Final Report on the Feasibility of Using Various Mechanisms to Demonstrate Financial Assurance for the Long-Term Treatment of Acid Mine Drainage

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CONTENTS

Section **Page**

EXECUTIVE SUMMARY ES-1

1.0 INTRODUCTION 1

1.1 BACKGROUND 1

2.0 FINANCIAL ASSURANCE MECHANISMS 3

2.1 IDENTIFICATION OF FINANCIAL ASSURANCE MECHANISMS 3
2.2 CONTACTS WITH REPRESENTATIVES FROM REGULATORY AGENCIES, COMPANIES, AND INSTITUTIONS 4

3.0 ATTRIBUTES OF MECHANISMS APPROPRIATE FOR DEMONSTRATING FINANCIAL ASSURANCE FOR THE LONG-TERM TREATMENT OF AMD 6

3.1 ATTRIBUTES OF FINANCIAL ASSURANCE MECHANISMS FROM THE PERSPECTIVES OF REGULATORS 7
3.2 ATTRIBUTES OF FINANCIAL ASSURANCE MECHANISMS FROM THE PERSPECTIVE OF THE REGULATED COMMUNITY 8
3.3 COMPARISON OF ATTRIBUTES OF FINANCIAL ASSURANCE MECHANISMS 9

3.3.1 The Reliability of Financial Assurance Mechanisms 11
3.3.2 The Degrees to Which Financial Assurance Mechanisms Provide Incentives to Operators to Comply with the Conditions of Their Permits 12
3.3.3 The Levels of Monitoring Required to Ensure Compliance in the Use of Financial Assurance Mechanisms 12
3.3.4 The Ability of Financial Assurance Mechanisms to Take Advantage of the Time Value of Money 13
3.3.5 The Availability of Financial Assurance Mechanisms to the Regulated Community 13
3.3.6 The Cost of Financial Assurance Mechanisms to the Regulated Community 14

4.0 RECOMMENDATIONS 16

Appendices

A SUMMARY OF FINANCIAL ASSURANCE MECHANISMS CURRENTLY IN USE UNDER FEDERAL ENVIRONMENTAL LAWS AND REGULATIONS AND IN THE COMMONWEALTH OF PENNSYLVANIA

TABLES

Table **Page**

3-1

COMPARISON OF FINANCIAL ASSURANCE MECHANISMS 10

EXECUTIVE SUMMARY

Currently, under the Surface Mining Control and Reclamation Act (SMCRA) and equivalent state regulations, operators of coal mines are required to post bonds (that is, demonstrate financial assurance) for reclamation. The primary purpose of such bonds is to make available to regulatory authorities a source of funds sufficient to pay for the conduct of reclamation activities when the operator of a mine is unwilling or unable to perform those activities in accordance with its approved reclamation plan. The use of bonds has proved suitable to demonstrate financial assurance for reclamation operations that are based on established plans and are scheduled to be conducted over finite periods of time. However, the current requirements for bonding may not be adequate to address the treatment of acid mine drainage (AMD) because such treatment tends to be long-term and indeterminate in nature.

The United States Office of Surface Mining (OSM) retained Tetra Tech EM Inc. (Tetra Tech) under contract in part to assist OSM in identifying financial assurance mechanisms that could be used to fund or guarantee the long-term treatment of AMD and that would maximize opportunities for operators of coal mines to provide bonds that can be used to fully fund the costs associated with the treatment of AMD. This report: 1) presents a systematic review of the different mechanisms that currently are used to fulfill requirements for financial assurance under various regulatory programs; 2) identifies the attributes of mechanisms that would be most appropriate in demonstrating financial assurance for long-term obligations, such as the treatment of AMD; 3) compares the attributes of each mechanism identified in this report with the attributes of mechanisms that would be desirable for demonstrating financial assurance for the long-term treatment of AMD; and 4) provides recommendations on the specific mechanisms that would be most appropriate for demonstrating financial assurance for obligations for such treatment.

Tetra Tech evaluated each mechanism identified in this report to determine whether it was suitable for providing financial assurance for the long-term treatment of AMD. The mechanisms were evaluated on the basis of the following six attributes: 1) the overall reliability of a mechanism in ensuring that sufficient funds will be accessible in a timely manner for the treatment of AMD; 2) the degree to which the use of a mechanism provides incentives to operators to comply with the conditions of their permits; 3) the extent of monitoring that a regulatory authority must provide to ensure compliance with requirements for financial assurance; 4) the extent to which a mechanism allows operators to take advantage of the time value of money; 5) the availability of a mechanism to the regulated community; and 6) the cost to the regulated

community of using a mechanism. The attributes considered are relevant to both the regulatory authority and the regulated community.

After conducting a systematic review of financial assurance mechanisms used under various regulatory programs and comparing those mechanisms to the attributes identified above, Tetra Tech is providing four major recommendations:

1) Tetra Tech is recommending the use of the following mechanisms for demonstrating financial assurance for the long-term treatment of AMD: paid-in trust funds; trust funds that allow payments over time; external sinking funds; escrow agreements; cash accounts; certificates of deposit (CD); negotiable government-issued securities; annuities; and state funds. The use of those mechanisms would provide to operators of coal mines options for financial assurance that would safeguard the provision of funds for the long-term treatment of AMD and help mitigate the financial burdens imposed on the regulated community in providing such assurance.

2) Tetra Tech is recommending that public liability coverage specifically include long-term environmental liabilities that arise from the formation of AMD. That modification could help address unknown liabilities for the treatment of AMD that may arise in the future.

3) Tetra Tech is recommending that OSM seek to obtain from Congress additional authorization to manage interest-bearing accounts. Having such authorization would allow OSM to make the most effective use of funds forfeited by operators through the use of various financial assurance mechanisms.

4) Tetra Tech is recommending that the estimated costs of reclamation be adjusted annually to account for the effects of inflation or changes in the reclamation plan. That modification would help ensure that bonding mechanisms established for the treatment of AMD provide funds sufficient to conduct such treatment and to maximize the amounts of interest that are earned through the deposit of funds in mechanisms for financial assurance that are interest-bearing.

1.0 INTRODUCTION

Tetra Tech EM Inc. (Tetra Tech) received Contract No. 143868-CT99-12063 from the United States Office of Surface Mining (OSM) in part to assist OSM in identifying financial assurance mechanisms that could be used to fund or guarantee the long-term treatment of acid mine drainage (AMD) and that would maximize opportunities for operators of coal mines to provide bonds that could be used to fully fund the costs associated with the treatment of AMD. Section 2.0 of this report presents the process Tetra Tech used to identify the different federal and state mechanisms that are currently used for financial assurance and the results of discussions with regulators and industry representatives regarding the use and effectiveness of the mechanisms. Appendix A of this report presents a comprehensive and systematic review of the different mechanisms that currently are used to fulfill requirements for financial assurance under various federal and state regulatory programs. Section 3.0 of this report identifies the attributes of mechanisms that would be most appropriate in demonstrating financial assurance for the long-term treatment of AMD and compares each of the mechanisms described in this report with those attributes. Section 4.0 of this report provides recommendations about the specific mechanisms that would be most appropriate to demonstrate financial assurance for the long-term treatment of AMD.

1.1 BACKGROUND

Currently, under the Surface Mining Control and Reclamation Act (SMCRA) and equivalent state regulations, operators of coal mines are required to post bonds for reclamation. The primary purpose of such bonds is to make available to regulatory authorities a source of funds sufficient to pay for the conduct of reclamation activities when the operator of a mine is unwilling or unable to conduct those activities in accordance with its approved reclamation plan. A secondary purpose of the bonds is to provide a substantial economic incentive to operators to comply with requirements for the conduct of reclamation activities. If the operator is responsible in its mining operations and conducts reclamation activities as required under its permit, the regulatory authority may relieve the operator of the requirement to comply with further bonding regulations. If, however, the operator is unwilling or unable to perform the reclamation activities required, the regulatory authority may activate the bonding mechanism and draw upon the funds available to pay to conduct the required activities.

Under the program, operators may post any of three types of bonds: 1) corporate surety bonds;

2) collateral bonds (indemnity agreements executed by the operator and supported by cash accounts, securities, negotiable certificates of deposit, letters of credit, or security interests in real estate), or 3) self bonds (legally binding corporate promises, without separate surety or collateral, that are available to operators that meet certain financial criteria). The mechanisms listed above have proven to be suitable for the bonding of reclamation operations that are based on established plans and are scheduled to be conducted over finite periods of time. The defined nature of reclamation operations allows providers of bonding mechanisms to assess adequately the risks associated with those obligations and to underwrite those risks in a manner that protects those providers from excessive risk exposures.

The mechanisms currently used for bonding reclamation operations, however, may not be ideal for bonding long-term treatment operations for AMD. Obligations to conduct long-term treatment of AMD tend to be relatively undefined and are subject to numerous uncertainties that complicate underwriting processes. For example, the periods of time over which it may be necessary to conduct treatment operations for AMD tend to be rather long and of uncertain duration as compared to standard reclamation operations, because many environmental obligations evolve slowly over time, and because the regulatory standards and procedures that govern the conduct of long-term treatment activities can change over time. Providers of bonding mechanisms therefore may find it difficult to define the extent of their risk under the bond.

2.0 FINANCIAL ASSURANCE MECHANISMS

Using the LEXIS/NEXIS legal research systems, Tetra Tech conducted a systematic review of federal environmental laws and regulations to identify those mechanisms that currently are used to fulfill financial assurance and bonding obligations under various regulatory programs. To obtain information on the use and effectiveness of the various mechanisms and the availability of products to fund the long-term treatment of AMD, Tetra Tech contacted representatives from regulatory agencies and from companies and institutions that provide financial assurance mechanisms.

2.1 IDENTIFICATION OF FINANCIAL ASSURANCE MECHANISMS

In conducting its review, Tetra Tech sought to identify the basic functions and attributes of each mechanism and thereby determine whether or not the mechanism might be suitable for use in demonstrating financial assurance for the long-term treatment of AMD. Tetra Tech examined mechanisms used under regulatory programs that were created under the following statutes:

- Atomic Energy Act
- Energy Reorganization Act
- Federal Land Policy and Management Act
- Geothermal Steam Act
- Mineral Leasing Act
- Mining Claims Rights Restoration Act
- Oil Pollution Control Act
- Outer Continental Shelf Lands Act
- Resource Conservation and Recovery Act (RCRA)
- Safe Drinking Water Act (SDWA)
- SMCRA
- Toxic Substances Control Act (TSCA)

In addition to identifying financial assurance and bonding mechanisms used under federal regulatory programs, Tetra Tech identified each mechanism established under Title 25 Part 86 of the Pennsylvania Code for use by operators of coal mines in fulfilling requirements for bonding to assure that reclamation obligations will be met.[1] Appendix A to this report provides a summary of the mechanisms identified.

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[1] Authority to promulgate the regulations in the Commonwealth of Pennsylvania is derived from several statutes: 1) the Surface Mining Conservation and Reclamation Act (52 P.S. Parts 1396.1-1396.31), 2) the Clean Streams Law (35 P.S. Parts 691.1-691.1001), 3) the Air Pollution Control Act (35 P.S. Parts 4001-4015), 4) the Coal Refuse Disposal Control Act (52 P.S. Parts 30.51-30.66), 5) the Solid Waste Management Act (P.S. Parts 6018.101-6018.1003), 6) the Dam Safety and

2.2 CONTACTS WITH REPRESENTATIVES FROM REGULATORY AGENCIES, COMPANIES, AND INSTITUTIONS

Tetra Tech contacted representatives from regulatory agencies, and from companies and institutions that provide financial assurance mechanisms in order to obtain "real world" information on the use and effectiveness of the various financial assurance mechanisms that are available. Those contacted also shared some of their experiences in implementing financial assurance programs for long-term care activities similar to those anticipated for the treatment of AMD. The discussions also assisted in determining the current and potential availability of various mechanisms for the long-term treatment of AMD.

The individuals contacted were:

Mr. Mark Luster
Vice President
Commercial Real Estate
Fleet National Bank
Hartford, CT

Mr. Fred Wick
Environmental Manager
Department of Environmental Protection
State of Florida

Mr. Bill Pritchard
President
Beacon Hill Associates, Inc.
Charlottsville, VA
(insurance broker)

Mr. Jim Lane
Vice President
Willis Corroon Corporation
Madison, Wisconsin

Mr. Dale Ruhter
Program Analyst
U.S. Environmental Protection Agency
Washington, DC

Mr. Brian Benn
Director
Business Development
AIG Environmental
San Francisco, California

The discussions with those individuals listed above indicated the following:

- The accuracy of the estimated cost for treatment activities at a facility is more critical than the mechanism selected for financial assurance. Providing a cost estimating methodology that captures all critical treatment activities and helps standardize cost estimates among the owner/operator, regulatory agency, and provider of the financial assurance is an excellent approach.

Encroachments Act (32 P.S. Parts 693.1-693.27), and 7) the Bituminous Mine Subsidence and Land Conservation Act (52 P.S. Parts 1406.1-1406.21).

- History has shown that once regulations are promulgated that require the use of specific financial assurance mechanisms, a market is created and providers of those mechanisms will make products available to the regulated community. The price of the mechanisms to the regulated community will more than likely reduce over time as more members of the community purchase the mechanism.

- However, merely promulgating regulations requiring the use of specific mechanisms is not a sufficient driver to ensure products will be available. The regulatory agency(ies) must establish an enforcement posture that demonstrates penalties will be assessed and enforcement action taken against facilities who do not fully comply with the financial assurance requirements.

- Although regulators prefer to limit the number of financial assurance mechanisms allowed, they recognize the need to provide the regulated community with a range of reasonable options.

- It is more likely that insurance alternatives will be more readily available than bond alternatives for long term treatment costs because insurance companies tend to accept and manage more risk and are more creative in developing products to meet the markets needs than bonding companies.

3.0 ATTRIBUTES OF MECHANISMS APPROPRIATE FOR DEMONSTRATING FINANCIAL ASSURANCE FOR THE LONG-TERM TREATMENT OF AMD

Considerable care must be exercised when devising and selecting the specific types of mechanisms that will be made available to operators to fulfill requirements for financial assurance for the long-term treatment of AMD. Various types of financial assurance mechanisms have distinct attributes, providing different levels of confidence in the future availability of funds, requiring varying levels of regulatory oversight, and imposing varying financial burdens on the regulated community. Ultimately, if financial assurance mechanisms are to be used successfully, their attributes must be compatible with the goals and objectives of the regulatory programs under which they are to be used and with the characteristics of the regulated communities that will use them.

In selecting the mechanisms that would be most suitable for providing financial assurance for the long-term treatment of AMD, the six attributes listed below were considered. Tetra Tech selected these attributes based on its experience working with regulators and members of regulated communities in supporting the implementation of financial assurance requirements under various environmental management programs.

- The overall reliability of a mechanism in ensuring that sufficient funds will be accessible in a timely manner for the treatment of AMD
- The degree to which the use of a mechanism provides incentives to operators to comply with the conditions of their permits
- The extent of monitoring that a regulatory authority must provide to ensure compliance with requirements for financial assurance
- The extent to which a mechanism allows operators to take advantage of the time value of money
- The availability of a mechanism to the regulated community
- The cost to the regulated community of using a mechanism

The attributes considered are relevant to both the regulatory authority and the regulated community. The following section presents a discussion of the attributes of financial assurance mechanisms from the perspectives of regulators.

3.1 ATTRIBUTES OF FINANCIAL ASSURANCE MECHANISMS FROM THE PERSPECTIVES OF REGULATORS

Three of the attributes identified above are relevant from the perspective of the regulatory authority: the overall reliability of a mechanism in ensuring that sufficient funds will be accessible in a timely manner for the treatment of AMD; the degree to which the use of a mechanism provides incentives to operators to comply with the conditions of their permits; and the level of monitoring that must be provided by a regulatory authority to ensure compliance with requirements for financial assurance.

The Overall Reliability of a Mechanism in Ensuring That Sufficient Funds Will Be Accessible In a Timely Manner For the Treatment of AMD

Although no mechanism can provide absolute assurance that funds will be made available to meet future obligations, the protection of the environment is best served by the use of mechanisms that provide the highest possible degree of assurance. The determination of the reliability of a financial assurance mechanism is based in part on the historical performance of that mechanism under various regulatory programs. The performance of a mechanism is considered successful if the mechanism has proven to be reliable in providing to regulatory authorities ready sources of funds needed to address outstanding environmental obligations. The types of entities that provide financial assurance mechanisms also affect the reliability of those mechanisms. For example, most regulators perceive surety bonds provided by sureties listed in the U.S. Department of the Treasury's most recent Circular 570 to be highly secure financial mechanisms, while many regulators generally perceive self-assurance devices that are backed only by the good faith of an operator to be less secure. Finally, financial assurance mechanisms that are backed by the guarantee of a third party provide a greater degree of certainty about the availability of funds than mechanisms that are not backed by such a guarantee. The existence of a third-party guarantee, perhaps more than any other factor, affects the ultimate reliability of a mechanism in providing funds to meet outstanding obligations.

The Degree to Which the Use of a Mechanism Provides Incentives to Operators to Comply With the Conditions of Their Permits

Under SMCRA, the bonding mechanisms used to demonstrate financial assurance for reclamation must provide to operators a substantial economic incentive to comply with the requirements of their permits and conduct reclamation activities. Many financial mechanisms create such an incentive by establishing

secure sources of funds or collateral to which regulators may have access at any time to pay for outstanding obligations and that can be refunded to operators only upon completion of all required activities or by establishing legal or financial obligations that must be fulfilled by the operator in the event of default. In particular, mechanisms that hold funds or collateral in reserve to pay for reclamation activities create an incentive for compliance because, in the event of default, the operator is deprived of the use of those assets. When such mechanisms are used, therefore, operators will be motivated to conduct the reclamation activities required because they wish eventually to recover the funds or collateral that was posted when their mechanisms for financial assurance were established. Certain mechanisms, however, do not provide secure sources of funds to which regulators have ready access, or otherwise fail to establish substantial economic incentives for compliance, and therefore leave regulators vulnerable to a variety of abuses in the event of default on the part of the operator.

The Extent of Monitoring That a Regulatory Authority Must Provide to Ensure Compliance With Requirements for Financial Assurance

Most regulatory authorities have only limited resources available to administer financial assurance requirements. Therefore, the degree of monitoring necessary to regulate the use of a mechanism is a factor to be considered. The use of mechanisms that require considerable monitoring for compliance may place a high demand on the resources of the regulatory authority. Mechanisms that include overly complex requirements may require high levels of monitoring, both because it is more difficult for regulatory staff to conduct detailed evaluations of those mechanisms and because operators may tend not to comply with all of the requirements for use of those mechanisms. Mechanisms that are used on a "self-implementing" basis also may require high levels of monitoring because regulators may find it necessary to conduct regular inspections of facilities to ensure compliance. Finally, mechanisms that are backed by assets that frequently change in value, or by accounts subject to schedules for payment, may require high levels of monitoring to ensure that the value of such assets is, at all times, at least equal to the amount of the assured obligations.

The following section presents a discussion of the attributes of financial assurance mechanisms from the perspective of the regulated community.

3.2 ATTRIBUTES OF FINANCIAL ASSURANCE MECHANISMS FROM THE PERSPECTIVE OF THE REGULATED COMMUNITY

Three of the attributes identified above are relevant from the perspective of the regulated community: the extent to which a mechanism allows operators to take advantage of the time value of money; the ready availability of a mechanism to the regulated community; and the cost to the regulated community of using a mechanism.

The Extent to Which a Mechanism Allows Operators to Take Advantage of the Time Value of Money

Because treatment of AMD can be costly and may require that funds be provided over exceptionally long periods of time, mechanisms that allow operators to reduce the out-of-pocket costs of demonstrating financial assurance by taking advantage of the time value of money may enjoy significant advantages over other types of mechanisms. Mechanisms such as trust funds, interest-bearing accounts, and annuities, while each providing highly secure sources of funds, allow operators to take advantage of the time value of money by using investment returns or discount rates to subsidize the costs of meeting their future obligations. Operators' ability to take full advantage of the compounding effects of such mechanisms may make those mechanisms appealing from a business perspective.

The Availability of a Mechanism to the Regulated Community and the Cost to the Regulated Community of Using a Mechanism

Although a mechanism might otherwise be suitable for demonstrating financial assurance for environmental obligations, if that mechanism is not available in the marketplace, or if the expense associated with the use of that mechanism renders it cost-prohibitive, the mechanism cannot be used effectively to fulfill requirements for financial assurance. To the extent practicable, therefore, the mechanisms selected for regulatory programs should be readily available from a number of reputable providers and should be available at prices that do not impose excessive financial burdens on members of a regulated community. However, many of the mechanisms that are most readily available to members of regulated communities and that are available to those communities at the least cost tend also to be among the least reliable of mechanisms in providing financial assurance. Frequently a balance must be struck between the availability and cost of each financial assurance mechanism that is selected and the need to establish secure sources of funding to pay for future obligations.

3.3 COMPARISON OF ATTRIBUTES OF FINANCIAL ASSURANCE MECHANISMS

Table 3-1 presents comparisons of the major types of financial assurance mechanisms identified in this report, in light of the attributes identified above. The following section presents a discussion of the attributes of the financial assurance mechanisms identified in this report in terms of their reliability.

TABLE 3-1

COMPARISON OF FINANCIAL ASSURANCE MECHANISMS

Financial Assurance Mechanisms	Attributes of Mechanisms Appropriate for Demonstrating Financial Assurance for the Long-Term Treatment of AMD					
	Is reliable to ensure the availability of funds	Provides incentives to operators to maintain compliance	Requires low levels of monitoring to ensure compliance	Takes advantage of the time value of money	Is readily available to the regulated community	Is inexpensive to use
Paid-In Trust Funds	•	•		•	•	
Trust Funds That Allow Payments Over Time	• [1]	•		•	•	
Escrow Agreements	•	•		•	•	
External Sinking Funds	•	•		•	•	
Certificates of Deposit	•	•		•	•	
Negotiable Government-Issued Securities	•	•		•	•	
Collateral Bonds Backed by Real Property		•			•	•
Cash Accounts	• [2]	•		•	•	
Annuities	•	•		•	•	
Surety Bonds	•	•	•			
Letters of Credit	•	•	•			
Lines of Credit	•	•	•			
Collateral Bonds Backed by Life Insurance Policies					•	
Insurance	•					
Self Bonding/Financial Tests					• [3]	•
Corporate Guarantees					• [3]	•
State Funds	•			•	•	•

NOTES:

1) Because the trust fund accepts payments over time, the full amount of funds required to pay for the assured obligations may not be available if an operator defaults on its obligations before the trust has been funded fully.

2) If cash is deposited directly with a regulatory authority, cash accounts are not considered to be backed by the guarantee of a third party.

3) Self bonds, financial tests, and corporate guarantees are available to members of a regulated community only to the extent that those members are able to meet the particular criteria established for use of each type of mechanism.

3.3.1 The Reliability of Financial Assurance Mechanisms

As Table 3-1 indicates, most of the mechanisms identified in this report are deemed reliable in ensuring the availability of funds to meet environmental obligations and are backed by the guarantees of third parties. Several mechanisms, however, including collateral bonds backed by real property, collateral bonds backed by life insurance policies, self bonds, financial tests, and corporate guarantees, may not be reliable for use in demonstrating financial assurance for the long-term treatment of AMD.

Collateral bonds backed by real property may be less reliable than other mechanisms for the demonstration of financial assurance for the long-term treatment of AMD, both because the historical performance of that mechanism has not been well established under other regulatory programs and because the mechanism is not backed by the guarantee of a third party. Further, factors such as the potential volatility of the market values of real property; the possibility that, in the course of defaulting on its obligations, the operator might take actions that would decrease the value of the property; the potential difficulty in finding an entity willing to buy the property at its estimated market value; and the unknown nature of the transaction costs associated with the sale of the property (for example, advertising and closing costs), each could jeopardize the use of the mechanism to ensure the availability of funds to conduct the long-term treatment of AMD.

Life insurance policies used in conjunction with collateral bonds are backed by the guarantee of a third party. However, the reliability of life insurance policies as a financial assurance mechanism is not clear and experience using this mechanism appears to be minimal.

Self bonds, financial tests, and corporate guarantees each are types of self-assurance mechanisms. Many regulators deem such mechanisms unreliable because they are not backed by the guarantees of third parties and they do not require that operators set aside funds to pay for future obligations. Established primarily as variance devices for large corporations, self-assurance mechanisms cannot be called upon to provide funds for the long-term treatment of AMD in the event of default on the part of the operator. In addition to the limitations inherent in the very concept of self-assurance devices, the criteria established to determine which operators may use such mechanisms tend to be highly subjective and often are based on questionable assumptions.

The following section presents a discussion of the degrees to which financial assurance mechanisms provide incentives to operators to comply with the conditions of their permits.

3.3.2 The Degrees to Which Financial Assurance Mechanisms Provide Incentives to Operators to Comply with the Conditions of Their Permits

The fundamental determinant of whether a financial assurance mechanism provides incentives to operators to comply with the conditions of their permits is whether the mechanism facilitates risk retention or risk transfer. Mechanisms, such as trust funds that establish a secure source of funds dedicated for the payment of future obligations ultimately are risk-retention devices in that the assets placed in trust will be forfeited to the regulatory authority in the event that the operator does not comply with all the conditions of its permit. Surety bonds also provide incentives for compliance because, in the event of a loss, the surety retains full rights of recovery against the operator. Finally, letters of credit and lines of credit also provide such incentives because the operator must repay to the issuing entity, with interest, any funds drawn by a regulatory authority through those mechanisms.

Insurance, however, is used primarily as a means of transferring risk from the operator to an insurance company. Because premiums paid cannot be recovered by the operator whether or not it fulfills its obligations, and because the insurer, not the operator, must pay for the assured obligations in the event of default, the use of insurance provides few incentives for the operator to comply with the conditions of its permit. Life insurance, in particular, may provide few incentives for compliance because the payment of proceeds under such policies is predicated on the death of the insured.

Self bonds, financial tests, corporate guarantees, and state funds are types of risk-transfer devices in that they facilitate the transfer of risk from the operator to the regulatory authority. Because the regulatory authority, rather than the operator, must pay to address assured obligations in the event of a default, the use of such mechanisms provides few incentives for compliance that are not already established in the operator's permit.

The following section presents a discussion of the attributes of mechanisms in terms of the levels of monitoring that are required to ensure compliance with requirements for financial assurance.

3.3.3 The Levels of Monitoring Required to Ensure Compliance in the Use of Financial Assurance Mechanisms

As Table 3-1 indicates, most of the mechanisms identified in this report may require high levels of monitoring to ensure compliance. Mechanisms such as trust funds, for example, may require high levels of monitoring to ensure that the operator adhere to established payment schedules. Mechanisms such as collateral bonds backed by negotiable securities may require high levels of monitoring to ensure that, at all times, the market values of those securities are at least equal to the estimated costs of the assured obligations. Finally, mechanisms such as self bonds, financial tests, and corporate guarantees may require high levels of monitoring because those mechanisms incorporate complex eligibility requirements and operators must be reevaluated annually to determine whether those operators remain eligible to continue to use them. Surety bonds, letters of credit, and lines of credit are deemed not to require high levels of monitoring, however, because those mechanisms are not backed by assets that change frequently in value and because requirements for their use tend not to be overly complex.

3.3.4 The Ability of Financial Assurance Mechanisms to Take Advantage of the Time Value of Money

As Table 3-1 indicates, one half of the mechanisms identified in this report cannot take advantage of the time value of money. Mechanisms such as surety bonds and letters of credit have penal sums or face values that are static in nature. Those values do not increase regularly or compound on the basis of interest earnings. Mechanisms such as cash accounts and certificates of deposit are interest-bearing mechanisms and do take advantage of the time value of money. In addition, annuities, although not actually interest-bearing mechanisms, also take advantage of the time value of money because they can be purchased for less than their full payment value. The longer the period of time over which payments will be made under an annuity, the greater the effect of the time value of money on the purchase price of that annuity.

3.3.5 The Availability of Financial Assurance Mechanisms to the Regulated Community

As Table 3-1 indicates, Tetra Tech believes that most of the financial assurance mechanisms identified in this report would be readily available to the regulated community. However, because obligations for the treatment of AMD tend to be indeterminate and long-term in nature, certain mechanisms may not be accessible to operators for demonstrating financial assurance. In particular, mechanisms that are issued

irrevocably, such as surety bonds, letters of credit, and lines of credit, might not be readily available to the regulated community because of t he uncertain duration of the period over which financial assurance would be provided.[2] In addition, insurance underwritten to provide coverage for known obligations for the treatment of AMD probably would not be available because the preexistence of the treatment obligation likely would preclude the issuance of a policy. Insurance underwritten to provide coverage for unknown liabilities for treatment at sites at which AMD might occur in the future also may be difficult to obtain because the market for that type of coverage has not been well established at a national level. Given sufficient regulatory incentives that create demand on the part of regulated communities, however, such a market could develop in the future.

Similar markets for environmental liability insurance products have developed under other regulatory programs. For example, beginning on May 2, 1986, owners and operators of TSDFs were required under 40 CFR 264.147 to demonstrate financial assurance for third-party liability coverage. Although commercial insurance coverage was envisioned as the primary mechanism to be used to demonstrate this type of financial assurance, few insurers were willing to underwrite such coverage at the time the regulations first went into effect. Based on ensuing enforcement of the regulations, however, demand for such coverage from the regulated community remained constant. By the early 1990's, a select group of insurers had capitalized on that demand and established a commercial market for third-party liability coverage for TSDFs.

3.3.6 The Cost of Financial Assurance Mechanisms to the Regulated Community

While most of the mechanisms identified in this report would be reliable and readily available to the regulated community, few of the mechanisms best suited for demonstrating financial assurance for the long-term treatment of AMD would be significantly less expensive to use than other mechanisms. Although mechanisms such as trust funds and annuities can help mitigate the total costs of the long-term treatment of AMD by taking advantage of the time value of money, establishment of those mechanism still may require that large amounts of funds be provided up front. Those mechanisms therefore may be cost-prohibitive to certain members of the regulated community. In addition, because the use of collateral

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[2] Such mechanisms might be available, however, for use to demonstrate financial assurance for the short term or for use in conjunction with an external sinking fund as described in Appendix A - Section A.13 of this report.

for surety bonds and letters of credit is prevalent in most environmental applications for which potential liabilities and overall risk are perceived to be high and because the use of such collateral can result in significant opportunity costs for operators, such mechanisms, if available at all, also likely will be more expensive to use than other mechanisms. Finally, given the relatively large amounts of funds that may be required to effect the long-term treatment of AMD and the uncertainty of the future liabilities associated with such obligations, premiums for traditional forms of insurance may render those mechanisms cost-prohibitive, as well.

Mechanisms such as collateral bonds backed by real property, self bonds, financial tests, and corporate guarantees would provide to the regulated community means for demonstrating financial assurance that are less expensive than other mechanisms. However, for a variety of reasons, each of those mechanisms also is deemed unreliable in providing funds for the long-term treatment of AMD.

Of all the mechanisms identified in this report, the use of a state fund (a government-managed contingency fund used to address outstanding environmental obligations) is the only mechanism that may be both reliable and inexpensive. State funds, in fact, may provide a secure source of funds to address the treatment of AMD when operators are unable to establish financial assurance or when the amounts of financial assurance they do establish prove to be insufficient to address their assured obligations in full. Such mechanisms are cost-effective for certain operators, however, only because they spread out the burden of the cost of treatment of AMD from those operators that are directly responsible for the creation of such drainage to an entire regulated community. In addition to the substantial costs borne by regulated communities, regulatory authorities would find it necessary to devote significant resources to the management and administration of such funds.

4.0 RECOMMENDATIONS

After a systematic review of financial assurance mechanisms used under various regulatory programs, Tetra Tech is providing four major recommendations:

1) Tetra Tech is recommending the use of the following mechanisms for demonstrating financial assurance for the long-term treatment of unanticipated AMD: paid-in trust funds; trust funds that allow payments over time; external sinking funds; escrow agreements; cash accounts; CDs; negotiable government-issued securities; annuities; and state funds.

2) Tetra Tech is recommending that requirements for public liability coverage specifically include liabilities that arise from the formation of AMD.

3) Tetra Tech is recommending that OSM seek to obtain from Congress additional authorization to manage interest-bearing accounts.

4) Tetra Tech is recommending that the estimated costs of the reclamation plan be adjusted annually to account for the effects of inflation or changes in the reclamation plan.

The following section discusses the mechanisms recommended by Tetra Tech's in demonstrating financial assurance for the long-term treatment of AMD.

Recommended Mechanisms for Demonstrating Financial Assurance for the Costs of Treatment of Unanticipated AMD

Note: Reference to AMD in the following discussion assumes that the AMD is unanticipated and not predicted at the time a permit is issued for the site. The recommended financial mechanisms would apply in the event that unanticipated AMD occurs.

Because each operator will have specific financial needs and limitations, it will be beneficial that OSM provide to the regulated community some degree of flexibility in meeting requirements for financial assurance for the long-term treatment of AMD. Programs that provide few practicable alternatives for meeting financial assurance requirements may erect unnecessary barriers to achieving compliance with the regulations and increase the costs of compliance to regulated communities. To avoid such a scenario, Tetra Tech recommends that OSM seek to provide to operators of coal mines a selection of mechanisms for financial assurance that will safeguard the provision of funds for the long-term treatment of AMD while, whenever possible, providing flexibility and mitigating the financial burdens imposed on the regulated community.

Tetra Tech has identified the following mechanisms as having attributes that are appropriate for the demonstration of financial assurance for the long-term treatment of AMD:

Paid-in Trust Funds: From a regulator's point of view, paid-in trust funds are highly advantageous mechanisms that can be used to demonstrate effectively financial assurance for the long-term treatment of AMD. The use of a paid-in trust requires that an operator deposit in full, and at the time the trust is established, the total estimated costs of its assured obligations. Thereafter, the operator is required to deposit into the trust only such amounts as are necessary to compensate for adjustments for the effects of inflation or for changes in the estimated costs of the long-term treatment of AMD.

Paid-in trust funds offer a highly reliable form of financial assurance that can be used in any circumstance under which the operator has access to qualified, government-regulated financial institutions. Because the full amount of funds required to conduct the long-term treatment of AMD is set aside by the operator and managed by an independent trustee, the trust fund would provide OSM with solid assurance that funds would be available to conduct treatment activities in the event of default on the part of the operator. Further, because funds held in trust could be released to the operator only upon the approval of OSM, the use of trust funds would provide sufficient incentive to the operator to implement treatment activities in a timely manner and to continue treatment until those funds could be recovered. Trust funds are interest-bearing accounts that allow operators to take advantage of the time value of money. Interest earned on the assets held in trust effectively would reduce, or even eliminate, any future payments into the trust that an operator might otherwise be required to make and subsidize the total costs of the long-term treatment of AMD.

Despite the numerous advantages from a regulator's point of view of the use of trust funds, operators may prefer not to use paid-in trust funds because of the significant financial burdens associated with their use. Compared with other mechanisms, trust funds may not provide operators with the most economical alternative for demonstrating financial assurance because assets must be reserved up front in amounts equal to the total costs of treatment of AMD. Further, because funds deposited in the trust fund generally will not be made available to the operator for the entire period during which treatment activities are being conducted, the operator must bear certain opportunity costs. Finally, because trust fund arrangements can be complex, the use of trust funds as mechanisms for financial assurance for the long-term treatment of AMD may require significant oversight on the part of OSM.

Trust Funds That Allow Payments Over Time: Trust fund mechanisms that allow payments over time afford to regulators much of the same security as do paid-in trust funds, while allowing operators the added flexibility of funding the trust over predetermined periods of time. Compared with paid-in trust funds, trust fund mechanisms that allow payments over time provide significant financial benefits to operators because, in addition to affording operators opportunities to earn interest on the funds held in trust, they allow those operators to demonstrate financial assurance without depositing in full the total estimated costs of their assured obligations at the time the trust is established. An advantage over a paid-in trust, the ability to fund the trust fund over time mitigates both the up-front and the opportunity costs associated with the use of such a fund. Those benefits to the regulated community that are associated with the use of trust funds that allow payments over time, however, can be provided to operators only at some risk to the regulatory authority. Because operators are allowed to fund the trust over time, the trust does not guarantee that the total amount of funds required to pay for the long-term treatment of AMD would be available should an operator default on its obligations before the trust is funded fully. Under programs that currently allow the use of such mechanisms, however, regulatory authorities have decreased that risk by requiring that operators fund the trusts in full over relatively short periods of time.[3]

Trust funds that allow payments over time have been used successfully under other regulatory programs to demonstrate financial assurance for long-term obligations.[4] Section A.1.2 of Appendix A of this report discusses two distinct applications of trust funds that allow payments over time. Provided that the pay-in period established for each trust fund is of sufficiently short duration to mitigate the regulatory authority's risk of premature default, Tetra Tech believes that the trust fund model specified at 40 CFR 264.143(a) and 264.145(a) could provide a mechanism suitable for use in demonstrating financial assurance for the long-term treatment of AMD. However, because the treatment of AMD may take place over exceptionally long periods of time, Tetra Tech believes that the trust fund model specified at 40 CFR 258.74(a) would not be suitable for use in demonstrating financial assurance for the long-term treatment of AMD.

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[3] For example, under Subtitle C of RCRA, owners and operators of TSDFs normally are required to fund trust funds for closure and post-closure care obligations over the initial term of their permits; usually five years.

[4] For example, under Subtitle C of RCRA, owners and operators of hazardous waste disposal facilities and municipal solid waste landfills use trust funds to demonstrate financial assurance for post-closure care obligations of as long as 30 years' duration.

Escrow Agreements: An escrow agreement is an account that contains funds deposited by an operator and held in a bank or other financial institution. An escrow account differs from other types of accounts in that the funds deposited by the operator are held in escrow until the occurrence of a contingency or the performance of a condition; they then are released. Escrow agreements, as described under 10 CFR 30.35, 40.36, 50.75, 61.62, 70.25, and 72.30, are interest-bearing accounts that function in much the same way as paid-in trust funds. They would be mechanisms suitable for use in demonstrating financial assurance for the long-term treatment of AMD. Like paid-in trust funds, operators must deposit in full, and at the time the escrow account is established, the total estimated costs of its assured obligations. Escrow accounts offer to regulators a highly reliable form of financial assurance and afford to operators opportunities to earn interest on the funds held in escrow.

External Sinking Funds: A more secure alternative to trust funds that allow payments over time, external sinking funds are accounts that are funded over time but that are combined with other mechanisms to demonstrate the full amount of financial assurance required. External sinking funds, as implemented under 10 CFR 30.35, 40.36, and 70.25, may take the form of any of several mechanisms, such as cash deposits in escrow or trust accounts, CDs, or deposits of government securities. The sinking fund account, whatever form it takes, is segregated from the assets of the operator and is not under the control of the operator. To use the mechanism, the operator sets aside funds and adds to the account periodically as prescribed under a schedule established by the regulatory authority.

External sinking funds are combined with such mechanisms as surety bonds or letters of credit. When so arranged, the combined value of the sinking fund and the other mechanism must be at least equal to the total amount of the assured obligations. As the amount held in the sinking fund increases over time, the amount of the other financial assurance mechanism can decrease correspondingly. Eventually, the other mechanism may be eliminated as the fund is transformed into a mechanism that is the equivalent of a paid-in trust fund.

External sinking funds offer to regulators a highly reliable form of financial assurance and provide a mechanism suitable for use in demonstrating financial assurance for the long-term treatment of AMD. The mechanism combines the financial benefits and interest-earning attributes of a trust fund that allows payments over time with the reliability of a paid-in trust or other fully collateralized mechanism. Unlike trust funds that allow payment over time, external sinking funds can provide to the regulatory authority the

full amount of funds required, even if the operator defaults on its obligations before the fund is financed fully. Further, the mechanism provides operators flexibility in that they can use other mechanisms, such as surety bonds and letters of credit, to demonstrate portions of their financial assurance obligations. In some cases, combinations of such mechanisms may be more cost-effective than using a paid-in trust fund alone.

Tetra Tech recommends that, to ensure the uniform and effective use of the mechanism, external sinking funds used to demonstrate financial assurance for the long-term treatment of AMD be established consistently as trust fund accounts and that those accounts be supported by such financial mechanisms as surety bonds and letters of credit that are guaranteed by a third party. Further, the terms of each mechanism used to support an external sinking fund should specify that all proceeds derived by the regulatory authority through use of those mechanisms be deposited directly into the external sinking fund. In that way, the external sinking fund can be used to generate interest on the proceeds collected.

Cash Accounts: A number of regulatory programs allow operators to use cash, or such cash equivalents as cashier's checks and certified checks, as collateral to demonstrate financial assurance for environmental obligations. To satisfy requirements for financial assurance, such cash assets generally must be maintained in interest-bearing accounts or deposited directly with a regulatory authority. Cash accounts, provided that they are established as interest-bearing accounts and maintained by an independent financial institution, function in much the same way as do paid-in trust funds and escrow agreements. They would be mechanisms suitable for use in demonstrating financial assurance for the long-term treatment of AMD. As is the case when a paid-in trust fund is used, operators must deposit into the accounts amounts of cash or cash equivalents that are at least equal to the total estimated costs of the obligations assured.

Certificates of Deposit: A type of fixed-term interest-bearing security, certificates of deposit (CD) are used under several regulatory programs as collateral to demonstrate financial assurance for environmental obligations. CDs may be negotiable or nonnegotiable in nature and may be of the time-deposit or demand-deposit variety. CDs generally must be made payable or assigned to a regulatory authority and placed in the possession of that authority or an independent financial institution. In the event of default on the part of the operator, the regulatory authority is authorized to liquidate the CDs and use the proceeds to pay for the long-term treatment of AMD. CDs offer to regulators a highly reliable form of financial assurance

and provide a mechanism suitable for use in demonstrating financial assurance for the long-term treatment of AMD. Because they are interest-bearing securities, CDs also allow operators the opportunity to take advantage of the time value of money.

Tetra Tech recommends that operators of coal mines be required to establish a standby trust fund in conjunction with the use of CDs to demonstrate financial assurance for the long-term treatment of AMD. The regulatory authority should be established as the sole beneficiary of the standby trust fund and the terms of the CDs should specify that, if the regulatory authority liquidates the CDs, the proceeds will be deposited directly into the fund. While not a financial assurance mechanism in itself, the standby trust is a conduit through which the funds needed to pay for the long-term treatment of AMD will be transferred from the financial institution that issued the CDs to a special account from which the regulatory authority can disburse those funds readily. The standby trust fund is an important tool that the regulatory authority can use to earmark proceeds from the liquidation of CDs for the treatment of AMD at specific sites. Further, interest earned from the funds held in trust offsets increases in the costs of treatment of AMD because of the effects of inflation, or changes in treatment requirements, over a number of years. This approach, for example, is used under 10 CFR 30.35, 40.36, 40 Appendix A, 50.75, 61.62, 70.25, and 72.30, where entities licensed by the Nuclear Regulatory Commission (NRC) to operate specially licensed nuclear materials facilities, uranium and thorium mills, and radioactive waste land disposal facilities are required to establish standby trust funds when they use CDs to demonstrate financial assurance for environmental obligations at such facilities.

Negotiable Government-Issued Securities: A category of debt mechanisms used by public entities to finance operations, government-issued securities include bills, notes, and bonds issued by the U.S. Treasury, as well as similar mechanisms issued by states or municipalities in the United States. Like CDs, government-issued securities are used under several regulatory programs as collateral to demonstrate financial assurance for environmental obligations. The securities generally must be negotiable and conveyed to the regulatory authority to ensure that in the event of default, the regulatory authority can liquidate the securities to pay for assured environmental obligations. The securities usually must be issued by the U.S. Treasury; however, certain programs also allow the use of securities issued by states or municipalities located in the United States or other investment-grade securities issued by nongovernment entities.

In general, government securities offer regulators a highly reliable form of financial assurance and provide a mechanism suitable for use in demonstrating financial assurance for the long-term treatment of AMD. The values of government securities may vary, however, according to market conditions, and local governments at times have been known to default on certain types of public debt. Because, once they have matured, government securities may be redeemed for the amount of principal invested plus interest, the use of such securities may allow operators to take advantage of the time value of money.

To avoid potential volatility in the market values of government-issued securities used to demonstrate financial assurance for the long-term treatment of AMD, Tetra Tech recommends that only securities issued by the U.S. Treasury be accepted. If, however, OSM were to decide that securities issued by states and municipalities also may be used, those securities should be rated "A" or higher by Standard and Poor's Corporation or Moody's Investor's Service, Inc.

In addition, Tetra Tech recommends that operators of coal mines be required to establish a standby trust fund in conjunction with the use of government-issued securities to demonstrate financial assurance for the long-term treatment of AMD. The regulatory authority should be established as the sole beneficiary of the standby trust fund, and the terms of the conveyance of the government securities should specify that, if the regulatory authority liquidates those securities, the proceeds are to be deposited directly into the standby trust fund. For example, under 10 CFR 30.35, 40.36, 40 Appendix A, 50.75, 61.62, 70.25, and 72.30, entities licensed by NRC to operate specially licensed nuclear materials facilities, uranium and thorium mills, and radioactive waste land disposal facilities are required to establish standby trust funds when they use government-issued securities to demonstrate financial assurance for environmental obligations at such facilities.

Annuities: An annuity is a series of payments, or possibly a lump-sum payment, made on behalf of an operator by an insurance company or other entity in exchange for an up-front premium paid by the purchaser. Once the annuity has been purchased, the issuer becomes contractually obligated to make the payments over time on behalf of the purchaser. The schedule of payments to be provided must be established at the time the annuity is purchased. If desired, special features can be incorporated into annuities to provide for irregular streams of payments. Great care must be exercised when using annuities to demonstrate financial assurance for long-term environmental obligations to ensure that the

stream of payments to be provided under an annuity will coincide with the needs for funds to address those obligations.

Because payments from annuities may be scheduled to be made over long periods of time, operators can take advantage of the time value of money by purchasing an annuity for less than its full payment value. The longer the period of time over which payments will be made, the greater the effect of the time value of money on the purchase price of the annuity. For example, assuming an eight percent simple interest rate, the purchase price of a three-year annuity that has a face value of $25,000 would be approximately $19,846. However, again assuming an eight percent simple interest rate, the purchase price of five- and ten-year annuities, each with face values of $25,000, would be $17,015 and $11,580, respectively. Annuities offer regulators a highly reliable form of financial assurance and provide a mechanism suitable for use in demonstrating financial assurance for the long-term treatment of AMD. Indeed, because the terms of annuities grow more favorable as the length of time over which payments are to be made increases, annuities may be particularly appropriate mechanisms for use in demonstrating financial assurance for the long-term treatment of AMD.

Tetra Tech recommends that operators of coal mines be required to establish a standby trust fund in conjunction with annuities to demonstrate financial assurance for the long-term treatment of AMD. The regulatory authority should be established as the sole beneficiary of the standby trust fund, and the terms of the annuity should specify that the payments made under the annuity are to be deposited directly into the standby trust fund. Slowly, over time, the annuity would transform itself into a paid-in trust fund. The standby trust fund will allow the regulatory authority to earmark the proceeds from the annuity for the treatment of AMD at specific sites. Further, because interest is earned from the funds held in trust, the standby trust fund will allow the operator to capitalize on the time value of money provided under both the annuity and the trust fund mechanisms over a number of years.

State Funds: While each of the mechanisms discussed above can be used effectively to demonstrate financial assurance for known environmental obligations, those mechanisms also have certain limitations that may expose regulatory authorities to future liabilities. First, despite the best of plans or intentions, certain operators may never be able to comply with requirements for demonstrating financial assurance or may be able to comply with them only in part. Second, financial assurance mechanisms, no matter how well designed, occasionally do fail, and such failure can leave regulatory authorities with the burden of

addressing assured obligations without the benefit of readily available sources of funds. On occasion, and particularly when extensive and unexpected liabilities arise toward the end of the operating life of a facility, operators may be unable to demonstrate financial assurance in the amounts required or may be able to provide financial assurance in amounts that cover only a portion of their obligations. Under such circumstances, it may be necessary to arrange for alternate means of financing the conduct of the activities required.

One strategy for addressing such a problem involves the establishment of contingency funds that can be used to cover the costs of meeting environmental obligations when operators are unable to establish financial assurance or when the amounts of financial assurance established prove to be insufficient to address in full the assured obligations. Such contingency funds have been used, with varying degrees of success, under other programs to address environmental obligations that cannot be addressed by operators because of lack of financial resources.

For example, under the RCRA Subtitle I program, 40 states currently have state-managed funds to help ensure that adequate monies are available to undertake corrective actions and compensate third parties for bodily injury or property damage that results from the operation of petroleum underground storage tanks (UST). The criteria used to determine the eligibility of owners and operators of USTs to access state funds and the procedures by which eligible costs are paid from those funds vary from state to state. Further, the methods used to finance each fund, the manner in which each fund is administered, and the types and amounts of fees or taxes that are collected also vary significantly from state to state.

The establishment of a contingency fund could provide a suitable means of financing the costs of the long-term treatment of AMD that cannot be covered by reclamation bonds. To undertake such a strategy, OSM could establish a contingency fund dedicated to the sole purpose of covering outstanding costs of the long-term treatment of AMD. Another alternative might be to expand the scope of an existing contingency fund to cover such costs.

OSM established the Abandoned Mine Reclamation Fund primarily to provide a source of funds that could be used to conduct reclamation activities at mines that had been abandoned or left restored inadequately

before the passage of SMCRA in 1977.[5] There are, however, a growing number of mines permitted after the passage of SMCRA that have been abandoned or at which operators have made insufficient provision for addressing fully the costs of the long-term treatment of AMD. Operators had established bonding mechanisms for reclamation for many of those sites. However, the amounts of funds available from those mechanisms, while often sufficient to provide for the conduct of standard reclamation activities, frequently do not provide funds sufficient to provide for the conduct of long-term treatment of AMD. Given those circumstances, it might be possible to expand the scope of the Abandoned Mine Reclamation Fund to ensure so that it would be a potential source of monies for the conduct of long-term treatment of AMD at coal mines that have been abandoned since the passage of SMCRA.

Currently, the Abandoned Mine Reclamation Fund is financed through the collection of fees of 35 cents per ton of surface-mined coal, 15 cents per ton for coal mined underground, and 10 cents per ton of lignite mined at all active coal operations in the United States. However, it likely would be necessary to increased those fees if the fund were to assume the added obligation of effecting the treatment of AMD at coal mines abandoned since the passage of SMCRA.

If expanding the scope of the Abandoned Mine Reclamation Fund proves unfeasible, OSM instead could establish other independent contingency funds that are dedicated to the sole purpose of funding the costs of long-term treatment of AMD. Such funds could be established at the national or the state level. The funds could be used to cover the costs of treatment of AMD when operators of coal mines are unable to establish financial assurance for such treatment or when the amounts of financial assurance that are established prove to be insufficient to provide for the conduct of the required activities. Careful planning would be necessary to establish specific criteria by which the eligibility of operators of coal mines to access the funds would be determined, to identify the types of costs that would be covered by the funds, and to decide how those costs would be paid from the funds. A fee structure similar to that adopted for the Abandoned Mine Reclamation Fund could be used to finance such funds. Tetra Tech will conduct additional analyses to assist OSM in determining the amounts of funds would be necessary to deposit each

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[5] OSM also uses the Abandoned Mine Reclamation Fund to support state and tribal reclamation programs, fund emergency projects and high-priority projects in states that do not have approved abandoned mine land programs, fund the Rural Abandoned Mine Land Program, fund the Small Operator Assistance Program, and fund efforts to address additional problems related to reclamation of abandoned mines directly through state reclamation programs.

year into interest-bearing contingency accounts to address the future costs of the long-term treatment of AMD.

The following section addresses Tetra Tech's recommendation that requirements for public liability coverage specifically include liabilities caused by AMD .

Potential for Public Liability Coverage Insurance to Include Liabilities for AMD

With respect to the long-term costs of treatment of AMD, two basic types of liabilities exist: 1) known liabilities for treatment at sites at which the formation of AMD already has occurred and 2) unknown liabilities for treatment at sites at which the formation of AMD may take place in the future. Through the more aggressive use of improved predictive technologies, regulators are thought to have reduced greatly the number of newly permitted mines at which significant amounts of high-concentration AMD will form. Despite the use of such technologies, however, and, as the result of natural occurrences or failures by operators to comply with the conditions of their permits, liabilities for the treatment of AMD remain likely to occur in the future at a significant number of newly permitted mines. Provisions, therefore, must be made to address those future, and as yet unknown, liabilities.

Many of the mechanisms discussed in this report, while appropriate for demonstrating financial assurance for the known costs of treatment of AMD, are not well suited for use in addressing unknown liabilities for treatment at sites at which AMD may take place in the future. For example, it is difficult to apply such mechanisms as trust funds to contingent liabilities because such funds generally cannot be established until the type and extent of treatment activities that will be required, as well as the amounts of funds required to conduct those activities, have been determined. More so than other mechanisms, insurance can be used effectively to provide coverage for future events that cannot be predicted. By contrast, insurance usually is not well suited for providing funds for contingencies that already have occurred. Writing an insurance policy, for example, to provide coverage for treatment of AMD at a site at which the need to treat AMD already has been established would be comparable to writing a fire insurance policy for a building that already is on fire. However, precedence in case law under other environmental programs suggests that claims against old comprehensive general liability insurance (CGL) policies may be a possible source of funds for treatment of existing AMD . For example, to expedite clean up action on Superfund sites, many state supreme courts are ruling that "gradual pollution" qualifies as "sudden and

accidental damage" to be covered under CGL policies. These gradual emissions of toxins were previously exempt from coverage under CGL policies.

To help address liabilities for the treatment of AMD that may arise in the future, Tetra Tech recommends that OSM specify that public liability coverage requirements at 30 CFR 800.60 apply to bodily injury or property damage including the loss or diminution in the quantity or quality of public or private sources of water and to injury or damage that may result from releases of AMD from a site. Requirements that operators of coal mines provide public liability coverage for mining and reclamation operations have been established in Pennsylvania and are set forth at 25 Pa. Code Part 86.168.

Under 30 CFR 800.60 operators are required to submit proof of liability coverage before a permit or license is issued or renewed. To increase the effectiveness of the coverage, it should be established on an "occurrence" rather than a "claims-made" basis and be provided by an independent commercial insurance company that, at a minimum, is licensed or authorized to do business in the state in which the mine is located. Each insurance policy should be submitted to OSM for review and approval. The language of each insurance policy should identify OSM as a potential claimant under that policy. Each policy should be maintained in full force and effect for the duration of an operator's mining and reclamation operations. The face value of each policy may be set by the application of preestablished per occurrence and annual aggregate amounts or determined by OSM on a case-by-case basis. (OSM should establish per occurrence and annual aggregate amounts for such coverage based on the estimated "average" costs of treatment of AMD at individual sites.)

In addition, Tetra Tech recommends that operators of coal mines be required to establish a standby trust fund in conjunction with each insurance policy. The language of each insurance policy should specify that any payments made to OSM under the policy will be deposited directly into the standby trust fund. Interest earned from the funds held in trust could be used to offset increases in the costs of treatment of AMD because of the effects of inflation, or changes in treatment requirements, over a number of years.

It is recognized that this option would place an administrative burden on the regulatory agency and potentially require additional staff to conduct additional inspections and investigations to assure compliance with the insurance requirements, perform litigation activities, and to administer collected damages. Also, identifying insurance companies willing to write such policies could be challenging and potentially

expensive for the regulated community. Additional resources also would be required at the regulatory agency (as well as individual owners) to research old policies to determine the extent to which coverage would apply to past operations at individual mines and the potential for using these policies as a source of funding for AMD treatment activities.

The following section addresses Tetra Tech's recommendation that OSM obtain from Congress the additional authorization to manage interest-bearing accounts.

Obtain Additional Authorization for OSM to Manage Interest-Bearing Accounts

Tetra Tech recommends that, to ensure the most effective use of the mechanisms identified in this report as appropriate for demonstrating financial assurance for the long-term treatment of AMD, OSM seek to obtain from Congress additional authorization to manage interest-bearing accounts. The current prohibition against doing so (for example, for forfeited bonds) significantly limits the types of mechanisms that operators can use to ensure that funds will be available for the long-term treatment of AMD and undermines the ability of those operators to take full advantage of the time value of money in seeking to offset increases in costs because of effects of inflation or changes in standards for treatment over a number of years. Mechanisms such as trust funds and other interest-bearing accounts, while each providing highly secure sources of funds, allow operators to take advantage of the time value of money by using investment returns or discount rates to subsidize the costs of their future obligations. In the event of default, however, OSM would find it necessary to assume control of those accounts and preserve them intact to maintain the compounding effects of the funds in them. Such authorization also would be essential for the effective management of broad-based funds used to provide resources to be used to support the treatment of AMD at mines abandoned since the passage of SMCRA.

The following section addresses Tetra Tech's recommendation that the estimated costs of reclamation should be adjusted annually to account for the effects of inflation or changes in the reclamation plan.

The Estimated Costs of Reclamation Should be Adjusted Annually to Account for the Effects of Inflation or Changes in the Reclamation Plan

Currently, under 30 CFR 800.15, the regulatory authority adjusts the amount of the bond or deposit required to demonstrate financial assurance from time to time, as the area requiring bond coverage is

increased or decreased or as the cost of future reclamation changes. Tetra Tech recommends that estimated costs of reclamation (including the costs of the long-term treatment of AMD) be adjusted annually to account for the effects of inflation or recalculated to reflect those costs in current-year dollars. One acceptable method that can be used to adjust cost estimates for inflation is specified at 40 CFR 264.142(b). Other methods, based on fluctuations of price indices specific to the coal industry, also might be developed to provide more exacting measures of the effects of inflation on the estimated costs of coal mine reclamation activities.

Bonding requirements under SMCRA are designed to ensure that funds will be available to regulatory authorities to conduct reclamation activities if operators of coal mines are unwilling or unable to do so. Because the values of bonding mechanisms are based on the estimated costs of reclamation, and because operators may default on their obligations at any time, it is important that, to the extent possible, the estimated costs of reclamation reflect the current, market value costs of conducting the required activities at each site. Estimates that are not adjusted annually for inflation may become out-of-date quickly and jeopardize the adequacy of bonding mechanisms to provide funds sufficient to address the assured obligations. Further, failure to adjust cost estimates annually ultimately may compromise the amounts of interest that are earned through the deposit of funds in mechanisms for financial assurance that are interest-bearing.

APPENDIX A

SUMMARY OF FINANCIAL ASSURANCE MECHANISMS CURRENTLY IN USE UNDER FEDERAL ENVIRONMENTAL LAWS AND REGULATIONS AND IN THE COMMONWEALTH OF PENNSYLVANIA

CONTENTS

Appendix **Page**

A.1 TRUST FUNDS A-2

A.1.1 Paid-In Trust Funds A-35
A.1.2 Trust Funds That Allow Payments Over Time A-38

A.2 ANNUITIES FOR RECLAMATION FOR COAL MINES IN PENNSYLVANIA A-44

A.3 ESCROW AGREEMENTS FOR DECOMMISSIONING FOR SPECIALLY LICENSED NUCLEAR MATERIALS FACILITIES AND FOR CLOSURE AND STABILIZATION OF LAND DISPOSAL FACILITIES FOR RADIOACTIVE WASTE A-45

A.4 SURETY BONDS A-46

A.5 LETTERS OF CREDIT A-54

A.6 LINES OF CREDIT FOR DECOMMISSIONING FOR SPECIALLY LICENSED NUCLEAR MATERIALS FACILITIES, FOR DECOMMISSIONING AND RECLAMATION OF URANIUM AND THORIUM MILLS, AND FOR CLOSURE AND STABILIZATION OF LAND DISPOSAL FACILITIES FOR RADIOACTIVE WASTE A-60

A.7 CERTIFICATES OF DEPOSIT A-60

A.8 NEGOTIABLE GOVERNMENT-ISSUED SECURITIES A-64

A.9 REAL PROPERTY FOR RECLAMATION FOR COAL MINES A-69

A.10 CASH ACCOUNTS A-70

A.11 LIFE INSURANCE POLICIES FOR RECLAMATION FOR COAL MINES IN PENNSYLVANIA A-74

A.12 EXTERNAL SINKING FUNDS FOR DECOMMISSIONING OF SPECIALLY LICENSED NUCLEAR MATERIALS FACILITIES A-74

A.13 INSURANCE A-75

A.14 FINANCIAL TESTS AND GUARANTEES A-80

A.15 STATE FUNDS FOR THIRD-PARTY LIABILITY AND CORRECTIVE ACTION FOR USTs A-106

TABLES

Table **Page**

A-1 FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES A-4

A-2 FUNCTION OF A PAID-IN TRUST FUND A-36

A-3 TRUST FUND FOR CLOSURE AND POST-CLOSURE CARE OF A TSDF WITH ANNUAL PAYMENTS MADE OVER A PERIOD OF FIVE YEARS A-40

A-4 TRUST FUND FOR CORRECTIVE ACTION OF A MSWLF WITH ANNUAL PAYMENTS MADE OVER A PERIOD OF FIVE YEARS A-43

APPENDIX A

Table A-1 lists each of the mechanisms Tetra Tech identified through its review. The table also provides the statutes and regulations under which each mechanism is implemented, the types of regulated units for which financial assurance may be demonstrated through the use of each mechanism, the specific financial assurance applications for which each mechanism may be used, and the characteristics of each mechanism. A more detailed discussion of each mechanism also is presented below.

A.1 TRUST FUNDS

Trust funds are sums of money that banks or other qualified financial institutions hold in trust and maintain to ensure the availability of funding for specified purposes. Established specifically for individual facilities, trust funds are used under a number of programs to demonstrate financial assurance for environmental obligations of both a short-term and a long-term nature. Trust funds are three-party agreements under which one party, called the grantor (operator), transfers assets to a second party, called the trustee (financial institution), to hold on behalf of a third party, called the beneficiary (regulatory authority). The entire arrangement is governed by a formal trust agreement that sets forth the responsibilities and rights of each party. Under the agreement, the trust fund is established irrevocably; neither the trustee nor the operator is able to cancel the trust fund without the written agreement of the regulatory authority.

In the context of regulatory programs, the operator of a regulated facility assumes the role of grantor and pays into the trust fund amounts of funds deemed sufficient to demonstrate financial assurance for the operation or facility. Depending on the specific program and the purpose for which financial assurance is established, the operator may be required to fund the trust in full at the time it is established or may be allowed to make payments into the trust fund over time on the basis of a schedule established by regulatory authorities. Each operator is required to maintain the value of its trust fund at no less than the amount specified in the regulations.

Trust funds are administered by a trustee who is empowered to invest the assets deposited in the trust fund. An annual fee usually is charged for the trustee's services.[1] In general, the trustee must be an

[1] Trustee's fees can be expected to vary, depending on the specific institution chosen, the amounts of funds held in trust, the extent to which the operator uses other services of the institution, and the

entity that has the authority to act as a trustee and whose operations are regulated and examined by a federal or state agency.[2] As a result of the investment activities of the trustee, interest is paid on the assets held in trust. Interest earnings often accrue to the trust, thereby reducing or eliminating future payments into the trust that the operator otherwise would be required make. Because trust funds are interest-bearing accounts, operators have the opportunity to take advantage of the time value of money by using investment returns to help pay for the costs of their future obligations.

Only the regulating authority, as the established beneficiary of the trust, is empowered to authorize disbursements of funds from the trust. If an operator fulfills its assured obligations to the satisfaction of the regulatory authority, the regulatory authority may authorize the trustee to release to the operator the funds held in trust. If the operator defaults on its obligations, however, the regulatory authority may use the funds to pay the costs of addressing the assured obligations.

Several types of payment schedules are used under various regulatory programs to fund trust funds for the demonstration of financial assurance. Section A.1.1 discusses how "paid-in" trust funds are used under different regulatory programs to demonstrate financial assurance. Section A.1.2 discusses the use of two different trust fund mechanisms having distinct payment schedules to allow operators to demonstrate financial assurance while funding trusts over time.

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extent and type of investment activity and involvement of the trustee in managing the trust.

[2] Entities that could serve as trustees would include: 1) financial institutions chartered by a state, such as commercial banks, savings and loan institutions, mutual savings banks, and credit unions, and foreign banks that are licensed by a state; 2) financial institutions overseen by the Comptroller of the Currency in the Trust Division of the U.S. Department of the Treasury, such as commercial banks chartered by the federal government, foreign banks licensed by the federal government, and commercial banks chartered by the District of Columbia; 3) financial institutions regulated by the Office of Thrift Supervision, U.S. Department of the Treasury, such as savings and loan institutions chartered by the federal government and mutual savings banks chartered by the federal government; and 4) credit unions chartered by the federal government and overseen by the National Credit Union Administration.

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Trust Funds (Paid In)	Resource Conservation and Recovery Act (RCRA)	40 Code of Federal Regulations (CFR) Part 264.147(j)	Hazardous Waste Treatment Storage and Disposal Facilities (TSDF)	Third-Party Liability Coverage	C Must be funded for the full, annual aggregate amount of liability coverage required C The wording of the trust agreement must be identical to that specified at 40 CFR 264.151(m)(1) C Is rarely used because commercial insurance and self-assurance mechanisms are available
		40 CFR Part 280.102	Petroleum Underground Storage Tanks (UST)	Third-Party Liability Coverage and Corrective Action	C Must be funded for the full amount of coverage required under the regulations C The wording of the trust agreement must be identical to that specified at 40 CFR 280.103(b)(1) C Is rarely used because state financial assurance funds and self-assurance mechanisms are available
	Atomic Energy Act/Energy Reorganization Act	10 CFR Parts 30.35, 40.36, 50.75, 70.25, and 7A.30	Specially Licensed Nuclear Materials Facilities	Decommissioning	C Must be funded for the full amount of the cost of decommissioning or closure and stabilization C The trustee must be acceptable to the Nuclear Regulatory Commission (NRC) C At all times, the trust must contain sufficient assets to complete decommissioning or closure and stabilization activities C Assets other than interest-bearing cash deposits may be placed in the trust
		10 CFR Part 61.62	Radioactive Waste Land Disposal Facilities	Closure and Stabilization	
	Surface Mining Control and Reclamation Act (SMCRA) (Pennsylvania)	25 Pennsylvania (Pa.) Code Part 86.158(f)	Coal Mines	Reclamation	C The Pennsylvania Department of Environmental Protection (PADEP) is established irrevocably as the beneficiary of the trust fund C The amount and investment objectives of the trust fund are established by PADEP C Funds may be released only upon receipt of written authorization from PADEP C The trustee must be a state-chartered or national bank or other financial institution that has trust powers, or a trust company that has offices in Pennsylvania and whose activities are regulated by a state or federal agency C Operators may be allowed to deposit funds on a phased schedule, as specified at 25 Pa. Code Part 86.161

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Trust Funds (Payments Over Time - Payment Schedule No. 1)	RCRA	40 CFR Parts 264.143(a) and 265.143(a)	TSDFs	Closure and Post-Closure Care	C Payments are made annually over time C Annual payments are determined through use of the equation (CE-CV)/Y, where CE = estimated costs, CV = the current value of the trust fund, and Y = the number of years left in the pay-in period C Payments ensure that the total amount of funds needed will be available at the end of the planned pay-in period C Annual payments must factor in increases in cost estimates because of inflation or changes in operations at the facility C Because the trust fund accepts payments over time, it does not guarantee that the total amount of funds required will be available if the facility closes prematurely C For TSDFs and commercial PCB storage facilities, the wording of the trust agreement must be identical to that specified at 40 CFR 264.151(a)(1) C For class I injection wells, the wording of the trust agreement must be identical to that specified at 40 CFR 144.70(a)(1)
		40 CFR Part 258.74(b)	Municipal Solid Waste Landfills (MSWLFs)		
	Toxic Substances Control Act (TSCA)	40 CFR Part 761.65(g)(1)	Commercial Polychlorinated Biphenyls (PCB) Storage Facilities		
	RCRA/Safe Drinking Water Act (SDWA)	40 CFR Part 144.63(a)	Class I Injection Wells	Plugging and Abandonment	
Trust Funds (Payments Over Time - Payment Schedule No. 2)	RCRA	40 CFR Part 258.74(a)	MSWLFs	Corrective Action	C Payments are made annually over time C Annual payments are determined through use of the equation (RB-CV)/Y, where RB = one half of the estimated costs of corrective action, CV = the current value of the trust fund, and Y = one half the estimated duration of the corrective action period C The operator funds the trust gradually over the first half of the corrective action period to ensure that sufficient funds will be available to cover the costs of corrective action during the second half of the corrective action period C Does not guarantee that the total amount of funds required will be available should the operator default before the halfway point of the corrective action period
Annuities	SMRCA (Pennsylvania)	25 Pa. Code Part 86.158(f)	Coal Mines	Reclamation	C PADEP is established irrevocably as the beneficiary of the annuity C Investment objectives are established by PADEP C Funds may be released only upon receipt of written authorization from PADEP C An insurance company issuing an annuity must be licensed or authorized to do business in Pennsylvania by the Pennsylvania Insurance Commissioner or be designated by the Insurance Commissioner as an eligible surplus lines insurer

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Surety Bonds	RCRA	40 CFR Parts 264.143(b) and (c), and 264.145(b) and (c)	TSDFs	Closure and Post-Closure Care	C The penal sum of the bond must be at least equal to the current estimated costs of closure and post-closure care C Two types of surety bonds may be used: financial guarantee bonds and performance bonds C Sureties must be listed in U.S. Treasury Circular 570 C The wording of the financial guarantee bond and the performance bond must be identical to that specified at 40 CFR 264.151(b) and 264.151(c), respectively C A standby trust fund must be established in conjunction with the surety bond
		40 CFR Part 264.147(i)	TSDFs	Third-Party Liability Coverage	C The penal sum of the bond must be at least equal to the annual aggregate amount of liability coverage required C Only financial guarantee bonds may be used C Sureties must be listed in U.S. Treasury Circular 570 C The wording of the bond must be identical to that specified at 40 CFR 264.151(l) C The surety bond must be a legally valid and enforceable obligation in the state in which the surety is located and in each state in which a facility covered by the bond is located C Is rarely used because commercial insurance and self-assurance mechanisms are available
		40 CFR Parts 258.74(b) and (c)	MSWLFs	Closure and Post-Closure Care and Corrective Action	C The penal sum of the bond must be at least equal to the current estimated costs of closure and post-closure care or corrective action C Sureties must be listed in U.S. Treasury Circular 570 C A financial guarantee bond may be used only to demonstrate financial assurance for closure and post-closure care C A standby trust fund must be established in conjunction with the surety bond
		40 CFR Part 280.98	USTs	Third-Party Liability Coverage and Corrective Action	C The penal sum of the bond must be at least equal to the full amount of coverage required under the regulations C Only performance bonds may be used C Sureties must be listed in U.S. Treasury Circular 570 C The wording of the surety bond must be identical to that specified at 40 CFR 280.98(b) C A standby trust fund must be established in conjunction with the surety bond C Is rarely used because state financial assurance funds and self-assurance mechanisms are available

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	TSCA	40 CFR Parts 761.65(g)(2) and (3)	Commercial PCB Storage Facilities	Closure and Post-Closure Care	C The penal sum of the bond must be at least equal to the current estimated costs of closure and post-closure care C Two types of surety bonds may be used: financial guarantee bonds and performance bonds C Sureties must be listed in U.S. Treasury Circular 570 C The wording of the financial guarantee bond and the performance bond must be identical to that specified at 40 CFR 264.151(b) and 264.151(c), respectively C A standby trust fund must be established in conjunction with the surety bond
	RCRA/SDWA	40 CFR Part 144.63(b) and (c)	Class I Injection Wells	Plugging and Abandonment	C The penal sum of the bond must be at least equal to the current estimated costs of closure and post-closure care C Two types of surety bonds may be used: financial guarantee bonds and performance bonds C Sureties must be listed in U.S. Treasury Circular 570 C The wording of the financial guarantee bond and the performance bond must be identical to that specified at 40 CFR 144.70(b) and144.70(c), respectively C A standby trust fund must be established in conjunction with the surety bond
	SMCRA	30 CFR Part 800.20	Coal Mines	Reclamation	C Must be issued by a corporate surety licensed to do business in the state in which the mine covered by the bond is located C At all times, the penal sum of the bond must be sufficient to ensure completion of all planned reclamation activities C Bonds are irrevocable, except that surety bond coverage for lands not disturbed by mining activities may be canceled without the prior consent of the regulatory authority
	SMCRA (Pennsylvania)	25 Pa. Code Part 86.157	Coal Mines	Reclamation	C The surety must be authorized to do business in Pennsylvania C The bond must not be cancellable C The penal sum of the bond must not exceed the surety's maximum single-risk exposure C The bond must provide that the surety and the operator shall be jointly and severally liable C In the event of foreclosure, the surety may be allowed to perform reclamation activities in lieu of paying the bond amount to PADEP

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Surety Bonds (cont'd.)	Mineral Leasing Act	43 CFR Part 3104.1(b)	Oil or Gas Production Facilities on Public Lands	Plugging and Abandonment, Reclamation, and Restoration	C Sureties must be listed in U.S. Treasury Circular 570 C The penal sum of the bond must not be less than the estimated costs of all required abandonment, reclamation, and restoration activities C Model language for a surety bond is provided at 43 CFR Part 3186.2
		43 CFR Part 3474.1	Coal Mines Located on Public Lands	Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans	C Sureties must be listed in U.S. Treasury Circular 570
	Geothermal Steam Act	43 CFR Part 3214.15	Geothermal Recovery Units Located on Public Lands	Plugging and Abandonment of Wells, Removal of Structures, Reclamation, and Payment of Uncollected Royalties and Penalties	C Sureties must be listed in U.S. Treasury Circular 570 C When written to cover operations related to exploration, drilling, or use, the bond must have a penal sum that is not less than the amounts specified at 43 CFR Parts, 3251.15, 3261.18, 3271.12, and 3273.19, respectively
	Outer Continental Shelf Land Act	30 CFR Part 256.52	Oil, Gas, or Sulphur Exploration and Extraction Units in the Outer Continental Shelf	Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans	C Sureties must be listed in U.S. Treasury Circular 570 C Must be noncancellable and continue in full force and effect, even through an event that could diminish, terminate, or cancel a surety obligation under state surety laws C If either the surety or the operator is a corporation, an authorized official of each corporation must sign the surety bond and attest to it by imprint of a corporate seal
		30 CFR Part 281.33	Operators of Units in the Outer Continental Shelf Other than Oil, Gas, or Sulphur Exploration and Extraction Units	Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans	C Sureties must be listed in U.S. Treasury circular 570

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	Mining Claims Right Restoration Act	43 CFR Part 3738.1	Mines on Public Lands Reserved for Power Development	Restoration of Surface Areas	C The penal sum of the bond must be determined by an administrative law judge
	Federal Land Policy and Management Act	43 CFR Part 3809.1-9	Mines on Public Lands	Reclamation	C Must be a legal instrument in the state in which the proposed operations will be conducted
	Oil Pollution Control Act	30 CFR Part 253.31	Offshore Oil Facilities	Liability Coverage for Cleanup and Damages Caused by Discharges of Oil	C Sureties must be licensed to do business in the state in which the surety bond is issued and listed in U.S. Treasury Circular 570 C The bond must be executed on Minerals Management Service (MMS) Form 1020 C The bond must be written in compliance with applicable statutes that regulate surety participation in insurance-type risks C The bond must provide all information required under 30 CFR Part 263.41
		33 CFR Part 138.80	Seagoing Vessels in Excess of 300 Tons	Liability Coverage for Potential Discharges of Oil or Hazardous Cargo	C The surety bond must be executed on Form CG-5586-2 C The bond may be executed by no more than 10 sureties C All sureties must be listed in U.S. Treasury Circular 570 C A surety may not exceed, in a single bond, its underwriting limitation, as specified in U.S. Treasury Circular 570 unless other sureties share the risk C Several sureties acting together may not exceed the sum of their individual underwriting limits
	Atomic Energy Act/Energy Reorganization Act	10 CFR Parts 30.35, 40.36, 50.75, 70.25, and 7A.30	Specially Licensed Nuclear Materials Facilities	Decommissioning	C The bond must be a financial guarantee bond that guarantees payment (rather than performance) in the event of default C Sureties must be listed in U.S. Treasury Circular 570 C A surety may not exceed, in a single bond, its underwriting limitation, as specified in U.S. Treasury Circular 570 unless other sureties share the risk C Several sureties acting together may not exceed the sum of their individual underwriting limits C The surety contract must be signed in a state in which the surety is licensed to operate C The penal sum of the bond must be at least equal to the estimated costs of the assured obligations C A standby trust fund must be established in conjunction with the surety bond
		10 CFR Part 61.62	Radioactive Waste Land Disposal Facilities	Closure and Stabilization	
		10 CFR Part 40 Appendix A	Operators of Uranium or Thorium Mills	Decommissioning and Reclamation	

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Escrow Agreements	Atomic Energy Act/Energy Reorganization Act	10 CFR Parts 30.35, 40.36, 50.75, 70.25, and 7A.30	Specially Licensed Nuclear Materials Facilities	Decommissioning	C Cash or other liquid assets must be deposited in the full amount of the estimated costs of the assured activities C A bank or financial institution must serve as the escrow agent C The funds are held by the escrow agent until they are needed to conduct the assured activities, or until the licensee defaults on its obligation to perform those activities C If the conditions of the escrow agreement are met, the funds are released to the licensee C If the licensee defaults on its obligations, the funds are turned over to the NRC
Letters of Credit	RCRA	40 CFR Parts 264.143(d), 264.145(d)	TSDFs	Closure and Post-Closure Care	C Must be issued irrevocably for a period of at least one year and provide for automatic extensions of at least one year's duration C The face value of the letter of credit must be at least equal to the current estimated costs of closure and post-closure care C Financial institutions must have the authority to issue letters of credit and must be conducting letter-of-credit operations that are regulated by a federal or state agency C An owner or operator cannot draw upon the letter of credit to finance the conduct of closure or post-closure care activities C The wording of the letter of credit must be identical to that specified at 40 CFR 264.151(d) C A standby trust fund must be established in conjunction with the letter of credit
		40 CFR Part 264.147(h)	TSDFs	Third-Party Liability Coverage	C Must be issued irrevocably for a period of at least one year and provide for automatic extensions of at least one year's duration C The face value of the letter of credit must be at least equal to the annual aggregate amount of liability coverage required C Financial institutions must have the authority to issue letters of credit and must be conducting letter-of-credit operations that are regulated by a federal or state agency C Owners or operators must designate third-party claimants as beneficiaries in the event of a valid claim or establish a standby trust fund and designate an independent trustee as beneficiary C The wording of the letter of credit must be identical to that specified at 40 CFR 264.151(k)
		40 CFR Part 258.74(c)	MSWLFs	Closure and Post-Closure Care and Corrective Action	C Must be issued irrevocably for a period of at least one year and provide for automatic extensions of at least one year's duration C The face value of the letter of credit must be at least equal to the estimated costs of closure and post-closure care or corrective action C Financial institutions must have the authority to issue letters of credit and must be conducting letter-of-credit operations that are regulated by a federal or state agency

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
		40 CFR Part 280.99	USTs	Third-Party Liability Coverage and Corrective Action	C Must be issued irrevocably for a period of at least one year and provide for automatic extensions of at least one year's duration C The face value of the letter of credit must be at least equal to the amount of coverage required under the regulations C Financial institutions must have the authority to issue letters of credit and must be conducting letter-of-credit operations that are regulated by a federal or state agency C The wording of the letter of credit must be identical to that specified at 40 CFR 280.99(b) C A standby trust fund must be established in conjunction with the letter of credit
	RCRA/SDWA	40 CFR Parts 144.63(d)	Class I Injection Wells	Plugging and Abandonment	C Must be issued irrevocably for a period of at least one year and provide for automatic extensions of at least one year's duration C The face value of the letter of credit must be at least equal to the current estimated costs of plugging and abandonment C Financial institutions must have the authority to issue letters of credit and must be conducting letter-of-credit operations that are regulated by a federal or state agency C The wording of the letter of credit must be identical to that specified at 40 CFR 144.70(d) C A standby trust fund must be established in conjunction with the letter of credit
Letter of Credit (cont'd).	TSCA	40 CFR Parts 761.65(g)(4)	Commercial PCB Storage Facilities	Closure and Post-Closure Care	C Must be issued irrevocably for a period of at least one year and provide for automatic extensions of at least one year's duration C The face value of the letter of credit must be at least equal to the current estimated costs of closure and post-closure care C Financial institutions must have the authority to issue letters of credit and must be conducting letter-of-credit operations that are regulated by a federal or state agency C An owner or operator cannot draw upon the letter of credit to finance the conduct of closure or post-closure care activities C The wording of the letter of credit must be identical to that specified at 40 CFR 264.151(d) C A standby trust fund must be established in conjunction with the letter of credit
	SMCRA	30 CFR Part 800.21(b)	Coal Mines	Reclamation	C Must be issued by a bank that is organized or authorized to do business in the United States C Must be issued irrevocably for the duration of their terms C At all times, the face value of the letter of credit must be sufficient to ensure completion of all planned reclamation activities C Are payable to the regulatory authority upon receipt of a notice of forfeiture issued as specified at 30 CFR Part 800.50

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	SMCRA (Pennsylvania)	25 Pa. Code Part 86.158(d)	Coal Mines		C Must be issued irrevocably C Face values of letters of credit issued for a single operator for reclamation may not exceed 10 percent of the issuing bank's capital surplus accounts C Letters of credit must be issued by federally insured or equivalently protected financial institutions that are chartered or authorized to do business in the U.S. and that agree to Pennsylvania's jurisdiction
	Mineral Leasing Act	43 CFR Part 3104.1(c)(5)	Oil or Gas Production Facilities on Public Lands	Plugging and Abandonment, Reclamation, and Restoration	C Must be issued by a financial institution organized or authorized to do business in the United States C Must be issued by a financial institution whose deposits are insured by the Federal Deposit Insurance Corporation (FDIC) C Must be issued for a specific term C Must be issued irrevocably for a period of at least one year and provide for automatic extensions of at least one year's duration C Must identify the Secretary of the Interior as the sole payee with full authority to demand payment in case of default C The face value of the letter of credit must not be less than the estimated costs of all required abandonment, reclamation, and restoration activities
	Geothermal Steam Act	43 CFR Part 3214.15	Geothermal Recovery Units Located on Public Lands	Plugging and Abandonment of Wells, Removal of Structures, Reclamation, and Payment of Uncollected Royalties and Penalties	C Must be issued by a federally insured financial institution authorized to do business in the United States C Must be payable to the Bureau of Land Management (BLM) C Must be issued irrevocably for a period of at least one year and provide for automatic extensions of at least one year's duration C When issued to cover operations related to exploration, drilling, or use, the letter of credit must have a face value that is not less than the amounts specified at 43 CFR Parts 3251.15, 3261.18, 3271.12, and 3273.19, respectively C Must include a clause that authorizes the Secretary of the Interior to demand immediate payment in the event of default
	Federal Land Policy and Management Act	43 CFR Part 3809.1-9	Mines on Public Lands	Reclamation	C Must be issued by a bank or financial institution authorized to do business in the United States
	Atomic Energy Act/Energy Reorganization Act	10 CFR Parts 30.35, 40.36, 50.75, 70.25, and 7A.30	Specially Licensed Nuclear Materials Facilities	Decommissioning	C Must be issued by a financial institution that has the authority to issue letters of credit and that conducts letter-of-credit operations that are regulated by a federal or state agency C The face value of the letter of credit must be at least equal to the estimated costs of the assured obligations C A standby trust fund must be established in conjunction with the letter of credit

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
		10 CFR Part 61.62	Radioactive Waste Land Disposal Facilities	Closure and Stabilization	
		10 CFR Part 40 Appendix A	Uranium or Thorium Mills	Decommissioning and Reclamation	
Lines of Credit	Atomic Energy Act/Energy Reorganization Act	10 CFR Parts 30.35, 40.36, 50.75, 70.25, and 7A.30	Specially Licensed Nuclear Materials Facilities	Decommissioning	C Must constitute an agreement under which a lender agrees to provide the funds necessary to meet the assured obligations C The maximum amount of credit stated in the contract must be at least equal to the estimated or certified costs of the assured obligations C Must not be contingent on the financial condition of the licensee, and must be provided without reservation C The licensee must obtain from the lender a written commitment to provide funds as necessary up to the maximum amount of credit stipulated in the agreement C A standby trust fund must be established in conjunction with the line of credit
		10 CFR Part 61.62	Radioactive Waste Land Disposal Facilities	Closure and Stabilization	
		10 CFR Part 40 Appendix A	Uranium or Thorium Mills	Decommissioning and Reclamation	
Certificates of Deposit (CD)	SMCRA	30 CFR Part 800.21(a)	Coal Mines	Reclamation	C Must be made payable or assigned to the regulatory authority, both in writing and upon the records of the bank that issued the CD C Must be placed in the possession of the regulatory authority or held by a federally insured bank C If a CD is assigned to the regulatory authority, the bank that issued the CD must waive all rights of setoff or liens C The value of the CDs must be sufficient to ensure completion of all planned reclamation activities C No individual CD may exceed $100,000 in value or the maximum insurable amount as determined by the FDIC or the Federal Savings and Loan Insurance Corporation (FSLIC) C The estimated value of the CD will be subject to a margin -- the ratio of bond value to market value
	SMCRA (Pennsylvania)	25 Pa. Code Part 86.158(c)	Coal Mines	Reclamation	C CDs must be assigned to PADEP in writing C Individual CDs may not exceed $100,000 C Banks issuing CDs must waive all rights of setoff or liens against them C CDs must be automatically renewable C If liquidated before maturity, CDs must provide sufficient funds to conduct all bonded activities C CDs must be issued by financial institutions licensed to do business in the U.S.

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	Mineral Leasing Act	43 CFR Part 3104.1(c)(1)	Oil or Gas Production Facilities on Public Lands	Plugging and Abandonment, Reclamation, and Restoration	C The value of the CDs must not be less than the estimated costs of all required abandonment, reclamation, and restoration activities C Must be issued by an institution that has federally-insured deposits C The financial institution must grant explicitly to the Secretary of the Interior full authority to demand immediate payment in the event of default C Each CD must indicate explicitly on its face that its redemption requires the approval of the Secretary of the Interior
	Geothermal Steam Act	43 CFR Part 3214.15	Geothermal Recovery Units Located on Public Lands	Plugging and Abandonment of Wells, Removal of Structures, Reclamation, and Payment of Uncollected Royalties and Penalties	C Must be issued by a federally insured financial institution authorized to do business in the United States C Must be payable to BLM C Each CD must include on its face the statement "The Secretary of the Interior or his delegate must approve redemption of this certificate by any party"
	Federal Land Policy and Management Act	43 CFR Part 3809.1-9	Mines on Public Lands	Reclamation	C Each CD must be in an amount that does not exceed the maximum insurable amount for such CDs, as set by FDIC
	Atomic Energy Act/Energy Reorganization Act	10 CFR Parts 30.35, 40.36, 50.75, 70.25, and 7A.30	Specially Licensed Nuclear Materials Facilities	Decommissioning	C The licensee deposits with a bank sufficient funds to cover the certified or estimated costs of meeting the assured obligations and, in turn, receives a CD C The wording of the CD must acknowledge the receipt and deposit of a sum of money by the licensee and include a promise to pay the funds to the holder or named payee upon the surrender of the properly endorsed CD C A standby trust fund must be established in conjunction with the CD C CDs may be negotiable or nonnegotiable C Either time or demand CDs may be used C The CD must be issued for a limited period of time C The CDs must include automatic renewal provisions and provisions that require notice in writing before funds are withdrawn
		10 CFR Part 61.62	Radioactive Waste Land Disposal Facilities	Closure and Stabilization	
		10 CFR Part 40 Appendix A	Uranium or Thorium Mills	Decommissioning and Reclamation	

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Negotiable Government-Issued Securities	SMCRA	30 CFR Part 800.21(a)	Coal Mines	Reclamation	C Only bonds issued by the United States, a state, or a municipality may be used C Bonds must be placed in the possession of the regulatory authority C Bonds are valued by the regulatory authority at their current market value C At all times, the current market value of the bonds must be sufficient to assure the completion of all required activities C The estimated bond value of all negotiable bonds will be subject to a margin -- the ratio of band value to market value
	SMCRA (Pennsylvania)	25 Pa. Code Part 86.158(b)	Coal Mines	Reclamation	C PADEP determines the current market value of the securities C Operators may request, and receive, accrued interest on government securities C At all times, the current market value of the securities must be at least equal to the amount of financial assurance required
	Mineral Leasing Act of 1920	43 CFR Part 3104.1(c)(4)	Oil or Gas Production Facilities on Public Lands	Plugging and Abandonment, Reclamation, and Restoration	C Securities must be issued by the United States Treasury C The value of the securities must not be less than the estimated costs of all required abandonment, reclamation, and restoration activities C Negotiable securities must be accompanied by a proper conveyance to the Secretary of the Interior of full authority to sell such securities in the event of default
		43 CFR Part 3474.1	Coal Mines Located on Public Lands	Payment of All Lease Obligations and Compliance with Approved Mining or Exploration Plans	C Only negotiable bonds issued by the United States Government may be used C At a minimum, the bonds must be of a par value equal to the amounts of financial assurance required and be submitted with a power of attorney executed on an approved form C The power of attorney must convey to the Secretary of the Interior full authority to sell the bonds in the event of default
	Geothermal Steam Act	43 CFR Part 3214.15	Geothermal Recovery Units Located on Public Lands	Plugging and Abandonment of Wells, Removal of Structures, Reclamation, and Payment of Uncollected Royalties and Penalties	C Negotiable securities, such as U.S. Treasury notes, or other securities acceptable to BLM may be used

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	Outer Continental Shelf Lands Act	30 CFR Part 256.52	Oil, Gas, or Sulphur Exploration and Extraction Units in the Outer Continental Shelf	Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans	C Negotiable U.S. Treasury securities or other securities acceptable to the Secretary of the Interior, may be used C Operators must monitor the securities that are pledged C If the market value of the securities falls below the amount of financial assurance required, the operator must pledge additional securities C The operator must provide to DOI the authority to sell the securities in the event of default
		30 CFR Part 281.33	Units in the Outer Continental Shelf Other Than Oil, Gas, or Sulphur Exploration and Extraction Units	Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans	C Only negotiable U.S. Treasury bonds may be used C Bonds must be accompanied by a proper conveyance to the Secretary of the Interior of full authority to sell them in the event of default
	Mining Claims Right Restoration Act	43 CFR Part 3738.1	Mines on Public Lands Reserved for Power Development	Restoration of Surface Areas	C Only negotiable securities issued by the federal government may be used
	Federal Land Policy and Management Act	43 CFR Part 3809.1-9	Mines on Public Lands	Reclamation	C Only negotiable government securities or bonds issued by the United States or by state or municipal governments, or investment-grade securities that have a Standard and Poor's rating of AAA or AA or an equivalent rating from a nationally recognized securities rating service, may be used C The market value of the securities may not be less than the amount of financial assurance required C The securities must be maintained by a licensed securities brokerage firm in a trust account insured by the Securities Investors Protection Corporation and established for the benefit of the Secretary of the Interior C Before the initiation of operations and by the end of each quarter of the calendar year thereafter, the operator must provide to BLM a certified statement that describes the nature and market value of the securities in the account C If the market value of the securities declines by more than 10 percent of the amount of financial assurance required, the operator must deposit additional securities in the account

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Negotiable Government-Issued Securities (cont'd)	Atomic Energy Act/Energy Reorganization Act	10 CFR Parts 30.35, 40.36, 50.75, 70.25, and 7A.30	Specially Licensed Nuclear Materials Facilities	Decommissioning	C Only securities guaranteed by the full faith and credit of the i.e., federal government or adequately rated state or municipal bonds may be used C The market value of the securities must be at least equal to the certified or estimated costs of the assured obligations C The securities must be held by a trustee or by an appropriate federal or state agency C The exact types of securities to be used must be approved during the licensing process C Securities must be transferred before the facility becomes operational or at the time financial assurance is certified C A standby trust fund must be established in conjunction with the securities C If U.S. Treasury securities are used, procedures for receipt and possible reinvestment of interest must be established
		10 CFR Part 61.62	Radioactive Waste Land Disposal Facilities	Closure and Stabilization	
		10 CFR Part 40 Appendix A	Uranium or Thorium Mills	Decommissioning and Reclamation	
Real Property	SMCRA	30 CFR Part 800.21(c)	Coal Mines	Reclamation	C The operator must grant the regulatory authority a first mortgage, a first deed of trust, or a perfected first-lien security interest with a right to sell or otherwise dispose of the property in the event of default C A schedule of the real property to be mortgaged or pledged to demonstrate financial assurance must be provided C The schedule must include: 1) a description of the property; 2) a statement of the fair market value of the property, as determined by an independent appraiser; and 3) proof of possession and title C The property pledged may include land that is part of the permitted area for mining; however, land pledged as collateral may not be disturbed for mining while it is being so used C At all times, the current market value of the real property must be sufficient to assure the completion of all required activities C The estimated bond value of all real property will be subject to a margin -- the ratio of bond value to market value
Cash Accounts	SMCRA	30 CFR Part 800.21(d)	Coal Mines	Reclamation	C Cash accounts must be established as one or more federally insured or equivalently protected accounts that are made payable to, or deposited directly with, the regulatory authority C Interest earnings remain in the accounts unless otherwise specified by the regulatory authority C CDs may be substituted for cash accounts C No individual account shall exceed $100,000 or the maximum insurable amount specified by FDIC or FSLIC C At all times, the value of all cash accounts must be sufficient to assure the completion of all required activities C The estimated bond value of all cash accounts will be subject to a margin -- the ratio of bond value to market value

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	Mineral Leasing Act	43 CFR Parts 3104.1(c)(2) and 3104.1(c)(3)	Oil or Gas Production Facilities on Public Lands	Plugging and Abandonment, Reclamation, and Restoration	C Cashier's checks or certified checks may be used C The value of the checks must not be less than the estimated costs of all required abandonment, reclamation, and restoration activities
		43 CFR Part 3474.1	Coal Mines Located on Public Lands	Payment of All Lease Obligations and Compliance with Approved Mining or Exploration Plans	C Cash, cashier's checks, or certified checks may be used
	Geothermal Steam Act	43 CFR Part 3214.15	Geothermal Recovery Units Located on Public Lands	Plugging and Abandonment of Wells, Removal of Structures, Reclamation, and Payment of Uncollected Royalties and Penalties	C Cashier's checks or certified checks may be used
	Federal Land Policy and Management Act	43 CFR Part 3809.1-9	Mines on Public Lands	Reclamation	C Savings accounts may be used C The value of the savings accounts must not exceed the maximum insurable amount for such accounts, as set by FDIC
Cash Accounts (cont'd)	Outer Continental Shelf Lands Act	30 CFR Part 256.56	Oil, Gas, or Sulphur Exploration and Extraction Units in the Outer Continental Shelf	Payment of All Lease Obligations and Compliance with Approved Mining or Exploration Plans	C The operator must establish an abandonment account specific to the lease in a federally insured financial institution and make payments into the account according to a schedule prescribed by MMS C Accounts must be fully funded within the time period prescribed by MMS C The account must specify that funds may not be withdrawn without the written approval of MMS C Funds must be payable upon demand to MMS and pledged to meet the obligations of the lease C Interest earnings remain in the account unless otherwise specified by MMS C U.S. Treasury securities that are made payable upon demand to MMS may be pledged in lieu of required payments into the abandonment account C Before the amount of funds held in an abandonment account equals the maximum insurable amount, as determined by FDIC or FSLIC, the institution managing the account must use the funds to purchase U.S. Treasury securities that are pledged to MMS C The institution managing the account will join with MMS in establishing an account as prescribed under Federal Reserve Circular 154 to hold all U.S. Treasury securities, unless MMS authorizes the institution to retain the securities in a separate trust account

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
		30 CFR Part 281.33	Units in the Outer Continental Shelf Other Than Oil, Gas, or Sulphur Exploration and Extraction Units	Payment of All Lease Obligations and Compliance with Approved Mining or Exploration Plans	C Cashier's checks or certified checks may be used
	Mining Claims Right Restoration Act	43 CFR Part 3738.1	Mines on Public Lands Reserved for Power Development	Restoration of Surface Areas	C Only cash may be used
	Federal Land Policy and Management Act	43 CFR Part 3809.1-9	Mines on Public Lands	Reclamation	C Cash posted must be in an amount equal to the amount of financial assurance that is required and must be deposited and maintained by BLM in a federal depository account of the U.S. Treasury
	Atomic Energy Act/Energy Reorganization Act	10 CFR Part 61.62	Radioactive Waste Land Disposal Facilities	Closure and Stabilization	C Cash deposits must be at least equal to the certified or estimated costs of meeting the assured obligations
		10 CFR Part 40 Appendix A	Uranium or Thorium Mills	Decommissioning and Reclamation	
Life Insurance Policies	SMCRA (Pennsylvania)	25 Pa. Code Part 86.158(e)	Coal Mines	Reclamation	C Policies must be fully paid and noncancellable C Cash surrender values of policies must be assigned irrevocably to PADEP C Policies may not be borrowed against C Policies must be single-premium, ordinary whole-life policies C Policies must ensure that, in the event of the death of the insured, PADEP receives from the proceeds of the policy, the full amount of financial assurance required C Insurers must be licensed by the Pennsylvania Insurance Commissioner to do business in Pennsylvania or be designated by the Pennsylvania Insurance Commissioner as an eligible surplus lines insurer C Policies must bear no liens, loans, or encumbrances

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
External Sinking Fund	Atomic Energy Act/Energy Reorganization Act	10 CFR Parts 30.35, 40.36, 50.75, 70.25, and 7A.30	Specially Licensed Nuclear Materials Facilities	Decommissioning	C Sinking fund accounts can take the form of cash deposits in escrow or trust agreements, CDs, or deposits of government securities C The account must be segregated from the licensee's other assets and be maintained outside the licensee's control C In the case of most specially licensed facilities, a sinking fund account must be combined with a surety bond, letter of credit, line of credit, or insurance C Operators of production and utilization facilities and independent spent fuel storage installations (ISFI), however, may use sinking fund accounts without combining those accounts with any other financial assurance mechanisms C As the amount held in the sinking fund increases over time, the amount of the other financial assurance mechanism can decrease correspondingly
Insurance	RCRA	40 CFR Parts 264.143(e), 264.145(e)	TSDFs	Closure and Post-Closure Care	C The mechanism is a three-party contract under which an insurer promises payment of the cost of closure and post-closure care on behalf of the owner or operator, as directed by the regulatory authority C The policy ensures payment of costs of closure and post-closure care regardless of whether the operator is able to pay such costs C At a minimum, insurers must be licensed to transact the business of insurance, or be eligible to provide insurance as an excess or surplus lines insurer, in one or more states C The owner or operator, or any other person authorized by the regulatory authority to conduct closure and post-closure care activities, may receive reimbursements through the policy C The face value of the policy must be at least equal to the estimated costs of closure and post-closure care C Insurance policies must ensure that: 1) funds will be available to conduct closure and post-closure care activities as needed, and 2) the insurer will pay out funds, up to the face amount of the policy, as directed by the regulatory authority C The insurer may not cancel the policy, except for failure to pay the premium C The wording of the certificate of insurance submitted to the regulatory authority as evidence that an insurance contract has been arranged must be identical to that specified at 40 CFR 264.151(e) C Because the availability of commercial insurance for closure and post-closure care has been limited severely, such insurance seldom is used to demonstrate financial assurance C Recently, a number of owners and operators have sought to use insurance coverage underwritten by captive insurance companies to demonstrate financial assurance
	TSCA	40 CFR Parts 761.65(5)	Commercial PCB Storage Facilities		

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	RCRA	40 CFR Part 258.74(e)	MSWLFs	Closure and Post-Closure Care	C The mechanism is a three-party contract under which an insurer promises payment of the cost of closure and post-closure care on behalf of the owner or operator, as directed by the regulatory authority C The policy ensures payment of costs of closure and post-closure care regardless of whether the operator is able to pay such costs C At a minimum, insurers must be licensed to transact the business of insurance, or be eligible to provide insurance as an excess or surplus lines insurer, in one or more states C The owner or operator, or any other person authorized by the regulatory authority to conduct closure and post-closure care activities, may receive reimbursements through the policy C The face value of the policy must be at least equal to the estimated costs of closure and post-closure care C Insurance policies must ensure that 1) funds will be available to conduct closure and post-closure care activities as needed and 2) the insurer will pay out funds, up to the face amount of the policy, as directed by the regulatory authority C The insurer may not cancel the policy, except for failure to pay the premium C Recently, a number of owners and operators have sought to use insurance coverage underwritten by captive insurance companies to demonstrate financial assurance
	RCRA/SDWA	40 CFR Parts 144.63(e)	Class I Injection Wells	Plugging and Abandonment	C The mechanism is a three-party contract under which an insurer promises payment of the cost of plugging and abandonment on behalf of the owner or operator, as directed by the regulatory authority C The policy ensures payment of the cost of plugging and abandonment regardless of whether the operator is able to pay such costs C At a minimum, insurers must be licensed to transact the business of insurance, or be eligible to provide insurance as an excess or surplus lines insurer, in one or more states C The owner or operator, or any other person authorized by the regulatory authority to conduct plugging and abandonment, may receive reimbursements through the policy C The face value of the policy must be at least equal to the estimated costs of plugging and abandonment C Insurance policies must ensure that 1) funds will be available to conduct plugging and abandonment as needed and 2) the insurer will pay out funds, up to the face amount of the policy, as directed by the regulatory authority C The insurer may not cancel the policy, except for failure to pay the premium C The wording of the certificate of insurance submitted to the regulatory authority as evidence that an insurance contract has been arranged must be identical to that specified at 40 CFR 144.70(e)

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	Atomic Energy Act/Energy Reorganization Act	10 CFR Parts 30.35, 40.36, 50.75, 70.25, and 7A.30	Specially Licensed Nuclear Materials Facilities	Decommissioning	C The policy must insure, at the time it is acquired, the entire estimated or certified cost of decommissioning C An annuity policy is not acceptable unless it is accompanied by another mechanism that would account for its shortfalls C A standby trust fund must established in conjunction with the insurance policy C The beneficiary of the insurance policy should be the trustee of the standby trust
Insurance (cont'd)	RCRA	40 CFR Parts 264.147(a)	TSDFs	Third-Party Liability Coverage	C Ensures that funds will be available to pay the costs associated with liabilities that arise from bodily injury or property damage that operations at TSDFs cause to third-parties C Coverage must be provided in the applicable per occurrence and annual aggregate amounts specified in the regulations C Coverage may be provided by an insurance company or a risk retention group C At a minimum, insurers must be licensed to transact the business of insurance, or be eligible to provide insurance as an excess or surplus lines insurer, in one or more states C Insurance policies that provide coverage for third-party liability must be evidenced by a certificate of liability insurance or amended by attachment of a hazardous waste liability endorsement C If a certificate of liability insurance is used, it must be worded as specified at 40 CFR 264.151(j) C If a hazardous waste liability endorsement is used, it must be worded as specified at 40 CFR 264.151(I)
		40 CFR Part 280.99	USTs	Third-Party Liability Coverage	C Ensures that funds will be available to pay the costs associated with liabilities that arise from bodily injury or property damage that leaks from USTs cause third parties C Coverage must be provided in the applicable per occurrence and annual aggregate amounts specified in the regulations C Coverage may be provided by an insurance company or a risk retention group C At a minimum, insurers or risk retention groups must be licensed to transact the business of insurance, or be eligible to provide insurance as an excess or surplus lines insurer, in one or more states C Insurance policies that provide coverage for third-party liability must be evidenced by a certificate or liability insurance or amended by attachment of a hazardous waste liability endorsement C If a certificate of liability insurance is used, it must be worded as specified at 40 CFR 280.97(b)(2) C If a hazardous waste liability endorsement is used, it must be worded as specified at 40 CFR 280.97(b)(1)
	SMCRA	30 CFR Part 800.60	Coal Mines	Public Liability Coverage	C Insurers must be authorized to do business in the United States C Policy must be maintained in full force and effect during the life of the permit and throughout the liability period for reclamation C Insurer must notify the regulatory authority whenever substantive changes are made in the policy

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	SMCRA (Pennsylvania)	25 Pa. Code Part 86. 168	Coal Mines	Public Liability Coverage	C Must be written on an occurrence basis C Amount of coverage is determined by PADEP on a case-by-case basis C Coverage must specifically cover bodily injuries or property damage that result from the use of explosives and loss or diminution in quantity or quality of water sources C Insurer must be authorized to do business in Pennsylvania C A bond or a separate insurance policy may be provided in lieu of liability insurance to cover replacement or restoration of water supplies
	Oil Pollution Control Act	30 CFR Part 253.29	Offshore Oil Facilities	Liability Coverage for Cleanup and Damages Caused by Discharges of Oil	C The insurer must have achieved a “secure” rating for claims-paying ability in its latest review by A.M. Best’s Insurance Reports or Standard and Poor’s Insurance Rating Services or an equivalent rating by a rating service acceptable to MMS C Each insurance certificate must 1)include all information required under 30 CFR 253.41; 2) show all participating insurers and the proportion of the risk assumed by each; 3) bear the original signatures of each insurer’s underwriter or of its lead underwriters, underwriting managers, or delegated brokers, depending on who is authorized to bind the underwriter; and 4) indicate each insurer’s claims-paying ability rating and the rating service that issued the rating C An agent for service of process in the U.S. must be identified on each insurance certificate
		33 CFR Part 138.80	Seagoing Vessels in Excess of 300 Tons	Liability Coverage for Potential Discharges of Oil or Hazardous Cargo	C Operators must submit insurance guarantee Form CG-5586, or, when applying for a master certificate, Form CG-5586-1 C The forms must have been executed by no more than four insurers that are acceptable to the U.S. Coast Guard

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Financial Tests	RCRA	40 CFR Parts 264.143(f), 264.145(f)	TSDFs	Closure and Post-Closure Care	C A self-assurance mechanism, the financial test is not backed by the guarantee of a third party and the owner or operator is not required to set aside funds to meet future obligations C Owners and operators must demonstrate each year that they meet the criteria by which eligibility to use the financial test is determined C Owners and operators may demonstrate financial assurance by meeting one of two sets of financial criteria C To pass alternative 1, owners and operators must meet the following criteria: 1) total liabilities divided by net worth must equal a ratio value less than 2.0; the sum of net income plus depreciation, depletion, and amortization divided by total liabilities, must equal a ratio value greater than 1.0; and current assets divided by current liabilities must equal a ratio value greater than 1.5 and 2) net working capital and tangible net worth each must be at least six times the sum of the estimated costs of closure and post-closure care C To pass alternative 2, owners and operators must meet the following criteria: 1) the owner or operator must have a current rating for its most recent bond issuance of “AAA,” “AA,” “A,” or “BBB,” as issued by Standard and Poor’s, or “AAA,” “AA,” “A,” or “Baa,” as issued by Moody’s, and 2) tangible net worth must be at least six times the sum of the estimated costs of closure and post-closure care C Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the sum of the estimated costs of closure and post-closure care C Tangible net worth must be at least $10 million C The wording of the chief financial officer’s (CFO) letter that is submitted to the regulatory authority as evidence that the owner or operator has met the criteria for use of the financial test must be identical to that specified at 40 CFR 264.151(f)
	TSCA	40 CFR Parts 761.65(6)	Commercial PCB Storage Facilities	Closure and Post-Closure Care	

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	RCRA	40 CFR Parts 264.147(f)	TSDFs	Third-Party Liability Coverage	C A self-assurance mechanism, the financial test is not backed by the guarantee of a third party and the owner or operator is not required to set aside funds to meet future obligations C Owners and operators must demonstrate each year that they meet the criteria by which eligibility to use the financial test is determined C Owners and operators may demonstrate financial assurance by meeting one of two sets of financial criteria C To pass alternative 1, net working capital and tangible net worth each must be at least six times the annual aggregate amount of liability coverage required C To pass alternative 2, owners and operators must meet the following criteria: 1) the owner or operator must have a current rating for its most recent bond issuance of “AAA,” “AA,” “A,” or “BBB,” as issued by Standard and Poor’s, or “AAA,” “AA,” “A,” or “Baa,” as issued by Moody’s, and 2) tangible net worth must be at least six times the annual aggregate amount of liability coverage required C Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the sum of the annual aggregate amount of liability coverage required C Tangible net worth must be at least $10 million C The wording of the CFO’s letter that is submitted to the regulatory authority as evidence that the owner or operator has met the criteria for use of the financial test must be identical to that specified at 40 CFR 264.151(g)

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
		40 CFR Part 258.74(e)	MSWLFs	Closure and Post-Closure Care and Corrective Action	C A self-assurance mechanism, the financial test is not backed by the guarantee of a third party and the owner or operator is not required to set aside funds to meet future obligations C Owners and operators must demonstrate each year that they meet the criteria by which eligibility to use the financial test is determined C Owners and operators may demonstrate financial assurance by meeting one of three sets of financial criteria C To pass alternative 1, the owner or operator must have a current rating for its most recent bond issuance of "AAA," "AA," "A," or "BBB," as issued by Standard and Poor's, or "AAA," "AA," "A," or "Baa," as issued by Moody's C To pass alternative 2, total liabilities divided by net worth must equal a ratio value less than 1.5 C To pass alternative 3, the sum of net income plus depreciation, depletion, and amortization, minus $10 million, divided by total liabilities, must equal a ratio value greater than 1.0 C Tangible net worth must be greater than the sum of the current estimates of the costs of closure and post-closure care and corrective action that are to be covered under the financial test, plus any other obligations covered by a financial test, plus $10 million C The value of assets located in the United States must at least equal the sum of the current estimates of the costs of closure and post-closure care and corrective action that are to be covered under the financial test, plus any other obligations covered by a financial test C A separate financial test is provided under 40 CFR Part 258.74(f) for use by owners or operators that are local governments

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Financial Tests (cont'd)	RCRA/SDWA	40 CFR Parts 144.63(f)	Class I Injection Wells	Plugging and Abandonment	C A self-assurance mechanism, the financial test is not backed by the guarantee of a third party, and the owner or operator is not required to set aside funds to meet future obligations C Owners and operators must demonstrate each year that they meet the criteria by which eligibility to use the financial test is determined C Owners and operators may demonstrate financial assurance by meeting one of two sets of financial criteria C To pass alternative 1, owners and operators must meet the following criteria: 1) total liabilities divided by net worth must equal a ratio value less than 2.0; the sum of net income plus depreciation, depletion, and amortization divided by total liabilities must equal a ratio value greater than 1.0; current assets divided by current liabilities must equal a ratio value greater than 1.5, and 2) net working capital and tangible net worth each must be at least six times the sum of the estimated costs of plugging and abandonment C To pass alternative 2, owners and operators must meet the following criteria: 1) The owner or operator must have a current rating for its most recent bond issuance of "AAA," "AA," "A," or "BBB," as issued by Standard and Poor's or "AAA," "AA," "A," or "Baa," as issued by Moody's, and 2) tangible net worth must be at least six times the sum of the estimated costs of plugging and abandonment C Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the sum of the estimated costs of plugging and abandonment C Tangible net worth must be at least $10 million C The wording of the CFO's letter that is submitted to the regulatory authority as evidence that the owner or operator has met the criteria for the use of the financial test must be identical to that specified at 40 CFR 144.(f)

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	RCRA	40 CFR Part 280.95(f)	USTs	Third-Party Liability Coverage and Corrective Action	C A self-assurance mechanism, the financial test is not backed by the guarantee of a third party, and the owner or operator is not required to set aside funds to meet future obligations C Owners and operators must demonstrate each year that they meet the criteria to use the financial test C Owners and operators may demonstrate financial assurance by meeting one of three sets of financial criteria C To pass alternative 1: 1) tangible net worth must be at least 10 times the annual aggregate amount of coverage required, plus all other obligations that are covered by financial tests; 2) the owner or operator must file financial statements with the U.S. Securities and Exchange Commission, the Energy Information Administration, or the Rural Electrification Administration, or it must report annually the firm's tangible net worth to Dun and Bradstreet (D&B), from which the firm must have received a credit rating of 4A or 5A; and 3) the firm's year-end financial statements, if independently audited, cannot include an adverse opinion, a disclaimer of opinion, or a "going concern" qualification C To pass alternative 2: 1) assets located in the United States must make up at least 90 percent of total assets or must be at least six times the annual aggregate amount of coverage required and 2) net working capital and tangible net worth each must be at least six times the annual aggregate amount of coverage required, plus all other obligations that are covered by financial tests C To pass alternative 3: 1) the owner or operator must have a current rating for its most recent bond issuance of "AAA," "AA," "A," or "BBB," as issued by Standard and Poor's, or "AAA," "AA," "A," or "Baa," as issued by Moody's. 2) assets located in the United States must make up at least 90 percent of total assets or must be at least six times the annual aggregate amount of coverage required; and 3) tangible net worth must be at least six times the annual aggregate amount of coverage required, plus all other obligations that are covered by financial tests C Tangible net worth must be at least $10 million

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Financial Tests (cont'd)	SMCRA	30 CFR Part 800.23	Coal Mines	Reclamation	C A self-bonding mechanism, the financial test is not backed by the guarantee of a third party, and the operator is not required to set aside funds to meet future obligations C The operator must designate a suitable agent for service of process in the state in which the mining operations are to be conducted C The operator must have been in continuous operation as a business entity for a period of not less than five years C Operators may demonstrate financial assurance by meeting one of two sets of financial criteria C To pass alternative: 1) the operator must have a current rating for its most recent bond issuance of "A" or higher as issued by Standard and Poor's or Moody's, and 2) tangible net worth must be at least $10 million C To pass alternative 2, fixed assets in the United States must total at least $20 million C Total liabilities divided by net worth must equal a ratio value of A.5 or less C Current assets divided by current liabilities must equal a ratio value of 1.2 or greater C The firm's year-end, independently audited financial statements cannot include an adverse opinion C The total amount of the outstanding and proposed self bonds of the operator may not exceed 25 percent of the operator's tangible net worth in the United States C The operator must provide an indemnity agreement, as described under the regulations

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	SMCRA (Pennsylvania)	25 Pa. Code Part 86.159	Coal Mines	Reclamation	C Self bonds may not be used to cover long-term indeterminate liabilities C The operator must be incorporated or authorized to do business in Pennsylvania C The operator must identify suitable agents in Pennsylvania for service of process C The operator must have a history of continuous business operation C Operators may demonstrate financial assurance by meeting one of three sets of financial criteria C To pass alternative 1, the operator must have: 1) a current rating for its most recent bond issuance of "AAA," "AA," or "A," as issued by Moody's; 2) tangible net worth at least six times the total amount of outstanding and proposed self bonds for mining in Pennsylvania; and 3) assets in the United States that amount to at least 90 percent of total assets C To pass alternative 2, the operator must have: 1) tangible net worth of at least $10 million, 2) a ratio of total liabilities to net worth of A.5 or less and a ratio of current assets to current liabilities of 1.2 or higher, 3) tangible net worth at least six times the total amount of outstanding and proposed self bonds for coal mining in Pennsylvania, and 4) assets in the United States that amount to at least 90 percent of total assets C To pass alternative 3, the operator must have: 1) fixed assets in the United States of at least $20 million, 2) a ratio of total liabilities to net worth of A.5 or less and a ratio of current assets to current liabilities of 1.2 or greater, 3) tangible net work at least six times the total amount of outstanding and proposed self bonds for coal mining in Pennsylvania, and 4) assets in the U.S. that amount to at least 90 percent of total assets C The total value of outstanding plus proposed self bonds for coal mining may not exceed 25 percent of the operator's domestic tangible net worth C Self bonds are secured by the provision of securities by the operator and according to the schedule specified at 25 Pa. Code Part 86.159(j) C If the operator is a subsidiary corporation, the operator's parent corporation must be a party to the self bond; the self bond will establish the operator and its parent corporation as co-indemnitors C Each indemnitor to the self bond shall be jointly and severally liable C In addition to indemnification and security, PADEP may require a third-party guarantee of a self bond

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
Financial Tests (cont'd)	Oil Pollution Control Act	30 CFR Part 253.31	Offshore Oil Facilities	Liability Coverage for Cleanup and Damages Caused by Discharges of Oil	C A self-insurance mechanism, the financial test is not backed by the guarantee of a third party and the operator is not required to set aside funds to meet future obligations C Operators must demonstrate each year that they meet the criteria by which eligibility to use the financial test is determined C The operator must designate an agent for service of process in the United States. C Operators may demonstrate financial assurance by using a net worth test or an unencumbered net asset test C To use the net worth test, the operator: 1) divides the total amount of its net worth by 10 and 2) divides the net amount of its identifiable assets in the United States by the net amount of its identifiable total assets; multiplies the net amount of its plant, property, and equipment by that quotient; and divides the resulting product by 10; the smaller of the numbers calculated is the maximum amount of financial assurance that can be demonstrated through the use of the net worth test C To use the unencumbered net assets test, the operator: 1) divides the total amount of its net worth by four and 2) divides the fvalue of it unencumbered U.S. assets by two; the smaller of the numbers calculated is the maximum amount of financial assurance that can be demonstrated through the use of the unencumbered net asset test C The operator must submit evidence of its net worth or unencumbered assets, as specified in the regulations C When seeking to use the unencumbered asset test, the operator must provide a list of the reserved, unencumbered, and unimpaired assets in the United States the value of which would not be affected in the event of an oil discharge from an off-shore facility C The net value of the operator's reserved assets must be at least two times the self-insurance amount requested for demonstration

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
	Atomic Energy Act/Energy Reorganization Act	10 CFR Parts 30.35, 40.36, 50.75, 70.25, and 7A.30	Specially-Licensed Nuclear Materials Facilities Owned by Commercial Companies that Have Rated Bonds That Are Outstanding	Decommissioning	C A self-assurance mechanism, the financial test is not backed by the guarantee of a third party and the licensee is not required to set aside funds to meet future obligations C Licensees must demonstrate each year that they meet the criteria by which eligibility to use the financial test is determined C Must be accompanied by a “self guarantee” that defines the obligations of the licensee C May not be used in combination with other financial assurance mechanisms or in any circumstances in which the applicant has a parent company that holds majority control of the licensee’s voting stock C Tangible net worth must be at least 10 times the sum of the current estimated or certified costs of decommissioning of all facilities, or parts thereof, or, for power reactor licensees, at least 10 times the amount of decommissioning funds being assured by a parent company guarantee for the total of all reactors, or parts thereof C Assets located in the United States must make up at least 90 percent of total assets or must be at least 10 times the sum of the current estimated or certified costs of decommissioning for the total of all facilities or parts thereof, or, for power reactor licensees, at least 10 times the amount of decommissioning funds being assured by a parent company guarantee for the total of all reactors, or parts thereof C The licensee must have a current rating for its most recent bond issuance of “AAA,” “AA,” or “A,” as issued by Standard and Poor’s, or “AAA,” “AA,” or “A,” as issued by Moody’s C The licensee must have at least one class of equity securities registered under the Securities Exchange Act C Separate financial tests are provided for use by commercial companies that have no rated bonds that are outstanding and by nonprofit institutions such as colleges, universities, and hospitals

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
			Specially-Licensed Nuclear Materials Facilities Owned by Commercial Companies that Have No Rated Bonds That Are Outstanding	Decommissioning	C A self-assurance mechanism, the financial test is not backed by the guarantee of a third party and the licensee is not required to set aside funds to meet future obligations C Licensees must demonstrate each year that they meet the criteria by which eligibility to use the financial test is determined C Must be accompanied by a "self guarantee" that defines the obligations of the licensee C May not be used in combination with other financial assurance mechanisms or in any circumstance in which the licensee has a parent company that holds majority control of its voting stock C Tangible net worth must be greater than $10 million or at least 10 times the sum of the current estimated or certified costs of decommissioning, whichever is greater, for all decommissioning activities for which the licensee is responsible as a self-guaranteeing licensee or as a parent guarantor C Assets located in the United States must make up at least 90 percent of total assets or must be at least 10 times the sum of the current estimated or certified costs of decommissioning for all decommissioning activities for which the licensee is responsible as a self-guaranteeing licensee or as a parent guarantor C Cash flow divided by total liabilities must equal a ratio value greater than 0.15, and total liabilities divided by net worth must equal a ratio value less than 1.5 C Separate financial tests are provided for use by commercial companies that have rated bonds that are outstanding and by nonprofit institutions such as colleges, universities, and hospitals
Financial Tests (cont'd)	Oil Pollution Control Act	33 CFR Part 138.80	Operators of Seagoing Vessels in Excess of 300 Tons	Liability Coverage for Potential Discharges of Oil or Hazardous Cargo	C The operator must demonstrate that it maintains in the United States working capital and net worth each in amounts at least equal to the total amount of liability coverage required C Operators must demonstrate each year that they meet the criteria by which eligibility to use the financial test is determined C Working capital is defined as the amount of current assets located in the United States, less all current liabilities anywhere in the world, and net worth is defined as the amount of assets located in the United States less all liabilities anywhere in the world C When the operator's net worth is not at least 10 times the amount of liability coverage required, the treasurer of the operator must file affidavits covering the first six months of the operator's fiscal year C The affidavits must that state that, during the first six months of the operator's fiscal year, neither the working capital not the net worth of the operator fell below the operator's required amount of liability coverage

TABLE A-1

FINANCIAL ASSURANCE MECHANISMS ESTABLISHED FOR USE UNDER VARIOUS ENVIRONMENTAL PROGRAMS IN THE UNITED STATES

Mechanism	Statutes	Regulations	Units	Application	Characteristics of the Mechanism
State Funds	RCRA	40 CFR Part 280.101	USTs	Third-Party Liability Coverage and Corrective Action	C Operators of USTs that are located in a state that assures that funds will be available from a state-managed fund or assurance program to cover assured costs up to the limits specified in the regulations may demonstrate financial assurance through that fund or program C The U.S. Environmental Protection Agency evaluates each state's fund or program to ensure that adequate monies will be available from that fund or program to take corrective actions and compensate third parties for bodily injury or property damage that arises from the operation of USTs in that state C Currently, 40 states have active financial assurance funds for USTs C The criteria used to determine the eligibility of owners or operators of USTs to have access to state funds or to use such funds to demonstrate financial assurance vary from state to state C The manner in which eligible costs are paid from state funds also varies from state to state C The methods used to finance each fund, the manner in which each fund is administered, and the types and amounts of fees or taxes that are collected vary significantly from state to state

A.1.1 Paid-In Trust Funds

The use of a paid-in trust fund requires that an operator deposit in full, and at the time the trust is established, the total estimated costs of its assured obligations. Thereafter, the operator is required to deposit into the trust only such amounts as would be necessary to compensate for adjustments for the effects of inflation or for changes in the estimated costs of their assured obligations.

Table A-2 illustrates the function of a paid-in trust fund over a period of five years. Assuming an estimated cost of assured obligations of $1 million in 2000, the operator would be required to deposit $1 million in the trust at the time it is established. Each year thereafter, the funds held in trust would earn interest, which would be retained in the fund to offset increases in the costs of the assured obligations. The cost estimate would be adjusted each year for the effects of inflation or for changes in the costs of the assured obligations. Provided that the amount of interest earned each year, minus trustee's fees and taxes, is greater than the annual increase in the estimated cost of the assured obligations, the trust fund will operate at a surplus. If, however, the amount of interest earned each year, minus trustee's fees and taxes, is less than the annual increase in the costs of the assured obligations, the operator would be required to make additional payments into the trust fund to offset the deficit.

Trust Funds for Third-Party Liability Coverage for Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)

Under 40 CFR 264.147(j) (RCRA Subtitle C), owners and operators of TSDFs are authorized to use paid-in trust funds to demonstrate financial assurance for third-party liability coverage. The trust fund must be funded up front for the full annual aggregate amount of third-party liability coverage required. The trustee is required to submit annually to both the owner or operator and the regulating authority a statement of the value of the assets held in trust. The wording of the trust agreement must be identical to that specified at 40 CFR 264.151(m)(1). The trust agreement must be accompanied by a formal certification of acknowledgment. Because commercial insurance and self-assurance mechanisms are available, owners and operators of TSDFs rarely use trust funds to demonstrate financial assurance for third-party liability coverage.

TABLE A-2
FUNCTION OF A PAID-IN TRUST FUND

Year	Estimated Cost of Assured Obligations ($)	Mandatory Payments (Surplus) ($)[3]	Interest Earnings ($)[4]	Trustee's Fees and Taxes ($)[5]	Total Value of Trust Fund ($)	Inflation Factor[6]
2000	1,000,000	1,000,000	50,000	10,500	1,039,500	1.03
2001	1,030,000	(9,500)	51,975	10,915	1,080,560	1.03
2002	1,060,900	(19,660)	54,028	11,346	1,123,242	1.03
2003	1,092,727	(30,515)	56,162	11,794	1,167,610	1.03
2004	1,125,509	(42,101)	58,381	12,260	1,213,731	1.03

Trust Funds for Third-Party Liability Coverage and Corrective Action for Petroleum Underground Storage Tanks (UST)

Under 40 CFR 280.102 (RCRA Subtitle I), owners and operators of USTs are authorized to use "paid-in" trust funds to demonstrate financial assurance for third-party liability and corrective action obligations. The trust fund must be funded up front for the full amount of coverage required under the regulations. The wording of the trust agreement must be identical to that specified at 40 CFR 280.103(b)(1). The trust agreement must be accompanied by a formal certification of acknowledgment, as specified at 40 CFR 280.103(b)(2).

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[3] The trust fund scenario assumes that the full amount of the estimated costs of the assured obligations would be paid by the operator into the trust fund on January 1, 2000.

[4] The trust fund scenario assumes that the funds held in trust will yield annual interest of exactly 5 percent.

[5] The trust fund scenario assumes that trustee's fees and taxes will be paid from the trust and in an amount equal to one percent of the total value of the trust fund after interest earnings.

[6] The trust fund scenario assumes a rate of inflation of 3 percent throughout the five-year period.

Trust Funds for Reclamation for Coal Mines in Pennsylvania

Under 25 Pa. Code Part 86.158(f) (SMCRA), operators of coal mines in Pennsylvania are authorized to use trust funds to demonstrate financial assurance for the costs of mine reclamation. The amount of each trust fund is set by the Pennsylvania Department of Environmental Protection (PADEP). At a minimum, the trust fund must provide that: 1) PADEP is established irrevocably as the beneficiary of the trust fund, 2) the investment objectives of the trust fund will be specified by PADEP, 3) termination of the trust fund will occur only as specified by PADEP, and 4) release of money to the permittee from the trust fund may be made only upon receipt of written authorization by PADEP to do so. A financial institution serving as a trustee must be a state-chartered or national bank or other financial institution that has trust powers or a trust company having offices in Pennsylvania whose activities are regulated by a state or federal agency. Operators may be allowed to deposit funds into the trust fund on a phased schedule, as specified at 25 Pa. Code Part 86.161.

Trust Funds for Decommissioning of Specially-Licensed Nuclear Materials Facilities and for Closure and Stabilization of Land Disposal Facilities for Radioactive Waste

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and Energy Reorganization Act), entities licensed by the Nuclear Regulatory Commission (NRC) to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and use facilities, including power reactors; possess and use spent nuclear materials; and operate independent spent fuel storage installations (ISFSI), respectively, are authorized to use paid-in trust funds to demonstrate financial assurance for the decommissioning of such specially licensed facilities. In addition, under 10 CFR 61.62, entities licensed by NRC to operate land disposal facilities for radioactive waste are authorized to use paid-in trust funds to demonstrate financial assurance for closure and stabilization of those facilities.

A trust fund acceptable for demonstrating financial assurance for one of the facilities described above must be an irrevocable three-party agreement whereby the licensee transfers amounts of a value at least equal to the estimated costs of the assured obligations to a trustee to be held on behalf of NRC. The trustee selected must be acceptable to NRC and may be a state or federal government agency or entity that has the authority to act as trustee and whose trust operations are regulated and examined by a federal or state agency.

The terms and conditions of the trust fund must be governed by a trust agreement. The trust agreement must: 1) identify the licensed facility and the costs of decommissioning, 2) describe the property used to establish the trust fund, 3) clearly indicate the licensee's intention that the property is to be held by a trustee, and 4) specify in detail all important aspects of the execution and administration of the trust and the disposition of the trust property. The trust agreement also should state that the fund will be disbursed to the licensee only upon presentation to the trustee of certification that: 1) decommissioning is proceeding according to a plan approved by NRC, 2) the funds withdrawn will be expended for activities undertaken pursuant to the plan, and 3) NRC has been given 30 days' notice of the licensee's intent to withdraw funds from the trust.

Trusts established to demonstrate financial assurance for facilities regulated by NRC can hold property other than interest-bearing cash deposits. Such property as securities or government notes also can be placed in trust. If assets that do not bear a face value are used to fund the trust, the trustee must sell the assets and place their cash value into the trust. The trust at all times must contain sufficient assets to pay for the conduct of the assured activities. Annually, the trustee must furnish to NRC confirmation of the value of the trust. The licensee must adjust the value of the fund, if necessary, to provide for increased costs arising from the effects of inflation or increases in the costs of the assured obligations.

A.1.2 Trust Funds That Allow Payments Over Time

Compared with a paid-in trust fund, a trust fund mechanism that allows payments over time provides a significant financial benefit to operators that use it because it allows those operators to demonstrate financial assurance without depositing in full the total estimated costs of their assured obligations at the time the trust is established. That benefit, however, can be provided only at some risk to the regulating authority. With trust funds funded over time, unlike paid-in trusts, there is no guarantee that the total amount required to pay for assured obligations would be available should an operator default on its obligations before the trust is fully funded. Under such circumstances, the trustee would be able to provide to the regulating agency only the amount of funds that had accumulated in the trust at the time of default. Under programs that currently allow the use of such mechanisms, however, regulating authorities have mitigated that risk by requiring that the trust funds be funded in full over relatively short periods of time.

Trust Funds for Closure and Post-Closure Care for TSDFs

Under 40 CFR 264.143(a) and 264.145(a) (RCRA Subtitle C), owners and operators of TSDFs are authorized to use trust funds to demonstrate financial assurance for closure and post-closure care obligations. Annual deposits are made by an owner or operator over a period equal to the term of the initial permit of its TSDF (usually five years) or the remaining operating life of the facility, whichever is shorter. The amount of each annual payment is determined by the cost estimate, the amount already in the trust fund, and the established pay-in period. The formula for computing the amount of payment is:

$$\frac{CE - CV}{Y}$$

In the equation:

- CE equals the sum of the current estimate of the assured costs
- CV equals the current value of the trust fund
- Y equals the number of years remaining in the pay-in period

If the owner or operator makes payments in accordance with the payment formula shown above, the total amount of funds needed to implement closure and post-closure care will be available at the end of the planned pay-in period. When making annual payments into the trust fund, the owner or operator must factor increases into the cost estimate for the effects of inflation or for changes in operations at the facility. For as long as the facility remains in operation, the owner or operator is responsible for ensuring that the value of the trust fund equals or exceeds the current cost estimate. The trustee must value the fund annually and provide to the grantor and to the appropriate regulating agency a statement that confirms the value of the fund. The trustee is required to notify the regulating agency if the owner or operator fails to make a required payment. If the trust fund is established after another mechanism has been used, the first payment must be at least the amount that the fund would contain if the trust fund had been used from the beginning. The wording of the trust fund agreement must be identical to that specified at 40 CFR 264.151(a)(1). In addition, the trust agreement must be accompanied by a formal certification of acknowledgment, as specified at 40 CFR 264.151(a)(2).

Table A-3 illustrates the function of a trust fund established to demonstrate financial assurance for closure of a TSDF with annual payments made over a period of five years. Assuming a current cost

TABLE A-3
TRUST FUND FOR CLOSURE AND POST-CLOSURE CARE OF A TSDF WITH ANNUAL PAYMENTS MADE OVER A PERIOD OF FIVE YEARS

Year	CE($) - CV($) / Y	Mandatory Payments (Surplus) ($)[7]	Interest Earnings ($)[8]	Trustee's Fees and Taxes ($)[9]	Total Value of Trust Fund ($)	Inflation Factor[10]
2000	1,000,000 - 0 / 5	200,000	10,000	2,100	207,900	1.03
2001	1,030,000 - 207,900 / 4	205,525	20,671	4,341	429,755	1.03
2002	1,060,900 - 429,755 / 3	210,382	32,007	6,721	665,423	1.03
2003	1,092,727 - 665,423 / 2	213,652	43,954	9,230	913,799	1.03
2004	1,125,509 - 913,799 / 1	211,710	56,275	11,818	1,169,966	1.03
2005	1,159,274 - 1,169,966	(10,692)	58,498	12,285	1,216,179	1.03

estimate for closure of $1 million in 2000, the owner or operator would be required to deposit a value of $200,000 in the trust at the time it is established. Each year, the cost estimate for closure is adjusted for the effects of inflation or for other changes in the cost of closure, and the amount of the annual payment to be made by the operator is recalculated by the trust fund payment equation of ((CE-CV)/Y). Interest earned from the funds held in trust would be retained in the fund to offset increases in the costs of closure and would reduce or eliminate future payments to be made by the operator. Under the prescribed

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[7] The trust fund scenario assumes that the full present value of the future cost of treatment of AMD as of January 1, 2000 would be $1 million.

[8] The trust fund scenario assumes that the funds held in trust will yield annual interest of exactly 5 percent.

[9] The trust fund scenario assumes that trustee's fees and taxes will be paid from the trust and in an amount equal to one percent of the total value of the trust fund after interest earnings.

[10] The trust fund scenario assumes a rate of inflation of 3 percent throughout the five-year period.

payment schedule, the trust fund would be fully funded within a period of five years. After the trust has been fully funded, and provided that the amount of interest earned each year, minus trustee's fees and taxes, is greater than the annual increase in the estimated cost of closure, the trust fund should operate at a surplus. If, however, after the trust has been fully funded, the amount of interest earned each year, minus trustee's fees and taxes, is less than the annual increase in the cost of closure, the operator would be required to make additional payments into the trust fund to offset the deficit.

Trust Funds for Closure and Post-Closure Care for Municipal Solid Waste Landfills (MSWLF)

Under 40 CFR 258.74(b) (RCRA Subtitle D), owners and operators of MSWLFs are authorized to use trust funds to demonstrate financial assurance for closure and post-closure care obligations. The trust fund mechanism for MSWLFs functions in much the same way as the trust fund mechanism for TSDFs, except that, in the case of MSWLFs, no required wording for the trust agreement or certification of acknowledgment is specified in the regulations.

Trust Funds for Closure and Post-Closure Care for Commercial Polychlorinated Biphenyls (PCB) Storage Facilities

Under 40 CFR 761.65(g)(1) (TSCA), owners and operators of commercial PCB storage facilities are authorized to use trust funds to demonstrate financial assurance for closure and post-closure care obligations. The trust fund mechanism for commercial PCB storage facilities functions in much the same way as the trust fund mechanism for TSDFs, except that, in the case of commercial PCB storage facilities, an owner or operator makes annual deposits over the remaining operating life of the facility, as estimated in the closure plan, or over three years, whichever is shorter.

Trust Funds for Plugging and Abandonment and Post-Closure Care for Class I Injection Wells

Under 40 CFR 144.63(a) (SDWA), operators of class I injection wells are authorized to use trust funds to demonstrate financial assurance for the costs of plugging and abandonment and post-closure care. The trust fund mechanism for class I injection wells functions in much the same way as the trust fund mechanism for TSDFs, except that, in the case of class I injection wells, the wording of the trust fund agreement must be identical to that specified at 40 CFR 144.70(a)(1).

Trust Funds for Corrective Action for MSWLFs

Under 40 CFR 258.74(a) (RCRA Subtitle D), owners and operators of MSWLFs are authorized to demonstrate financial assurance for the costs of corrective actions by making annual deposits into trust funds over a number of years equal to one half of the estimated duration of the corrective action period. To ensure that sufficient funds will be available to cover the costs of corrective action during the second half of the corrective action period, the mechanism allows the owner or operator to fund the trust gradually over the first half of the corrective action period. The initial payment into the trust must be made no later than 120 days after the selection of a corrective action remedy. At the end of the pay-in period, the balance in the trust fund must be sufficient to cover the costs of corrective action during the second half of the corrective action period. The amount of each annual payment is determined by the cost estimate, the amount already in the trust fund, and the established pay-in period. The formula for computing the amount of each payment is:

$$\frac{RB - CV}{Y}$$

In the equation:

- RB equals the current required trust fund balance (one half of the current estimate of the cost of corrective action)
- CV equals the current value of the trust fund
- Y equals the number of years remaining in the pay-in period (one half of the estimated duration of the corrective action period)

If the owner or operator makes payments in accordance with the formula shown above, one half of the total amount of funds needed to implement corrective action will be available at the end of the planned pay-in period. When making annual payments into the trust fund, the owner or operator must factor increases into the cost estimate for the effects of inflation or for changes in the corrective action plan. The trustee must value the fund annually and provide to the operator and to the appropriate regulatory authority a statement that confirms the value of the fund. The trustee is required to notify the regulatory

authority if the owner or operator fails to make a required payment. If the trust fund is established after another mechanism has been used, the first payment must be at least the amount that the fund would contain if the trust fund had been used from the beginning.

Table A-4 illustrates the function of a trust fund established to demonstrate financial assurance for corrective action for a MSWLF having an estimated corrective action period of 10 years for which annual payments are made over a five-year period. Assuming a current cost estimate for corrective action of $1 million in 2000, the operator would be required to deposit a value of $100,000 in the trust at the time it is established. Each year, the required balance (or one half the estimated cost of corrective action) would be adjusted to account for the effects of inflation or for changes in the corrective action plan, and the amount of the annual payment to be made by the operator would be recalculated by the trust fund payment equation of ((RB-CV)/Y). Interest earned from the funds held in trust would be

TABLE A-4
TRUST FUND FOR CORRECTIVE ACTION OF A MSWLF
WITH ANNUAL PAYMENTS MADE OVER A PERIOD OF FIVE YEARS

Year	RB($) - CV($) / Y	Mandatory Payments (Surplus) ($)[11]	Interest Earnings ($)[12]	Trustee's Fees and Taxes ($)[13]	Total Value of Trust Fund ($)	Inflation Factor[14]
2000	500,000 - 0 / 5	100,000	5,000	1,050	103,950	1.03
2001	515,000 - 103,950 / 4	102,763	10,336	2,170	214,879	1.03
2002	530,450 - 214,879 / 3	105,190	16,003	3,361	332,711	1.03

[11] The trust fund scenario assumes that the full present value of the future cost of treatment of AMD as of January 1, 2000 would be $1 million.

[12] The trust fund scenario assumes that the funds held in trust will yield annual interest of exactly 5 percent.

[13] The trust fund scenario assumes that trustee's fees and taxes will be paid from the trust and in an amount equal to one percent of the total value of the trust fund after interest earnings.

[14] The trust fund scenario assumes a rate of inflation of 3 percent throughout the five-year period.

2003	546,364 - 332,711 2	106,827	21,977	4,615	456,900	1.03
2004	562,755 - 456,900 1	105,855	28,138	5,909	584,984	1.03
2005	579,638 - 584,984	(5,346)	29,249	6,142	608,091	1.03

retained in the fund to offset increases in the costs of corrective action and reduce or eliminate future payments to be made by the operator. Under the prescribed payment schedule, the trust fund would be funded to an amount equal to one half the estimated cost of corrective action within a period of five years. After the trust has been funded, and provided that the amount of interest earned each year, minus trustee's fees and taxes, is greater than the annual increase in the estimated cost of corrective action, the trust fund should operate at a surplus. If, however, after the trust has been fully funded, the amount of interest earned each year, minus trustee's fees and taxes, is less than the annual increase in the cost of corrective action, the operator would be required to make additional payments into the trust fund to offset the deficit.

A.2 ANNUITIES FOR RECLAMATION FOR COAL MINES IN PENNSYLVANIA

Under 25 Pa. Code 86.158(f) (SMCRA), operators of coal mines in Pennsylvania are authorized to use annuities to demonstrate financial assurance for the costs of mine reclamation.[15] The amount of the annuity is set by PADEP. At a minimum, the annuity must provide that: 1) PADEP is established irrevocably as the beneficiary of the proceeds of the annuity, 2) the investment objectives of the annuity will be specified by PADEP, 3) termination of the annuity may occur only as specified by PADEP, and 4) release of money to the operator from the annuity may be made only upon receipt of written authorization by PADEP to do so. A financial institution that issues an annuity must be a state-chartered or national bank or other financial institution that has trust powers or a trust company having offices in Pennsylvania and whose activities are regulated by a state or federal agency. An insurance company that issues an annuity must be licensed or authorized to do business in Pennsylvania by the Pennsylvania Insurance

[15] An annuity is a series of payments made on behalf of the purchaser by an insurance company or other entity in exchange for an up-front premium paid by the purchaser. Once the annuity has been purchased, the issuer becomes contractually obligated to make the payments over time on behalf of the purchaser. Because the payments are made over time, operators can take advantage of the time value of money by purchasing an annuity for less than its full payment value.

Commissioner or be designated by the Insurance Commissioner as an eligible surplus lines insurer. Operators may be allowed to use annuities by depositing collateral on a phased schedule, as specified at 25 Pa. Code Part 86.161.

A.3 ESCROW AGREEMENTS FOR DECOMMISSIONING FOR SPECIALLY LICENSED NUCLEAR MATERIALS FACILITIES AND FOR CLOSURE AND STABILIZATION OF LAND DISPOSAL FACILITIES FOR RADIOACTIVE WASTE

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and Energy Reorganization Act), entities licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and use facilities, including power reactors; possess and use spent nuclear materials; and operate ISFSIs, respectively, are authorized to use escrow agreements to demonstrate financial assurance for the decommissioning of such specially licensed facilities. In addition, under 10 CFR 61.62, entities licensed by NRC to operate land disposal facilities for radioactive waste are authorized to use escrow agreements to demonstrate financial assurance for closure and stabilization of those facilities.

An escrow agreement is an account that contains funds deposited by the licensee and held by a bank or other financial institution. An escrow account differs from other accounts so held in that the licensee provides funds that are held in escrow until the occurrence of a contingency or the performance of a condition and then released to the grantee. To use an escrow account to demonstrate financial assurance, the licensee must deposit into the escrow account cash or liquid assets in amounts at least equal to the certified or estimated costs of decommissioning. The bank or other institution with which the funds are deposited serves as the escrow agent. The escrow itself is the agreement between the licensee and the escrow agent. The agreement must specify that the funds are to be held by the escrow agent until they are required to conduct the assured activities or until the licensee defaults on its obligation to perform those activities. The escrow becomes irrevocable when the licensee delivers to the escrow agent the deposit and the escrow agreement. Further, the escrow remains irrevocable for the length of time stated in the escrow agreement.

The escrow fund will be disbursed to the licensee upon presentation to the escrow agent of certification that: 1) conduct of the assured activities is proceeding according to an approved plan, 2) the funds withdrawn will be expended for activities undertaken pursuant to the plan, and 3) the NRC has been given

30 days' notice of the licensee's intent to withdraw the funds from the escrow fund. If the licensee defaults on its obligations, NRC will order the escrow agent to release the funds so that they may be used to address those obligations. The escrow agreement should state that, if the licensee does not default, or if any funds remain in the escrow account upon the completion of all assured activities, the escrow will be terminated and the funds returned to the licensee.

A.4 SURETY BONDS

A surety bond is a written instrument that involves three parties: one party, a surety company (the surety), becomes obligated to a second party, the obligee (the regulatory authority) for payment of money or performance of services of a value not to exceed the bond amount. The surety becomes liable to pay or perform if the obligation set forth in the bond is not fulfilled by the principal (the operator). The principal pays a premium to the surety in exchange for the guarantee. Unlike the procedures under an insurance arrangement, in the event of a loss, the surety retains full rights of recovery against the principal. The surety therefore may seek to recover expenses from the principal if the surety is required to pay or perform. The use of collateral for surety bonds is prevalent in many environmental applications, for which both potential liabilities and overall risk are perceived to be high.

Surety Bonds for Closure and Post-Closure Care for TSDFs

Under 40 CFR 264.143(b), 264.145(b), 264.143(c), and 264.145(c) (RCRA Subtitle C), owners and operators of TSDFs are authorized to use surety bonds to demonstrate financial assurance for closure and post-closure care obligations. Two types of surety bonds may be used to demonstrate financial assurance for closure and post-closure care for TSDFs: 1) financial guarantee bonds and 2) performance bonds. Financial guarantee bonds assure the regulating authority that, if the owner or operator fails to conduct closure or post-closure care activities, the surety will provide to the regulating authority funds, up to a specified amount, to conduct those activities. Performance bonds, on the other hand, afford the surety the option, upon default by the owner or operator to either pay for or to perform closure or post-closure care activities.

The maximum liability of the surety is limited to the penal sum of the bond. At all times, the penal sum of the surety bond must be at least equal to the current estimate of the cost of future obligations at the

facility. The surety that issues the bond must be listed as "acceptable" in the most recent Circular 570 published by the U.S. Department of the Treasury. The wording of financial guarantee bonds and performance bonds must be identical to that specified at 40 CFR 264.151(b) and 264.151(c), respectively.

The owner or operator of a TSDF is required to establish a standby trust fund in conjunction with each surety bond. The surety deposits any payments made under the bond directly into the standby trust fund. Although a standby trust fund has certain similarities to a standard RCRA trust fund, the standby trust fund alone is not a financial assurance mechanism. The standby trust simply serves as a conduit through which the funds necessary to pay for the assured activities are transferred from the surety to a special account from which the regulating authority can disburse those funds readily. The use of a standby trust fund is essential if the regulating authority is to be able to "earmark" the funds held in trust to address environmental obligations at a particular facility. Owners and operators of TSDFs must establish standby trust funds in conjunction with either financial guarantee bonds or performance bonds. The standby trust often is established with a nominal sum; the owner or operator must fund it in an amount equal to the penal sum of the bond before closure activities begin.

Surety Bonds for Third-Party Liability Coverage for TSDFs

In addition, under 40 CFR 264.147(i) (RCRA Subtitle C), owners and operators of TSDFs are authorized to use surety bonds to demonstrate financial assurance for third-party liability coverage. The penal sum of the bond must be at least equal to the full annual aggregate amount of third-party liability coverage required. Only financial guarantee bonds may be used for such coverage. The surety issuing the bond must be listed as "acceptable" in the most recent Circular 570 published by the U.S. Department of the Treasury. The owner or operator must demonstrate that each bond is a legally valid and enforceable obligation in the state in which the surety is located and in each state in which a facility covered by the bond is located. The wording of the bond must be identical to that specified at 40 CFR 264.151(l). Because commercial insurance and self-assurance mechanisms are available, owners and operators of TSDFs rarely use surety bonds to demonstrate financial assurance for third-party liability coverage.

Surety Bonds for Closure and Post-Closure Care and Corrective Action for MSWLFs

Under 40 CFR 258.74(b) (RCRA Subtitle D), owners and operators of MSWLFs are authorized to use surety bonds to demonstrate financial assurance for closure and post-closure care and corrective action obligations. The surety bond mechanism for MSWLFs functions in much the same way as the surety bond mechanism for closure and post-closure care for TSDFs, except that, in the case of MSWLFs, no required wording for either financial guarantee bonds or performance bonds is specified in the regulations.

Surety Bonds for Closure and Post-Closure Care for Commercial PCB Storage Facilities

Under 40 CFR 761.65(2) and (3) (TSCA), owners and operators of commercial PCB storage facilities are authorized to use surety bonds to demonstrate financial assurance for closure and post-closure care obligations. The surety bond mechanism for commercial PCB storage facilities functions in much the same way as the surety bond mechanism for closure and post-closure care for TSDFs. The wording of financial guarantee bonds and performance bonds must be identical to that specified at 40 CFR 264.151(b) and 264.151(c), respectively.

Surety Bonds for Third-Party Liability Coverage and Corrective Action for MSWLFs

Under 40 CFR 280.98 (RCRA Subtitle I), owners and operators of USTs are authorized to use surety bonds to demonstrate financial assurance for third-party liability and corrective action obligations. The surety bond mechanism for USTs functions in much the same way as the surety bond mechanism for closure and post-closure care for TSDFs, except that: 1) only performance bonds may be used, 2) the penal sum of the bond must be at least equal to the full amount of coverage required under the regulations, and 3) the wording of the bond must be identical to that specified at 40 CFR 280.98(b). Because state financial assurance funds and self-assurance mechanisms are available, owners and operators of USTs rarely use surety bonds to demonstrate financial assurance for third-party liability and corrective action obligations.

Surety Bonds for Plugging and Abandonment and Post-Closure Care for Class I Injection Wells

Under 40 CFR 144.63(b) and 144.63(c) (SDWA), operators of class I injection wells are authorized to use surety bonds to demonstrate financial assurance for the costs of plugging and abandonment and post-closure care. The surety bond mechanism for class I injection wells functions in much the same way as

the surety bond mechanism for closure and post-closure care for TSDFs, except that the wording of financial guarantee bonds and performance bonds must be identical to that specified at 40 CFR 144.70(b) and 144.70(c), respectively.

Surety Bonds for Reclamation for Coal Mines

Under 30 CFR 800.20 (SMCRA), operators of coal mines are authorized to use surety bonds to demonstrate financial assurance for the costs of mine reclamation. Surety bonds must be issued by a corporate surety that is licensed to do business in the state in which the mine covered by the surety bond is located. Surety bonds are issued irrevocably except that surety bond coverage for lands that are not disturbed by mining activities may be canceled without the prior consent of the regulatory authority. At all times, the penal sum of the bond must be sufficient to assure the completion of the reclamation plan if it becomes necessary that the regulatory authority perform the work described in that plan.

Surety Bonds for Reclamation for Coal Mines in Pennsylvania

Under 25 Pa. Code Part 86.157 (SMCRA), operators of coal mines in Pennsylvania are authorized to use surety bonds to demonstrate financial assurance for the costs of mine reclamation. The surety that issues the bond must be authorized to do business in Pennsylvania. PADEP will not accept a surety bond from a surety that has failed to make or unduly delayed in making, payment on a forfeited surety bond. PADEP will not accept a surety bond unless that bond is not cancellable by the surety for reasons including, but not limited to, nonpayment of premium or bankruptcy of the operator. PADEP will not accept a surety bond from a surety if the penal sum of that bond is in excess of the surety's maximum single-risk exposure, as provided under the Insurance Company Law, unless the surety complies with applicable requirements for exceeding that maximum single-risk exposure.

The bond must provide that the surety and the operator are to be jointly and severally liable. The bond must provide that the surety will give prompt notice to the operator and to PADEP of a notice received or action filed alleging the insolvency or bankruptcy of the surety or alleging violations of regulatory requirements that could result in suspension or revocation of the surety's license to do business. The surety bond must be signed by an appropriate official of the surety, as determined by PADEP. If the principal place of business of the surety is outside Pennsylvania, the surety bond must be signed by an

authorized resident agent of the surety. The bond must provide that liability under the bond will not be impaired or affected by a renewal or extension of the time for performance, or by forbearance or delay in declaring or enforcing forfeiture of the bond. In the event of forfeiture, the surety will have the option, subject to the consent and approval of PADEP, to cover or perform the principal's obligation under the bond, in lieu of paying the bond amount to PADEP. Operators may be allowed to use surety bonds to deposit collateral on a phased schedule, as specified at 25 Pa. Code Part 86.161.

Surety Bonds for Plugging and Abandonment, Reclamation, and Restoration for Oil and Gas Production Facilities on Public Lands

Under 43 CFR 3104.1(b) (Mineral Leasing Act), operators of oil and gas production facilities on public lands are authorized to use surety bonds to demonstrate financial assurance for the costs of plugging and abandonment of wells, reclamation of leased areas, and restoration of any lands or surface waters that are affected adversely by lease operations after the abandonment or cessation of oil and gas operations. The surety that issues the bond must be listed as "acceptable" in the most recent Circular 570 published by the U.S. Department of the Treasury. The bond amount must not be less than the minimum amount required to ensure compliance with all applicable requirements for plugging and abandonment, reclamation, and restoration. Model language for a surety bond is provided at 43 CFR 3186.2.

Surety Bonds for Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans for Coal Mines on Public Lands

Under 43 CFR 3474.1 (Mineral Leasing Act), parties permitted to conduct coal mining operations on public lands leased by the United States are authorized to use surety bonds to demonstrate financial assurance for all obligations specified under their leases, exploration licenses, or licenses to mine and to ensure that all aspects of the mining operation, other than reclamation operations, are conducted in conformity with the approved mining or exploration plan. The surety that issued the bond must be listed as "acceptable" in the most recent Circular 570 published by the U.S. Department of the Treasury. If the surety makes payment to the government of any indebtedness due under a lease, the face amount of the surety bond and the surety's liability thereunder each will be reduced by the amount of such payment.

Surety Bonds for Plugging and Abandonment of Wells, Removal of Structures, Reclamation, and Payment of Uncollected Royalties and Penalties for Geothermal Recovery Units Located on Public Lands

Under 43 CFR 3214.15 (Geothermal Steam Act), parties permitted to conduct exploration, drilling, or use operations on public lands leased by the United States to facilitate the location, recovery, and use of geothermal resources are authorized to use surety bonds to demonstrate financial assurance for the costs of: 1) plugging and abandoning wells, 2) removing structures, 3) reclaiming the surface land and other resources, 4) paying to the Minerals Management Service (MMS) of the U.S. Department of the Interior any uncollected royalties owed by the operator and 5) paying to the Bureau of Land Management (BLM) of the U.S. Department of the Interior any monies owed by the operator because of previous violations. The surety that issued the bond must be listed as "acceptable" in the most recent Circular 570 published by the U.S. Department of the Treasury. When written to cover exploration, drilling, or use operations, the amounts of bonds must not be less than the minimum amounts specified at 43 CFR 3251.15, 3261.18, 3271.12, and 3273.19, respectively.

Surety Bonds for Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans for Oil, Gas or Sulphur Exploration and Extraction Units in the Outer Continental Shelf

Under 30 CFR 256.52 (Outer Continental Shelf Lands Act), parties permitted to conduct oil, gas, or sulphur exploration and extraction operations in submerged lands in the Outer Continental Shelf leased by the United States for that purpose are authorized to use surety bonds to demonstrate financial assurance to guarantee compliance with all terms and conditions specified in their leases, including the abandonment and removal of wells and platforms and the clearing of obstructions from drilling and platform sites. The surety that issued the bond must be listed as "acceptable" in the most recent Circular 570 published by the U.S. Department of the Treasury. Surety bonds must be noncancellable and must continue in full force and effect even though an event occurs that could diminish, terminate, or cancel a surety obligation under state surety law. If either the operator or the surety is a corporation, an authorized official of each corporation must sign the surety bond and attest to it by an imprint of the corporate seal.

Surety Bonds for Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans for Exploration and Extraction Units in the Outer Continental Shelf Other Than Oil, Gas, or Sulphur Units

Under 30 CFR 281.33 (Outer Continental Shelf Lands Act), parties permitted to conduct operations in submerged lands in the Outer Continental Shelf leased by the United States to explore for or extract minerals other than oil, gas, or sulphur are authorized to use surety bonds to demonstrate financial

assurance to guarantee compliance with all terms and conditions specified in their leases. The surety that issues the bond must be listed as "acceptable" in the most recent Circular 570 published by the U.S. Department of the Treasury.

Surety Bonds for Restoration for Mines on Public Lands Reserved for Power Development

Under 43 CFR 3738.1 (Mining Claims Rights Restoration Act), parties permitted to conduct mining, development, and use operations for mineral resources on public lands withdrawn or reserved for power development are authorized to use surety bonds to demonstrate financial assurance for restoration of the surface area affected by such operations. The penal sum of the bond must be determined by an administrative law judge.

Surety Bonds for Reclamation for Mines on Public Lands

Under 43 CFR 3809.1-9 (Federal Land Policy and Management Act), parties permitted to conduct mining activities on public lands are authorized to use surety bonds to demonstrate financial assurance for reclamation of areas affected by such activities. The surety bond must be a legal instrument in the state in which the operations are to be conducted.

Surety Bonds for Liability Coverage for Offshore Oil Facilities

Under 30 CFR 253.31 (Oil Pollution Control Act), operators of offshore facilities used for exploring or drilling for or producing oil or for transporting oil from such facilities are authorized to use surety bonds to demonstrate financial assurance that funding will be available to pay for cleanup and damages caused by discharges of oil. To issue bonds, the surety must: 1) be licensed to do business in the state in which the surety bond is executed, 2) be certified by the U.S. Department of the Treasury as an acceptable surety for federal obligations and listed in the current Treasury Circular No. 570, 3) provide the bond on MMS Form 1020, and 4) be in compliance with applicable statutes that regulate the participation of sureties in insurance-type risks. The bond must provide all information required under 30 CFR 253.41. If the surety that issued the bond loses its state license, or if its U.S. Department of the Treasury certification is revoked, the operator must replace the surety bond within 15 calendar days with another mechanism that is acceptable to MMS.

Surety Bonds for Liability Coverage for Seagoing Vessels in Excess of 300 Tons

Under 33 CFR 138.80 (Oil Pollution Control Act), operators of seagoing vessels in excess of 300 tons[16] are authorized to use surety bonds to demonstrate financial assurance for liability coverage for potential discharges of oil or hazardous cargo. The operator must submit to the U.S. Coast Guard's National Pollution Funds Center (NPFC) a completed Surety Bond Guarantee Form CG-5586-2. The form must have been executed by no more than 10 sureties that have been identified by the U.S. Department of the Treasury as acceptable for federal obligations and listed in the current Treasury Circular No. 570. A surety may not exceed, in a single bond, its underwriting limits as specified in the current Treasury Circular No. 570, unless other sureties enter into the surety contract to share the risk. Even so, several sureties acting together may not exceed, in a single bond, the sum of their individual underwriting limits.

Surety Bonds for Decommissioning of Specially Licensed Nuclear Materials Facilities, for Decommissioning and Reclamation of Uranium and Thorium Mills, and for Closure and Stabilization of Land Disposal Facilities for Radioactive Waste

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and Energy Reorganization Act), entities licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and utilization facilities, including power reactors; possess and use spent nuclear materials; and operate ISFSIs, respectively, are authorized to use surety bonds to demonstrate financial assurance for the decommissioning of such specially licensed facilities. Under 10 CFR 40 Appendix A, entities licensed by NRC to possess and use source material in connection with uranium and thorium milling or byproduct materials at sites formerly associated with such milling are authorized to use surety bonds to demonstrate financial assurance for decommissioning and reclamation obligations associated with those mills. In addition, under 10 CFR 61.62, entities licensed by NRC to operate land disposal facilities for radioactive waste are authorized to use surety bonds to demonstrate financial assurance for closure and stabilization of those facilities.

Surety bonds must be financial guarantee bonds that guarantee payment (rather than performance) in the event of default on the part of the licensee. The surety that issues the bond must be listed as an acceptable surety for federal obligations and listed in the current Treasury Circular No. 570. A surety

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[16] The regulations do not apply to non-self-propelled barges that do not carry oil as cargo or fuel and do not carry hazardous substances as cargo.

may not exceed, in a single bond, its underwriting limits as specified in Treasury Circular 570, unless other sureties enter into the surety contract to share the risk. Even so, several sureties acting together may not exceed, in a single bond, the sum of their individual underwriting limits. The surety contract must be signed in a state in which the surety is licensed to operate. The penal sum of the bond must be in an amount that is at least equal to the estimated cost of the assured obligations. The licensee must establish a standby trust fund in conjunction with the surety bond. The surety must place any funds drawn through the surety bond directly into the standby trust fund for use by NRC.

A.5 LETTERS OF CREDIT

A letter of credit is a mechanism through which a bank or other financial institution (the issuer) extends a line of credit on behalf of a second party, called the account party (the operator), to guarantee payment to the beneficiary (the regulating authority) in the event that the account party defaults on its financial obligations. The financial institution allows the regulating authority to draw funds upon the presentation of documents in accordance with the terms of the letter of credit. The issuer offers that assurance in exchange for a fee paid by the operator. Under certain circumstances, collateral also may be required to secure the line of credit. Under the arrangement, the operator is legally obligated to repay to the issuer, with interest, all funds drawn through the letter of credit.

Letters of Credit for Closure and Post-Closure Care for TSDFs

Under 40 CFR 264.143(d) and 264.145(d) (RCRA Subtitle C), owners and operators of TSDFs are authorized to use letters of credit to demonstrate financial assurance for closure and post-closure care obligations. Letters of credit must be issued irrevocably for a period of at least one year, and must provide for automatic extensions of at least one year. The amount of the letter of credit must equal, at a minimum, the current estimated costs of closure and post-closure care for the facility. An owner or operator cannot draw upon the letter of credit to finance the completion of its assured obligations; it must use other funds or lines of credit to pay for those activities. The wording of the letter of credit must be identical to that specified at 40 CFR 264.151(d).

The owner or operator must establish a standby trust fund in conjunction with the letter of credit. The standby trust agreement may be provided by the same financial institution that issues the letter of credit or

by a second financial institution. Under the terms of the letter of credit, the issuing institution will deposit funds directly into the standby trust if the owner or operator: 1) fails to properly maintain financial assurance for its environmental obligations or 2) defaults in performing closure or post-closure care activities in a timely manner. Once funded, the regulatory authority may draw from the standby trust monies needed to pay for or perform the necessary activities. Again, the standby trust does not serve as an independent financial assurance mechanism. Rather, the standby trust merely facilitates drawing upon funds provided to the government through the letter of credit mechanism.

Letters of Credit for Third-Party Liability Coverage for TSDFs

In addition, under 40 CFR 264.147(h) (RCRA Subtitle C), owners and operators of TSDFs are authorized to use letters of credit to demonstrate financial assurance for third-party liability coverage. The face value of the letter of credit must be at least equal to the full annual aggregate amount of third-party liability coverage required. The letter of credit must be issued irrevocably for a period of at least one year and provide for automatic extensions of at least one year. Financial institutions that issue letters of credit must have the authority to issue such letters and must have letter-of-credit operations that are regulated by a federal or state agency. Owners or operators must designate third-party claimants as beneficiaries in the event of a valid claim or establish a standby trust fund and designate an independent trustee as beneficiary. The wording of the letter of credit must be identical to that specified at 40 CFR 264.151(k). Because commercial insurance and self-assurance mechanisms are available, owners and operators of TSDFs rarely use letters of credit to demonstrate financial assurance for third-party liability coverage.

Letters of Credit for Closure and Post-Closure Care for MSWLFs

Under 40 CFR 258.74(d) (RCRA Subtitle D), owners and operators of MSWLFs are authorized to use letters of credit to demonstrate financial assurance for closure and post-closure care obligations. The letter of credit mechanism for MSWLFs functions in much the same way as the letter of credit mechanism for closure and post-closure care for TSDFs, except that, in the case of MSWLFs, no required wording for the letter of credit is specified in the regulations.

Letters of Credit for Closure and Post-Closure Care for Commercial PCB Storage Facilities

Under 40 CFR 761.65(4) (TSCA), owners and operators of commercial PCB storage facilities are authorized to use letters of credit to demonstrate financial assurance for closure and post-closure care obligations. The letter of credit mechanism for commercial PCB storage facilities functions in much the same way as the letter of credit mechanism for closure and post-closure care for TSDFs. The wording of the letter of credit must be identical to that specified at 40 CFR 264.151(d).

Letters of Credit for Third-Party Liability Coverage and Corrective Action for USTs

Under 40 CFR 280.99 (RCRA Subtitle I), owners and operators of USTs are authorized to use letters of credit to demonstrate financial assurance for third-party liability and corrective action obligations. The letter of credit mechanism for USTs functions in much the same way as the letter of credit mechanism for closure and post-closure care for TSDFs, except that: 1) the face value of the letter of credit must be at least equal to the full amount of coverage required under the regulations, and 2) the wording of the letter of credit must be identical to that specified at 40 CFR 280.99(b).

Letters of Credit for Plugging and Abandonment and Post-Closure Care for Class I Injection Wells

Under 40 CFR 144.63(d) (SDWA), operators of class I injection wells are authorized to use letters of credit to demonstrate financial assurance for the costs of plugging and abandonment and post-closure care. The letter of credit mechanism for class I injection wells functions in much the same way as the letter of credit mechanism for closure and post-closure care for TSDFs, except that the wording of the letter of credit must be identical to that specified at 40 CFR 144.70(d).

Letters of Credit for Reclamation for Coal Mines

Under 30 CFR 800.21(b) (SMCRA), operators of coal mines are authorized to use collateral bonds backed by letters of credit to demonstrate financial assurance for the costs of reclamation. The letter of credit must be issued by a bank that is organized or authorized to do business in the United States. Letters of credit are issued irrevocably during their terms. A letter of credit used to demonstrate financial assurance in areas that require continuous bond coverage will be forfeited and collected by the regulatory authority if it is not replaced by another suitable bond or another letter of credit at least 30 days before its expiration date. At all times, the penal sum of the bond must be sufficient to assure the completion of the

reclamation plan if it becomes necessary that the regulatory authority perform the work described in that plan. The letter of credit must be payable to the regulatory authority upon demand, in part or in full, upon receipt from the regulatory authority of a notice of forfeiture issued in accordance with the provisions of 30 CFR 800.50.

Letters of Credit for Reclamation for Coal Mines in Pennsylvania

Under 25 Pa. Code Part 86.158(d) (SMCRA), operators of coal mines in Pennsylvania are authorized to use collateral bonds backed by letters of credit to demonstrate financial assurance for the costs of reclamation. The letter of credit must be a standby letter of credit issued by a federally insured or equivalently protected financial institution that is chartered or authorized to do business in the United States and that agrees to jurisdiction in Pennsylvania. Letters of credit are issued irrevocably. PADEP may accept letters of credit that are irrevocable for the term of one year if: 1) the letter of credit is automatically renewable for additional terms unless the financial institution gives at least 90 days' written notice to PADEP and the operator of its intent to terminate the letter of credit at the end of the current term, and 2) PADEP has the right to draw upon the letter of credit before the end of its term and convert it into a cash or collateral bond, if the operator fails to replace the letter of credit with another acceptable bond within 30 days of the financial institution's notice of termination.

The letter of credit must be payable to PADEP, in part or in full, upon demand and receipt from PADEP of a notice of forfeiture or demand for payment. PADEP will not accept letters of credit from a financial institution for an operator, on permits held by that operator, in excess of 10 percent of the bank's capital surplus account, as shown on a balance sheet certified by a certified public accountant (CPA). The letter of credit shall provide that the financial institution will give prompt notice to the operator and PADEP of a notice received or action filed alleging the insolvency or bankruptcy of the financial institution, or alleging violations of regulatory requirements that could result in suspension or revocation of the financial institution's license to do business. PADEP will not accept letters of credit from a financial institution that has failed to make or unduly delayed in making, payment on a defaulted letter of credit. Operators may be allowed to use letters of credit to deposit collateral on a phased schedule, as specified at 25 Pa. Code Part 86.161.

Letters of Credit for Plugging and Abandonment, Reclamation, and Restoration for Oil and Gas Production Facilities on Public Lands

Under 43 CFR 3104.1(c)(5) (Mineral Leasing Act), operators of oil and gas production facilities on public lands are authorized to use personal bonds accompanied by letters of credit to demonstrate financial assurance for the costs of plugging and abandonment of wells, reclamation of leased areas, and restoration of any lands or surface waters that are affected adversely by lease operations after the abandonment or cessation of oil and gas operations. A letter of credit must: 1) be irrevocable during its term, 2) be issued by a financial institution the deposits of which are federally insured, 3) be issued for a specific term, and 4) identify the Secretary of the Interior as sole payee with full authority to demand immediate payment in case of default in the performance of the terms and conditions of a lease. Letters of credit may be issued only by a financial institution organized or authorized to do business in the United States. The bond amount supported by the letter of credit must not be less than the minimum amount required to ensure compliance with all applicable requirements for plugging and abandonment, reclamation, and restoration.

Letters of Credit for Plugging and Abandonment of Wells, Removal of Structures, Reclamation, and Payment of Uncollected Royalties and Penalties for Geothermal Recovery Units Located on Public Lands

Under 43 CFR 3214.15 (Geothermal Steam Act), parties permitted to conduct exploration, drilling, or use operations on public lands leased by the United States to facilitate the location, recovery, and use of geothermal resources are authorized to use personal bonds accompanied by letters of credit to demonstrate financial assurance for the costs of: 1) plugging and abandoning wells, 2) removing structures, 3) reclaiming the surface land and other resources, 4) paying to MMS any uncollected royalties owed by the operator, and 5) paying to BLM any monies owed by the operator because of previous violations. A letter of credit must: 1) be issued by a federally insured financial institution that is authorized to do business in the United States; 2) be payable to BLM; 3) be irrevocable during its term and have an initial expiration data of no later than one year after the date BLM receives it; 4) be automatically renewable for a period of at least one year, unless the financial institution provides BLM with written notice, at least 90 days before the letter of credit expires, that it will no longer renew the letter of credit; and 5) include a clause that authorizes BLM to demand immediate payment, in part or in full, if the operator fails to meet its obligations under the requirements of 43 CFR 3200.4 or provide substitute security for a letter of credit that the issuer has stated it will not renew before the letter of credit expires.

A letter of credit used as security for any leased land upon which drilling has taken place and for which final approval of all abandonment has not yet been granted, or as security for a statewide or nationwide lease bond, will be forfeited and collected by an authorized officer if it is not replaced by another suitable bond or another letter of credit at least 30 days before its expiration date. The letter of credit must be made payable to BLM upon demand, in part or in full, upon receipt from the authorized officer of a notice of attachment stating the basis therefore. The initial expiration date of the letter of credit must be at least one year after the date it is filed with BLM. The letter of credit must contain a provision for automatic renewal for a period of not less than one year in the absence of notice to BLM at least 90 days before the expiration data originally stated or any expiration date established by an extension.

Letters of Credit for Reclamation for Mines on Public Lands

Under 43 CFR 3809.1-9 (Federal Land Policy and Management Act), parties permitted to conduct mining activities on public lands are authorized to use letters of credit to demonstrate financial assurance for reclamation of areas affected by such activities. The letter of credit must be issued by a bank or financial institution authorized to transact business in the United States.

Letters of Credit for Decommissioning of Specially Licensed Nuclear Materials Facilities, for Decommissioning and Reclamation of Uranium and Thorium Mills, and for Closure and Stabilization of Land Disposal Facilities for Radioactive Waste

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and Energy Reorganization Act), entities licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and use facilities, including power reactors; possess and use spent nuclear materials; and operate ISFSIs, respectively, are authorized to use letters of credit to demonstrate financial assurance for the decommissioning of such specially licensed facilities. Under 10 CFR 40 Appendix A, entities licensed by NRC to possess and use source material in connection with uranium and thorium milling, or byproduct material at sites formerly associated with such milling, are authorized to use letters of credit to demonstrate financial assurance for decommissioning and reclamation obligations associated with those mills. In addition, under 10 CFR 61.62, entities licensed by NRC to operate land disposal facilities for radioactive waste are authorized to use letters of credit to demonstrate financial assurance for closure and stabilization of those facilities.

The letter of credit must be issued by an institution that has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency. The face value of the letter of credit must be in an amount that is at least equal to the estimated costs of the assured obligations. The licensee must establish a standby trust fund in conjunction with the letter of credit. The financial institution must place any funds drawn through the letter of credit directly into the standby trust fund for use by NRC in the event of default.

A.6 LINES OF CREDIT FOR DECOMMISSIONING FOR SPECIALLY LICENSED NUCLEAR MATERIALS FACILITIES, FOR DECOMMISSIONING AND RECLAMATION OF URANIUM AND THORIUM MILLS, AND FOR CLOSURE AND STABILIZATION OF LAND DISPOSAL FACILITIES FOR RADIOACTIVE WASTE

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and Energy Reorganization Act), entities licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and use facilities, including power reactors; possess and use spent nuclear materials; and operate ISFSIs, respectively, are authorized to use lines of credit to demonstrate financial assurance for the decommissioning of such specially licensed facilities. Under 10 CFR 40 Appendix A, entities licensed by NRC to possess and use source material in connection with uranium and thorium milling, or byproduct material at sites formerly associated with such milling, are authorized to use lines of credit to demonstrate financial assurance for decommissioning and reclamation obligations associated with those operations. In addition, under 10 CFR 61.62, entities licensed by NRC to operate land disposal facilities for radioactive waste are authorized to use lines of credit to demonstrate financial assurance for closure and stabilization of those facilities.

A line of credit must constitute an agreement between a licensee and a lender (generally a bank), under which the lender agrees to provide the funds required to decommission the licensee's facility. The maximum amount of credit stated in the contract must be at least equal to the certified or estimated cost of the assured obligations. Lines of credit must not be contingent on the financial condition of the licensee but, rather, must be provided without reservation. The licensee must obtain from the lender a written commitment to provide funds without reservation, as necessary up to the maximum amount of credit stipulated in the agreement. The licensee must establish a standby trust fund in conjunction with the line of credit. The lender must place any funds drawn through the line of credit directly into the standby trust fund for use by NRC in the event of default.

A.7 CERTIFICATES OF DEPOSIT

A form of short-term debt security, certificates of deposit (CD) are fixed-term interest-bearing obligations whereby an entity deposits an amount of funds with a depository institution, and the institution promises to repay those funds with interest at the end of an agreed period of time. The CD is simply the depository institution's promise to repay the loan. CDs may be negotiable or nonnegotiable. CDs that are negotiable may be sold or transferred to another entity, while CDs that are nonnegotiable may not be sold or transferred. Nonnegotiable CDs are usually small, consumer-type accounts, while negotiable CDs usually are larger denominations and are traded and purchased in the open market by corporations, state and local governments, foreign central banks, and foreign corporations. The characteristics of CDs have evolved over the years as a result of innovations on the part of the banking industry. Those innovations include the issuance of variable-rate CDs, rollover CDs that can be used to extend six-month CDs for at least two years by packaging a series of six-month CDs, and brokered CDs that consist of CDs sold through brokers or dealers in maximum amounts of $100,000.

CDs also may be of the time-deposit or the demand-deposit variety. Time-deposit CDs are payable only on the date specified on those CDs, with penalties assessed in the event of premature redemption. Demand-deposit CDs, on the other hand, allow holders to withdraw funds at will at any time after a specified period of time (usually 30 to 90 days) has elapsed. CDs are used under several regulatory programs as a common form of collateral to ensure payment of environmental obligations.

CDs for Reclamation for Coal Mines

Under 30 CFR 800.21(a) (SMCRA), operators of coal mines are authorized to use collateral bonds backed by negotiable CDs to demonstrate financial assurance for the costs of reclamation. CDs must be made payable or assigned to the regulatory authority, both in writing and upon the records of the bank that issued the CDs, and placed in the possession of that authority or held by a federally insured bank. If assigned, the regulatory authority will require that the banks that issue the CDs waive all rights of setoff or liens against them. The amount of the bond must be sufficient to assure the completion of the reclamation plan if it becomes necessary that the regulatory authority perform the work described in that plan. The regulatory authority will not accept an individual CD in excess of $100,000 or the maximum insurable amount, as determined by the Federal Deposit Insurance Corporation (FDIC) or the Federal

Savings and Loan Insurance Corporation (FSLIC). The estimated bond value of all CDs posted to demonstrate financial assurance must be subject to a margin which is the ratio of bond value to market value, as determined by the regulatory authority. The margin must reflect legal fees, as well as depreciation in value, marketability, and fluctuations that might affect the net cash available to the regulatory authority to complete the reclamation.

CDs for Reclamation for Coal Mines in Pennsylvania

Under 25 Pa. Code Part 86.158(c) (SMCRA), operators of coal mines in Pennsylvania are authorized to use collateral bonds backed by CDs to demonstrate financial assurance for the costs of reclamation. CDs must be assigned to PADEP in writing and the assignment recorded on the books of the financial institution that issues the CDs. PADEP will not accept an individual CD in excess of $100,000 or the maximum insurable amount as determined by FDIC or FSLIC. PADEP will require that the banks that issue the CDs waive all rights of setoff or liens against them. PADEP will accept only automatically renewable CDs. PADEP will require that the operator deposit sufficient amounts of CDs to assure PADEP that the agency would be able to liquidate the CDs before maturity, upon forfeiture, and derive sufficient funds to conduct all bonded activities. CDs must be issued by financial institutions licensed to do business in the United States. PADEP will not accept CDs from financial institutions that have failed to make, or unduly delayed in making, payments on defaulted CDs. Operators may be allowed to use CDs to deposit collateral on a phased schedule, as specified at 25 Pa. Code Part 86.161.

CDs for Plugging and Abandonment, Reclamation, and Restoration for Oil and Gas Production Facilities on Public Lands

Under 43 CFR 3104.1(c)(1) (Mineral Leasing Act), operators of oil and gas production facilities on public lands are authorized to use personal bonds accompanied by CDs to demonstrate financial assurance for the costs of plugging and abandonment of wells, reclamation of leased areas, and restoration of any lands or surface waters that are affected adversely by lease operations after the abandonment or cessation of oil and gas operations. The bond amount must not be less than the minimum amount required to ensure compliance with all applicable requirements for plugging and abandonment, reclamation, and restoration. The CDs must be issued by a financial institution whose deposits are federally insured. The financial institution must grant explicitly to the Secretary of the Interior full authority to demand immediate payment

in the event of default. A CD must indicate explicitly on its face that the approval of the Secretary is required before the CD is redeemed by any party.

CDs for Plugging and Abandonment of Wells, Removal of Structures, Reclamation, and Payment of Uncollected Royalties and Penalties for Geothermal Recovery Units Located on Public Lands

Under 43 CFR 3214.15 (Geothermal Steam Act), parties permitted to conduct exploration, drilling, or use operations on public lands leased by the United States to facilitate the location, recovery, and use of geothermal resources are authorized to use personal bonds accompanied by CDs to demonstrate financial assurance for the costs of: 1) plugging and abandoning wells, 2) removing structures, 3) reclaiming surface land and other resources, 4) paying to MMS any uncollected royalties owed by the operator, and 5) paying to BLM any monies owed by the operator because of violations. Each CD used to demonstrate financial assurance under the program must: 1) be issued by a federally insured financial institution authorized to do business in the United States; 2) be payable to BLM; and 3) include on its face the statement, "The Secretary of the Interior or his delegate must approve redemption of this certificate by any party."

CDs for Reclamation for Mines on Public Lands

Under 43 CFR 3809.1-9 (Federal Land Policy and Management Act), parties permitted to conduct mining activities on public lands are authorized to use CDs to demonstrate financial assurance for reclamation of areas affected by such activities. The CDs must be in amounts that do not exceed the maximum insurable amounts for such CDs, as set by FDIC.

CDs for Decommissioning of Specially Licensed Nuclear Materials Facilities, for Decommissioning and Reclamation of Uranium and Thorium Mills, and for Closure and Stabilization of Land Disposal Facilities for Radioactive Waste

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and Energy Reorganization Act), entities licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and use facilities, including power reactors; possess and use spent nuclear materials; and operate ISFSIs, respectively, are authorized to use CDs to demonstrate financial assurance for the decommissioning of such specially licensed facilities.

Under 10 CFR 40 Appendix A, entities licensed by NRC to possess and use source material in connection with uranium and thorium milling, or byproduct material at sites formerly associated with such milling, are authorized to use CDs to demonstrate financial assurance for decommissioning and reclamation obligations associated with those operations. In addition, under 10 CFR 61.62, entities licensed by NRC to operate land disposal facilities for radioactive waste are authorized to use CDs to demonstrate financial assurance for closure and stabilization of those facilities.

To use CDs to demonstrate financial assurance, licensees must deposit with a bank sufficient funds to cover the certified or estimated costs of the assured obligations and, in turn, receive a CD. The wording of the CD must acknowledge the receipt and deposit of a sum of money by the licensee and include a promise to pay the funds to the holder or named payee upon the surrender of the certificate when it is properly endorsed. The licensee must establish a standby trust fund to receive funds drawn from the CD in the event of default.

CDs may be either negotiable or nonnegotiable. If the CDs are negotiable, the bank that issued the CDs is obligated to pay the holder, whatever that entity, when the CDs become due. If the CDs are nonnegotiable, the bank is obligated to pay the designated payee identified on the certificate. If negotiable CDs are used, the trustee of a concurrently created standby trust or the escrow agent of an escrow account should have possession of the CDs. If nonnegotiable CDs are used, the trustee of a concurrently created standby trust or the escrow agent of an escrow account should be named as payee, unless an appropriate state agency is authorized to hold the funds for their intended use without depositing them into state general revenues. CDs should be issued for a limited period of time, such as one to five years, so that the face values of the CDs may be adjusted periodically for inflation and changes in the costs of assured obligations.

Either time-deposit or demand-deposit CDs may be used. Because demand-deposit CDs allow holders to withdraw funds at will at any time after the specified period has elapsed, such CDs may be better suited to the contingency requirements of a financial assurance mechanism. Time-deposit CDs may be used, however, if their value is sufficient to cover the costs of assured obligations, even if a penalty is incurred for withdrawal before the date specified on the CDs. CDs should include automatic renewal provisions and provisions that require notice in writing before funds are withdrawn. Under such provisions, the

certificate will continue indefinitely until the licensee defaults and the issuer receives written notice of default or of termination of the license by NRC.

A.8 NEGOTIABLE GOVERNMENT-ISSUED SECURITIES

A category of debt mechanisms used by public entities to finance operations, government-issued securities include bills, notes, and bonds issued by the U.S. Treasury, as well as similar mechanisms issued by states or municipalities in the United States. While all of those types of debt securities may be held until maturity, they also can be resold in securities markets without penalty. To demonstrate financial assurance, the securities must be negotiable because, in the event of default, it may become necessary that the regulatory authority liquidate them to pay for environmental obligations. Although foreign government issue similar types of debt mechanisms, those mechanisms seldom, if ever, are allowed to be used as collateral under domestic programs to demonstrate financial assurance for environmental obligations.

Negotiable Government-Issued Securities for Reclamation for Coal Mines

Under 30 CFR 800.21(a) (SMCRA), operators of coal mines are authorized to use collateral bonds backed by negotiable government-issued bonds to demonstrate financial assurance for the costs of reclamation. Such bonds must have been issued by the United States, a state, or a municipality located in the United States, and must be endorsed to the order of, and placed in the possession of, the regulatory authority. The bonds will be valued by the regulatory authority at their current market value, rather than at their face value. At all times, the current market value of the bonds must be sufficient to assure the completion of the reclamation plan if it becomes necessary that the regulatory authority perform the work described in that plan. The estimated value of all negotiable bonds posted to demonstrate financial assurance must be subject to a margin, which is the ratio of bond value to market value, as determined by the regulatory authority. The margin must reflect legal fees, as well as depreciation in value, marketability, and fluctuations that might affect the net cash available to the regulatory authority to conduct reclamation activities.

Negotiable Government-Issued Securities for Reclamation for Coal Mines in Pennsylvania

Under 25 Pa. Code Parts 86.158(b) (SMCRA), operators of coal mines in Pennsylvania are authorized to use collateral bonds backed by negotiable government securities to demonstrate financial assurance for the costs of reclamation. PADEP will determine the current market value of the securities. At all times, the current market value of the securities must be at least equal to the amount of financial assurance required. The operator may request and receive the interest that accrues on government securities as that interest becomes due and payable. Operators may be allowed to use negotiable government-issued securities to deposit collateral on a phased schedule, as specified at 25 Pa. Code Part 86.161.

Negotiable Government-Issued Securities for Plugging and Abandonment, Reclamation, and Restoration for Oil and Gas Production Facilities on Public Lands

Under 43 CFR 3104.1(c)(4) (Mineral Leasing Act), operators of oil and gas production facilities on public lands are authorized to use personal bonds accompanied by negotiable securities issued by the United States Treasury to demonstrate financial assurance for the costs of plugging and abandonment of wells, reclamation of leased areas, and restoration of any lands or surface waters that are affected adversely by lease operations after the abandonment or cessation of oil and gas operations. The bond amount must not be less than the minimum amount required to ensure compliance with all applicable requirements for plugging and abandonment, reclamation, and restoration. Negotiable securities must be issued by the United States Treasury and accompanied by a proper conveyance to the Secretary of the Interior of full authority to sell such securities in the event of default.

Negotiable Government-Issued Securities for Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans for Coal Mines on Public Lands

Under 43 CFR 3474.1 (Mineral Leasing Act), parties permitted to conduct coal mining operations on public lands leased by the United States are authorized to use personal lease bonds accompanied by negotiable bonds issued by the U.S. Treasury to demonstrate financial assurance for payment of all obligations specified under their leases, exploration licenses, or licenses to mine and to ensure that all aspects of the mining operation, other than reclamation operations, are conducted in conformity with the approved mining or exploration plan. At a minimum, the bonds must be of a par value equal to the amounts of financial assurance required. The bonds must be submitted with a power of attorney that conveys to the Secretary of the Interior full authority to sell the bonds in the event of default.

Negotiable Government-Issued Securities for Plugging and Abandonment of Wells, Removal of Structures, Reclamation, and Payment of Uncollected Royalties and Penalties for Geothermal Recovery Units Located on Public Lands

Under 43 CFR 3214.15 (Geothermal Steam Act), parties permitted to conduct exploration, drilling, or use operations on public lands leased by the United States to facilitate the location, recovery, and use of geothermal resources are authorized to use personal bonds accompanied by negotiable securities, such as Treasury notes, to demonstrate financial assurance for the costs of: 1) plugging and abandoning wells, 2) removing structures, 3) reclaiming the surface land and other resources, 4) paying to MMS any uncollected royalties owed by the operator, and 5) paying to BLM any monies owed by the operator because of violations. Although the regulations specify that Treasury notes may be used to demonstrate the required financial assurance, they do not preclude the use of other types of negotiable securities that are deemed acceptable by BLM.

Negotiable Government-Issued Securities for Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans for Oil, Gas or Sulphur Exploration and Extraction Units in the Outer Continental Shelf

Under 30 CFR 256.52 (Outer Continental Shelf Lands Act), parties permitted to conduct oil, gas, or sulphur exploration and extraction operations in submerged lands in the Outer Continental Shelf leased by the United States for that purpose are authorized to use lease bonds accompanied by negotiable U.S. Treasury securities, or other types of securities deemed acceptable by MMS, to demonstrate financial assurance to guarantee compliance with all terms and conditions specified in their leases including the abandonment and removal of wells and platforms and the clearing of obstructions from drilling and platform sites. Operators must monitor the securities that are pledged to demonstrate financial assurance. If the market value of those securities falls below the level of bond coverage required, the operator must pledge additional securities to raise the total value of the securities pledged to the required amount. The operator must provide to MMS the authority to sell the securities in the event of default.

Negotiable Government-Issued Securities for Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans for Exploration and Extraction Units in the Outer Continental Shelf Other Than Oil, Gas, or Sulphur Units

Under 30 CFR 281.33 (Outer Continental Shelf Lands Act), parties permitted to conduct operations in submerged lands in the Outer Continental Shelf leased by the federal government to explore for or extract

minerals other than oil, gas, or sulphur are authorized to use personal bonds accompanied by negotiable U.S. Treasury bonds to demonstrate financial assurance to guarantee compliance with all terms and conditions specified in their leases. Such bonds must be accompanied by a proper conveyance of full authority to MMS to sell the securities in the event of default.

Negotiable Government-Issued Securities for Restoration for Mines on Public Lands Reserved for Power Development

Under 43 CFR 3738.1 (Mining Claims Rights Restoration Act), parties permitted to conduct mining, development, and use operations for mineral resources on public lands withdrawn or reserved for power development are authorized to use personal bonds accompanied by negotiable securities issued by the U.S. government to demonstrate financial assurance for restoration of the surface areas affected by such operations.

Negotiable Government-Issued Securities for Reclamation for Mines on Public Lands

Under 43 CFR 3809.1-9 (Federal Land Policy and Management Act), parties permitted to conduct mining activities on public lands are authorized to use negotiable government securities or bonds issued by the United States or by a state or municipal government to demonstrate financial assurance for reclamation of areas affected by such activities. Such parties also are authorized use investment-grade securities that have a Standard and Poor's Corporation rating of "AAA" or "AA" or an equivalent rating from a nationally recognized securities rating service for that purpose. The securities used to demonstrate financial assurance must have a market value that is no less than the total amount of financial assurance required and must be maintained by a licensed securities brokerage firm in a trust account insured by the Securities Investors Protection Corporation for the benefit of the Secretary of the Interior. Before operations begin, and by the end of each quarter of each calendar year thereafter, the operator must provide to BLM a certified statement that describes the nature and market values of the instruments maintained in that account. If the market values of the securities decline by more than 10 percent of the amount of financial assurance required, the operator must provide additional securities to the trust account, so that the total market values of all of the securities held in the account is no less than the amount of financial assurance required.

Negotiable Government-Issued Securities for Decommissioning of Specially Licensed Nuclear Materials Facilities, for Decommissioning and Reclamation of Uranium and Thorium Mills, and for Closure and Stabilization of Land Disposal Facilities for Radioactive Waste

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (the Atomic Energy Act and the Energy Reorganization Act), entities licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and use facilities, including power reactors; possess and use spent nuclear materials; and operate ISFSIs, respectively, are authorized to use government securities to demonstrate financial assurance for the decommissioning of such specially licensed facilities. Under 10 CFR 40 Appendix A, entities licensed by NRC to possess and use source material in connection with uranium and thorium milling, or byproduct material at sites formerly associated with such milling, are authorized to use deposits of government securities to demonstrate financial assurance for decommissioning and reclamation obligations associated with those operations. In addition, under 10 CFR 61.62, entities licensed by NRC to operate land disposal facilities for radioactive waste are authorized to use deposits of government securities to demonstrate financial assurance for closure and stabilization of those facilities.

At the time they are deposited, government securities must have a fair market value at least equal to the certified or estimated costs of the assured obligations. The securities must be guaranteed by the full faith and credit of the United States or adequately rated state or municipal bonds. The securities may be held by a trustee or an appropriate federal or state agency.

Acceptable securities backed by the U.S. government are:

- U.S. Treasury bills
- U.S. Treasury notes and bonds
- Government National Mortgage Association pass-through certificates
- Mortgage-backed bonds issued by the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation.

Acceptable state or municipal bond ratings are:

- BBB or higher, as rated by Standard and Poor's
- Baa or higher, as rated by Moody's Investor's Service, Inc.

The exact types of securities used to demonstrate financial assurance must be approved during the licensing process. The securities must be deposited before the facility becomes operational or at the time financial assurance is certified. The licensee must establish a standby trust fund to receive funds drawn from liquidation of the securities in the event of default.

If securities issued by the U.S. Treasury are used, procedures for receipt and possible reinvestment of interest earnings must be established. Payments of interest on registered U.S. Treasury notes and bonds should be mailed to the address furnished with the tender or subscription letter. The proper registrant for U.S. Treasury securities would be NRC, a state regulatory agency, the trustee of a standby trust fund, or the escrow agent for an escrow account.

A.9 REAL PROPERTY FOR RECLAMATION FOR COAL MINES

Under 30 CFR 800.21(c) (SMCRA), operators of coal mines are authorized to use collateral bonds backed by real property to demonstrate financial assurance for the costs of reclamation. To use real property as collateral, the operator must grant the regulatory authority a first mortgage, first deed of trust, or perfected first-lien security interest, with a right to sell or otherwise dispose of the property in the event of default. The operator must submit a schedule of the real property to be mortgaged or pledged to secure the obligations under the indemnity agreement. The schedule must include: 1) a description of the real property; 2) the fair market value of the real property, as determined by an independent appraiser; and 3) proof of possession and title to the real property. The property may include land that is part of the permitted area for mining. However, land pledged as collateral may not be disturbed for mining while it is being used as collateral.

The real property will be valued by the regulatory authority at its current market value, rather than at its face (or book) value. At all times, the current market value of the real property must be sufficient to assure the completion of the reclamation plan if it becomes necessary that the regulatory authority perform the work described in that plan. The estimated bond value of all real property will be subject to a margin, which is the ratio of bond value to market value, as determined by the regulatory authority. The margin must reflect legal fees, as well as depreciation in value, marketability, and fluctuations that might affect the net cash available to the regulatory authority to complete reclamation activities.

A.10 CASH ACCOUNTS

A number of regulatory programs allow operators of regulated units to use cash, or cash equivalents such as cashier's checks, and certified checks as collateral to demonstrate financial assurance for environmental obligations. To satisfy requirements for financial assurance, such cash assets generally must be maintained in interest-bearing accounts or deposited directly with a regulatory authority.

Cash Accounts for Reclamation for Coal Mines

Under 30 CFR 800.21(d) (SMCRA), operators of coal mines are authorized to use collateral bonds backed by cash accounts to demonstrate financial assurance for the costs of reclamation. Cash accounts must be established in one or more federally insured or equivalently protected accounts that are made payable to, or deposited directly with, the regulatory authority. Any interest paid on such accounts will be retained in those accounts and applied to the bond value, unless the regulatory authority approves payment of interest to the operator. With the approval of the regulatory authority, CDs may be substituted for cash accounts. The regulatory authority will not accept an individual cash account in excess of $100,000 or the maximum insurable amount, as determined by FDIC or FSLIC.

At all times, the value of the accounts must be sufficient to assure the completion of the reclamation plan if it becomes necessary that the regulatory authority perform the work described in that plan. The estimated bond value of all cash accounts posted to demonstrate financial assurance will be subject to a margin, which is the ratio of bond value to market value, as determined by the regulatory authority. The margin will reflect legal fees, as well as depreciation in value, marketability, and fluctuations that might affect the net cash available to a regulatory authority to complete reclamation activities.

Cash Accounts for Plugging and Abandonment, Reclamation, and Restoration for Oil and Gas Production Facilities on Public Lands

Under 43 CFR 3104.1(c)(2) and 3104.1(c)(3) (Mineral Leasing Act), operators of oil and gas production facilities on public lands are authorized to use personal bonds accompanied by cashier's checks and certified checks, respectively, to demonstrate financial assurance for the costs of plugging and abandonment of wells, reclamation of leased areas, and restoration of any lands or surface waters that are affected adversely by lease operations after the abandonment or cessation of oil and gas operations.

The amounts of the cashier's checks or certified checks must not be less than the minimum amount required to ensure compliance with all applicable requirements for plugging and abandonment, reclamation, and restoration.

Cash Accounts for Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans for Coal Mines on Public Lands

In addition, under 43 CFR 3474.1 (Mineral Leasing Act), parties permitted to conduct coal mining operations on public lands leased by the United States are authorized to use personal lease bonds accompanied by cash, cashier's checks, or certified checks to demonstrate financial assurance for payment of all obligations specified under their leases, exploration licenses, or licenses to mine, and to ensure that all aspects of the mining operations, other than reclamation operations, are conducted in conformity with the approved mining or exploration plans.

Cash Accounts for Plugging and Abandonment of Wells, Removal of Structures, Reclamation, and Payment of Uncollected Royalties and Penalties for Geothermal Recovery Units Located on Public Lands

Under 43 CFR 3214.15 (Geothermal Steam Act), parties permitted to conduct exploration, drilling, or use operations on public lands leased by the United States to facilitate the location, recovery, and use of geothermal resources are authorized to use personal bonds accompanied by cashier's checks or certified checks to demonstrate financial assurance for the costs of: 1) plugging and abandoning wells, 2) removing structures, 3) reclaiming the surface land and other resources, 4) paying to MMS any uncollected royalties owed by the operator, and 5) paying to BLM any monies owed by the operator because of violations.

Cash Accounts for Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans for Oil, Gas or Sulphur Exploration and Extraction Units in the Outer Continental Shelf

Under 30 CFR 256.56 (Outer Continental Shelf Lands Act), parties permitted to conduct oil, gas, or sulphur exploration and extraction operations in submerged lands in the Outer Continental Shelf leased by the federal government for that purpose are authorized to establish lease-specific abandonment accounts in federally insured institutions to demonstrate financial assurance to guarantee compliance with all terms and conditions specified in the leases including the abandonment and removal of wells and platforms and

the clearing of obstructions from drilling and platform sites. The leasee is required to make payments into the abandonment account on a schedule prescribed by MMS. The terms of the account must specify that funds may not be withdrawn without the written approval of MMS.

Funds held in such abandonment accounts must be payable upon demand to MMS and pledged to meet the obligations of the leasee. The leasee must fund lease-specific abandonment accounts fully to cover all costs of abandonment and clearance of the site as estimated by MMS and within the time period prescribed by MMS. Any interest paid on funds held in a lease-specific abandonment account is treated as other funds in that account, unless MMS authorizes in writing the payment of interest to the leasee. MMS may allow the leasee to pledge U.S. Treasury securities that are made payable upon demand to MMS to satisfy the obligations of the leasee to make payments into a lease-specific abandonment account.

Before the amount of funds in a lease-specific abandonment account equals the maximum insurable amount, as determined by FDIC or FSLIC, the institution that manages the account must use the funds in that account to purchase U.S. Treasury securities that are pledged to MMS. The institution that manages the lease-specific abandonment account will join with MMS in establishing an account as specified in Federal Reserve Circular 154 to hold the U.S. Treasury securities, unless MMS authorizes the managing institution to retain the pledged U.S. Treasury securities in a separate trust account. MMS may require that the leasee create an overriding royalty or production payment obligation for the benefit of a lease-specific account pledged for the abandonment and clearance of a lease. The required obligation may be associated with oil and gas or sulphur production for a lease other than the lease bonded through the lease-specific abandonment account.

Cash Accounts for Payment of Lease Obligations and Compliance with Approved Mining or Exploration Plans for Exploration and Extraction Units in the Outer Continental Shelf Other Than Oil, Gas, or Sulphur Units

Under 30 CFR 281.33 (Outer Continental Shelf Lands Act), parties permitted to conduct operations in submerged lands in the Outer Continental Shelf leased by the federal government to explore for or extract minerals other than oil, gas, or sulphur are authorized to use personal bonds accompanied by cashier's checks or certified checks to demonstrate financial assurance to guarantee compliance with all terms and conditions specified in the leases.

Cash Accounts for Restoration for Mines on Public Lands Reserved for Power Development

Under 43 CFR 3738.1 (Mining Claims Rights Restoration Act), parties permitted to conduct mining, development, and use operations for mineral resources on public lands withdrawn or reserved for power development are authorized to use personal bonds accompanied by cash to demonstrate financial assurance for restoration of the surface areas affected by such operations.

Cash Accounts for Reclamation for Mines on Public Lands

Under 43 CFR 3809.1-9 (Federal Land Policy and Management Act), parties permitted to conduct mining activities on public lands are authorized to use cash accounts to demonstrate financial assurance for reclamation of areas affected by such activities. Cash must be posted in an amount equal to the amount of financial assurance required and must be deposited and maintained by BLM in a federal depository account in the U.S. Treasury.

Cash Accounts for Decommissioning and Reclamation of Uranium and Thorium Mills and for Closure and Stabilization of Land Disposal Facilities for Radioactive Waste

Under 10 CFR 40 Appendix A (Atomic Energy Act and Energy Reorganization Act), entities licensed by NRC to possess and use source material in connection with uranium and thorium milling, or byproduct material at sites formerly associated with such milling, are authorized to use cash deposits to demonstrate financial assurance for decommissioning and reclamation obligations associated with those operations. In addition, under 10 CFR 61.62, entities licensed by NRC to operate land disposal facilities for radioactive waste are authorized to use cash deposits to demonstrate financial assurance for closure and stabilization of those facilities.

A.11 LIFE INSURANCE POLICIES FOR RECLAMATION FOR COAL MINES IN PENNSYLVANIA

Under 25 Pa. Code Part 86.158(e) (SMCRA), operators of coal mines in Pennsylvania are authorized to use collateral bonds backed by life insurance policies to demonstrate financial assurance for the costs of reclamation. The policies must be paid in full and noncancellable, with a cash surrender value assigned irrevocably to PADEP that is at least equal to the amount of financial assurance required and that may not be borrowed against or used for any other purpose. The policy must be a single-premium, ordinary

whole life policy. The policy must be designed so that, in the event of the death of the insured, PADEP receives from the proceeds of the policy an amount equal to the amount of the financial assurance required. The insurer must be licensed by the Pennsylvania Insurance Commissioner to do business in Pennsylvania or be designated by the Pennsylvania Insurance Commissioner as an eligible surplus lines insurer. The policy must bear no liens, loans, or encumbrances, and no encumbrance shall become effective without the written consent of PADEP. Operators may be allowed to use life insurance policies to deposit collateral on a phased schedule, as specified at 25 Pa. Code Part 86.161.

A.12 EXTERNAL SINKING FUNDS FOR DECOMMISSIONING OF SPECIALLY LICENSED NUCLEAR MATERIALS FACILITIES

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and Energy Reorganization Act), entities licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and use facilities, including power reactors; possess and use spent nuclear materials; and operate ISFSIs, respectively, are authorized to use external sinking funds to demonstrate financial assurance for the decommissioning of such specially licensed facilities. In the case of entities licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials, possess and use radioactive source materials, and possess and use spent nuclear materials, an external sinking fund must be combined with a surety bond, letter of credit, line of credit, or insurance. Entities licensed to operate production and use facilities, including power reactors, and ISFSIs, however, are authorized to use external sinking funds to demonstrate financial assurance without combining those funds with any other financial assurance mechanisms.

Sinking fund accounts can take the form of any of several mechanisms, such as cash deposits in an escrow or trust account, CDs, or deposits of government securities. The sinking fund account, whatever its form, must be segregated from the licensee's other assets and must not be under the control of the licensee. The fund is established and maintained by setting aside funds and adding to the account periodically. When a sinking fund account is combined with another financial assurance mechanism, the combined values of the sinking fund account and the other mechanism must be at least equal to the certified or estimated costs of the assured obligations. As the amount held in the sinking fund increases over time, the amount of the other financial assurance mechanism can decrease correspondingly.

A.13 INSURANCE

Insurance is essentially a contractual arrangement under which an insurer agrees to compensate a policyholder for losses. The arrangement, when properly executed, transfers financial risk from the policyholder to the insurer upon the payment of a premium. Although insurance generally is considered a most appropriate mechanism for providing coverage for future events that cannot be predicted, insurance sometimes is used to demonstrate financial assurance for inevitable or known environmental obligations. When insurance is used in such a manner, it loses many of the characteristics of traditional insurance and assumes many of the characteristics of surety bonds. In addition, traditional insurance usually is arranged as a two-party contract between the purchaser and the insurer. However, when insurance is used as a mechanism to demonstrate financial assurance, it may be arranged as a three-party contract to ensure an active role for a regulatory authority.

Insurance for Closure and Post-Closure Care for TSDFs

Under 40 CFR 264.143(e) and 264.145(e) (RCRA Subtitle C), owners and operators of TSDFs are authorized to use a form of "insurance" (actually a type of bonding mechanism) to demonstrate financial assurance for closure and post-closure care obligations. Such "insurance" is conceived as a three-party contract under which an insurer (insurance company) promises payment of costs for closure and post-closure care on behalf of the insured (owner or operator), as directed by the beneficiary (regulating authority). The insurer agrees to provide the assurance in exchange for premiums paid by the owner or operator. In the event that the owner or operator fails to perform closure and post-closure care activities as required, the regulating authority may request that payments be made under the policy to reimburse those parties that perform the activities.

Insurance policies for closure and post-closure care must:

- Provide that funds will be available to close a TSDF whenever final closure occurs and to conduct post-closure care activities whenever the period of post-closure care begins
- Provide that the insurer will be responsible for paying out funds, up to the face amount of the policy, upon the direction of the regulating authority, to such parties as the regulating authority may specify

- Be issued with a face amount that is at least equal to the current cost estimates for closure and post-closure care
- Provide an option for automatic renewal at the face amount of the expiring policy
- Provide that the insurer may not cancel the policy, except for failure to pay the premium
- Provide that the policy may be assigned to a successor owner or operator

The owner or operator submits a certificate of insurance to the regulatory authority as evidence that an insurance contract has been arranged. Under the regulations, the insurance policy itself need not be submitted to the regulatory authority to demonstrate financial assurance. However, the insurer must submit to the regulatory authority in a timely manner a duplicate of the policy, including all endorsements, whenever the regulatory authority requests those documents. The wording of the certificate of insurance must be identical to that specified at 40 CFR 264.151(e).

The insurance coverage described above differs from other financial assurance mechanisms because the policy ensures payment of the costs of closure and post-closure care, regardless of the ability of the owner or operator to pay those costs. The owner or operator, or any other person authorized to conduct closure or post-closure care activities, may receive reimbursements through the policy for expenses incurred for the conduct of those activities. Because, to date, the availability of commercial insurance coverage for closure and post-closure care obligations has been limited severely, owners and operators of TSDFs seldom use such insurance to demonstrate financial assurance for closure and post-closure care.

Recently, in the United States, a number of owners and operators of TSDFs have attempted to use insurance coverage underwritten by captive insurance companies to demonstrate financial assurance for closure and post-closure care obligations. A captive insurance company is a corporation organized to insure or reinsure the loss exposures of its parent company. Because a captive insurance company and its parent corporation share a common pool of assets, insurance coverage underwritten by the captive for the parent cannot accomplish transfer of risk. Although the use of captive insurance is not prohibited specifically under the regulations, attempts to use captive insurance to demonstrate financial assurance nevertheless have engendered serious concerns on the part of federal and state environmental regulatory authorities.

Insurance for Third-Party Liability Coverage for TSDFs

Under 40 CFR 264.147(a) (RCRA Subtitle C), owners and operators of TSDFs are authorized to use insurance to demonstrate financial assurance for third-party liability coverage. Insurance for third-party liability ensures that funds will be available to pay the costs associated with liabilities that arise from bodily injury and property damage to third parties caused by operations at the facility. The insurance coverage provided must be exclusive of legal defense costs. At a minimum, an insurance company that provides the coverage must be licensed to transact the business of insurance in one or more states or eligible to provide insurance as an excess or surplus lines insurer in one or more states. Insurance coverage for third-party liability must be evidenced by a certificate of liability insurance or amended by attachment of a hazardous waste facility liability endorsement. If a certificate of liability insurance is used, its wording must be identical to that specified at 40 CFR 264.151(j). If a hazardous waste facility liability endorsement is used, its wording must be identical to that specified at 40 CFR 264.151(i).

Insurance for Closure and Post-Closure Care for MSWLFs

Under 40 CFR 258.74(e) (RCRA Subtitle D), owners and operators of MSWLFs are authorized to use insurance to demonstrate financial assurance for closure and post-closure care obligations. The insurance mechanism for closure and post-closure care for MSWLFs functions in much the same way as the insurance mechanism for closure and post-closure care for TSDFs, except that, in the case of MSWLFs, no required wording for the certificate of insurance is specified in the regulations. Recently, in the United States, a number of owners and operators of MSWLFs have attempted to use insurance coverage underwritten by captive insurance companies to demonstrate financial assurance for closure and post-closure care obligations.

Insurance for Closure and Post-Closure Care for Commercial PCB Storage Facilities

Under 40 CFR 761.65(5) (TSCA), owners and operators of commercial PCB storage facilities are authorized to use insurance to demonstrate financial assurance for closure and post-closure care obligations. The insurance mechanism for closure and post-closure care for commercial PCB storage facilities functions in much the same way as the insurance mechanism for closure and post-closure care for TSDFs. The wording of the certificate of insurance must be identical to that specified at 40 CFR 264.151(e). Recently, in the United States, a number of owners and operators of commercial PCB

storage facilities have attempted to use insurance coverage underwritten by captive insurance companies to demonstrate financial assurance for closure and post-closure care obligations.

Insurance for Third-Party Liability Coverage and Corrective Action for USTs

Under 40 CFR 280.97 (RCRA Subtitle I), owners and operators of USTs are authorized to use insurance coverage to demonstrate financial assurance for third-party liability coverage. The insurance mechanism for third-party liability coverage for USTs functions in much the same way as the insurance mechanism for third-party liability for TSDFs, except that: 1) the coverage provided must be at least equal to the minimum per occurrence and annual aggregate amounts specified at 40 CFR 280.93; 2) the coverage may be provided by an insurance company or by a risk retention group;[17] 3) if a certificate of liability insurance is used, the wording of the certificate must be identical to that specified at 40 CFR 280.97(b)(2); and 4), if a hazardous waste facility liability endorsement is used, the wording of the endorsement must be identical to that specified at 40 CFR 280.97(b)(1).

Insurance for Plugging and Abandonment and Post-Closure Care for Class I Injection Wells

Under 40 CFR 144.63(e) (SDWA), operators of class I injection wells are authorized to use insurance to demonstrate financial assurance for the costs of plugging and abandonment and post-closure care. The insurance mechanism for closure and post-closure care for class I injection wells functions in much the same way as the insurance mechanism for closure and post-closure care for TSDFs, except that, in the case of class I injection wells, the wording of the certificate of insurance must be identical to that specified at 40 CFR 144.70(e).

Insurance for Public Liability Coverage for Coal Mines

Under 30 CFR 800.60 (SMCRA), operators of coal mines are authorized to use insurance to demonstrate financial assurance for public liability coverage. Insurance for public liability ensures that funds will be available to pay the costs associated with liabilities that arise from bodily injury and property damage to

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[17] If a risk retention group provides the coverage, that entity **must be licensed to transa the business of insurance in one or more states or eligible t an excess or surplus lines insurer in one or more states**.

third parties caused by mining and reclamation operations, including the use of explosives. The insurance policy must be issued by an insurance company authorized to do business in the United States. The policy must be maintained in full force and effect for the duration of the permitee's mining and reclamation operations. The insurer must notify the regulatory authority whenever substantive changes are made in the policy.

Insurance for Public Liability Coverage for Coal Mines in Pennsylvania

Under 25 Pa. Code Part 86.168 (SMCRA), operators of coal mines in Pennsylvania are authorized to use insurance to demonstrate financial assurance for third-party liability coverage. Operators must submit proof of liability coverage before a permit or license is issued. The insurance coverage must be written on an occurrence basis in a total amount determined by PADEP on a case-by-case basis. The insurance must provide coverage for liabilities that arise from bodily injuries and property damage to third-parties caused by mining and reclamation operations. The coverage must apply specifically to bodily injury or property damage that results from the use of explosives and loss of or diminution in the quantity or quality of public or private sources of water. The insurance policy must be issued by an insurance company authorized to do business in Pennsylvania. The insurer must notify PADEP whenever substantive changes are made in the policy. The policy must be maintained in full force and effect for the duration of the operator's mining and reclamation operations. A bond or a separate insurance policy may be provided in lieu of liability insurance to cover replacement or restoration of water supplies.

Insurance for Liability Coverage for Offshore Oil Facilities

Under 30 CFR 253.29 (Oil Pollution Control Act), operators of offshore facilities used for exploring for, drilling for, or producing oil, or for transporting oil from such facilities, are authorized to use insurance to demonstrate financial assurance for the costs of cleaning up discharges of oil. The insurance company that provides the coverage must have achieved a "secure" rating for ability to pay claims in its latest review by A.M. Best's Insurance Reports or Standard and Poor's Insurance Rating Services or an equivalent rating assigned by a rating service acceptable to MMS. The certificate of insurance must: 1) include all information required under 30 CFR 253.41; 2) show all participating insurers and the proportion of the risk assumed by each, 3) bear the original signatures of each insurer's underwriter or lead underwriter, underwriting manager, or delegated broker, depending on who is authorized to bind the

underwriter; and 4), for each insurance company on the certificate, indicate that insurer's rating for ability to pay claims and the rating service that issued that rating. All required information must be included on one original insurance certificate. An agent for service of process in the U.S. must be identified on each insurance certificate.

Insurance for Liability Coverage for Sea-Going Vessels in Excess of 300 Tons

Under 33 CFR 138.80 (Oil Pollution Control Act), operators of sea-going vessels in excess of 300 tons[18] are authorized to use insurance to demonstrate financial assurance for liability coverage for potential discharges of oil or hazardous cargo. Operators must submit to NPFC a completed insurance guarantee Form CG-5586 or, when applying for a master certificate, a completed Form CG-5586-1. The forms must be executed by no more than four insurers that are acceptable to NPFC.

Insurance for Decommissioning of Specially Licensed Nuclear Materials Facilities

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and Energy Reorganization Act), entities licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials, possess and use radioactive source materials, possess and use spent nuclear materials, and operate ISFSIs, respectively, are authorized to use insurance to demonstrate financial assurance for the decommissioning of such specially licensed facilities. An insurance policy used to demonstrate financial assurance for decommissioning must insure, at the time it is acquired, the entire estimated or certified cost of decommissioning. An annuity policy, therefore, that would increase gradually in value over time to equal the costs of decommissioning would not be acceptable, unless it was accompanied by another mechanism that would compensate for its shortfalls. The licensee must establish a standby trust fund in conjunction with the insurance policy. The standby trust fund is established to receive any payments made by the insurer as a result of claims made against the policy for the costs of decommissioning. The beneficiary of the insurance policy should be the trustee of the standby trust fund.

A.14 FINANCIAL TESTS AND GUARANTEES

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[18] The regulations do not apply to non-self-propelled barges that do not carry oil as cargo or fuel and do not carry hazardous substances as cargo.

Rather than arranging for a third party to guarantee the availability of funds to a regulatory authority to conduct assured activities, operators of regulated units can, under certain circumstances, demonstrate that they are financially strong enough to pay those costs by passing tests of financial soundness. In principle, an operator, by passing such a test, demonstrates that it has resources sufficient to provide its own financial assurance. Such mechanisms are popular because, unlike other devices, financial tests generally do not require that operators set aside any funds in anticipation of pending environmental obligations or to pay fees or premiums to guarantee that such costs will be covered by a third party.

In addition, under a number of regulatory programs, the parent corporation of an operator, or another company that is affiliated with the operator, also can use financial test mechanisms to demonstrate financial assurance on behalf of that operator. When a parent corporation or affiliated company meets the criteria of a financial test and that parent corporation or affiliated company agrees in writing to guarantee that funds will be available to conduct the assured activities of the operator, the resulting assurance is termed a "guarantee." The guarantee specifies that, in the event the operator fails to fulfill its assured activities, the guarantor will do so or provide the funds necessary for the regulatory authority to conduct the activities required to address those obligations.

Financial Test for Closure and Post-Closure Care for TSDFs

Under 40 CFR 264.143(f) and 264.145(f)**,** owners and operators of TSDFs are authorized to use a financial test to demonstrate financial assurance for closure and post-closure care obligations. Owners and operators of TSDFs may use the financial test to demonstrate financial assurance if they meet one of two sets of criteria, Alternative 1 and Alternative 2. An owner or operator of a TSDF is required each year to submit a letter from its chief financial officer (CFO) that demonstrates that the owner or operator meets the criteria of the financial test. The wording of the CFO's letter must be identical to that specified at 40 CFR 264.151(f).

Owners and operators of TSDFs that seek to use Alternative 1 of the financial test mechanism to demonstrate financial assurance for closure and post-closure care must meet the following criteria:

- Total liabilities divided by net worth must equal a ratio value less that 2.0; the sum of net income plus depreciation, depletion, and amortization, divided by total liabilities, must equal a ratio value

greater than 1.0; and current assets divided by current liabilities must equal a ratio value greater than 1.5.

- Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the sum of the current estimates of the costs of closure and post-closure care.
- Tangible net worth must be equal to or greater than $10 million.
- Amounts of net working capital and tangible net worth each must be at least six times the sum of the current estimates of the costs of closure and post-closure care.

Owners and operators of TSDFs that seek to use Alternative 2 of the financial test mechanism to demonstrate financial assurance for closure and post-closure care must meet the following criteria:

- The owner or operator must have a current rating for its most recent bond issuance of "AAA," "AA," "A," or "BBB," as issued by Standard and Poor's, or "Aaa," "Aa," "A," or "Baa," as issued by Moody's Investors Service.
- Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the sum of the current estimates of the costs of closure and post-closure care.
- Tangible net worth must be equal to or greater than $10 million.
- Tangible net worth must be equal to or greater than six times the sum of the current estimate of the costs of closure and post-closure care.

In addition, owners and operators of TSDFs must meet certain requirements, whether they elect to use Alternative 1 or to use Alternative 2 of the financial test. Those requirements are:

- A copy of an independent CPA's report on examination of the owner's or operator's financial statements for the latest completed fiscal year must be submitted to the regulating authority.
- A special report from the owner's or operator's independent CPA to the owner or operator must be submitted to the regulating authority. The special report must state that: 1) the CPA has compared the data that the letter from the CFO specifies as having been derived from the independently audited, year-end financial statements for the owner's or operator's latest completed fiscal year with the amounts in such statements, and 2), in connection with that procedure, no matters came to the CPA's attention that caused the accountant to believe that the specified data should be adjusted.

Corporate Guarantee for Closure and Post-Closure Care for TSDFs

Under 40 CFR 264.143(g) and 264.145(g), the direct or higher-tier parent corporation of an owner or operator of a TSDF, a firm whose parent corporation is also the parent corporation of an owner or operator of a TSDF, or a firm that has a “substantial business relationship” with the owner or operator of a TSDF also may use the financial test mechanism to demonstrate financial assurance on behalf of that owner or operator. When such a corporation meets the criteria of the financial test and that corporation agrees in writing to ensure that funds will be available to complete closure and post-closure care activities, the resulting assurance is termed a "corporate guarantee." The written guarantee specifies that, in the event the owner or operator fails to perform closure and post-closure care activities, the guarantor must do so or establish a trust fund in the name of the owner or operator in the amount of the current estimates of the costs of closure and post-closure care. The criteria for the financial test for owners and operators and those for corporate guarantors are identical. In addition to submitting a CFO’s letter as specified at 40 CFR 264.151(f), the guarantor must submit a written corporate guarantee agreement that includes wording identical to that specified at 40 CFR 264.151(h).

Financial Test for Closure and Post-Closure Care for Commercial PCB Storage Facilities

Under 40 CFR 761.65(6) (TSCA), owners and operators of commercial PCB storage facilities are authorized to use a financial test to demonstrate financial assurance for closure and post-closure care obligations. The financial test for closure and post-closure care for commercial PCB storage facilities functions in much the same way as the financial test for closure and post-closure care for TSDFs. The wording of the CFO’s letter must be identical to that specified at 40 CFR 264.151(f).

Corporate Guarantee for Closure and Post-Closure Care for Commercial PCB Storage Facilities

Under 40 CFR 671.65(7) (TSCA), the direct or higher-tier parent corporation of an owner or operator of a commercial PCB storage facility, a firm whose parent corporation is also the parent corporation of an owner or operator of a commercial PCB storage facility, or a firm that has a “substantial business relationship” with the owner or operator of a commercial PCB storage facility also may use the financial test mechanism to demonstrate financial assurance on behalf of that owner or operator. The corporate guarantee for closure and post-closure care for commercial PCB storage facilities functions in much the same way as the corporate guarantee for closure and post-closure care for TSDFs. The wording of the

CFO's letter must be identical to that specified at 40 CFR 264.151(f). The wording of the corporate guarantee agreement must be identical to that specified at 40 CFR 264.151(h).

Financial Test for Plugging and Abandonment and Post-Closure Care for Class I Injection Wells

Under 40 CFR 144.63(f) (SDWA), owners and operators of class I injection wells are authorized to use a financial test to demonstrate financial assurance for the costs of plugging and abandonment and post-closure care. The financial test for plugging and abandonment and post-closure care for owners and operators of class I injection wells functions in much the same way as the financial test for closure and post-closure care for TSDFs, except that the wording of the CFO's letter must be identical to that specified at 40 CFR 144.70(f).

Corporate Guarantee for Plugging and Abandonment and Post-Closure Care for Class I Injection Wells

Under 40 CFR 144.63(g), the direct or higher-tier parent corporation of an owner or operator of a class I injection well, a firm whose parent corporation is also the parent corporation of an owner or operator of a class I injection well, or a firm that has a "substantial business relationship" with the owner or operator of a class I injection well also may use the financial test mechanism to demonstrate financial assurance on behalf of that owner or operator. The corporate guarantee for closure and post-closure care for class I injection wells functions in much the same way as the corporate guarantee for closure and post-closure care for TSDFs, except that the wording of the CFO's letter must be identical to that specified at 40 CFR 144.70(f), and the wording of the corporate guarantee agreement must be identical to that specified at 40 CFR 144.70(g).

Financial Test for Third-Party Liability Coverage for TSDFs

Under 40 CFR 264.147(f), owners and operators of TSDFs are authorized to use a financial test to demonstrate financial assurance for third-party liability coverage. Owners and operators of TSDFs may use the financial test to demonstrate financial assurance if they meet one of two sets of criteria, Alternative 1 and Alternative 2. The owner or operator of a TSDF is required each year to submit a

letter from its CFO that demonstrates that the owner or operator meets the criteria of the financial test. The wording of the CFO's letter must be identical to that specified at 40 CFR 264.151(g).

Owners and operators of TSDFs that seek to use Alternative 1 of the financial test to demonstrate financial assurance for third-party liability coverage must meet the following criteria:

- Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the annual aggregate amount of liability coverage required.
- Tangible net worth must be equal to or greater than $10 million.
- Amounts of net working capital and tangible net worth each must be at least six times the annual aggregate amount of liability coverage required.

Owners and operators of TSDFs that seek to use Alternative 2 of the financial test mechanism to demonstrate financial assurance must meet the following criteria:

- The owner or operator must have a current rating for its most recent bond issuance of "AAA," "AA," "A," or "BBB," as issued by Standard and Poor's, or "Aaa," "Aa," "A," or "Baa," as issued by Moody's Investors Service.
- Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the annual aggregate amount of liability coverage required.
- Tangible net worth must be equal to or greater than $10 million.
- Tangible net worth must be equal to or greater than six times the annual aggregate amount of liability coverage required.

In addition, owners and operators must meet certain requirements, whether they elect to use Alternative 1 or to use Alternative 2 of the financial test. Those requirements are:

- A copy of an independent CPA's report on examination of the owner's or operator's financial statements for the latest completed fiscal year must be submitted to the regulating authority.
- A special report from the owner's or operator's independent CPA to the owner or operator must be submitted to the regulating authority. The special report must state that: 1) the accountant has compared the data that the letter from the CFO specifies as having been derived from the independently audited, year-end financial statements for the owner's or operator's latest completed fiscal year with the amounts in such statements, and 2), in connection with that procedure, no matters came to the accountant's attention that caused the accountant to believe that the specified data should be adjusted.

Guarantee for Third-Party Liability Coverage for TSDFs

Under 40 CFR 264.147(g) and 265.147(g), the direct or higher-tier parent corporation of an owner or operator of a TSDF, a firm whose parent corporation is also the parent corporation of an owner or operator of a TSDF, or a firm that has a “substantial business relationship” with the owner or operator of a TSDF also may use the financial test mechanism to demonstrate financial assurance for third-party liability coverage on behalf of that owner or operator. When such a corporation meets the criteria of the financial test and that corporation agrees in writing to ensure that funds will be available to pay valid third-party liability claims, the resulting assurance is termed a "corporate guarantee." The written guarantee specifies that, in the event the owner or operator fails to satisfy valid third-party claims, the guarantor will do so or establish a trust fund in the name of the owner or operator in the annual aggregate amount of liability coverage required. The criteria for the financial test for third-party liability coverage for owners and operators and those for corporate guarantors are identical. In addition to submitting a CFO’s letter as specified at 40 CFR 264.151(g), the guarantor must submit a written corporate guarantee agreement that includes wording identical to the wording specified at 40 CFR 264.151(h)(2).

Financial Test for Third-Party Liability Coverage and Corrective Action for USTs

Under 40 CFR 280.95(f), owners and operators of USTs are authorized to use a financial test to demonstrate financial assurance for third-party liability coverage and corrective action obligations. Owners and operators of USTs may use the financial test to demonstrate financial assurance by meeting either the requirements specified under 40 CFR 280.95(b) or the requirements specified under 40 CFR 264.147(f)(1). The owner or operator of an UST is required each year to submit a letter from its CFO that demonstrates that the owner or operator meets the criteria of the financial test. The wording of the CFO’s letter must be identical to that specified at 40 CFR 280.95(d).

Owners or operators that seek to pass the financial test defined under 40 CFR 280.95(b) to demonstrate financial assurance for third-party liability coverage and corrective action must meet the following criteria:

- Tangible net worth must be at least 10 times the applicable aggregate amount required under 40 CFR 280.93 as well as all other obligations that are covered by financial tests.
- Tangible net worth must be equal to or greater than $10 million.

- The owner or operator must either: 1) file financial statements with the U.S. Securities and Exchange Commission, the Energy Information Administration, or the Rural Electrification Administration or 2) report annually the firm's tangible net worth to Dun & Bradstreet, which must have assigned to the firm a rating of 4A or 5A.

- The firm's year-end financial statements, if independently audited, cannot include an adverse auditor's opinion, a disclaimer of opinion, or a "going concern" qualification.

Owners or operators that seek to pass the financial test defined under 40 CFR 264.147(f)(1) to demonstrate financial assurance for third-party liability and corrective action must meet one of two sets of criteria, Alternative 1 and Alternative 2. Owners and operators that seek to use Alternative 1 of the financial test must meet the following criteria:

- Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the annual aggregate amount of liability coverage required.
- Tangible net worth must be equal to or greater than $10 million.
- Amounts of net working capital and tangible net worth each must be at least six times the applicable aggregate amount required under 40 CFR 280.93, as well as all other obligations that are covered by financial tests.

Owners and operators of USTs that seek to use Alternative 2 of the financial test must meet the following criteria:

- The owner or operator must have a current rating for its most recent bond issuance of "AAA," "AA," "A," or "BBB," as issued by Standard and Poor's, or "Aaa," "Aa," "A," or "Baa," as issued by Moody's Investors Service.
- Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the amount required under 40 CFR 280.93 as well as all other obligations that are covered by financial tests.
- Tangible net worth must be equal to or greater than $10 million.
- Tangible net worth must be equal to or greater than six times the amount required under 40 CFR 280.93, as well as all other obligations that are covered by financial tests.

In addition, owners and operators of USTs must meet certain requirements, regardless of which alternative of the financial test they elect to use. Those requirements are:

- A copy of an independent CPA's report on examination of the owner's or operator's financial statements for the latest completed fiscal year must be submitted to the regulating authority.

- A special report from the owner's or operator's independent CPA to the owner or operator must be submitted to the regulating authority. The special report must state that: 1) the accountant has compared the data that the letter from the CFO specifies as having been derived from the independently audited, year-end financial statements for the owner's or operator's latest completed fiscal year with the amounts in such statements and 2), in connection with that procedure, no matters came to the accountant's attention that caused the accountant to believe that the specified data should be adjusted.

Corporate Guarantee for Third-Party Liability and Corrective Action for USTs

Under 40 CFR 280.96, a firm that possesses a controlling interest in the owner or operator of an UST, a firm that possesses a controlling interest in a firm that possesses a controlling interest in the owner or operator of an UST, a firm that is controlled through stock ownership by a common parent firm that possesses a controlling interest in the owner or operator of an UST, or a firm that is engaged in a "substantial business relationship" with the owner or operator of an UST and is issuing a guarantee as an act incidental to that business relationship also can use the financial test mechanism to demonstrate financial assurance on behalf of that owner or operator. When such a firm meets the criteria of the financial test and that firm agrees in writing to ensure that funds will be available to fulfill obligations for liabilities to third parties or implement corrective action, the resulting assurance is termed a "guarantee." The criteria for the financial test for owners and operators and those for guarantors are identical. A standby trust fund must be established in conjunction with the guarantee. The written guarantee must specify that, in the event the owner or operator fails to fulfill valid claims for third-party liabilities or fails to undertake procedures to implement corrective action as directed by an appropriate regulatory authority, the guarantor deposits into a standby trust fund for addressing those obligations, up to the amount required under 40 CFR 280.93. In addition to submitting a CFO's letter as specified at 40 CFR 280.95(d), the guarantor must submit a written guarantee agreement that includes wording identical to that specified at 40 CFR 280.96(c).

Corporate Financial Test for Closure and Post-Closure Care and Corrective Action for MSWLFs

Under 40 CFR 258.74(e) (RCRA Subtitle D), owners and operators of MSWLFs that are not local governments are authorized to use a financial test to demonstrate financial assurance for closure and post-closure care and corrective action obligations.[19] Owners and operators may demonstrate financial assurance by meeting one of three sets of criteria established for using the financial test, Alternative 1, Alternative 2, and Alternative 3. Because the financial condition of most companies tends to fluctuate from year to year, owners and operators are required to demonstrate each year that they meet the criteria.

Owners and operators of MSWLFs that seek to use Alternative 1 of the corporate financial test mechanism to demonstrate financial assurance must meet the following criteria:

- The owner or operator must have a current rating for its most recent bond issuance of "AAA," "AA," "A," or "BBB," as issued by Standard and Poor's, or "Aaa," "Aa," "A," or "Baa," as issued by Moody's Investors Service.
- The tangible net worth of the owner or operator must be greater than the sum of the current estimates of the costs of closure and post-closure care and corrective action that are to be covered under the financial test, as well as any other obligations covered by a financial test, with an additional $10 million.
- The owner or operator must have assets in the United States at least equal to the sum of the current estimates of the costs of closure and post-closure care and corrective action that are to be covered under the financial test, as well as any other obligations covered by a financial test.

Owners and operators of MSWLFs that seek to use Alternative 2 of the corporate financial test mechanism to demonstrate financial assurance must meet the following criteria:

- Total liabilities divided by net worth must equal a ratio value less that 1.5
- The tangible net worth of the owner or operator must be greater than the sum of the current estimates of the costs of closure and post-closure care and corrective action that are to be covered under the financial test, as well as any other obligations covered by a financial test, with an additional $10 million.
- The owner or operator must have assets in the United States at least equal to the sum of the current estimates of the costs of closure and post-closure care and corrective action that are to be covered under the financial test, as well as any other obligations covered by a financial test.

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[19] A separate financial test is provided under 40 CFR 258.74(f) for use by local governments.

Owners and operators of MSWLFs that seek to use Alternative 3 of the corporate financial test mechanism to demonstrate financial assurance must meet the following criteria:

- Net income plus depreciation, depletion, and amortization minus $10 million divided by total liabilities must be greater than 0.1
- The tangible net worth of the owner or operator must be greater than the sum of the current estimates of the costs of closure and post-closure care and corrective action that are to be covered under the financial test, as well as any other obligations covered by a financial test, with an additional $10 million.
- The owner or operator must have assets in the United States at least equal to the sum of the current estimates of the costs of closure and post-closure care and corrective action that are to be covered under the financial test, as well as any other obligations covered by a financial test.

In addition, owners and operators must meet certain requirements, whether they elect to use Alternative 1, Alternative 2, or Alternative 3 of the corporate financial test mechanism. Those requirements are:

- A copy of an independent CPA's report on examination of the owner's or operator's financial statements for the latest completed fiscal year must be submitted to the regulating authority.
- If the data used in the CFO's letter to pass the financial test were derived from the audited, year-end financial statements of the owner or operator, a special report from the owner's or operator's independent CPA to the owner or operator must be submitted to the regulating authority. The special report must state that: 1) the accountant has compared the data that the letter from the CFO specifies as having been derived from the independently audited, year-end financial statements for the owner's or operator's latest completed fiscal year with the amounts in such statements, and 2), in connection with that procedure, no matters came to the accountant's attention that caused the accountant to believe that the specified data should be adjusted.

Corporate Guarantee for Closure and Post-Closure Care and Corrective Action for MSWLFs

Under 40 CFR 258.74(g) (RCRA Subtitle D), the direct or higher-tier parent corporation of an owner or operator of a MSWLF, a firm whose parent corporation is also the parent corporation of an owner or operator of a MSWLF, or a firm that has a "substantial business relationship" with the owner or operator of a MSWLF also may use the financial test mechanism to demonstrate financial assurance for closure and post-closure care and corrective action obligations on behalf of that owner or operator.[20] When such a firm meets the criteria of the financial test and that firm agrees in writing to guarantee that funds will be

[20] A separate guarantee is provided under 40 CFR 258.74(h) for use by local governments.

available to conduct closure and post-closure care and corrective action activities, the resulting assurance is termed a "corporate guarantee." The written guarantee must specify that, in the event the owner or operator fails to perform closure and post-closure care or corrective action activities, the guarantor must do so or establish a trust fund in the name of the owner or operator in the amount of the current estimates of the costs of closure and post-closure care or corrective action. The criteria for the financial test for owners and operators and those for parent corporations are identical.

Self-Bonding Mechanism for Reclamation for Coal Mines

Under 30 CFR 800.23 (SMCRA), operators of coal mines are authorized to use a self-bonding mechanism to demonstrate financial assurance for reclamation obligations. To use the self-bonding mechanism, the operator must designate a suitable agent for service of process in the state in which the mining operations are to be conducted. The operator also must demonstrate that it has been in continuous operation as a business entity for a period of no less than five years.[21] In addition, an operator that wishes to use the self-bonding mechanism must meet one of two sets of financial criteria, Alternative 1 and Alternative 2.

Operators that seek to use Alternative 1 of the self-bonding mechanism to demonstrate financial assurance for reclamation costs must meet the following criteria:

- The operator must have a current rating for its most recent bond issuance of "A" or higher, as issued by Standard and Poor's or Moody's Investors Service.
- Tangible net worth must be equal to or greater than $10 million.
- Total liabilities divided by net worth must equal a ratio value of A.5 or less.
- Current assets divided by current liabilities must equal a ratio value of 1.2 or greater.

Operators that seek to use Alternative 2 of the self-bonding mechanism to demonstrate financial assurance for reclamation costs must meet the following criteria:

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[21] In the context of SMCRA, the term “continuous business operation” means that business was conducted by the operator over a period of five years immediately preceding the time at which the operator applies to use the self-bonding mechanism.

- Fixed assets in the United States must total at least $20 million.[22]
- Total liabilities divided by net worth must equal a ratio value of A.5 or less
- Current assets divided by current liabilities must equal a ratio value of 1.2 or greater.

Whether operators elect to use Alternative 1 or Alternative 2 of the self-bonding mechanism, they must submit to the regulatory authority the following information:

- Financial statements for the operator's most recently completed fiscal year, accompanied by a report prepared by an independent CPA 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
- Unaudited financial statements for completed quarters in the current fiscal year
- Additional unaudited information requested by the regulatory authority

To use the self-bonding mechanism, the total amount of the outstanding and proposed self bonds of the operator for surface coal mining and reclamation operations must not exceed 25 percent of the tangible net worth of the operator in the United States. If the regulatory authority accepts an operator's self bond, the operator must submit an indemnity agreement that is subject to the following requirements:

- The indemnity agreement must be executed by all persons and parties that are bound to it and will bind each jointly and severally
- The indemnity agreement submitted by a corporation applying for a self bond must be signed by two corporate officers who are authorized to bind their corporation. A copy of such authorization must be provided to the regulatory authority, along with an affidavit that certifies that such an agreement is valid under all applicable federal and state laws.
- If the party applying for the self bond is a partnership, joint venture, or syndicate, the indemnity agreement will bind each partner or party that has a beneficial interest.
- The indemnity agreement will specify that the party applying for the self bond will be required to complete the approved reclamation plan for the lands in default or to pay to the regulatory authority an amount necessary to complete the approved reclamation plan that is not to exceed the bond amount.
- The indemnity agreement acts as a judgment against those parties liable under it.

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[22] In the context of SMCRA, the term "fixed assets" means plants and equipment; it does not include land or coal in place.

The regulatory authority is not required to reassess annually the ability of an operator to meet the criteria of the self bonding mechanism. However, the regulatory authority may require an operator to submit, within 90 days after the close of each fiscal year following the issuance of the self bond, an update of the information required to establish the operator's financial performance. If, at any time during the period during which a self bond is posted, the financial condition of the operator changes, so that the operator no longer meets the criteria of the self bonding mechanism, the operator must so notify the regulatory authority immediately and, within 90 days, must post an alternative bond mechanism.

Corporate Guarantee for Reclamation for Coal Mines

Under 30 CFR 800.23(c)(1), the parent corporation of an operator of a coal mine also may use the self-bonding mechanism to demonstrate financial assurance on behalf of its subsidiary company. When the parent corporation of an operator meets the criteria of the self-bonding mechanism, the resulting assurance is termed a "corporate guarantee." In addition, under 30 CFR 800.23(c)(2), a corporation that is not the parent corporation of an operator of a coal mine may use the self-bonding mechanism to demonstrate financial assurance on behalf of that operator. When a corporation that is not the parent corporation of the operator meets the criteria of the self-bonding mechanism, the resulting assurance is termed a "non-parent corporate guarantee." The criteria of the self-bonding mechanism are identical for operators, parent corporations, and non-parent corporations.

The written guarantee specifies that, in the event the operator fails to fulfill obligations for reclamation, the guarantor must fulfill those obligations for the operator. The terms of the guarantee specify that:

- If the operator fails to complete the reclamation plan, the guarantor will do so or will be liable to provide funds to the regulatory authority that are sufficient to support completion of the reclamation plan, but that do not exceed the bond amount.
- The guarantee will remain in force unless the guarantor sends to the operator and to the regulatory authority notice of cancellation by certified mail at least 90 days in advance of the cancellation date, and the regulatory authority accepts the cancellation.
- The regulatory authority may accept the cancellation if the operator obtains a suitable replacement bond before the cancellation date or if the lands for which the guarantee was accepted have not been disturbed.

If the regulatory authority is to accept a guarantee, the total amount of the guarantor's present and proposed self bonds and guaranteed self bonds for surface coal mining and reclamation operations must not exceed 25 percent of the guarantor's tangible net worth in the United States. If the regulatory authority accepts a guarantee, the guarantor must submit an indemnity agreement that is subject to the following requirements:

- The indemnity agreement must be executed by all persons and parties that are bound to it, including the parent or nonparent corporation guarantor and will bind each jointly and severally.
- The indemnity agreement submitted by a corporation that is applying for a self bond, or by a parent or nonparent corporation that is guaranteeing an applicant's self bond, must be signed by two corporate officers who are authorized to bind that corporation. A copy of such authorization must be provided to the regulatory authority along with an affidavit that certifies that such an agreement is valid under all applicable federal and state laws. In addition, the guarantor must provide a copy of the corporate authorization that demonstrates that the corporation is authorized to guarantee the self bond and execute the indemnity agreement.
- If the party applying for the self bond is a partnership, joint venture, or syndicate, the indemnity agreement will bind each partner or party that has a beneficial interest.
- The indemnity agreement will specify that the party applying for the self bond will be required to complete the approved reclamation plan for the lands in default or to pay to the regulatory authority an amount necessary to complete the approved reclamation plan that is not to exceed the bond amount.
- The indemnity agreement will act as a judgment against those parties liable under it.

Self-Bonding Mechanism for Reclamation for Coal Mines in Pennsylvania

Under 25 Pa. Code Part 86.159 (SMCRA), operators of coal mines in Pennsylvania are authorized to use a self-bonding mechanism to demonstrate financial assurance for mine reclamation. PADEP will not accept a self bond that covers long-term indeterminate liabilities, which include, but are not limited to, obligations to treat discharges from mining activities that exist after completion of mining and reclamation activities or restoration of the productivity of soil of prime farmland. To use the self-bonding mechanism, an operator must demonstrate to the satisfaction of PADEP a history of efforts to achieve compliance with federal and state environmental laws.

The operator must be incorporated in or authorized to do business in Pennsylvania. The operator must identify agents in Pennsylvania suitable to receive service of suits, claims, demands, and other services of

process. The operator must have a history of continuous business operation, be a company whose existence is the result of a reorganization, consolidation, or merger that involves a company that has a history of continuous business operation, or be the majority-owned subsidiary of a corporation that has such a history. The operator must not have defaulted during the preceding 36 calendar months on: 1) dividend or sinking fund installments, preferred stock or installment of indebtedness for borrowed money, 2) payment of rentals under long-term leases, or 3) a reclamation fee payment due under Section 402 of SMCRA for coal produced in Pennsylvania. Further, during the preceding 36 calendar months, the operator must have honored its obligations under other self-bonding programs established by other states or by the federal government. The operator must not have had commercial surety bonds canceled for nonpayment of premiums, fraud, or failure to comply with conditions established by the surety as conditions of maintaining surety bonds in full force and effect.

As part of its application for self bonding, the operator must submit to PADEP: 1) financial statements for its three most recent fiscal years, prepared in accordance with generally accepted accounting principles (GAAP); 2) financial statements for the completed quarters of the fiscal year in which application to use the self-bonding mechanism is made; 3) a report prepared by an independent CPA in conformity with GAAPs that includes the CPA's audit opinion or review opinion of the financial statements for the operator's three most recent fiscal years; 4) certification that the operator intends to maintain its existing corporate status for a period in excess of five years; 5) certification that forfeiture of the aggregate amount of the operator's self bonds will not have material effect on its ability to remain in business or endanger its cash flow to the extent that it cannot meet its current obligations; and 6) other information about its financial solvency, continuous business operation, and compliance with environmental laws that PADEP may require. After the initial approval of the self bond, the operator must submit updated information within 90 days of the end of each succeeding fiscal year if it is to continue to use the self bond to demonstrate financial assurance.

Operators may demonstrate financial assurance by meeting one of three sets of criteria established for using the financial test, Alternative 1, Alternative 2, and Alternative 3. Operators that seek to use Alternative 1 of the self-bonding mechanism to demonstrate financial assurance must meet the following criteria:

- The operator must have a current rating for its most recent bond issuance of "AAA," "AA," or "A," as issued by Standard and Poor's, or "Aaa," "Aa," "A," or "Baa," as issued by Moody's

Investors Service. The ratings must not have been assigned as a result of independent insurance of the bond issue.

- Tangible net worth must be at least six times the total amount of outstanding and proposed self bonds for coal mining activities in Pennsylvania.
- Assets in the United States must make up at least 90 percent of total assets.

Operators that seek to use Alternative 2 of the self-bonding mechanism to demonstrate financial assurance must meet the following criteria:

- Tangible net worth must be at least $10 million
- The ratio of total liabilities to net worth must be A.5 or less, and the ratio of current assets to current liabilities must be 1.2 or greater.
- Tangible net worth must be least six times the total amount of outstanding and proposed self bonds for coal mining activities in Pennsylvania.
- Assets in the United States must make up at least 90 percent of total assets.

Operators that seek to use Alternative 3 of the self-bonding mechanism to demonstrate financial assurance must meet the following criteria:

- The operator must possess fixed assets in the United States (excluding land and coal in place) of at least $20 million.
- The ratio of total liabilities to net worth must be A.5 or less, and the ratio of current assets to current liabilities must be 1.2 or greater.
- Tangible net worth must be at least six times the total amount of outstanding and proposed self bonds for coal mining activities in Pennsylvania.
- Assets in the United States must make up at least 90 percent of total assets.

If, in its report on examination of the operator's financial statements, the independent CPA expresses an adverse opinion or disclaimer of opinion, the operator is rendered ineligible to use the self-bonding mechanism. The total value of outstanding and proposed self bonds for coal mining activities may not exceed 25 percent of the operator's domestic tangible net worth.

The self-bonding mechanism is supported by securities that secure the self bond. Such security interests may include, but are not limited to, account security agreements, mortgages, industrial plant mortgages,

pledges of stock, and personal property liens. Security interests in the assets of the operator's parent corporation may be used. Such securities must be provided in accordance with the following schedule:

- For an operator that has a tangible net worth from 6 to 6.99 times the total amount of outstanding and proposed self bonds for coal mining activities in Pennsylvania, the amount of the security interest must be equal to the amount of financial assurance to be demonstrated by the self bond.
- For an operator that has a tangible net worth from 7 to 7.99 times the total amount of outstanding and proposed self bonds for coal mining activities in Pennsylvania, the amount of the security interest must be equal to 80 percent of the amount of financial assurance to be demonstrated by the self bond.
- For an operator that has a tangible net worth from 8 to 8.99 times the total amount of outstanding and proposed self bonds for coal mining activities in Pennsylvania, the amount of the security interest must be equal to 60 percent of the amount of financial assurance to be demonstrated by the self bond.
- For an operator that has a tangible net worth from 9 to 9.99 times the total amount of outstanding and proposed self bonds for coal mining activities in Pennsylvania, the amount of the security interest must be equal to 40 percent of the amount of financial assurance to be demonstrated by the self bond.
- For an operator that has a tangible net worth equal to or greater than 10 times the total amount of outstanding and proposed self bonds for coal mining activities in Pennsylvania, the amount of the security interest must be equal to 25 percent of the amount of financial assurance to be demonstrated by the self bond.

PADEP may require the operator to provide additional security interests as the agency deems necessary.

Liability under the self-bonding mechanism may be conditioned on the faithful performance by the operator of requirements under the following statutes:

- The Surface Mining Conservation and Reclamation Act (52 P.S. Parts 1396.1 through 1396.31)
- The Clean Streams Law (35 P.S. Parts 691.1 through 691.1001)
- The Air Pollution Control Act (35 P.S. Parts 4001 through 4015)
- The Coal Refuse Disposal Control Act (52 P.S. Parts 30.51 through 30.66)
- The Solid waste Management Act (P.S. Parts 6018.101 through 6018.1003)
- The Dam Safety and Encroachments Act (32 P.S. Parts 693.1 through 693.27)

- The Bituminous Mine Subsidence and Land Conservation Act (52 P.S. Parts 1406.1 through 1406.21)

Liability under the self-bonding mechanism also may be conditioned on:

- Immediate notification by the operator to PADEP of any significant change in its management control or organization or of any material and adverse change in its financial condition that might affect its ability to use the self-bonding mechanism to demonstrate financial assurance or diminish the value of the security interests pledged to secure the self bond

- During the period of the self-bond, the operator's application for or consent to the appointment of a receiver, conservator, trustee, or liquidator of itself or its property, admission in writing of its inability to pay its debts as the debts mature, or the making of a general assignment for the benefit of its creditors

- During the period of the self-bond, the attachment or execution of a judgment by a creditor against the operator so that PADEP would have a reasonable belief that the prospect that the applicant has sufficient assets to cover the full amount of the self-bond or will be able to perform under the self bond is impaired

If the operator is a subsidiary corporation, the operator's parent corporation must be a party to the self bond. The self bond will establish the operator and its parent corporation as co-indemnitors. If the applicant is a partnership, joint venture, or syndicate, each person that has a beneficial interest in the same must be a party to the self-bond and shall be established as a co-indemnitor under the self bond. Each indemnitor under the self bond will be jointly and severally liable. In addition to indemnification and security, PADEP may require a third-party guarantee of a self bond. Third-party guarantors must enter into a guarantee and suretyship agreement with PADEP whereby the third-party guarantor guarantees and become surety for the performance of the parties who are indemnitors under the self bond. The application for a self bond and each annual update of a self bond must be accompanied by a nonrefundable check in the amount of $900 made payable to the Commonwealth of Pennsylvania.

Self-Insurance Mechanism for Liability Coverage for Offshore Oil Facilities

Under 30 CFR 253.31 (Oil Pollution Control Act), operators of offshore facilities used for exploring for, drilling for, or producing oil, or for transporting oil from such facilities, are authorized to use a self-insurance mechanism to demonstrate financial assurance for liability coverage for cleanup and damages caused by discharges of oil. To use the self-insurance mechanism, the operator must designate an agent for service of process in the United States. To use the self-insurance mechanism, the operator annually

must pass either a net worth test, as set forth under 30 CFR 253.25, or an unencumbered net asset test, as set forth under 30 CFR 253.28.

To pass the net worth test set forth under 30 CFR 253.25, the operator:

- Divides the total amount of its net worth by 10.
- Divides the net amount of its identifiable assets in the United States by the net amount of its identifiable total assets; multiplies the net amount of its plant, property, and equipment by that quotient; and divides the resulting product by 10.

The smaller of the numbers calculated as described above is the maximum amount of financial assurance that the operator can demonstrate by using the net worth test.

To pass the unencumbered net asset test set forth under 30 CFR 253.28, the operator:

- Divides the total amount of its net worth by four.
- Divides the value of its unencumbered assets in the United States by two

The smaller of the numbers calculated as described above is the maximum amount of financial assurance that the operator can demonstrate by using the unencumbered net asset test.

To establish the amount of financial assurance that the operator can demonstrate by using the self-insurance mechanism, the operator must submit evidence of its net worth or unencumbered assets. When seeking to demonstrate financial assurance by using the net worth test, the operator must verify its net worth by submitting their audited annual financial statements for the previous completed fiscal year. The audited annual financial statements must be in the form of an annual report prepared in accordance with GAAPs of the United States or international accounting practices determined by MMS to be equivalent to GAAP or a Form 10-K of Form 20-F prepared in accordance with the regulations of the SEC. The audited annual financial statements must be accompanied by a letter that is signed by the treasurer of the operator. That letter must identify: 1) the state or country of incorporation of the operator; 2) the total amount of net worth shown on the balance sheets of the operator; 3) the net amount of plant, property, and equipment shown on the balance sheets; and 4) the net amount of the identifiable assets in the United States and the identifiable total assets in the auditor's notes to the financial statements. The audited

annual financial statements submitted by the operator in support of its self-insurance demonstration must be bound and must include the unqualified opinion of an independent CPA. The financial information submitted must be expressed in U.S. dollars.

In addition to providing the information discussed above, an operator, when seeking to demonstrate financial assurance by using the unencumbered asset test, must provide a list of the reserved, unencumbered, and unimpaired assets in the United States the value of which would not be affected in the event of an oil discharge from an offshore facility. The assets must be plant, property, or equipment held for use by the operator. The operator also must submit a letter signed by its treasurer that identifies the assets that are reserved; certifies that the assets are unencumbered, including contingent encumbrances; promises that the assets identified will not be sold, subjected to a security interest, or otherwise encumbered throughout the specified fiscal year; and specifies: 1) the state or country of incorporation of the operator; 2) the total amount of net worth listed on the balance sheets of the operator; 3) the identification and location of the reserved assets in the United States; and 4) the value of the reserved assets in the United States less accumulated depreciation and amortization, calculated by the valuation method used in the operator's audited annual financial statements and expressed in U.S. dollars. The net value of the reserved assets must be at least two times the self-insurance amount requested.

In addition, the audited annual financial statements submitted by the operator must include a certification by the independent CPA that audited those statements that: 1) the value of the unencumbered assets is reasonable and has been calculated by the same valuation method used by the operator in its audited annual financial statements, 2) any existing encumbrances are noted, 3) the assets are long-term assets held for use, and 4) the valuation method used in the audited annual financial statements is appropriate for long-term assets held for use by the operator.

Indemnity for Liability Coverage for Offshore Oil Facilities

Under 30 CFR 253.30 (Oil Pollution Control Act), a corporation that is the parent corporation of an operator of an offshore facility used for exploring or drilling for or producing oil, or for transporting oil from such a facility, or the affiliate of such an operator, also may use the self-insurance mechanisms to demonstrate financial assurance for the costs of cleanup on behalf of that operator. When a corporation that is the parent corporation or affiliate of an operator meets the criteria of the self-insurance

mechanism, the resulting assurance is termed an "indemnity." The operator may use only one indemnity provided by one indemnitor to satisfy all or part of its obligation to demonstrate financial assurance. The indemnity must include all the information required under 30 CFR 253.41 and must not exceed the amounts calculated by using the net worth or unencumbered assets tests specified at 30 CFR 253.21 and 253.28, respectively. The indemnitor must establish an agent for service of process in the United States.

Self Insurance Mechanism for Liability Coverage for Seagoing Vessels in Excess of 300 Tons

Under 33 CFR 138.80 (Oil Pollution Control Act), operators of sea-going vessels in excess of 300 tons[23] are authorized to use a self-insurance mechanism to demonstrate financial assurance for liability coverage for potential discharges of oil or hazardous cargo. To use self insurance, an operator must demonstrate to NPFC that it maintains in the United States working capital and net worth each in amounts equal to or greater than the total amount of liability coverage required under the regulations. For such demonstrations, working capital is defined as the amount of current assets located in the United States, less all current liabilities anywhere in the world, and net worth is defined as the amount of assets located in the United States, less all liabilities anywhere in the world. The operator is required to demonstrate annually its eligibility to use the self-insurance mechanism and must notify NFPC within five business days if it determines or has reason to believe that its working capital or net worth have fallen below the amounts required to qualify to use the self-insurance mechanism.

To qualify to use the self-insurance mechanism, the operator must submit to NPFC annual, current, audited, and nonconsolidated financial statements prepared in conformance with generally accepted auditing standards. The financial statements must be accompanied by a statement from the treasurer of the operator that certifies both the amount of current assets and the amount of total assets that are included in the operator's balance sheets and are located in the United States. Consolidated financial statements may be submitted if those statements are accompanied by an additional statement prepared by the operator's CPA that verifies that amount by which the operator's total assets located in the United States exceed its total liabilities worldwide and the amount by which the operator's current assets located in the United States exceed its current liabilities worldwide. The additional statement must specifically

[23] The regulations do not apply to non-self-propelled barges that do not carry oil as cargo or fuel and do not carry hazardous substances as cargo.

name the operator; indicate that the amounts verified are pertinent only to the operator, apart from any other affiliated entity; and identify the consolidated financial statements to which it applies.

If the operator's net worth is not at least 10 times the amount of financial assurance required, the treasurer of the operator must file affidavits covering the first six months of the operator's fiscal year. The affidavits must state that, during the first six months of the fiscal year, neither the working capital nor the net worth of the operator fell below the amount of financial assurance required of the operator.

Financial Guarantee for Liability Coverage for Seagoing Vessels in Excess of 300 Tons

Under 33 CFR 138.80 (Oil Pollution Control Act), parent corporations of operators of seagoing vessels in excess of 300 tons, or companies that are affiliated with those operators, are authorized to use a financial guarantee to demonstrate financial assurance for liability coverage for potential discharges of oil or hazardous cargo on behalf of such operators. To use the financial guarantee, the parent corporation or affiliated company annually must meet the criteria to use the self-insurance mechanism that are specified at 33 CFR 138(b)(3). The guarantee may be executed by no more than four guarantors. If a company is a financial guarantor for more than one operator, it must have working capital and net worth in amounts no less than the aggregate total applicable amounts of financial responsibility provided as a guarantor for each operator, as well as the amount required to demonstrate self insurance, if also acting as a self insurer.

Financial Test and Self Guarantee for Decommissioning of Specially Licensed Nuclear Materials Facilities that are Operated by Commercial Companies That Have Outstanding Rated Bonds

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and the Energy Reorganization Act), commercial companies that have outstanding rated bonds and are licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and use facilities, including power reactors; possess and use spent nuclear materials; and operate ISFSIs, respectively, are authorized to use a financial test to demonstrate financial assurance for the decommissioning of such specially licensed facilities. To be valid, the financial test must be accompanied by a self guarantee that defines the obligations of the licensee. A financial test and self guarantee may not be used in combination with any other financial mechanisms to demonstrate financial

assurance or in any circumstance in which the applicant has a parent company that holds majority control of its voting stock.

Licensees that wish to use the financial test and self guarantee to demonstrate financial assurance for decommissioning must meet the following criteria:

- Tangible net worth must be at least 10 times the sum of the current estimates of the costs of decommissioning for the total of all facilities or parts thereof (or prescribed amount if certification is used), or, for a power reactor licensee, at least 10 times the amount of decommissioning funds being assured by a parent company guarantee for the total of all reactor units or parts thereof.

- Assets located in the United States must make up at least 90 percent of total assets or must be at least 10 times the sum of the current estimates of the costs of decommissioning for the total of all facilities or parts thereof (or prescribed amount if certification is used), or, for a power reactor licensee, at least 10 times the amount of decommissioning funds being assured by a parent company guarantee for the total of all reactor units or parts thereof.

- The licensee must have a current rating for its most recent bond issuance of "AAA," "AA," or "A," as issued by Standard and Poor's, or "Aaa," "Aa," or "A," as issued by Moody's Investors Service.

- The licensee must have at least one class of equity securities registered under the Securities Exchange Act.

To substantiate the financial position of the licensee, its financial statements must be audited by an independent CPA and submitted to NRC. The licensee’s independent CPA must compare the data used to pass the financial test with the licensee's financial statements for the latest completed fiscal year. In connection with that procedure, the licensee must inform NRC within 90 days of any matter that comes to the attention of the CPA that causes the CPA to believe that the data specified in the financial test should be adjusted and that the operator no longer passes the financial test. After passing the initial financial test, the licensee must pass the test again within 90 days after the close of each succeeding fiscal year.

The terms of the self guarantee provided by the licensee must stipulate that:

- The guarantee will remain in force unless the licensee sends NRC notice of cancellation by certified mail. Cancellation may not occur, however, during the 120 days beginning on the date of NRC’s receipt of the notice of cancellation, as evidenced by the return receipt.

- The licensee will provide alternative financial assurance acceptable to NRC within 90 days following NRC’s receipt of a notice of cancellation of the guarantee.

- The provisions of the financial test and self guarantee will remain in effect until NRC has terminated the license or until the licensee has provided another financial assurance mechanism acceptable to NRC.

- The licensee promptly will forward to NRC and the licensee's independent CPA all reports covering the latest fiscal year filed by the licensee with the SEC and filed in conformance with the requirements of section 13 of the Securities and Exchange Act.

- If, at any time, the most recent bond issuance of the licensee ceases to be rated in any category of "A" or above by either Standard and Poor's or Moody's, the licensee will provide NRC notice in writing of such fact within 20 days after publication of the change by the rating service.

- The applicant must provide to NRC a written guarantee (a written commitment by a corporate officer) that states that the licensee will fund and carry out the required decommissioning activities or that, upon issuance of an order by NRC, the licensee will establish and fund a trust in the amount of the current cost estimates for decommissioning.

Financial Test and Self Guarantee for Decommissioning for Specially Licensed Nuclear Materials Facilities that are Operated by Commercial Companies That Have No Outstanding Rated Bonds

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and the Energy Reorganization Act), commercial companies that have no outstanding rated bonds and are licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and use facilities, including power reactors; possess and use spent nuclear materials; and operate ISFSIs, respectively, are authorized to use a financial test to demonstrate financial assurance for the decommissioning of such specially licensed facilities. To be valid, the financial test must be accompanied by a self guarantee that defines the obligations of the licensee. A financial test and self guarantee may not be used in combination with any other financial mechanisms to demonstrate financial assurance or in any circumstance in which the applicant has a parent company that holds majority control of its voting stock.

Licensees that wish to use the financial test and self guarantee to demonstrate financial assurance for decommissioning must meet the following criteria:

- Tangible net worth must be greater than $10 million or at least 10 times the sum of the total current estimated or certified costs of decommissioning, whichever is greater, for all decommissioning activities for which the licensee is responsible as a self-guaranteeing licensee or as a parent guarantor

- Assets located in the United States must make up at least 90 percent of total assets or must be at least 10 times the sum of the current estimated or certified costs of decommissioning for all activities for which the licensee is responsible as a self-guaranteeing licensee or as a parent guarantor

- Cash flow divided by total liabilities must equal a ratio value greater than 0.15, and total liabilities divided by net worth must equal a ratio value less than 1.5.

To substantiate the financial position of the licensee, its financial statements must be prepared in conformance GAAPs, audited by an independent CPA, and submitted to NRC. The licensee's independent CPA must compare the data used to pass the financial test with the licensee's financial statements for the latest completed fiscal year. In connection with that procedure, the licensee must inform NRC within 90 days of any matter that comes to the attention of the CPA that causes the CPA to believe that the data specified in the financial test should be adjusted and that the licensee no longer passes the financial test. After passing the initial financial test, the licensee must pass the test again within 90 days after the close of each succeeding fiscal year.

The terms of the self guarantee provided by the licensee must stipulate that:

- The guarantee will remain in force unless the licensee sends notice of cancellation by certified mail, return receipt requested, to NRC. Cancellation may not occur until an alternative financial assurance mechanism is in place.

- The licensee must provide alternative financial assurance acceptable to NRC within 90 days following NRC's receipt of a notice of cancellation of the guarantee.

- The provisions of the financial test and self guarantee will remain in effect until NRC has terminated the license or until the licensee has provided another financial assurance mechanism acceptable to NRC.

- The applicant must provide to NRC a written guarantee (a written commitment by a corporate officer) that states that the licensee will fund and carry out the required decommissioning activities or that, upon issuance of an order by NRC, the licensee will set up and fund a trust in the amount of the current cost estimates for decommissioning.

Parent Company Guarantee for Decomissioning for Specially Licensed Nuclear Materials Facilities

Under 10 CFR 30.35, 40.36, 50.75, 70.25, and 7A.30 (Atomic Energy Act and the Energy Reorganization Act), entities licensed by NRC to possess and use sealed and unsealed radioactive byproduct materials; possess and use radioactive source materials; operate production and use facilities including power

reactors; possess and use spent nuclear materials; and operate ISFSIs, respectively, are authorized to use parent company guarantees to demonstrate financial assurance for the decommissioning of such specially licensed facilities. When a parent company guarantee is used to demonstrate financial assurance for decommissioning, the licensee's parent corporation must guarantee to provide specified dollar amounts to fund performance of decommissioning in the event of default by the licensee. The guarantee must be provided by the corporate parent of the licensee. The parent corporation must be able to demonstrate that it has majority control of the licensee's voting stock. The written guarantee must specify that, in the event the licensee fails to perform decommissioning activities, the guarantor must do so or establish alternative financial assurance in the name of the licensee in the amount of the current estimate of the cost of decommissioning. A parent company guarantee may not be used in combination with other financial mechanisms in demonstrating financial assurance for decommissioning. To maintain the guarantee beyond its first demonstration, the guarantor must pass the test again within 90 days after the close of each succeeding fiscal year.

To provide the guarantee, the parent corporation must meet one of two sets of financial criteria, Alternative 1 and Alternative 2. Companies that seek to use Alternative 1 of the parent company guarantee to demonstrate financial assurance for decommissioning must meet the following criteria:

- Total liabilities divided by net worth must equal a ratio value less that 2.0; the sum of net income plus depreciation, depletion, and amortization, divided by total liabilities, must equal a ratio value greater than 1.0; and current assets divided by current liabilities must equal a ratio value greater than 1.5.

- Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the sum of the current estimates of the costs of decommissioning for the total of all facilities or parts thereof (or prescribed amount if certification is used), or, for a power reactor licensee, at least six times the amount of decommissioning funds being assured by a parent company guarantee for the total of all reactor units or parts thereof.

- Tangible net worth must be equal to or greater than $10 million.

- Amounts of net working capital and tangible net worth each must be at least six times the sum of the current estimates of the cost of decommissioning for the total of all facilities or parts thereof (or prescribed amount if certification is used), or for a power reactor licensee, at least six times the amount of decommissioning funds being assured by a parent company guarantee for the total of all reactor units or parts thereof.

Companies that seek to use Alternative 2 of the parent company guarantee to demonstrate financial assurance must meet the following criteria:

- The guarantor must have a current rating for its most recent bond issuance of "AAA," "AA," "A," or "BBB," as issued by Standard and Poor's, or "Aaa," "Aa," "A," or "Baa," as issued by Moody's Investors Service.

- Assets located in the United States must make up at least 90 percent of total assets or must be at least six times the sum of the current estimate of the cost of decommissioning for the total of all facilities or parts thereof (or prescribed amount if certification is used), or, for a power reactor licensee, at least six times the amount of decommissioning funds being assured by a parent company guarantee for the total of all reactor units or parts thereof.

- Tangible net worth must be equal to or greater than $10 million.

- Tangible net worth must be equal to or greater than six times the sum of the current estimate of the cost of decommissioning for the total of all facilities or parts thereof (or prescribed amount if certification is used), or, for a power reactor licensee, at least six times the amount of decommissioning funds being assured by a parent company guarantee for the total of all reactor units or parts thereof.

To substantiate the financial position of the guarantor, its financial statements must be audited by an independent CPA and submitted to NRC. The guarantor’s independent CPA must compare the data used to pass the financial test with the guarantor's financial statements for the latest completed fiscal year. In connection with that procedure, the licensee must inform NRC within 90 days of any matter that comes to the attention of the CPA that causes the CPA to believe that the data specified in the financial test should be adjusted and that the guarantor no longer passes the financial test. Within 90 days after receiving notification that the guarantor no longer passes the financial test, the licensee must provide alternative financial assurance. If the licensee fails to provide alternative financial assurance within that time period, the guarantor must provide that alternative financial assurance in the name of the licensee.

A.15 STATE FUNDS FOR THIRD-PARTY LIABILITY AND CORRECTIVE ACTION FOR USTs

Under 40 CFR 280.101, owners or operators of USTs that are located in states that assure that funds will be available from a state-managed fund or financial assurance program to cover assured costs, up to the limits specified in 40 CFR 280.93, may demonstrate financial assurance for third-party liability coverage and corrective action by using those funds or programs as their financial assurance mechanism. Before owners or operators of USTs can use such state-managed funds or financial assurance programs to demonstrate financial assurance, the U.S. Environmental Protection Agency (EPA) must evaluate each

fund or program to ensure that adequate monies are available to take corrective actions and compensate third parties for bodily injury or property damage that results from the operation of USTs.

Currently, 40 states have active financial assurance funds for USTs. Of those state funds, 35 have been approved by EPA, and requests for approval have been submitted for the five remaining funds. In addition to those programs, the states of Alaska, Delaware, and Maryland have funds that may be used only to reimburse owners and operators of USTs for the costs of cleanups. The state of Washington provides a state reinsurance program. The state of West Virginia provides a state-subsidized insurance program. The states of Hawaii and Oregon and the District of Columbia have no funds established for USTs. The state fund of Michigan is insolvent. The state funds of Texas and Florida no longer accept claims. In addition to traditional state funds, 16 states have created financial assistance programs that provide low-interest loans, grants to small businesses, or subsidies to lenders to owners and operators of USTs to pay for corrective actions or valid third-party liability claims.

The criteria used to determine the eligibility of owners and operators of USTs to access state funds for conducting corrective actions or satisfying valid claims for third-party liability, or to use state funds as a means of demonstrating financial assurance, vary from state to state. Eligibility to use the funds often is predicated on establishment of the compliance of the owner or operator with applicable regulations, on a determination that the units in question are eligible petroleum USTs, on adherence by the owner or operator to certain time limits and reporting and registration requirements, and on the establishment of the financial need of the owner or operator. The manner in which eligible costs are paid from state funds also varies from state to state. For example, while certain funds will pay invoices for valid costs directly from the fund, other funds will reimburse eligible owners or operators only upon demonstration that invoices have been paid. Further, the types of costs that may be reimbursed from state funds are specified for each program; and reimbursable costs vary significantly from state to state.

The state funds are funded from a variety of fees and taxes. The methods used to finance each fund, the manner in which each fund is administered, and the types and amounts of fees or taxes that are collected vary significantly from state to state. For example, the Montana state fund is funded by a fee on gasoline and special fuels in the amount of three quarters of a cent per gallon, the Massachusetts state fund is funded by an annual registration fee of $200 per tank and a one-half-cent-per-gallon fee on the

delivery of petroleum products to USTs, and the South Dakota fund is funded by a two-cent-per-gallon petroleum inspection fee.

Although each state fund is distinct, the Groundwater Protection Trust Fund established and maintained by the state of Mississippi is, in certain respects, typical of such funds. In any case in which it has been determined that a release of motor fuel from an active UST system poses a threat to the environment or to public health, safety, or welfare, Mississippi's state fund can be used to provide funds for: 1) investigation and assessment of contaminated sites, 2) restoration or replacement of drinking-water supplies, and 3) cleanup of contaminated sites. The fund also may be used to satisfy any valid third-party liability claims made against qualified owners and operators of USTs in Mississippi. The fund is financed by an annual fee imposed on motor fuels dispensed in Mississippi and collected by the State Tax Commission. The fee is adjusted each year according to the estimate of the Mississippi Department of Environmental Quality (DEQ) of the amount of funds needed to administer the program. The funds collected are deposited into an account administered by DEQ.

Owners and operators of USTs in Mississippi that store motor fuels at an active site, that have paid DEQ their annual fees for all active USTs, and that have made a good faith effort to comply with all laws and regulations applicable to USTs, are potentially eligible to access the fund. To access the fund, an owner or operator must confirm, at its own expense, that a release has occurred, immediately stop the release, and take the steps necessary to eliminate any potential fire hazard. The owner or operator then must call DEQ within 24 hours and report that a release to the environment has been confirmed. Within 10 days, the owner or operator also must write a letter to DEQ that describes the actions taken to confirm the release and prevent further contamination. DEQ must approve any work before it begins if the cost for that work is to be reimbursed from the fund.

In general, monies from the fund can be used to evaluate and address environmental problems associated with releases of motor fuels from UST systems. An owner or operator of an UST must receive prior written approval from DEQ before incurring any costs for which reimbursement from the fund is expected. Further, each site must be evaluated by DEQ to determine which costs are eligible for reimbursement from the fund. Costs that generally are reimbursable from the fund include the costs of: 1) all digging, removal, disposal, and replacement of contaminated soil and pavement; 2) recovery of

released motor fuels; 3) cleanup of contaminated water; 4) installation and operation of recovery wells; 5) construction of interceptor trenches; and 6) third-party damages ordered by a court of law.

Costs that generally are not reimbursable from the fund include the costs of: 1) repair of a leaking UST or purchase of a new UST; 2) removal of an UST; 3) repair or replacement of damaged or leaking flow lines; 4) breaking and replacement of concrete for repairs; 5) loss of revenue during shutdown of the business during cleanup; 6) loss of spilled fuel; 7) confirmation that a release actually has occurred, 8) temporary fuel storage tanks, if needed, to keep a business open; 9) loss of trees, shrubs, signs, or other improvements on the property of the owner or operator; and 10) legal fees. Costs that DEQ determined to be excessive or not comparable to average costs common in the industry also are not reimbursable. The fund provides reimbursement to the owner or operator for all allowable costs, up to a maximum of $1 million per occurrence. To receive reimbursement from the fund, the owner or operator forwards invoices to DEQ, along with a certification affidavit DEQ reviews the invoices and provides reimbursement directly to the owner or operator for all allowable costs incurred.