandoned mineral and coal mines on the lands that it managed and identified nearly 900 environmentally hazardous abandoned sites.[6]

Even under current regulations, there is evidence that the value of currently held financial assurances does not match the outstanding reclamation costs for the sites for which they were provided. A recent study of 150 large-scale locatable minerals operations in the western United States documents the financial failure of dozens of companies and the abandoned reclamation obligations assumed by federal taxpayers.[7] A well-known example is Colorado's Summitville mine, which was abandoned in 1993. Acid drainage and leaks of cyanide-bearing processing solutions from the site threaten the Alamosa River. Estimates of the cleanup costs for what is now a Superfund site range from $150 million to $180 million. Other examples are Montana's Zortman and Landusky mines, some of the earliest to use cyanide heap leach technology to extract gold. Located on a mixture of private and public lands managed by the Bureau of Land Management, the mines were abandoned when the owners declared bankruptcy in 1998. The Bureau of Land Management and Montana's Department of Environmental Quality recently estimated the unfunded reclamation costs at $33.5 million for earthwork and for a trust fund to ensure water treatment over the long term.[8]

Surety Bonds

An operator incurs purchasing and contracting costs in meeting financial assurance requirements. The government incurs monitoring and enforcement costs. Those costs vary depending on the financial assurance instrument, and often an instrument's effect on the operator's costs differ from its effect on the government's costs.

Consider, for example, an operator at the beginning of a mining operation posting either cash or a surety bond for the full cost of reclamation. The operator's cost for the cash depends on the difference between the interest rate at which it can borrow and the rate that it will earn on the escrow. The operator's cost for a surety bond (a percentage of the face value) reflects the provider's assessment of the associated financial and environmental risks. Borrowing cash from lenders that lack the expertise to make such assessments is comparatively more costly for an operator. For the government, however, an assurance in the form of cash or a surety bond involves negligible monitoring and enforcement. Instruments that are less costly for the operator, such as a corporate guarantee, demand greater expenditures for monitoring and enforcement. With a corporate guarantee, an operator does not set aside funds dedicated to reclamation, so the govern-

3. The portions of such operations on federal lands varied from 2 percent to 100 percent, with a median value of 53 percent. Personal communication from Dennis Rice, Office of Surface Mining, June 26, 2003.

4. James Lyon, Thomas Hilliard, and Thomas Bethell, *Burden of Gilt* (Washington, D.C.: Mineral Policy Center, 1993).

5. General Accounting Office, *Public Lands: Interior Should Ensure Against Abuses from Hardrock Mining*, GAO/RCED-86-48 (March1986).

6. Department of the Interior, Bureau of Land Management, *Abandoned Mine Land Inventory and Remediation: A Status Report to the Director* (November 1996). For more information, see the Web page of the bureau's Abandoned Mine Lands Cleanup Program, www.blm.gov/aml/statproj.htm.

7. James Kuipers, "Hardrock Reclamation Bonding Practices in the Western United States" (Boulder, Colo.: National Wildlife Federation, February 2000).

8. Department of the Interior, Bureau of Land Management, Malta Field Office, and State of Montana Department of Environmental Quality, "Record of Decision for Reclamation of the Zortman and Landusky Mines, Phillips County, Montana" (May 2002), available at www.mt.blm.gov/ldo/zortman/ZL-Record_of_Decision1.pdf.

ment must actively monitor the guarantor's financial health to ensure that the operator continues to comply with a series of qualifications spelled out in regulations. Were the operator to default on reclamation obligations backed by a corporate guarantee, the government would incur the additional costs of legal actions to compete with other creditors for the guarantor's assets.[9]

For a number of reasons, surety bonds have been an instrument of choice in meeting financial assurance requirements for reclamation following mining and oil and gas activities. For operators, costs have been considered reasonable. Reclamation surety bond prices reported during the 1980s and 1990s ranged from 0.37 percent to 3.5 percent of face value annually. Also, securities regulations do not require operators to report surety bonds as contingent liabilities on their balance sheets. For the government, a system through which regulators can monitor surety companies' financial strength exists—the U.S. Treasury annually publishes a list of acceptable surety providers. Enforcement is relatively straightforward because surety bonds are specific assets dedicated exclusively to financial assurance for reclamation in a legally binding way. Thus, surety bonds have been a mechanism for assigning responsibility for reclamation costs to operators while limiting the costs associated with the financial assurance requirements themselves.

Conditions in the Market for Reclamation Surety Bonds

Surety currently represents just a sliver, about 1 percent, of the premiums paid in property and casualty insurance.[10] Of the surety premiums, two-thirds are for contract bonds that ensure the completion of construction projects against defaults by contractors. The remainder is for various commercial bonds: fiduciary bonds, license and permit bonds (which include surety bonds for reclamation), lost-document bonds, and custom and excise bonds.[11] Most large property and casualty insurance companies have surety departments, and some companies specialize in surety bonds. In 2002, the top 10 surety companies accounted for 67 percent of a $3.8 billion market; their premiums ranged from $122 million to $522 million. The top five companies accounted for more than 47 percent of the market.[12]

For the 10 years beginning in 1993, companies providing surety bonds collected an annual average of $2.6 billion in premiums. Those premiums ranged from $2.2 billion to $3.8 billion, rising every year until 2001, when a 0.5 percent decline occurred.[13] That year, the surety industry's direct loss ratio, which measures direct losses relative to direct earned premiums, was 82.5 percent—a significant increase over the ratio of 45.4 percent in 2000.[14] And that ratio was already substantially higher than those in previous years: 20 percent in 1999, 25.8 percent in 1998, 25.3 percent in 1997, and 26.4 percent in 1996.[15]

9. In principle, a spectrum of potential corporate assurances exists, ranging from those that require more monitoring (such as the general obligation associated with the corporate guarantee discussed here) to those that require less monitoring (ones that have a higher priority for payment to creditors compared with a general obligation but a lower priority compared with cash posted by the guarantor).

10. Insurance Information Institute, *The I.I.I. Fact Book 2003* (New York, 2003)

11. Fiduciary bonds enable clients to comply with probate and bankruptcy laws; the judiciary uses the bonds as security for court costs, for example. License and permit bonds include not only reclamation bonds but also bonds to ensure compliance with consumer protection laws and regulations. Lost-document bonds protect corporations from the possibility of duplicates when they reissue securities, certificates, or other valuable documents. Customs and excise bonds ensure the terms and conditions of duty and tax laws and regulations.

12. See Insurance Information Institute, "Surety Bonds, 1993-2002" and "Top Ten Surety Companies, 2002," available at www.financialservicesfacts.org/financial2/insurance/pc/pby/content.print/.

13. See Insurance Information Institute, "Surety Bonds, 1993-2002," available at www. financialservicesfacts.org/financial2/insurance/pc/pby/content.print/.

14. Direct earned premiums are the proportion of premiums paid that, for accounting purposes, are recognized as income during a period.

15. The property and casualty industry has not produced an underwriting profit (a net gain from premiums after loss payments, costs of sales, dividends to policyholders, and loss adjustment costs) since 1979. The difference has been covered by invest-

Reclamation bonds, a specialized portion of the surety industry, represent only about 1 percent of surety premiums and have performed similarly to, or perhaps slightly better than, the industry as a whole *(see Figure 1)*. The loss ratio for the bulk of surety bonds issued for reclamation was 39.3 percent in 2000 and 34.5 percent in 2001, lower than the corresponding ratio for the surety industry as a whole.[16] During the five years from 1996 to 2000, the loss ratio for the bulk of surety bonds issued for reclamation averaged 28.5 percent, compared with an average loss ratio of 30.4 percent for the entire surety industry.[17]

In 2002, a review of the commercial insurance market reported "disarray in the reclamation bond market."[18] Surety providers, aiming to limit the size and duration of their obligations, had instituted stricter underwriting standards—lowering both the limit for a single bond and the aggregate limit for a single purchaser. For example, CNA Surety Corporation, one of the top five writers of surety bonds in the nation, reduced the amount of risk that it was willing to retain without purchasing reinsurance from $250 million per risk to $25 million. Other insurers made reductions so that the amount of retained risk rarely exceeded $20 million.[19] Surety providers also hesitated to accept obligations that would extend beyond five years. Both trends presented the mining industry with challenges, particularly in cases in which required bonding amounts were large and operations typically continued for decades.[20] The top two gold producers in North America, Newmont Mining Corporation and Barrick Gold Corporation, had their surety companies advise them that they no longer wanted to provide bonds. Prices rose. According to one analysis, price increases for surety bonds ranged from 20 percent to 500 percent.[21]

Some reinsurers—companies that sell coverage to primary surety providers on an annual basis (as opposed to coverage tied to the life of a mine or a bond obligation)—were choosing not to renew coverage. Some sureties trying to reduce outstanding liabilities requested that their clients seek replacement bonds or provide collateral. In August 2002, some members of the Surety Association of America reported that they were making such requests as part of a wholesale effort to pull out of the reclamation bond market.[22]

Of four surety companies that became insolvent between January 2000 and December 2001, three were significant

ment income from capital and surplus accounts, money set aside for loss reserves and unearned premium reserves, and capital gains. See Fitch Ratings, "U.S. Property and Casualty Insurers Year-End 2002 Results" (May 8, 2003); see also Surety Association of America, "Top 100 Writers of Surety Bonds" (May 2002), "Top 100 Writers of Surety Bonds" (May 2001), and "Top 50 Writers of Surety Bonds" (May 2000). Cited in an e-mail from Robert Duke, Surety Association of America, April 23, 2003.

16. The reclamation bonds referred to are classified by the Surety Association of America as those "related to strip mining and other permits involving restoration of land." The loss ratio for surety bonds "related to mining operations such as drilling, plugging or operating gas, oil, water, or mineral wells or leases" was higher, at 69.0 percent, in 2000, but in 2001, it fell to 16.2 percent.

17. The loss ratio for surety bonds related to mining operations such as drilling, plugging or operating gas, oil, water, or mineral wells or leases was also 28.5 percent for the five years from 1996 to 2000. Data supplied to the Congressional Budget Office from Robert Duke and Sean Foley, Surety Association of America, April 23, 2003, and September 24, 2003.

18. Marsh Inc., "Insurance Market Report 2002," vol. 6 (June 5, 2002).

19. Donald S. Watson and others, "Alarm Bells Ringing in U.S. Surety Market," *Standard & Poor's Ratings Direct* (March 15, 2002).

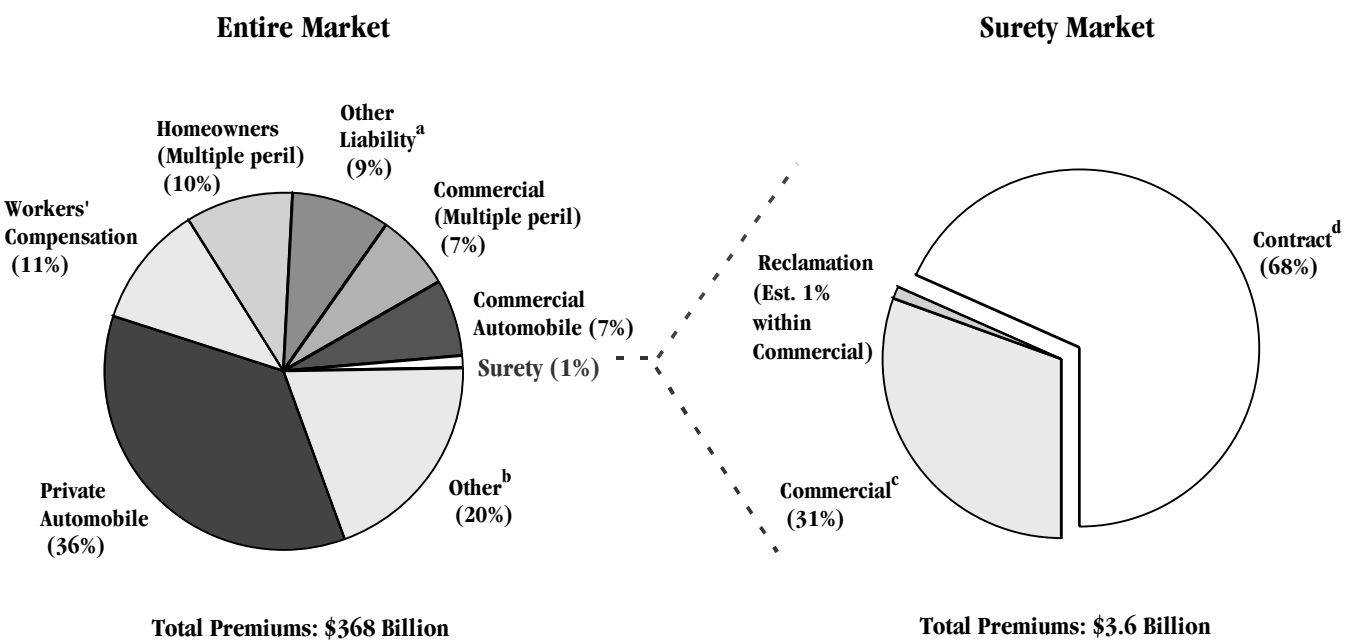
20. These conditions characterize locatable minerals operations, but describe oil and gas operations on the Outer Continental Shelf less. Regulations for operators on the outer continental shelf designate floors for bond amounts. In most cases, the estimated costs of an operator's obligations exceed those floors, but the Minerals Management Service waives the requirement for a supplemental bond if the operator meets certain criteria for financial strength. Most operators meet those criteria.

21. Aon Corporation, "Commercial Surety—Market Analysis" (April 30, 2002).

22. Letter from Mary Jean Riordan, Senior Counsel and Robert Duke, Director of Underwriting, American Insurance Association, to Tom Fulton, Deputy Assistant Secretary for Land and Minerals Management, Department of the Interior, August 23, 2002.

Figure 1.

Selected Areas of Property and Casualty Insurance



Source: Congressional Budget Office based on information from the Insurance Information Institute, available at www.financialservicesfacts.org/financial2/insurance/pc/pby/content.print; and personal communication from Sean Foley, Surety Association of America, September 17, 2003.

Note: Market shares are for 2001, the most recent year for which such a breakdown was available for the surety market.

a. Includes coverage for protection against legal liability resulting from negligence, carelessness, or failure to act—for instance, contingent liability insurance and insurance for liabilities arising from environmental pollution.

b. Includes many other types of insurance, such as that for medical malpractice, fire, and product liability.

c. In addition to bonds for reclamation, which are a type of license and permit bonds, commercial surety bonds include fiduciary bonds (for complying with probate and bankruptcy laws), lost-document bonds (for protecting corporations against the possibility of duplicates when they reissue securities or other valuable documents), and customs and excise bonds (for ensuring the terms and conditions of duty and tax laws and regulations).

d. Contract bonds primarily ensure the completion of construction projects.

underwriters of reclamation bonds: Fireman's Fund Insurance Company, Frontier Pacific, and Amwest Surety.[23] Fireman's Fund sold its 800 renewals of surety bonds to two other providers, who in turn decided not to service firms with a net worth of less than $50 million.[24] One of those providers subsequently discontinued writing reclamation bonds, and the other curtailed doing so.[25]

Anecdotal evidence suggests that some mining operators have been unable to obtain surety bonds for reclamation

23. Richard Meyerholz, "They're Not Your Mother's Surety Bonds" (presentation at a meeting of Casualty Actuaries of Greater New York, New York, N.Y., May 29, 2002), available at www.casact.org/affiliates/cagny/0502/meyerholz1.ppt. See William G. Krizan and others, "Bonding Business Going for Broke," *Engineering News Record,* vol. 428, no. 5 (February 11, 2002), p.12; and Nevada Division of Environmental Protection, Nevada Bonding Task Force, "Current Mining Bonding Issues in Nevada" (March 24, 2003).

24. Krizan and others, "Bonding Business Going for Broke."

25. Gerson Lehrman Group, "Mining Reclamation Bond Market" (survey, October 4, 2002).

or have had to pay higher prices.[26] For example, in May 2002, the Alaska Miners Association reported that its members were unable to locate any surety bonds for both large locatable minerals operations and small placer mines.[27] Similarly, during an August 2002 conference call between the Department of the Interior and state regulators, Idaho officials noted that mining companies were meeting with increasingly stringent requirements and higher costs for reclamation bonds and that fewer companies were providing them. Companies in New Mexico also reported facing higher costs and increased requests for collateral (such as land and water rights). Coal mine operators in Wyoming reported that their bonding costs had tripled. Companies pursuing small hardrock operations in Utah also reported difficulties obtaining bonds.[28] In March 2003, the state of Nevada reported that three of the four surety companies serving one large mining company had requested that their client find different financial assurances to release them from their existing bonding contracts, and the fourth had offered only a limited quantity of additional bonds. All four companies charged higher annual premiums.[29]

Some empirical evidence supports the anecdotes. For instance, surety bonds have accounted for a declining proportion of the financial assurances filed by individual locatable minerals operations on the Bureau of Land Management's lands.[30] From 1990 to 2002, the use of reclamation surety bonds peaked in 1999 at 60 percent but then declined to 48 percent in 2000, 39 percent in 2001, and 20 percent in 2002 *(see Figure 2)*.

Factors Influencing the Supply of Reclamation Surety Bonds

Developments in the insurance industry and the economy in general affect the availability of reclamation surety bonds. For the property and casualty insurance industry, 2001 was challenging. High underwriting losses and significant declines in investment yields brought net after-tax losses to that industry for the first time. Surety providers, specifically, saw significant losses associated with the recession and the slowing commercial real estate market.

When capital holdings decline, insurers restrict the coverage that they will offer and raise prices. Those higher premiums, in turn, restore capital, and supply rebounds. Indeed, in 2002, the property and casualty insurance industry began to recover. Results for the first quarter of 2003 indicate a potential annual increase in capital holdings for the first time since 1999.

Still, even as insurers rebuild their capital holdings, they remain selective about their use of that capital. Reclamation bonds involve relatively long time horizons and the potential for indefinite obligations associated with acid mine drainage. As a bond obligation extends farther into the future, a surety provider's assessment of the operator's financial and operational health becomes more uncertain, raising the risk associated with the bond. Surety companies also favor industries with more favorable capital structures and balance sheets and greater rates of return.

Ultimately, the reluctance to provide reclamation bonding for the mining industry is expected to ease as constraints on capacity continue to loosen and insurers gauge their risks more precisely. As of the close of 2002, however,

26. There is little evidence that oil and gas operators have experienced the difficulties faced by some locatable minerals and coal-mining operations. In a letter to the Department of the Interior's Deputy Assistant Secretary for Land and Minerals Management on April 9, 2002, the Director of the Minerals Management Service stated that oil and gas companies operating on the Outer Continental Shelf had not reported being unable to obtain bonds. Also, the Bureau of Land Management has not been informed of any measurable reduction in bond availability for onshore oil and gas operations.

27. Letter from Steven C. Borell, Executive Director, Alaska Miners Association, to the Director, Bureau of Land Management, May 13, 2002. Placer mines use water to work surface materials (such as sand and gravel) and extract valuable minerals.

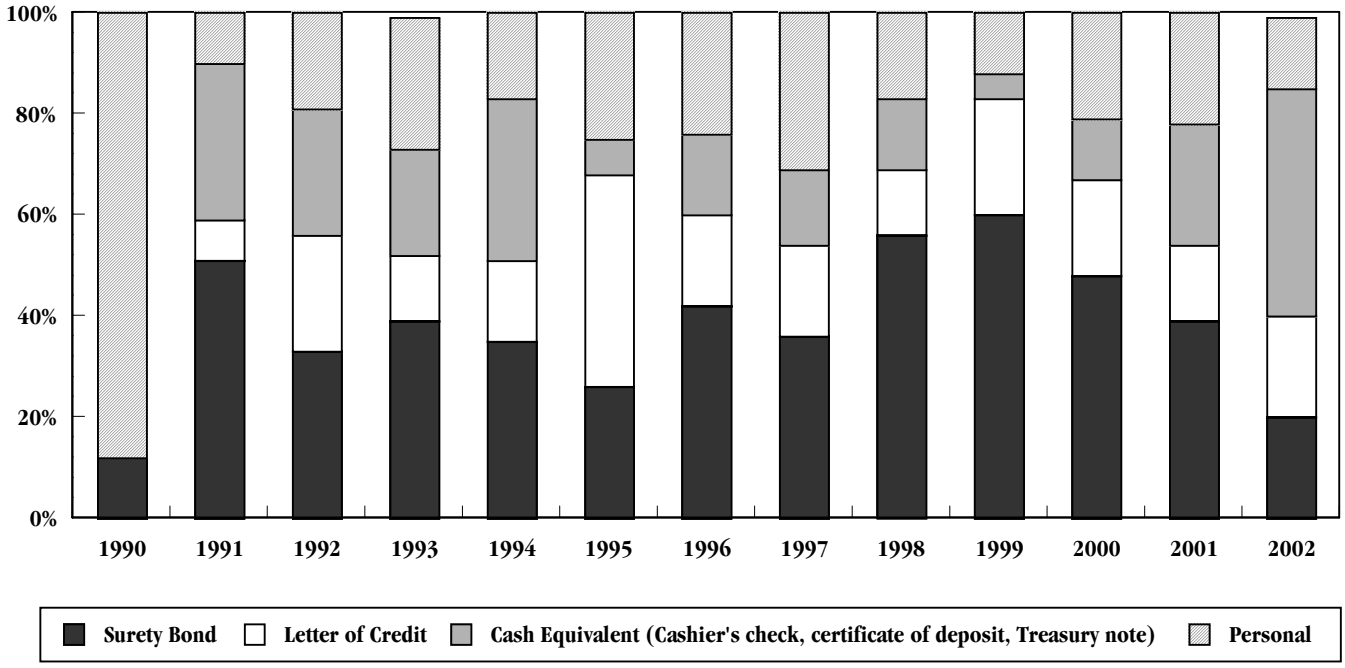
28. E-mails from Scott Nichols, Chief, Bureau of Surface and Mineral Resources, Idaho Department of Lands, to Jaime Besse, Program Assistant, Alaska Affairs, Office of the Secretary, Department of the Interior, August 13, 15, and 16, 2002.

29. Nevada Division of Environmental Protection, Nevada Bonding Task Force, "Current Issues."

30. Data from the Bureau of Land Management's LR2000 Bond and Surety System.

Figure 2.

Types of Financial Assurance for Mining Operations on the Bureau of Land Management's Lands, 1990 to 2002



Source: Congressional Budget Office based on data from the Bureau of Land Management's LR2000 Bond and Surety System.

many industry observers were not expecting to see capacity fully restored before 2005.[31]

The Insurance "Cycle"

To underwrite risks, a property and casualty insurer must maintain a certain level of capital, or "capacity." When excess capacity exists, generally due to a high return on investments, prices tend to decline as insurers compete for market share. Such competition may lead insurers to underprice their products. Declines in capacity—due to underwriting losses resulting from underpriced premiums, unanticipated increases in payments of claims, or unfavorable investment returns—lessen insurers' ability and willingness to continue coverage at current prices. In the short run, supply constricts and prices rise. Eventually, higher premiums restore capital, supply rebounds, and prices stabilize and then decline, although not necessarily to previous levels because insurers have reassessed their risks.[32] Those periods of expanding coverage and lower prices followed by rationing and higher prices have been referred to as the insurance cycle.

Limited supply and higher prices should encourage competition among insurers for profitable new business, so one might expect the rationing portion of the cycle to be short-lived. In fact, economists have noted that rationing in the market is persistent enough to be observed in annual data. The total amount of capital that insurers raise by issuing debt or equity or by reducing cash payments to stockholders through cuts in dividends and repurchases

31. Robert P. Hartwig, "Industry Financials and Outlook: 2001—Year End Results" (New York: Insurance Information Institute, 2002); and ABD Insurance and Financial Services, "State of the Surety Market—December 2002," available at www.cybersure.com/documents/surety/Surety%20market%20-%202002.pdf.

32. See Congressional Budget Office, *Federal Reinsurance for Disasters* (September 2002).

(commitments to buy back securities for a specified price at a designated date) appears to be small relative to observed drops in the net worth of stock insurers, suggesting that insurers rely primarily on future earnings to rebuild their capital positions.[33] Maintaining high rates on new policies may be more profitable for insurers than raising sufficient "external" funds to rebuild their capacity.[34] Why? Because when a series of unanticipated developments causes declines in capacity, insurers have more information than investors do about taking on risks that will be outstanding for long periods of time. Raising external capital would be relatively costly because insurers would have to compensate investors for their greater uncertainty about those risks.

Property and casualty insurers in the United States offered low prices and expanded coverage during the 1990s as they built up capital at a fast pace. By 2000, their capital holdings stood at $319.0 billion, compared with $138.4 billion in 1990. At the end of 2001, however, their capital holdings had declined by $44.7 billion from their peak during the previous decade ($334.3 billion in 1999). They stood at $289.6 billion.[35] High underwriting losses and significantly lower investment yields were primarily to blame. Notably, by the end of the second quarter of 2001, the industry's underwriting losses were already up 55.4 percent over the previous year's. Ultimately, the events of September 11 contributed to an 85.4 percent increase in the insurance industry's underwriting losses for 2001—putting them at $52.6 billion. That year, insurers paid out $1.16 for every dollar in earned premium. The Standard & Poor's (S&P) 500 was down 13 percent in 2001 (following a decline of 10.1 percent in 2000), and realized capital gains in the insurance industry dropped 58 percent, to $6.9 billion. Declining interest rates brought the industry's investment income down 9 percent, to $37.1 billion.[36] In 2001, the industry experienced its first ever net after-tax loss: $7 billion.

In 2002, the industry saw its capital holdings decline for a third consecutive year, to $285.2 billion. But underwriting losses decreased; for 2002, they totaled $30.5 billion. Insurers paid out $1.07 for every dollar in earned premium. The S&P 500 declined 23.4 percent, and the industry had capital losses of $1.1 billion. With interest rates at 40-year lows, investment income fell by 2.8 percent, to $36.7 billion. Ultimately, the industry did begin a recovery, posting a 2002 gain of $2.9 billion after taxes, although that corresponds to a return on equity of only 1 percent, which can be viewed favorably only in comparison with the prior year's figure of -2.4 percent.[37]

Results in the industry for the first quarter of 2003 suggest continued recovery. With capital holdings at $289.2 billion, the industry may report an annual increase for the first time since 1999. Underwriting losses were -$1.5 billion. Insurers paid 99.5 cents for every dollar in earned premium.[38] The industry's $6.4 billion after-tax gain represented an increase of $1.1 billion over that in the first quarter of 2002.[39]

33. Anne Gron and Deborah Lucas, "External Financing and Insurance Cycles," in *The Economics of Property-Casualty Insurance*, David F. Bradford, ed. (Chicago: University of Chicago Press, 1998), pp. 5-27.

34. Ralph A. Winter, "The Liability Insurance Market," *Journal of Economic Perspectives*, vol. 5, no. 3 (Summer 1991), pp. 115-136; and Gron and Lucas, "External Financing and Insurance Cycles."

35. Congressional Budget Office, *Federal Reinsurance for Disasters*.

36. Robert P. Hartwig, "Industry Financials and Outlook: 2001" and "Industry Financials and Outlook: 2002—Year End Results" (New York: Insurance Information Institute, 2003).

37. The gain in 2002 would have been larger but for the steps insurers took during the fourth quarter to strengthen their reserves. The gain stood at $5 billion at the end of the third quarter. See Ruth Gastel, "Insurance Issues Update: Financial and Market Conditions" (New York: Insurance Information Institute, May 2003).

38. According to the Insurance Information Institute, that payout is still above investors' expected return: the industry must pay less than 95 cents for every dollar in earned premium before its financial performance approaches the value of the risks it assumes.

39. Robert P. Hartwig, "Industry Financials and Outlook, 2003—First Quarter Results" (New York: Insurance Information Institute, June 23, 2003).

The Surety Industry

In the 1990s, when insurers were flush with capacity, many industries—mining included— experienced a "soft market" for surety bonds. Providers focused on gaining market share and additional funds in order to make investments and were flexible about their underwriting standards, terms, and prices for bonds. Traditionally, because surety underwriting had been viewed as a form of credit, in choosing their clients, bond providers scrutinized companies' past performance and financial stability. Historically, two-thirds of surety premiums each year came from guaranteeing performance—primarily in the construction industry. In the 1990s, however, surety companies were interested in expanding their business by writing financial guarantees—bonds to cover losses from specific financial transactions and to ensure that investors in debt instruments received timely payment of principal and interest if there was a default. The expansion was prompted in part by Japanese banks' withdrawal from the market because of liquidity problems; such banks had been a main source of letters of credit in the United States.

With flexible underwriting standards, surety companies guaranteed performance in some construction projects undertaken by developers with weak finances. As the boom market in commercial real estate slowed and developers failed, surety companies' losses mounted.[40] In 2000, direct losses for surety companies in the construction industry, at $744 million, showed a 78 percent increase over the annual average from 1995 to 1999, which was $417 million. Whereas during the previous five years, sureties paid out 30.1 cents for every dollar in earned premium on average, in 2000 they paid 45.2 cents, and the projected figure for 2001 is 66.5 cents.[41]

The expanded underwriting of financial guarantee bonds caused sureties losses when the recession of 2001 hit. Two hundred and fifty-five publicly traded companies filed for bankruptcy during 2001, exceeding the previous annual record of 176 in 1991 and 2000.[42] One 2002 industry analysis estimated the surety market's exposure to Enron's bankruptcy at nearly $2.5 billion.[43] K-Mart used surety bonds to back, among other things, its self-funded workers' compensation program and to protect against any potential liability claims resulting from its sale of liquor and firearms. Sureties' estimated losses associated with K-Mart's bankruptcy total $200 million.[44]

The decline in surety companies' capacity associated with losses on construction and financial guarantees affects the market for reclamation bonds.[45] When firms' overall capacity drops, to the extent that they can easily shift among lines of business, they will avoid the riskiest lines and even let them dry up altogether.[46] Whereas most surety contracts provide coverage for obligations that will be completed in three to five years, financial assurances for reclamation can, in some cases, remain outstanding for three or four decades as mining on the site continues. As a bond obligation extends farther into the future, a surety's assessment of the client's financial and operational health becomes more uncertain. Moreover, as discussed below, the surety may also be concerned about an indefinite period of liability associated with acid mine drainage.

Reinsurance

Conditions in the primary market for surety bonds are mirrored by conditions in the market for reinsurance for those bonds. A reinsurer accepts a premium to indemnify an insurer against the losses that it may sustain under the policies that it issues. Historically, reinsurance contracts—broad agreements covering some portion of a particular

40. Christopher Westfall, "Unsure Times for Surety Bonds," *KPMG's Insurance Insider's Weekly Alert* (February 25, 2002).

41. The Surety Association of America has not responded to requests for more recent data. See the Surety Association of America, "Twelve-Year Experience Summaries, 1989-2000" (statistical report, 2002) and "Fast Track Fidelity and Surety Results, 2001" (statistical report, 2002).

42. After the last wave of bankruptcies, in 1991, when there were 176 filings, the number dropped off to average 83.5 annually over the next six years. The number began to climb in 1998 and 1999, when there were 122 and 145 filings, respectively. See "Public Company Bankruptcies: Current Statistics and Trends May Surprise," available at www.AccountingMalpractice.com.

43. Meyerholz, "They're Not Your Mother's Surety Bonds."

44. Krizan and others, "Bonding Business Going for Broke."

45. Westfall, "Unsure Times for Surety Bonds."

46. Winter, "The Liability Insurance Market."

class or classes of business—remain in force for long periods of time and are renewed annually on a fairly automatic basis, unless either party wants to negotiate a change in terms.

According to one industry analysis, upward of 80 percent of the risk associated with sureties was reinsured for 10 to 20 percent of the premium through the latter half of the 1990s.[47] When reinsurers absorbed the majority of sureties' losses, some withdrew from the business by declining to renew contracts. Others raised prices. In the first two quarters of 2001, price increases of 15 percent to 20 percent on "excess-of-loss" reinsurance contracts were common. Other reinsurers limited coverage.[48] In response, some primary sureties narrowed their focus to support short-term obligations with limited exposures.[49] In a January 26, 2001, letter in which a reinsurer declined a request for a reclamation bond, the broker explained, "I know of very few surety companies who will write this class of business even with collateral. The extended duration of the bond guarantee makes it very difficult to find a responsive surety market."[50]

Temporary Effects Following September 11

The events of September 11, 2001, exacerbated the lack of capacity in the markets for surety bonds and accelerated the upsurge in reinsurance prices—following the typical pattern in the wake of the losses associated with catastrophes. Estimates indicate that insurance payments for economic losses on that day will ultimately be about $40 billion.[51] Nearly a decade earlier, from 1992 to 1994, with the occurrence of both Hurricane Andrew and the Northridge, California, earthquake, losses totaled $38.6 billion (in 1994 dollars)—exceeding the cumulative losses for the period from 1949 to 1991 by $4 billion—and prices for reinsurance coverage more than doubled. According to an analysis of 489 reinsurance contracts, between 1970 and 1994 a $10 billion loss following a catastrophe pushed average contract prices higher by between 19 percent and 40 percent and reduced the quantity of reinsurance by between 5 percent and 15 percent. Subsequently, though, those prices fell by 30 percent, mostly between 1995 and 1998.[52]

The analysts' observation that those effects on the reinsurance market were more pervasive than might have been expected from the specific exposures that existed suggests that the market for surety bonds in general, and reclamation bonds in particular, could expect no particular insulation from the impact of September 11 on the reinsurance market. Although the industry has rebuilt its capital holdings, reinsurers remain selective about their use of that capital. In August 2002, members of the Surety Association of America reported a decline in their capacity to obtain reinsurance for reclamation bonding ranging from 90 percent to 100 percent.[53] Furthermore, according to some reports, some reinsurance contracts have specifically excluded coverage for long-term obligations, such as reclamation bonds.[54]

Like companies in the primary property and casualty industry, reinsurers improved their performance after

47. Aon Corporation, "Commercial Surety—Market Analysis." In addition to "excess-of-loss" reinsurance, the other main type is "proportional" reinsurance, under which the reinsurer covers all of the primary insurer's losses and expenses on a prorated basis.

48. Westfall, "Unsure Times for Surety Bonds."

49. Minutes of the Meeting of the Department of the Interior Bonding Task Force and the National Mining Association, May 23, 2002.

50. Letter from Patricia J. Farmer, Associate in Fidelity and Surety Bonding, Zurich U.S., to George C. Schroeder, Vice President/ Bonding Specialist, Marsh Advantage America, January 26, 2001.

51. Insurance Information Institute, *Insurance Issues Update* (May 23, 2003).

52. Kenneth A. Froot and Paul G.J. O'Connell, "The Pricing of U.S. Catastrophe Reinsurance," in *The Financing of Catastrophe Risk*, Kenneth A. Froot, ed. (Chicago: University of Chicago Press, 1999), pp. 195-227.

53. Letter from Riordan and Duke to Fulton.

54. Letter from Robert Duke, Director ofUnderwriting, Security Association of America, to Tom Fulton, Deputy Assistant Secretary Department of the Interior for Land and Minerals Management, May 28, 2002; and Gerson Lehrman Group, "Mining Reclamation Bond Market."

2001. The Reinsurance Association of America reported a net loss of $3.6 billion after taxes in 2001, but for 2002, reinsurers had a net after-tax gain of $628 million—yielding a 1.4 percent return on equity. As of the end of the first quarter of 2003, the net gain was $1.2 billion—$871 million higher than its value one year earlier. After paying out $1.13 for every dollar in earned premium in 2001, reinsurers paid 93.7 cents in 2002. For the first quarter of 2003, the figure was 71.3 cents, a slight decline from the 74.7 cents of one year earlier.

The Mining Industry

In addition to the long time horizons associated with surety bonds for reclamation, the performance of the mining industry may also influence their availability. According to the Surety Association of America, providers are focusing on shorter-term obligations in industries with more favorable financial circumstances.[55]

Companies mining for locatable minerals have faced a particularly difficult time obtaining reclamation surety bonds. Depressed prices for metals in the 1990s precipitated a number of bankruptcies among mining companies. Sureties were called upon to forfeit bonds and became increasingly wary of taking on such obligations.[56] Currently, the near-term outlook for mining companies remains negative. Because of ongoing uncertainty about the global economic outlook, prices have generally not risen despite declines in production. The low prices of the past several years prompted some large producers to acquire smaller firms. In the process, they took on a debt burden that is high given the industry's poor performance. Nevertheless, some positive developments for the industry are occurring. Gold is benefiting from the weakening of the dollar, and prices for nickel are rising because of greater demand.[57]

According to a 2002 survey, sureties are hesitant to underwrite obligations in the coal industry because of companies' financial instability.[58] Many coal companies merged during the 1990s to benefit from economies of scale, but lower prices and the need for high capital expenditures added to their debt burden and strained their ability to generate profits. In addition, sureties are concerned about extended liability under federal law because of unanticipated acid mine drainage—which requires long-term treatment—and the resulting prospect of delays in having their bonds released.[59] But the outlook for the coal-mining industry may be improving. In 2002, coal prices increased for a second consecutive year for the first time in two decades.[60]

Acid Mine Drainage

Acid mine drainage is partly responsible for the constrained supply of reclamation surety bonds *(see Box 1)*. Because surety bonds cannot be revoked once issued, they are poorly suited to address obligations to treat such drainage—which tends to have a long and indeterminate horizon. In fact, federal regulations prohibit issuing coal-mining permits if acid mine drainage is likely to occur.[61] Nevertheless, unanticipated drainage does occur and can result in violations of the Surface Mining Control and Reclamation Act or other regulatory programs. If inspections identify such drainage, the Office of Surface Mining can deny surety companies' requests to release their bonds. Recently, the Office of Surface Mining sought comments

55. Many companies in the mining industry currently carry a rating of BBB or lower, according to the Northwest Mining Association, a 2,000-member nonprofit trade association.

56. Lisa A. Kirschner and Edward B. Grandy, "Mining and the Vanishing Surety Bond Market," *Natural Resources and Environment*, vol. 17, no. 152 (Winter 2003), pp. 142-149.

57. Diane Vazza, David Cantor, and John Bilardello, "U.S. Non-Financial Creditworthiness Continues to Moderate," Standard & Poor's, Global Fixed Income Research (July 17, 2003).

58. Gerson Lehrman Group, "Mining Reclamation Bond Market."

59. Ibid.

60. Fred Freme, "U.S. Coal Supply and Demand: 2002 Review," Energy Information Administration, Department of Energy (April 17, 2003).

61. Department of the Interior, Office of Surface Mining, "AMD Policy Statement" (March 1997).

Box 1.

The Chemistry of Acid Mine Drainage

When surface mining activities expose waste materials to an oxidizing environment, some mineral components begin a series of chemical reactions called pyrite weathering, which is analogous to geologic weathering.[1] Although geologic weathering takes place over hundreds of thousands of years, pyrite weathering involves reaction rates that are orders of magnitude greater and can release damaging quantities of acidity, metals, and other soluble components into the environment. According to studies of surface coal mining, the peak acid load occurs five to 10 years after mining, followed by a gradual decline over 20 to 40 years, but drainage may extend beyond 50 years before acid leachate is depleted. For underground coal mines, no reliable predictions of the discharges exist.[2] Acid mine drainage is most prevalent in Appalachia coal mines, but it is also found in western mines.

Such drainage is not unique to coal mines. A common feature of most ores is the presence of large quantities of sulfur (as pyrite or marcasite or pyrrhotite). It often occurs with copper, zinc, lead, silver, arsenic, and other elements that constitute the valuable content of the mineralization. It also commonly occurs as a component of waste rock.

In sulfur-rich deposits, sulfur is naturally released by the slow processes of oxidation, weathering, and erosion. The sulfuric acid produced is diluted and dispersed, creating local, and generally minor, natural degradation. Also, some natural acid springs exist.

But mining can expose sulfur-rich material to the atmosphere at a much faster pace, leading to more rapid oxidation. Environmental problems result if the sulfuric acid is released through runoff. The acidity of the water and its proximity to metals in the ore may generate waters of low pH that are high in copper, iron, zinc, aluminum, arsenic, selenium, and other elements.

Acid mine drainage may take years to occur or to cause a concern about water quality, but once acid production has begun, it is difficult to stop. Lead mines that were operating at the time of the Roman Empire are still producing acid drainage 2,000 years later.

1. The information in this box comes from National Research Council, *Hardrock Mining on Federal Lands* (Washington D.C.: National Academies Press, 1999), pp. 80, 154-156.

2. "Factors Controlling Acid Mine Drainage Formation," available at www.osmre.gov/amdform.htm.

on what types of financial guarantees are appropriate and available, or may be created, for adequately funding the treatment of unanticipated long-term acid mine drainage.[62]

Ultimately, the reluctance to provide reclamation bonding for the mining industry is expected to wane as constraints on capacity continue to ease and insurers gauge their risks more precisely. As of the close of 2002, many industry observers were not expecting to see capacity fully restored before 2005.[63] Sureties examining the type of precautions taken by mining operators may see benefits in returning to the industry with honed abilities to predict and price exposure.[64] In addition, financial assurance providers may tailor new products to specific risks. There are many such examples of problems in markets for financial assurance

62. Department of the Interior, Office of Surface Mining Reclamation and Enforcement, "Bonding and Other Financial Assurance Mechanisms for Treatment of Long-Term Pollutional Discharges and Acid/Toxic Mine Drainage (AMD) Related Issues," *Federal Register*, vol. 67, no. 96 (May 17, 2002) p. 35070.

63. Hartwig, "Industry Financials and Outlook: 2001—Year End Results"; and ABD Insurance and Financial Services, "State of the Surety Market—December 2002."

64. Kirschner and Grandy, "Mining and the Vanishing Surety Bond Market."

coverage that have been resolved over time as private financial markets developed.[65]

Options for Addressing the Limited Supply of Surety Bonds for Reclamation and Their Implications

When capacity is constrained in financial assurance markets, prices rise. Because of the long horizons associated with reclamation obligations (and the decline in prices for some mined resources), surety bonds are no longer available to the mining industry at prices that are more attractive than those for other forms of financial assurance (such as cash or its equivalent) that entail minimal risk for the public. Consequently, industry participants have proposed that the federal government expand its acceptance of certain assurance instruments that are allowed under limited circumstances now. However, such instruments—such as corporate guarantees, bond pools, and incrementally funded trusts—would transfer additional risk to the public, along with greater monitoring and enforcement costs.

A corporate guarantee is a general obligation of a firm. The government allows operators to use independently audited reports documenting that the financial strength of their company, parent corporation, or affiliate (the corporate guarantee) is sufficient to cover obligations in place of a more tangible form of financial assurance dedicated exclusively to reclamation. If an operator defaults on obligations backed by a corporate guarantee and the regulatory authority is unsuccessful in competing for assets with other creditors, the public is left to either bear the costs of reclamation or accept the damaged condition of the federal lands.

A bond pool is a fund into which a group of qualified mining operators, generally within a given state, pay fees. The pool then provides for its participants financial assurance for reclamation. Operators pay a fee to join the pool and make payments associated with their reclamation obligations—generally assessed at a fixed amount per acre, with supplemental charges based on acreage, tonnage produced, and the number of permits. Participants' payments are not traditionally structured to enable the pool to pay the estimated costs of all of the reclamation obligations that it is covering at one time. In the event that abandoned obligations exceeded a bond pool's resources, the responsibility for outstanding reclamation could ultimately fall to the public.

Incrementally funded trusts, administered by a third party, are accounts into which an operator makes a series of payments dedicated specifically to fully funding its own reclamation obligations. The operator establishes the trust by making an initial payment before mining begins; subsequent payments take place once work has begun.[66] Incrementally funded trusts allow the operator to take advantage of the time value of money while also mitigating the opportunity costs associated with providing the larger amount of funds needed for a fully funded trust. Although the government is the sole beneficiary of the trust, because the operator has not deposited the total estimated costs of the reclamation obligations at the time the trust is established, the public risks being left with the responsibility for any unfunded obligations if the operator defaults before fully funding the trust.[67]

65. See Congressional Budget Office, *Federal Reinsurance for Disasters*, Appendix B; James Boyd, "Financial Responsibility for Environmental Obligations: Are Bonding and Assurance Rules Fulfilling Their Promise?" Resources for the Future, Discussion Paper 01-42 (August 2001); and James Boyd, "Bonding Requirements for Coal and Hardrock Mines in the U.S.," in Elizabeth Bastida, Thomas Wälde, and Janeth Warden, eds., *International and Comparative Mineral Law and Policy: Trends and Prospects* (New York: Kluwer Law International, forthcoming).

66. For example, in Nevada, which allows such trust funds, the minimum payment is equal to the estimated reclamation costs that are unfunded divided by the expected number of years of operation that are remaining.

67. Participants in the industry have also advocated the federal government's involvement in providing reinsurance for reclamation bonding. Federal intervention in reinsurance markets, even at prices expected to cover costs, could delay the rebound of private reinsurance markets for reclamation bonding as well as innovation by private insurers and capital markets to address the constrained supply. Federal subsidies of such reinsurance could lead to less cautious underwriting, risking future losses and exposing taxpayers to greater liabilities. See Congressional Budget Office, *Federal Reinsurance for Disasters.*

Other industry proposals include regulatory changes to accommodate greater use of phased or incremental bonding to facilitate the use of different financial assurance instruments for different aspects of reclamation. Corporate guarantees, bond pools, and incrementally funded trusts might then be specifically targeted to address acid mine drainage—making it easier to obtain traditional forms of financial assurance for other reclamation obligations. Such proposals narrow, but do not eliminate, the risk to the public of being left with the responsibility for unfunded obligations.

Corporate Guarantees

Two of the three Department of the Interior offices responsible for overseeing reclamation on federal lands allow at least partial use of corporate guarantees to fulfill financial assurance requirements. Qualified companies with offshore oil and gas operations can use corporate guarantees under the Minerals Management Service's regulations to claim an exemption from requirements for supplemental bonding.[68] As of March 2003, only 520 leases on the Outer Continental Shelf—about 7 percent of the total—were not eligible for such an exemption. Coal mine operators can use corporate guarantees under the Office of Surface Mining's regulations associated with the Surface Mining Control and Reclamation Act. The federal government administers the law in only two states with active coal mines, neither of which has operators that are currently using corporate guarantees. However, of the 24 states that have adopted primary responsibility for administering the law, 20 allow the use corporate guarantees, and a number of coal mine operators on federal lands in those states are using them. As of January 20, 2001, the Bureau of Land Management stopped accepting new corporate guarantees to fulfill financial assurance requirements for reclamation in the wake of some bankruptcies of mining companies and abandoned obligations for reclaiming sites such as Colorado's Summitville mine.[69]

In particular, industry participants would like the Bureau of Land Management to accept corporate guarantees. Such guarantees are attractive to the mining industry because they eliminate the need to purchase coverage from a third party and do not require funds to be set aside for reclamation. However, they provide less of a guarantee for the government that costs will be recoverable in the future. Unlike surety bonds, corporate guarantees do not allow the regulator to lay claim to a specific financial asset in the event that an operator becomes insolvent and cannot meet its reclamation obligations. In a bankruptcy proceeding, since reclamation obligations are likely to be but some of many of the bankrupt firm's general obligations (all subordinate to the claims associated with debt that has a higher priority for payment to creditors), the government could recover only a fraction of the costs of reclaiming the lands.

Corporate guarantees also require considerable administrative oversight. Interpreting, verifying, and monitoring companies' finances over time require significant expertise or reliance on audits by third parties.[70] Moreover, there tends to be great variability in the way environmental obligations are recognized for accounting purposes.[71] Auditors have additional challenges fully accounting for overseas liabilities and those attached to subsidiaries. Fin-

68. In almost all cases, the estimated cost of "end-of-lease" obligations exceeds the minimum bond amount specified in regulations. the Minerals Management Service may require a supplemental bond if it finds that an operator's financial strength is not sufficient to protect the public from default.

69. As noted above, the bureau had not expressly authorized corporate guarantees but had accepted them under the terms of a cooperative agreement with the state of Nevada.

70. According to some accounting industry analysts, there is an increased risk that third-party audits are fraudulent when firms are in financial distress, which is precisely the kind of situation that can pose the most serious problems for financial assurance. See Mark Beasley, Joseph Carcello, and Dana Hermanson, *Fraudulent Financial Reporting 1987-1997: An Analysis of U.S. Public Companies* (prepared for the Committee of Sponsoring Organizations of the Treadway Commission, November 30, 1999).

71. Financial Accounting Standards Board, "Proposed Statement of Financial Accounting Standards: Accounting for Certain Liabilities Related to Closure or Removal of Long-Lived Assets," No. 158-B (exposure draft, February 7, 1996).

ally, a firm's financial status can deteriorate quickly, and regulators may not be notified of such conditions for some time.

Data on experience with corporate guarantees for mining reclamation are scarce. But in Nevada, for example, as of March 2003, of the approximately $560 million in financial assurances held by the state for hardrock mining operations, about $275 million was in the form of corporate guarantees. In the 10 years that corporate guarantees have been used by Nevada mines, only one associated default has occurred. A copper mining company called Arimetco Inc. declared bankruptcy in 1997 and abandoned its operations in early 2000. Those operations included the Yerington mine (on federal lands under the jurisdiction of the Bureau of Land Management) and the Paradise Peak mines (on lands under the jurisdiction of the Bureau of Land Management and the state of Nevada). Arimetco used a corporate guarantee for $3.5 million as part of its financial assurance for reclamation. After the company's bankruptcy, that guarantee was worthless, and the Bureau of Land Management and the state were left with only $1.2 million in other financial assurances—which amounts to only a fraction of the funding necessary to close the mines and reclaim the lands. Since Arimetco's bankruptcy, the state has taken some measures to add security to its corporate guarantee process and to decrease the risk of default. Nevertheless, the process still admits risk because the state does not consider whether a company is using corporate guarantees in other jurisdictions and does not have an overall limit on the amount of corporate guarantees that a company may have in Nevada.[72]

Bond Pools

The mining industry has also expressed interest in expanding the use of bond pools, especially for locatable minerals operations. Currently, such pools exist in Alaska and Nevada.[73]

In 1997, the state of Alaska and the Bureau of Land Management entered into a cooperative agreement certifying the use of the state's bond pool to meet federal requirements for financial assurance for reclamation obligations. The Alaska pool ensures that funds are available to reclaim the land of an operation even if the defaulting miner has not made sufficient payments into the pool. Operators that have previously defaulted on a bond can rejoin the pool only if they reimburse it for all associated costs and pay additional participation costs. The state and the Bureau of Land Management can deny any applicant the right to participate. As of May 2002, no participant had defaulted on reclamation obligations.[74] Of the 73 participants in the state bond pool, 53 operate on public lands.

The state of Nevada's reclamation bond pool, which has been serving mining operations—including those on federal lands—since 1991, is funded by participants' deposits, premiums paid by participants, revenue from collateral sales, and earned interest. Over most of the pool's existence, the deposit amount has been 15 percent of the amount of financial assurance, annual premiums have been 5 percent, and there has been a $1 million maximum bond amount for each participant. The total bonded amount of the pool has ranged from $124,017 to $2.12 million, and it has never made a payout because of a default.[75]

As traditionally designed, bond pools are not fully funded. If the participation requirements do not adequately screen for manageable risk levels or if unanticipated developments in the industry simultaneously hurt the majority of participants in a bond pool, the resources in the pool could prove inadequate to cover its financial assurances. The public would be left with the responsibility for the abandoned reclamation obligations.

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72. "Current Mining Bonding Issues in Nevada," Nevada Bonding Task Force (March 24, 2003).

73. In August 2003, the governor of Oregon signed legislation establishing a bond pool for small mining operations in that state. The Bureau of Land Management's regulations allow for bond pools managed by states (43 C.F.R. 3809.571). Also, there are eight states with bond pools for coal operations authorized under the provision for alternative bonding systems in the Surface Mining Control and Reclamation Act.

74. In order to limit the pool's exposure to costs for long-term treatment, participation is restricted to placer mines or other operations that do not use chemicals to process ore.

75. E-mail from Alan R. Conyer, Administrator, Nevada Division of Minerals, to Jaime Besse, Program Assistant, Alaska Affairs, Office of the Secretary, Department of the Interior, August 15, 2002.

As of January 20, 2001, regulations by the Bureau of Land Management clarified that state bond pools must cover 100 percent of the cost for reclaiming participants' operations on public lands.[76] The bureau signed an agreement with the state of Alaska on August 6, 2003, ensuring that full coverage would be available for federal reclamation requirements. In Nevada, to expand coverage, the state Division of Minerals raised the deposit amount to 100 percent for bonds of less than $10,000. For bonds of more than $10,000, the deposit amount is 50 percent to 80 percent of the financial assurance amount, and the cap per participant is now $3 million. The annual premium is 3 percent for bonds of less than $10,000, but ranges from 5 percent to 10 percent for bonds of more than $10,000. Once the sum of the deposit and the premiums paid equals the bond amount, the premium is 3 percent. The Division of Minerals expects the changes to cut the time from a participant's entry into the pool to the time its obligation is fully funded by at least one-third; in addition, the pool's interest earnings will rise. As of October 1, 2003, the pool was 91 percent funded—its highest level to date.[77]

As traditionally designed, bond pools offer operators a financial assurance option that is less expensive than posting cash because the participation fees are not structured to fully fund all of a pool's obligations simultaneously. Prioritizing the payment of federal claims on the resources of such a pool shifts the risk associated with unfunded obligations away from federal taxpayers at the potential expense of state taxpayers. Restructuring bond pool participation fees to allow for 100 percent coverage of all participants' obligations out of funds on hand would thoroughly eliminate public risk, but offer operators little distinct advantage over posting cash to fulfill financial assurance requirements.

76. Department of the Interior, Bureau of Land Management, "Mining Claims Under the General Mining Laws; Surface Management; Final Rule," *Federal Register* vol. 65, no. 225 (November 21, 2000) pp. 69997 and 70073.

77. The release of the bond of one of the pool's larger operators —which had been participating under the lower, original deposit and premium requirements—significantly boosted its funding level. Personal communications from Doug Driesner, Nevada Division of Minerals, October 1 and 17, 2003.

Incrementally Funded Trusts

The mining industry has also proposed using trusts that an operator would fund incrementally over the life of an operation to provide financial assurance for reclamation. Currently, offshore oil and gas operators can consider the use of such trusts. Under the Minerals Management Service's regulations, the government may allow the use of an incrementally funded trust on a case-by-case basis to meet supplemental bonding requirements. But the trust fund would have to be combined with another form of financial assurance to guarantee outstanding responsibilities if the operator halted its payments to the fund. Operators must generally make an initial payment equal to at least 50 percent of the Minerals Management Service's estimate of the cumulative potential liabilities and must fully fund the trust within four years (or by the beginning of the year in which the agency projects that, cumulatively, 80 percent of the originally recoverable reserves will have been produced, whichever is earlier).[78] The Bureau of Land Management also currently allows for incrementally funded trusts but, until operators fully fund them, the companies must provide additional financial assurance to cover outstanding liabilities.

The expanded use of incrementally funded trusts—that is, without supplemental financial assurance prior to full funding, which some participants in the mining industry have advocated—implies that the public assumes the risk of the cost of any reclamation obligations incurred but not yet funded. Such trusts require additional monitoring to ensure that operators adhere to payment schedules. And even fully funded trusts require oversight to ensure that they maintain sufficient value to honor future reclamation obligations.

Targeted or Segmented Financial Assurance

Some observers have suggested targeting the proposed alternative forms of financial assurance exclusively at the reclamation obligations associated with acid mine drainage. Because of the challenges that such drainage presents for coal and locatable minerals operations in obtaining bonds, addressing it with a separate form of financial

78. Department of the Interior, Minerals Management Service, "Supplemental Bond Procedures," NTL No. 2003-N06 (June 17, 2003).

assurance may "free up" the surety market for the other aspects of reclamation and foster bond sales there. For example, the Bureau of Land Management has considered, but not yet issued, guidance on the use of interest-bearing trusts to cover long-term water treatment and other reclamation obligations. Currently, that approach is being used, with the agency's approval, at Placer Dome's Cortez gold mine. A bond covers the reclamation now, and in 2005, Placer Dome will make the first of five annual payments into a trust fund, whose appreciating value will cover the long-term (250-year) contingency of potential water pollution effects in a pit lake at the mine.[79] Even limited to the treatment of acid mine drainage, however, the proposed alternative forms of assurance still involve transferring risk to the public.

Finally, industry groups have also proposed regulatory changes that would allow operators to post successive financial assurances for increments of work or to simultaneously post separate financial assurances to cover different phases of the reclamation. In concert, the government would work to clarify the requirements that operators must meet in order to fulfill their reclamation obligations and to have their financial assurances released. By lessening the uncertainty and duration of some aspects of reclamation, such segmenting of financial assurance would be intended to make surety bonds more readily available for short-term obligations, such as regrading and reshaping the land to conform with adjacent areas and initiating revegetation. Financial assurances for longer-term and more uncertain aspects of reclamation, such as successful revegetation, stabilizing erosion, and the water treatment associated with acid mine drainage, could then be addressed through alternative instruments developed by private markets.

79. Nevada Division of Environmental Protection, Nevada Bonding Task Force, "Current Issues"; Letter from Placer Dome America to the Director of the Bureau of Land Management, "Placer Dome America's Supplemental Comments on the 43 C.F.R. Subpart 3809 Rulemaking and the U.S. Bonding Crisis" (May 9, 2002).

    Trust funds that allow payments over time have been used successfully under other regulatory programs to demonstrate financial assurance for long-term obligations. For example, under the Resource Conservation and Recovery Act, Subtitle C, owners and operators of hazardous waste disposal facilities and municipal solid waste landfills use trust funds to demonstrate financial assurance for obligations lasting as long as 30 years after a cleanup. See Department of the Interior, Office of Surface Mining, *Final Report on the Feasibility of Using Various Financial Mechanisms to Demonstrate Financial Assurance for the Long-Term Treatment of Acid Mine Drainage* (prepared by Tetra Tech EM Inc., June 21, 2000).

APPENDIX

Financial Assurance Requirements for Mining Reclamation on Federal Lands

This appendix presents key federal requirements for financial assurance for the reclamation of public lands. It reviews the regulations that define reclamation, identify acceptable financial assurance instruments, specify the necessary amount of financial assurance, and stipulate the conditions under which the government will avail itself of the funding provided through the financial assurance *(see Table A-1)*.

Bureau of Land Management

The Bureau of Land Management (BLM) is the regulatory authority for locatable minerals operations and onshore oil and gas operations on its lands. Coal operations on BLM lands are essentially regulated by the Office of Surface Mining.

Reclamation for Locatable Minerals Operations

"Components of reclamation include, where applicable: (1) Isolation, control, or removal of acid-forming, toxic, or deleterious substances; (2) Regrading and reshaping to conform with adjacent landforms, facilitate revegetation, control drainage, and minimize erosion; (3) Rehabilitation of fisheries or wildlife habitat; (4) Placement of growth medium and establishment of self-sustaining revegetation; (5) Removal or stabilization of buildings, structures, or other support facilities;(6) Plugging of drill holes and closure of underground workings; and (7) Providing for post-mining monitoring, maintenance, or treatment."[1]

Financial Assurance Instruments for Reclamation Obligations of Locatable Minerals Operations

Financial assurance may take the form of a surety bond, cash, or cash equivalents. Cash equivalents include irrevocable letters of credit, certificates of deposit, savings accounts, and "Either of the following instruments . . . maintained in a Securities Investors Protection Corporation insured trust account by a licensed securities brokerage firm for the benefit of the Secretary of the Interior, acting by and through BLM: (1) Negotiable United States Government, State and Municipal securities or bonds; or (2) Investment-grade rated securities having a Standard and Poor's rating of AAA or AA or an equivalent rating from a nationally recognized securities ratings service." Operators can also use insurance if it is "used to guarantee performance of regulatory obligations in the event of default on such obligations by the operator. Insurance must have an A.M. Best rating of "superior" or an equivalent rating from a nationally recognized insurance rating service."[2] The federal government will also accept participation in a state bond pool if: "(1) The state agrees that, upon BLM's request, the State will use part of the pool to meet reclamation obligations on public lands; and (2) The BLM State Director determines that the State bond pool provides the equivalent level of protection as that required by [43 C.F.R. Subpart 3809]." As of January 20, 2001, the BLM stopped accepting new corporate guarantees.[3]

1. 43 C.F.R. 3809.5.

2. 43 C.F.R. 3809.555.

3. 43 C.F.R. 3809.571

Table A-1.

Selected Federal Financial Assurance Requirements for Reclamation

Financial Assurance	Oil & Gas: Offshore (MMS)	Oil & Gas: Onshore (BLM): Continental United States	Oil & Gas: Onshore (BLM): National Petroleum Reserve-Alaska	Coal (OSM)	Locatable Minerals (BLM)
Amount Required	$50,000 to $500,000 for a lease-specific bond, $300,000 to $3 million for an areawide general lease bond MMS may require supplemental bonds if needed to ensure compliance with lease obligations and regulations, unless a lessee's financial qualifications merit an exemption.	$10,000 for a lease-specific bond, $25,000 for a statewide bond, $150,000 for a nationwide bond BLM requires a bond to cover reclamation costs beyond those specified here if it has demanded a bond payment from the operator within the past five years. It may require a bond for additional costs if it determines that the operator poses a risk.	$100,000 for a lease-specific bond, $300,000 for Reserve-wide activities BLM requires a bond to cover reclamation costs beyond those specified here if it has demanded a bond payment from the operator within the past five years. It may require a bond for additional costs if it determines that the operator poses a risk.	Expected cost of fully reclaiming the site (as specified in the operator's approved plan) if the regulatory authority has to perform the work The amount of the initial bond cannot be less than $10,000.	Expected cost of fully reclaiming the site (as specified in the operator's approved plan) when the regulatory authority contracts with a third party to do the work
Does the Regulatory Agency Accept:					
Corporate guarantee from qualified applicant	For supplemental bonding only	No	No	Yes However, prohibited under state law in four states[a]	No Discontinued acceptance as of January 20, 2001
Participation in a state bond pool	No	No	No	Yes[b]	Yes[c]
Incrementally funded trust	No	No	No	No	No

(Continued)

Table A-1.

Continued

Financial Assurance	Oil & Gas			Coal (OSM)	Locatable Minerals (BLM)
	Offshore (MMS)	Onshore (BLM)			
		Continental United States	National Petroleum Reserve-Alaska		
Incremental or phased financial assurance	No	No	No	Yes The operator can post successive incremental assurances in accordance with approved reclamation costs corresponding to initial operations on succeeding increments. The liability of the incremental assurance is limited to the associated increment of the operation. Alternatively, prior to any disturbance, the operator can simultaneously post separate assurances to cover three different phases of reclamation requirements identified in regulations. The liability of the phased bond is limited to the scope of the reclamation work it covers.	No

Source: Congressional Budget Office based on 43 C.F.R. 3104 and 3809, and 30 C.F.R. 256, 740, and 800.

Notes: BLM = Bureau of Land Management; OSM = Office of Surface Mining; MMS = Minerals Management Service.

In general, the three Department of the Interior offices that regulate mining and drilling activities for different resources accept the following forms of financial assurance: surety bonds, irrevocable letters of credit, negotiable securities/bonds (federal, state, municipal, and commercial securities with an acceptable rating), certificates of deposit, and cash.

a. Under the Surface Mining Control and Reclamation Act of 1977, state authorities may assume primacy (and take over the relevant regulatory activities of the federal government) if their regulatory program meets all applicable federal requirements. Mining on federal lands in states with primacy is governed principally by the federally approved state program. Of the 24 states with primacy, 20 allow corporate guarantees. The four that do not are Kansas, Kentucky, Maryland, and Montana. The Office of Surface Mining does not maintain records on what types of bonds are filed with the states, but information gathered recently from the Western region indicates some states currently have a number of mines using corporate guarantees: Alaska (four), Colorado (two), New Mexico (six, and one additional mine on tribal lands for which the federal government acts as the regulatory authority), and Wyoming (nine). Only two states with federal programs, Tennessee and Washington, have active coal mines but neither has mines currently using corporate guarantees. (Conversation with Eugene Hay, Office of Surface Mining, May 6, 2003 and e-mails from Dennis Rice, Office of Surface Mining, May 7 and 8, 2003.)

b. There are eight state bond pools authorized under the provision of the Surface Mining Control and Reclamation Act allowing alternative bonding systems.

c. There are two state bond pools, one in Alaska and one in Nevada, that serve locatable minerals operations.

Financial Assurance Amount for Locatable Minerals Operations

The amount of assurance for locatable minerals is determined by agreement between the operator and BLM on the basis of the expected cost of fully reclaiming the site as specified in the operator's approved reclamation plan. "When BLM identifies a need for it, [the operator] must establish a trust fund or other funding mechanism available to BLM 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." The assurance amount "must 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 infrastructure maintenance costs needed to maintain the area of operations in compliance with applicable environmental requirements while third-party contracts are developed and executed."[4]

Forfeiture

BLM must notify the operator how to avoid forfeiture, including: "(1) Providing a written agreement under which [the operator] or another person will perform reclamation obligations in accordance with a compliance schedule which meets the conditions of . . . the reclamation plan, and a demonstration that such other person has the ability to satisfy the conditions; and (2) Obtaining written permission from BLM for a surety to complete the reclamation, or the portion of the reclamation applicable to the bonded phase or increment, if the surety can demonstrate an ability to complete the reclamation in accordance with the reclamation measures incorporated in [the operator's reclamation plan].[5]

Onshore Oil and Gas Leasing

Financial assurance must consist of a surety or personal bond (accompanied by a certificate of deposit, a cashier's check, a certified check, negotiable Treasury securities of the United States, or an irrevocable letter of credit) of an amount not less than $10,000 to ensure "compliance with all terms and conditions of the entire leasehold(s) covered by the bond . . . including complete and timely plugging of the well(s), reclamation of the lease areas, and the restoration of any lands or surface waters adversely affected by the lease operations. . . ." Alternatively, operators may furnish a minimum bond of $25,000 to cover all leases and operations in any one state or a minimum bond of $150,000 to cover all leases and operations nationwide.[6] National Petroleum Reserve-Alaska regulations set minimum bond amounts at $100,000 for an individual lease bond or $300,000 for a bond that covers all leases held by a party in the National Petroleum Reserve-Alaska.

Coal Leasing

Financial assurance for the coal leasing program (under the Surface Mining Control and Reclamation Act of 1977) must be sufficient to cover anticipated reclamation costs. Bonds are submitted to the Office of Surface Mining or to the state regulatory agency.[7]

Office of Surface Mining

The Office of Surface Mining (OSM) is the principal regulatory authority for coal operations on federal lands.

Reclamation

Reclamation for coal operations consists of backfilling, regrading, and drainage control (Phase I); successfully establishing revegetation on the regraded mined lands (Phase II); and completing all surface coal mining and reclamation activities (Phase III).[8]

4. 43 C.F.R. 3809.552.

5. 43 C.F.R. 3809.596.

6. 43 C.F.R. 3104.1 to 3104..3

7. 30 C.F.R. 740.

8. 30 C.F.R. 800.40.

Financial Assurance Instruments for Reclamation Obligations

The financial assurance may be provided through (a combination of) a surety bond, a collateral bond, or a "self-bond." A collateral bond must be supported by one or more of the following: a cash account; negotiable municipal, state, or federal bonds; negotiable certificates of deposit; an irrevocable letter of credit; a perfected, first-lien security interest in real property; other investment-grade rated securities having a rating of AAA, AA, A, or the equivalent.[9] A self-bond is acceptable only if the following series of requirements is met by the applicant or its parent corporation guarantor: "(1) The applicant designates a suitable agent to receive service of process in the State where the proposed surface coal-mining operation is to be conducted. (2) The applicant has been in continuous operation as a business entity for a period of not less than 5 years. . . . (3) The applicant submits financial information in sufficient detail to show that the applicant meets one of the following criteria: (i) The applicant has a current rating for its most recent bond issuance of "A" or higher as issued by either Moody's Investor Service or Standard and Poor's Corporation; (ii) The applicant has a tangible net worth of at least $10 million, a ratio of total liabilities to net worth of 2.5 times or less, and a ratio of current assets to current liabilities of 1.2 times or greater; or (iii) The applicant's fixed assets in the United States total at least $20 million, and the applicant has a ratio of total liabilities to net worth of 2.5 times or less, and a ratio of current assets to current liabilities of 1.2 times or greater. (4) The applicant submits: (i) Financial statements for the most recently completed fiscal year accompanied by a report prepared by an independent certified public accountant in conformity with generally accepted accounting principles and containing the accountant's audit opinion or review opinion of the financial statements with no adverse opinion; (ii) Unaudited financial statements for completed quarters in the current fiscal year; and (iii) Additional unaudited information as requested by the regulatory authority. . . . [T]he total amount of the outstanding and proposed self-bonds of the applicant for surface coal-mining and reclamation operations shall not exceed 25 percent of the applicant's tangible net worth in the United States. . . . [T]he total amount of the parent corporation guarantor's present and proposed self-bonds and guaranteed self-bonds for surface coal-mining and reclamation operations shall not exceed 25 percent of the guarantor's tangible net worth in the United States. . . . [T]he total amount of the non-parent corporate guarantor's present and proposed self-bonds and guaranteed self-bonds shall not exceed 25 percent of the guarantor's tangible net worth in the United States."[10]

State regulatory authorities can assume primary responsibility for regulation of coal exploration and surface coal-mining and reclamation operations (including review of and decisions on permits and bonding for surface coal-mining and reclamation operations).[11] While the OSM allows self-bonding under the Surface Mining Control and Reclamation Act, four states with primacy do not allow self-bonding.[12]

With OSM's approval, eight states have adopted "alternative bonding systems." In contrast to full cost bonding systems, in which operators post bonds to cover all reclamation costs, alternative bonding systems use supplemental funds to guarantee some reclamation costs. The bond pools are generally composed of two parts: a flat rate per-acre bond and a supplemental reclamation fund consisting of a mixture of permit fees, taxes, and penalties paid by operators. If an operator defaults, the flat-rate bond is applied first to cover site reclamation costs and the supplemental fund makes up the shortfall. OSM requires a bond pool to assure that "the regulatory authority will have available sufficient money to complete the reclamation plan for any area which may be in default at any time; and . . . [to] provide a substantial economic incentive for the permittee to comply with all reclamation provisions."[13]

9. 30 C.F.R. 800.5.

10. 30 C.F.R. 800.23.

11. 30 C.F.R. 900.4.

12. Currently, 24 states have primacy and 20 allow self-bonding. There are federal programs in 12 states, but only two of those states have active coal mines.

13. 30 C.F.R. 800.11.

Operators can file (if approved): "(1) A performance bond or bonds for the entire permit area; (2) A cumulative bond schedule and the performance bond required for full reclamation of the initial area to be disturbed; or (3) An incremental bond schedule and the performance bond required for the first increment in the schedule."[14] "With the approval of regulatory authority, a bond may be posted and approved to guarantee specific phases of reclamation within the permit area provided the sum of phase bonds posted equals or exceeds the total amount required."[15]

Financial Assurance Amount

"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, and in no case shall the total bond initially posted for the entire area under one permit be less than $10,000."[16]

Forfeiture

The regulatory authority must "advise the permittee and surety, if applicable, of the conditions under which forfeiture may be avoided. Such conditions may include, but are not limited to—(i) Agreement by the permittee or another party to perform reclamation operations in accordance with a compliance schedule which meets the conditions of the permit, the reclamation plan, and the regulatory program and a demonstration that such party has the ability to satisfy the conditions; or (ii) The regulatory authority may allow a surety to complete the reclamation plan, or the portion of the reclamation plan applicable to the bonded phase or increment, if the surety can demonstrate an ability to complete the reclamation in accordance with the approved reclamation plan."[17]

Acid Mine Drainage

In May 2002, OSM sought comment on what types of financial guarantees are appropriate and available, or may be created, to adequately fund the treatment of unanticipated long-term acid or toxic mine drainage. Standing policy only allows permit approval "where the operation is designed to prevent off-site material damage to the hydrologic balance and minimize both on- and off-site disturbances to the hydrologic balance." Permits are not to be approved "if the determination of probable hydrologic consequences or other reliable hydrologic analysis predicts the formation of a postmining pollutional discharge that would require continuing long-term treatment without a defined endpoint." For unanticipated acid mine drainage, although unaccounted for in the reclamation plan, OSM requires that financial assurance mechanisms be adjusted accordingly to fully address it when noticed (including holding bonds subsequent to bond release request inspections that identify acid mine drainage, "unless a financial guarantee or some other enforceable contract or mechanism to ensure continued treatment exists.") OSM also invited comment on "what standards should be used to determine water treatment, such as effluent limits or other water quality standards, in the calculation of financial assurance amounts" (because the required level of treatment for the regulatory authority in the event of forfeiture may not be the same as the level of current treatment by the permittee—traditionally it depends upon permitting authorities of the National Pollution Discharge Elimination System, who "establish effluent limits for bond forfeiture sites on a case-by-case basis after forfeiture

14. 30 C.F.R. 800.11.

    With a cumulative bond schedule, prior to subsequent disturbances, the operator has to post additional bond amounts in accordance with the approved schedule submitted at the time the initial bond was posted. OSM can partially release a bond under a cumulative schedule, but liability of a cumulative bond extends over the entire permit area. Thus, in forfeiture, the government can use bond money anywhere within the permit area to cover reclamation costs.

    With an incremental bond schedule, as work begins on succeeding increments, the operator must provide additional bonds to cover those increments. In forfeiture, the government may not use bond money that is associated with one increment to cover reclamation costs for another increment.

15. 30 C.F.R. 800.13. The operator simultaneously posts separate bonds to cover Phase I, Phase II, and Phase III reclamation requirements (described above) prior to any disturbing of the approved permit area. Liability under phased bonds extends to the approved permit area, but one attractive feature for a surety is that its legal liability is limited to the scope of the reclamation work being covered.

16. 30 C.F.R. 800.14.

17. 30 C.F.R. 800.50.

has occurred"), what time frame to use in calculating the present value of long-term treatment costs for sites without a defined endpoint, and appropriate enforcement in cases where existing financial assurance is not fully adequate for the long term, but the permittee is currently treating the acid mine drainage. (If there is no longer any active mining in the permit area when the discharge develops, there is less leverage to use in obtaining the increased bond amount. Insisting on immediate posting of an increased bond amount may give permittees an incentive to cease operations and abandon the site rather than continue to treat the discharge.)[18] The comment period for the advance notice of proposed rule ended on October 15, 2002.

Minerals Management Service

The Minerals Management Service (MMS) regulates "oil, gas and sulphur exploration, development, and production operations on the Outer Continental Shelf (OCS)."[19] "All exploration, development, and production activities except for preliminary activities shall be conducted in accordance with an Exploration Plan or a Development and Production Plan approved by [MMS]."[20] "All oil and gas leases shall be issued for an initial period of 5 years, or not to exceed 10 years. . . . An oil and gas lease shall continue after such initial period for as long as oil or gas is produced from the lease in paying quantities, or drilling or well-reworking operations as approved by the Secretary are conducted. . . . Sulphur leases shall be issued for a term not to exceed 10 years and so long thereafter as sulphur is produced from the leasehold in paying quantities, or drilling, well-reworking, plant construction, or other operations for the production of sulphur, as approved by the Secretary, are conducted thereon."[21]

Reclamation for Outer Continental Shelf Oil, Gas, and Sulphur Operations

Holders of leases must plug and abandon all wells, remove all platforms and other facilities, decommission all pipelines, and clear the sea floor of all obstructions to users.[22] MMS may approve partial removal for platforms and other facilities, or toppling in place, for conversion to an artificial reef.[23] Wells shall be permanently plugged, and platforms and other facilities removed, within one year of lease termination.[24] Colessees and operating rights owners are jointly and severally responsible for these obligations.[25]

Financial Assurance Instruments for Reclamation Obligations for Oil, Gas and Sulphur Operations

Lease bonds must be (a combination of) a surety bond issued by a U.S. Treasury-certified surety, Treasury securities, or another form of security approved by the Regional Director of MMS.[26] Supplemental bond requirements (see below) may essentially be waived with a corporate guarantee under the following conditions: "(1) [A lessee's] [c]umulative lease abandonment liability is less than or equal to 50 [percent] of . . . [the lessee's] net worth. . . (2) [A lessee] [d]emonstrates reliability as evidenced by the following: (a) number of years of successful operations and production of oil and gas or sulphur in the OCS or in the onshore oil and gas industry; (b) Credit rating(s), trade references, and verified published sources; ©) A record of compliance with the current and previous governing laws, regulations and lease terms; and (d) Other items that indicate financial strength or reliability; *and*, the lessee either: (3) Produces fluid hydrocarbons in excess of an average of 20,000 barrel oil equivalents (BOE) per day from the OCS leases . . . or (4) Has stockholders' equity or net worth of at least $50 million and demonstrates meeting the criteria set forth in the table below by providing audited financial statements. . . .

18. Department of the Interior, Office of Surface Mining, "Bonding and Other Financial Assurance Mechanisms for Treatment of Long-Term Pollutional Discharges and the Acid/Toxic Mine Drainage (AMD) Related Issues," Federal Register, vol. 67, No. 96 (May 17, 2002), pp. 35070-35073.

19. 30 C.F.R. 250.101.

20. 30 C.F.R. 250.200.

21. 30 C.F.R. 256.37.

22. 30 C.F.R. 250.700 and 250.1703.

23. 30 C.F.R. 250.1730.

24. 30 C.F.R. 250.1710 and 250.1725.

25. 30 C.F.R. 250.146 and 250.1701.

26. 30 C.F.R. 256.54.

For lessees with stockholders' equity or net worth of:	If the lessee's cumulative potential lease abandonment liability is ≤25% of stockholders' equity or net worth, the lessee's debt-to-equity ratio (total liabilities/net worth) must be:	If the lessee's cumulative potential lease abandonment liability is 〉25% but ≤50% of stockholders' equity or net worth, the lessee's debt-to-equity ratio (total liabilities/net worth) must be:
$50 Million to $100 Million	≤2.5	≤2.0
Above $100 Million	≤3.0	≤2.5

. . . (6) The determination of the lessee's financial strength is valid for 1 year."[27]

Financial Assurance Amount for Oil, Gas, and Sulphur Operations

Lessees must maintain a "$50,000 lease-specific or $300,000 area-wide general lease surety bond for leases with no MMS-approved operational activity plan, or for leases under an MMS-approved operational activity plan but with no submittal to MMS of assignment or operational activity plans." No such bond is required if, before lease exploration activities commence, lessees furnish a "$200,000 lease-specific or $1,000,000 area-wide general lease surety bond for leases in a proposed EP [exploration plan] or a significant revision to an approved EP, or for a proposed assignment of a lease with an approved EP." Neither is required if, before lease production and development activities commence, lessees furnish a "$500,000 lease-specific $3,000,000 area-wide general lease surety bond for leases in a proposed DPP [development and production plan] or DOCD [development operations coordination document], or a significant revision to an approved DPP or DOCD or for a proposed assignment of a lease with an approved DPP or DOCD."[28] If MMS determines that amounts greater than those specified are necessary to ensure compliance with lease obligations and regulations, the amount of the required supplemental bond will be equal to "the cost to meet all potential present and future lease obligations including rents, royalties, and amount of plugging and abandonment costs necessary to ensure performance of regulatory requirements."[29]

Forfeiture

Forfeiture can be avoided if within five days the lessee, the corporate guarantor, or the surety agrees to, and demonstrates that they will, bring the lease into compliance within the MMS-prescribed time frame.[30]

Right-of-Use and Easements

MMS may grant a right-of-use and easement on leased and unleased lands on the OCS to operators who can qualify as lessees and meet bonding requirements.[31] Holders of a state lease must furnish a surety bond for $500,000 "before MMS issues . . . a right-of-use and

27. Department of the Interior, Minerals Management Service, "Supplemental Bond Procedures," NTL No. 2003-N06 (June 17, 2003). See also 30 C.F.R. 256.53.

28. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, "Guidelines for General Lease Surety Bonds," NTL No. 2000-G16 (September 7, 2000). See also 30 C.F.R. 256.52-53.

    "When a lessee can demonstrate . . . that wells and platforms can be abandoned and removed and the drilling and platform sites cleared of obstructions for less than the [required $500,000], [MMS] may accept a lease surety bond in an amount less than the prescribed amount but not less than the amount of the cost for well abandonment, platform removal and site clearance." (30 C.F.R. 256.53(c).

29. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, "Supplemental Bond Procedures," MMS Regulation NTL 98-18N (December 28, 1998).

30. 30 C.F.R. 256.59.

31. 30 C.F.R. 250.160.

    "Easement means an authorization for a nonpossessory, nonexclusive interest in a portion of the OCS, whether leased or unleased, which specifies the right of the holder to use the area embraced in the easement in a manner consistent with the terms and conditions of the granting authority" (30 C.F.R. 150.105).

easement on the OCS." "[MMS] may require . . . a supplemental bond . . . or an increase in the coverage of an existing surety bond [to] . . . [c]over additional costs and liabilities for regulatory compliance, including well abandonment, platform and structure removal, and site clearance from the seafloor of the right-of-use and easement."[32]

Oil Spill Financial Responsibility

MMS also requires demonstration of "oil spill financial responsibility" (OSFR) for covered offshore facilities (COFs).[33] Four methods (or a combination) can be used: self-insurance,[34] insurance,[35] an indemnity,[36] or a surety bond.[37] At the discretion of the director, MMS "may accept other methods to demonstrate OSFR . . . includ[ing] pooling, letters of credit, pledges of treasury notes, or other comparable methods."[38] The OSFR demonstration amount depends on the worst-case oil-spill discharge volume. If it is between 1,000 and 35,000 billion barrels, the amount is $35 million; if it is between 35,000 and 70,000 billion barrels, the amount is $70 million; if it is between 70,000 and 105,000 billion barrels the amount is $105 million; and if it is over 105,000 billion barrels the amount is $150 million. If a COF is located entirely outside the OCS and has a worst-case oil spill discharge volume between 1,000 and 10,000 bbls, the OSFR demonstration amount is $10 million instead of $35 million. If a firm is demonstrating OSFR for more than one COF, the relevant amount is the highest that applies to any one of the COFs. The MMS may determine a greater OSFR demonstration amount (not to exceed $150 million) "based on the relative operational, environmental, human health, and other risks that [a] COF poses."[39]

Leases Other Than for Oil, Gas, and Sulphur

For leases for minerals other than oil, gas, and sulphur in the OCS, lessees must "submit a surety or personal bond to cover . . . royalty and other obligations under the lease. . . . Personal bonds shall be accompanied by a cashier's check, certified check, or negotiable U.S. Treasury bonds . . . in the minimum amount of $50,000 . . . [unless] the lessee already maintains or furnishes a $300,000 bond conditioned on compliance with the terms of leases for OCS minerals other than oil, gas, and sulphur held by the lessee for the area in which the lease is located."[40]

32. 30 C.F.R. 250.166.

33. 30 C.F.R. 253.1. This provision addresses catastrophic, one-time events while other financial guarantee requirements address known or predicted events such as reclamation, rents and royalties, and bonus bids.

    COF means a facility that "includes any structure and all its components, . . . equipment, pipeline, or device . . . used for exploring for, drilling for, or producing oil or for transporting oil from such facilities." A COF "is located [s]eaward of the coastline; or [i]n any portion of a bay that is: [c]onnected to the sea, either directly or through one or more bays; and . . . has a worst case oil-spill discharge potential of more than 1,000 bbls [billion barrels] of oil, or a lesser volume if [MMS] determines in writing that the oil-spill discharge risk justifies the requirement to demonstrate OSFR." (30 C.F.R. 253.3.)

34. An operator "must annually pass either a net worth test under Sec. 253.25 or an unencumbered net asset test under Sec. 253.28" (30 C.F.R. 253.21).

35. One must submit "insurance certificates issued by insurers that have achieved a "Secure" rating for claims paying ability in their latest review by A.M. Best's Insurance Reports, Standard & Poor's Insurance Rating Services, or other equivalent rating made by a rating service acceptable to MMS" (30 C.F.R. 253.29).

36. One "may use only one indemnity by only one indemnitor . . . [and the] indemnitor must be [one's] corporate parent or affiliate" (30 C.F.R. 253.30).

37. 30 C.F.R. 253.20.

38. 30 C.F.R. 253.32.

39. 30 C.F.R. 253.13.

40. 30 C.F.R. 282.40.

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