RECLAMATION OF INACTIVE AND ABANDONED HARDROCK MINE SITES: REMINING AND LIABILITY UNDER CERCLA AND THE CWA

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INTRODUCTION

The hardrock mining industry has been integral to the economic development of the United States.[1] Mining spurred the development of the West, and the metals extracted by the hardrock mining industry were a key component of the industrial revolution. Hardrock mining's legacy, however, is the environmental degradation caused by over 500,000 inactive and abandoned mine ("IAM") sites scattered throughout the country.[2]

Mining wastes from IAMs have led to a number of environmental problems, the most extensive of which is surface and groundwater contamination caused by acid mine drainage ("AMD").[3] AMD is considered to be one of the most serious problems associated with IAMs because it is difficult to remedy and can occur long after a mine has ceased operations, even increasing in severity over time.

The Iron Mountain and the Bingham Canyon Copper mines provide two examples of mines where AMD has caused extensive environmental degradation. Iron Mountain, a 4,400 acre mine located in Northern California, was abandoned thirty-three years ago.[4] Since the mine ceased operations, vast quantities of iron and other heavy metals have been discharged into the Sacra-

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1. *See Unreclaimed Hardrock Mines: Joint Oversight Hearing Before the Subcomm. on Energy and Mineral Resources and the Subcomm. on Oversight and Investigations of the Comm. on Natural Resources*, 103d Cong. 1 (1993) [hereinafter *Hardrock Mines Hearing*] (statement of the Honorable Richard H. Lehman, Chairman, Subcomm. on Energy and Mineral Resources).

2. *See* JAMES S. LYON ET AL., MINERAL POLICY CENTER, BURDEN OF GILT 3 (1993). *But see Hardrock Mines Hearing*, *supra* note 1, at 148 (statement of Steven G. Barringer, Mineral Resources Alliance) (stating that one-third of the 500,000 sites pose no threat to human health and the environment).

3. *See* 1 WESTERN GOVERNORS' ASS'N, INACTIVE AND ABANDONED NONCOAL MINES: A SCOPING STUDY 10 (1991).

4. *See* LYON ET AL., *supra* note 2, at 12.

mento river, causing fishkills[5] as far as 220 miles downstream.[6] According to the Environmental Protection Agency ("EPA"): "Iron Mountain produces as much heavy metal and acid contamination as all the other sources on the river combined."[7] Similarly, AMD from the Bingham Canyon Copper mine, located near Salt Lake City, Utah, has been contaminating the local groundwater with toxic heavy metals.[8] Despite extensive pump and treat efforts,[9] a plume of contaminated groundwater continues to migrate from the mine toward Salt Lake City's water supply.[10]

The cleanup of these and other mines can be an enormously expensive undertaking. The Mineral Policy Center estimated that it will cost between $32.7 and $71.5 billion dollars to clean up the IAM sites that currently exist in the United States.[11] The Comprehensive Environmental Response Compensation Liability Act ("CERCLA")[12] and the Clean Water Act ("CWA")[13] are theoretically available to compel cleanup or to recover cleanup

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5. A "fishkill" refers to the sudden death of a fish population. *See* NICHOLAS A. ROBINSON, ENVTL. L. LEXICON, F-5 (1996).

6. *See* LYON ET AL., *supra* note 2, at 12.

7. *Id.*

8. *See* Mike Gorrel, *Fouling Water to Cost Kennecott: Accord Settles Claims for Century of Mining: Kennecott to Pay More for Polluting Water*, SALT LAKE TRIB., May 31, 1995, at B1 *available in* 1995 WL 3139270.

9. "Pump and treat" is a method of remediation whereby wells are drilled to the level of the aquifer, and the contaminated groundwater is physically pumped from the ground and treated to raise its pH and reduce the heavy metal content. *See* LYON ET AL., *supra* note 2, at 45.

10. *See Kennecott Groundwater Pilot Testing Begins*, SUPERFUND WK. (Pasha, Inc.), Oct. 13, 1995, *available in* LEXIS ENVIR SPRFND; *Think Tank Charges States Don't Protect Environment from Mining*, LAS VEGAS REV.-J., Aug. 16, 1994, *available in* 1994 WL 4170621; *Hardrock Mines Hearing*, *supra* note 1, at 52 (statement of Philip M. Hocker, President, Mineral Policy Ctr.).

11. *See* LYON ET AL., *supra* note 2, at 3. Title IV of the Surface Mining Control and Reclamation Act ("SMCRA") established the Abandoned Mine Land ("AML") reclamation program to address the environmental problems caused by abandoned coal mines. *See* 30 U.S.C. § 1231 (1994). The AML program has established a fund for the federal government and for Indian tribes, which have assumed primary enforcement authority for SMCRA, to utilize fund monies to reclaim abandoned coal mines. *See* Courtney W. Shea, *Regulating for the Long Term: SMCRA & Acid Mine Drainage*, 10 J. NAT. RESOURCES & ENVTL. L. 193, 210 (1994-1995). The program is financed by an assessment fee of 35 cents per ton of surface-mined coal and 15 cents per ton of underground-mine coal. *See id.* The fund generated three billion dollars from 1977 to 1990. *See id.* However, that amount fell far short of the required six billion dollars necessary just to reclaim those sites that were categorized as being high priority for reclamation. *See id.*

12. 42 U.S.C. §§ 9601-9675 (1994).

13. 33 U.S.C. §§ 1251-1387 (1994).

costs from those entities whose activities caused the degraded environmental conditions.[14] However, because many of these mines were abandoned long ago, the responsible parties typically do not exist anymore, cannot be located, or are financially unable to contribute to the cleanup of their past activities.[15] Primarily for these reasons, CERCLA and the CWA have failed to address the problems associated with IAMs.

An alternative approach to compulsory cleanup is to encourage the remining of IAMs. New mining technology can facilitate the extraction of ore and the reprocessing of mining wastes, neither of which may have been feasible when the site was originally mined.[16] In the process, sources of AMD will be eliminated, and mining companies will be able to apply their new technologies towards the reclamation of IAMs.[17] Thus, the remining of IAMs will not only fund the cleanup of those sites, it will also allow valuable resources to be extracted from existing mining sites, reducing the need to disturb pristine areas for mining activities.

Under both CERCLA and the CWA, a mining company that purchases or operates an IAM can be held liable for degraded conditions that existed prior to its involvement with the site.[18] The risk of "buying" liability for preexisting conditions discourages remining activities.[19] This comment discusses proposals offered by the Western Governors' Association to amend both CERCLA and the CWA to limit liability exposure for entities that remine, which will, in turn, stimulate remining and the reclamation of IAMs.

Part I of this comment will provide background information on the environmental problems associated with IAMs, specifically addressing AMD and remining as a method to reclaim IAMs. Part II will address the current framework of CERCLA and the

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14. Although the CWA does not impose reclamation obligations, as a practical matter, reclaiming an IAM may be the most effective way to comply with permit limitations. *See* Thomas C. Reed, *Some Recent Developments in the Water Protection Obligations of the Coal Industry: Can Coal and Water Mix?*, 12 E. MIN. L. FOUND. § 13.04 n.27 (1991).

15. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 62.

16. *See* LYON ET AL., *supra* note 2, at 49; 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 49.

17. *See Hardrock Mines Hearing*, *supra* note 1, at 104 (statement of Graham M. Clark, Jr., Senior Vice President, Newmont Mining Corp.).

18. *See id.*

19. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 93-94.

CWA and how each act can impose liability on new mine operators or owners for conditions that existed prior to that entity's remining activities. Part III discusses several proposals to limit liability for preexisting conditions under both CERCLA and the CWA, and to impose flexible bonding requirements and cleanup standards that ensure environmental conditions are improved on the site without eliminating the economic incentive to remine. Finally, Part IV will describe how discrete aspects of these proposals have already been implemented, demonstrating their ability to successfully encourage the reclamation of IAMs.

I. BACKGROUND

Prior to 1970, there was very little awareness of the environmental impacts that resulted from mining activity.[20] Historically, this meant that mining wastes were simply left "wherever they might lie—on steep slopes, across watersheds, and in toxic tailings ponds."[21] Additionally, milling reagents, used chemical solutions, and waste rock were often dumped into streams.[22] The numerous environmental problems associated with these wastes can be categorized as: (1) air and water pollution from the erosion of dumps and from unvegetated mill tailings;[23] (2) water pollution from the leaching of mill tailings into streams; (3) contamination from chemicals; (4) stream degradation caused by historic waste process dumping; (5) abandoned chemical storage; and (6) AMD from mine dumps and workings and acid drainage formed within abandoned tailings ponds.[24]

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20. *See* 1 *id.* at 2.

21. LYON ET AL., *supra* note 2, at 13.

22. *See Hardrock Mines Hearing*, *supra* note 1, at 31 (statement of Gregory Conrad, Executive Dir., Interstate Mining Compact Comm'n.).

23. "Tailings" are finely ground rock particles from which most of the commercial ore has been extracted through beneficiation. *See* CALIFORNIA MINING ASS'N, MINE WASTE MANAGEMENT 19 (Ian P. Huchinson & Richard D. Ellison eds. 1992). "Beneficiation" is a method used to process ore in order to remove unwanted constituents and achieve the desired product. *See* JAMES J. KING, THE ENVIRONMENTAL DICTIONARY 53 (1989). The primary type of beneficiation technology is heap leaching. "Heap leaching" involves the extraction of ore by applying either cyanide or sulfuric acid to ore piles that are placed either directly on the ground or on top of a lining pad. *See* CALIFORNIA MINING ASS'N, *supra* at 23. The cyanide and sulfuric acid solutions dissolve the commercial ore out of the pile. *See id.* at 19.

24. *See Hardrock Mines Hearing*, *supra* note 1, at 31 (statement of Gregory Conrad, Executive Dir., Interstate Mining Compact Comm'n.).

A. Acid Mine Drainage

Of the environmental problems listed above, AMD is perhaps the most serious and the most difficult to remedy. A recent report by the Western Governors' Association stated that AMD is one of the five most serious environmental threats associated with IAMs in the western United States.[25] AMD is a particularly serious problem because it can arise long after a mine has ceased operations and may continue indefinitely, possibly increasing in severity over time.[26] Moreover, mine sites often cover vast, hydrologically complex areas, making the remediation[27] of AMD a very costly and extensive undertaking that can continue in perpetuity.

AMD occurs when sulfide-bearing rock comes into contact with air and water.[28] The destructive processes of hardrock mining bring sulfide-bearing rock to the earth's surface in a variety of mining wastes such as "overburden,[29] waste rock,[30] tailings,[31] spent ore, process solutions, and mineral processing wastes such as slag[32] and flue dust."[33] When these waste minerals are exposed to oxygen and water, they oxidize, creating sulfuric acid and ferric hydroxide.[34] These highly acidic solutions,

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25. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 4.

26. *See* Mary J. Hackett, *Remining and the Water Quality Act of 1987: Operators Beware!*, 13 COLUM. J. ENVTL. L. 99, 102-03 (1987); 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 10.

27. Remediation efforts typically include the revegetation of land, isolation of spoil from air and water, and the removal of contaminants from water. *See id.* at 10. Technologies to prevent AMD include backfilling with lime rock, chemical treatment, infiltration seals, and infiltration control by high water demand crops. *See id.* at 11. Contaminated groundwater is typically remediated by physically pumping and treating the water. *See* LYON ET AL., *supra* note 2, at 45.

28. *See* LYON ET AL., *supra* note 2, at 16.

29. "Overburden" is the soil and rock that is stripped from the top of the ore body. *See* CALIFORNIA MINING ASS'N, *supra* note 23.

30. "Waste rock" is nonmineralized and low-grade mineralized rock that is removed either from above or adjacent to the ore. *See id.*

31. For a definition of tailings, *see supra* note 23.

32. "Slag" is the residue that remains after the smelting of metallic ore. *See* AMERICAN HERITAGE DICTIONARY 1214 (4th ed. 1973).

33. "Flue dust" are non-combustible particles that emanate from a combustion chimney during ore processing. *See* Robinson, *supra* note 5, at F-8 to F-9; *see also* Linda Rockwood & Robert Lawrence, *New Mines from Old: Environmental Considerations in Remining and Reprocessing of Waste Materials*, 36 ROCKY MTN. MIN. L. INST. 4-4 (1990).

34. *See* LYON ET AL., *supra* note 2, at 16.

which are typically 20 to 300 times more acidic than acid rain,[35] seep into soil, run off into surrounding streams, and migrate into groundwater.[36] In addition, if an oxidant, such as ferric ion, is present with AMD, it can leach heavy metals[37] from surrounding mine wastes into streams and groundwater.[38] Acidic runoff and heavy metals can destroy vegetation and stream ecosystems and can make groundwater highly toxic.[39]

This acidification process can occur naturally, but natural acidification is not nearly as extensive as AMD. Mining processes manipulate enormous quantities of sulfide-bearing ore and fracture it, thereby exposing much greater quantities of the susceptible minerals to weathering than would normally occur.[40] The Mineral Policy Center estimated that every ton of raw ore extracted generates 100 tons of waste ore.[41] As a result, approximately 50 billion tons of mining wastes currently cover both private and public lands.[42] AMD associated with these wastes have degraded approximately 12,000 miles of streams[43] and have created groundwater problems at possibly as many as 500 IAMs.[44]

AMD may not form immediately after waste ore is brought to the surface and exposed to air and water.[45] Soils can buffer changes in acidity, maintaining mine drainage at a neutral pH for some time.[46] Eventually, however, nature's defenses become overwhelmed and mine drainage becomes more and more acidic.[47] Below a critical pH value and in the presence of certain naturally occurring bacteria,[48] the formation of AMD begins to accelerate

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35. *See id.*

36. *See id.* at 41-46; Christopher Hayes & William Schafer, Ph.D., *Acid Rock Drainage: The Next Focus of Environmental Regulation?*, 42 ROCKY MTN. MIN. L. INST. 15, 15-10 to 15-13 (1996).

37. Heavy metals include cadmium, copper, iron, lead, manganese, mercury, silver, and zinc. *See* LYON ET AL., *supra* note 2, at 14.

38. *See id.* at 16.

39. *See* LYON ET AL., *supra* note 2, at 41-46.

40. *See id.* at 16.

41. *See id.* at 13.

42. *See id.*

43. *See Hardrock Mines Hearing*, *supra* note 1, at 46 (statement of Philip M. Hocker, President, Mineral Policy Ctr.).

44. *See* LYON ET AL., *supra* note 2, at 30.

45. *See id.* at 16.

46. *See id.*

47. *See id.*

48. Naturally occurring bacteria include acidophilic and iron-and-sulfur-oxidizing bacteria. *See id.*

rapidly and becomes self-perpetuating.[49] At this stage, AMD formation is very difficult to stop.[50]

B. Remining

CERCLA and the CWA have not effectively addressed the environmental problems associated with IAMs primarily because the entities responsible cannot be located, do not exist, or are financially insolvent and thus unable to contribute to the site's reclamation.[51] The inadequacies of these regulatory programs have prompted industry representatives and some environmentalists[52] to advocate remining as a method to reclaim IAMs.[53] A number of proposals have been suggested by these groups to encourage remining by removing its primary obstacle—the risk that a mining company may buy liability for preexisting conditions through the exploration, operation, or acquisition of an IAM.[54] By fostering remining, preexisting mining wastes can be mined and removed, eliminating sources of AMD and improving the water quality of surrounding streams and groundwater.[55]

Most IAM sites contain valuable minerals that could be extracted and utilized through remining. The rudimentary technology that existed when many IAM sites were originally in operation did not allow for the profitable recovery of the same quantity of minerals that could be recovered with today's technology.[56] For example, waste rock piles on IAM sites often

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49. *See id.*

50. *See* LYON ET AL., *supra* note 2, at 16.

51. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 62.

52. *See* Hackett, *supra* note 26, at 100.

53. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 93; *Hardrock Mines Hearing*, *supra* note 1, at 104 (statement of Graham M. Clark, Jr., Senior Vice President, Newmont Mining Corp.); LYON ET AL., *supra* note 2, at 49.

54. *See generally* Rockwood & Lawrence, *supra* note 33, at 4-1; 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 93-105.

55. The effects of remining on surrounding water quality were tested in conjunction with coal mines in 1994. *See* Jay W. Hawkins, *Statistical Characteristics of Coal-Mine Discharges on Western Pennsylvania Remining Sites*, 30 WATER RESOURCES BULL. 861, 861 (1994). The study indicated that water quality improves as a result of remining as long as recharge from the surface and adjacent unmined strata is decreased. *See id.* "Recharge" is the process by which water is added to the zone of saturation of an aquifer. *See* ROBINSON, *supra* note 5, at R-3. Flow recharge reduction is achieved during reclamation of a site by diverting groundwater from the spoil, by reducing surface infiltration, or both. *See* Hawkins, *supra* at 869.

56. *See Hardrock Mines Hearing*, *supra* note 1, at 171 (statement of Debra W. Struhsacker, Envtl. Permitting and Gov't Relations Consultant); *id.* at 131

"have higher gold grade than many open pit mines."[57] Companies remining a site can process preexisting waste rock and properly dispose of the residue, thereby eliminating a source of AMD on that site while obtaining high-grade ore.[58] Waste rock piles can also be eliminated by utilizing the rock in the construction of roads and other temporary structures necessary for the remining operation.[59] Additionally, valuable minerals can be extracted from preexisting tailings piles. In the process, the remaining tailings and beneficiation solutions could be properly removed and disposed.[60]

Remining promises to be an effective approach to address AMD and the other problems associated with IAMs.[61] However, because of the potential risk of liability under both CERCLA and the CWA, many mining companies are discouraged from even exploring an IAM for fear of being held liable for the site's preexisting environmental problems.[62] By eliminating the risks of buying liability, mining companies would be able to apply state-of-the-art technologies to remine and privately fund the reclamation of many of the IAMs.

II. COMPULSORY CLEANUP—LIABILITY UNDER CERCLA AND THE CWA

"There is no [f]ederal law which comprehensively addresses [IAMs] . . . ."[63] Moreover, two federal laws that compel the cleanup of IAMs, CERCLA and the CWA, have been practically ineffective.[64] The most significant limitation of CERCLA and the CWA is their inability to reach those responsible for the environmental degradation at IAMs, as those persons or entities either

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(statement of Graham M. Clark, Jr., Senior Vice President, Newmont Mining Corp.).

57. *See id.* at 131 (statement of Graham M. Clark, Jr., Senior Vice President, Newmont Mining Corp.).

58. *See id.*

59. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 93; *Hardrock Mines Hearing*, *supra* note 1, at 171 (statement of Debra W. Struhsacker, Envtl. Permitting and Gov't Relations Consultant).

60. *See Hardrock Mines Hearing*, *supra* note 1, at 131 (statement of Graham M. Clark, Jr., Senior Vice President, Newmont Mining Corp.).

61. *See* LYON ET AL., *supra* note 2, at 49.

62. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 93.

63. *See Hardrock Mines Hearing*, *supra* note 1, at 2 (statement of the Honorable Richard H. Lehman, Chairman, Subcomm. on Energy and Mineral Resources).

64. *See id.*; LYON ET AL., *supra* note 2, at 32-33.

do not exist, cannot be located, or are financially unable to contribute to the site's cleanup.[65]

A. *Comprehensive Environmental Response Compensation Liability Act*

CERCLA[66] was enacted in 1980, largely in response to the highly publicized discoveries of hazardous waste in the residential areas of Love Canal, New York, and Times Beach, Missouri.[67] The statute authorizes the EPA to respond to a release of a hazardous substance or a substantial threat of one,[68] and compels the cleanup of the nation's worst inactive and abandoned hazardous waste sites by imposing strict, joint and several liability on a broad range of Potentially Responsible Parties.[69]

1. Overview of CERCLA

Under CERCLA, a responsible party can be required either to clean up hazardous waste at a site or pay for cleanup actions conducted by the state, the EPA, or some other private party.[70] Although the EPA is usually the agency which enforces CERCLA, the Act also allows private citizens to bring an action to compel

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65. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 62. Additionally, two recent court decisions cast some doubt on the constitutionality of holding parties responsible for conduct that occurred before the enactment of CERCLA and the CWA. *See* Landgraf v. USI Film Prod., 511 U.S. 244 (1994); United States v. Olin Corp., 927 F. Supp. 1502 (S.D. Ala. 1996), *rev'd*, 107 F.3d 1506 (11th Cir. 1997).

66. 42 U.S.C. §§ 9601-9675 (1994).

67. Love Canal and Times Beach were both abandoned toxic waste sites linked to severe environmental and public health problems. Current awareness of potential environmental and public health risks from abandoned sites is attributed to the intense public reaction that resulted from these highly publicized events. *See generally* William D. Evans, Jr., *The "Road Warrior" Quality of Superfund Contribution Litigation*, TENN. B.J., July-Aug. 1996, at 26.

68. *See* 42 U.S.C. § 9604(a)(1) (1994).

69. Courts have consistently construed CERCLA liability as being strict, joint and several. *See* Rockwood & Lawrence, *supra* note 33, at 4-27. Strict liability means that plaintiffs do not have to prove that a Potentially Responsible Party's ("PRP") conduct was negligent. *See* United States v. R.W. Meyer, Inc., 889 F.2d 1497 (6th Cir. 1989). Joint and several liability means that a PRP at a site can be held liable for the cost of the entire site's cleanup even if other PRPs contributed to the harm. *See id.* at 1506-08. Joint and several liability will not be applied if the PRP can prove the harm is divisible. *See id.* at 1507-08; United States v. Monsanto Co., 858 F.2d 160 (4th Cir. 1988).

70. *See* 42 U.S.C. § 9607(a) (1994).

the cleanup of a site.[71] CERCLA holds the following four classes of parties liable for cleanup costs: (1) current owners and operators of the facility; (2) former owners and operators of the facility who were present at the time of hazardous waste disposal; (3) generators of the hazardous waste and persons who arranged for the disposal of the waste; and (4) transporters who selected the disposal site.[72]

When the EPA becomes aware of hazardous waste sites, those sites are placed in a tracking database called the Comprehensive Environmental Response Compensation & Liability Information System ("CERCLIS").[73] After a preliminary study, each site is given a hazard ranking to determine its priority in cleanup efforts conducted by the EPA.[74] Depending on a site's hazard ranking, it is: (1) eliminated because its hazard ranking is too low; (2) marked "No Further Response Action Planned"; or (3) placed on the National Priority List ("NPL").[75] For those sites marked "No Further Response Action Planned," the EPA will not take any further action until it receives information indicating that a response action is necessary.[76] The EPA is prohibited from using Superfund[77] money for remedial action[78] at sites that are not on the NPL.[79] Thus, liability for remedial actions under

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71. *See id.* § 9659(a)(2).

72. *See id.* § 9607(a)(1)-(4).

73. *Id.* § 9605(a)(8)(B). Originally, there were approximately 30,000 sites on CERCLIS. Over the years, it was determined that a large number of these sites did not pose a threat to public health, yet, until recently, they had remained on CERCLIS.

74. *See id.* § 9605(c).

75. *See* 40 C.F.R. § 300.5 (1996).

76. *See id.*

77. CERCLA is commonly known as a Superfund because it authorizes the generation of a fund to clean up the nation's worst hazardous waste sites. *See* 42 U.S.C. § 9611 (1994). Current funding sources are: (1) taxes on petroleum and chemicals; (2) an "environmental tax" on corporations; (3) funds from general appropriations; (4) costs recovered from responsible parties; (5) punitive damages and penalties under CERCLA; and (6) earned interest. *See* GENE LUCERO ET AL., ENSR CORPORATION, SUPERFUND HANDBOOK 17 (3d ed. 1989).

78. A "remedial action" is a long-term cleanup process designed to provide, to the maximum extent possible, a permanent remedy for the site's environmental problems. *See* 42 U.S.C. § 9601(24) (1994). This is contrasted with "removal actions" which are designed to alleviate immediate dangers to the public health and the environment. *See id.* § 9601(23) (1994).

79. *See* Rockwood & Lawrence, *supra* note 33, at 4-41; *see also* 40 C.F.R. § 300.425(b)(1) (1996).

CERCLA is limited to Potentially Responsible Parties ("PRPs") linked to NPL sites, not CERCLIS sites.

Of the over 1,300 sites on the NPL in 1995, only 66 were mining sites.[80] Despite the fact that mining sites are expansive and pose chronic risks to the public health and the environment, their hazard rankings are typically too low for the majority of them to be placed on the NPL.[81] This is because the hazard ranking system focuses on those sites that pose the most imminent threat to the public.[82] Mining sites are typically located far from heavily populated areas, and while they may cause significant harm to the environment, they do not always pose an immediate threat to the public.[83]

In addition to the cost recovery powers of CERCLA, claims for damages to natural resources also may be brought under the Act.[84] Section 107(f) authorizes the federal government, states, and tribal officials to compel PRPs to pay damages as compensation for the injury, destruction, or loss of natural resources that remain after the completion of a CERCLA remedial action.[85] The money acquired from these claims may be used to restore, replace, or acquire equivalent resources.[86]

Few natural resource damage claims have actually been adjudicated.[87] These claims have, for the most part, been used as settlement tools to compel more thorough reclamation of sites.[88] Also, the effectiveness of this provision in compelling cleanup has been limited because of its strict statute of limitations.[89] A claim under section 107(f) must be filed within three years of the date of the discovery of the damage and its connection to the hazardous release in question.[90]

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80. *See* Elizabeth Sheldon, *Practicing Preventative Medicine: Recommendations for Financing Mining Waste Sites in Perpetuity*, 3 WIS. ENVTL. L.J. 181, 185 n.27 (1996).

81. *See* LYON ET AL., *supra* note 2, at 3, 33.

82. *See id.* at 33; 42 U.S.C. § 9605(g)(2)(B) (1994).

83. *See* LYON ET AL., *supra* note 2, at 33.

84. *See* 42 U.S.C. § 9607(f) (1994).

85. *See id.*; *see also In re* Acushnet River & New Bedford Harbor, 712 F. Supp. 1019, 1035 (D. Mass. 1989) (holding that "natural resource damages are . . . the difference between the natural resource in its pristine condition and the natural resource after the cleanup.").

86. *See* 42 U.S.C. § 9607(f)(1) (1994).

87. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 70-71.

88. *See* 1 *id.*

89. *See* 1 *id.*

90. *See* 42 U.S.C. § 9613(g)(1)(A) (1994).

2. Retroactive Liability

Although CERCLA does not expressly state that it applies to preenactment conduct, courts have historically interpreted section 107(a)[91] as imposing retroactive liability.[92] This judicial interpretation has a variety of justifications. First, section 107(a) contains language referring to activities in the past tense such as "owned," "operated," and "arranged."[93] Second, CERCLA's section 107(f) expressly prohibits natural resource damage claims from being brought for preenactment releases.[94] Thus, courts have inferred that if Congress had intended cost recovery claims only to apply prospectively, that would have been expressly stated in section 107(a).[95] Third, CERCLA's predecessor, the Resource Conservation and Recovery Act ("RCRA"),[96] was thought only to apply prospectively.[97] Therefore, CERCLA was presumed to apply retroactively in order to address those sites not covered by RCRA.[98] Finally, as previously mentioned, the impetus behind CERCLA were the disastrous Love Canal and Times Beach incidents.[99] During a period of intense public outcry over the impact that these abandoned toxic waste sites had on the public health and the environment, CERCLA was touted as the tool needed to clean up the nation's worst hazardous waste sites.[100] This ambitious goal required a powerful statute. Thus, courts interpreted the legislative intent behind CERCLA to be far-reaching and to apply retroactively.[101] Although the propriety of CERCLA's retroactive reach was questioned recently in *United*

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91. *Id.* § 9607(a).

92. *See* United States v. Northeastern Pharm. & Chem. Co., 810 F.2d 726, 732-34 (8th Cir. 1986) (NEPACCO); United States v. Shell Oil, 605 F. Supp. 1064, 1067-77 (D. Colo. 1985); Ohio *ex rel.* Brown v. Georgeoff, 562 F. Supp. 1300, 1302-14 (N.D. Ohio 1983); *see generally* John R. Jacus & Jan G. Laitos, *May CERCLA Apply Retroactively?*, COLO. LAW., Oct. 1996, at 103.

93. 42 U.S.C. § 9607(a) (1994); *see also* Jacus & Laitos, *supra* note 92.

94. *See* 42 U.S.C. § 9607(f)(1) (1994).

95. *See* Jacus & Laitos, *supra* note 92; *see also, e.g.*, United States v. Northeastern Pharm. & Chem. Co., 579 F. Supp. 823, 839 (W.D. Mo. 1984), *aff'd in part and rev'd in part*, 810 F.2d 726 (8th Cir. 1986); Ohio *ex rel.* Brown, 562 F. Supp. at 1311.

96. 42 U.S.C. § 6901 (1994).

97. *See* Jacus & Laitos, *supra* note 92.

98. *See id.*

99. *See supra* text accompanying note 67.

100. *See* Evans, *supra* note 67, at 26, 27.

101. *See id.*

States v. Olin Corp.,[102] other federal courts have thus far refused to follow that district court ruling.[103] The retroactive scope of CERCLA can subject new parties at a site to liability for preexisting conditions. Accordingly, entities that spend money to explore, operate, or purchase an IAM are said to buy liability for the already degraded conditions at the site.

3. Effectiveness of CERCLA

There are a number of aspects of CERCLA that have made it an inefficient tool to facilitate the cleanup of hazardous waste sites.[104] An inordinate amount of time and money is spent on locating and litigating the identity of PRPs. A study by the American International Group, a large commercial insurance company, estimated that sixty percent of Superfund monies are spent on administrative and legal fees.[105] The administration and litigation components of CERCLA have also been time consuming. For an estimated seven- to nine-year cleanup effort, two to three years are spent identifying PRPs.[106] In the past few years, the number of NPL sites cleaned up has increased significantly.[107] However, despite indications that the administration of CERCLA

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102. 927 F. Supp. 1502 (S.D. Ala. 1996), *rev'd*, 107 F.3d 1506 (11th Cir. 1997). The *Olin* decision was based on the Supreme Court's ruling in *Landgraf v. USI Film Products*. 511 U.S. 244 (1994). In *Landgraf*, the Court held that the punitive damages provision of the Civil Rights Amendment of 1991 could not be applied retroactively without clear Congressional intent for retroactivity. *See id.* The *Olin* court held that there was no clear Congressional intent for retroactivity in CERCLA, and thus a presumption against retroactivity must be applied. *See Olin*, 927 F. Supp. at 1502.

103. Two days after the *Olin* decision, the Federal District Court for the District of Nevada held that CERCLA may be applied retroactively. *See* State *ex rel.* Dep't of Transp. v. United States, 925 F. Supp. 691 (D. Nev. 1996). The court focused on the argument that retroactivity was necessary in order for CERCLA to be effective. *See id.* Weakening *Olin* further, the Third Circuit Court of Appeals rejected a defendant-corporation's reliance on *Olin* and held it liable for cleanup costs for preenactment activities. *See* United States v. Alcan Aluminum Corp., 964 F.2d 252 (3d Cir. 1996).

104. *See* Evans, *supra* note 67, at 27.

105. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 68.

106. *See* 1 *id.* at 69.

107. In the past few years, the average duration of long-term cleanup processes has been reduced by more than one year due to new flexibility in determining reasonable future land use and appropriate cleanup standards. *See Accelerated Cleanup and Envtl. Restoration Act Hearings Before the Subcomm. on Envtl. Public Works*, 104th Cong. 397 (1996) [hereinafter *Accelerated Cleanup Hearing*] (statement of Carol M. Browner, Adm'r, Envtl. Protection Agency).

is becoming more efficient, the Act is still viewed by many to have fallen short of its intended goals.[108] At this time, only 423 of the original 1,300 sites listed on the NPL have been remediated.[109]

These time and cost factors are more significant with IAM sites. Many IAMs may have ceased operation more than 100 years ago, making the identification and location of PRPs expensive and time consuming, if not impossible.[110] Even if the responsible parties exist and are identified, they often lack the financial resources to pay for the site's reclamation.[111] Moreover, the remote location of many IAMs precludes a ranking that is high enough for placement on the NPL.[112] Complex legal issues surrounding PRPs at IAM sites may also serve to limit CERCLA's effectiveness. For example, surface and mineral ownership are often severed, creating complex ownership patterns in mining districts.[113] Also, many IAM sites are on public lands which are administered by federal agencies such as the Bureau of Land Management or the Forest Service,[114] raising the issue of whether the federal government can be a PRP at an IAM site.[115]

B. Clean Water Act

The 1972 amendments to the Federal Water Pollution Control Act,[116] known collectively as the Clean Water Act,[117] were

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108. *See Accelerated Cleanup Hearing*, *supra* note 107, at 521 (statement of John F. Spisak, President, Terranext, Inc.).

109. *See Accelerated Cleanup Hearing*, *supra* note 107, at 397 (statement of Carol M. Browner, Adm'r, Envtl. Protection Agency).

110. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 62; *see also Hardrock Mines Hearing*, *supra* note 1, at 133 (statement of Maxine Stewart, Women's Mining Coalition).

111. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 68.

112. *See* LYON ET AL., *supra* note 2, at 33.

113. *See Reauthorization of the Fed. Water Pollution Control Act Hearings Before the Subcomm. on Water Resources and Env't of the Comm. on Transp. and Infrastructure*, 104th Cong. 1634 (1995) (statement of Paul Frohardt, Adm'r, Colo. Water Quality Control Comm'n).

114. *See* Nancy Mangone, *The Other Federal PRPs: Liability for Mining Wastes Under CERCLA and RCRA*, 10 VA. ENVTL. L.J. 87, 87 (1990).

115. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 69. The EPA has been reluctant to see cleanup costs from other departments in the Executive Branch. *See* Mangone, *supra* note 114. However, that trend may be changing. *See id*; *see also* Robert C. Davis, Jr. & R. Timothy McCrum, *Environmental Liability for Federal Lands and Facilities*, NAT. RESOURCES & ENV'T, Summer 1991, at 31.

116. 33 U.S.C. §§ 1251-1387 (1994).

117. *Id.*

intended to eliminate all pollutant discharges into the navigable waters of the United States and make all polluted water swimmable and fishable.[118] To achieve this ambitious goal, the CWA prohibits discharges of pollutants into the navigable waters of the United States, except in accordance with permits issued under the statute.[119] The permit program, usually administered through the states,[120] enforces limits on the chemical, physical, and biological constituents of certain discharges into the waters of the United States.[121]

1. Overview of the CWA

Effluent limitations,[122] imposed under the CWA's National Pollutant Discharge Elimination System ("NPDES"),[123] are based on different technology standards that have been phased-in since the program's inception in 1972.[124] Since the passage of sections 303(c)[125] and 304(l),[126] mining operations are also subject to effluent limitations based on water quality standards.[127] Permit violations may result in fines, imprisonment, injunctions, permit revocation or suspension.[128] Like CERCLA, the CWA may be enforced through citizen suits.[129] To establish a violation under the NPDES point source program, it must be demonstrated that the defendant: (1) discharged or added (2) a pollutant (3) to

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118. *See id.* § 1251(a)(1)-(2).

119. *See id.* § 1311(a).

120. *See id.* § 1342(b).

121. *See id.* §§ 1311-1312.

122. An "effluent limitation" is a limitation on the constituents of the discharge. *See* 33 U.S.C. § 1362(11) (1994).

123. *Id.* § 1342.

124. Initially, permittees were required to meet effluent limitations based on the best practicable technology ("BPT") that was determined as the average of the best technology in each industrial category. *See id.* § 1311(b)(1)(A). Now, effluent limitations are based on the best available technology economically achievable ("BAT") for each category or class. *See* 33 U.S.C. § 1311(b)(2)(A); *see also* Joseph H. Baird & Michael C. Creamer, *Changing Regulation of Surface and Groundwater Resources in the Hardrock Mining Industry*, 40 ROCKY MTN. MIN. L. INST. 11-1, 11-9 (1994).

125. 33 U.S.C.A. § 1313(c) (Supp. 1996).

126. *Id.* § 1314(l).

127. Water quality effluent limitations are based on ambient water standards designed to achieve the state-designated use for the stream in question. *See* 33 U.S.C. § 1313(d) (1994).

128. *See id.* § 1319; Hackett, *supra* note 26, at 116-17.

129. *See* 33 U.S.C. § 1365 (1994).

navigable waters (4) from a point source[130] (5) without a permit.[131] Each of these elements has been heavily litigated.[132]

Promulgated in 1987, section 402(p) of the CWA[133] requires a permit for stormwater discharges associated with industrial activity.[134] The stormwater permit program applies to discharges from any conveyance used for collecting and conveying storm-water that is directly related to manufacturing, processing, or storing raw materials at industrial plants.[135] These permit limitations are based on "Best Available Technology and Best Conventional Pollutant Control Technology, and where necessary, water-quality based controls."[136] In 1990, the EPA promulgated the regulatory definition of "industrial activity" to include eleven major categories of industries, including active and inactive mining operations.[137] It covers discharges from "areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water."[138] Under the stormwater program, runoff from mining operations requires a permit if it comes into contact with "any overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations."[139] Mining operations include the exploration activities of a prospective purchaser.[140]

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130. A "point source" is defined as any discernible, confined, and discrete conveyance, including such structures as pipes, ditches, and channels. *See id.* § 1362(14).

131. *See* National Wildlife Fed'n v. Gorsuch, 693 F.2d 156, 165 (D.C. Cir. 1982).

132. For example, "navigable waters" has been interpreted to include any surface waters, navigable or not. *See* United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 123-24 (1985). Also, some have argued that AMD is not a pollutant if it existed at the site before any human contact. The Ninth Circuit has held that any reliance on historical pollution to evade current liability misapprehends the focus of the CWA. *See* Committee to Save Mokelumne River v. East Bay Mun. Util. Dist., 13 F.3d 305, 309 (9th Cir. 1993).

133. 33 U.S.C. § 1342(p) (1994).

134. *See id.* § 1342(p)(2)(B).

135. *See* 40 C.F.R. § 122.26(b)(14) (1996).

136. 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 82.

137. 40 C.F.R. § 122.26(14)(iii) (1996).

138. 40 C.F.R. § 122.26 (14) (1996).

139. 33 U.S.C. § 1342(l)(2) (1994).

140. *See id.*

2. Retroactive Liability

The CWA's historic treatment of pollution from IAMs was addressed in two recent court decisions: *Committee to Save Mokelumne River v. East Bay Municipal Utility District*[141] and *Beartooth Alliance v. Crown Butte Mines.*[142] The defendants in both cases argued that they were not obligated to comply with the permit requirements of the CWA because AMD from historic mining activities is a naturally occurring condition, and therefore they did not "add" pollutants to the navigable waters of the United States.[143] Both courts rejected that argument, holding that preexisting AMD is considered a pollutant under the Act.[144] In *Mokelumne River,* the Ninth Circuit Court of Appeals focused on the fact that the defendants had collected and channeled surface runoff from the site.[145] The court cited 40 C.F.R. § 122.2, which lists collected surface runoff as a discharge under the CWA.[146] In *Beartooth,* the District Court of Montana cited the EPA's intent "to embrace the broadest possible definition of point source."[147] Although not authoritative, the *Beartooth* court also quoted a passage of a letter from the Director of the Water Management Division of the EPA, Region VIII, which stated, "any seeps coming from identifiable sources of pollution (i.e., mine workings, land application sites, ponds, pits, etc.) would need to be regulated by discharge permits."[148] The effect of these two decisions is that mining companies that explore, operate, or acquire an IAM may be forever obligated to comply with permit limitations for future drainage from the site that is caused by historic mining activities at the site. The *Beartooth* decision did not address the applicability of the stormwater permit program to IAMs. Thus, it remains uncertain whether IAMs could be subject to the NPDES program, the stormwater program, or both.

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141. 13 F.3d 305 (9th Cir. 1993), *cert. denied,* California Regional Water Quality Control Bd. v. Commission to Save Mokelumne River, 513 U.S. 873 (1994).

142. 904 F. Supp. 1168 (D. Mont. 1995).

143. *See Mokelumne River,* 13 F.3d. at 308; *Beartooth,* 904 F. Supp. at 1172.

144. *See Mokelumne River,* 13 F.3d. at 308-09; *Beartooth,* 904 F. Supp. at 1172-73.

145. *See Mokelumne River,* 13 F.3d. at 308.

146. *See id.*

147. *See Beartooth,* 904 F. Supp. at 1173 (quoting 55 Fed. Reg. 47,990 to 47,997 (1990)).

148. *Id.* (alteration in original).

3. Effectiveness of the CWA

The potential liability under this program is great. Of the over 500,000 IAMs in the United States, it is estimated that as many as 200,000 may meet the criteria to fall under a CWA permit program.[149] Although the CWA is theoretically available to improve degraded waters, the Act can only regulate those IAMs that have an identifiable owner or operator. Thus, the practical constraints of locating past owners and operators and compelling them to comply with the permit programs limit the Act's effectiveness.[150] Like CERCLA, the effectiveness of the CWA's application to IAMs has also been limited by complex land and mineral ownership patterns in mining districts.[151] Since surface and mineral estates are often severed, there could be many owners with partial ownership of one site.[152]

III. LIMITING LIABILITY AS AN INCENTIVE FOR REMINING

Under both CERCLA and the CWA, it is possible for subsequent operators and owners of an IAM to be held accountable for the site's preexisting conditions. The risk of liability under both acts has deterred mining companies from remining IAMs.[153] The EPA and industry representatives have recognized the benefits of remining as a method of reclaiming IAMs and have suggested different approaches to alleviate liability for remining projects.[154] The following proposals, which have been advanced in Congressional hearings[155] and independent reports,[156] are being considered as possible approaches that would reduce or eliminate the

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149. *See* LYON ET AL., *supra* note 2, at 29-30 (categorizing IAMs into areas of concern, of which, the classifications of landscape disturbance, surface water contamination, and groundwater contamination all are listed as posing a threat to water quality).

150. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 82.

151. *See Hearing on Clean Water Act Reauthorization Before the Subcomm. on Water Resources and Env't of the Comm. on Transp. and Infrastructure*, 104th Cong. 1634 (1995) [hereinafter *Clean Water Act Reauthorization Hearing*] (statement of Paul Frohardt, Adm'r of the Colo. Water Quality Control Comm'n).

152. *See id.*

153. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94-95.

154. *See* 1 *id.*

155. *See generally Hardrock Mines Hearing*, *supra* note 1.

156. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94-95; LYON ET AL., *supra* note 2, at 3; Rockwood & Lawrence, *supra* note 33, at 4-1.

buying of liability under CERCLA and the CWA, while still ensuring accountability for remining impacts on the environment. As discussed in Part IV, *infra*, the EPA and some states have already implemented aspects of some of these proposals in an effort to encourage remining.

A. CERCLA

Because of the risk that liability for preexisting environmental degradation will attach to companies seeking to remine an IAM, CERCLA liability has been identified as the "single most important obstacle" to remining.[157] The following are four proposed methods to limit liability under CERCLA for remining operations.[158]

1. Deferment and Delisting from the NPL

The EPA could defer listing IAMs on the NPL.[159] The deferral approach would simply allow IAMs to be on the CERCLIS database but not placed on the NPL. Liability for remedial actions under CERCLA[160] only attaches to owners and operators of NPL sites because Superfund money must first be spent on the over 1,300 NPL sites.[161] By deferring the listing of IAMs on the NPL, the EPA would not pursue remedial actions at those sites, and thus liability exposure would be limited to the less extensive removal actions.[162] However, because there are relatively few mines on the NPL, deferral from the NPL is not likely to encourage remining. Moreover, CERCLIS is not static. Sites on CERCLIS change according to the EPA's progress in cleaning up NPL sites and according to an evolving EPA hazard ranking system.[163] Therefore, this approach may be unlikely to encourage remining because of the real risk that the EPA could reverse this policy and hold mining companies liable for preexist-

157. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94.
158. *See id*; Rockwood & Lawrence, *supra* note 33, at 4-37 to 4-41.
159. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94; Rockwood & Lawrence, *supra* note 33, at 4-41.
160. *See supra* text accompanying note 79.
161. *See* 42 U.S.C. § 9604(c)(3) (1994).
162. Rockwood & Lawrence, *supra* note 33, at 4-41.
163. *See* 42 U.S.C. § 9605(g)(2) (1994).

ing conditions at some point in the future.[164] As the statute's literal scope includes liability for preexisting conditions, policy changes regarding site priority would not eliminate the risk of liability.

Similarly, delisting procedures could be modified to make it easier to remove IAMs currently listed on the NPL.[165] Originally, sites could be delisted from the NPL only if all appropriate response actions[166] were completed and no remedial efforts were necessary because it was determined that the entire site no longer posed any threat to human health or the environment.[167] In 1995, the EPA established a new policy that provides it with discretionary authority to delist reclaimed portions of a site prior to the completion of a response action.[168] Entities can now petition the EPA for the delisting of a reclaimed portion of a site even if the remedial action has not been completed on the remainder of the site. Under this new policy, delisting procedures could be modified to make it easier to remove portions of IAM sites from the NPL, thereby decreasing the risk of liability and encouraging remining.[169]

The delisting proposal is subject to the same criticism by the mining industry as the NPL deferral proposal. The policy can be reversed too easily by the EPA at some point in the future, subjecting mining companies to potential liability.[170] Also, because there are relatively few IAMs currently on the NPL, delisting is unlikely to have a large impact on the reclamation of IAMs.

2. Remining Operator Indemnification

Another proposal is to extend the existing CERCLA indemnification provisions for remedial contractors[171] to remining

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164. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94.

165. *See* 1 *id.*

166. A "response action" is any remedial action, removal action, or cleanup at a site. *See* 42 U.S.C. § 9601(25) (1994).

167. *See* 40 C.F.R. pt. 300.425(b)(3) (1996).

168. *See id.*; Christine Seidel, *New EPA Policy Allows Partial Deletions of NPL Sites*, Nov. 7, 1995, *available in* 1995 WL 911097.

169. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94.

170. *See* 1 *id.*

171. *See* 42 U.S.C. § 9619(a)(2) (1994).

operators.[172] Remedial contractors are currently not held liable under CERCLA unless they cause damage as a result of their own negligence, gross negligence, or intentional misconduct.[173] This indemnification provision is designed to cover the actions of those parties in charge of cleaning up a site.[174] Thus, although this approach may limit the liability of IAM operators that reclaim the site through remining, it does not resolve the liability issues surrounding the owners of IAMs.[175]

3. Remining Agreements

Currently, the EPA may provide a prospective purchaser of land with a covenant not to sue under CERCLA, if: (1) an enforcement action is anticipated or pending; (2) substantial performance of or payments toward site cleanup are obtained in the settlement agreement which would probably otherwise not be available to the EPA because the PRP has not been located or is insolvent; (3) the activities proposed for the site will not aggravate or contribute to the site contamination and will not interfere with a final remedy; (4) the proposed new activities would not pose a health risk to persons present at the site; and (5) the prospective purchaser is financially capable of completing the remedial actions required by the agreement.[176]

Currently, agreements to limit liability are only available to prospective purchasers of a site. A third proposal for the limiting of liability under CERCLA is to extend prospective purchaser

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172. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94; Rockwood & Lawrence, *supra* note 33, at 4-41.

173. *See* 42 U.S.C. § 9619(a)(1) (1994).

174. *See id.* § 9619(e)(2).

175. *See* Rockwood & Lawrence, *supra* note 33, at 4-42.

176. *See* 54 Fed. Reg. 34,241 to 34,242 (1989). Under the Brownsfield Initiative, the EPA is encouraging greater use of prospective purchaser agreements. In 1995, the EPA and the state of Colorado entered into a prospective purchaser agreement with Home Depot, U.S.A. ("Home Depot"), to permit redevelopment of a Superfund site contaminated with radium. *See Denver Brownsfield to See Commercial Development*, 26 ENVTL. REP. 1414 (1995). The EPA and the state agreed not to sue Home Depot under CERCLA, provided Home Depot would perform a portion of the remediation at the site. *See id.* By March of 1996, the EPA had entered into 40 prospective purchaser agreements nationally. *See* ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATIONS: LAW, SCIENCE, AND POLICY (2d ed. 1996); *see generally* Steven D. Schell, *EPA Continues Administrative Reform of Superfund with New Guidance on Prospective Purchaser Agreements*, 2 ENVTL. LAW. 445 (1996).

agreements to include both prospective owners and third parties that want to remine an IAM.[177] Under this proposal, the EPA and an entity seeking to remine an IAM would each assess the preexisting environmental conditions and the corresponding potential liability present at an IAM.[178] Through negotiations, the EPA could limit liability to specific areas of the site that represent the narrow focus of the remining plans and designate required reclamation activities to only those areas.[179] Under this approach, the mining company would be held accountable for its actions in remining the site while alleviating the risk of being held responsible for all of the preexisting environmental problems.[180]

This negotiation proposal is advantageous because agreements can be tailored to site-specific problems. Furthermore, formal agreements between mining companies and the EPA are less likely to be reversed at some point in the future than are deferral or delisting policies.[181] Environmental groups may also embrace the agreement proposal because it stops short of providing mining companies with complete immunity for a site's problems.[182]

Despite these benefits, the negotiation process could be very costly and time consuming. The time and resources involved in negotiating with the EPA on a site-by-site basis may discourage mining companies from entering into these agreements.[183] Furthermore, mining companies are unlikely to begin exploration of a site before a firm agreement is in place for fear of buying liability under CERCLA. Likewise, both the EPA and the mining companies are unlikely to invest time and money negotiating before the site is determined through exploration to have a strong potential for remining.[184] Thus, the effectiveness of the negotiation proposal may be limited because it does not adequately address the need for the limitation of liability at the exploration stage of a remining operation.

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177. *See* Rockwood & Lawrence, *supra* note 33, at 4-38; 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94.

178. *See* 1 WESTERN GOVERNORS' ASS'N , *supra* note 3, at 94.

179. *See* 1 *id.*

180. *See* 1 *id.*

181. *See* 1 *id.*

182. *See* 1 *id.*

183. *See* 1 *id.*

184. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94.

Remining agreements may also be negotiated at the state level. For example, Colorado has a policy in place, similar to this negotiation proposal, that encourages remining negotiations to minimize CERCLA liability.[185] Before entering into a remining agreement in Colorado, a mining company is allowed to conduct baseline studies of the preexisting conditions at an IAM.[186] The state and the mining company can then negotiate the extent of exploration and the remining and reclamation work to be performed at the site.[187] Subsequent to such an agreement, exploration activities would not subject the mining company to liability for preexisting conditions.[188] Thus, mining companies would be allowed to study and explore the site without buying any liability. If the mining project were to proceed, the state would agree not to file suit under CERCLA against the mining company for cleanup of the site if the company continued to comply with the state approved remining plan.[189] However, the state may still bring a CERCLA natural resources damages suit against the mining company if the Departments of Health and Natural Resources and the state's Attorney General agree to file such a suit.[190] The Colorado program has not succeeded in encouraging remining because the federal government can still hold mining companies liable in spite of an exemption at the state level.[191] CERCLA's broad scope in imposing liability is perceived as too much of a risk for mining companies to engage in remining activities under any exemption other than CERCLA itself.

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185. *See* Rockwood & Lawrence, *supra* note 33, at 4-35.

186. *See Hardrock Mines Hearing, supra* note 1, at 134 (statement of Graham M. Clark, Senior Vice President, Newmont Mining Corp.).

187. *See id.*

188. *See id.*

189. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94-95.

190. *See* 1 *id.* at 95.

191. *See Hardrock Mines Hearing, supra* note 1, at 134 (statement of Graham M. Clark, Senior Vice President, Newmont Mining Corp.); Katherine Teter, *The Superfund "Good Samaritan" Exception*, 21 COLO. LAW. 1917, 1918 (1992). However, Colorado did try to address this problem by negotiating with EPA Region VIII to fashion a liability shield under the Superfund Good Samaritan provision. *See infra* Part III.B.2; Teter, *supra* at 1918. Although this approach is promising, the requirements to adhere to NCP cleanup standards may limit its effectiveness in encouraging remining. *See infra* Part III.C.2.

4. Remining Exemption

Perhaps the best way to encourage remining is to exempt companies that are remining IAMs from strict, joint and several liability[192] under CERCLA. Under this approach, the remining companies could be held accountable for the damage caused by their own activities but not for preexisting conditions.[193] Thus, mining companies would not risk buying liability by conducting preliminary exploration activities. Also, because the exemption would be incorporated into the federal statute, mining companies would have greater assurance that future policy changes would not subject them to liability for preexisting conditions.

In order to evaluate preexisting environmental conditions, some type of site-by-site analysis would need to be performed.[194] Most likely, a remining plan would be developed by the company proposing to remine an IAM. The plan would document the detailed baseline studies it conducted to define the extent and nature of existing environmental problems.[195] In addition, the plan would address: (1) where remining operations will occur; (2) whether the remining will be conducted on or around preexisting degraded areas; and (3) the extent to which preexisting degraded areas will be cleaned up.[196] An environmental analysis of the potential environmental impacts associated with the remining project and the resulting reclamation of an IAM would be conducted by the states. Or, for IAMs on federal lands, an environmental impact statement would be conducted as required under the National Environmental Policy Act.[197] Oversight of the remining projects could be the responsibility of state or federal agencies, depending on where the IAM is located and whether the remining project is comprised of patented or unpatented claims.[198]

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192. *See supra* text accompanying note 70. This approach is not without precedent. Congress amended the Surface Mining Control and Reclamation Act to eliminate liability under the Act for state activities in reclaiming abandoned coal mines. *See* 30 U.S.C. § 1235(l) (1994).

193. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94.

194. *See Hardrock Mines Hearing*, *supra* note 1, at 181 (statement of Debra W. Struhsacker, Envtl. Permitting and Gov't Relations Consultant).

195. *See id.*

196. *See id.* at 186.

197. *See id.* at 186-87; *see also* 42 U.S.C. §§ 4321-4370(d) (1994).

198. *See Hardrock Mines Hearing*, *supra* note 1, at 183-84 (statement of Debra W. Struhsacker, Envtl. Permitting and Gov't Relations Consultant).

Similar to the negotiated agreement approach, it may be costly and time consuming to assess the existing environmental conditions. However, since the remining exemption approach is more generic, the time and costs involved may be less significant than site-by-site negotiations.[199] Additionally, future disputes could arise over what was documented as a preexisting condition and what conditions were caused by the remining activities. If a preexisting condition was not initially discovered or documented, then a mining company may have to litigate the issue of its impact, and it may be very difficult and costly to accurately assess the conditions at a later phase of the remining process. Although this approach does have its practical difficulties, it could be successfully implemented provided clear guidelines are established to direct the assessment and documentation of preexisting conditions.

Critics of this proposal[200] argue that it is too difficult to distinguish between preexisting environmental problems and those created by the companies that remine an IAM.[201] Thus, they assert that the elimination of liability for preexisting conditions will mean that mining companies will not be held accountable for degradation caused by their remining activities.[202] However, there are enough state and federal regulatory controls to ensure remining operators do not degrade the site even further. For example, the Bureau of Land Management, the Forest Service, and most western states have closure requirements to ensure the land is adequately reclaimed.[203] In addition, bonding requirements ensure that financial resources are reserved for those reclamation activities.[204] Clear documentation recording where exploration and remining activities will be conducted, the level of reclamation that must occur, and some bonding obligations will mitigate the likelihood that mining companies will escape liability for destruction caused by their own remining activities.

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199. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 94.

200. Critics include the National Wildlife Federation, Friends of the Earth, and the Mineral Policy Center. *See Bill's Mining Exemption Angers Enviros*, SUPERFUND WK. (Pasha, Inc.) Aug. 26, 1994, *available in* 1994 WL 2525912.

201. *See id.*

202. *See id.*

203. *See Hardrock Mines Hearing*, *supra* note 1, at 101 (statement of Graham M. Clark, Jr., Senior Vice President, Newmont Mining Corp.).

204. *See id.*

Exempting remining operations from preexisting liability is the approach that goes the furthest in eliminating the risk to mining companies of being held accountable for preexisting conditions. The other incentive proposals do not shield mining companies from the risk that they will buy liability for preexisting conditions through their exploration activities. Additionally, the other proposals are too uncertain in terms of potential policy changes that could impose liability in the future.

B. The CWA

Permitting programs under the CWA present a significant obstacle to the remining of IAMs.[205] The philosophy behind the CWA is to try to improve already degraded streams by placing stringent controls on discharges into those streams.[206] As a result, mining companies that remine an IAM may have to comply with extremely high standards under the CWA for conducting activities in the area of degraded streams.[207] Furthermore, merely by performing exploration work at an IAM, mining companies could be held responsible, possibly in perpetuity, for complying with those stringent effluent standards.[208] The following proposals are being considered by the EPA, mining industry representatives, and organizations like the Western Governors' Association, to amend the CWA in order to alleviate liability associated with remining activities.[209]

1. Hardrock Remining Variance

Congress has already addressed the problem of remining and degraded streams in conjunction with coal mines. The CWA currently contains an exemption for coal remining projects under its NPDES program.[210] Under this program, states may take into account the preexisting degraded conditions when establishing

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205. *See* Alison Barry, *Mining and Water Quality Under the Clean Water Act*, COLO. LAW., Sept. 1996 at 93, 96.

206. *See id.* at 94.

207. *See id.*

208. *See* Barry, *supra* note 205, at 96; *see also supra* Part II.B.2.

209. *See Clean Water Act Reauthorization Hearing*, *supra* note 151, at 1542-62 (statement of Paul Frohardt, Adm'r, Colo. Water Quality Control Comm'n); *see also* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 95-96.

210. 33 U.S.C. § 1311(p) (1994).

effluent limitations for remining operations.[211] This allows coal mining companies to remine IAMs without having to comply with the highly stringent degraded stream standards that are ordinarily established in an effort to improve degraded stream conditions to an almost pristine quality. Modified permits are allowed as long as the remining activity will not result in discharges that exceed state surface water quality standards.[212] An effective way to encourage hardrock remining would be to extend the coal exemption to hardrock mines.[213]

In 1990, Congressman Rahall[214] introduced a bill to extend the NPDES coal variance to hardrock remining operations.[215] The bill was eventually defeated, however, in large part because it simply extended the coal variance to hardrock mining, including unrealistic water-quality based standards.[216] These standards are unrealistically high for degraded stream conditions because they are established in order to protect designated uses, which are, at a minimum, fishable and swimmable waters.[217] Therefore, it may still be very difficult for a mining company to comply with water quality standards, even under a modified permit program for remining. The coal variance program has been largely ineffective because the "increasingly stringent nature of water quality standards" has discouraged remining.[218] For this reason, a hardrock variance permit program should only impose technology-based standards.[219]

In order to implement such a variance program, permit compliance limits would need to distinguish between allowable background contamination and potential new releases.[220] Extensive monitoring of degraded streams would be required to

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211. *See id.* § 1311(p)(1).

212. *See id.* § 1311(p)(2).

213. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 95; *see also* Barry, *supra* note 205, at 96.

214. Democrat, West Virginia.

215. The Rahall Amendment, S. 257 and H.R. 322, 102d Cong. (1990).

216. Interview with Thomas Galloway, Land and Water Fund, in Boulder, Colo. (Oct. 15, 1996) (author of the Rahall proposal).

217. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 96.

218. *See Clean Water Act Reauthorization Hearing*, *supra* note 151, at 599 (statement of Douglas E. McAllister, Nat'l Mining Ass'n).

219. *See id.*

220. *See Hardrock Mines Hearing*, *supra* note 1, at 183 (statement of Debra W. Struhsacker, Envtl. Permitting and Gov't Relations Consultant).

gather the data needed to determine background contaminants.[221] Furthermore, project monitoring equipment would have to be capable of making the same distinction.[222] This could be especially difficult for sites where preexisting mining wastes are commingled with new mining wastes.[223] By making the NPDES program more complex, this proposed variance program has the potential to increase administrative burdens for the EPA and the states.[224] However, while implementation and administration of a hardrock variance program may be difficult, it has the potential for improving water quality at IAMs by stimulating remining.[225]

2. Good Samaritan Remining Variance

A "Good Samaritan" is an entity, with no prior connection to a site, that performs cleanup work at that site.[226] There is currently no provision in the CWA which allows a Good Samaritan to voluntarily clean up a site without becoming legally responsible for continuing discharges from the site.[227] The proposed Clean Water Act Amendments of 1995 ("H.R. 961") incorporated a provision that would have created a Good Samaritan program available to state and federal governments, Indian tribes, or persons acting in cooperation with a state government or Indian tribe to reclaim an IAM.[228] Under this program, states would have been given greater flexibility in the implementation of less stringent water quality standards and permit requirements for qualifying volunteers.[229] Although, the bill's Good

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221. *See id.*
222. *See id.*
223. *See id.*
224. *See* Barry, *supra* note 205, at 96.
225. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 95-96.
226. The Superfund Amendments and Reauthorization Act has a "Good Samaritan" provision that waives CERCLA liability for volunteers who remediate existing contamination for which they otherwise would not be legally responsible. *See* 42 U.S.C. § 9607(d)(1) (1994); *see also* Teter, *supra* note 191, at 1917. The cleanup must be in accordance with the National Contingency Plan, and the provision does not preclude liability for negligence or intentional misconduct. *See* 42 U.S.C. § 9607(d)(1)-(2) (1994). The provision applies to state or local governments or waste recyclers that may want to remediate a site to address environmental impacts to the surrounding community. *See* Teter, *supra* note 191, at 1917.
227. *See Clean Water Act Reauthorization Hearing*, *supra* note 151, at 1542-62 (statement of Paul Frohardt, Adm'r, Colo. Water Quality Control Comm'n).
228. *See* Barry, *supra* note 205, at 97.
229. *See id.*

Samaritan provision was eventually defeated,[230] the Western Governors' Association is in the process of drafting another proposal to establish a broader CWA Good Samaritan program that would extend to parties that remine IAMs.[231]

Under such a proposal, both a prospective purchaser of an IAM and prospective operator could qualify for the permit variance, provided they demonstrate that the project would result in improved water quality. Similar to the provisions of H.R. 961, in order to come under the variance program, companies proposing to remine an IAM would submit a remediation plan to a state or federal administrator of the CWA.[232] The plan would describe current environmental conditions at the IAM and propose measures to reduce, control, mitigate, or eliminate adverse impacts on water quality.[233] The plan would include baseline assessment analyses which would demonstrate that the proposed remediation measures would result in improved water quality.[234] Enforcement would then be based on the improved water quality standards set forth in the remediation plan.[235] To further reduce the liability risks associated with remining, the enforcement provisions of the Good Samaritan proposal could either eliminate citizen suit enforcement or, alternatively, require that there be a continuing violation before a citizen suit could be filed.[236] Once remediation has been completed in accordance with the remediation plan, coverage under the program would terminate without the Good Samaritan being subject to enforcement or to a suit for any discharges continuing after remediation.[237]

The advantage of a Good Samaritan program is that release of liability is contingent upon compliance with the remediation plan. Thus, there is some oversight to ensure remining activities do not exacerbate the existing environmental problems.[238] This

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230. *See* Angus Macbeth et al., *Recent Trends and Developments in Federal Environmental Law and Policy*, SA88 ALI-ABA 1, 13 (1996).

231. Interview with Chris McKinnon, Western Governors' Association, in Denver, Colo. (Aug. 15, 1997).

232. *See* Barry, *supra* note 205, at 93, 97.

233. *See id.*

234. *See Clean Water Act Reauthorization Hearing*, *supra* note 151, at 1542-62 (statement of Paul Frohardt, Adm'r, Colo. Water Quality Control Comm'n).

235. *See* Barry, *supra* note 205, at 93, 97.

236. *See Clean Water Act Reauthorization Hearing*, *supra* note 151, at 1542-62 (statement of Paul Frohardt, Adm'r, Colo. Water Quality Control Comm'n).

237. *See id.*

238. *See* Barry, *supra* note 205, at 93, 97.

program may add administrative burdens to the EPA and the states that implement it.[239] However, if those initial burdens are not too onerous, the Good Samaritan program would be able to effectuate greater reclamation of IAMs.

C. Related Economic Disincentives

Even if the risks of buying liability under CERCLA and the CWA were reduced or eliminated, there are other regulatory obligations that may discourage remining by reducing its economic benefit.[240] Arguably, the two most controversial regulatory obligations are strict bonding requirements and cleanup standards. Industry representatives assert that these requirements can make remining cost prohibitive.[241] Therefore, they, along with other groups, have suggested providing bonding incentives and relaxed cleanup standards in order to increase the economic incentive to remine.[242] Underlying these proposals is the notion that remining is not a panacea. It cannot restore IAMs to their pristine condition.[243] Therefore, remining should be encouraged to fund some improvement at a site, even if the site is not completely reclaimed.[244] A thorough discussion of the ramifications of these proposals is beyond the scope of this comment. However, a brief discussion is warranted, as these issues are closely tied to proposals to limit liability for remining.

1. Bonding Incentives

The Bureau of Land Management, the Forest Service, and most western states have bonding requirements to ensure that land is adequately reclaimed.[245] The Bureau of Land Manage-

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239. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 96.

240. *See* 1 *id.* at 93.

241. *See Hardrock Mining Bonding Regulations Hearing Before the Subcomm. on Energy and Mineral Resources*, 105th Cong. (1997) (statement of Karl L. Hanneman, President, Alaska Miner's Ass'n) *available in* 1997 WL 8221320; *Hardrock Mines Hearing*, *supra* note 1, at 161 (statement of Debra W. Struhsacker, Envtl. Permitting and Gov't Relations Consultant).

242. *See id.*

243. *See Hardrock Mines Hearing*, *supra* note 1, at 168 (statement of Debra W. Struhsacker, Envtl. Permitting and Gov't Relations Consultant).

244. *See id.* at 182.

245. *See Hardrock Mines Hearing*, *supra* note 1, at 101 (statement of Graham M. Clark, Jr., Senior Vice President, Newmont Mining Corp.).

ment requires mining operators to be bonded for the full amount of their projected reclamation costs.[246] The potential cost to remedy problems, such as AMD, is enormous—possibly reaching hundreds of millions of dollars.[247] Thus, for IAM sites that may have tons of waste ore already on site, bond amounts may be much higher than the bond amounts for pristine areas.[248] These bonding requirements reduce, if not eliminate, the economic benefits of remining. Another way to encourage remining is to offer bonding incentives that reduce the amount of the bond or limit the liability associated with bond release.[249]

Bond amounts could be reduced by limiting the area covered by the bond or changing the basis upon which bond requirements are calculated.[250] However, reducing the amount of the bond may result in "underbonding," where the costs of complying with the permit are greater than the bond.[251] Thus, "underbonding" may actually promote abandonment of the site and ultimately create even more IAM problems.[252]

Another large obstacle to remining is the risk of being held liable for unanticipated problems after permit issuance, such as the formation of AMD.[253] AMD may not develop until long after a mine has ceased operations; thus, companies remining an IAM may not encounter AMD until they have become obligated for the site's reclamation. One proposed solution "would be to terminate an operator's liability for any environmental problems at a site and release the bond upon the operator's compliance with" mining permit reclamation requirements.[254] Under this proposal, entities that properly remine and reclaim a site in accordance with the requirements of their mining permit would not be penalized for unanticipated problems. However, this incentive poses risks. It

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246. *See* Hayes & Schafer, *supra* note 36, at 15-59.

247. AMD from the Summitville Mine, located in Colorado, has contributed to major environmental problems that cost $ 38,000 per day to contain. *See* LYON ET AL., *supra* note 2, at 22-23. The estimated cleanup cost is $ 60 million. *See id.* The Summitville Consolidated Mining Company originally posted a $ 7.2 million bond, far below the actual costs. *See id.* Thus, leaving the state with the remainder of the cleanup and containment cost. *See id.*

248. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 96.

249. *See* 1 *id.*

250. *See* 1 *id.*

251. *See* 1 *id.* at 97.

252. *See* 1 *id.*

253. *See* 1 *id.*

254. *See* 1 WESTERN GOVERNORS' ASS'N, *supra* note 3, at 97.

may be very difficult to ascertain whether the AMD was a result of historic mining practices or current remining activities.[255] Therefore, this proposed bonding incentive may exacerbate environmental problems that exist at IAMs.

2. Cleanup Standards

One of the most challenging issues surrounding the remining of IAMs is the question of what cleanup standards should apply to the reclamation of the remined portions of IAMs.[256] Environmentalists urge the mandatory application of existing regulatory standards for new mines.[257] However, representatives of the mining industry have argued that the costs of complying with stringent cleanup standards for already degraded sites are prohibitive.[258] The goal behind encouraging remining is to provide incentives to the mining industry to improve environmental conditions on IAMs, even if the site is not completely remediated.[259] That goal cannot be met by imposing unrealistic and cost prohibitive cleanup standards on remining activities.[260] On the other hand, some cleanup standards need to be established in order to ensure that IAMs are remediated to a level that is reasonable in relation to the economic benefit conferred on mining companies through remining activities. Both objectives can be met by developing site-specific cleanup standards that improve environmental conditions at an IAM, while accounting for the economic constraints of reclaiming previously degraded areas.[261]

Cleanup and effluent limitation standards, mandated for new, non-IAM sites by CERCLA and the CWA, would not be achievable if applied to the remining of IAMs because the degraded conditions are often too severe to meet those standards

255. *See* Barry, *supra* note 205, at 93, 97.

256. *See Hardrock Mines Hearing*, *supra* note 1, at 181 (statement of Debra W. Struhsacker, Envtl. Permitting and Gov't Relations Consultant).

257. Interview with Thomas Galloway, Land and Water Fund, in Boulder, Colo. (Oct. 15, 1996).

258. *See id.*

259. *See Hardrock Mines Hearing*, *supra* note 1, at 161 (statement of Debra W. Struhsacker, Envtl. Permitting and Gov't Relations Consultant).

260. *See id.*

261. *See id.* at 181.

at a reasonable cost.[262] For example, under regulatory cleanup standards applied to new sites, water quality standards could require that an IAM's contaminated groundwater be pumped-and-treated in perpetuity at an enormous cost to the mining company.[263] Mining companies would not risk becoming obligated to such strict reclamation standards. Therefore, cleanup standards for IAMs should be flexible, allowing for partial cleanup of a site by practical and economical methods rather than mandating complete reclamation.[264] In establishing site-specific cleanup standards, the reasonable future uses of the land and its proximity to human populations would be considered.[265]

Utilizing the same technology required for new mining activities, most remining projects would result in the removal of sulfur-bearing ore piles on site that are sources of AMD.[266] In addition, mining companies would be required to clean up any new waste produced by the remining activities. However, cleanup standards would not mandate reclamation to a pristine condition.[267] Instead, the mining company would have to comply with site-specific cleanup standards that result in improved environmental conditions. For example, under this approach, a mining company conducting the remining operation may be required to remove designated sources of the groundwater contamination, but the company would not be obligated to treat the groundwater.

IV. THREE EXAMPLES OF SUCCESSFUL REMINING OPERATIONS

Environmental conditions at some IAMs have been improved because either the EPA or the states have implemented discrete aspects of the aforementioned proposals in order to limit liability under CERCLA and the CWA and to encourage remining. Innovative approaches involving agreements to limit liability and cleanup standards have served as examples of how providing incentives for remining has accomplished what CERCLA and the CWA cannot—the reclamation of IAMs. Although these projects have been successful, the number of remining projects could be

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262. *See id.* at 161.
263. *See id.*
264. *See id.*
265. *See Hardrock Mines Hearing*, *supra* note 1, at 182.
266. *See id.* at 161-62.
267. *See id.* at 162.

significantly increased by removing the largest obstacle to remining: liability for preexisting conditions under CERCLA and the CWA. If CERCLA and the CWA were amended to limit liability for remining activities, these remining success stories would be the norm rather than the exception.

A. Druid Mine—Central City, Colorado

Solution Gold, Ltd., provides an example of the success of remining in the reclamation of IAMs. This company was able to negotiate an agreement with the State of Colorado and the EPA to limit liability and cleanup standards for the remining and reclamation of the abandoned Druid Mine near Central City, Colorado.[268] The agreement provided that mine wastes on the site be treated and disposed in accordance with the less stringent standards being applied to old dumps and mill tailings in the project area.[269] Furthermore, off-site waste disposal was provided for under the design, operational, monitoring, bonding, and closure criteria, similar to those specified by RCRA landfill provisions.[270] The remining project has resulted in measurable improvement of the groundwater quality.[271]

B. Boliden Copper Mine—Copperhill, Tennessee

Similar to the Druid Mine, negotiations with the EPA allowed for the remining and reclamation of the Boliden Copper Mine. The Tennessee Chemical Company ("TCC") owned a copper mine that was listed on the NPL.[272] TCC declared bankruptcy and was unable to continue to clean up the site.[273] Subsequently, Boliden Intertrade AG Company ("Boliden") entered into a prospective purchaser agreement with the EPA to purchase the site and resume both the mining activities and the cleanup of the site.[274] The EPA agreed to exempt Boliden from liability for past activities at the site for a period of six months, at which time Boliden could either discontinue its activities or enter into a

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268. *See id.* at 188-89.
269. *See id.*
270. *See id.*
271. *See Hardrock Mines Hearing, supra* note 1, at 188-89.
272. *See* Rockwood & Lawrence, *supra* note 33, at 4-38 to 4-39.
273. *See id.*
274. *See id.*

second agreement with the EPA.[275] Eventually, a final prospective purchaser agreement was signed.[276] Boliden has conducted extensive reclamation at the site which includes treatment of contaminated waste water, reclamation of tailings ponds, and the establishment of erosion control.[277]

C. Sunnyside Mine—San Juan County, Colorado

SCG purchased the Sunnyside Mine and explored it for five years to determine its viability for a remining operation.[278] The company made many improvements to the mine over those five years, including building and operating a water treatment system to treat preexisting AMD.[279] The discharge of treated water to nearby Cement Creek helped improve its water quality by diluting AMD from several other IAMs that were located upstream.[280] SCG decided to shut down the mine, and its closure plan involved shutting off the flow of the treated water to Cement Creek.[281] The Colorado Department of Public Health and Environment ("CDPHE") claimed SCG's closure plan would violate its obligations under the Colorado Discharge Permit System.[282] Thus, in effect, the CDPHE was holding SCG responsible for any harm caused by its operations, even if that harm came not by way of a discharge, but by the lack thereof. Eventually, the CDPHE agreed to release SCG from liability under the Colorado Discharge Permit System provided SCG reclaimed a number of other IAMs that were polluting Cement Creek.[283]

V. CONCLUSION

IAMs are the source of a number of chronic and extensive environmental problems in the United States, the most serious of which is AMD. There are no environmental laws which compre-

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275. *See id.*
276. *See id.*
277. *See id.*
278. *See* Christopher Hayes and William C. Robb, *Negotiating Voluntary Agreement Under the Clean Water Act—The Sunnyside Experience*, COLO. LAW., Aug. 1997 at 95, 96.
279. *See id.*
280. *See id.*
281. *See id.*
282. *See id.* at 97.
283. *See id.* at 98.

hensively address IAMs. The two environmental regulations that can compel their cleanup, CERCLA and the CWA, have been practically ineffective due to the peculiarities of IAMs—their remote location, expansiveness, and long history of operation. The inadequacies of those two regulatory programs have led a number of groups to advocate remining as a way to reclaim IAMs. However, the risk of buying liability for historic mining activities has discouraged remining.

Industry representatives and some environmental groups have offered a number of proposals to limit liability under CERCLA and the CWA for remining operations. New mining technology can facilitate the extraction of ore and the reprocessing of mining wastes, neither of which may have been feasible when the site was originally mined. In the process, sources of AMD will be eliminated and mining companies will be able to apply their new technologies to the reclamation of IAMs. Thus, the remining of IAMs will not only fund the cleanup of those sites, it will also allow valuable resources to be extracted from existing mining sites.

The environmental degradation caused by historic hardrock mining activities are monumental. The combination of public and private funds may not be enough to address environmental problems resulting from previous mining activities. However, encouraging private investment through remining could improve a significant number of IAMs while preserving pristine areas.