

FINANCIAL ASSURANCE: ENVIRONMENTAL PROTECTION AS A COST OF DOING BUSINESS

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ABSTRACT

As the American coal industry attempts to rebound, it is imperative that governments ensure that taxpayers and the public are protected against future and past environmental harms caused by a broken financial-assurance system. By analyzing the bankruptcies of coal giants Peabody, Alpha, and Arch, it is apparent that self-bonding is no longer working as an effective financial assurance mechanism. With many coal companies now being unable to cover their reclamation costs, governments have an opportunity to fix this broken system by requiring more stringent financial assurance. Governments must adapt and turn to more effective, sustaining alternative financial assurance mechanisms such as trust funds to help fund future reclamation costs. Additionally, most states would, at the very least, be prudent to increase their bond amounts in line with North Dakota if they do not want their taxpayers to be on the hook for future environmental costs regarding oil and natural gas wells. In summary, it would be advantageous for governments to not only perform an exhaustive review of their financial assurance mechanisms in the natural resources industries but also amend these practices to better protect their taxpayers from potential environmental harms and costs down the road.

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I. INTRODUCTION

The purpose of environmental financial assurance is to guarantee that a private operator can cover any present and future environmental costs of his or her activities. State and federal regulations generally establish what these costs are and how much assurance is required by the operator often before they can begin their operations. Despite the existence of current financial assurances, environmental reclamation is not actually guaranteed. As has recently been demonstrated in the coal industry, certain assurance mechanisms are less effective and others completely ineffective, especially when companies face the prospect of insolvency. Many traditional bonding

mechanisms are not suited to cover the potential long-term costs required for effective environmental reclamation. Subsequently, these long-term costs have limited the possible assurance mechanisms available to operators. While certain mechanisms, like self-bonding, pose a systemic risk to the environment and taxpayers, other mechanisms, like the use of environmental trusts, may offer a commercially beneficial means to address present and future potential environmental costs.

The failure of environmental financial assurances is not limited to just the natural resource industry. However, the relatively recent bankruptcies in the coal industry have accurately illustrated the failures of self-bonding as an assurance mechanism. The use of self-bonding as the exclusive means of guaranteeing environmental reclamation has proven uniquely susceptible to complete failure. The positive attributes of such have not proven to outweigh its shortcomings. The potential decrease in an entity's financial value and subsequent insolvency demonstrate why self-bonding should not be permitted to ensure environmental reclamation.

Special environmental trusts may offer an economically viable alternative to traditional environmental assurance mechanisms. These trusts allow businesses to meet those statutory assurance obligations and provide the ability to redress future environmental degradation that may result from a business's operations. Special environmental trusts are not perfect, but these present a pliable market-based approach and can be available when other private assurance mechanisms are not.

This Article seeks to define the major environmental assurance mechanisms currently in use with specific attention given to the practice of self-bonding and environmental trusts. In doing so, the authors of this Article looked to the coal, oil, and natural gas industries to determine any overlap in environmental assurance concerns. It is through a comparative analysis amongst these different industries that we may begin to appreciate the shortcomings of the current regulatory environment in the natural resource industry. The authors of this Article have also analyzed other key states in the natural resources industry, such as Kentucky, North Dakota, Oklahoma, Pennsylvania, Texas, Virginia, West Virginia, and Wyoming, who are all key players in both the coal and natural gas industries. The first part of this Article discusses the main theories that impact the need and use of environmental assurance as a component of business. The second part defines the common assurance mechanisms in use. In the third part, the authors of this Article utilize the coal industry to illustrate the effectiveness and ineffectiveness of these mechanisms, specifically the act of self-bonding. The

fourth part looks to oil and natural gas production and the environmental assurances common to that industry.

II. THEORY OF ENVIRONMENTAL RECLAMATION

The underlying principle for financial assurance in environmental law is that the polluter pays for their environmental costs.¹ This economic theory requires a business to internalize the costs derived from an activity that causes environmental harm by selling or providing a service or good that consumers demand.² If consumers do not demand the service or good, then there are no environmental costs. The greater the demand of the consumer for a service or good, the greater the economic incentive and motivation for the business and the greater the environmental cost. However, if an activity becomes economically unprofitable due to the environmental costs associated with the activity, then a business will not engage in the activity. This Article does not question the polluter-pays concept, but rather, seeks to evaluate the environmental laws designed to assure such cost internalization.

The most obvious environmental cost under the polluter-pays principle, and what is specifically at issue here, involves a business's obligation to reclaim land damaged during the course of natural resource extraction. Environmental remediation includes not only present restoration costs (i.e., returning the land to an acceptable state when mining activities have ended), but also future impact costs (e.g., water quality).³ The difficulty comes in being able to predict the future as it relates to these potential costs in order to determine the dollar figure of appropriate assurance. Individuals have made great strides in utilizing past examples and technology to assist in forecasting future environmental harm; however, such harm will not always result. Subsequently, regulatory efforts must reflect the probability of said harm based upon the basis of known inputs and calculated results. This is akin to a computer program that generates a desired outcome. The outcome translates into satisfactory environmental reclamation. As with any program, it will only function as well as its inputs or coding. Thus, generating

1. Boris Mamylyuk, *Analyzing the Polluter Pays Principle Through Law and Economics*, 18 SE. ENVTL. L.J. 40, 41-42 (2009).

2. *Id.* at 43-44 (discussing the need over time to internalize environmental costs to solve the social costs of pollution).

3. Sarah J. Surber, *Writing a Check that the State Can't Cash: Water Pollution from Coal Mining and the Imminent and Inevitable Failure of the West Virginia Special Reclamation Water Fund*, 27 TUL. ENVTL. L.J. 1, 2-4 (2013) (explaining the myriad water reclamation issues West Virginia will face from past coal mining).

the most reliable data to base the inputs on will determine the accuracy of its predictive nature. The rise of predictive analytics and big data could offer a means of improving the ability to predict environmental costs associated with a business's activity based upon the facts surrounding the operation itself (i.e., drilling depth, rock formation, location, etc.).

The risks of natural resource extraction operations have been broken down into certain and uncertain categories.⁴ These risks can also be temporally distinguished into short-, medium-, and long-term environmental harms.⁵ Certain financial assurance mechanisms may be appropriate for some risks but not others. Subsequently, while there is no perfect financial assurance mechanism, there are those that have proven to be more effective than others given the type of risk.

There are generally two main regulatory approaches to facilitate the internalization of environmental costs associated with private operations. These theories are commonly referred to as command-and-control and market-based methods.⁶ Each governmental entity chooses its own unique approach regarding regulation.

Command and control refers to set rules as promulgated by statute or agency action that specifically direct the actions of an operator.⁷ The regulatory agency or legislative body acting pursuant to their imparted authority establishes requirements for private operators.⁸ The consequences for failing to comply with such requirements can take many forms including fines, directives to comply, and a suspension of activities for noncompliance.⁹ A suspension of operations can have not only an obvious immediate financial impact, but also may affect future operations by that private entity. An operator's past activities can be taken into account to determine stricter requirements to assure compliance.¹⁰ Before an operator can begin its opera-

4. See W. Blaine Early III, *Bond What You Know and Insure What You Don't: A Comment on a Market Approach to Regulating the Energy Revolution*, 45 ENVTL. L. REP. 10756, 10756 (2015) (describing how some known risks, those more directly associated with the drilling process, are more certain than other uncertain risks that are less predictable like upward migration of fracturing fluids and potential seismic activity's ability to contaminate ground water through hydraulic fracturing).

5. David A. Dana & Hannah J. Wiseman, *A Market Approach to Regulating the Energy Revolution: Assurance Bonds, Insurance, and the Certain and Uncertain Risks of Hydraulic Fracturing*, 99 IOWA L. REV. 1523, 1542-43 (2014).

6. *Id.* at 1547-49.

7. *Id.* at 1547.

8. *Id.*

9. *Id.*

10. *Cf. id.* (mentioning that the regime can even impose the greatest sanction of all by terminating the regulated entity's operation as a possible sanction).

tions via a permit, they must demonstrate they are in compliance with the established “commands” of the regulator and assure they will remain so throughout their operations.¹¹ Command-and-control regulation is the most easily recognized form of regulation, but it has serious disadvantages. It places the onus upon the regulator to create and consistently maintain effective requirements based upon constantly changing technology and activities of the operators.¹² Additionally, operators have little incentive to provide the regulators with information related to their activities or technological advancements that could affect the regulations that are being promulgated.¹³ Subsequently, there is little incentive to improve beyond the minimum standards established by the regulation.¹⁴ Command and control has been said to be an effective short-term means of curbing environmental degradation, but it comes at a high cost of compliance and loss of long-term effectiveness.¹⁵

A market-based approach concerns any situation when the free market is utilized to mitigate environmental degradation. This approach incentivizes operators to reduce external environmental costs.¹⁶ There are multiple economic means that qualify for the title of market-based approaches (i.e., environmental tax, pollution credits, etc.).¹⁷ Essentially, an environmental risk is assigned an economic value.¹⁸ It has been argued that

[m]arket-based regulation places a lesser information burden on regulators in some respects, as agencies implementing this approach do not need to specify precisely what practices regulated entities should follow in many and diverse technical situations, but rather they only have to put a price on the costs of risk of environmental harm.¹⁹

11. See Dana & Wiseman, *supra* note 5, at 1547 (providing that command-and-control regulatory regimes require entities to follow commands and comply with the regulations).

12. *Id.* at 1548.

13. *Id.* at 1542-43.

14. *Id.* at 1548.

15. Richard B. Stewart, *Models for Environmental Regulation: Central Planning Versus Market-Based Approaches*, 19 B.C. ENVTL. AFF. L. REV. 547, 551 (1992).

16. *Id.* at 1549.

17. Eric W. Orts, *Reflexive Environmental Law*, 89 NW. U. L. REV. 1227, 1242-47 (1995).

18. Dana & Wiseman, *supra* note 5, at 1548-49.

19. *Id.* at 1549.

Theoretically, the market-based approach offers an ongoing incentive to private operators to reduce environmental risks through innovation and their own behavior and reduce the cost of compliance.²⁰

The market-based approach is easily confused with that of command and control from which it is rooted. Drawing a distinction between these two theories of regulation is akin to comparing civil code to common law legal systems. Regardless of how financial assurance is labeled, a particular assurance mechanism is only effective if it appeals to both the public's interest in environmental quality and a business's economic interests.

Anytime one describes a reason, justification, or approach as being "market based,"²¹ the common assumption is that it is better for business. This is because most proponents of the market-based approach are solely focused on what is best for the overall market and the businesses in that market. However, this assumption may not always be true. Utilizing the private sector as a means of accomplishing public ends or for sharing oversight responsibility, may merely add unnecessary complexity and avoidable costs. However, professors Dana and Wiseman, proponents of a more market-based approach for the environmental regulation of hydraulic fracturing, adeptly described the use of environmental insurance, a more market-based approach though grounded in command-and-control, as a compliment to traditional command-and-control regulations to provide for certain long-term risks associated with hydraulic fracturing operations.²² The use of mandatory environmental insurance, as the authors describe, invokes several points of contention.²³ Most governmental entities use the more traditional command-and-control regulatory structure to regulate the industries discussed herein,²⁴ but the financial assurance mechanisms that are invoked, like those described by Dana and Wiseman, can be analyzed through a market-based perspective.

20. *Id.*

21. *See id.* (stating that proponents arguing for market-based regulatory regimes believe that it better taps "into market dynamism" and that these regimes "are less stagnant and static than command and control regulations").

22. *Id.* at 1562-71, 1591-93.

23. *Id.* at 1571. The authors argue that these issues or objections are rebuttable. *Id.* at 1572-86. The same general points raised relating to unconventional oil and gas exploration can be used regarding any new form of environmental assurance mechanism: commercial unavailability of the mechanism, the mechanism would "chill" economic activity, effectiveness of the mechanism to accomplish the intended purpose, the mechanism unfairly disadvantages different-sized entities, and does the mechanism correctly incentivize/encourage the desired actions of an operator.

24. Dana & Wiseman, *supra* note 5, at 1549.

Financial assurance mechanisms are often viewed “as an important complement to liability rules, restoration obligations, and other compliance requirements.”²⁵ Those assurance mechanisms that utilize private third-party insurers, sureties, or banks invoke the scrutiny of these private entities upon the operators’ activities to ensure that their own economic interests are preserved.²⁶ In other words, instead of a governmental entity incurring all of the risk associated with an operator’s activities, these private third-parties perform their own financial and environmental risk assessments and impose their own requirements upon the operators based upon a market-based risk/return strategy. This type of “market based” approach is often touted to be more reflective of the potential environmental harm that could exist based upon the factors associated with the particular type of activity.²⁷ However, when a party is permitted to self-bond, there is no third-party entity and thus, no market check.²⁸

The number and level of regulatory authorities may affect the effectiveness of environmental assurance mechanisms. Redundant or overlapping regulations may be costlier for the industry and the regulatory body.²⁹ Redundant regulations must be distinguished with federal minimums that enable the states to recognize and implement rules that best fit the interests of their specific state.³⁰ The debate between the role federal regulators, state regulators, or a combination of both should play in assuring environmental quality is ongoing and exemplified in this context. As illustrated below, the oil and gas industry and surface coal mining operations follow different regulatory structures.

Recognizing autonomous state authority as it relates to environmental regulation raises issues that may compromise state regulators due to political pressures in that state or too close of a relationship with the private in-

25. James Boyd, *Financial Responsibility for Environmental Obligations: An Analysis of Environmental Bonding and Assurance Rules* 1 (2001), <http://www.ucl.ac.uk/cserge/Boyd.pdf>.

26. *Id.* at 1.

27. *See id.* (stipulating that assurance can provide a “market-based approach to compliance and monitoring”).

28. *See id.* at 7 (mentioning that “[f]irms with fewer resources often cannot self-insure and must therefore acquire rights to financial assets from third parties . . .”).

29. *See Dana & Wiseman, supra* note 5, at 1552 (evaluating the use of a single regulator, or a federal regulator, versus multiple sets of regulators, such as state and federal regulators, who must operate in different political environments).

30. *See id.* (hypothesizing that even when “federal statutes authorize a federal role, state regulators de facto are the frontline, most influential regulators”).

dustry they regulate.³¹ Additionally, states are sometimes attributed with lacking the necessary resources to monitor and enforce regulations by themselves.³² Contrastingly, a “one size fits all” approach is rarely effective. Preserving some state autonomy is advantageous, as long as there are meaningful regulations and federal resources available to assist in meeting these regulations.

Insolvency or outright abandonment by operators pose the greatest potential environmental harm.³³ In a bankruptcy action, the unfulfilled environmental reclamation obligations can easily become a cost borne by society instead of the operator internalizing such costs.³⁴ This is no more evident than the existence of acts that make funds available for retroactive site cleanup across multiple industries.³⁵ When an operator self-bonds and files for bankruptcy, there is often little to zero funds for reclamation.³⁶ Furthermore, creditors and insiders often have their pick of the assets in a reorganization due to the leverage these entities have over the regulators.³⁷ Insolvency of self-bonded operators allows the entity to externalize the environmental costs that should have been internally absorbed.³⁸ “[B]ankruptcy filings increase[d] by 46 percent in 2015 – due primarily to a challenging energy sector environment.”³⁹ “79 publicly traded companies (with \$81 billion in combined pre-petition assets) are revealed to have filed for Chapter 7 or Chapter 11 protection in 2015.”⁴⁰ “Furthermore, eight of the [ten] largest Chapter 11 filings were initiated by companies operating

31. *See id.* at 1552-53 (indicating that some commentators believe that industry dominates the public interest at the state level).

32. *Id.* at 1553.

33. *See id.* at 1561-62 (declaring that “the statistics regarding such abandonment are staggering” in terms of both mines and oil and gas wells).

34. Boyd, *supra* note 25, at 1 (“Bankruptcy, corporate dissolution, and outright abandonment are a disturbingly common means by which polluters avoid responsibility for environmental costs.”).

35. *Id.* at 4-6 (listing the various funds and programs across multiple states and the federal government that help clean up abandoned environmental obligations including the Abandoned Mine Land program and Superfund).

36. *See id.* at 2-3 (commenting that “environmental costs are only partially recoverable once bankruptcy occurs”).

37. *Cf. id.* at 3 fn.7 (“[E]nvironmental claims do not enjoy any special priority over other creditor claims.”).

38. *See id.* at 7 (remarking that “polluters can escape cost internalization via prior dissolution or bankruptcy” although financial assurance is supposed to counter this weakness).

39. Fraser Tennant, *Bankruptcy Snapshot Reveals US Filings Up 46 Percent in 2015*, FIN. WORLDWIDE (Jan. 26, 2016), <https://www.financierworldwide.com/fw-news/2016/1/26/bankruptcy-snapshot-reveals-us-filings-up-46-percent-in-2015-with-energy-a-big-loser>.

40. *Id.*

in the oil and gas, mining and related sectors — a substantial 51 percent of the total public bankruptcies seen in 2015. Overall, 40 of the 79 filings involved oil and gas and mining companies.”⁴¹

Requiring effective environmental financial assurance before an entity is allowed to begin operations can protect against operators escaping their responsibilities and imposing a cost upon society. Preventing the abandonment of an operator’s environmental obligations as a means of safeguarding the public purse is an important justification in this context. Here, the costs of reclamation not internalized by the operator requires public funds to be diverted; thereby, resulting in society being unable to meet other needs or debt obligations.⁴² If these funds are not utilized for reclamation, then the public suffers a loss in environmental degradation most commonly in the form of water contamination.

III. COMMON ENVIRONMENTAL FINANCIAL ASSURANCE MECHANISMS

A guarantee to do something is assurance that what is being guaranteed will in fact be done. However, one should view certain guarantees by a promising party skeptically. This has given rise to a variety of financial assurance mechanisms that are designed to ensure promised performance. Since the focus of this Article concerns environmental reclamation or rehabilitation, the assurance mechanisms discussed herein are those most utilized by industries who disturb the natural environment and must guarantee they will clean it up. The most common mechanisms for environmental financial assurance⁴³ include surety bonds, cash, letters of credit, bond pools, insurance, trust funds, and self-guarantees or what is known as self-bonding.⁴⁴ However, not all of these financial assurance forms are used in every industry nor are these all created equally.

41. *Id.*

42. *See* Boyd, *supra* note 25, at 3-7 (alluding that environmental costs may not be recoverable at all once an entity enters into bankruptcy and describing the many state or federal programs that can be used to help recover these environmental costs).

43. Financial assurance in the context of environmental protection is also referred to as: “bonding,” “reclamation bonding,” “environmental surety,” “reclamation surety,” and often by other descriptive terms that illustrate assurance for reclamation efforts.

44. BILL BRANCARD & CAROL LEACH, ROCKY MOUNTAIN MINERAL LAW INST., STRUCTURING FINANCIAL ASSURANCE FOR RECLAMATION: A REGULATOR’S PERSPECTIVE 19-1 (2006).

A. SURETY BONDS

Environmental suretyships involve three parties: the “principal” as the primary obligor (operator seeking a permit), the “surety” (bonding company or financial institution) as the secondary obligor, and the regulatory agency who is the “obligee.”⁴⁵ The principal is originally responsible to the agency, and if they cannot satisfy their obligations, then the surety is liable to the agency.⁴⁶ A surety, the issuer of the guarantee, can then seek to recover from a principal whose default on the principal’s obligations caused the surety to be liable.⁴⁷ Even though bonding companies (sureties) can work through and with insurance groups, a surety should not be confused with an insurer. An insurance relationship is between only the principal and insurer when the insurer agrees to assume responsibility pursuant to an insurance policy.⁴⁸ Unlike in an insurance arrangement, a surety is secondarily liable when the principal is in default; whereas, the insurer can seek recovery from the principal for any liability incurred by the surety.⁴⁹ Accordingly, most sureties/bonding companies will require the principal to execute an indemnification agreement and post collateral that will be released upon successful completion of the principal’s obligations.⁵⁰

A surety essentially promises to be liable for the acts or failure to act of the party who sought the assurance.⁵¹ Issues arise when the surety and the party who sought the assurance have a close relationship. A corporate guarantee by a self-interested corporation (i.e. a parent company) carries significant risks, not the least of which is the prospect of insolvency of the surety and the obligor.⁵²

Corporate surety bonds are effective and easy for agencies to monitor since the onus of financial loss falls upon the surety.⁵³ It is the surety that

45. William T. Gorton III & W. Blaine Early III, *Environmental/Reclamation Financial Assurances: Back To The Future*, ROCKY MOUNTAIN MINERAL LAW INST. (2010), https://www.bestlawyers.com/Content/Downloads/Articles/2266_1.pdf.

46. *Id.*

47. *Id.* (“The surety relationship is a three-party relationship wherein the surety can seek reimbursement from the principal for amounts paid due to the principal’s default.”).

48. *Id.*

49. Environmental insurance is viewed as a means of calculated risk. Insurance is a two-party contract; whereby, the risk is spread amongst other insured. Should the insurer’s obligation arise under the contract, the insurance company pays without recourse against the insured.

50. *Id.*

51. *Id.*

52. See Boyd, *supra* note 25, at 2, 20 (stating that a parent company may guarantee the coverage for another firm via an indemnity agreement).

53. Gorton & Early, *supra* note 45.

must consistently monitor the financial health of the principal and who bares the risk of a potential default by an insolvent principal.⁵⁴ Subsequently, surety bonds may not necessarily be available to all principals depending upon the creditworthiness of the principal and the surety's threshold for risk.

B. LETTERS OF CREDIT

A financial institution is the entity who holds the title of "issuer" on behalf of the private company as the "applicant."⁵⁵ The letter of credit is extended to the third-party agency as the "beneficiary," who can request payment in the form of a "draw" pursuant to the underlying agreement between the applicant and beneficiary.⁵⁶ The issuer must honor a beneficiary's draw request, as long as the letter of credit has not expired.⁵⁷ The issuer will often require an annual fee to be paid along with indemnification and/or a security interest.⁵⁸

C. BOND POOLS

Bond pools come in a variety of forms. These can be offered as an alternative to individual financial assurance (alternative bonding mechanism) or as a general safety net should there be any individual permittee reclamation shortfalls in a state.⁵⁹ As an alternative bonding mechanism, a state may operate a bond pool as an alternative to a traditional surety relationship.⁶⁰ A company's participation may be voluntary, but the state may only approve applicants who meet certain ongoing qualifications or are limited to those companies who have a proven record in the state.⁶¹ This pooling of

54. *Id.*

55. *Id.*

56. *Id.*

57. *Id.*

58. *Id.*

59. Gregory E. Conrad, *Mine Reclamation Bonding – From Dilemma to Crisis to Reinvention: What's a State Regulator to Do* 11 (2014), <http://www.imcc.isa.us/EMLF%20Bonding%20Presentation%20Final.pdf>; see, e.g., KY. REV. STAT. ANN. § 350.503 (West 2017) (establishing the Kentucky Reclamation Guaranty Fund to help cover reclamation shortfalls within the state as a result of forfeitures or abandonment).

60. See, e.g., Conrad, *supra* note 59, at 12 (citing OHIO REV. CODE ANN. § 1513.08(C) (West 2017)) (stipulating that in Ohio an entity can either file a performance bond on its own or in conjunction with the reclamation forfeiture fund).

61. See, e.g., *id.* (citing OHIO REV. CODE ANN. § 1513.08(C)(2) (West 2017)) (providing that only companies that have a record of performance within the State of Ohio of at least five years can use the reclamation fund for bonding purposes).

resources is similar to how municipalities raise capital.⁶² Issues can arise when a company's liabilities exceed or require too much of the bond pool, thus preventing the pool's ability to cover any other liabilities of the other participating companies.⁶³ This form of bonding is financed through set pay-ins by participating bond members that are often at reduced rates than other traditional suretyship arrangements.⁶⁴

Bond pools can also be used as an ex post safety fund to cover the costs of any outstanding remedial obligations.⁶⁵ In this way, the pool is not the primary means of assurance but is used as an additional source of funds should the need arise.⁶⁶ A state usually funds bond pools through a tax on material extracted, set fees, or through collecting penalties from entities.⁶⁷ In an industry wide downturn, these bond pools can be susceptible if participants make multiple claims in a short time period.⁶⁸

D. INSURANCE

Be it optional or mandatory insurance, the use of a contractual relationship between an operator and an insurer is exclusive to the contracting parties.⁶⁹ Environmental insurance has the benefit of shifting the liability for environmental costs to a private entity, the insurer, along with the burden of monitoring operator compliance.⁷⁰ Since private insurers make a business decision in assessing risk-loss and setting premiums, the use of insurance has been deemed more of a "market approach."⁷¹ However, the cost of at-

62. Municipalities mainly use bond pools together with other municipalities that share in the capital raised by the bonds. A bond pool allows smaller municipalities with low borrowing requirements to reduce their underwriting expenses and interest rates by joining in with other municipalities. THE FREE DICTIONARY BY FARLEX, <https://financial-dictionary.thefreedictionary.com/bond+pool> (last visited Nov. 8, 2017).

63. Conrad, *supra* note 59, at 11.

64. *See id.* at 12 (citing OHIO REV. CODE ANN. § 1513.08(C)(2) (West 2017)) (commenting that companies that use the reclamation fund as part of their bonding only have to pay \$2500 per acre as part of its performance bond).

65. *Id.* at 11.

66. *Id.*

67. *Id.* at 12 (citing OHIO REV. CODE ANN. § 1513.18(A)-(B) (West 2017)).

68. *See id.* (remarking that a long-term treatment of unanticipated acid mine drainage could bankrupt the entire pool and often does).

69. *See Boyd, supra* note 25, at 17-18 (stating that "the insurer promises to compensate the purchaser for claims covered in the insurance contract").

70. *See Dana & Wiseman, supra* note 5, at 1565 (discussing how insurers have a strong incentive to reduce liabilities and monitor what the insured is doing).

71. *Id.* at 1562-63.

taining insurance can be high, if not cost prohibitive, in many circumstances.

E. TRUST FUNDS

Trusts can be utilized to provide a more flexible means of environmental reclamation. Here, a private company, as the “settlor” creates and funds a trust for the benefit of the agency who should be the only “beneficiary.”⁷² A third party acts as the “trustee” who manages the trust corpus pursuant to the trust instrument that must comply with the requirements established by the beneficiary.⁷³ The trust can hold diverse property interests and an operator can add additional funds based upon the expansion of an operator’s activities.⁷⁴ Trusts also have the ability to generate interest or income on the contributions, thereby allowing those monies to be used in a variety of ways.⁷⁵ The trust terminates and its assets or corpus are returned to the business (settlor) upon satisfactory reclamation or pursuant to the terms of the trust instrument itself.⁷⁶ Monies can even be returned incrementally over time based upon stages of completed obligations.⁷⁷ The number and dollar figure of the contributions depend upon the trust instrument itself, but should be monitored so the accumulated dollar figure is enough to cover costs of existing reclamation and projected future costs.⁷⁸ When a business has failed to make consistent contributions pursuant to the trust instrument or the contribution dollar figures are not enough to cover the potential long-term liabilities, a business’s insolvency can result in unreclaimed properties.⁷⁹ Further, issues arise when the business acts as the trustee itself.⁸⁰ In such scenarios, the trust mechanism may not be so transparent leaving open more chance of an underfunded or mismanaged trust.⁸¹ As long as the adverse environmental effects can be abated, then the trust will exist, and any

72. Boyd, *supra* note 25, at 19; *see also* Conrad *supra* note 59, at 5 (laying out how the trust fund works).

73. Boyd, *supra* note 25, at 19; *see also* Conrad *supra* note 59, at 5.

74. Conrad *supra* note 59, at 5.

75. *Id.*

76. Boyd, *supra* note 25, at 19.

77. *See id.* (referencing the fact that “[t]he trust agreement . . . specifies the conditions under which trust monies are paid out”).

78. *Id.*

79. *See id.* (stating that “[i]t is essential that regulators [will need to] monitor payments into the trust”).

80. *Id.* This situation is sometimes referred to as a “first party trust.” *Id.*

81. *See id.* (indicating that the firm’s ability to alter the trust or access its funds must be restricted).

excess funds can also be released to the settlor.⁸² A trust also has the added benefit of growing in value with proper management.

F. SELF-BONDING

Self-bonding allows a private entity to assure that it will meet its future reclamation responsibilities by relying upon its own financial position.⁸³ If the private operator cannot fulfill its reclamation responsibilities due to a loss of its financial value, agency regulators have no recourse against the operator.⁸⁴ Such a loss in value often manifests itself when the company files for bankruptcy.⁸⁵ Self-bonding not only requires the agency to assess the financial integrity of the private entity initially but also to continually monitor the entity's financial position until their reclamation efforts have concluded.⁸⁶ This presents multiple issues.

Regulating agencies are not equipped to make corporate valuations or engage in continued monitoring of the financial health of private entities; thus, the agency must take the private entity at its word.⁸⁷ This is magnified by the fact that many mining activities are commodity-based and subject to significant market swings.⁸⁸ Additionally, if a private entity's financial position becomes dire before completing its reclamation obligations, then any agency action to require more tangible assurance may push the private entity further down the road of insolvency and ensure the entity's failure to make any reclamation.⁸⁹

Issues of self-bonding are amplified when the operator seeking approval to self-bond utilizes the financial standing of an affiliated entity, thus creating a tower of cards.⁹⁰ When one card is removed, the most valuable card in this context, then an entire corporate organization, a parent company, its

82. See Conrad, *supra* note 59, at 6-7 (declaring that one of the issues that decision-makers need to make is what to do with the fund excesses).

83. Gorton & Early, *supra* note 45; see also Conrad, *supra* note 59, at 8 (providing that self-bonding allows a company to use its "financial strength to provide assurance" to meet its future environmental obligations).

84. Gorton & Early, *supra* note 45; see also Conrad, *supra* note 59, at 8-9 (declaring that of particular concern are companies with self-bonding obligations that are in financial difficulty).

85. Conrad, *supra* note 59, at 10 (citing Brancard & Leach, *supra* note 44).

86. Gorton & Early, *supra* note 45; see also Conrad, *supra* note 59, at 8-9 (mentioning that agencies must oversee self-bonded entities and have such expertise on its staff).

87. Gorton & Early, *supra* note 45.

88. See Conrad, *supra* note 59, at 9 (elaborating upon the fact that coal is going through a downturn "due to fuel switching or expanded regulatory requirements").

89. *Id.* at 8-9.

90. See *id.* at 8 (referring to the fact that most guarantors are "another corporate entity within the family tree of the company seeking to self-bond").

subsidiaries, and its affiliated entities, are vulnerable to insolvency. The borrowing of balance sheets amongst these entities only compounds the potential harm from the use of self-bonding.⁹¹

Self-bonding does allow a lower barrier to entry for operators who already face significant upfront infrastructure spending or may not be able to find another means of assuring performance as described above. However, allowing larger entities to self-bond and not smaller entities could act as a barrier to entry. Self-bonding is not uniformly permitted amongst activities that require environmental reclamation.⁹² In light of the many issues that exist with self-bonding, a migration away from this form of assurance is advisable.

IV. SURFACE COAL MINING

Surface coal mining has a significant impact upon the environment. Subsequently, it often invokes more attention than other activities that also involve the extraction of natural resources. However, coal, like any other natural resource, is a commodity.⁹³ As a whole, commodities are generally more susceptible to market fluctuations than other industry sectors.⁹⁴ The lack of product diversification contributes to this volatility and the higher chance of insolvency for those businesses engaged in these industries.⁹⁵ Subsequently, when one of these industry participants pledges its own assets for financial assurance one day, the entity may fall below the minimum regulatory standards or worse the next day.⁹⁶ As evidenced by the coal in-

91. *See id.* at 8-9 (discussing how some states are now only allowing self-bonding by a third-party guarantee that does not come from within the same corporate family tree as the company seeking the permit).

92. *Cf.* at 7-8 (providing that eleven states allow for the use of self-bonding; whereas, the federal government does not allow for it).

93. Int'l Energy Agency, Int'l Energy Forum, Int'l Monetary Fund, & Org. of the Petroleum Exporting Countries, *Extending the G20 Work on Oil Price Volatility to Coal and Gas* 33 (2011), available at https://www.iea.org/media/g20/5_2011_Extending_the_G20_Work_on_Oil_price_Volatility_to_Coal_and_Gas.pdf.

94. *See id.* at 3-6 (studying the causes behind price volatility in the oil, coal, and natural gas markets specifically).

95. JAYNI FOLEY HEIN ET AL., INSTITUTE FOR POLICY INTEGRITY, SELF-BONDING IN AN ERA OF COAL BANKRUPTCY 3 (2016), http://policyintegrity.org/files/publications/Coal_Self-Bonding_Report.pdf (calling coal companies “undiversified”); *see also* Andy Roberts, *Future of Energy: The Dilemma of Coal*, VERISK, <https://www.verisk.com/verisk-review/summer-2016/future-of-energy-the-dilemma-of-coal/> (last visited Nov. 8, 2017) (pontificating on the need for coal producers to try diversification as a survival strategy).

96. Conrad, *supra* note 59, at 8-9 (examining the situation involving a company that self-bonds that then experiences financial difficulties that makes the company insolvent).

dustry, when a particular industry has undergone consolidation and the resulting fewer actors have higher debt loads, devaluation of the primary product will have a cascading affect across an entire industry.⁹⁷ The industry often takes on a “too big to fail” persona that comes at the cost of environmental reclamation. Insolvency of one company can be difficult, but when an entire market sector faces bankruptcy, the result could be disastrous. This unfortunate chain of events necessitates an evaluation of the existing environmental assurance mechanism.

A. SURFACE MINING CONTROL AND RECLAMATION ACT (“SMCRA”)

The Surface Mining Control and Reclamation Act of 1977 (“SMCRA”), was passed in response to concerns over the adverse impacts of coal mining activities.⁹⁸ SMCRA created the Office of Surface Mining Reclamation and Enforcement (“OSMRE”) to ensure effective reclamation.⁹⁹ OSMRE is the regulatory authority responsible for administering regulations that comply with SMCRA.¹⁰⁰ Although OSMRE is the primary regulatory agency responsible for regulating surface mining and reclamation, states and Indian tribes can be approved by OSMRE to issue permits and enforce their own regulations.¹⁰¹ This sharing of responsibility, by which a federal act establishes minimum requirements and delegates regulatory authority to the states, is commonly referred to as “cooperative federalism.”¹⁰² Before a state or Indian tribe can be approved as the primary regulatory entity, they must demonstrate that their regulatory plans comply with SMCRA and the rules issued by OSMRE.¹⁰³ Twenty-four states have pri-

97. Charles Kolstad, *What Is Killing the US Coal Industry*, STANFORD INSTITUTE FOR ECONOMIC POLICY RESEARCH (2017), <https://siepr.stanford.edu/research/publications/what-killing-us-coal-industry> (stipulating that one of the reasons coal is dying is due to the drop in natural gas prices and thus making coal more expensive and decreasing demand for it); *see also* Roberts, *supra* note 95 (reviewing the current coal market and how depressed coal prices are affecting it).

98. *See* Surface Mining Control and Reclamation Act of 1977 §101(d), 30 U.S.C. § 1201(d) (1977) (mentioning that due to “the expansion of coal mining to meet the [n]ation’s energy needs makes even more urgent the establishment of appropriate standards to minimize damage to the environment”).

99. *See id.* §§ 1211, 1265 (requiring that “[t]he Secretary, acting through the [o]ffice, shall administer the programs for controlling surface coal mining operations”).

100. *See id.* (dictating that the Secretary through the Office is the person who must administer the programs in this chapter).

101. *Id.* § 1253.

102. *Bragg v. W. Va. Coal Ass’n*, 248 F.3d 275, 288 (4th Cir. 2001) (citing H.R. Rep. No. 95-218, at 57 (1977), reprinted in 1977 U.S.C.C.A.N 593, 595).

103. 30 U.S.C. § 1253.

macy responsibility and at the time this Article was written, nineteen of these states allow for self-bonding.¹⁰⁴ For those states that do not seek primacy responsibility and any mining operations on federal land, OSMRE retains primary responsibility. OSMRE regularly evaluates state primacy programs regarding their administration, implementation, and maintenance of approved regulatory programs.¹⁰⁵

SMCRA also created the Abandoned Mine Land Trust Fund (“AML”) to reclaim abandoned or inadequately reclaimed mined areas existing prior to 1977.¹⁰⁶ The AML is funded through a reclamation fee on underground and surface coal mining.¹⁰⁷ Originally, the fees were set at \$0.35 per ton of surface mined coal and \$0.15 per ton of coal extracted from underground mines.¹⁰⁸ These fees were reduced ten percent in 2008 to \$0.315 and \$0.135 per ton respectively.¹⁰⁹ The most recent reauthorization of SMCRA further reduced the original fees in 2013 by twenty percent to \$0.28 per ton of surface mined coal and \$0.12 per ton of coal mined from underground.¹¹⁰ OSMRE collects these fees and distributes the monies through grants to states with Abandoned Mine Reclamation Programs.¹¹¹

The purpose of SMCRA is to strike a balance between the economic interests of coal and its use as an energy source while also protecting the public and environment.¹¹² To achieve these ends, an operator must first submit a reclamation plan as a part of its permit application to the regulatory agency for approval.¹¹³ The reclamation plan must identify the lands

104. Office of Surface Mining Reclamation and Enforcement, Regulating Coal Mines, <https://www.osmre.gov/programs/rcm.shtm> (last visited Aug. 12, 2017). States with primacy include: Alabama, Alaska, Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Montana, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, Texas, Utah, Virginia, West Virginia, and Wyoming. *Id.*

105. 30 C.F.R. §§ 733.11-12 (2016).

106. Abandoned Mine Land Trust Fund, 30 U.S.C. §§ 1231(a)-(c), <http://epcamr.org/home/content/legislative-front-and-petitions/abandoned-mine-land-trust-fund/> (last visited Jan. 16, 2017) (“Since 1977 \$3.9 [billion] has been spent on the construction of completed reclamation projects. . . . [A]n estimated, outstanding \$9.8 [billion] required to reclaim remaining coal[-]related AML areas.”).

107. 30 U.S.C. §§ 1231(b); Abandoned Mine Land Funding, <http://www.dep.pa.gov/Business/Land/Mining/AbandonedMineReclamation/AMLProgramInformation/Pages/AMLFunding.aspx> (last visited Jan. 16, 2017).

108. Surface Mining Control Reclamation Act of 1977, Pub. L. No. 95-87, § 402(a), 91 Stat. 445, 457 (1977); Abandoned Mine Land Funding, *supra* note 107.

109. The SMCRA Amendments Act of 2006, Pub. L. No. 109-432, § 402(a) (2006); Abandoned Mine Land Funding, *supra* note 107.

110. 30 U.S.C. § 1232(a).

111. § 1232(g).

112. § 1202(f).

113. § 1257(d).

subject to the mining operations, existing conditions of the lands, proposed use of the land following reclamation, engineering techniques used in the mining and reclamation process, and other considerations.¹¹⁴ If reclamation is impossible, then no permit can be granted.¹¹⁵ However, the lands do not have to be restored to the same state these were in before the mining operation.¹¹⁶

After the responsible regulatory agency grants the permit, but before it is issued, the operator must submit a performance bond as financial assurance.¹¹⁷ The responsible regulatory agency must approve the reclamation bond in its dollar figure and form before the permit is issued.¹¹⁸ The government requires financial assurance from the operators to guarantee that the government will be able to cover the costs of the reclamation efforts laid out in the reclamation plan should the operator not do so.¹¹⁹ The regulating agency ultimately determines the dollar figure of the reclamation bond.¹²⁰ This determination depends upon the requirements of the approved reclamation plan and the probable difficulty in reclaiming the permitted area considering “such factors as topography, geology, hydrology, and revegetation potential.”¹²¹ No one permit for an entire area shall be issued for a bond of less than \$10,000.¹²² Although the dollar figure of the bond may be based upon the estimate made by the mining applicant, it is not limited to just the applicant’s projections.¹²³ The estimated cost of reclamation by the agency would often exceed the costs of the mining permittee given that the agency would have to hire a contractor who would not have the benefit of any existing equipment onsite or the familiarity of the site itself.¹²⁴ Moreo-

114. § 1258(a).

115. *See* § 1260(b)(2) (requiring that the applicant prove that reclamation can be accomplished).

116. *See* 30 U.S.C. § 1258(a)(3) (mentioning that the permit application must disclose what the purpose of the land will be after reclamation including alternative uses for the reclaimed land and how it fits in with current land use policies and plans).

117. § 1259(a); L. Thomas Galloway & Thomas J. FitzGerald, *The Bonding Program Under the 1977 Surface Mining Control and Reclamation Act: Chaos in the Coalfields*, 89 W. VA. L. REV. 675, 678 (1987) (“The requirement of a performance bond for each operation permitted under the 1977 Act was thought by Congress to be a pivotal component of a nationwide program to control the impacts of mining activities.”).

118. 30 U.S.C. § 1259(a).

119. *Id.*

120. *Id.*; 30 C.F.R. § 800.14(a)(1) (2017).

121. 30 U.S.C. § 1259(a); 30 C.F.R. § 800.14(a)(2)-(3).

122. 30 U.S.C. § 1259(a).

123. 30 C.F.R. § 800.14(a)(3).

124. COAL MINE CLOSURE, RECLAMATION AND FINANCIAL ASSURANCE, 2009 No. 4 RRMLF-Inst. Paper No. 7.

ver, an operator's estimates for reclamation will be far less than that of the actual costs borne by the state given the added administrative expenses associated with selecting and contracting with another entity.

Instead of posting a single bond to cover all initial and projected operations in a particular area, mining permittees may opt for cumulative or incremental bonding as a more cost-effective approach.¹²⁵ Cumulative bonding involves the posting of a bond to cover the initial areas to be disturbed; and as the operations grow to encompass a larger area, the bond is increased as well.¹²⁶ Incremental bonding utilizes a series of separate bonds based upon a phased completion schedule.¹²⁷ These approaches are more cost effective because the mining operator is able to decrease the initial cost burden associated with bonding and initiating operations. Regardless of the approach taken, the regulatory authority is responsible for periodic review of posted bonds and can adjust the dollar figure of the bond to reflect when the "affected land acreages are increased or decreased, or where the cost of future reclamation changes."¹²⁸

A mining permittee may assign or otherwise transfer their rights granted under a mining permit pursuant to written regulatory approval.¹²⁹ A mining company remains liable on their bond for the extent of the permitted mining and reclamation efforts, including any revegetation requirements under SMCRA.¹³⁰ A mining company remains liable for a former mine after the operator's reclamation work is complete for a minimum period of time.¹³¹ A performance bond may also be released in phases depending upon the progression of an applicant's reclamation efforts.¹³²

If a regulating agency finds the mining permittee in noncompliance through refusal or inability to reclaim, violates the terms of the permit, or defaults on the conditions under which the permit was granted, then the operator will forfeit its bond.¹³³ The responsible regulatory authority then must begin procedures for the forfeiture of part of or the whole performance

125. 30 U.S.C. § 1259(a) & (c); 30 C.F.R. § 800.11(d).

126. 30 C.F.R. §§ 800.11(b), (d).

127. *Id.*

128. 30 U.S.C. § 1259(e) (2012).

129. § 1261(b).

130. § 1259(b).

131. *E.g.*, 312 IND. ADMIN. CODE 25-5-7 (2017) (extending liability past when the reclamation work is completed); N.M. STAT. ANN. § 69.25A-19(B)(20) (2017) (extending the limit for liability for five full years or ten full years depending on the average annual amount of precipitation in that area).

132. 30 U.S.C. § 1269(c); 30 C.F.R. § 800.40(a).

133. 30 C.F.R. § 800.50(a).

bond and takes the appropriate steps to apply such proceeds to the reclamation of the permitted area.¹³⁴ In the event that the bond is insufficient to cover the costs of the permitted reclamation, the regulatory authority may recover from the permittee any costs in excess of the forfeited bond.¹³⁵

B. FINANCIAL ASSURANCE MECHANISMS UNDER SMCRA

SMCRA permits the use of surety bonds, collateral bonds, self-bonding, or a combination of these performance bond forms.¹³⁶ Each state is permitted to set its own bonding standards. This has led to some differences amongst the states. Despite these differences, common issues necessitate a re-evaluation of certain financial assurance practices.

1. *Surety Bonds*

As described above, a coal mining company executes a surety bond with a private entity to assure environmental reclamation. The surety bond is an indemnity agreement that is made payable to the regulatory authority should the coal mining company not satisfy its reclamation obligations.¹³⁷ These surety bonds are non-cancellable during its terms for lands that are being disturbed.¹³⁸ The surety must be licensed to do business in the state of the mining operation.¹³⁹ Sureties must not only comply with agency regulations but also must follow state law where the mine is being operated as it concerns commercial principles, contracts, property, surety, and any other state regulatory interests involving mining.¹⁴⁰

To attain a surety bond, a coal mining permittee must pay a premium that is “calculated as a percentage of the bond amount and is not directly related to the risk of loss or damage resulting from mining operations.”¹⁴¹ In calculating the premium dollar figure, the issuing corporate surety may take

134. § 800.50(b).

135. § 800.50(d).

136. 30 U.S.C. §§ 1259(b), (c); 30 C.F.R. § 800.12(a)(1)-(4).

137. 30 C.F.R. § 800.5.

138. § 800.20(b).

139. § 800.5.

140. Lynn Schubert, *Q & A: The Legal Basics of Surety Bonds*, CONSTRUCTION EXECUTIVE, 48, (Nov. 2003), https://suretyinfo.org/news_room/products/legal_basics.pdf (referring to the fact that “surety bonds . . . are risk-transfer mechanisms regulated by state insurance departments”); see, e.g., Office of Surface Mining Reclamation and Enforcement, U.S. Dep’t of the Interior, Reclamation Performance Bonds, <https://www.osmre.gov/resources/bonds/bondsoverview.shtm> (last visited on Nov. 9, 2017) (explaining that the surety company must be licensed in the state where the operation is located).

141. COAL MINE CLOSURE, *supra* note 124.

into account the “permittee’s credit rating and financial condition.”¹⁴² The corporate surety may require an annual fee to maintain the bond.¹⁴³ The corporate surety may also require contractual assurances from the mining permittee that the mining permittee is legally obligated to the corporate surety for any monies the surety must pay out on the permittee’s behalf.¹⁴⁴

The availability and use of surety bonds in the surface mining industry appears to be declining. This decline is probably due to the length of time necessary to complete all phases of the reclamation process, especially the final revegetation phase. Additionally, the bonds are non-cancellable for the duration of the reclamation process.¹⁴⁵ This process has become more complicated with the addition of the long-term treatment obligations involving water quality issues like acid mine drainage (AMD) and the presence of selenium.¹⁴⁶ Surety bonds were traditionally utilized for short-term projects with defined release dates and do not necessarily lend themselves to the potential ongoing liabilities associated with water quality issues.¹⁴⁷ Since the bonds are non-cancellable for an unfixed time depending on reclamation, the bonds may never be released.¹⁴⁸ Surety bonds are often thought of as a credit instrument without a risk of loss. Moreover, the surety industry correctly perceives a longer reclamation process as a financial risk that may best be avoided by not acting as a surety.¹⁴⁹ Subsequently, the mining industry is effectively a mechanism for financial assurance.

2. Collateral Bonds

Collateral bonding under SMCRA involves the deposit of something of value with the regulatory authority or made payable to the regulatory au-

142. *Id.*

143. *Id.*

144. *Id.*

145. 30 C.F.R. § 800.20(b) (2017).

146. *See* 30 C.F.R. § 780.21(a)(1) (2017) (requiring that permit applications require a hydrological reclamation plan).

147. Conrad, *supra* note 59, at 4-5; *see also* Foreword to Restatement (Third) of the Law: Security and Suretyship and Guaranty (describing traditional suretyship as bonds for construction projects and bonds for financial transactions involving extensions of credit); *see also* Schubert, *supra* note 140, at 48 (reiterating that most public works projects and some private construction projects require sureties).

148. § 800.20(b).

149. Conrad, *supra* note 59, at 4-5; *see also* Duke Revard, *4 Fast Facts About Reclamation Bonds*, SURETY SOLUTIONS (Aug. 24, 2017), <http://blog.suretysolutions.com/suretynews/4-fast-facts-about-reclamation-bonds> (stating that fact number four to know is that mining projects can go on for a very long time as opposed to constructions projects that may be completed within months or years).

thority upon demand.¹⁵⁰ These deposits can take on a variety of forms such as cash deposits, endorsed government bonds, negotiable certificates of deposit, irrevocable letters of credit, perfected security interest in real property, or other investment grade securities.¹⁵¹ Except for credit, cash accounts, and real property, the posted collateral is valued at its current market value and not necessarily its face value.¹⁵²

If real property is used as a collateral bond, then the permittee must grant the regulatory authority a perfected first lien security interest in the property that enables the regulatory authority to sell the property should there be a forfeiture.¹⁵³ The fair market value of the real property must be determined by a certified appraiser and can include land covered by the permit as long as it is not disturbed under any permit while it is acting as collateral.¹⁵⁴ The posted bond value can be reevaluated at any time and subsequently increased or decreased if necessary by the regulatory authority.¹⁵⁵ The posted collateral should also be sufficient to cover the legal and liquidation fees, value depreciation, marketability, and fluctuations that could affect the money available for the regulatory authority to complete any reclamation.¹⁵⁶

Collateral bonds, regardless of the form, tie up assets that may be necessary to fund mining activities or that could be used for reclamation. As collateral, these securities cannot be leveraged to meet other liquidity needs of a mining operation. Because of this, collateral bonding may only be available to a select group of mining companies.

3. *Trust Funds*

The use of a trust provides an appealing alternative to traditional bonding mechanisms. As discussed above, sureties might be hesitant to involve themselves with a bond when it might not be released very quickly given the extent of the excavation and potential long-term liability. An environmental trust can allow for the continued long-term treatment of mine sites without involving a credit instrument. Additionally, trusts enable contributed assets to grow or at least avoid loss due to inevitable inflation unlike as-

150. 30 C.F.R. § 800.5(1) (2017).

151. § 800.5(1)–(6).

152. § 800.21(a).

153. § 800.21(c)(1).

154. § 800.21(c).

155. § 800.21(e)(2).

156. § 800.21(e)(1).

insurance bonds. If the trusts are managed by a private trustee, the trust might be able to generate greater returns than those managed by a governmental entity.

The terms of the trusts can be negotiated with the mining company to permit gradual contributions and an overall more cost-effective means of assurance.¹⁵⁷ These negotiations culminate in a consent order and an agreement between the mining company, the private trustee, and the governmental agency who becomes the irrevocable beneficiary.¹⁵⁸ The agreement is used as the basis of the trust instrument itself.¹⁵⁹ The private trustee is subject to approval by all parties.¹⁶⁰ A trust may hold cash, real property, securities, certificates of deposit, or any other interest.¹⁶¹ Trusts can also be assigned bond proceeds and structured to work in concert with other assurance mechanisms.¹⁶²

The obvious issues associated with utilizing a trust are setting the parameters for asset investment that limit risk and provide for appreciation, contribution schedules, trustee selection, fees limitations, and potential tax consequences associated with the operation of a trust. The tax issue could be addressed as a means of incentivizing the use of environmental assurance trusts. For example, nontaxable charitable trusts can be created, thus income from the trust will not be taxed. Otherwise, the trust instrument can specify that the permittee is responsible for any of the trusts earnings. Trustees can be compensated from the trust itself and can be required to provide quarterly or even monthly statements regarding trust balances and activity. Another drawback of trusts is the necessary contribution of the mining company initially and continued contributions with each phase of their operations. Even accounting for long-term treatment of the water quality due to AMD and other pollutants, these contributions can be tiered given the time value of money. However, the contribution schedule is important because if a permittee does not follow through on their reclamation obligations, only the monies that have already been transferred along with any ac-

157. Gorton & Early, *supra* note 45; *see also* Conrad, *supra* note 59, at 5 (providing that “[t]he operator, agency[,] and account manager will enter into an agreement specifying the management of the account and the investment and distribution of funds”).

158. Conrad, *supra* note 59, at 5.

159. *Id.*

160. *Id.*

161. Gorton & Early, *supra* note 45; *see also* Conrad, *supra* note 59, at 6 (stating that one of the questions that will need an answer is what is the “best mix of investment vehicles” in the trust).

162. *See id.* (mentioning that multiple financial instruments can constitute the trust).

cumulated interest will be available. When traditional bonding mechanisms involve an irrevocable transfer of monies to secure assurance, it is only a small fraction of what is required. A trust requires a larger sum upfront, although it can be returned upon environmental satisfaction. This can be addressed through the trust initially accepting a bond or even offering a bond in conjunction with the trust mechanism itself. The bonds can then be released based upon the agreed stages of reclamation. Trusts naturally favor larger mining operations with multiple excavation sites because these can be organized under a single trust and take advantage of the benefits of larger sums of money through decreased trust fees and ease of future mining permitting if the monies were allowed to automatically reinvest. However, smaller permittees can pool their monies to be collectively managed in a single trust and also take advantage of decreased fees.

The use of trusts for mining reclamation is not new.¹⁶³ However, regulatory authorities should promote and expand the use of trusts as a means of financial assurance. Trusts can be a viable method to accomplish environmental reclamation given existing drawbacks such as the unavailability of traditional mechanisms, insolvencies, and long-term treatment ineffectiveness.

4. *Bond Pools*

The use of bond pools as a means of sole financial assurance is problematic. Often, these bond pools take in less money than is necessary to fund adequate reclamation activities. If one mine site requires long-term reclamation, a significant portion of the fund may be lost. This would compromise the integrity of the entire fund and leave it susceptible when there are multiple mine forfeitures within a short time period. In many states, participation is open to any company but subject to approval based upon applicants past experience, financial health, and reclamation record.¹⁶⁴ For example, Ohio's alternative bonding system requires companies with less than five years of mining history in its state to post a full cost bond, but

163. CLEAN STREAMS FOUNDATION, INC., <http://www.cleanstreams.net/home> (last visited Oct. 26, 2017) (serving as a trustee for funds that provide environmental reclamation services from the assets of these trusts).

164. *See, e.g.*, OHIO REV. CODE ANN. § 1513.08(C)(2) (West 2017) (only allowing companies that have operated mines within the state for at least five years to be able to participate in the bond pool).

those who meet this five-year mark can opt for either the full cost bond or bond pool.¹⁶⁵

However, the use of a pooled source of monies that could be tapped only in emergency situations as a last resort could be an effective safety net. For example, West Virginia has a Special Reclamation Fund (SRF) that steps in to reclaim properties and water from mine sites where the operator has filed for bankruptcy or abandoned the site.¹⁶⁶ The SRF is charged with the reclamation of mines permitted since August 1977 and is funded through forfeited bond collections, civil penalties, and the Special Reclamation Tax on mined coal.¹⁶⁷ Bond pools should be looked to as an accompaniment to trust funds or another assurance mechanism that is for the total cost of reclamation. A group of companies could be part of a bond pool to cover the costs of any reclamation shortfalls within a state's boundaries or to cover the costs of any reclamation should a permittee fail to perform any of its reclamation responsibilities.

5. *Self-Bonding*

SMCRA also permits a mining company to pledge their own security as assurance for reclamation. Of the nineteen "primacy" states that permit the use of self-bonding, only ten have existing self-bonded permits.¹⁶⁸ Five of the states that enjoy "primacy" do not permit the use of self-bonds in their state.¹⁶⁹ Unlike some states, the Bureau of Land Management

165. *Id.*

166. W. VA. CODE § 22-3-11(g) (7).

167. W. VA. CODE §§ 22-3-11(g), 3-11(i), 3-17(b), 3-17(d)(1)(B) (7).

168. ALA. CODE § 9-16-89(c) (2017); ALASKA STAT. § 27.21.160(d) (2017); ARK. CODE ANN. § 15-58-509 (2017); COLO. REV. STAT. § 34-33-113(3) (2017); 225 ILL. COMP. STAT. 720/6.01(b) (2017); IND. CODE § 14-34-6-5(b) (2017); IOWA CODE § 207.10(2) (2017); LA. STAT. ANN. § 30:909(C) (2017); MISS. CODE ANN. § 53-9-31(C) (2017); MO. REV. STAT. § 444.830(3) (2017); N.M. STAT. ANN. § 69-25A-13(C) (2017); N.D. CENT. CODE §§ 38-14.1-13, 38-14.1-16 (2017); OHIO REV. CODE ANN. § 1513.08(H) (2017); OKLA. STAT. tit. 45, § 745.6(E) (2017); PA. CONS. STAT. § 3309(g) (2017); TEX. NAT. RES. CODE ANN. §§ 134.121, 134.123 (West 2017); UTAH CODE ANN. § 40-10-15(3) (West 2017); W. VA. CODE § 22-3-11(d) (2017); WYO. STAT. ANN. § 35-11-417(d) (2017); *see generally* OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT, *Self-Bonding Facts*, <https://www.osmre.gov/resources/selfBonding.shtml> (last visited Oct. 26, 2017) (mentioning that only Colorado, Illinois, Indiana, Missouri, Navajo Nation, New Mexico, North Dakota, Texas, Virginia, West Virginia, and Wyoming currently have self-bonded mining permits).

169. OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT, *supra* note 168 (mentioning that Kansas, Kentucky, Maryland, Montana, and Virginia do not allow for self-bonding).

(“BLM”) has not permitted the use of new self-bonding or corporate guarantees since 2000.¹⁷⁰

A private entity may become self-bonded if they “demonstrate[] to the satisfaction of the regulatory authority the existence of a suitable agent to receive service of process and a history of financial solvency and continuous operation sufficient for authorization to self-insure or bond such amount[.]”¹⁷¹ OSMRE permits the regulatory authority, be it a federal or state agency, to allow for self-bonding as long as the applicant has been in continuous operation for at least five years, designates an agent to receive process in the state of mining, provides evidence of financial solvency, and submits certain financial statements.¹⁷² Financial solvency must be proven through a credit rating of A or higher for its most recent bond issuance.¹⁷³ It can also be proven by a net worth of at least \$10 million with a ratio of total liabilities to net worth of 2.5 times or less along with a ratio of current assets to current liabilities of at least 1.2 times.¹⁷⁴ Lastly, it can also be proven as having fixed assets in the United States of at least \$20 million with a ratio of total liabilities to net worth of 2.5 times or less along with a ratio of current assets to current liabilities of at least 1.2 times.¹⁷⁵ The applicant must submit financial statements completed for the most recent fiscal year along with an unaudited financial statement for the current fiscal year and any other financial information the appropriate regulatory authority requests.¹⁷⁶ Additionally, the regulatory authority would accept a written guarantee (“corporate guarantee”) from an applicant’s parent company, or any guarantor (“non-parent corporate guarantee”), meeting these same requirements.¹⁷⁷ These corporate guarantees often come from essentially the same business family.¹⁷⁸

Many of the large coal companies were permitted to self-bond through their subsidiaries despite the fact the parent company would not qualify un-

170. See 43 C.F.R. § 3809.555 (2016) (providing an exclusive list of acceptable financial assurance mechanisms and self-bonding nor guarantees are among those on the list).

171. 30 U.S.C. § 1259(c) (2017).

172. 30 C.F.R. § 800.23(b) (2016).

173. § 800.23(b)(3)(i).

174. § 800.23(b)(3)(ii).

175. § 800.23(b)(3)(iii).

176. § 800.23(b)(4).

177. § 800.23(c).

178. See 30 C.F.R. § 800.23 (2016). It should be noted that mining companies look to the layering of mining entities as a means of limiting risk and overall liability to their other operations.

der the minimum requirements for self-bonding set out by OSMRE.¹⁷⁹ When a parent company files for bankruptcy, the subsidiary may still qualify for self-bonding even though a subsidiary's assets may be compromised by the parent company's bankruptcy.¹⁸⁰ Arch Coal, the second-biggest coal company in terms of coal production in the United States, took advantage of this by utilizing Arch Western Resources, LLC, a subsidiary, whose debt was a small part of its parent company's total debt.¹⁸¹ This enabled Western Resources to qualify for self-bonding when its parent company, Arch, would not qualify.¹⁸² Additionally, Western Resources was also able to claim the more valuable Wyoming assets on its balance sheet further presenting the image of security.¹⁸³ By Arch shifting assets amongst entities, Western Resources could act as a corporate guarantor that could secure additional bonds for affiliated entities. Regardless, Western Resources filed for bankruptcy with Arch, thereby adding its assets to the proceedings.¹⁸⁴ The use of complex corporate structures is common in many industries, but when self-bonding is permitted, it can make it difficult to determine the financial health of such complex entities.

An applicant will not be permitted to self-bond, or anyone to act as a guarantor for the applicant, when their existing and proposed bonds would exceed twenty-five percent of the applicant or guarantor's tangible net worth in the United States.¹⁸⁵ When self-bonding is permitted, the applicant or a guarantor must execute an indemnification agreement to pay to the regulatory authority a dollar figure, up to the bond dollar figure, for the costs of reclamation.¹⁸⁶ Once a self-bond is posted, should the financial condition of the permittee or guarantor change by falling below the conditions of § 800.23(b)(3) or (d), the permittee must notify the regulatory authority

179. *Coal Bonding: Time to Revisit Self-Bonding Requirements*, TAXPAYERS FOR COMMON SENSE 2 (Nov. 9, 2015), http://www.taxpayer.net/images/uploads/downloads/Coal_Self_Bonding_Fact_Sheet_-_Final_2.pdf.

180. HEIN ET AL., *supra* note 95, at 3; TAXPAYERS FOR COMMON SENSE, *supra* note 179, at 2.

181. U.S. ENERGY INFO. ADMIN., ANNUAL COAL REPORT 16 tbl.10 (2016), *available at* <https://www.eia.gov/coal/annual/pdf/acr.pdf>; *see also* TAXPAYERS FOR COMMON SENSE, *supra* note 179, at 2 (stipulating that Arch Coal considers itself eligible for self-bonding through its subsidiary Arch Western Resources).

182. TAXPAYERS FOR COMMON SENSE, *supra* note 179, at 2.

183. *Id.*

184. *Id.* at 2-3.

185. § 800.23(d).

186. § 800.23(e).

“immediately” and within 90 days, post an alternate form of bond.¹⁸⁷ If an alternate bond is not posted, then all mining operations must cease and the permittee must begin reclamation operations pursuant to the reclamation plan.¹⁸⁸

SMCRA permits the approval of an alternate system by a state or federal program that “achieve[s] the objectives and purposes of the bonding program[.]”¹⁸⁹ As evidenced by coal mining entities filing for bankruptcy and the subsequent loss of funds for reclamation, an alternate system may be prudent.

Self-bonding and corporate guarantees ultimately increase the risk of no reclamation and decrease the value of any financial assurance. The benefits of self-bonding include a means of providing required assurance when other means of assurance may not be available, thereby providing a lower cost of operations. The disadvantages of self-bonding have proven to outweigh these benefits. As previously referenced, there are standards companies seeking to self-bond must meet; however, the lack of administrative resources and financial expertise by the regulatory agency make this option precarious. As has been recently seen, financial difficulties can cause a self-bonded company to fall below the statutorily set standards presenting the regulatory authority with a no-win scenario.¹⁹⁰ If the regulatory authority requires further assurance from the company, the company may not be able to provide such, further pushing the company closer to insolvency. The regulatory authority is often forced to enter into some alternative agreement that may ultimately fall short of original reclamation expectations. This threat is ubiquitous for coal companies. Coal, like any commodity, can suffer large price swings. Any industry that involves natural resource extraction often lacks diversified portfolios and are especially susceptible to price fluctuations. This was evidenced recently by the decline in the cost of coal. The decline in price occurred after many coal companies just finished large acquisitions.¹⁹¹ This price decline along with rising debt

187. § 800.23(g).

188. See § 800.16(e)(2) (allowing the regulatory authority to suspend or revoke the firm’s charter or license to do business if the responsible financial authority files for bankruptcy).

189. 30 U.S.C. § 1259(c).

190. Individual states determine whether to permit a company to self-bond; however, the states may not be getting a complete picture of the financial health of the company since most have operations in multiple states and utilize numerous corporate layers.

191. Alpha acquired Massey Energy in 2011 for approximately \$7 billion, making it the largest metallurgical coal producer and saddling it with significant debt right before the price of coal declined. Michael Erman & Ann Saphir, *Alpha Agrees to Buy Massey Energy for About \$7.1*

obligations created the perfect storm, exposing the shortcomings of self-bonding.

a. Individual States

i. Kentucky

Kentucky is one of the few states with primacy regulation that does not allow for self-bonding.¹⁹² When an entity files its application for surface mining, the entity must include a bond.¹⁹³ This bond must be at least \$10,000, but the discretion on the amount is left up to the cabinet.¹⁹⁴ The cabinet will base this dollar amount on “the character and nature of the overburden; the future suitable use of the land involved; the cost of backfilling, grading, and reclamation to be required; and the probable difficulty of reclamation, giving consideration to such factors as topography, geology, hydrology, and revegetation potential.”¹⁹⁵

ii. North Dakota

North Dakota is one of the states with primacy regulation under SMCRA that allows for the use of self-bonding by coal companies.¹⁹⁶ When an entity files an application to do surface mining operations within North Dakota’s borders, one must include a bond.¹⁹⁷ This bond can take many forms, but one of the forms that North Dakota allows is self-bonding.¹⁹⁸ The North Dakota Public Service Commission sets the amount of the bond, but the bond must at least be \$10,000.¹⁹⁹ The Commission will allow the entity to self-bond as long as the entity has an agent to receive service of process within the State of North Dakota and a history of financial solvency and continuous operation within the state.²⁰⁰

Billion, REUTERS (Jan. 30, 2011), <http://www.reuters.com/article/us-alpha-massey-idUSTRE70S0PC20110130>.

192. Interstate Mining Compact Commission, Self-Bonding Survey, at 1, <http://imcc.isa.us/Self%20Bonding%20Survey.pdf> (2014).

193. KY. REV. STAT. ANN. § 350.060(11) (2017).

194. *Id.*

195. *Id.*

196. N.D. CENT. CODE §§ 38-14.1-13, 38-14.1-16 (2015).

197. *Id.* § 38-14.1-13.

198. *Id.* § 38-14.1-16.

199. *Id.*

200. *Id.*

iii. Oklahoma

Oklahoma requires that each operator with its application files a bond.²⁰¹ The bond amount will be determined by the Department of Mines but must be a minimum of \$2,000.²⁰² The Department will “take into consideration the character and nature of the overburden, the future suitable use of the land involved and the cost of reclamation to be required” in determining the amount of the bond.²⁰³ Oklahoma does allow for self-bonding if the operator of the mine has an agent that can be served with process within Oklahoma’s boundaries and has demonstrated financial solvency and continuous operation within the state.²⁰⁴

iv. Pennsylvania

Pennsylvania allows operators who do surface mining of coal to do self-bonding as a means for providing security for its liabilities that result from its practices.²⁰⁵ There is a long list of criteria that an operator must meet in order to be able to self-bond within the Commonwealth of Pennsylvania.²⁰⁶ In fact, because of this long list of criteria, no operator has actually ever used self-bonding within Pennsylvania.²⁰⁷ The bond amount in Pennsylvania is based on many factors but mainly the estimated costs to reclaim the mine area including the costs to restore the area.²⁰⁸

v. Texas

Texas is another state with primacy over coal mining regulation within its borders that allows for self-bonding.²⁰⁹ In order for an entity to be able to self-bond with regard to surface coal mining, the entity must demonstrate to the Commission “the existence of a suitable and continuous operation sufficient for authorization to self-insure or bond the amount.”²¹⁰ The bond amount will be based on the probable difficulty of reclamation including the

201. OKLA. STAT. ANN. tit. 45, § 724(C) (West 2017).

202. *Id.* § 728(B).

203. *Id.*

204. OKLA. STAT. ANN. tit. 45, § 745.6(E) (West 2017).

205. 25 PA. CODE § 86.159 (2017).

206. *Id.*

207. Interstate Mining Compact Commission, *supra* note 192, at 2.

208. 25 PA. CODE § 86.149 (2017).

209. TEX. NAT. RES. CODE ANN. §§ 134.121, 134.123 (West 2017).

210. *Id.* § 134.123.

surrounding topography, geology, hydrology, and revegetation potential of the site.²¹¹ The bond amount cannot be less than \$10,000.²¹²

vi. Virginia

Virginia is another state with primacy regulation of coal mining entities that does not allow for self-bonding.²¹³ However, Virginia did allow for self-bonding up until June 30, 2014.²¹⁴ Thus, there are some self-bonds that still exist within the state today. Under the old regulations, Virginia allowed the use of self-bonding “if the financial health standard was met and evidence indicating a history of satisfactory continuous operation.”²¹⁵ Virginia also required that the company be a participant in the Virginia reclamation fund pool.²¹⁶

vii. West Virginia

West Virginia currently allows for self-bonding for surface coal mining.²¹⁷ In order for an entity to be allowed to do so, the entity must have a suitable agent to receive service of process within the state.²¹⁸ Additionally, the entity must show financial solvency and continuous operation within the state.²¹⁹ The bond amount must be no less than \$10,000.²²⁰

viii. Wyoming

Wyoming, despite its issues that will be seen in the next section, still allows for self-bonding.²²¹ Wyoming requires that operators prove that they have a suitable agent to receive service of process within Wyoming’s borders, demonstrate financial solvency, and have had continuous operation within the state.²²² The bond amount will be based on the estimated cost for

211. *Id.* § 134.122.

212. *Id.*

213. Office of Surface Mining Reclamation and Enforcement, *supra* note 41; Interstate Mining Compact Commission, *supra* note 192, at 2.

214. VA. CODE ANN. § 45.1-241(c) (2017); Interstate Mining Compact Commission, *supra* note 192, at 2.

215. VA. CODE ANN. § 45.1-241(c) (2017); Interstate Mining Compact Commission, *supra* note 192, at 2.

216. Interstate Mining Compact Commission, *supra* note 192, at 2.

217. W. VA. CODE § 22-3-11(c)(1) (2017).

218. *Id.* § 22-3-11(c)(2)(d).

219. *Id.*

220. *Id.* § 22-3-11(a).

221. WYO. STAT. ANN. § 35-11-417(d) (2017).

222. *Id.*

reclaiming land, including any groundwater disturbed by the mining operation as well.²²³ In no event, should the bond amount be less than \$10,000.²²⁴

6. *Bankruptcy*

In a nine-month period, between August 2015 and May 2016, the three largest coal companies in the United States filed for Chapter 11 bankruptcy. As of March 2016, it was estimated that there are \$3.6 billion of self-bonded obligations amongst multiple states.²²⁵ Of this \$3.6 billion, \$2.4 billion was held by coal companies currently in bankruptcy.²²⁶ One of the most concerning shortcomings of self-bonding is the possibility of bankruptcy. A self-bonded company can look to bankruptcy as a means of escaping costly reclamation obligations by either extracting all value before dissolution of the company or through reorganization via Chapter 11.²²⁷ A company with outstanding reclamation obligations essentially leverages the prospect of some reclamation with that of no reclamation; thereby assuring itself of the company's continued existence. This major shortcoming has manifested itself most recently with the coal industry, and history will repeat itself unless Congress prevents this practice from continuing.

Once an entity files for bankruptcy, an automatic stay is imposed,²²⁸ and all creditors must get in line relative to their priority. While "the government is acting for the benefit of the public at large, its conduct is not generally subject to the automatic stay."²²⁹ This generally allows a state to exercise its regulatory or police power and require an operator who has filed for bankruptcy to maintain reclamation bonds despite an automatic stay.²³⁰

223. *Id.* § 35-11-417(c)(i).

224. *Id.*

225. U.S. Senate Comm. on Energy & Nat'l Res., *Cantwell, Durbin to GAO: Investigate Self-Bonding by Coal Companies*, U.S. SENATE (Mar. 8, 2016), <http://www.energy.senate.gov/public/index.cfm/democratic-news?ID=F2BA9FD5-A60A-4575-AF22-C5C6E60119FF> ("Companies currently operating coal mines under SMCRA have posted an aggregate of \$3.6 billion of self-bonds across multiple states.").

226. Petition to Initiate Rulemaking; Ensuring that Companies with a History of Financial Insolvency, and Their Subsidiary Companies, are not Allowed to Self-Bond Coal Mining Operations, 81 Fed. Reg. 31,880, 31,881 (proposed May 20, 2016) (to be codified at 30 C.F.R. pt. 800).

227. Boyd, *supra* note 25, at 3-4.

228. 11 U.S.C.A § 362(a).

229. Maureen D. Carman & Richard Warne, *The Coal Company in Bankruptcy*, 25 ENERGY & MIN. L. FOUND. § 7.04 (2004).

230. See *In re Grace Coal Co.*, 155 B.R. 5, 5-7 (Bankr. E.D. Ky. 1993) (requiring that the debtor still had to comply with bonding requirements in bankruptcy); *U.S. v. Hubler*, 117 B.R. 160, 164-65 (W.D. Pa. 1990) ("The bond initially sought by plaintiff was not intended as a means

Subsequently, a state may exercise its regulatory power under § 364(b)(4) of the Bankruptcy Code to commence an action against a debtor who was self-bonded to require financial assurance despite an automatic stay.²³¹ Section 105 of the Bankruptcy Code does indicate that a bankruptcy court could order injunctive relief to excuse certain regulatory compliance.²³² Filing for bankruptcy does not allow for the filing company to avoid its compliance responsibilities under the law regarding bonding obligations.²³³ To do so, would enable a competitive advantage over those companies who have remained solvent and are subject to the regulations the bankrupt company gets to avoid. Allowing the government to step ahead of creditors for outstanding environmental obligations is controversial, but it is necessary.²³⁴ This is especially the case when parent companies utilize the financial health of their subsidiaries to take on more debt, and at the same time, those subsidiaries pledge the same assets for self-bonding purposes.²³⁵

Instead of commencing formal actions against self-bonded coal companies who have recently filed for Chapter 11, states have opted to negotiate with these debtors. States can require that such operators seek financial assurances to replace their original self-bonding obligations; however, such alternative financial assurances may not necessarily be available or would eliminate any possibility of reorganization and along with it any available monies for existing reclamation obligations.²³⁶ Requiring a distressed company to replace all of its self-bonded obligations with fully collateralized bonds through third party sureties, would deplete the company's liquidity and end its continued operations. Subsequently, states have been forced to accept fractions of what is statutorily required for environmental reclama-

of satisfying defendants' obligations, but instead was intended as a means of motivating defendants to comply with their obligations— failure to comply with the CO might have resulted in forfeiture of the bond but would not have relieved defendants of their obligations under the CO."); *Pennsylvania v. Peggs Run Coal Co.*, 423 A.2d 765, 767 (Pa. 1980) (deciding that the Pennsylvania Department of Environmental Resources' seeking injunctive relief and posting of bonds by Peggs Run Coal Co. was not subject to the automatic stay).

231. *In re Kaiser Steel Corp.*, 87 B.R. 662, 665 (Bankr. D. Colo. 1988) ("It is clear that, as to its ongoing post-petition mining activities, the Debtor must comply with the laws of Utah and the State has a legitimate interest in enforcing those laws, particularly where the failure to do so would have an adverse impact on the environment.").

232. *Carman & Warne*, *supra* note 229, § 7.04.

233. *Boyd*, *supra* note 25, at 38.

234. *Cf. Boyd*, *supra* note 25, at 38-39 (citing *Commonwealth of PA, Dept. of Envlt. Resources v. Peggs Run Coal Co.*, 423 A.2d 765 (Pa. Commw. Ct. 1980)) (showing as an example a Pennsylvania court case that exempted assurance costs from being considered claims under bankruptcy law).

235. *TAXPAYERS FOR COMMON SENSE*, *supra* note 179, at 2.

236. *HEIN ET AL.*, *supra* note 95, at 6.

tion.²³⁷ If a state does not accept the terms of the insolvent entity, then such entity can opt to not reorganize.²³⁸ Therefore, the state essentially must accept the terms of the debtor. Consequently, states are confronted with the proverbial Hobson's choice, or basically taking what is offered or taking nothing at all ("take it or leave it").

Although a state may not be prevented by the automatic stay to impose a debtor's compliance with required bonding requirements, some have questioned whether the stay bars these negotiated deals.²³⁹ As evidenced by the recent coal bankruptcies, states have claimed a "superpriority" to take before other creditors of the bankrupt entity.²⁴⁰ This bonding superpriority claim has been said to have priority over any or all administrative expenses of the kind specified in 503(b) of the Bankruptcy Code.²⁴¹ Settlements in bankruptcy are permitted by Bankruptcy Rule 9019(a), which provides that "[o]n motion by the trustee and after notice and a hearing, the court may approve a compromise or settlement."²⁴² Regardless, these settlement arrangements have been characterized as being practically necessary.²⁴³ This course of action pays homage to the adage that "something is better than nothing."

On August 3, 2015, Alpha and 149 affiliate entities filed voluntary petitions for relief under Chapter 11 of the United States Bankruptcy Code

237. *See id.* at 7-8 (discussing Wyoming's deals with Arch and Alpha regarding their reclamation obligations while both companies were in bankruptcy); *see also* TAXPAYERS FOR COMMON SENSE, *supra* note 179, at 2-3 (remarking on Alpha's deal with Wyoming while it was in bankruptcy).

238. *See* TAXPAYERS FOR COMMON SENSE, *supra* note 179, at 2 (commenting that if a company is in bankruptcy and unable to cover its reclamation costs, then the government may not receive any funds to cover these obligations and be left on the hook).

239. HEIN ET AL., *supra* note 95, at 8

240. HEIN ET AL., *supra* note 95, at 7-8; TAXPAYERS FOR COMMON SENSE, *supra* note 179, at 2-3.

241. *See, e.g.*, Motion of the Debtors and Debtors in Possession, Pursuant to Bankruptcy Rule 9019 for Entry of Stipulation and Order Concerning Reclamation Bonding of Their Surface Coal Mining Operations in Indiana at 12-16, In re Peabody Energy Corp., No. 16-42529 (Bankr. E.D. Mo. July 26, 2016) (asking the court to approve its settlement with the State of Indiana regarding its reclamation bonding obligations).

242. Fed. R. Bankr. P. 9019(a).

243. *See* In re Alpha Nat. Res., 544 B.R. 848, 857 (Bankr. E.D. Va. 2016) (stating that the settlement arrangement would prevent Alpha from being "embroiled in time consuming, expensive, and distracting litigation over whether West Virginia's substitution demand violated the automatic stay," and "best preserve[d] the value of the Debtors' bankruptcy estates, maximize the return to creditors, help preserve jobs, and give the Debtors the opportunity to reorganize their businesses affairs.").

(“Bankruptcy Code”) in the Eastern District of Virginia.²⁴⁴ Alpha was estimated to have approximately \$700 million reclamation obligations outstanding because of its extensive use of self-bonding.²⁴⁵ Alpha had approximately \$244.3 million in self-bonded reclamation costs in West Virginia.²⁴⁶ The Court approved a settlement of \$24 million as a superpriority claim in conjunction with a collateral bond of \$15 million in lieu of \$244.3 million outstanding reclamation obligations in the state.²⁴⁷ Additionally, Alpha settled their self-bonding obligations with Wyoming for a \$61 million superpriority claim in lieu of a \$411 million substitution demand.²⁴⁸ Alpha has agreed to replace its self-bonds in Wyoming with third-party guaranteed bonds as a condition of emerging from bankruptcy.²⁴⁹ Alpha reached an agreement with federal officials to restructure and make cash payments that fall short of covering the estimated cost of reclamation and also spread out over a nine-year period.²⁵⁰ The rest of its reclamation liabilities would be assumed by Contura, a new company spun out of Alpha and owned by senior creditors from Alpha, to include the two open pit mines in Wyoming, one mine in Pennsylvania and West Virginia, and six mines and an export terminal in Virginia.²⁵¹ Contura has anchored its reclamation obligations through equipment and other property as collateral.²⁵² Alpha will be left operating twenty-nine mines, most of which are in West Virginia and will inherit inactive mines that have not been reclaimed.²⁵³ The bifurcation of the old Alpha raises multiple issues regarding the future financial health of both parts. More pointedly, the question remains whether the new Alpha’s projected payments will last and, even if these do, whether these will be enough to cover the ever-growing amount of reclamation that needs to be

244. Voluntary Petition for Alpha Nat. Res., Inc. at 1, 4-8, In re: Alpha Nat. Res., Inc., No. 15-33896 (Bankr. E.D. Va. Aug. 3, 2015).

245. Steven Mufson, *Cleanup Obligation is Core to Plan for Coal Giant Alpha to Exit Bankruptcy*, WASH. POST (July 8, 2016), https://www.washingtonpost.com/business/economy/cleanup-obligation-is-core-to-plan-for-coal-giant-alpha-to-exit-bankruptcy/2016/07/08/29cc10be-4491-11e6-bc99-7d269f8719b1_story.html?utm_term=.37b0cfe70996.

246. Order Concerning Reclamation Bonding of the Debtor’s Surface Coal Mining Operations in West Virginia at 7, In re Alpha Nat. Res., No. 15-33896 (Bankr. E.D. Va. Dec. 22, 2015).

247. *Id.* at 3, 7-8.

248. Stipulation and Order Concerning Debtor’s Reclamation Bonding of Their Surface Coal Mining Operations in Wyo. at 2-3, 5, In re Alpha Nat. Res., No. 15-33896 (Bankr. E.D. Va. Oct. 8, 2015).

249. *Id.* at 6-7.

250. Mufson, *supra* note 245.

251. *Id.*

252. *Id.*

253. *Id.*

completed. Additionally, whenever equipment is pledged as collateral, it is often linked to the underlying price of the commodity and subsequently loses value with the decline in price of the commodity.²⁵⁴ The agreed upon restructuring plan indicates a realization that self-bonding is not an effective means of financial assurance.

Arch and its wholly owned domestic subsidiaries filed voluntary petitions for relief under Chapter 11 of the Bankruptcy Code in the Eastern District of Missouri.²⁵⁵ The Court approved Wyoming taking a superpriority in \$75 million and approximately \$17 million in third-party bonding obligations in lieu of the \$485.5 million in outstanding reclamation obligations.²⁵⁶ Upon emerging from bankruptcy, Arch has arranged to have all of its self-bonds in Wyoming replaced with commercial surety bonds.²⁵⁷

Subsequently, Peabody Energy Corporation, the world's largest coal company, along with a majority of its affiliated entities (154 affiliated companies, except for its Australian operations) filed for Chapter 11 bankruptcy on April 13, 2016 in the Eastern District of Missouri.²⁵⁸ Peabody is estimated to have more than \$1.14 billion in self-bonding obligations in just four states.²⁵⁹ Peabody obtained consent from its post-petition lenders to provide up to \$200 million in superpriority collateral to those states that utilized self-bonding.²⁶⁰ Peabody reached agreements with Wyoming for \$127 million of the approximately \$726.8 million in self-bonds²⁶¹, New Mexico for \$31.6 million of the approximately \$181 million in self-

254. HEIN ET AL., *supra* note 95, at 6.

255. In re Arch Coal, Inc., No. 16-40120 (Bankr. E.D. Mo. Jan. 11, 2016).

256. Stipulation and Order Concerning Debtors' Reclamation Bonding of their Surface Coal Minin Operations in Wyoming, In re Arch Coal, Inc., No. 16-40120-705 (Bankr. E.D. Mo. Feb. 29, 2016) (Docket No. 432).

257. *Id.* at 5.

258. Voluntary Petition for Peabody America at 1-8, In re Peabody Energy Corp., No. 16-42529, (Bankr. E.D. Mo. Apr. 13, 2016).

259. Debtors' (I) Reply in Support of Motions of the Debtors and Debtors in Possession, Pursuant to Bankr. Rule 9019, for Entry of Stipulations and Orders Concerning Reclamation Bonding of Their Surface Coal Mining Operations in Wyo., N.M. and Ind.; and (II) Objection to Motion of Fernandez Company, Ltd. for an Order Extending the Deadline to File Objections to the Motion of the Debtors in Possession, Pursuant to Bankr. Rule 9019, for Entry of Stipulation and Order Concerning Reclamation Bonding of Their Surface Coal Mining Operations in N.M. and to Set for Sept. 15, 2016 Omnibus Hearing at 25, In re Peabody Energy Corp., No. 16-42529 (Bankr. E.D. Mo. Aug. 15, 2016).

260. *Id.* at 25-26.

261. Motion of the Debtors and Debtors in Possession, Pursuant to Bankr. Rule 9019, for Entry of Stipulation and Order Concerning Reclamation Bonding of Their Surface Coal Mining Operations in Wyo. at 8-13, In re Peabody Energy Corp., No. 16-42529 (Bankr. E.D. Mo. July 26, 2016).

bonds,²⁶² Indiana for \$17.9 million of the approximately \$145.2 million in self-bonds,²⁶³ and Illinois for \$12.8 million of the approximately \$92.2 million in self-bonds²⁶⁴ if Peabody is unable to engage in reclamation efforts in these states.²⁶⁵ Thus, Peabody is providing collateral assurance, either letters of credit, third-party commercial surety bonds, or cash deposits, to cover only a fraction of their self-bonded obligations at the date of filing. In structuring their settlement, Peabody referenced and relied upon the settlements of Arch and Alpha before them.

7. *Coal Financial Assurance Conclusion*

In light of the extent of self-bonding, coal companies have been able to avoid the full extent of their reclamation obligations while still being allowed to operate. States and the federal government have been forced to accept this, since the alternative of total liquidation would mean even less reclamation funds being available. If companies were required to replace all of their self-bonded obligations immediately with collateral assurance through surety bonds, letters of credit, cash deposits, or the like, then they would surely be forced into immediate insolvency. The resulting liquidation would not only result in a lack of environmental reclamation, but also cause the loss of jobs and create a ripple effect through the parent company's holdings in multiple states.

It would be wise for states that currently allow for self-bonding for surface coal mining to pass a law that would immediately end this practice while grandfathering the existing self-bonds that exist within the state. States such as North Dakota, West Virginia, and Wyoming would be better served if they abolished this practice, rather than let mine operators continue to abuse the self-bonding program. By allowing these entities to self-

262. Motion of the Debtors and Debtors in Possession, Pursuant to Bankr. Rule 9019, for Entry of Stipulation and Order Concerning Reclamation Bonding of Their Surface Coal Mining Operations in N.M. at 7, 12-13, In re Peabody Energy Corp., No. 16-42529 (Bankr. E.D. Mo. July 26, 2016).

263. Motion of the Debtors and Debtors in Possession, Pursuant to Bankr. Rule 9019, for Entry of Stipulation Order Concerning Reclamation Bonding of Their Surface Coal Mining Operations in Ind. at 7-8, 13-14, In re Peabody Energy Corp., No. 16-42529 (Bankr. E.D. Mo. July 26, 2016).

264. Motion of the Debtors and Debtors in Possession, Pursuant to Bankr. Rule 9019, for Entry of Stipulation and Order Concerning Reclamation Bonding of their Coal Mining Operations in Ill. at 7, 13-14, In re Peabody Energy Corp., No. 16-42529 (Bankr. E.D. Mo. Aug. 22, 2016).

265. Tracy Rucinski & Jim Christie, *Peabody Gets U.S. Court Approval for Clean-Up Deals, Executive Bonuses*, REUTERS (Aug. 17, 2016), <http://www.businessinsider.com/r-peabody-gets-us-court-approval-for-clean-up-deals-executive-bonuses-2016-8>.

bond, the ones that suffer in the long run are the taxpayers of those states that end up being on the hook for these reclamation costs after these coal companies file for bankruptcy. Thus, it is readily apparent that states must, at the very least, eliminate self-bonding and look at other options with regard to finding resources to help fund reclamation costs. There is a chance that states could lose the race to the bottom for competing coal mines, but states need to decide if the benefits outweigh the clear consequences of continuing with this approach. Additionally, states such as Kentucky and Virginia still reap direct economic benefits from coal despite not allowing for self-bonding.²⁶⁶

The future of self-bonding in the coal industry at the federal level is also in question. At the time this Article was written, OSMRE released a “Policy Advisory” regarding financial assurance practices in the coal industry,²⁶⁷ OSMRE initiated the rulemaking process to strengthen regulations on self-bonding,²⁶⁸ and a new bill was introduced by Senator Maria Cantwell, The Coal Cleanup Taxpayer Protection Act, that would eliminate the use of self-bonds in surface mining.²⁶⁹

The fact that the private industry is hesitant to involve itself as a surety for a particular activity, such as surface mining, due to the potential long-term environmental costs, necessitates a conversation over the efficacies of the activity itself. One cannot criticize the use of coal and enjoy the electricity, products, and jobs it provides. Although “coal keeps the lights on,” it should not come at the continued unabated costs to society. Nor should these costs be falsely justified by those who seek personal pecuniary gain with the intention of passing along those same costs to taxpayers. A balance can exist to ensure environmental accountability and private enterprise, but this equilibrium cannot be if self-bonding is permitted to play any role.

266. See Michael D. Farren & Mark D. Partridge, *Reevaluation of the Impact of Coal Mining on the Virginia State Budget* 60 (June 18, 2015), https://aede.osu.edu/sites/aede/files/publication_files/ARIES-VA_CoalStateBudget_FullReport%28FINAL%29.pdf (mentioning that if two exclusive tax credits were removed that the Commonwealth of Virginia would receive more in revenues from the coal industry than the commonwealth expends); KY. ENERGY AND ENV'T CABINET & DEP'T FOR ENERGY DEV. AND INDEP., KY. COAL FACTS 34 (2016), [http://energy.ky.gov/Coal%20Facts%20Library/Kentucky%20Coal%20Facts%20-%2016th%20Edition%20\(2016\).pdf](http://energy.ky.gov/Coal%20Facts%20Library/Kentucky%20Coal%20Facts%20-%2016th%20Edition%20(2016).pdf) (stipulating that coal provides over \$2.6 billion in direct benefits to the State of Kentucky).

267. See Joseph Pizarchik, *OSMRE Policy Advisory: Self-Bonding*, 1-6 (2016), <http://www.osmre.gov/resources/bonds/DirPolicyAdvisory-SelfBond.pdf>.

268. *Id.* at 2-6.

269. Coal Cleanup Taxpayer Protection Act, S. 3066, 114th Cong. § 2 (2016).

V. OIL AND GAS

The growing accessibility of domestic oil and gas reserves, along with international security concerns, has generated increased interest in domestic energy production.²⁷⁰ Natural gas is currently looked at as a bridge between traditional energy production derived from coal and that of greener methods of energy production.²⁷¹ Hydraulic fracturing, coupled with advancements in horizontal drilling technology, have expanded the available oil and gas reserves in the United States.²⁷² The costs of oil and gas have not only decreased rapidly because of a proven domestic supply but also due to decreasing margins for operators.²⁷³

Domestic production from federal onshore oil and gas operations account for eleven percent of the United States' natural gas supply and seven percent of its current oil supply.²⁷⁴ One group estimates that there are at least 1.7 million active oil and gas wells currently in the United States as of August 2015.²⁷⁵ The United States Energy Information Administration (EIA) estimates that for 2015, 33% of the United States' electricity usage was generated from natural gas and 33% from coal.²⁷⁶ This is an increase from 10% in the late 1980s.²⁷⁷ "For decades, coal has been the dominant energy source for generating electricity in the United States."²⁷⁸ The EIA estimates "that 2016 will be the first year that natural gas-fired generation exceeds coal generation in the United States on an annual basis."²⁷⁹ Although the use of oil has decreased slightly over the last ten years, it still comprises 34% of our general energy consumption and the EIA projects

270. See Maria Luisa Parraguez Kobek et al., *Shale Gas in the United States: Transforming Energy Security in the Twenty-first Century*, NORTEAMERICA, Jan.-June 2015, at 7-9 (2015), <http://www.revistanorteamerica.unam.mx/index.php/nam/article/view/223/209> (addressing the United States' ability to reach energy security by tapping into its natural gas supply).

271. *Id.* at 9.

272. *Id.* at 8-10.

273. *Id.*

274. *BLM Releases Statistics on Oil and Gas Activity on Federal, Indian Lands*, BLM (Apr. 11, 2016), https://www.blm.gov/or/news/files/2015_Oil-GasStats_PR_FINAL_BLM.pdf

275. Matt Kelso, *1.7 Million Wells in the U.S. – A 2015 Update*, FRACTRACKER ALLIANCE (Aug. 3, 2015), <https://www.fractracker.org/2015/08/1-7-million-wells/>.

276. Tyler Hodge, *Natural Gas Expected to Surpass Coal in Mix of Fuel Used for U.S. Power Generation in 2016*, U.S. ENERGY INFORMATION ADMINISTRATION (Mar. 16, 2016), <http://www.eia.gov/todayinenergy/detail.php?id=25392>.

277. *Id.*

278. *Id.*

279. *Id.*

that it will continue to be a major share of our energy consumption until 2040.²⁸⁰

Reclamation activities for oil and gas have thus far proven less extensive than that required for surface mining. Most of these efforts are limited to plugging a well to prevent contamination of water reserves, removal of surface debris left from the mining activities, and possibly recontouring the land if needed.²⁸¹ Operating a well is comparatively less intrusive due to its limited effect upon the surface.²⁸² However, recent allegations that certain fracking activities may be the cause of earthquakes potentially increases the degree of invasiveness.²⁸³ Most of these concerns surround the effect of drilling activities on drinking water.²⁸⁴ In June 2015, the EPA issued a draft assessment of hydraulic fracking's effect upon drinking water resources.²⁸⁵ In this report the EPA identified five aspects of hydraulic fracturing that could potentially contaminate drinking water sources: acquiring water for fracturing fluid, mixing of fracturing fluid at the well pad, injecting the fluid into the well to induce fracturing, the return of the fracturing fluid and produced water (collectively referred to as "produced water") to the surface, and the treatment and disposal of wastewater including produced water by the operations.²⁸⁶ The EPA concluded that it "did not find evidence that these mechanisms have led to widespread, systemic impacts on drinking water resources in the United States."²⁸⁷ A more traditional form of financial assurance is possible since harm from these known or more certain risks of fracturing operations are more easily determined. However, some risks are not as quantifiable. Such "'uncertain risks' include the potential upward migration of fracturing fluids to contaminate drinking water, the

280. *Oil: Crude and Petroleum Products: Oil Prices and Outlook*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/index.cfm?page=oil_prices (last updated Jan. 18, 2017).

281. 80 Fed. Reg. 16,135 at 16,136-37.

282. *Fracking vs Coal – Analysing the Differences*, PETRO INDUSTRY NEWS (May 20, 2014), https://www.petro-online.com/news/fuel-for-thought/13/breaking_news/fracking_vs_coal_-_analysing_the_differences/30122.

283. U.S. E.P.A., HYDRAULIC FRACTURING FOR OIL AND GAS: IMPACTS FROM THE HYDRAULIC FRACTURING WATER CYCLE ON DRINKING WATER RESOURCES IN THE UNITED STATES (FINAL REPORT) 34 (2016), <https://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=332990>.

284. *Id.* at 1.

285. U.S. E.P.A., ASSESSMENT OF THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING FOR OIL AND GAS ON DRINKING WATER RESOURCES (EXTERNAL REVIEW DRAFT) (2015), <https://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=244651>.

286. *Id.* at ES-3.

287. *Id.* at ES-6.

movement of methane or sediments to contaminate groundwater, and the exacerbation of seismic activity.”²⁸⁸ Subsequently, it has been recommended that traditional assurance mechanisms may be suited for the known circumstances that can cause adverse environmental impacts, while alternative forms, such as insurance, may be a better option for the more uncertain or less foreseeable impacts.²⁸⁹ This distinction of certain and uncertain risks can be extended to multiple activities that invoke the environmental financial assurance field.

A. REGULATING OIL AND GAS

1. *Federal Regulations*

The regulations concerning oil and gas production from drilled wells have been described as a “patchwork.”²⁹⁰ Onshore drilling operations on federal land are regulated by the Bureau of Land Management (“BLM”) pursuant to the Federal Land Policy Management Act (“FLPMA”).²⁹¹ However, individual states autonomously and separately regulate drilling activities within their borders. Subsequently, financial assurance mechanisms and dollar figures for assurance differ from state to state. It is worth noting that financial assurance is also required as it relates to other facets of oil and gas production beyond that of traditional onshore drilling operations.²⁹² Given the focus of this Article, the authors look at the use of financial assurance mechanisms, specifically the use of self-bonding for onshore drilling operations on federal lands as controlled by the BLM and its use on nonfederal lands as regulated by the individual states.

Since Congress passed the Mineral Leasing Act of 1920, the federal government has required oil and gas producers to post some form of finan-

288. W. Blaine Early III, *Bond What You Know and Insure What You Don't: A Comment on a Market Approach to Regulating the Energy Revolution*, 45 ENVTL. L. REP. NEWS & ANALYSIS 10756, 10756 (2015).

289. *Id.* at 10759.

290. *Id.* at 10758.

291. See 43 U.S.C. § 1732(b) (2012) (allowing the Secretary of the Interior to manage the use of federal lands through permits, leases, and other available methods).

292. Financial assurances that relate to the production of oil and gas generally include off-shore exploration regulated by the Oil Pollution Act (“OPA”), vessels carrying oil or hazardous substances regulated by OPA and the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), and as it relates to hydraulic fracturing and shale gas production, the Safe Drinking Water Act of 1974, which regulates underground injection of fluids associated shale gas, Clean Water Act (“CWA”) for surface discharges from shale gas production, and the Clean Air Act (“CAA”) for emissions from equipment and processing equipment.

cial assurance before a well is drilled on federal land.²⁹³ Financial assurance (i.e., bond coverage) is required before the BLM will approve any lease for development.²⁹⁴ In other words, the BLM will not grant an Application for Permit to Drill (APD) unless approved financial assurance is presented.²⁹⁵ These bonds are required “to ensure compliance with the act, including complete and timely plugging of the well(s), reclamation of the lease area(s), and the restoration of any lands or surface waters adversely affected by lease operations after the abandonment or cessation of oil and gas operations on the lease(s)[.]”²⁹⁶

The BLM will allow the lessee to use a personal bond or surety bond to obtain a lease to drill on federal lands.²⁹⁷ Surety bonds that utilize a third-party insurer can be a costlier alternative to a personal bond.²⁹⁸ The premiums are often dictated by the producer’s past record.²⁹⁹ Personal bonds are guarantees in the form of a federally insured certificate of deposit, cashier’s check, certified check, a negotiable treasury security of the United States, or federally insured letters of credit, all to be paid to the Secretary of the Interior in case of default.³⁰⁰

There are multiple ways to comply with the minimum bonding requirements required for leased federal land drilling operations. The lessee or owner of the operation rights may post a lease bond for the operation of a singular well lease.³⁰¹ The minimum bond is \$10,000.³⁰² In addition, an entity may put up a blanket bond to cover all of their operations within one state or nationwide.³⁰³ This dollar figure may not be less than \$25,000 for one state and \$150,000 nationwide.³⁰⁴ The BLM also permits what is called a unit operator’s bond.³⁰⁵ This bond is similar to a bond for an individual

293. The Mineral Leasing Act of 1920, 30 U.S.C. § 226 (2014).

294. 30 U.S.C. § 226(g).

295. *Id.*

296. 43 C.F.R. § 3104.1(a) (2017).

297. § 3104.1.

298. The third-party insurer must be a qualified surety as approved by the Department of the Treasury. § 3104.1(b).

299. *How to Determine if My Client Is Considered a High-Risk Contractor*, CINIMUM BLOG (Oct. 5, 2015), <https://www.cinium.com/blog/how-to-determine-if-my-client-is-considered-a-high-risk-contractor/>. *Contra* Schubert, *supra* note 140, at 48 (explaining that the premiums are basically “a fee for prequalification services” because there is “little expectation of loss”).

300. § 3104.1(c).

301. § 3104.2.

302. *Id.*

303. § 3104.3.

304. *Id.*

305. § 3104.4.

well but is committed to an approved unit agreement.³⁰⁶ These bond dollar figures have not been increased since the 1980s.³⁰⁷

The BLM does have discretion to require an increase of any bond dollar figure when the operator may pose a risk potentially due to “a history of previous violations, a notice from the Service that there are uncollected royalties due, or the total cost of plugging existing wells and reclaiming lands exceeds the present bond amount based on the estimates determined by the authorized officer.”³⁰⁸ However, an increased bond should not exceed the total costs of remediating the necessitating risk.³⁰⁹

Before the APD is approved and the operator is permitted to begin operations, the BLM reviews the operator’s proposed plan, conducts a personal site inspection, and prepares an environmental analysis pursuant to NEPA.³¹⁰ The BLM also requires that the operator follow certain steps prior to drilling.³¹¹ This includes conducting the proposed cementing and casing programs, ensuring wellbore integrity by centering the casing in the drilled hole prior to cementing, waiting until all the cement for all casing strings achieves five-hundred pounds per square inch compressive strength at the casing shoe, and conducting other pressure tests at the casing shoe to ensure the integrity of the casing.³¹² These steps are followed to ensure the protection of usable water zones.³¹³ Additionally, the BLM conducts environmental and technical post-approval inspections.³¹⁴ The technical inspections of the drilling operations include witnessing the running and cementing of the casing, witnessing the testing of the blowout potential equipment, and detailed drilling rig inspections.³¹⁵ The environmental inspection primarily focuses on the surface area portion of the drilling permit and includes checking out the access road, the well pad, and the pits.³¹⁶

The BLM continues to inspect the well until it has been plugged and abandoned, along with the surface rehabilitated.³¹⁷ Once a well has reached

306. *Id.*

307. *Id.* §§ 3104.2, 3104.3.

308. § 3104.5.

309. *Id.*

310. Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, 80 Fed. Reg. 16,135 (Mar. 26, 2015).

311. *Id.* at 16,136.

312. *Id.*

313. *Id.*

314. *Id.*

315. *Id.*

316. 80 Fed. Reg. 16,135.

317. *Id.*

the end of its life, it is plugged and abandoned to “prevent oil and gas from leaking to the surface or contaminating water bearing zones or other mineral zones.”³¹⁸ This process requires the approval of an operator-submitted plan for plugging and the BLM’s inspection of the act of plugging along with the surface restoration.³¹⁹ The goal of surface restoration “is to remove obvious visual evidence of the pad and to promote the long-term stability of the site and vegetation.”³²⁰ The BLM actually requires that reclamation begins prior to drilling of the well.³²¹ The BLM requires that a reclamation plan be part of the surface use plan.³²² Additionally, the BLM must approve this plan and also mandates that partial reclamation even take place while the operator is using the well.³²³ The BLM includes as part of their best management practices that the operator undergo partial reclamation in reclaiming any disturbed land that is not needed in active operations.³²⁴ The BLM’s final objective for reclamation is the restoration of the ecosystem, which includes restoration of the native vegetation community, hydrology, and wildlife habitats.³²⁵ The final abandonment notice is issued once a final inspection reveals satisfactory restoration.³²⁶

The costs for reclaiming an oil or natural gas well vary greatly. One energy industry website put the cost for plugging an oil or natural gas well at anywhere from \$569 to \$527,829 in the State of Wyoming over a 17-year period.³²⁷ One of the biggest factors in determining the cost for plugging a well is the depth of the well.³²⁸ Some commentators have determined that the average cost for full reclamation of an oil or natural gas well during this

318. *Id.*

319. *Id.*

320. *Id.*

321. *See* Plugging and Reclamation, BLM, <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/reclamation> (last visited Nov. 10, 2017) (stating that a reclamation plan must be included in the surface use plan of operations and that “[m]inimizing surface disturbance during construction also [helps] final reclamation”).

322. *Id.*

323. *Id.*

324. *Id.*

325. *Id.*

326. BLM, SURFACE OPERATING STANDARDS AND GUIDELINES FOR OIL AND GAS EXPLORATION AND DEVELOPMENT: THE GOLD BOOK 49 (4th ed. 2007), https://eplanning.blm.gov/epl-front-office/projects/nepa/75541/102290/125058/Gold_Book_2007_Revised.pdf.

327. *The Rising Cost of Cleaning Up After Oil and Gas*, INSIDE ENERGY (Oct 1, 2015), <http://insideenergy.org/2015/10/01/the-rising-cost-of-cleaning-up-after-oil-and-gas>.

328. *Id.*

time was roughly \$27,000 per well or \$10 per foot of well depth.³²⁹ These same commentators also found there is a significant variance depending on how many well sites were at a location.³³⁰ Thus, the concentration of wells at a given location along with the depth of the well can affect the cost of reclamation.

The costs associated with oil and gas exploration have also been questioned in light of newer extraction methods. Hydraulic fracturing and horizontal drilling have allowed for the production of shale oil reserves in conjunction with increasing production efficiency.³³¹ Hydraulic fracturing has enabled operators to extract more oil and gas from traditional wells as well as develop more untraditional plays.³³² Many of these new plays require deeper drilling depths and cover larger subsurface horizontal areas as was previously covered.³³³ This has prompted an ongoing conversation over the increased environmental risks associated with this technology beyond traditional oil and gas extraction techniques. The BLM recently finalized its rule regarding hydraulic fracturing.³³⁴

In issuing its final rule, the BLM addressed the reason why it did not increase the bond dollar figures beyond the dollar figures discussed above for traditional extraction methods. The BLM cited section 3104.5(b) as authorizing them to adjust the bond dollar figures according to the level of risk posed by the operation.³³⁵ Thus, the BLM reasoned they already have authority to set higher bond rates if the situation requires it.³³⁶ They went on to explain that a determination of the dollar figure of the bond is done on a “case-by-case basis[.]”³³⁷

Unlike coal, oil and natural gas are more regulated on a state-by-state basis. There is no national legislation that regulates the oil and natural gas wells despite some commentators arguing that the federal government could

329. Matt Anderson et al., *Reclamation Costs and Regulation of Oil and Gas Development with Application to Wyoming*, 8 W. ECON. F., No. 1, 2009, at 40, 42, <http://ageconsearch.umn.edu/bitstream/92846/2/0801005.pdf>.

330. *Id.* at 43.

331. U.S. E.P.A., *supra* note 285, at 4; Maria Luisa Parraguez Kobek et al., *supra* note 270, at 8-10, 23.

332. U.S. E.P.A., *supra* note 285, at 4.

333. *Id.*

334. 43 C.F.R. § 3162.3-3 (2015).

335. Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, 80 Fed. Reg. 16,128, 16,181 (Mar. 26, 2015) (to be codified at 43 C.F.R. pt. 3160).

336. *Id.*

337. *Id.*

do so under the commerce clause.³³⁸ Thus, since the federal government does not regulate oil and natural gas wells except for those on federal lands or off-shore, individual states have autonomous responsibility for regulating private operations within their borders. What follows is a sample of the diversity in these regulations.

2. *State Regulatory Regimes*

There are two basic regulatory regimes that the states follow with regard to self-bonding for oil and gas wells. One is that states charge a per-well dollar figure with regard to how much an entity needs to put forward as a bond for each well. The second basic regulatory regime is that the bond dollar figure is dependent on the depth of the well itself. This Article will first discuss the first type of regulatory regime, when the dollar figure of the bond is dependent on the number of oil or natural gas wells within the state itself and not the depth of the well. This Article will then discuss the second type of regulatory regime. This Article will also discuss examples of each in order to show the varying dollar figures that states charge per well.

a. *Per-Well Self-Bonding Regulatory Regime*

i. *Oklahoma*

Before an operator may drill a well for oil and gas exploration or use a well for injection or disposal, they must demonstrate financial ability to comply with Oklahoma's rules for plugging, closure, and removal of equipment and trash from the site.³³⁹ Oklahoma proscribes two categories of financial assurance.³⁴⁰ The first category allows an operator to self-bond by delivering a financial statement listing its assets and liabilities along with a release that their information could be verified, but such verification is not mandatory.³⁴¹ The operator only must demonstrate that their net worth is at least \$50,000.³⁴² The second category of assurance includes irrevocable commercial letters of credit, cash, cashier's checks, certificate of deposits,

338. William J. Brady & James P. Crannell, *Hydraulic Fracturing Regulation in the United States: The Laissez-Faire Approach of the Federal Government and Varying State Regulations*, 14 VT. J. ENVTL. L. 39, 43 (2012).

339. OKLA. STAT. ANN. tit. 52, § 318.1 (West 2011).

340. *Id.* § 318.1(A).

341. *Id.* § 318.1(A)(1).

342. *Id.*

bank joint custody receipt, or other negotiable instrument, or a blanket surety bond in a number equal to or greater than \$25,000.³⁴³ The Director of the Oil and Gas Conservation Division also reserves the right to increase the dollar figure required based upon the operator's past performance.³⁴⁴ If an operator can demonstrate that their liabilities statewide are less than \$25,000, then they may be permitted to post a lesser sum via any mechanism in category two.³⁴⁵

ii. Virginia

Virginia also requires that in order for a person to commence well operations in the Commonwealth of Virginia for oil or natural gas operations, they must first obtain a permit.³⁴⁶ Furthermore, an operator must also display financial security to the commonwealth in the form of a surety bond in order to obtain this permit.³⁴⁷ The dollar figure of the bond must be no less than \$10,000 for a well and \$2000 per disturbed acre of land rounded to the nearest tenth of an acre.³⁴⁸ The dollar figure of the bond shall be sufficient enough to cover the costs for plugging the well and restoring the site.³⁴⁹ The Director will determine the dollar figure of the bond.³⁵⁰ The Director also has the option of requiring a blanket bond in lieu of a separate bond for each individual well.³⁵¹ The dollar figure of the blanket bond will depend on the number of wells. For one to fifteen wells, the blanket bond shall be \$25,000.³⁵² For sixteen to thirty wells, the blanket bond shall be \$50,000.³⁵³ For thirty-one to fifty wells, the blanket bond shall be \$75,000 and for more than fifty wells the blanket bond shall be \$100,000.³⁵⁴

343. *Id.* § 318.1(A)(2).

344. *Id.* (mentioning the Director will not only look at the operator's past performance but also any insiders or affiliates of the company as well.).

345. OKLA. STAT. ANN. tit. 52, § 318.1(A)(3).

346. VA. CODE ANN. § 45.1-361.29(A) (West 2008).

347. *Id.* § 45.1-361.31(A).

348. *Id.*

349. *Id.*

350. *See id.* (mentioning that the "permit applicants shall give bond with surety acceptable to the Director").

351. *Id.* § 45.1-361.31(B).

352. VA. CODE ANN. § 45.1-361.31(B).

353. *Id.*

354. *Id.*

iii. West Virginia

Before an operator may drill an oil or natural gas well in the State of West Virginia, the State requires that the operator obtain a permit.³⁵⁵ The application for a permit must be accompanied with a bond.³⁵⁶ West Virginia requires a bond for each well that is drilled in a number greater than or equal to \$5000.³⁵⁷ West Virginia also allows for an operator to submit a blanket bond for numerous oil and gas wells within the state's boundaries equal to \$50,000.³⁵⁸ West Virginia allows for the bond to be "surety bonding, collateral bonding (including cash and securities) letters of credit, establishment of an escrow account, self-bonding" or some combination of the listed methods.³⁵⁹ For collateral bonding, the operator uses the following: "cash, or collateral securities or certificates as follows: Bonds of the United States or its possessions, of the federal land bank, or the homeowners' loan corporation; full faith and credit general obligation bonds of the State of West Virginia, or other states, and of any county, district or municipality of the State of West Virginia or other states; or certificates of deposit in a bank in this state, which certificates shall be in favor of the division."³⁶⁰ The value of the securities or cash must be of greater value or at least equal to the dollar figure of the bond.³⁶¹

iv. Other States

The other states that base the dollar figure of the self-bond on the number of wells within the state are: Alaska, Arkansas, Idaho, Indiana, Maryland, Nebraska, Nevada, New Mexico, North Carolina, Ohio, and Washington.³⁶² The dollar figure number varies for each state. In addition, each state, as can be seen from the above examples, treats blanket bonds differently. Some states require a different dollar figure number that is complete-

355. W. VA. CODE § 22-6-6(a).

356. *Id.* § 22-6-6(b).

357. *Id.* § 22-6-26(b).

358. *Id.* § 22-6-26(c).

359. *Id.* § 22-6-26(d).

360. *Id.*

361. W. VA. CODE § 22-6-6(a).

362. IND. CODE ANN. § 14-37-6-1(a) (LexisNexis 2017); ALASKA ADMIN. CODE tit. 20, § 25.025(a) (2017); ARK. CODE R. B-2 (2017); IDAHO ADMIN. CODE r. 20.03.16.080 (2016); MD. CODE REGS. 26.19.01.06 (2017); NEB. CODE R. § 267-3.004 (Weil 2017); NEV. ADMIN. CODE § 522.230 (2017); N.M. CODE R. § 19.2.100.23 (LexisNexis 2017); 15A N.C. ADMIN. CODE 05H.1403 (2017); OHIO ADMIN. CODE 1501:9-1-03 (2017); WASH. ADMIN. CODE § 344-12-060 (2017).

ly dependent on the number of wells within the state; whereas, other states simply charge a higher dollar figure for a blanket bond that is not dependent on the number of wells within the state.

b. Depth-Dependent Self-Bonding

i. Kentucky

Kentucky requires that an operator obtain a permit before drilling a new oil or natural gas well.³⁶³ This includes when an operator wants to re-open an old oil or natural gas well.³⁶⁴ The first step the operator must undertake is to file an application with the Department for Natural Resources.³⁶⁵ Additionally, operators in Kentucky must also submit a bond within the commonwealth.³⁶⁶ The bond dollar figure varies depending on the depth of the well.³⁶⁷ A well of less than 500 feet only requires a bond of \$500; whereas, a well of greater than 5500 feet but less than 6000 feet requires a bond of \$8,000.³⁶⁸ If the well is greater than 6001 feet, it is considered a deep well and the bond dollar figure must be at a minimum of \$25,000 for a vertical deep well.³⁶⁹ For a horizontal deep well, the minimum dollar figure of the bond must be \$40,000 and can be greater if the Commission thinks it should be such.³⁷⁰ An operator of shallow wells may file a blanket bond to cover all of their shallow wells within the Commonwealth of Kentucky.³⁷¹ The dollar figure of the blanket bond depends on the number of shallow wells an operator owns within the commonwealth.³⁷² For one to twenty-five wells, the dollar figure is \$10,000; whereas, for more than 500 wells, the dollar figure is \$100,000.³⁷³ The operator of deep wells may also file a blanket bond in the Commonwealth of Kentucky that covers all of their oil and natural gas wells.³⁷⁴ For one to ten deep vertical wells, the blanket bond must be a dollar figure greater than \$200,000, and for one

363. KY. REV. STAT. ANN. § 353.570 (LexisNexis 2017).

364. *Id.*

365. *Id.* § 353.590(1).

366. *Id.* § 353.590(7).

367. *See id.* (listing the varying bond amounts based on the depth of the well).

368. *Id.*

369. *See* KY. REV. STAT. ANN. § 353.590(7)-(8) (LexisNexis 2017) (calling wells less than 6000 feet shallow wells).

370. *Id.* § 353.590(9).

371. *Id.* § 353.590(12)(a).

372. *Id.*

373. *Id.*

374. *Id.* § 353.590(17).

to ten horizontal deep wells, it must be for a the dollar figure greater than \$320,000.³⁷⁵

ii. North Dakota

North Dakota, like most states, also requires than an operator obtain a permit before drilling an oil or natural gas well within the state.³⁷⁶ Additionally, North Dakota also requires that the operator of such a well also file a bond.³⁷⁷ This bond for an individual well must be at least \$50,000, although for wells less than 2000 feet the state may approve less for a bond.³⁷⁸ For a blanket bond, North Dakota requires the bond dollar figure to be \$100,000 to cover up to six wells within the state.³⁷⁹ If an operator would like to operate more than six wells, the operator must either submit an individual bond for each subsequent well, submit another blanket bond for another six wells, or decrease the number of wells they operate to six or less.³⁸⁰ North Dakota requires that the bond be a surety or cash bond although they may approve an alternative form of security after a notice and hearing.³⁸¹

iii. Texas

The main agency within the State of Texas that regulates oil and natural gas well permits is the Railroad Commission of Texas. In order for an operator to obtain a permit, they must fill out an application for a permit online.³⁸² The fee that must be filed with the application for a new oil or natural gas permit is based on the vertical drilling depth of the well.³⁸³ The application fee varies depending on the depth of the well ranging from \$200 for a well less than 2000 feet in depth to \$300 for a well with a drilling depth greater than 9000 feet.³⁸⁴ In terms of bonding, Texas requires that

375. KY. REV. STAT. ANN § 353.590(17).

376. N.D. CENT. CODE § 38-08-05 (2016).

377. *Id.* § 38-08.1-03.1.

378. *Id.* § 43-02-03-15(2).

379. *Id.*

380. *Id.*

381. *Id.* § 43-02-03-15(3).

382. 16 TEX. ADMIN. CODE § 3.5(a) (2016); Railroad Commission of Texas, Drilling Permits (W-1): Online Filing User Guide 1, 1, *available at* <http://www.rrc.state.tx.us/media/20067/dpmanual.pdf> (Feb. 2016).

383. *Id.* § 3.5(f); Railroad Commission of Texas, *supra* note 382, at 1.

384. *Id.* § 3.78(b); Railroad Commission of Texas, Oil & Gas Fee Payments and Surcharges, <http://www.rrc.texas.gov/oil-gas/applications-and-permits/fees-surcharges/> (last updated Aug. 15, 2016).

each operator of an oil or natural gas well also file an individual performance bond for each well, a blanket performance bond for all wells in the state, or a letter of credit in the same dollar figure of the individual performance bond or blanket performance bond.³⁸⁵ The individual performance bond must be in the dollar figure of \$2 per foot of well depth for each well the entity operates.³⁸⁶ Texas requires that the blanket performance bond dollar figure be at least \$25,000 if operating ten wells or less, \$50,000 if operating between 10 and 100 wells, and \$250,000 if operating more than 100 wells.³⁸⁷

iv. Wyoming

Wyoming, like other states, requires that an operator apply for a permit before commencing oil or natural gas operations.³⁸⁸ The State of Wyoming also requires that an operator file a surety bond with the state as well.³⁸⁹ The surety bond for an individual well should be \$10 per foot of well depth although it should be “adjusted every three years based on the Wyoming consumer price index or actual plugging costs.”³⁹⁰ In the alternative, the operator may also file a blanket bond for \$100,000 that would cover all wells within the state of Wyoming regardless of depth.³⁹¹

v. Pennsylvania

Before an entity can drill in the Commonwealth of Pennsylvania, one must first obtain a permit to do so.³⁹² In order for an entity to apply for a permit, it must furnish the necessary forms with the Department of Environmental Protection.³⁹³ In addition to filing the requisite forms, Pennsylvania requires that the operator of a non-plugged well must file a bond for the well.³⁹⁴ Pennsylvania accepts many forms of bonds including sureties, cash, letters of credit, and treasury bonds.³⁹⁵ The bond requirements in Pennsylvania are dependent on the length of the well and the number of

385. *Id.* § 3.78(d).

386. *Id.* § 3.78(g)(1)(A).

387. *Id.* § 3.78(g)(1)(B).

388. 55-3 WYO. CODE R. § 1 (LexisNexis 2016).

389. *Id.* § 4(a).

390. *Id.* § 4(b)(i)(A).

391. *Id.* § 4(b)(i)(B).

392. 58 PA. CONS. STAT. § 3211(a) (2012).

393. 25 PA. CODE § 78.15 (1989).

394. *Id.* § 3225(a)(1).

395. *Id.* § 3225(a)(3).

wells that the owner operates within the Commonwealth.³⁹⁶ For example, for wells less than six thousand feet, the bond must be \$4000 per well for an owner operating less than fifty wells.³⁹⁷ For wells greater than six thousand feet, the bond must be \$10,000 per well up to twenty-five wells.³⁹⁸ The owner may also submit a blanket bond to cover all wells less than six thousand feet within the Commonwealth that ranges from \$35,000 to \$60,000 for 51-150 wells, \$60,000 to \$100,000 for 151-250 wells, and \$100,000 to \$250,000 for more than 250 wells.³⁹⁹ For wells greater than six thousand feet, the amounts are up to \$140,000 for less than twenty-five wells, \$140,000 to \$290,000 for twenty-six to fifty wells, \$290,000 to \$430,000 for 51-150 wells, and \$430,000 to \$600,000 for more than 150 wells.⁴⁰⁰

vi. Other States

The other states that base their bond dollar figure on the depth of the well are: Alabama, Arizona, California, Colorado, Florida, Georgia, Illinois, Kansas, Louisiana, Michigan, Mississippi, Missouri, Montana, New York, North Carolina, Oregon, South Dakota, Tennessee, and Utah.⁴⁰¹ As can be seen above, these states treat blanket bonds differently in that some states base the dollar figure of the blanket bond on the depth of the wells that are within the state; whereas, other states do not do so.

B. OIL AND NATURAL GAS FINANCIAL ASSURANCE CONCLUSION

The low cost of the bonds required for environmental reclamation via traditional oil and gas operations do not invoke a need for an operator to pledge their company's security to secure a bond. The practice of self-bonding, as it is utilized in the surface coal industry, is not necessary as it relates to federal onshore operations and in most states. However, the ra-

396. *Id.* § 3225(a)(1).

397. *Id.*

398. *Id.*

399. 25 PA. CODE § 3225(a)(1)-(2).

400. *Id.*

401. CAL. PUB. RES. CODE § 3204 (West 2017); KAN. STAT. ANN. § 55-155 (2017); S.D. CODIFIED LAWS § 45-9-15 (2016); ALA. ADMIN. CODE r. 400-1-2-.03 (2017); ARIZ. ADMIN. CODE § 12-7-103 (2017); 2 COLO. CODE REGS. 404-01(706) (2016); FLA. ADMIN. CODE ANN. r. 62C-26.002 (2016); GA. COMP. R. & REGS. 391-3-13-.04 (2017); 62 ILL. CODE R. 240.1500 (LexisNexis 2017); LA. REV. STAT. ANN. § 30:4.3 (2017); MICH. ADMIN. CODE r. 324.212 (2017); MISS. CODE R. § 26-100-1.4 (2017); MO. CODE REG. ANN. tit. 10, § 50-2.020 (2017); MONT. ADMIN. R. 36.22.1308 (2016); N.Y. COMP. CODES R. & REGS. tit. 6, §§ 551.4-6 (2017); 15A N.C. ADMIN. CODE 05H.1403 (2017); OR. ADMIN. R. 632-010-0205 (2017); TENN. COMP. R. & REGS. 0400-52-01-01 (2016); UTAH ADMIN. CODE r. 649-3-1 (2017).

ther insignificant cost of the bonds themselves raises concerns of adequate environmental reclamation. If the purpose of these bonds is to ensure compliance and, if necessary, cover the costs of reclamation should an entity fail to do so, then regulatory authorities must make sure such dollar figures are sufficient to cover all the costs.

The BLM and many other states have not increased the financial assurance dollar figure requirements since the 1960s.⁴⁰² In light of inflation, this alone may be evidence that the current minimum bond requirements may not be enough to fully cover the costs of well reclamation. It is undisputed that the costs of reclamation for a well are far less costly than that of a surface coal mine. The exact cost of reclamation may be dependent upon the unique features including depth and concentration that will be difficult to capture without looking at each operation individually.

The argument that current bond dollar figures are inefficient is magnified by the use of blanket bonds. If an operator has a large number of wells, instead of bonding each individual well, they have the option of utilizing a blanket bond to cover all of the operations in a state or on federal land. The greater the number of wells that are covered by the fixed blanket bond number, the less money that is available to cover the reclamation costs for each individual well in operation.

The recent flood of bankruptcies in the coal industry should prompt a review of the effectiveness of current financial assurance mechanisms in the oil and gas industry. This is especially pertinent given the technological advances that have increased the feasibility of unlocking certain domestic energy reserves and the falling price of oil and gas because of such accessibility.⁴⁰³ Couple this with the debt load of domestic operators along with recent concerns regarding the potential environmental consequences of hydraulic fracturing and we see that environmental reclamation could be in jeopardy.

States would be prudent to raise the current bond amounts for self-bonding for oil and natural gas wells. North Dakota is one of the few states that seems to have a fairly aggressive number for what a minimum bond amount should be for an individual well in correlation to the average cost to reclaim an oil or natural gas well site. North Dakota's blanket bond amount could be a bit higher, but it correlates well to the average cost for reclaim-

402. Lucas Davis, *Modernizing Bonding Requirements for Natural Gas Producers* 5 (The Hamilton Project, Discussion Paper No. 2012-02, June 2012), http://www.hamiltonproject.org/assets/legacy/files/downloads_and_links/06_bonds_davis.pdf.

403. U.S. E.P.A., *supra* note 285, at 4.

ing an oil and natural gas site as well. Most every other state this Article looked at in depth, though, has a minimum bond amount that is much lower than what it normally costs to reclaim an oil or natural gas site. This is especially true for the amounts required by blanket bonds. States should follow North Dakota's example and raise their bond amounts more in line to what the average cost is to reclaim an oil or natural gas well. Furthermore, North Dakota is further proof that by raising these amounts, operators will not just seek other states for oil and natural gas opportunities and ignore the states with higher bond amounts.⁴⁰⁴ States regulating oil and natural gas should learn a lesson from the coal industry and at least raise their minimum bond amounts to protect themselves from a potential future sudden downturn in the demand for oil or natural gas. We're already starting to see potential signs of such.⁴⁰⁵

VI. CONCLUSION

The law seeks to ensure environmental accountability through the use of financial assurance. As this Article illustrates, many traditional assurance mechanisms fall short of this mandate by lacking the ability to provide for effective environmental reclamation. Recent events in the coal industry have demonstrated the negative impact of self-bonding. Despite the systemic failure of self-bonding, it is still permitted and currently utilized by major coal companies today. While other traditional assurance mechanisms may fare better should a business become insolvent, many are not available because of the long-term costs associated with environmental reclamation. Environmental assurance trusts offer the ability to cover these long-term costs and be a more appealing financial option for businesses. Thus, it is timely for states and the federal government to reevaluate the relationship of environmental protection through financial assurance mechanisms and that of business.

404. See Mark Silva, *North Dakota's Oil Boom Fuels Economic Growth*, U.S. NEWS & WORLD REP. (Mar. 3, 2017), <https://www.usnews.com/news/best-states/articles/2017-03-03/north-dakotas-oil-boom-fuels-economic-growth> (specifying that the state's number two economy as measured by Best States has mainly been boosted by oil and natural gas growth) (citing Economy Rankings: Measuring States' Economic Stability and Potential, <https://www.usnews.com/news/best-states/rankings/economy>).

405. *Id.*