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**PENNSYLVANIA'S
IMPLEMENTATION OF THE
SURFACE MINING CONTROL AND
RECLAMATION ACT: AN
ASSESSMENT OF HOW
"COOPERATIVE FEDERALISM" CAN
MAKE STATE REGULATORY
PROGRAMS MORE EFFECTIVE**

John C. Dernbach*

People now appear to think that implementation should be easy; they are, therefore, upset when expected events do not occur or turn out badly. We would consider our effort a success if more people began with the understanding that implementation, under the best of circumstances, is exceedingly difficult. They would, therefore, be pleasantly surprised when a few good things really happened.

—Jeffrey L. Pressman and Aaron Wildavsky**

The Federal Surface Mining Control and Reclamation Act of 1977 (SMCRA)¹ was adopted because the states had inade-

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Factual statements not otherwise documented in this Article are based on the author's own observations and experience, as well as those of several dozen people representing DER, the Office of Surface Mining, citizen and environmental groups, and the coal industry with whom he spoke in preparing this Article.

** J. PRESSMAN & A. WILDAVSKY, *IMPLEMENTATION* at xviii-xix (2d ed. 1979).

1. 30 U.S.C. §§ 1201-1328 (1982). To avoid confusion, SMCRA will be used throughout to refer to the Federal Act. The Pennsylvania Surface Mining Conservation and Rec-

quately regulated the environmental effects of coal mining.² In response, the Act established minimum procedural and substantive requirements for coal mining operations and created the Office of Surface Mining (OSM) within the Department of the Interior to promulgate regulations and oversee the new regulatory program. Significantly, SMCRA allows states to continue to regulate the environmental effects of coal mining if they can administer a regulatory program according to federal standards. Continued state regulation may be a paradox,³ but it is also reality. Virtually every major coal mining state in the country now has primary jurisdiction, or primacy, to administer and enforce its own coal mining program under SMCRA.⁴

The pattern is a familiar one in environmental legislation; SMCRA is one of many "cooperative federalism" statutes that were enacted in the last decade, beginning with the Clean Air Act Amendments in 1970.⁵ Most of these laws can be justified partly on the grounds that interstate economic competition made it difficult, if not impossible, for the states to regulate adequately important environmental problems. As a remedy, Congress established minimum uniform standards and procedures and offered the states an opportunity to enforce them.⁶

Perhaps because it was adopted in the latter part of the decade after some experience with federal enforcement programs was developed, or because it was digested for so long in Congress before adoption,⁷ SMCRA contains features that are unparalleled in any of the other "cooperative federalism" environmental statutes. Most significantly, it sets forth a comprehensive framework for mandatory enforcement responses by the regulatory

lamation Act, PA. STAT. ANN. tit. 52, §§ 1396.1-.31 (Purdon Supp. 1985), has the same acronym (SMCRA), but will be referred to by its name.

2. See, e.g., S. REP. NO. 128, 95th Cong., 1st Sess. 51-52 (1977).

3. Rochow, *The Far Side of Paradox: State Regulation of the Environmental Effects of Coal Mining*, 81 W. VA. L. REV. 559 (1979).

4. See Squillace, *Cooperative Federalism Under the Surface Mining Control and Reclamation Act: Is This Any Way to Run a Government?*, 87 W. VA. L. REV. 687, 691 (1985).

5. 42 U.S.C. §§ 7401-7642 (1982). Other laws patterned on the cooperative federalism model include the Clean Water Act of 1977, 33 U.S.C. §§ 1251-1376 (1982), the Resource Conservation and Recovery Act of 1976, 42 U.S.C. §§ 6901-6987 (1982), and the Safe Drinking Water Act, 42 U.S.C. §§ 300f to 300j-10 (1982) (enacted in 1974).

6. See 30 U.S.C. § 1201(g) (1982) (uniform standards necessary under SMCRA to ensure that interstate coal competition does not undermine individual state standards); Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196, 1211-12 (1977).

7. For a brief history of SMCRA prior to adoption, see Comment, *Cooperative Federalism and Environmental Protection: The Surface Mining Control and Reclamation Act of 1977*, 58 TUL. L. REV. 299 (1983).

agency to all violations of the Act or regulations.⁸ These and other requirements were specifically designed to ensure the effectiveness of state programs.

Yet state regulatory programs under SMCRA frequently have been described as inadequate—or worse. Reports continue to surface about ongoing state failures in the regulation of coal mining.⁹ The performances of two states that were granted primacy, Tennessee and Oklahoma, were so poor that OSM was forced to take over their regulatory programs.¹⁰ Congressional committees overseeing OSM have been harshly critical of that Agency, but their implied message often is that the states are being allowed to get away with murder.¹¹ And there continue to be arguments that the federal government could regulate coal mining more effectively or efficiently than the states.¹²

But however poorly some states may be implementing SMCRA, there are exceptions. Pennsylvania has a substantially more effective coal mining regulatory program than it had in 1977. This Article provides a preliminary assessment¹³ of how well SMCRA has regulated active coal mining operations in the State, and why.¹⁴ Pennsylvania's implementation of SMCRA

8. See *infra* text accompanying notes 116-99. No other federal environmental statute contains anything comparable to SMCRA's enforcement requirements.

9. See Galloway & Fitzgerald, *Abuse of the Surface Mining Act: A Continuing Story*, 87 W. VA. L. REV. 627 (1985); SURFACE MINING PROJECT, PUB. LANDS & ENERGY DIV., NAT'L WILDLIFE FED'N, FAILED OVERSIGHT: A REPORT ON THE FAILURE OF THE OFFICE OF SURFACE MINING TO ENFORCE THE FEDERAL SURFACE MINING CONTROL AND RECLAMATION ACT (1985) [hereinafter cited as NAT'L WILDLIFE FED'N].

10. Squillace, *supra* note 4, at 700-02.

11. One oversight committee concluded that OSM has performed its oversight responsibilities so poorly that Congress should move OSM out of the Interior Department to a more appropriate regulatory agency if OSM does not begin to show "demonstrable improvement." HOUSE COMM. ON GOV'T OPERATIONS, OFFICE OF SURFACE MINING: BEYOND RECLAMATION?, H.R. REP. NO. 206, 99th Cong., 1st Sess. 22-23 (1985) [hereinafter cited as HOUSE COMM. ON GOV'T OPERATIONS].

12. See Squillace, *supra* note 4.

13. The Article is preliminary because, among other reasons, the transition in the field from the old regulatory program to the new program takes time, there is virtually no "hard" data comparing the environmental effects of the old and new programs, the latent environmental effects of coal mining often make comparisons of the effectiveness of the old and new regulatory programs difficult, and the full meaning of certain SMCRA provisions is only now being realized. Still, it is not too soon to begin to assess the major trends that are developing.

14. The Article concentrates on the major elements of the regulatory program in order to maintain focus and a manageable length. The Article emphasizes surface mining and to a somewhat lesser extent underground mining. Even though coal preparation plants, coal refuse disposal piles, and related facilities fall within SMCRA's definition of "surface coal mining operations," 30 U.S.C. § 1291(28) (1982), they are not discussed here. The Article focuses primarily on bituminous rather than anthracite mining in large part because 95% of the coal mined in Pennsylvania is bituminous (73.8 out of 77.7

may or may not be representative of implementation by any other state, but it serves as an important illustration of how much a statute such as SMCRA can do to improve a state regulatory program. This is true even though the program's performance standards are in many ways parallel to those that existed in 1977, when Pennsylvania's coal program had a national reputation. During debate on SMCRA, Representative Morris Udall, the House floor leader, explained that much of the bill was modeled on the Pennsylvania program. "Pennsylvania has the best law," he said. "[I]t does the best job."¹⁵ While the substantive requirements of SMCRA may have been based on Pennsylvania law, SMCRA's implementation design was not. And it is SMCRA's design features that have contributed the most to the increased effectiveness of the Pennsylvania program.

Pennsylvania's program has improved for at least six reasons.¹⁶ First, and perhaps most significantly, the Department of

million tons in 1984). PENNSYLVANIA DEP'T OF ENVTL. RESOURCES, ANNUAL REPORT ON MINING ACTIVITIES 19, 95 (1984) [hereinafter cited as MINING ACTIVITIES REPORT]. In addition, the Article does not discuss the abandoned mine land reclamation program created by title IV of SMCRA, 30 U.S.C. §§ 1231-1243 (1982). For a general overview of Pennsylvania's surface mining laws, see Burcat & Geary, *Surface Mining Regulation in Pennsylvania*, 57 TEMP. L.Q. 1 (1984).

Finally, the Article does not attempt comparison with other state programs under SMCRA, nor does it try to assess the political factors that have affected Pennsylvania's implementation of SMCRA. For an assessment of why states have had different degrees of success in implementing a somewhat comparable federal statute, see Thompson & Scicchitano, *State Implementation Effort and Federal Regulatory Policy: The Case of Occupational Safety and Health*, 47 J. POL. 686 (1985).

15. 123 CONG. REC. 12,872 (1977). Earlier, the following colloquy occurred between Rep. Goodling of Pennsylvania and Rep. Udall:

"MR. GOODLING: Mr. Chairman, I would ask the gentleman, Does any State have a better history of reclamation than the State of Pennsylvania?"

MR. UDALL: No."

Id. at 12,869. Significantly, OSM's first director was Walter N. Heine, who had been an associate deputy secretary of the Pennsylvania Department of Environmental Resources.

16. The improvements in Pennsylvania's coal mining regulatory program have not come easily. The requirements of remedial statutes such as SMCRA represent legal and moral "oughts." The challenge of implementation, roughly speaking, is to transform "ought" to "is"—to move the regulatory program from paper to the field. It is hard enough simply to implement a law as written; an entire industry, its consultants, and its employees must change their daily habits in numerous ways—mostly against their will. State statutes and regulations must be amended, forms need to be prepared, and program guidance and procedures must be developed for the many issues that Congress and the regulation writers never anticipated or believed too trivial for their attention. Additional staff have to be hired and trained. The regulatory agency must constantly and firmly respond to questions such as "Do you really mean it?" and "What does this requirement actually mean in the field?" In some cases, tinkering with a federal requirement may be necessary to achieve its purpose, either through alternative provisions or what might be described as "administrative engineering." Because the various parts of a regulatory system are interdependent, moreover, a breakdown in one area may have adverse ramifications throughout the program.

The purpose of this Article, however, is not to relate war stories about Pennsylvania's implementation of SMCRA. It nonetheless seems true, as the developing literature on

Environmental Resources (DER), the State Agency charged with administering the new program, is required to take structured enforcement actions against all violations. Second, virtually all aspects of DER's administration of the new program are explicitly open to scrutiny by persons outside DER, especially OSM and the public. Third, the program is managed more professionally, in large measure because a three-fold increase in staffing based on DER's annual grant from OSM has made individual job responsibilities more manageable. Fourth, the new program is set forth in writing rather than in oral tradition or bureaucratic folklore. It is also a program in which the written requirements are taken seriously or literally, rather than as mere guidance. Fifth, the new program requirements generally are based on mechanical or measurable rules rather than on regulations that depend largely on judgment or discretion. Sixth, DER decisions in the new program are based on more and better information, as well as information that is increasingly computerized and therefore more accessible.

This Article also suggests that these design features are worth considering for other comparable regulatory programs. These features have made the Pennsylvania coal program more clearly stated and understood, and have made the requirements of that program more enforceable. They have significantly reduced the distance that once existed between the written program and the real program, and have helped ensure consistency and uniformity in DER's actions. They have improved the quality of DER decisionmaking and have forced companies to provide better quality data to justify proposed operations. And they have provided back-up systems to prevent and correct failures in program implementation. None of them necessarily depend on the unique characteristics of coal mining or the State of Pennsylvania. They therefore provide a basis for understanding how other environmental statutes can be made to work better.

This Article first explains the background against which Pennsylvania's implementation of SMCRA has occurred. Coal mining has had a serious and continuing effect on the State's environment, as Part I explains. In response to these effects, Pennsylvania began to regulate coal mining many decades ago.

implementation makes clear, that implementation is never easy. See generally J. PRESSMAN & A. WILDAVSKY, *supra* note **, E. BARDACH, *THE IMPLEMENTATION GAME* (1977). For that reason, what states do achieve under SMCRA should not be taken lightly.

This regulatory development reached a milestone when the State achieved primacy under SMCRA in 1982.

Part II suggests that the new program in Pennsylvania has been responsible for substantial reductions in adverse environmental effects from surface coal mining, particularly less erosion and sedimentation, less acid mine drainage, and more backfilling. In addition, Part II explains that coal operators have been forced to change their planning and mining procedures because of the new program, and that these changes have meant increased costs. At the same time, the primary factors affecting coal production appear to be related to diminished demand for coal.

The remainder of the Article assesses why the program has improved, emphasizing those features of the federal scheme that have contributed the most to the effectiveness of the new program and many of those that still need to be fully implemented. Part III demonstrates that SMCRA has strengthened and enhanced a permitting process that was already fairly sophisticated when SMCRA was passed. Part III also explains that the new program contains a clearer and more complete set of performance standards than the old program. Part IV demonstrates that SMCRA has radically improved enforcement of the coal regulatory program, generally by structuring the State's enforcement authority. In key ways this enforcement program is an innovative hybrid of SMCRA requirements and preexisting state laws. An important feature of the new program, emphasized in Parts III and IV, is increased opportunities for citizen participation.

Part V explains that SMCRA cost Pennsylvania its prior independence in program development but that program organization and the State's personnel complement have become stronger and more sophisticated. Part V also argues that federal oversight has made a major contribution to the increased effectiveness of the new Pennsylvania program. Finally, because SMCRA allows states to implement more stringent and, to some extent, different provisions,¹⁷ Pennsylvania has been able to respond to the federal scheme in ways that enhance SMCRA's protective features.

17. 30 U.S.C. § 1255 (1982); 30 C.F.R. §§ 730.5(b), 732.15(a) (1986); *see also* *Sierra Club v. Watt*, 18 Env't Rep. Cas. (BNA) 1565 (D.D.C. 1982).

I. EVOLUTION OF PENNSYLVANIA'S REGULATORY PROGRAM

Pennsylvania's coal industry has contributed to the growth of the nation's economy while causing environmental harm to the State. This environmental damage prompted the development of an increasingly effective regulatory program long before SMCRA.

A. Coal Mining in Pennsylvania

Pennsylvania coal played a major role in the development of the national economy. Since Pennsylvania coal was first commercially mined in the nineteenth century, the State has produced about one-third of all the coal produced in the country.¹⁸ Although no longer the nation's leading coal producer, the State ranked fourth among states in coal production in 1984 with almost 78 million tons.¹⁹ The long and productive history of Pennsylvania coal mining, however, means that 1984 production represents about one-half of one percent of all coal mined in the State over the past century.²⁰ Most of this earlier mining occurred without significant environmental controls.

The legacy of previous coal mining is visible almost everywhere in Pennsylvania's coal regions. The State has more than 175,000 acres of unreclaimed surface-mined land, and more than 2200 miles of streams polluted by acid mine drainage.²¹ About 150,000 acres in urban areas have the potential to subside because of previous underground mining.²² Ground water pollution

18. PENNSYLVANIA DEP'T OF ENVTL. RESOURCES, PENNSYLVANIA'S SURFACE MINING BOND FORFEITURE PROGRAM: THE PROBLEM AND RECLAMATION OPTIONS 1 (1985) [hereinafter cited as BOND FORFEITURE PROGRAM]. Pennsylvania coal was used by blacksmiths before 1800. F. BINDER, COAL AGE EMPIRE 8 (1974).

19. KEYSTONE BITUMINOUS COAL ASS'N, PENNSYLVANIA COAL DATA 1985, Tables 2 & 3 (1985) (calculated by adding bituminous and anthracite coal production) [hereinafter cited as 1985 COAL DATA]. The first three coal producing states were Kentucky (165,458,000 tons), West Virginia (129,615,000 tons), and Wyoming (128,434,000 tons). *Id.* at Table 3.

20. More than five billion tons of anthracite coal were produced in Pennsylvania between 1870 and 1984. MINING ACTIVITIES REPORT, *supra* note 14, at 18-19 (calculation from table). Almost ten billion tons of bituminous coal were produced in the State between 1877 and 1984. *Id.* at 94-95 (calculation from table). Anthracite and bituminous coal production in that period represents roughly 200 times the State's 1984 coal production. See *supra* note 19 and accompanying text.

21. OFFICE OF RESOURCES MGMT., PENNSYLVANIA DEP'T OF ENVTL. RESOURCES, PENNSYLVANIA'S ABANDONED MINE RECLAMATION PLAN 2 (1983).

22. *Id.*

from past surface and underground mining is a fact of life in many areas, although its magnitude has never been calculated. Many underground mine fires still burn, including a well-known and especially costly fire at Centralia.²³

This legacy is more than statistics to the people who live with it. It represents strip-mined farmland that is now barren and useless, homes that settled and cracked because the land subsided under them, and orange-colored lifeless streams that were once swimming holes or trout fishing spots. Children have drowned in water-filled pits from old surface mines, and hunters sometimes accidentally fall from the highwalls or rock cliffs left on unreclaimed land. People have died falling through old mine shafts. Social and economic development is limited in many areas because potable drinking water is scarce or nonexistent.

Since the beginning of this century, Pennsylvania has attempted to mitigate the environmental harms caused by mining. The State attempted to regulate subsidence as long ago as 1921 in a statute that the United States Supreme Court ruled unconstitutional in *Pennsylvania Coal Co. v. Mahon*.²⁴ In 1945, the legislature passed one of the nation's first state surface mining acts.²⁵ The State's Clean Streams Law was repeatedly amended over several decades beginning in 1945 to provide increasingly stronger regulatory authority to prevent and control acid mine drainage.²⁶ The surface mining statute was also repeatedly amended, including a major revision that took effect in 1964 and generally required that land be returned to approximate original contour.²⁷ Bituminous mine subsidence control legislation was passed in different form in 1966, still long before any other state

23. The Centralia mine fire, named for the town under which it burns, has made living there so dangerous that Congress appropriated \$42 million to locate the residents elsewhere. Supplemental Appropriations Act of 1984, Pub. L. No. 98-181, 97 Stat. 1153, 1294-95 (1983). The fire has attracted national attention. See, e.g., Wash. Post, Mar. 29, 1984, at A19, col. 2.

24. 260 U.S. 393 (1922) (holding the Kohler Act, 1921 Pa. Laws 1198, unconstitutional under the fifth and fourteenth amendments as a taking of property without compensation).

25. Bituminous Coal Open Pit Mining Conservation Act, 1945 Pa. Laws 1198. The Pennsylvania Supreme Court upheld that Act in *Dufour v. Maize*, 358 Pa. 309, 56 A.2d 675 (1948).

26. PA. STAT. ANN. tit. 35, §§ 691.1-1001 (Purdon 1977 & Supp. 1985). For a history of the evolution of the law prior to 1980, see *Commonwealth v. Barnes & Tucker Co.*, 455 Pa. 392, 395-400, 319 A.2d 871, 873-76 (1974).

27. 1963 Pa. Laws 238, 240-46 (amendments to Bituminous Coal Open Pit Mining Conservation Act). The legislature strengthened the approximate original contour requirement and made it applicable to anthracite mining in 1971. 1971 Pa. Laws 554, 558-65 (amending Act and renaming it as Surface Mining Conservation and Reclamation Act).

had comparable legislation.²⁸ In two landmark decisions in *Commonwealth v. Barnes & Tucker Co.* in the 1970's, the Pennsylvania Supreme Court held that DER had statutory authority to seek and obtain permanent treatment of a major discharge of acid mine drainage.²⁹ It was to this body of law that Representative Udall referred when he said that Pennsylvania had the best coal mining regulatory program in the country.³⁰

B. SMCRA and the Road to Primacy

SMCRA represents the first federal effort to regulate comprehensively the environmental effects of coal mining on non-federally owned lands. Congress found that surface coal mining, while contributing to national energy production, often caused erosion and landslides, contributed to floods, polluted water, damaged property, and created hazards to life and property.³¹ The first stated purpose of SMCRA is to "establish a nationwide program

28. Bituminous Mine Subsidence and Land Conservation Act, PA. STAT. ANN. tit. 52, §§ 1406.1-.21 (Purdon Supp. 1985). The court in *Keystone Bituminous Coal Ass'n v. Duncan*, 771 F.2d 707 (3d Cir. 1985), cert. granted, 106 S. Ct. 1456 (1986), upheld the Act and implementing regulations against claims that they effected an unconstitutional taking and impairment of contracts, and distinguished *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922).

29. *Commonwealth v. Barnes & Tucker Co.*, 455 Pa. 392, 319 A.2d 871 (1974) (*Barnes & Tucker I*); *Commonwealth v. Barnes & Tucker Co.*, 472 Pa. 115, 371 A.2d 461 (*Barnes & Tucker II*), appeal dismissed, 434 U.S. 807 (1977). The Commonwealth Court order requiring treatment of the Barnes & Tucker discharge, which the Pennsylvania Supreme Court affirmed in *Barnes & Tucker II*, is contained in *Commonwealth v. Barnes & Tucker Co.*, 23 Pa. Commw. 496, 513-14, 353 A.2d 471, 480-81 (1976) (paragraphs 1-2). The Pennsylvania Supreme Court plainly understood that treatment was likely to be permanent because the Commonwealth Court had found:

There is no evidence of record by way of estimate or otherwise as to a foreseeable time at which Mine No. 15 will maintain itself at a static level without the necessity of pumping and treatment of the pumped acid mine water discharge. There is evidence that the degree of acidity of the discharge may slowly be reduced as the mine "cleans" itself.

Id. at 508, 353 A.2d at 478.

In a much earlier case, a coal operator appealed the denial of a permit, claiming that the Sanitary Water Board, a predecessor Agency to DER, had no authority to require permit applicants to show that no acid mine drainage will occur "for an indefinite period after the mining operation has been completed." *Sanitary Water Bd. v. Sunbeam Coal Corp.*, 77 Dauph. 264, 273 (1961). The court rejected that claim, stating that the "need for a clean, wholesome water supply continues indefinitely." 77 Dauph. at 273-74.

See also *Commonwealth v. Harmor Coal Co.*, 452 Pa. 77, 306 A.2d 308 (1973) (the Clean Streams Law requires operators of an active underground mine to treat discharge from an adjacent inactive mine that must be pumped to protect the active mine), appeal dismissed, 415 U.S. 903 (1974).

30. See *supra* note 15 and accompanying text.

31. 30 U.S.C. § 1201(b)-(c) (1982).

to protect society and the environment from the adverse effects of surface coal mining operations."³²

Despite the reference in its name to "surface" mining, SMCRA establishes minimum environmental protection and public safety requirements for all coal mining, both surface and underground.³³ SMCRA requires a person who wants to begin mining to file a permit application with the regulatory authority—in Pennsylvania, DER. The application must explain the proposed mining method and demonstrate that the operation will be conducted in an environmentally protective manner. If DER approves the application, the operator must post a bond to ensure that the site can be reclaimed if he fails to do so. The mining operation must then be conducted according to an elaborate set of performance standards. Failure to conform to these standards subjects the operator to orders and civil penalties, and, when necessary, permit revocation or suspension, bond forfeiture, and criminal penalties. SMCRA also contains detailed procedures for public participation, including a mechanism that allows the public to request that areas be designated as unsuitable for surface coal mining.³⁴

The regulatory program under SMCRA was implemented in two phases. The interim program, which took effect in Pennsylvania in May 1978, was based on regulations covering key performance standards and certain enforcement procedures that OSM had promulgated in December 1977. These federal regulations were binding on Pennsylvania's active coal operations in

32. *Id.* § 1202(a).

33. The most striking example of SMCRA's focus on overall environmental effects from coal mining is its comprehensive approach to protection of water resources. SMCRA prohibits the issuance of permits unless the permit application shows that the proposed operation "has been designed to prevent material damage to [the] hydrologic balance outside [the] permit area." 30 U.S.C. § 1260(b)(3) (1982). "The hydrologic balance is the equilibrium established between the ground and surface waters of an area between the recharge and discharge of water to and from that system." H.R. REP. NO. 218, 95th Cong., 1st Sess. 109 (1977). This means that SMCRA regulates the operation of underground mines even when surface effects are not evident.

This Article therefore uses the term "coal mining" to refer to all coal mining, "surface mining" to refer to operations conducted by excavating overlying rock and recovering coal, and "underground mining" to refer to operations in which coal is removed without removal of the overlying rock. This terminology is used for clarity, and differs from the definition of "surface coal mining operations" in SMCRA, which includes the surface effects of underground mining. 30 U.S.C. § 1291(28) (1982).

34. 30 U.S.C. §§ 1256-1272 (1982). For an argument that the high level of detail in SMCRA made OSM's initial implementation of the Act difficult, see Eichbaum & Babcock, *A Question of Delegation: The Surface Mining Control and Reclamation Act of 1977 and State-Federal Relations. An Inquiry into the Success with Which Congress May Provide Detailed Guidance for Executive Agency Action*, 86 DICK. L. REV. 615 (1982).

the same manner as the State's own regulations.³⁵ The second phase began with OSM's March 1979 promulgation of permanent program regulations covering all requirements of SMCRA. These permanent program regulations are the basis for long-term coal mining regulation under SMCRA and provide the basis for determining state program adequacy for primacy.³⁶

The Act gave states a choice about implementation of these regulations. The states could either give up their regulatory programs and accept a program run by OSM, or they could demonstrate to OSM that they had the legal, financial, and administrative ability to run a regulatory program based on SMCRA and the permanent program regulations.³⁷ If states chose the latter route, their amended regulatory programs could be more stringent than federal law, but not less.³⁸

In late 1977, a special meeting of environmentalists, coal operators, and representatives of DER unanimously concluded that Pennsylvania should seek primacy. The decision was prompted by many factors. SMCRA offered substantial financial incentives in the form of federal grants to help administer a regulatory program as well as an abandoned mine land reclamation program—incentives that for the most part were available only if the State sought and obtained primacy.³⁹ The decision also grew from the State's desire to have a role in the regulation of its own coal industry. Because of its long history of regulating the coal industry, DER believed it would be more sensitive to problems and more effective than OSM, even with a new program. The coal industry had worked with DER's regulatory staff and believed it could work better with them than with people it did not know. State environmentalists believed that DER would run a much better regulatory program under SMCRA. The decision was also influenced by the State's pride in its regulatory program which, after all, was supposed to be the best in the country.

After almost five years of negotiation, legislation, rulemaking, and litigation about how DER should implement the new regula-

35. See 42 Fed. Reg. 62,639 (1977); 25 PA. CODE § 13.13 (1985).

36. See 44 Fed. Reg. 15,312 (1979).

37. 30 U.S.C. §§ 1253-1254 (1982).

38. *Id.* § 1255.

39. The Act authorizes OSM to award grants to states for the development of regulatory programs, and authorizes increased grants to states that elect to seek primacy by an amount that approximates the amount that OSM would have had to expend if the state had not obtained primacy. 30 U.S.C. § 1295(a), (c) (1982). OSM may not "approve, fund, or continue to fund" a state abandoned mine land reclamation program unless the state has obtained primacy for its regulatory program. 30 U.S.C. § 1235(c) (1982).

tory program, DER obtained primacy on July 30, 1982.⁴⁰ The new primacy program regulations went into effect the next day.⁴¹ On paper, Pennsylvania had a new coal mining program.

II. THE IMPACT OF THE NEW PROGRAM

The effectiveness of the new program⁴² must be measured against SMCRA's goals as well as the statutory and regulatory means used to achieve those goals. The new program has had a significant and environmentally beneficial effect on the way that Pennsylvania coal operators conduct their business.

40. 47 Fed. Reg. 33,050, 33,097 (1982) (codified at 30 C.F.R. §§ 938.1-.11 (1985)). In *Pennsylvania Coal Mining Ass'n v. Watt*, 562 F. Supp. 741 (M.D. Pa. 1983), the court upheld OSM's decision to grant primacy to Pennsylvania, except for a regulation concerning the timing of certain bond release decisions.

It took many months of meetings with an ad hoc advisory committee representing all interests to hammer out the necessary changes to the statutes and regulations that DER administered. On Oct. 10, 1980, the Governor signed into law amendments to five different statutes as part of the State's effort to obtain primacy. 1980 Pa. Laws 805 (amendments to The Administrative Code of 1929); 1980 Pa. Laws. 807 (amendments to Coal Refuse Disposal Control Act); 1980 Pa. Laws 835 (amendments to Surface Mining Conservation and Reclamation Act); 1980 Pa. Laws 874 (amendments to The Bituminous Mine Subsidence and Land Conservation Act); 1980 Pa. Laws 894 (amendments to The Clean Streams Law). A short time later, the necessary regulations were adopted. 10 Pa. Admin. Bull. 4789 (Dec. 20, 1980).

Just as DER was about ready to submit a primacy application based on those statutes and regulations, the coal industry obtained a one-year injunction that prevented DER from doing so and also prevented DER from implementing the new regulatory program on its own. See *Pennsylvania Coal Mining Ass'n v. Commonwealth, Dep't of Envtl. Resources*, 498 Pa. 1, 2-3, 444 A.2d 637, 638 (1982). Plaintiffs alleged that pending constitutional and other challenges to certain portions of SMCRA rendered DER's entire proposed program suspect. SMCRA provides that the failure of a state to submit a primacy application for up to one year "because the action is enjoined by the issuance of an injunction by any court of competent jurisdiction" shall not result in the loss of eligibility for federal grants under SMCRA or the imposition of a federal program. 30 U.S.C. § 1253(d) (1982). The plaintiffs relied expressly on that provision in seeking their one-year injunction. The United States Supreme Court later upheld the challenged SMCRA provisions in two unanimous decisions. *Hodel v. Indiana*, 452 U.S. 314 (1981); *Hodel v. Virginia Surface Mining & Reclamation Ass'n*, 452 U.S. 264 (1981).

During the injunction period, and for several months afterward, the State amended the primacy regulations for bituminous mining to somewhat simplify them. 12 Pa. Admin. Bull. 563 (Feb. 6, 1982) (proposed amendments); 12 Pa. Admin. Bull. 2473 (July 31, 1982) (final regulations).

41. 12 Pa. Admin. Bull. 2382 (July 31, 1982). The old program regulations were simultaneously repealed. *Id.*

42. The term "new program" refers to the current regulatory program. "Old program" refers to the program that existed in Pennsylvania before the interim OSM regulations took effect in 1978.

A. Impact on the Environment

Few if any studies have been conducted of the environmental impact of the new program in Pennsylvania. Although SMCRA is obviously an environmental protection statute, OSM's review of the Pennsylvania program to date has been based almost entirely on compliance with various SMCRA requirements; there is virtually no attempt to gauge the actual environmental effectiveness of the program.⁴³ Making comparisons is also difficult because there is no readily available baseline data from which to draw. For some problems, such as the potential for acid mine drainage, it may be too early to say anything definitive because acid often takes years to appear.

It is nonetheless possible to begin to draw conclusions about the environmental effects of the new program, relying on observation and anecdote. Those who work in DER's field offices, the operators, and many citizens have seen and continue to see that the new program has thus far done a much better job of protecting the environment and people than the old program.

Perhaps the most dramatic changes have been those related to erosion and sedimentation control at surface mines. Surface mining is essentially an earth-moving activity. Huge masses of rock and dirt are excavated, moved, stored, and replaced during the life of an operation. When rain falls on this exposed rock and dirt, it picks up particles that often find their way into streams through surface runoff. Sediment from surface mining operations can destroy the habitat for water-dwelling insects as well as trout and other fish. Sediment also gives flowing water a scouring quality that accelerates the erosion of stream banks and bottoms. In the late 1970's, sediment from surface mining operations in some watersheds threatened public water supplies that relied on surface drainage in those watersheds. During that period, virtually no surface mine in the State had erosion and sedimentation controls. Now, almost all surface mines have such controls, usually consisting of ditches to collect and channel surface runoff, and sedimentation ponds to hold runoff until sus-

43. See OFFICE OF SURFACE MINING, 1983 ANNUAL REPORT ON THE PENNSYLVANIA PERMANENT PROGRAM [hereinafter cited as 1983 OSM PENNSYLVANIA REPORT] (43 page report; no discussion of environmental effects); OFFICE OF SURFACE MINING, 1984 ANNUAL REPORT ON THE PENNSYLVANIA PERMANENT PROGRAM [hereinafter cited as 1984 OSM PENNSYLVANIA REPORT] (112-page report; no discussion of environmental effects); OFFICE OF SURFACE MINING, 1985 ANNUAL REPORT ON THE PENNSYLVANIA PERMANENT PROGRAM [hereinafter cited as 1985 OSM PENNSYLVANIA REPORT] (129-page report; environmental effects of two permits discussed on three pages: 107-09).

pended particles have settled to the bottom. Stream quality improvements, particularly in those watersheds where public water supplies were threatened, have been considerable.

There also appears to be a significant reduction in the number and severity of acid mine drainage problems from active mining operations. Acid mine drainage is a difficult problem for many Appalachian coals, particularly those in Pennsylvania, Maryland, Ohio, Kentucky, and West Virginia.⁴⁴ The high acid, iron, and sulfate concentrations in acid mine drainage can kill virtually all life in streams and render water unfit for any human use. A major part of Pennsylvania's historical regulatory effort has been directed toward the prevention and control of acid mine drainage—usually by denying permits that might cause it, and by requiring treatment when it occurs. That effort appears to have been more successful in recent years. Few acid mine drainage discharges are present in recently permitted surface mining operations. A larger number of existing discharges are being treated.

Water supplies are also receiving better protection from surface mining under the new program than they did under the old. Coal mining can damage a water supply by dewatering or contaminating the aquifer on which it relies. This is particularly important in a highly populated state like Pennsylvania because many people rely for their water supply on wells and springs that are adjacent to surface coal mines. Largely because this matter is more closely scrutinized in the permit review process, the number of water supplies being lost or contaminated by surface mines without an adequate replacement supply has been reduced. The quality of replacement water supplies being provided by surface miners has also improved.

Operators are backfilling surface mines more quickly than was formerly the case, and therefore leaving less area unreclaimed at any given time. Aerial flyovers of multiple surface mine sites in Pennsylvania show much less unreclaimed area at active sites than in the late 1970's. Concurrent backfilling, which is putting rock and dirt back in the hole immediately after coal extraction, reduces the exposure of rock materials to air and water, and thus minimizes the potential for erosion or acid mine drainage. Concurrent backfilling also makes the operator bear major reclamation costs as it conducts mining, rather than waiting to bear those costs at the end of the operation when abandonment of

44. See APPALACHIAN REGIONAL COMM'N, ACID MINE DRAINAGE IN APPALACHIA 6 (1969).

the site may be a major temptation. In addition, concurrent backfilling reduces the amount of reclamation necessary if the operator fails to comply with its legal obligations.

The quality of revegetation at reclaimed surface mining sites also appears to have improved considerably under the new program. Revegetation and replacement of topsoil make it more likely that a site will be useful after mining, and useful for multiple purposes. These practices also reduce erosion from reclaimed sites. The quality, density, and permanence of vegetation are much greater than in the late 1970's. The topsoil applied to these sites also appears to bear a closer resemblance to the original soil, and contains less rocky material than it did a few years ago.

This is not to suggest that coal mining is no longer causing any environmental problems in Pennsylvania. As long as operators violate the laws, some environmental degradation will continue. Some degradation, moreover, is not prevented by SMCRA. Although DER has found a way to protect public water supplies from underground mining, private water supplies are not directly shielded from the effects of underground mining.⁴⁵ Many subsidence impacts are still allowed.⁴⁶ The program does not directly address noise, vibrations, and increased truck traffic from coal mining activity. Still, Pennsylvania's new program has significantly reduced the environmental impacts of coal mining.

B. *Impact on the Coal Industry*

Pennsylvania's coal industry is comprised of a large number of fairly small surface miners and a smaller number of larger underground miners.⁴⁷ In all, there are more than 3000 active oper-

45. See *infra* note 71 and accompanying text.

46. The new program affords much greater protection against subsidence damage than the old program. Compare 25 PA. CODE § 89.143 (1985) with PA. STAT. ANN. tit. 52, § 1406.4 (Purdon Supp. 1985) (§ 4 of the Bituminous Mine Subsidence and Land Conservation Act). Certain structures and features nonetheless remain unprotected. These include, for example, nonpublic buildings not customarily used by the public that were erected after Apr. 27, 1966, the date on which the Subsidence Act originally took effect. See 25 PA. CODE § 89.143(b)(1)(ii) (1985).

47. About three-fourths of Pennsylvania's licensed surface mining operators are considered small operators under SMCRA because they produce less than 100,000 tons per year. Interview with J. Anthony Ercole, Executive Vice President of the Pennsylvania Coal Mining Ass'n (Jan. 27, 1986) [hereinafter cited as Ercole interview]; see also 30 U.S.C. § 1257(c) (1982) (operators producing less than 100,000 tons per year are eligible for financial assistance in preparing part of the permit application concerning probable hydrologic consequences of mining). Only three licensed surface mining operators pro-

ations,⁴⁸ yet the industry does not consider itself to be healthy. The new program has significantly changed the way in which most coal operators conduct their business. These changes have increased costs, but they are responsible for the diminished environmental impact of mining under the new program. Although the expense of complying with environmental regulations is not insignificant, the industry's primary problem appears to be lower demand for Pennsylvania coal.

The new program has significantly affected mining and reclamation practices for most coal operators, as well as the way in which operators plan their operations. Most of the larger companies now have a management level person responsible for environmental affairs. These employees, who usually have a college degree in a field such as engineering or geology, evaluate properties for potential lease or purchase based on the environmental effects of mining that property and the likelihood of obtaining a permit, as well as the size and quality of the coal reserve.⁴⁹ They are also responsible for overseeing the preparation of permit applications, and for compliance with the new program requirements during the life of the operation. Most of the smaller operators rely on environmental consultants to an unprecedented degree, and are more concerned than they were under the old program about the potential for obtaining a permit when they acquire coal properties. The new enforcement program has forced all operators to pay more attention to compliance with the law to avoid penalties and, ultimately, to avoid being shut down.

While these results are environmentally beneficial, they have also had some adverse economic impact on the industry. Sorting out the impact of different factors is difficult because one pressure makes other pressures harder to bear. The most important

duced more than one million tons in 1984, and none of these produced more than two million tons. MINING ACTIVITIES REPORT, *supra* note 14, at 100. On the other hand, the deep mining industry tends to be comprised of larger operators; 11 produced more than one million tons in 1984, and five produced more than two million tons. *Id.* at 99. Many of these companies are affiliated with steel companies, oil companies, or electric utilities, and use modern production methods and sophisticated management to extract millions of tons annually from newly opened mines. The larger surface and underground operators rely on long-term contracts, while the smaller companies, which cannot obtain such contracts, tend to rely on the spot market for sale of their coal.

48. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 8, 38. OSM counted 3820 "inspectable units" under SMCRA in 1984-1985, 738 of which were not active. *Id.* at 38.

49. For an analysis of environmental issues related to the purchase or leasing of coal properties, see McGinley & Webber, *Pandora in the Coal Fields: Environmental Liabilities, Acquisitions, and Dispositions of Coal Properties*, 87 W. VA. L. REV. 665 (1985).

factors affecting Pennsylvania coal production nonetheless appear to be related to the coal market.⁵⁰

Although current production is comparable to coal production in the early 1970's,⁵¹ the future of Pennsylvania coal appeared much brighter immediately after the 1973 Arab oil embargo. A large scale transition by utilities from oil and gas to coal was expected, and coal was widely endorsed as a reliable domestic fuel. The market price of Pennsylvania coal more than doubled between 1973 and 1975, from \$10.30 per ton to \$25.09 per ton.⁵² Annual production increased by almost eleven million tons as many new operators got into the business.⁵³ Many of these operators were small and undercapitalized, and had little or no experience in the coal business.

Unfortunately, the coal boom was short-lived. Supply soon exceeded demand, which meant that the rapid increase in coal prices did not continue. Interest rates rose sharply in the late 1970's, making it more costly to borrow money for mining equipment, the cost of which was also rising. The global recession that began in the late 1970's contributed to the decline in demand, particularly as it contributed to the decline in steelmaking and related industries in Pennsylvania and elsewhere. Coal production in Western States as well as many foreign countries also increased considerably, providing stiffer competition for Pennsylvania coal and reducing the potential for coal exports. Because much Pennsylvania coal has a relatively high sulfur content, many utilities purchased lower sulfur coal from other Appalachian States.⁵⁴ All of this contributed to the failure of many undercapitalized operators in the State through the late 1970's and early 1980's, particularly operators who lacked long-term contracts for the coal they produced.⁵⁵

The economic effect of the new program must be understood against that background. Operators must submit much more detailed permit applications under the new program than under

50. See C. Harris, *The Effects of the Surface Mining Control and Reclamation Act of 1977 on the Pennsylvania Surface Mining Industry* 93 (Dec. 1983) (Pennsylvania State University, master's thesis); Ercole interview, *supra* note 47.

51. Pennsylvania produced about 83.1 million tons of coal in 1973, compared to 77.7 million tons in 1984. *MINING ACTIVITIES REPORT*, *supra* note 14, at 19, 95. Pennsylvania coal production is in a state of gradual and long-term decline. Coal production in the State peaked in 1917 and 1918, when more than 250 million tons were produced each year—more than three times the production in 1984. *Id.* at 18, 94.

52. 1985 *COAL DATA*, *supra* note 19, at Table 6.

53. Production increased from 83.1 million tons in 1973 to 94.0 million tons in 1979. *MINING ACTIVITIES REPORT*, *supra* note 14, at 19, 95.

54. C. Harris, *supra* note 50, at 55-75; Pitt. Press, July 7, 1985, at A1, col. 1.

55. *BOND FORFEITURE PROGRAM*, *supra* note 18, at 1-2.

the old program, which increases the cost of preparing them as well as the time DER needs to review them.⁵⁶ Many operators are particularly unhappy with the increased review time, claiming that it makes financial planning and management of new operations more difficult and costly. The enforcement provisions of the new program require operators to pay more attention to compliance than was previously the case, which also increases costs.⁵⁷ These costs are very real to the people who bear them, but they would be easier to bear if the coal market were better.⁵⁸ And to the extent that the new program has forced increased costs on the industry to protect the environment, coal producers have absorbed costs that the public once bore.

III. PERMITTING AND PERFORMANCE STANDARDS

The new program has not changed the basic legal obligations of Pennsylvania coal operators as much as it has changed the manner in which those obligations are imposed. This Part explains some of the major requirements of the new program, while the next Part explains how DER enforces them.

A. Permit Application Process

Pennsylvania law prohibited coal operators from mining without a permit long before SMCRA was adopted,⁵⁹ and provided for the denial of permits if operators could not meet certain cri-

56. See *infra* Part III.

57. See *infra* Part IV.

58. Harris concluded that there was little evidence that the new program has had any significant impact on small operators, even though one might expect that they would be most hurt by the new SMCRA requirements. "Most coal industry insiders agree that market conditions, instead of over-regulation, has [sic] been the cause for a decrease in the number of surface producers, especially the small operations that started in 1973 and 1974." C. Harris, *supra* note 50, at 85.

The industry and its employees are nonetheless in a painful period. Coal industry employment in Pennsylvania climbed from 30,775 in 1973 to 40,361 in 1979, but then dropped to 25,916 in 1984. MINING ACTIVITIES REPORT, *supra* note 14, at 19, 95.

59. Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.4(a) (Purdon 1966); Clean Streams Law, PA. STAT. ANN. tit. 35, §§ 691.307(a), .315(a) (Purdon Supp. 1985); 25 PA. CODE § 99.26 (repealed, 12 Pa. Admin. Bull. 2382 (July 31, 1982)); see also Commonwealth *ex rel.* Chidsey v. Black, 363 Pa. 231, 69 A.2d 376 (1949) (injunction affirmed against surface coal mining operation that was conducted without State approval, even in the absence of evidence that the mine was causing pollution).

teria. These provisions are substantially unchanged in the new program.⁶⁰

The permit review process is nonetheless more thorough under the new program. As a result, DER is making better decisions about whether to issue permits. One measure of that is the denial rate for permits. In 1978, for example, DER issued 339 new surface mining permits and denied only six.⁶¹ In 1985, by contrast, DER issued 268 and denied thirty new surface mining permit applications.⁶² Even this does not tell the complete story, for DER's increasing rigor in scrutinizing permit applications has prompted many operators to withdraw permits prior to a formal denial, and to not apply for other permits. In other cases, DER is issuing permits but mandating additional environmental protection measures that were not previously required. Although the new process does not protect against all environmental impacts, and although the optimal scope of that process remains to be defined, the new permit application process does a better job of preventing and limiting environmental damage from mining.

Perhaps the most important technical obstacle to permit issuance in Pennsylvania is the potential of a site to cause acid mine drainage. The potential of a site to produce acid is based on the way in which the rock and coal on the site will react chemically when exposed to air and water; this potential is difficult to change through design of the mining or reclamation plan. Other permit application requirements, such as a postmining vegetation plan, can be designed for any site, and thus do not usually represent a serious obstacle to permit issuance.⁶³ Preventing acid mine drainage in the permit application process is particularly important because a site that generates acid is likely to keep doing so for hundreds or thousands of years, and because the only solution in most cases is permanent treatment of the acidic water running off the site. Although DER can require permanent

60. 25 PA. CODE § 86.11(a) (1985) (prohibiting mining without a permit). Although SMCRA exempts surface mining operations that affect two acres or less, 30 U.S.C. § 1278(2) (1982), this exemption is not contained in the Pennsylvania program. The two-acre exemption has caused significant problems in other states. See Galloway & Fitzgerald, *supra* note 9, at 628-34; NAT'L WILDLIFE FED'N, *supra* note 9, at 24-31.

61. Pennsylvania Dep't of Env'tl. Resources, Bureau of Mining and Reclamation, computer printout from Federal Activity Report Data Base (Jan. 23, 1986) (copy on file with U. MICH. J.L. REF.).

62. *Id.*

63. This section therefore focuses on that part of the permit application process that concerns water resource impacts of coal mining. There are, of course, other potential obstacles to permit issuance. These include the applicant's compliance with the mining laws at other sites. See *infra* Part IV(C).

treatment,⁶⁴ it is inappropriate to allow predictable acid mine drainage to occur. Establishing, maintaining, and monitoring a treatment system that may be needed for thousands of years is a daunting but necessary prospect for unexpected problems; it is unnecessary for expected problems because they can be prevented through permit denial.

The obligation of permit applicants to demonstrate that there is no potential for acid mine drainage was therefore a major feature of Pennsylvania law prior to SMCRA. The State regulation creating that obligation put the burden of proof on the permit applicant and required permit denial even if there was only a potential for acid mine drainage.⁶⁵ In *Harman Coal Co. v. Commonwealth, Department of Environmental Resources*,⁶⁶ the court applied that regulation to sustain DER's denial of a permit even though the applicant had conducted more studies than were usually required at the time. The court ruled that DER had properly concluded that the operator's studies were insufficient to show the lack of acid mine drainage potential. The language of that regulation is reproduced verbatim in the new program regulations.⁶⁷

Protection of water supplies from surface mining is another important feature of the prior Pennsylvania program that remains substantially unchanged in the new program. Shortly before SMCRA was adopted, the Pennsylvania legislature amended the surface mining law to require surface coal miners to replace public and private water supplies that they had polluted or dried up.⁶⁸ The Environmental Hearing Board (EHB), which hears appeals of final DER actions, has construed this amendment as requiring permit denial when an applicant who is likely to affect adversely a water supply cannot demonstrate the availability of a replacement supply.⁶⁹ This amendment and decision are consistent with the requirements of the new federal program.⁷⁰ Protection of private water supplies from under-

64. See *supra* note 29 and accompanying text.

65. 25 PA. CODE 99.35(a) (repealed, 12 Pa. Admin. Bull. 2352 (July 31, 1982)).

66. 34 Pa. Commw. 610, 384 A.2d 289 (1978).

67. 25 PA. CODE § 86.37(a)(3) (1985); *cf.* 30 U.S.C. § 1260(b)(3) (1982) (requiring permit denial unless applicant demonstrates that proposed operation "has been designed to prevent material damage to hydrologic balance outside permit area").

68. 1977 Pa. Laws 99 (codified in the Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.4b(f) (Purdon Supp. 1985)).

69. *Cambria Coal Co. v. Pennsylvania Dep't of Env'tl. Resources*, 1983 EHB 23.

70. Compare 25 PA. CODE §§ 87.47, 87.119 (1985) (Pennsylvania water supply protection for bituminous surface mining) with 30 U.S.C. §§ 1258(a)(13)(C), 1307(b) (1982) and 30 C.F.R. § 816.41(h) (1986) (federal water supply protection provisions).

ground coal mining, however, is not part of the SMCRA or Pennsylvania programs.⁷¹

The new program improves DER's ability to make technically sound decisions under these provisions because it increases the information required of a permit applicant to show that it is entitled to a permit, and expands the scope of the hydrologic impact determination needed prior to permit approval. SMCRA requires each permit application to include a "determination of the probable hydrologic consequences of the mining and reclamation operations, both on and off the mine site," so that the regulatory authority can assess the probable cumulative hydrologic impacts of mining in the area.⁷² SMCRA prohibits the issuance of permits unless the assessment of probable cumulative hydrologic impacts has been made and "the proposed operation has been designed to prevent material damage to [the] hydrologic balance outside [the] permit area."⁷³ The Pennsylvania program in 1977 had no counterpart to the requirement that permit applications describe probable hydrologic impacts. The prohibition against permit issuance for operations not designed to prevent offsite hydrologic impacts, moreover, expands the regulatory language used in *Harman*. These requirements are contained in the new Pennsylvania program.⁷⁴

Perhaps the best way of measuring the information required in the old and new permit applications is to compare the applications themselves. The required information for the hydrogeology of the site is the information most critical to determining whether the site has the potential to cause acid mine drainage. The new permit application requires a detailed geologic descrip-

71. A federal court has twice held, on review of OSM's regulations, that SMCRA does not protect public or private water supplies from underground mining. See *In re Permanent Surface Mining Regulation Litig.*, 19 Env't Rep. Cas. (BNA) 1477, 1495 (D.D.C. 1980); *In re Permanent Surface Mining Regulation Litig. II*, 22 Env't Rep. Cas. (BNA) 2153, 2163 (D.D.C. 1985).

The Pennsylvania program is more stringent than SMCRA on this issue because it protects public water supplies from underground mining. A preexisting Pennsylvania statute prohibits public nuisances, PA. STAT. ANN. tit. 71, § 510-17 (Purdon Supp. 1985), a term that surely includes the loss of a public water supply. Because it is arbitrary and capricious for DER to issue a permit that would lead to a public nuisance, *Glasgow Quarry, Inc. v. Pennsylvania Dep't of Env'tl. Resources*, 1974 EHB 308, DER cannot issue an underground coal mining permit that would cause the loss of a public water supply. The new Pennsylvania program does not, however, contain any direct protection for private water supplies from underground mining.

72. 30 U.S.C. § 1257(b)(11) (1982).

73. *Id.* § 1260(b)(3).

74. See 25 PA. CODE §§ 86.37(a)(4), 87.69, 88.49, 89.36, 90.35 (1985). Section 86.37(a)(4) requires the prevention of adverse hydrologic effects both on and off the permit area.

tion and analysis of the site based on core borings and other information. It requires a description of all aquifers on or immediately under the coal to be mined, as well as an analysis of the rate and direction of groundwater movement. All public and private water supplies within 1000 feet of the permit boundary must be described in detail. The application must include monitoring results from those water supplies as well as from streams, springs, wetlands, and other water sources within 1000 feet of the permit area. Finally, the applicant is required to submit an overburden analysis—a geochemical evaluation of the potential of the site to cause acid mine drainage—unless it demonstrates to DER that such information is available in another form.⁷⁵

The old permit application, by contrast, asked for a more general description of the geology of the proposed permit area. The application asked operators to show how acid water that might collect in the pit would be treated, but did not inquire about aquifers. The application, as modified in September 1976, also asked for certain information about nearby public and private water supplies, but did not require that those water supplies be sampled. Nor did the application require monitoring of nearby streams and other water sources. Overburden analysis was required on occasion, but not routinely.⁷⁶ The old form, in short, did not require the sophisticated analysis of the potential hydrologic impacts of the proposed operation that is presently required. Although it was true that DER permit review staff could always ask for more information in individual cases,⁷⁷ the new permit application ensures that more information is obtained in all cases.

Under the old and new programs, a permit applicant must publish notice of the proposed permit in a local newspaper once a week for four consecutive weeks.⁷⁸ But the new program con-

75. See Pennsylvania Dep't of Env'tl. Resources, Application for Surface Mining Permit Pursuant to "The Clean Streams Law," the "Surface Mining Conservation and Reclamation Act," and the "Coal Refuse Disposal Control Act"; see also 25 PA. CODE §§ 87.43-.46 (1985) (comparable application requirements for bituminous surface mining).

76. See Pennsylvania Dep't of Env'tl. Resources, Application for Permit Approving Discharge of Industrial Wastes and Mine Drainage Pursuant to "The Clean Streams Law" (Form ER-MR-25, rev. 1976).

77. See Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.4(a)(2)(L) (Purdon Supp. 1985).

78. The old program made a distinction between mine drainage permits and mining permits for surface mining. Publication was required for mine drainage permits, PA. STAT. ANN. tit. 35, § 691.307(b) (Purdon Supp. 1985), which represented the large areas on which an operator could mine once it had posted a bond. Obtaining a mine drainage permit required an operator to demonstrate, among other things, that the proposed operation did not have the potential to cause acid mine drainage. Although an operator could

tains additional opportunities for citizens to participate in the permit review process. Interested persons may file written comments or request a public hearing. If a hearing is requested within thirty days of the last newspaper notice, DER must hold a hearing. The permit application must now be available for public review in a regional DER office; under the old program, permit applications could be reviewed by the public only at DER's central office in Harrisburg.⁷⁹ Most of the permit file is now considered public information; more information could be withheld under the old program.⁸⁰ Finally, DER provides direct written notice to persons when a surface mining permit application shows that the permit, if issued, is likely to affect adversely their water supply. This notice, which surprisingly is not required by SMCRA or OSM's regulations, gives persons an opportunity to influence the permit process, the quality of their replacement supply, or both.⁸¹ Although it has taken time for the public to realize what these changes mean, more and more persons are asking to review proposed permit applications, are

not mine unless it also had a mining permit, a mining permit represented merely a part of the mine drainage permit for which the operator had posted a bond. Newspaper notice is now also required for what was once called the mining permit. PA. STAT. ANN. tit. 52, § 1396.4(b) (Purdon Supp. 1985). Under the new program, the old mine drainage permit is known as the mining permit, and the old mining permit is known as the bonding increment.

79. See 25 PA. ADMIN. CODE §§ 86.31(b), 86.32, 86.34 (1985).

80. See PA. STAT. ANN. tit. 52, § 1396.4(a)(1) (Purdon Supp. 1985); 25 PA. CODE § 86.35 (1985); cf. Right to Know Law, PA. STAT. ANN. tit. 65, §§ 66.1-4 (Purdon Supp. 1985). Although the new mining provisions do not repeal the Right to Know Law, they supersede that law insofar as that law applies to mining because they are more specific and more recently enacted than the Right to Know Law. PA. STAT. ANN. tit. 1, §§ 1933, 1936 (Purdon Supp. 1985).

81. One of the central premises of SMCRA is the desirability of public participation in the regulatory process. See, e.g., H.R. REP. No. 218, 95th Cong., 1st Sess. 88-89 (1977) ("While citizen participation is not, and cannot be, a substitute for governmental authority, citizen involvement in all phases of the regulatory scheme will help insure that the decisions and actions of the regulatory authority are grounded upon complete and full information."). Neither SMCRA nor its regulations provide for direct notice to persons that a permit application shows that their water supply may be adversely affected by the proposed operation, however. This omission is especially remarkable because the obligation to demonstrate the availability of an alternate water supply means that those persons who may be affected will almost certainly be identified in the permit application. Although state and federal law do not appear generally to prohibit operators from affecting water supplies, they do prohibit the issuance of permits that would adversely affect water supplies when the applicant has not demonstrated the availability of a replacement supply. See *supra* notes 68-71 and accompanying text. In January 1985, primarily as a matter of fairness, DER began providing direct notice to persons whose water supply might be affected by a proposed operation.

making more technically sophisticated comments about these applications, and are requesting public hearings.⁸²

Although the permit application process is more effectively protecting the environment, at least two implementation issues remain. First, in response to OSM, DER has begun to address the problem of determining the probable cumulative hydrologic impacts of a mining operation in the permit review process. OSM believes that DER has not adequately defined the cumulative impact area to be addressed in the permit review process and does not adequately review certain cumulative hydrologic impacts.⁸³ These issues will be difficult to resolve. It is hard enough to assess the hydrologic impacts of an individual mining operation; the available predictive tools, including overburden analysis and evaluation of impacts from other adjacent mines, are not perfect. It is even more difficult to measure and assess the cumulative impacts of multiple mining operations. DER has not yet developed a standard methodology for defining the cumulative hydrologic impact area or for assessing cumulative surface and groundwater quantity and quality effects of multiple operations. Nor does it appear that anyone, including OSM, has yet developed a standard methodology for realistically doing so. These technical issues are complicated by a recent court ruling that remanded a key element of OSM's cumulative hydrologic balance assessment regulations.⁸⁴

Second, it is becoming increasingly apparent that studies are necessary to compare the water quality impacts of the new permits with those of the old permits. Although there is a widespread belief that the new permit review process is more protective of water quality,⁸⁵ that belief has not been tested in empirical studies. Such studies are particularly important because the predictive tools used for acid mine drainage require refinement, and because the effectiveness of certain environmen-

82. DER also provides written notice of permit applications to the Pennsylvania Fish Commission, Pennsylvania Game Commission, Pennsylvania Historic and Museum Commission, the city, borough, incorporated town or township in which the site would be located, water companies that may be affected by the proposed operation, and other agencies. 25 PA. CODE § 86.31(c) (1985). These agencies frequently improve DER's permitting decisions with their useful comments.

83. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 21-23.

84. The court remanded the OSM regulation prescribing when the "life of the mine" hydrologic analysis should occur. The court held that OSM had not provided a reasoned explanation for requiring that analysis to be conducted as part of the cumulative hydrologic impact analysis by the regulatory authority rather than as part of the assessment of probable hydrologic consequences by the operator. *In re Permanent Surface Mining Regulation Litig.* II, 22 Env't Rep. Cas. (BNA) 2153, 2159-62 (D.D.C. 1985).

85. See *supra* text accompanying notes 68-82.

tal protection measures required in many new permits is not fully understood.⁸⁶ Empirical analysis will also be important as DER initiates a novel permitting program for areas with preexisting acid mine drainage discharges.⁸⁷ The data derived from such studies could be of great benefit in future permitting decisions.

B. Areas Off Limits to Mining

The idea that certain areas are unsuitable for surface coal mining is not new to Pennsylvania. A permitting process that prohibits mining of areas with a potential for acid mine drainage will necessarily render certain parts of the State unsuitable for mining. More broadly, the State's long-standing water quality regulations have effectively prohibited or limited mining on certain sensitive watersheds.⁸⁸ And since 1972, Pennsylvania has generally prohibited surface mining within 300 feet of an occupied dwelling without the consent of the owner, within 100 feet of a stream or a road, and within certain distances of other features.⁸⁹ SMCRA borrowed and somewhat expanded these buffer zone provisions. As modified, they are part of the Pennsylvania program.⁹⁰

SMCRA also added a provision to Pennsylvania law for which there was no effective precedent in the State—a formal designation process to identify and set aside from future mining certain

86. Although DER hydrogeologists generally believe that overburden analysis greatly assists in making permit decisions, they do not believe that it is a completely accurate predictive tool. The chemical reactions used in overburden analysis often oversimplify field conditions in a way that impairs their effectiveness as a predictive tool. In addition, DER cannot readily field check all information provided by the operator, meaning that the quality of DER's decision may depend on the quality of the data gathered by the operator. When DER does issue permits, moreover, it often requires operators to add alkaline material to the site and to handle acid and toxic forming materials in special ways. Empirical studies of the accuracy of overburden analysis as a predictive tool, and of the effectiveness of alkaline addition and special handling as permit conditions, would be particularly useful.

87. See 15 Pa. Admin. Bull. 2377 (June 29, 1985). These regulations were approved by OSM on February 19, 1986, 51 Fed. Reg. 5997 (1986), and went into effect on March 8, 1986. 16 Pa. Admin. Bull. 673.

88. See 25 PA. CODE §§ 93.3, 93.7(e), 93.9 (1985) (designation of high quality and exceptional value streams and establishment of specific water quality criteria for these streams).

89. Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, §§ 1396.4b(c), 1396.4e(i) (Purdon Supp. 1985).

90. Compare 30 U.S.C. § 1272(e) (1982) (federal buffer zone requirements) with PA. STAT. ANN. tit. 52, § 1396.4e(e) (Purdon Supp. 1985) (Pennsylvania buffer zone requirements).

areas with special resources.⁹¹ The process is triggered by petition from an interested citizen, which makes it one of the most far-reaching public participation features in the new program; areas that are designated unsuitable generally cannot be mined. A petition is in many ways the opposite of a permit application. The petition must contain sufficient allegations and supporting evidence to warrant a ten-month technical study by DER to investigate the merits of the petition. If DER decides to conduct a technical study, it prepares a report and holds a hearing at the conclusion of the ten-month study period. If designation of the area is warranted, DER makes a recommendation to the Environmental Quality Board, DER's rulemaking authority. Designations are accomplished by rulemaking, which gives them greater visibility, durability, and credibility.

Congress intended that the designation process would be used for larger areas than would be included in a permit application, and also intended that the process would be used in long-range planning for the protection of special resources.⁹² Pennsylvania has used the process in that manner.

The State had designated six areas as unsuitable for mining in early 1986, in each case to protect a public water supply. Six more petitions were under consideration in early 1986.⁹³ All but

91. 25 PA. CODE §§ 86.121-.129 (1985); *see also* Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.4e(a)-(d) (Purdon Supp. 1985); Clean Streams Law, PA. STAT. ANN. tit. 35, § 691.315(h)-(m) (Purdon Supp. 1985). These provisions are based on 30 U.S.C. § 1272(a)-(d) (1982).

For years prior to primacy, DER and its predecessor agencies unofficially designated areas as unsuitable for mining. Although these designations were made by policy rather than by statute or regulation, they were often very effective. In *Doraville Enters. v. Pennsylvania Dep't of Env'tl. Resources*, 1975 EHB 390, the EHB observed that DER and its predecessor agencies had refused to issue permits in one watershed for more than twenty years. In this case the EHB brought the policy to an end by holding that DER could not simply deny permits proposed for "conservation areas," as they were called. In the absence of express statutory or regulatory authority, the EHB held that DER was required to consider permit applications on their merits. *Id.* at 398. The new Pennsylvania program provides that authority.

Under the new program, designations are applicable to all coal operators except those with "substantial legal and financial commitments." 25 PA. CODE § 86.121(b) (1985). That term means:

significant investments that have been made prior to January 4, 1977, on the basis of a long-term contract in power plants, railroads, mineral-handling, preparation, extraction or storage facilities, and other capital-intensive activities. Costs of acquiring the mineral in place or of the right to mine it without an existing mine are not sufficient commitments, standing alone, to constitute substantial legal and financial commitments.

Id. § 86.101.

92. *See* H.R. REP. NO. 218, 95th Cong., 1st Sess. 94-95 (1977).

93. *See* 25 PA. CODE § 86.130 (1985). For more information on the areas that have been designated as unsuitable for mining, *see* 13 Pa. Admin. Bull. 2968 (Oct. 1, 1983)

one of the areas under consideration were watersheds, or large sections of watersheds, that provide surface drainage for a public water supply in the State's mountainous regions. Protection of public water supplies is particularly important in those parts of the State's coal bearing regions where most, if not all, of the available water supplies have been polluted by previous mining. Protection of public water supplies is not the only basis for designations, however. In Pennsylvania, the designation process has focused on watersheds that contain high quality streams with little buffering capacity against potential acid discharges. These streams are generally high quality fisheries for brook and brown trout. The watersheds usually also have a history of DER permit denials based on the potential of sites to cause acid mine drainage.

The designation process has affected the way that Pennsylvania's citizens and coal operators regard coal mining. The primary effect of the process has been the assurance that it provides to public water suppliers and their customers that water supplies subject to designations will be protected. Designations also assure fisherman, hunters, and others who use designated areas that resources there will be protected. In addition, designations aid coal operators' planning by telling the operators that permit applications for designated areas would almost certainly be denied.

Finally, the designation process has important symbolic value. It means that certain areas should not be mined. The process is therefore directed against the view long held in Pennsylvania and elsewhere that coal should be mined wherever it can be found. In that respect, the process may be the most basic symbol of the new regulatory program, for it means that environmental values prevail when coal mining and environmental protection cannot be reconciled.⁹⁴

(Griffithtown); 14 Pa. Admin. Bull. 446 (Feb. 11, 1984) (upper Cold Stream watershed); 14 Pa. Admin. Bull. 2670 (July 21, 1984) (Black Bear Run watershed); 14 Pa. Admin. Bull. 2667 (July 21, 1984) (portion of Mill Run watershed); 16 Pa. Admin. Bull. 1274 (Apr. 12, 1986) (upper Powell Run watershed). A sixth area was approved for final rulemaking on November 19, 1985. For more information about this area—the Byrnes Run watershed—see 15 Pa. Admin. Bull. 1829 (May 18, 1985) (notice of proposed rulemaking).

Areas that have been proposed for designation include the Rogues Harbor Run watershed and the Little Muddy Run watershed. Several other areas are under study by DER. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 91. DER has rejected six of the 17 petitions it has received. *Id.*

94. A person who believes that a designation is no longer warranted may file a petition to terminate the designation, however. 25 PA. CODE § 86.123(d) (1985). This petition, which must contain allegations of newly discovered facts with newly discovered support-

C. Performance Standards

Performance standards are the operating rules with which operators must comply to run a lawful operation. Pennsylvania had a fairly sophisticated set of performance standards when SMCRA was passed in 1977. In fact, many federal requirements were derived from basic concepts in long-standing Pennsylvania law. The federal act and regulations, however, put many of these standards in writing, made many others more enforceable, and forced the State to protect against certain adverse effects it had not previously addressed.

In many ways, the performance standards under the new program are conceptually the same as those in the old program. For example, both programs require surface operators to backfill an area after mining, require that a mine site be reclaimed to approximate original contour, require revegetation of the site, prohibit discharges from the mine site that exceed certain effluent limitations, and prohibit certain blasting practices.⁹⁵

ing evidence not contained in the record of the designation proceeding, is otherwise subject to the same requirements and procedures as a petition to designate an area. *Cf. id.* § 86.123(c) (requirements for petition to designate an area).

95. Compare 25 PA. CODE § 77.92(f)(1)-(2) (repealed, 12 Pa. Admin. Bull. 2382 (July 31, 1982)) (backfilling) *with id.* § 87.141 (1985) (backfilling); Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.4(a)(2)(G) (of 1972 Act) (approximate original contour) *with id.* § 1396.4(a)(2)(E) (approximate original contour); 25 PA. CODE §§ 77.1-72 (repealed, 12 Pa. Admin. Bull. 2382 (July 31, 1982)) (revegetation) *with* 25 PA. CODE §§ 87.147-156 (1985) (revegetation); *id.* § 77.92(c) (repealed, 12 Pa. Admin. Bull. 2382 (July 31, 1982)) (effluent limitations) *and* 40 C.F.R. pt. 434 (1978) (effluent limitations under Federal Clean Water Act for point source discharges from coal mines) *with* 25 PA. CODE § 87.102 (1985) (effluent limitations) *and* 40 C.F.R. pt. 434 (1985) (current effluent limitations under Federal Clean Water Act for point source discharges from coal mines); 25 PA. CODE chs. 210, 211 (1985) (blasting restrictions) *with id.* §§ 87.124-129 (additional blasting restrictions).

In some cases, however, the general similarity disguises real differences on important details. Approximate original contour under the new program, for example, is defined as regrading the surface so that it resembles the general surface configuration of the land prior to mining, and blends into and complements the drainage pattern of the surrounding terrain, with all highwalls and spoil piles eliminated. Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.3 (Purdon Supp. 1985). Under the old program, however, approximate original contour was basically defined in terms of a slope from the highwall to the base of the spoil bank at an angle that was not to exceed the approximate slope prior to mining. 1971 Pa. Laws 554, § 3 (Surface Mining Conservation and Reclamation Act prior to amendment in 1980). This meant that an operator could substantially change the area where it had mined and still be consistent with State law. Areas reclaimed under the previous definition were flatter and less conducive to good drainage, meaning that precipitation was more likely to soak into such sites, come into contact with acid forming materials, and manifest itself as acid mine drainage at the base of old spoils. The definition in the new program avoids many of the problems associated with the prior definition.

The performance standards in the new regulatory program differ from those in the old program partly because the new standards are incorporated into the regulations. These new regulations allow more uniform application and enforcement of performance standards. They also give coal operators and the public a clear idea of what is required. Many of the new regulations set forth requirements that were once unwritten. The performance standards in the new regulations are also longer and more detailed than those in the old regulations. If they are not applicable to all situations, they contain variance provisions.⁹⁶ Others incorporate a long laundry list of "standard conditions" and another list of "special conditions" that DER permit review staff developed over time to supplement the brief and inadequate old program regulations. DER imposed selected conditions in issuing permits, and these were binding on an operator in the same manner as regulations. There was little written guidance on which permit conditions should be imposed under what situations, even though many of the program's most important requirements were imposed only through permit conditions. An old program regulation that was interpreted by permit review staff to allow permit conditions to supersede regulations contributed to an unevenly administered set of performance standards.⁹⁷

The performance standards in the new program are also written in a more enforceable manner than those that were written in the old program. The best performance standards have four qualities.⁹⁸ First, they have as few elements as possible, and as few exceptions and potential affirmative defenses as possible. Second, each element is based on a mechanical or measurable rule rather than a judgment rule. Both of these characteristics greatly simplify compliance determinations, which is particularly important to a regulatory agency that must deal with many thousands of actual and potential violations annually. Performance standards based on these two characteristics give coal operators a clearer idea of what is expected of them and reduce the likelihood of different or inconsistent interpretations. Third, the

96. Compare 25 PA. CODE §§ 86.91-.181 (1985) (new program performance standards for bituminous surface mining) with *id.* §§ 77.2-.72, 77.92 (repealed, 12 Pa. Admin. Bull. 2382 (July 31, 1982)) (old program performance standards) and *id.* §§ 99.31-.37 (repealed, 12 Pa. Admin. Bull. 2382 (July 31, 1982)) (additional old program performance standards). Although the old program requirements for revegetation were very detailed, *id.* §§ 77.2-.72, the other old program requirements were not.

97. See *id.* § 77.92(a) (repealed, 12 Pa. Admin. Bull. 2382 (July 31, 1982)).

98. This analysis is adapted from Diver, *The Optimal Precision of Administrative Rules*, 93 YALE L.J. 65 (1983).

mechanical rules in the best performance standards are good surrogates for the environmental protection that is sought. No regulatory agency wants to spend time and energy pursuing technical violations that are unrelated to environmental protection. Fourth, the mechanical rules must fit the activity they are intended to regulate so closely that their application in every case will yield an appropriate and fair result. Such rules must sometimes provide for their refinement or alteration through permit conditions to ensure that they fit individual cases. This is particularly important in a system based on mandatory enforcement responses, because an unworkable performance standard damages the credibility and effectiveness of that system. Although the performance standards in the new program are not perfect, they meet these characteristics much better than those in the old program.

The backfilling regulations are an example of this difference. Under Pennsylvania's new regulatory program, backfilling must follow coal removal by no more than sixty days. When the operator can demonstrate that more time is needed, DER may establish an alternative time period, say eighty days, as a condition in the operator's permit.⁹⁹ This regulation, which was adopted directly from OSM's original regulations, relies on a simple mechanical rule and a variance provision that allows a different simple mechanical rule to be imposed where necessary. The rule is a mechanical way of expressing the concept of concurrent backfilling, and is thus a good surrogate for the environmental protection being sought. There is relatively little room to argue about compliance with such a rule. Under the old regulatory program, by contrast, backfilling was required to "be accomplished as mining progresses in accordance with the mining plan."¹⁰⁰ This much broader rule was subject to widely varying interpretation in the field and provided more room for argument between DER and operators. It is easier for operators to comply with a rule that is clearly defined, and easier for DER to enforce such a rule.

In many other areas, the new program contains performance standards requiring DER and operators to address environmental and public safety issues they had not previously addressed. The new program, for example, requires operators to provide

99. 25 PA. CODE § 87.141(c)(1) (1985). In late 1983, OSM repealed the federal regulation on which that provision was based. A court subsequently remanded OSM's decision. See *infra* note 221 and accompanying text.

100. *Id.* § 77.92(f)(1) (repealed, 12 Pa. Admin. Bull. 2382 (July 31, 1982)).

public notification of planned blasting activity and to conduct pre-blast surveys.¹⁰¹ These regulations did not exist in the old program. The new regulations require operators to identify post-mining land uses for areas they mine, and establishes special performance standards for certain kinds of post-mining land uses. The old regulations merely required identification of the postmining land use.¹⁰² The new regulations require operators to conduct extensive surface and groundwater monitoring in and around mining sites;¹⁰³ there were no such requirements in the old program. The new regulations require operators to mitigate damage to wetlands, to avoid damage to endangered or threatened species, and to mine and reclaim areas with prime farmland according to a more protective set of performance standards than are applicable to other lands.¹⁰⁴ None of these requirements existed in the prior program.

Perhaps the most important and difficult of the new performance standards are those related to protection of the hydrologic balance from the adverse effects of coal mining.¹⁰⁵ These performance standards differ from the hydrologic balance informational requirements that must be satisfied to obtain a permit because these standards are applicable to active mining operations. DER's new program regulations for underground mining require that mining be conducted to "minimize" changes to the hydrologic balance on and off the permit area; the surface mining regulations require that disturbances to the hydrologic balance be "prevented."¹⁰⁶ Both surface and underground operators, moreover, are required to restore the recharge capacity of aquifers they affect.¹⁰⁷ The new program is forcing DER as well as Pennsylvania coal operators to think more broadly about hydrologic impacts, but the scope of these provisions remains to be defined.

Underground mining offers a good example of the difficulties involved in applying these regulations, partly because the new program addresses a broad range of previously uncontrolled hy-

101. *Id.* § 87.125 (1985).

102. *Compare id.* §§ 87.75, 87.150, 87.151(d), 87.159 with 1971 Pa. Laws 554, § 4(a)(2)(B), *repealed* by 1980 Pa. Laws 835 (amendments to Surface Mining Conservation and Reclamation Act).

103. *See* 25 PA. CODE §§ 87.116-.117 (1985).

104. *See id.* § 87.101(b) (requiring that changes in depth to groundwater be minimized); *id.* § 87.138 (requiring protection of fish, wildlife, and related environmental values); *id.* §§ 87.177-.181 (requiring protection of prime farmland).

105. *See* 30 U.S.C. § 1265(b)(10) (1982).

106. *See* 25 PA. CODE § 89.52(a) (1985) (hydrologic balance protection for underground bituminous mines); *id.* § 87.101(a) (hydrologic balance protection for surface bituminous mines).

107. Clean Streams Law, PA. STAT. ANN. tit. 35, § 691.315(d) (Purdon Supp. 1985).

drologic impacts. Underground coal mining creates vast passageways in which groundwater accumulates and often turns to acid. This acidic groundwater can migrate offsite, polluting aquifers even if it does not manifest itself in a surface discharge. Active underground coal mining can also dewater aquifers or lower water tables, destroying water supplies and making areas less suitable for future use. The old program addressed these impacts only to a limited extent. Because prevention of direct discharges of acid mine drainage into streams was considered both desirable and possible, a primary goal of the old regulatory program was to ensure that no postmining discharges into streams resulted from underground mine development. Underground coal mines were sealed after operations were completed to keep acidic water in the old mine workings from becoming a surface discharge into a stream. Little attention was given to the impact of underground mining on groundwater quality or the integrity of aquifers and many water supplies. Another primary goal of the old underground mining program was to protect certain property from subsidence. Little time was devoted to subsidence impacts on surface or groundwater.¹⁰⁸

As important as the new hydrologic balance protection requirements are, however, they are not defined in a manner that makes enforcement easy. These requirements are comparable to the backfilling regulation in the old Pennsylvania program; they require that adverse impacts to the hydrologic balance be prevented or minimized, but they do not define that with any precision. Congress recognized that the total prevention of hydrologic impacts from mining is impossible, yet these impacts are substantial and often permanent. Congress also anticipated that state regulatory authorities such as DER would require "whatever additional measures are necessary to meet local conditions."¹⁰⁹ What effects must be minimized, and how much, are questions that remain to be answered. DER is wrestling with the

108. DER's claim in *Commonwealth v. Barnes & Tucker Co.*, 455 Pa. 392, 319 A.2d 871 (1974), for example, was not that coal mining had polluted the groundwater, but rather that the polluted water was discharging into a stream. See *supra* note 29. If the company had managed to keep the polluted water sealed up in the underground mine workings, the case would not have occurred. Unfortunately, a breakout sent millions of gallons of acidic water into a stream every day until the company began treatment. Similarly, the Bituminous Mine Subsidence and Land Conservation Act of 1966 was directed toward the protection of houses, cemeteries, and similar features from the impacts of subsidence. PA. STAT. ANN. tit. 52, § 1406.4 (Purdon Supp. 1985). Until the new program, protecting the hydrologic balance from the impacts of subsidence caused by underground mining was not required.

109. H.R. REP. NO. 218, 95th Cong., 1st Sess. 110 (1977).

question of whether the hydrologic balance regulations help protect private water supplies from underground mining,¹¹⁰ given that SMCRA apparently affords no direct protection to those supplies. Mitigation measures for potential damage to streams, ponds, aquifers, and other features are still being worked out on a case-by-case basis. OSM's 1983 promulgation of a regulation requiring that offsite hydrologic damage from surface and underground mining be prevented rather than merely minimized raises still more questions.¹¹¹ What the new hydrologic balance protection requirements will ultimately mean is thus still uncertain.

IV. ENFORCEMENT

The most dramatic changes SMCRA has made in Pennsylvania's program are related to enforcement. SMCRA contains highly detailed enforcement provisions that required substantial changes in Pennsylvania's enforcement program. The new enforcement system requires specified responses to defined categories of violations, rather than allowing almost complete discretion in responding to any violation. Its increased effectiveness can be measured by the evolution in cited violations in the past several years. In the late 1970's and early 1980's, most of the violations represented major problems, such as failure by an operator to reclaim thousands of acres, mining without a permit, and no effort to control erosion. Now, most of the violations are less significant—some nonconcurrent backfilling, minor off-permit mining, or failure to maintain adequately erosion and sedimentation controls. The number of major problems has significantly declined.

By affirmatively requiring the regulatory agency to respond in specified ways to different kinds of violations, SMCRA repre-

110. The loss of private water supplies can be attributed to pollution of, or damage to, an aquifer—that is, an adverse effect on the hydrologic balance. Coal operators are now required to minimize damage to the hydrologic balance in both the permit and adjacent areas. 25 PA. CODE § 89.52(a) (1985). The Clean Streams Law provides for the promulgation of regulations to protect public and private water supplies. PA. STAT. ANN. tit. 35, § 691.501 (Purdon Supp. 1985). These provisions, among others, appear to provide a basis in state law for promulgating regulations to protect private water supplies from underground coal mining.

111. See 30 C.F.R. §§ 816.41(a), 817.41(a) (1985); see also 48 Fed. Reg. 43,956, 43,976-77 (1983) (explaining the change, albeit cryptically). A bill under consideration in the Pennsylvania legislature would protect private water supplies from underground mining. H.B. 848, 169th Sess. (Pa. 1985).

sents a significant challenge to the traditional view that government enforcement officials should enjoy substantial discretion in the cases they prosecute and in the remedies they seek.¹¹² SMCRA's enforcement provisions can be justified on several grounds, however. First, a mandatory enforcement system¹¹³ is the only way to ensure that the categorical substantive requirements of a statute or regulation are actually applied to all persons within the category. This is a particularly important response to concerns that the strict requirements of many laws are often undermined by agencies that do not enforce them.¹¹⁴ Second, a mandatory enforcement system tends to be fairer to regulated parties because it helps ensure that similar violations are treated similarly. It therefore overcomes a frequent tendency by regulatory agencies to take enforcement action against smaller companies with little political clout rather than larger or politically well-connected companies. A mandatory enforcement system also helps companies to protect themselves because it reinforces adherence to the written program rather than unwritten and frequently changing exceptions or variances that may lull them into a false sense of security about their compliance with the program.

Third, a mandatory enforcement system ensures that the agency reacts promptly and effectively to violations. Such a system can be highly useful to a regulatory agency because it re-

112. K. DAVIS, *DISCRETIONARY JUSTICE* (1969), represents the classic statement on behalf of limiting enforcement discretion by administrative agencies.

113. This term refers to an enforcement system that requires an agency to conduct frequent inspections and requires the agency to take affirmative enforcement action to correct and/or punish all violations. Although it means that many enforcement actions are not discretionary, it does not mean the complete absence of enforcement discretion. The agency may still have flexibility, for example, in choosing among enforcement options or in resolving interpretive questions over the meaning of particular performance standards. Pennsylvania's coal mining enforcement program contains such flexibility.

114. See *Heckler v. Chaney*, 105 S. Ct. 1649, 1660-68 (1985) (Marshall, J., concurring).

In response to public concerns about insufficient enforcement and enforcement resources, Congress has included "citizen suit" provisions in most environmental statutes that generally allow lawsuits to be filed against the regulatory agency for failure to perform a nondiscretionary duty, and against regulated parties that violate the law. See, e.g., 30 U.S.C. § 1270 (1982) (SMCRA citizen suit provision); see also S. REP. NO. 128, 95th Cong., 1st Sess. 88 (1977) ("[C]itizen suits can play an important role in assuring that regulatory agencies and surface operators comply with the requirements of the Act and approved regulatory programs. The possibility of a citizen suit should help to keep program administrators 'on their toes.'"). See generally Hays, *ENVIRONMENTAL LITIGATION IN HISTORICAL PERSPECTIVE*, 19 U. MICH. J.L. REF. 969, 972 & n.11 (1986). Supplementary citizen enforcement, however, is no substitute for a mandatory enforcement system because individuals and citizen groups lack the time and resources of a properly staffed regulatory agency.

stricts the range of issues about which a company violating the law could otherwise bargain, including whether formal enforcement action is appropriate, how long the agency should wait before taking formal action, and the length of time allowed to correct violations. Without such limitations, correction of violations can take years instead of weeks or perhaps months. As cases or potential cases drag on, the agency's sense of urgency about them often declines and enforcement personnel may change, contributing to further delays. When an agency tolerates more than a marginal level of noncompliance, moreover, companies frequently raise equitable defenses in enforcement actions, claiming, among other things, detrimental reliance on actual or implied representations by government officials that particular requirements would not be enforced. Such defenses make litigation more difficult and time-consuming for the agency even though they usually are not successful.¹¹⁵

A regulatory program that categorically requires specified enforcement responses to different kinds of violations, of course, requires considerable resources and personnel. It also requires considerable foresight and planning on the part of program managers and regulation writers to ensure that the system runs smoothly and fairly. To ensure that the program is properly staffed, for example, the litigation load must be predicted with some degree of accuracy. But a mandatory enforcement system and the increased staffing that accompanied it are the most important reasons for the increased effectiveness of the Pennsylvania coal program.

Ironically, SMCRA's enforcement system was the element of the primacy program that DER resisted most strongly. Some DER staff responsible for program development were concerned that the system would bureaucratize enforcement with burdensome paperwork and procedural requirements, interfering with the substantial discretion that they believed was responsible for the effectiveness of the old program. Some also believed that the nondiscretionary nature of the federal enforcement system would severely burden DER enforcement personnel as well as the EHB. These problems exist in the new program, but they

115. See *Heckler v. Community Health Servs.*, 467 U.S. 51, 60 (1984):

When the Government is unable to enforce the law because the conduct of its agents has given rise to an estoppel, the interest of the citizenry as a whole in obedience to the rule of law is undermined. It is for this reason that it is well settled that the Government may not be estopped on the same terms as any other litigant.

(citations omitted).

have been outweighed, for the most part, by the positive features of the new program. The new system has worked as well as it has because it combines and enhances the best elements of the old State program with elements of the federal program, creating a better enforcement system than either was by itself.

A. *Inspection Frequency*

Perhaps SMCRA's most far-reaching enforcement provision is the requirement that state regulatory authorities conduct twelve inspections of each operation per year. Under the Act, one inspection per calendar quarter must be "complete"; the inspector must examine the entire site for compliance with all applicable performance standards. At least eight other "partial" inspections each year are required; the inspector must examine the site for compliance with certain performance standards.¹¹⁶ These requirements are part of Pennsylvania's new program.

The State has made significant progress in meeting these requirements. In 1984-1985, DER conducted 34,326 inspections on about 3800 operations, representing eighty-eight percent of the required complete inspections and eighty-five percent of the required partial inspections.¹¹⁷ DER conducted about 10,000 more inspections than it had in the previous year.¹¹⁸ Near the peak of the coal boom in 1978, by contrast, DER conducted 9292 inspections.¹¹⁹ Inspectors under the old program might visit the same site only two or three times per year. Sometimes, entire sites were mined without an inspection.

Increased inspection frequency has had a substantial effect on the willingness of operators to comply with the law. Put bluntly, they know that violations are more likely to be caught, and therefore they make greater efforts to stay in compliance. Increased inspection frequency also helps ensure that violations are identified at an earlier and more easily correctable stage. The nature and appearance of an active surface mine changes

116. 30 U.S.C. § 1267(c) (1982).

117. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 36, 38. The years 1984-1985 represent OSM's reporting period for its annual report on the Pennsylvania program: July 1, 1984 to June 30, 1985. All similar references in this Article are to a comparable 12-month period. The percentage figures for 1984-1985 compare to 47% of all required inspections in 1982-1983, 1983 OSM PENNSYLVANIA REPORT, *supra* note 43, at 17, and 65% of all required complete inspections and 60% of all partial inspections in 1983-1984. 1984 OSM PENNSYLVANIA REPORT, *supra* note 43, at 35.

118. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 38.

119. Interoffice memorandum from George Rieger to Keith Gentzler (undated) [hereinafter cited as Rieger memorandum] (copy on file with U. MICH. J.L. REF.).

almost daily; some areas are being opened, some are being mined, and some should be under reclamation. Monthly inspections mean that operators are less likely to get behind in back-filling, for example. They are also less likely to stray past the boundaries of their permits.

The quality of inspections has also improved because inspectors know the sites better when they visit them. Inspectors are more familiar with the nature of the operation and with existing and potential problems. Site familiarity has also improved because each inspector is assigned to inspect fewer operations; this was an inevitable result of increasing inspection frequency per site. Because inspectors are required to take water samples during complete inspections, the quality of DER's information about the effect of individual operations on surface and ground-water quality has increased.

Although Pennsylvania has done much to fulfill SMCRA's enforcement requirements, OSM's Pennsylvania field office believes that more must be done. DER has not quite reached the required number of complete and partial inspections. Because a complete inspection is supposed to cover all applicable performance standards and include water sampling, OSM has also gathered data on the completeness of these inspections. According to OSM, DER needs to make more diligent efforts to ensure that complete inspections are actually complete.¹²⁰ Many DER personnel, on the other hand, are unhappy about conducting inspections at certain sites, such as essentially reclaimed sites that are simply awaiting bond release. Increased inspection frequency, however, has had a substantial positive effect on program enforcement.

B. Mandatory Identification of Violations

Another of SMCRA's significant features is its requirement that inspectors identify all violations in writing. That requirement has been incorporated into the Pennsylvania program.¹²¹ As a result, the number of violations identified in writing has increased dramatically under the new program. About 7000 violations were identified in writing in 1984-1985, compared to less

120. See 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 39-41.

121. Compare 30 U.S.C. § 1267(e) (1982) (federal provision) with 25 PA. CODE § 86.214 (1985) (Pennsylvania provision).

than 1000 in 1977.¹²² Because certain enforcement actions are supposed to follow automatically written identification of violations, this requirement plays an important role in the new enforcement program.

To make maximum use of the inspection frequency and violation identification requirements, DER redesigned the form that inspectors must complete when they visit a site. Among other things, the new inspection form¹²³ contains a checklist of all applicable performance standards, identified by section number from the regulations as well as by subject matter. The inspector must check which performance standards were inspected for and mark all violations. The inspector must explain his or her findings in a narrative section. The old report form¹²⁴ contained no checklist; there was no way to know for sure what the inspector looked for unless something was written in the narrative. For the three general questions that the old form specifically asked inspectors, there were three possible answers: yes, no, and noted. The third category was a standard way of acknowledging that there was a violation without really saying so. The new inspection forms have no third category.

The new Pennsylvania program also contains provisions for citizen involvement in the inspection process. When a citizen gives DER reason to believe that there is a violation at a site, DER must conduct an inspection and provide the citizen an opportunity to accompany the inspector on the site. DER must also provide a written response to the citizen within thirty days after the complaint, whether or not an inspection is conducted.¹²⁵ These provisions in the new program underscore the requirement that all violations be identified.

Mandatory identification of violations symbolizes how much the inspector's job has changed under the new regulatory program. In the old program, inspectors had substantial discretion. There were fewer and more general performance standards, and little guidance from DER about when to cite violations, when to

122. See 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 50; Mine Drainage Control & Reclamation & Licensing and Bonding Div., Bureau of Surface Mine Reclamation, Pennsylvania Dep't of Env'tl. Resources, 1977 Annual Report. According to the 1977 report, 967 violations were cited at both coal and noncoal mining operations. The actual number of citations for coal mining operations would thus be less than 967. Most of the difference between 1984-1985 and 1977 is due to the old program's practice of citing only the most significant violations.

123. Copy of new inspection form on file with U. MICH. J.L. REF.

124. Copy of old report form on file with U. MICH. J.L. REF.

125. See 25 PA. CODE § 86.215 (1985) (requiring a written response "as soon as practicable").

issue orders, or when to refer a case for civil penalties or other legal action. To a large extent, the inspector himself was the law in his inspection district. Inspectors attempted to secure compliance through the management of their relationships with operators rather than through extensive reliance on legal procedures.¹²⁶ In practice, for example, this often meant that an inspector would not write backfilling violations in his inspection reports if the operator claimed that backfilling would drive the operator out of business or that backfilling would begin next week. While the system achieved a great deal of reclamation when operators acted in good faith or had a good working relationship with their inspectors, all too often operations simply got out of hand.

Inspectors did not identify some violations largely because there were not enough inspectors. In the late 1970's, twenty to thirty DER inspectors were responsible for more than 3000 permitted surface mining operations.¹²⁷ In one county, a single inspector was responsible for more than 600 sites.¹²⁸ Writing violations and taking enforcement action required time that could be devoted to other sites, and inspectors were reluctant to do that except for the very worst cases.

The new system represents a substantial improvement in several ways. First, and perhaps most basically, it depersonalizes the enforcement process to a significant degree. The personal qualities of the inspector, of course, are still important in ensuring that the process works smoothly. But the existence of a structured enforcement process means that DER's enforcement responses are more likely to be appropriate for the violations that DER finds. Second, identification of all violations, whether large or small, helps ensure that violations are corrected at an early stage. This means better environmental protection, more solvable problems for the operator, and more manageable enforcement litigation for DER. Third, identification creates a record of previous violations, which can be extremely useful in taking enforcement action. In the past, enforcement against persistent violators was sometimes hampered by a poor contem-

126. See generally K. HAWKINS, ENVIRONMENT AND ENFORCEMENT (1984). Hawkins studied water pollution control inspectors in England and Wales, and provides a useful and comprehensive evaluation of how inspectors are forced to operate in a regulatory system with virtually no formal enforcement authority. His assessment in many ways parallels how Pennsylvania surface mining inspectors operated before primacy, and to a lesser extent after primacy.

127. Ercole interview, *supra* note 47.

128. *Id.*

poraneous written record of violations. Finally, identifying violations provides feedback for the permit review staff within DER, who can learn how well particular environmental protection measures required in the permit have worked.

The citizen participation aspect of this program appears to be working, even though some problems remain to be resolved. In one recent year, DER received 706 citizen complaints about potential violations and, according to OSM, responded adequately to virtually all of them.¹²⁹ Interestingly, OSM found DER's initial action to be appropriate in almost every case, which may be a good measure of how DER is responding to the new system.¹³⁰ OSM has also found, however, that DER does not always provide citizens an opportunity to accompany inspectors on the mine site. The defensiveness of certain DER personnel toward this aspect of the program has begun to diminish as DER gains more experience with it.¹³¹

Notwithstanding the significant increase in cited violations in recent years, OSM believes that DER still does not cite all violations during its inspections. Using a controversial statistical analysis of DER and OSM inspections in Pennsylvania, OSM has stated that it would have cited three times as many violations as DER in 1984-1985.¹³² OSM has also asked DER to describe more adequately violations that are identified, although OSM believes that DER has made significant improvement in documenting violations in recent years.¹³³ Given DER's current progress on these matters, it is not unreasonable to expect that they can be resolved.

Many DER personnel, on the other hand, are frustrated with the paperwork associated with identifying and documenting all violations as well as the mandatory enforcement procedures at-

129. 1984 OSM PENNSYLVANIA REPORT, *supra* note 43, at 43-44; *see also* 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 44.

130. 1984 OSM PENNSYLVANIA REPORT, *supra* note 43, at 43. More recently, OSM noted that DER had made significant improvements in applying these provisions in a uniform manner. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 44.

131. In 1983-1984, DER notified citizens who complained of a violation that they had the right to accompany the inspector on the ensuing violation in 17 of 38 cases sampled by OSM. 1984 OSM PENNSYLVANIA REPORT, *supra* note 43, at 44. In 1984-1985, DER notified citizens of their right to accompany the inspector in 34 of 56 cases sampled by OSM. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 45. Many DER personnel have expressed concern about their personal liability should a citizen be injured while accompanying them on a mine site, and this may explain why the numbers are not higher.

132. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 55. *See generally id.* at 52-57. In an appendix to the report, DER objected to OSM's statistical methodology. *Id.* at app. 2-4.

133. *Id.* at 41-43.

tendant to their identification. They see time spent doing paperwork as time they do not spend on environmental protection. Such problems are not trivial. But the new requirement for identification of all violations has improved the effectiveness of the Pennsylvania regulatory program.

C. *Permit or License Denial Based on Violations*

A long-standing and unique feature of Pennsylvania law is the requirement that each surface coal operator annually obtain from DER a license, which is a kind of occupational license unrelated to the permit necessary to mine a specific site.¹³⁴ SMCRA contains no comparable requirement. Under the old regulatory program, DER could not legally issue or renew a license to an operator that had failed and continued to fail to comply with the surface mining laws. The prohibition was also applicable to an operator if any of its officers or directors had failed and continued to fail to comply with the laws.¹³⁵ Application of this prohibition to officers and directors was necessary to prevent persons from limiting their legal responsibilities through a multitude of different but closely related companies. The prohibition against license issuance under these circumstances affected an operator's ability to stay in business. It also meant that violations at one site could not be ignored by an operator that mined on many sites.

This prohibition concerning the issuance of licenses also has long been applicable in Pennsylvania to permits.¹³⁶ This provision is intended to prevent an operator from expanding its business by obtaining new permits when it is violating the law on its existing permit sites.

DER's ability to deny licenses and permits based on uncorrected violations, or withhold licenses and permits until violations were corrected, was—and still is—widely regarded as one of the Agency's most important enforcement tools prior to primacy. DER's authority to use this tool under the new program is greater in some ways and less in others. But the system for

134. Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.3a(a) (Purdon 1966 & Supp. 1985). No license is required for underground mining.

135. *Id.* § 1396.3a(b).

136. Clean Streams Law, PA. STAT. ANN. tit. 35, § 691.609 (Purdon 1966), amended by 1980 Pa. Laws 894 (current version at PA. STAT. ANN. tit. 35, § 691.609 (Purdon Supp. 1985)).

tracking and managing violations has improved considerably, thereby improving DER's ability to determine when licenses and permits should be denied.

DER's legal authority in the new program differs from that in the old program in several respects. First, SMCRA requires permit denial based on a history of past violations that shows a lack of intent or ability to comply with the law, even if there are no current violations.¹³⁷ Second, the new program generally expands the number of related parties—partners, officers, parent corporations, subsidiary corporations, and affiliates—for whose violations DER must deny permits and licenses to operators.¹³⁸ Third, the new program requires DER to deny permits based on violations found by OSM as well as violations in other states.¹³⁹ Fourth, under a 1984 Pennsylvania legislative amendment that limited the scope of DER's licensing authority, DER must deny licenses for violations of consent orders, cessation orders, and court orders, but can no longer deny or withhold licenses for continuing violations of statutes, regulations, or administrative orders.¹⁴⁰

Perhaps the most significant changes under primacy, however, are in DER's tracking system for violations. Historically, DER has kept a "violation docket" at its central office that consisted of looseleaf notebooks organized alphabetically by operator name, and less comprehensive dockets in the district offices. DER checked the violation docket just prior to permit or license issuance; before a permit or license could be issued, the operator, its officers, and owners had to clear any violations from the docket. The system frequently worked well, but it was not fool-proof. Information was organized by operator name and well-known relationships with other operators. As a result, it was frequently difficult to make sure that operators did not get licenses or permits if their relationships to noncomplying operators were not well known. In addition, there was some uncertainty about what kind of violation should prompt the withholding of a license or permit. For these and other reasons, the docket was not as effective as it might have been.

137. 30 U.S.C. § 1260(c) (1982). This requirement is incorporated in the Pennsylvania program at 25 PA. CODE § 86.37(a)(10) (1985).

138. Compare, e.g., 1980 Pa. Laws 835, § 3.1(b) (amendments to Surface Mining Conservation and Reclamation Act) with 1972 Pa. Laws 1662, § 3.1(b) (amendments to Surface Mining Conservation and Reclamation Act).

139. 25 PA. CODE § 86.37(a)(11) (1985).

140. 1984 Pa. Laws 916 (amending § 3.1 of the Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.3a (Purdon 1966)).

DER has now initiated a systematic computer tracking system for inspections, violations, enforcement actions, permitting, and related matters. As this system gets underway, DER will be better able to deny permits to noncomplying operators as well as their "related parties" because the computer program has the ability to identify and display the interrelationships between operators and their owners and managers. Although DER depends on coal operators to report accurately company ownership and control information, the computer program will enable more thorough analysis of the information that it is provided. In addition, the computer system will allow DER to deny permits based on OSM violations or violations in other states, once OSM establishes a computerized data base and program for these violations. DER simply does not have the resources to identify these violations without assistance from OSM.¹⁴¹

Apart from the transition to a computerized tracking system, DER has clarified its policy concerning what violations should hold up permits. DER will deny or withhold a permit from an operator based on violations that have led to the issuance of an order. These violations are those of greatest environmental significance.¹⁴² As a result, there is a greater institutional willingness to deny permits to operators based on uncorrected violations.¹⁴³ This system is in direct response to the proliferation of reported violations that occurred early in the new program. Although many of these violations were significant, many were of minor significance and were quickly corrected. It proved impractical and administratively impossible to withhold permits or licenses based on minor violations as long as they were corrected within the required time.

D. Mandatory Correction of Violations Within Ninety Days

SMCRA requires that states take specified enforcement actions in response to violations, and requires all violations to be abated within ninety days. Although Pennsylvania has incorporated those requirements into its program, it has done so in a

141. OSM has not yet established an effective computer system to help manage its large number of civil penalty collection cases. HOUSE COMM. ON GOV'T OPERATIONS, *supra* note 11, at 19-21.

142. See *infra* Part IV(D).

143. The computerized system will also help DER to track efficiently operators' violation histories, enabling DER to implement the new provision allowing permit denial based on past violations.

manner that preserves features of its previous program that are superior to the federal program. The resulting combination is better than either the old Pennsylvania program or SMCRA's requirements.

SMCRA requires states to order immediately the cessation of any condition, practice, or violation that creates an "imminent danger to the health or safety of the public."¹⁴⁴ States also must immediately issue a cessation order when there is a condition, practice, or violation that is "causing, or can reasonably be expected to cause significant, imminent environmental harm to land, air, or water resources."¹⁴⁵ The order must remain in effect for the duration of the problem leading to the order. In addition, the state must impose affirmative obligations requiring the operator to abate the imminent danger or significant environmental harm.¹⁴⁶ For all other violations, the state must fix "a reasonable time but not more than ninety days for the abatement of the violation."¹⁴⁷ If the operator fails to meet the required correction date, the state must order the cessation of the operation or that part of it relevant to the violation.¹⁴⁸

These requirements are a significant departure from previous Pennsylvania practice primarily because they require the abatement of violations within a time certain. Under the old program, DER usually would issue a notice of violation, which was a letter informing the operator of the existence of the violation and requesting the operator to inform DER how he planned to correct it. Because the notice of violation imposed no affirmative obligation upon the operator, both DER and the operator frequently ignored it for long periods. Because of DER's ability under the old program to deny licenses and permits based on uncorrected violations,¹⁴⁹ operators frequently did not begin to correct violations unless they needed a license or permit from DER. In the meantime, serious environmental pollution was often occurring. Notices of violation had one thing in their favor, however; they were not appealable and thus did not contribute to DER's already substantial litigation burden.¹⁵⁰

DER had several reasons for initially objecting to SMCRA's

144. 30 U.S.C. § 1271(a)(2) (1982).

145. *Id.*

146. *Id.*

147. *Id.* § 1271(a)(3).

148. *Id.*

149. *See supra* text accompanying notes 134-36.

150. *See, e.g.,* Sunbeam Coal Corp. v. Pennsylvania Dep't of Env'tl. Resources, 8 Pa. Commw. 622, 304 A.2d 169 (1973).

system of issuing orders. First, DER already had broad authority under its mining statutes to issue orders to the extent necessary to enforce those statutes.¹⁵¹ SMCRA, by contrast, required the issuance of orders when there were imminent dangers or imminent environmental harms—a more limited class of cases than that encompassed by DER's authority. Until recently, for example, federal law did not require the issuance of a cessation order for mining without a permit;¹⁵² issuance of cessation orders for mining without a permit was a basic feature of the Pennsylvania program before primacy. DER was concerned that any post-primacy order that did not fit SMCRA's requirements might be challenged as arbitrary or without legal authority.

DER's critical response to the federal language was also based on practical litigation concerns. DER was concerned that issuing large numbers of orders would generate a flood of appeals and break down the whole enforcement system. Under Pennsylvania law, orders are appealable because they affirmatively obligate coal operators to take specified actions.¹⁵³ Because the new system would require the issuance of a much larger number of orders than had ever been issued, that concern was very real.

DER was also concerned that its burden of proof in individual cases would be overwhelming in the new system. In designing an enforcement program, it is important to minimize an agency's litigation burden in individual cases. Enforcement should be based on easily proven violations of simply stated rules that contain few elements, with as few factual or affirmative defenses as possible.¹⁵⁴ In addition to proving (1) the existence of a violation, no attorney wants to be obligated to prove that the violation was (2) significant, (3) imminent, (4) causing harm, and (5) related to land, air, or water resources.

These objections were resolved in a way that reconciled the federal program with prior Pennsylvania law. In general, all violations must be corrected within ninety days.¹⁵⁵ DER main-

151. See Clean Streams Law, PA. STAT. ANN. tit. 35, § 691.610 (Purdon Supp. 1985); Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.4b(a) (Purdon Supp. 1985).

152. See 45 Fed. Reg. 18,555 (1982) (codified at 30 C.F.R. § 843.11(a)(2) (1985)).

153. See, e.g., *Gateway Coal Co. v. Commonwealth*, Dep't of Envtl. Resources, 41 Pa. Commw. 442, 399 A.2d 802 (1979); *Man O'War Racing Ass'n v. State Horse Racing Comm'n*, 433 Pa. 432, 250 A.2d 172 (1969).

154. See *supra* text accompanying note 98.

155. 25 PA. CODE § 86.211 (1985). When OSM promulgated regulations concerning the 90-day abatement requirement, it created five narrow exceptions. 30 C.F.R. § 843.12(c), (f) (1985). Section 86.211 contains only two of these exceptions. The court in *Pennsylvania Coal Mining Ass'n v. Watt*, 562 F. Supp. 741, 747-48 (M.D. Pa. 1983), up-

tained its broad authority to issue orders, but issuance of orders in more serious cases is mandatory.¹⁵⁶ These more serious cases are defined categorically by performance standard, and include such violations as nonconcurrent backfilling, inadequate erosion and sedimentation controls, acid mine drainage discharges, and mining without a permit. These more serious violations correspond to, but encompass a larger class than, the violations described by imminent danger or imminent environmental harm. DER must also issue orders for other violations if their correction time is between thirty-five and ninety days. When an order is required, it is produced on a form¹⁵⁷ that enables issuance of the order in the field without prior attorney review. The form includes blanks for a description of the violation, a citation to the appropriate regulation, the required corrective action, and a required correction date. A guidance document¹⁵⁸ provides standard language for inspectors to use in issuing field orders for the most common violations. The field order form was developed at DER's initiative and ensures that such orders can be issued expeditiously.

All other violations are identified on inspection reports, which include a suggested correction date that cannot exceed thirty-five days from the date of violation. DER has some flexibility to change the correction date if requested to do so before the date occurs.¹⁵⁹ But failure to meet the correction date must result in a cessation order. If the violation is corrected, no further compliance action is necessary. This is more stringent than the SMCRA requirement that violations other than those involving imminent danger or significant environmental harm result in a notice fixing a reasonable time not to exceed ninety days for compliance.

DER's reconciliation of its prior program with federal law has worked better than expected. A large number of violations are corrected quickly and without further enforcement activity. In 1984-1985, for example, DER issued 1570 compliance orders, the great majority of which were corrected without additional action by DER.¹⁶⁰ In 1978, by contrast, DER issued 1062 notices of vio-

held Pennsylvania's authority to draft § 86.211 more stringently than the federal regulation.

156. See *supra* note 151; 25 PA. CODE §§ 86.212-213 (1985).

157. Copy of form on file with U. MICH. J.L. REF.

158. Copy of guidance document on file with U. MICH. J.L. REF.

159. If the correction time for a violation identified on the inspection form takes more than a total of 35 days, however, DER can only extend the correction date by order.

160. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 51. DER also issued 458 cessation orders in 1984-1985. *Id.*

lation and an undetermined but much smaller number of orders.¹⁶¹ At that time, most of DER's orders were directed at mining-without-permit violations or acid mine drainage discharges. Orders are now directed against a wider range of violations, suggesting that the program does a better all-around job of environmental protection. With rare exceptions, DER field staff issue the orders competently.¹⁶² In fact, the field order in the mining program is the only DER order that is issued without involvement of regional office administrators and without prior attorney review. Resolving minor violations through inspection reports has also worked well. Relatively few violations that are identified in inspection reports result in failure-to-abate cessation orders because operators are interested in avoiding further enforcement action.

The enforcement system is also causing a closer correspondence between coal operators' legal obligations and the practice in the field. For example, DER is more and more exercising the authority to require permanent treatment of acid mine drainage, which was upheld in *Commonwealth v. Barnes & Tucker Co.*¹⁶³ DER has issued an increasingly large number of acid mine drainage treatment orders in recent years. Not long ago, however, the Barnes & Tucker treatment facility was one of very few such facilities in Pennsylvania. This development has also increased operator awareness of the importance of preventing acid mine drainage in the first place.

The new system, in addition, has resulted in a more credible permitting process. Most permit conditions under the new system are site-specific environmental protection requirements designed to ensure that performance standards are met. Because most of these permit conditions pertain to the site's potential for acid mine drainage, violations will result in a field compliance order. Issuance of orders for violations of permit conditions helps ensure the integrity of the permitting process; operators and their consultants tend to be more careful of what they propose in their permit applications because they know that it will be enforced in the field. Under the prior system, permit conditions were frequently not enforced, or were not enforced through compliance orders. There is now much less disparity between what is written in the permit and what is enforced.

161. Rieger memorandum, *supra* note 119.

162. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 51.

163. 455 Pa. 392, 319 A.2d 871 (1974); *see supra* note 29 and accompanying text.

Some administrative problems with this system have been resolved in recent years. For example, orders are issued more quickly and efficiently now that they are issued from the field rather than from regional offices. The system has nonetheless been administratively difficult. Although only a small fraction of DER's orders are appealed, the Agency's litigation load has unquestionably increased because of the proliferation of orders and other DER decisions. In 1984-1985, 253 appeals of DER coal mining decisions were taken to the EHB, representing at least one-third of the appeals in that year from all DER decisions.¹⁶⁴ The disproportionate number of coal mining appeals is made evident by the fact that the coal program is only one of about a dozen major regulatory programs administered by DER, including air quality, water quality, solid and hazardous waste, and mine safety. In addition, there may still be some disparity between the written program and the program in the field concerning follow-up on less serious violations. And there continue to be complaints that the ninety-day compliance requirement is sometimes unworkable. In the beginning, these complaints stemmed from the horrible compliance situation that some operators found themselves in during the transition to the new program. It was impossible to backfill or seed thousands of unreclaimed acres in ninety days. As the program has gotten underway, however, these complaints have given way to claims that even temporary treatment of certain technically difficult acid mine drainage problems is not possible within ninety days.

Such difficulties do not negate the overall effectiveness of the rule, however. Requiring compliance within ninety days means that most violations are corrected quickly and with relatively little environmental damage.

E. Civil Penalties

SMCRA substantially expanded the scope and flexibility of DER's prior civil penalty assessment authority. Under SMCRA,

164. Telephone interview with Maxine Woelfling, Chairman, Environmental Hearing Board (Oct. 29, 1985). About half of the Board's caseload from the mining program in 1984-1985 stemmed from orders (129 out of 253 mining appeals). The next major contributor was bond forfeitures (56 appeals), followed by permit issuance (27) and permit denial (12). 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 85.

Although the new program also contains provisions for citizen suits, *see, e.g.*, Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.21 (Purdon Supp. 1985), very few citizen suits have been filed. The fact that DER decisions under the new program drew 253 appeals to the EHB in one year suggests that litigation is being channeled through that forum.

a civil penalty of up to \$5000 per day may be assessed for each violation, but actual assessments are required in only two situations. First, if the violation leads to the issuance of a cessation order, a civil penalty must be assessed.¹⁶⁵ Second, if an operator fails to correct a violation within the prescribed time period, a civil penalty of at least \$750 per day must be assessed for each day thereafter that the violation continues.¹⁶⁶ Significantly, any operator who seeks to appeal a civil penalty assessment is required to pay the penalty into an escrow account or forfeit all legal rights to contest either the violation or the amount of the penalty. The penalty is to be returned with interest if the operator prevails in the appeal.¹⁶⁷

DER adopted this system but modified it to improve its effectiveness. First, and most fundamentally, the civil penalty system complements the issuance of orders. When any order is issued, a civil penalty must be assessed. The civil penalty system is thus directed primarily at the most significant violations. When a violation is identified on an inspection report and corrected on time, a civil penalty is almost never assessed. Second, DER's new program requires the assessment of a minimum mandatory civil penalty of \$2000 per acre for mining without a permit.¹⁶⁸

Procedurally, DER is required to send a notice of proposed assessment to the operator and provide an opportunity for an informal conference if the operator requests one. DER is required to post a notice in the regional office five days prior to the conference and allow any interested citizen to participate. If the civil penalty cannot be settled at the conference, DER is to send a formal civil penalty assessment to the operator.¹⁶⁹

DER's civil penalty authority under the old program was more limited. Although the Clean Streams Law allowed for civil penalties, the State's Surface Mining Conservation and Reclamation Act did not. As a result, civil penalties could only be assessed for

165. 30 U.S.C. § 1268(a) (1982). The amount of this penalty is not stated in the Act.

166. *Id.* § 1268(h).

167. *Id.* § 1268(c). The federal courts have sustained this requirement against challenges that it deprives operators of due process. *See, e.g., B & M Coal Corp. v. Office of Surface Mining Reclamation & Enforcement*, 699 F.2d 381 (7th Cir. 1983). The Pennsylvania courts have also sustained the State's counterpart to the "prepayment" requirement. *Boyle Land & Fuel Co. v. Commonwealth, Env'tl. Hearing Bd.*, 82 Pa. Commw. 452, 475 A.2d 928 (1984), *aff'd*, 507 Pa. 135, 488 A.2d 1109 (1985).

168. *See* Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.22 (Purdon Supp. 1985); Clean Streams Law, PA. STAT. ANN. tit. 35, § 691.605(b) (Purdon Supp. 1985). The minimum civil penalty provision is in 25 PA. CODE § 86.193(e) (1985). The new program also provides for minimum civil penalties in certain related cases. *Id.* § 86.193(d), (f).

169. 25 PA. CODE § 86.201 (1985).

water-quality-related violations. Even then, DER could not assess civil penalties; DER had to bring a civil penalties action before the EHB.¹⁷⁰ There was no provision for "prepayment" of the civil penalty. Finally, none of the civil penalty assessment or public notice procedures existed.

DER has greatly increased its collection of civil penalties under the new program. In 1984-1985, DER received more than \$425,000 in civil penalties, compared to \$10,000 in 1978.¹⁷¹ The mandatory civil penalty assessment provision in the new Pennsylvania program for significant violations has meant more frequent assessments for water quality violations. Civil penalties are also being assessed for a range of significant nonwater-quality-related violations for which there was no previous assessment authority.

The new civil penalty program probably has had some deterrent effect on most operators, although the extent of its deterrent value is the subject of some dispute. Avoiding unnecessary costs is a concern that most coal operators share, but civil penalties are perhaps most effective as a deterrent to violations by the more responsible operators. It also appears that the minimum civil penalty for mining without a permit, together with increased inspection frequency, has significantly reduced the number and seriousness of off-permit mining violations. All the same, many within DER believe that the requirement for permit or license denial based on outstanding violations or a history of violations has much stronger deterrent value than civil penalties.

As is the case with other aspects of DER's enforcement program, some problems remain to be solved. Most significantly, DER's initial procedure for issuing formal assessments has proven too cumbersome for the volume of assessments that need to be processed. OSM has identified a backlog of 1433 cases where DER has not issued a formal civil penalty assessment when settlement proved impossible.¹⁷² The \$425,000 or so that DER collected in 1984-1985 represents only one-third of DER's 1917 proposed civil penalty assessments in that period.¹⁷³ Although the prepayment requirement undoubtedly played a role in persuading many operators to settle, two-thirds of the proposed assessments were not settled. In early 1986, DER was con-

170. Clean Streams Law, PA. STAT. ANN. tit. 35, § 691.605 (Purdon Supp. 1986).

171. See Rieger memorandum, *supra* note 119; 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 78.

172. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 78.

173. *Id.* at 80. This third of the civil penalty cases were settled at informal conferences for 91% of the total penalty proposed for those cases. *Id.*

sidering ways to streamline its procedure for issuing formal civil penalty assessments.

Another issue raised by OSM relates to the required \$750 per day civil penalty for failing to meet a correction date. When an operator fails or refuses to correct the underlying violation, the required civil penalty grows every day, often out of proportion to the underlying violation. As a result, DER has often capped these civil penalties at thirty days, or \$22,500, although DER has not capped civil penalties for violations unless they have been corrected by the time capping is proposed.¹⁷⁴ In many cases, DER has supplemented civil penalties with license or permit denial based on outstanding violations, or with lawsuits to compel compliance. OSM has nonetheless urged DER to amend its program to respond more consistently and systematically to these situations.¹⁷⁵ In September 1985, DER submitted to OSM a proposed program amendment that would require DER to initiate "alternative enforcement" action when it decided to cap the failure-to-abate civil penalty at thirty days.¹⁷⁶ The correction of such problems should help the civil penalty program, including its deterrent effect, continue to improve.

F. Bond Forfeiture

SMCRA requires operators to post a performance bond for each mining site in an amount sufficient to ensure the completion of the reclamation plan if the operator does not do so. SMCRA also allows states to set up alternate systems that will achieve the purposes of a bonding program.¹⁷⁷ If the operator fails to comply with the applicable law, the state is required to forfeit the bond.¹⁷⁸ Pennsylvania law contained comparable re-

174. *Id.* at 81.

175. *Id.*

176. Letter from Gary L. Merritt to Robert J. Biggi (Sept. 30, 1985) [hereinafter cited as Merritt letter] (copy on file with U. MICH. J.L. REF.). According to the terms of the proposed program amendment, DER may cap at 30 days the mandatory \$750 per day civil penalty for failure to correct a violation within the required time under two circumstances. First, DER may cap the civil penalty if it has initiated separate civil penalty actions against the officers, directors, or agents of the violating operator. Second, DER may cap the penalty if it has suspended or revoked the operator's permit, suspended or revoked the operator's license, filed an equity action in court to compel compliance, or initiated a criminal prosecution against the operator. Pennsylvania's mining laws have criminal penalty provisions. See, e.g., Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.23 (Purdon Supp. 1985).

177. 30 U.S.C. § 1259(a), (c) (1982).

178. 30 C.F.R. § 800.50 (1985).

quirements prior to primacy, and these requirements are generally still in effect.¹⁷⁹

DER has historically treated bond forfeiture as the enforcement tool of last resort. If notices of violations, orders, civil penalties, and, on occasion, criminal penalties do not achieve compliance at an active operation, then DER has forfeited the bond. If the site has been abandoned, DER has forfeited the bond. And once an operator's bond has been forfeited, that operator is out of the business.¹⁸⁰ Unfortunately, as DER acknowledged in a special report issued in October 1985, the bonds have historically been inadequate to reclaim the sites for which they were posted.¹⁸¹ Ensuring that the present bonding system works and reclaiming sites for which bonds were previously forfeited are major program needs.

DER began to address that issue in the late 1970's. In a series of actions from 1977 to 1981, DER increased the bond rate from about \$500 per acre to a minimum of \$3000 per acre.¹⁸² These bond increases applied to new permits; existing permits remained at their previous bond level. In 1981, the regulations were amended to require each permit applicant to pay a \$50 per acre reclamation fee as a supplement to bond forfeiture proceeds.¹⁸³ The primary advantage of the fee is that it provides a flexible income source that can be used on any bond forfeiture site, while bond forfeiture proceeds can only be expended for the

179. Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.4(d), (h) (Purdon Supp. 1985); 25 PA. CODE §§ 86.149, .181 (1985); see also *Morcoal Co. v. Commonwealth*, Dep't of Env'tl. Resources, 74 Pa. Commw. 108, 459 A.2d 1303 (1983).

180. An operator who forfeits a bond generally cannot obtain a permit under Pennsylvania law because it had failed and continued to fail to clean up the site for which the bond was forfeited. Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.3a(b) (Purdon Supp. 1985).

181. BOND FORFEITURE PROGRAM, *supra* note 18, at 13. Bonds are apparently inadequate in many states. See Webber & Webber, *Promoting Economic Incentives for Environmental Protection in the Surface Mining Control and Reclamation Act: An Analysis of the Design and Implementation of Reclamation Performance Bonds*, 25 NAT. RESOURCES J. 389 (1985).

Two pending cases challenge various aspects of DER's bond forfeiture reclamation program. In *Graham v. Jones*, No. 72 T.D. 1981 (Pa. Commw. transferred from Clearfield County Court of Common Pleas on October 20, 1981), a class action brought by landowners for whom surface mining bonds were forfeited without subsequent reclamation, plaintiffs are generally seeking to have DER formalize its priorities and procedures for reclamation of sites. In *Pennsylvania Fed'n of Sportsmen's Clubs v. Pennsylvania Dep't of Env'tl. Resources*, No. 1868 C.D. 1981 (Pa. Commw. filed July 30, 1981), plaintiffs seek an increase in DER's bond rate for surface mines.

182. BOND FORFEITURE PROGRAM, *supra* note 18, at i.

183. 25 PA. CODE § 86.17(b) (1985).

reclamation of the site for which they were posted.¹⁸⁴ Because of lag time between permit issuance and bond forfeiture, the average per acre bond rate for 1984 forfeitures was about \$900. At the same time, DER's reclamation costs have averaged \$7500 per acre.¹⁸⁵ The reclamation fee was intended to make up this difference. Neither the bond rate nor the permit fee have been increased since 1981 because, among other reasons, the coal industry has persuaded many people in and out of DER that further increases would harm it.¹⁸⁶

In 1979, DER began to reclaim sites for which bonds had been forfeited and collected. There was no such program for these sites for many years because the available bond money for any site was insufficient to pay for its reclamation. The money simply languished in a special fund. DER's initial effort gained momentum in 1981 when the reclamation fee began to bring in more than one million dollars annually.¹⁸⁷ Expenditure levels for the bond forfeiture reclamation program now match or exceed available funds. DER has also developed a procedure and a priority system for reclaiming sites.¹⁸⁸ Between 1979 and 1985, DER reclaimed 1361 acres and replaced six water supplies.¹⁸⁹ This effort does not keep pace with the forfeiture rate, however.

The bond forfeiture rate for permits issued under the old program has been much higher and more serious than expected. As of June 30, 1985, DER declared forfeit bonds for about 28,000 acres. Virtually every forfeiture is based on a permit issued prior to primacy.¹⁹⁰ The high number of forfeitures can be traced largely to undercapitalized coal operators that received permits during the coal boom of the mid-1970's and went out of business

184. Compare Surface Mining Conservation and Reclamation Act, PA. STAT. ANN. tit. 52, § 1396.18(b) (Purdon Supp. 1985) (bond proceeds generally required to be used for area for which they were posted) with 25 PA. CODE § 86.17(b) (1985) (fee is to supplement bond forfeiture proceeds; no site-specific requirements).

185. BOND FORFEITURE PROGRAM, *supra* note 18, at 13.

186. In early 1982, less than one year after the \$50 per acre permit fee went into effect, DER concluded that a higher fee was necessary to provide funds to reclaim sites. DER's proposal to increase the fee to \$150 per acre was strongly opposed by the coal industry, and DER withdrew the proposal. *Id.* at i. The coal industry argued that the increased fee would harm coal operators. The industry also argued that DER's data base did not provide sufficient support for increasing the fee. One purpose of DER's 1985 report on the bond forfeiture issue was to provide a better data base for making decisions about the problem.

187. *See id.* at iii, 24.

188. On April 26, 1986, the State published proposed regulations concerning the procedures and priority system. 16 Pa. Admin. Bull. 1501.

189. BOND FORFEITURE PROGRAM, *supra* note 18, at iii.

190. *Id.* at 4-5.

when the coal boom collapsed.¹⁹¹ Because of the repermitting of existing operations under primacy to meet the new requirements, the forfeiture rate has been particularly high in recent years. Repermitting caused DER to inventory all outstanding permits and brought to light many abandoned sites. In 1984, for example, DER declared forfeit bonds covering 5570 acres.¹⁹² Under the old enforcement program, sites often lay abandoned for years while inspectors tried to look for another operator to take over. The new program has forced those sites into forfeiture, even though they may have been abandoned long before.

DER views these bond forfeitures as the result of the old regulatory program. DER hopes that the current bonding system will enable reclamation of all primacy permits for which bonds are forfeited, given the requirements of the new program. This thesis was still untested in early 1986,¹⁹³ but there are reasons to believe that the new program may reduce the burden of future forfeitures. The new enforcement program should discourage forfeitures and ensure that forfeited sites are less expensive to reclaim because they are in a better state of compliance. Because all permits in existence under the new program will have a minimum bond of \$3000 per acre, moreover, the difference between the cost of reclamation and the amount of forfeited bond will be less. The forfeiture rate is difficult to project, however. DER therefore has suggested possible changes to the bonding system if new program forfeitures exceed available funds. These possible changes include raising the reclamation fee, establishing a severance tax, and amending DER's bond release policy.¹⁹⁴

Reclamation of the sites that have already been forfeited will be a difficult problem. Some of these sites have been or will be reclaimed by operators through consent orders, repermitting, and other means. Some of these sites have been, or are being, reclaimed by DER. DER nonetheless estimates the State's reclamation obligation for preprimacy bond forfeitures to be 14,765

191. *Id.* at 1-2.

192. *Id.* at 5.

193. As part of repermitting under primacy, all previously issued permits for which mining continued for at least eight months after primacy were required to obtain new bonds at current bonding rates. For surface coal mining operations, repermitting was not substantially complete until mid-1985. In early 1986, there was not yet an information base of forfeitures under the new program sufficient to lead DER to conclude that the bond rate or permit fee, or both, needed to be increased. If the forfeiture rate with primacy permits exceeds 250 acres per year, the existing bond rate and permit fee will need to be changed. *Id.* at 18-19.

194. *Id.* at 15-20.

acres. If these sites cost \$7500 per acre to reclaim, the cost to reclaim them is approximately \$110 million.¹⁹⁵

DER's special 1985 report invited public discussion on two issues. First, what is an appropriate time frame for reclaiming these sites? This question involves trade-offs between the desirability of immediate reclamation and the manageability of a large-scale reclamation program.¹⁹⁶ Second, who should pay for reclamation? Many in the coal industry argue that active operators should not be responsible for those that forfeited bonds and are out of the business. They have thus suggested that a bond issue or an appropriation from the general fund would be appropriate. Environmentalists, on the other hand, believe that the public should not pay for the sins of the coal industry. They have suggested a severance tax, a higher reclamation fee, or some other mechanism that uses the industry as a source of funding.¹⁹⁷ These issues, which will necessarily require the participation of the legislature, are likely to be difficult and controversial. OSM may even become involved in the resolution of these issues.¹⁹⁸

The bond forfeiture problem also indicates that the new enforcement program needs to be made more effective against the most intransigent operators. This is not to say that rigorous enforcement should be used as a substitute for examination of the bonding system; forfeiting a bond is much easier than chasing assets that may no longer exist. Rather, such enforcement may make it harder for operators to walk away from sites, and on occasion supplement bond forfeiture proceeds through additional civil penalties and other means. The recently submitted amendment on alternative enforcement may strengthen DER's enforcement program against these operators.¹⁹⁹

195. *Id.* at 9-13.

196. *See generally id.* at 13-14.

197. *Id.* at 14.

198. 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 30.

199. *See* Merritt letter, *supra* note 176. Alternative enforcement should not be understood as a panacea for the bond forfeiture problem, however. Bankruptcy is often a major obstacle to this type of enforcement action. Although DER has persuaded a federal court that the automatic stay provisions of the federal Bankruptcy Code, 11 U.S.C. § 362 (1982 & Supp. II 1984), do not apply to actions seeking reclamation of surface mine sites, *Penn Terra Ltd. v. Department of Env'tl. Resources*, 733 F.2d 267 (3d Cir. 1985), DER has had precious little success actually obtaining reclamation by pursuing operators into bankruptcy court. In one case, a court told DER, in effect, to raise bonds for surface mining rather than seek assets through bankruptcy proceedings. *In re Zacherl Coal Co.*, 15 Env't Rep. Cas. (BNA) 1830 (W.D. Pa. 1981).

V. PERSONNEL AND ADMINISTRATION

The increased effectiveness of the new program depends on more than its requirements and procedures. DER's coal mining regulatory program staff has tripled under primacy, thereby providing a better opportunity for thorough permit reviews and sufficient enforcement. In addition, OSM oversight of the Pennsylvania program has reinforced and strengthened DER's commitment to implementation of the new program.

A. *Personnel*

One of SMCRA's most important effects is based on the annual grant OSM awards DER for its regulatory program under SMCRA.²⁰⁰ Because of that grant, DER's coal mining regulatory staff increased from 109 to 279 between 1978 and 1984, almost a three-fold increase.²⁰¹ This change has had an immeasurable impact on DER's ability to carry out the new program.

The old program was seriously understaffed. A handful of people in DER's central office reviewed hundreds of permit applications annually. Permit reviews were less thorough than they should have been partly because there was so little time given the volume of applications and available staff. Inspectors were each responsible for inspecting hundreds of operations, so that it was difficult for them to visit a site more than once or twice a year. The old regulatory program would have worked much better with the existing staff complement.

The staff increase has made possible a relatively rapid transition to the requirements of the new program because the new staff members do not have a history with Pennsylvania's old coal mining regulatory program. As a result, it is not necessary for them to unlearn habits that are no longer acceptable, and there is less internal resistance to the new program based on adherence to old norms than there otherwise would have been. Some problems remain to be worked out, however. A generation gap exists in some offices between many older personnel, who have little formal education and who came from the mining industry, and the younger staff, who have college degrees in technical fields but who have little or no prior experience in the mining

200. See generally 1985 OSM PENNSYLVANIA REPORT, *supra* note 43, at 6.

201. Rieger memorandum, *supra* note 119.

industry. Some veterans of the old program have been unwilling or unable to embrace the new regulatory program. Some of the newer people need to obtain more experience; being a regulator requires good judgment as well as technical skills, and it often takes time to develop that judgment. As many of the older personnel retire, and as the younger staff members gain experience and in-house training, this problem should continue to diminish.

An additional benefit of the increased staff complement is the technical competence of many of the newer staff. In recent years, DER has attracted many intelligent and highly motivated people to its coal regulatory program. As a result, DER's ability to evaluate permit applications, make decisions about permit issuance, and decide when to take enforcement action has improved. This increased technical competence has been particularly important to Pennsylvania in the area of acid mine drainage, where a thorough understanding of hydrogeological principles and their application to specific cases is a fundamental prerequisite to running a sound regulatory program.

DER has used the staffing increase to reorganize its regulatory program. In 1978 and 1979, DER created five field offices to handle all permit application reviews, permitting decisions, and enforcement actions under its coal mining regulatory program. Permit reviews are no longer handled from the central office, and inspectors usually work from the district offices rather than their homes. OSM did not require this reorganization, but OSM made it possible.

The reorganization has been helpful in several ways. First, and most importantly, by moving DER decisionmaking to the area being affected, the field offices have improved access of citizens as well as the coal industry to the decisions being made and the people making them. Second, it has led to greater coordination and information sharing between permitting and inspection staff. This was much more difficult when permits were reviewed from the central office while inspectors were in the field. Third, by moving inspectors to the field offices from their homes, the new system provides inspectors with organizational and moral support from DER, which many of them previously lacked. Complaints are heard about consistency among the district offices, but DER has attempted to ensure consistency through detailed program guidance on the implementation of particular regulations and through periodic staff meetings.

B. State/Federal Administration

Before SMCRA, Pennsylvania could run its coal mining regulatory program in almost any manner it chose. Prior to 1977, the state legislature made a series of choices to control coal mining more stringently. All of those choices, however, came from within the State, and management of the program pursuant to those choices was strictly a state prerogative.²⁰²

Pennsylvania now has a federally approved program that is significantly different from the one it had in 1977. The State cannot change that program without federal approval.²⁰³ Pennsylvania must also change its program in response to any amended federal regulations that are more stringent than its own regulations.²⁰⁴ There is now a continuing federal presence in the administration of the program; OSM has an office in Pennsylvania that does nothing but oversee DER's implementation of the new program.

Intergovernmental relations under SMCRA must be based on an understanding of the different and legitimate roles that the states and the federal government bring to the implementation process. Whatever else cooperative federalism may mean,²⁰⁵ it should not mean that conflict is necessarily undesirable. When DER and OSM are able to share constructively their perspectives, as well as the limitations inherent in each perspective, the program can work well. In fact, it is precisely because OSM and DER have different perspectives that Pennsylvania is evolving a better program than either the State or federal government would have developed by itself.²⁰⁶

202. An important exception is the effluent limitations required by the Clean Water Act, 33 U.S.C. § 1311 (1982), and 40 C.F.R. pt. 434 (1985).

203. 30 C.F.R. § 732.17(g) (1985).

204. *Id.* § 732.17(d)-(e).

205. For contrasting views on the role of states under SMCRA, compare Harris & Close, *Redefining the State Regulatory Role*, 12 ENVTL. L. 921 (1982) with Squillace, *supra* note 4. For an argument that some, but not all, states implement one cooperative federalism statute more vigorously than the federal government, see generally Thompson & Scicchitano, *State Enforcement of Federal Regulatory Policy: The Lessons of OSHA*, 13 POL'Y STUD. J. 591 (1985).

206. This is not to suggest that intergovernmental relationships are always easy or without tension. One source of difficulty is the competing stereotypes some people on each side hold about their counterparts. Some federal personnel see themselves as white knights on a mission to rescue the public and the environment from what they believe to be inept, lazy, and industry-oriented state agencies. Some state personnel see "the feds" as arrogant and incompetent, concerned more about paper trails and "bean counts" than environmental protection, and see themselves as being practical and solution oriented.

OSM brings to the process a commitment to a minimum national program as well as a national perspective based on SMCRA and OSM's experience since 1977. In its oversight capacity, OSM also has a fairly sophisticated auditing capability for state programs and relatively little political accountability to state government. What OSM lacks, however, is significant experience implementing a regulatory program.

Pennsylvania brings a different set of institutional strengths and weaknesses to the process. Because of its long history of coal mining regulation, DER has an institutional memory of what has worked and what has not, and what the technical problems in the field are. DER also brings a commitment to resolving problems within the State. What Pennsylvania lacks, however, is a commitment to, or experience with, a national program.

OSM's Pennsylvania field office takes its oversight responsibilities seriously. That office views the State's primacy application, and the statutes and regulations submitted as part of that primacy application, as a commitment made by the State to implement its regulatory program in that form. OSM oversight thus attempts to compare specific regulations and other program requirements with practice in the field. OSM's Pennsylvania office has played a major and continuing role in encouraging, reminding, and prodding the State to implement its approved program. DER's innovative enforcement program, for example, was prompted by OSM's criticism of a prior enforcement program.

The flexibility SMCRA allows states helps ensure their ability to run an effective regulatory program. It is unreasonable to expect that Congress and the OSM regulation writers anticipated every major implementation problem that might be faced, or that they designed programs that cannot be improved. It is also unreasonable to expect that states will abandon important regulatory provisions not inconsistent with SMCRA simply because they are not contained in SMCRA.²⁰⁷ Pennsylvania has improved the SMCRA model in many ways, including, for example, a streamlined method of defining imminent danger and significant environmental harm,²⁰⁸ broad authority to issue orders,²⁰⁹ mandatory civil penalty assessment for all violations that lead to orders,²¹⁰ minimum mandatory civil penalties for mining without

207. See Tarlock, *National Power, State Resource Sovereignty and Federalism in the 1980's: Scaling America's Magic Mountain*, 32 KAN. L. REV. 111, 121 (1983).

208. See *supra* text accompanying and following note 156.

209. See *supra* note 156 and accompanying text.

210. See *supra* text following note 167.

a permit,²¹¹ authority to issue or deny licenses,²¹² protection of public water supplies from underground mining,²¹³ mandatory written notice to water supply users that pending permit applications might, if issued, affect their water supplies,²¹⁴ and a novel permitting procedure that should encourage operators to reduce water pollution from abandoned mines.²¹⁵

Unfortunately, OSM has not always been sensitive to Pennsylvania's implementation concerns, even though SMCRA specifically requires OSM to assist states in implementing their regulatory programs.²¹⁶ Environmentalists often understand claims about state implementation needs to be code language for an underlying bias against imposing meaningful requirements on the coal industry. But what is meant here is quite different.

To begin with, OSM undertook extensive revisions of its 1979 permanent program regulations in the early 1980's after President Reagan's election, just as Pennsylvania and other states were seeking and obtaining primacy under the 1979 regulations. Although Pennsylvania adopted a few of those changes in 1982 prior to obtaining primacy, it has prevented significant disruption of its regulatory program by not adopting them wholesale.²¹⁷ This constancy in the program has eased implementation because it takes considerable time to actually get a program implemented in the field. After regulations are amended, permit application forms and related guidance documents must also be amended. But more importantly, the mine foremen, bulldozer operators, blasters, truck drivers, and other people who are to do the work required by the new regulations, must be taught what they mean and how they are to be applied. A regulatory program that is constantly changing in major ways can make that process difficult, particularly as the program gets underway.

Although many in DER saw some of OSM's revisions as a necessary corrective measure for certain overly technical regulations promulgated in 1979, there is also concern that many of the new

211. See *supra* note 168 and accompanying text.

212. See *supra* text accompanying notes 134-40.

213. See *supra* note 71.

214. See *supra* note 81 and accompanying text.

215. See *supra* note 87 and accompanying text.

216. 30 U.S.C. § 1211(c)(9) (1982); see also *id.* § 1202(g) (a purpose of SMCRA is "to assist the States in developing and implementing a program to achieve the purposes of this Act").

217. See generally 12 Pa. Admin. Bull. 2473 (July 31, 1982). While many of the more recently amended OSM regulations are less stringent than their predecessors, many are not. In early 1986, DER was discussing with OSM the changes that DER must make to its program because of the amendments.

OSM regulations are too vague to be effectively implemented. The OSM regulation requiring that backfilling follow coal mining by no less than sixty days,²¹⁸ for example, was repealed. OSM preserved only a regulation that tracked the language of SMCRA, requiring merely that reclamation proceed "as contemporaneously as practicable with surface coal mining operations."²¹⁹ Such a vague performance standard is exceptionally difficult to administer effectively.²²⁰ Significantly, a federal court has remanded this and other OSM regulations on the ground that they do not provide states with sufficient guidance in administering their regulatory programs.²²¹

218. 30 C.F.R. §§ 816.101(a), 817.101(a) (1982) (repealed).

219. 48 Fed. Reg. 23,356, 23,357-58, 23,368, 23,370 (May 24, 1983) (repealing 30 C.F.R. §§ 816.101(a), 817.101(a) (1982)). OSM expressly preserved 30 C.F.R. §§ 816.100 and 817.100, which track SMCRA's contemporaneous reclamation requirement. 30 U.S.C. § 1265(b)(16) (1982).

220. See *supra* notes 98-100 and accompanying text.

221. *In re Permanent Surface Mining Regulation Litig.*, 21 Env't Rep. Cas. (BNA) 1724, 1744-46 (D.D.C. 1984), *appeal filed sub nom.* National Wildlife Fed'n v. Hodel, No. 84-5743 (D.C. Cir. Oct. 25, 1984) (and consolidated cases). The court concluded:

It is clear that Congress intended the states to have a major role in enforcing the dictates of the statute. It is the Secretary's duty, however, to spell out those requirements. Merely restating the statutory requirement that reclamation be performed as contemporaneously as practicable, does not help the states in enforcing the Act's requirements. The reclamation schedules will include detailed timetables, but the Secretary has not provided any guidance, in the regulations, as to how to judge these schedules against the statutory standard.

Id. at 1745 (citation omitted).

There are other examples of this insensitivity to state implementation concerns. SMCRA prohibits mining within certain distances of features such as occupied dwellings, streams, schools, and cemeteries. These prohibitions, however, are all "subject to valid existing rights." 30 U.S.C. § 1272(e) (1982). It is particularly important to define such an exception mechanically because, in Pennsylvania, an average permit application might involve half a dozen such protected features. To quickly and smoothly process permit applications, the permit review staff should be able to determine easily whether an exception applies. Under the old OSM definition of "valid existing rights," as written in Pennsylvania's regulations, an operator has valid existing rights if, among other things, it applied for a permit for the area before Aug. 3, 1977. 25 PA. CODE § 86.1 (1985). Such a rule is easy to apply because the underlying factual determination is straightforward.

In September 1983, however, OSM promulgated a new definition of "valid existing rights." 48 Fed. Reg. 41,312, 41,349 (1983) (codified at 30 C.F.R. § 761.5 (1985)). According to the new definition, an operator has valid existing rights if the application of the distance limitations would otherwise result in an unconstitutional taking of property under the fifth and fourteenth amendments to the Constitution. It is hard to imagine a test less appropriate for individual permit reviews. See, e.g., *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 124 (1978) (takings test involves "essentially ad hoc, factual inquiries"); see also Diver, *supra* note 98. States will be in a much harder position to find a mechanical surrogate for the takings rule when OSM has failed to provide any guidance. DER and certain citizen and environmental groups sought judicial review of this definition. The court remanded the rule to OSM because it differed so radically from the proposed rule that the public was effectively deprived of an opportunity for comment. *In re Permanent Surface Mining Regulation Litig. II*, 22 Env't Rep. Cas. (BNA) 1557, 1560-64 (D.D.C. 1985).

OSM also needs to give more serious thought to the real world effectiveness of the Pennsylvania program and to future program direction, particularly in its annual oversight reports. On one hand, the annual reports are highly detailed evaluations of major program elements, identifying areas where the program has improved and areas where improvement is still necessary. On the other hand, the reports tend to make comparisons with only the previous reporting year, which means that they are bereft of any serious analysis of long-term program changes. The detailed evaluations of individual program elements, moreover, are not accompanied by any analysis of actual or potential environmental impacts. This omission is important because it is generally impossible to implement all needed improvements simultaneously. If OSM paid more attention to actual environmental effects, it would likely have a better idea of how to assist the establishment of implementation priorities. OSM would also have a more informed view about the proper balance between environmental protection and paperwork. In addition, studying environmental effects would give OSM a better idea of how well its regulations are actually working when they are implemented, and would help develop a better data base upon which to develop regulatory proposals to implement SMCRA more fully and effectively.

Finally, and most basically, OSM should reassess the interstate uniformity of its oversight process, particularly because SMCRA was premised in large part on the need for minimum national standards. Many in the Pennsylvania coal industry, DER, and the State's environmental groups believe that the State runs a more stringent program under SMCRA than many of the other Appalachian States. The State's coal industry has vehemently complained about differences between the Pennsylvania program and other Appalachian State programs. Much of the responsibility for this apparent disparity can be attributed to less rigorous OSM oversight in other states. Former Secretary of the Interior James Watt's decision to replace regional oversight offices with state oversight offices in all likelihood contributes to this problem. The premise of SMCRA cannot be realized unless all states are operating by its rules.²²²

222. See Complaint for Declaratory and Injunctive Relief, *National Wildlife Fed'n v. Hodel*, No. 86-169 (E.D. Ky. filed July 7, 1986) (alleging multiple violations by OSM of oversight requirements and other SMCRA provisions in Kentucky and other states).

CONCLUSION

SMCRA is an ambitious statute. It identifies serious environmental problems from unregulated coal mining, establishes a thorough and complex regulatory program for controlling those problems, and generally entrusts the administration of that program to the same states that had previously been unable to effectively regulate mining. The magnitude of the task is enormous, even in a state such as Pennsylvania that in 1977 was said to have had the best regulatory program in the country. The task is also time consuming; it takes years to implement fully such a comprehensive statute. Yet Pennsylvania's progress to date can be traced in significant part to the constructive manner in which the State has responded to many of SMCRA's requirements.

Pennsylvania may or may not still have the nation's best coal mining regulatory program. But its program is far superior to that which existed in 1977. As a result, coal mining appears to cause fewer environmental problems in the State than it did in the past. And although the new program has had some adverse effects on the coal industry, the principal factor affecting production appears to be the demand for coal.

This Article has shown that the new program is more environmentally protective than the old program in a number of major areas, including permitting, performance standards, enforcement, and administration. Although the scope of the environmental protection requirements in the new program is somewhat increased, the primary changes are in program design and administration. These changes are interdependent, and they suggest that the new program, taken as a whole, is premised on a significantly different regulatory theory than that which characterized the old program. These changes also suggest ways in which other environmental protection programs might be made more effective.

First, enforcement decisions in the new program are based on a comprehensive strategy that requires categorical enforcement responses to all violations, rather than ad hoc discretionary enforcement decisions in individual cases. If certain performance standards are violated, for example, DER must issue a corrective order. Whenever an order is issued, a civil penalty must also be assessed. This is more efficient and effective than addressing problems on a case-by-case basis. Because the system is based on increasingly severe responses for the more significant viola-

tions, it creates significant incentives to avoid unlawful conduct. It also helps to ensure that operators are treated in a reasonably uniform manner.

Second, Pennsylvania's new regulatory program is more open to outside scrutiny than the old program. Understandably, coal operators have scrutinized the program for as long as it has existed, given that its requirements are imposed directly on them. The new program, however, is more explicitly open to participation by other citizens during the permit application process, through a petition process for designating areas as unsuitable for mining, and during enforcement. OSM's oversight of the Pennsylvania program is continuing and intensive. Scrutiny by outside parties is greatly facilitated by the fact that the program is largely in writing; it is now much easier to measure program performance against the program's requirements. This scrutiny reinforces the normative importance of the written requirements, and has reduced the gap that once existed between the official program and the real program.

Third, the State's program is now managed and operated more professionally than it was under the old program. This is true in large part because the program is open to outside scrutiny, and based to a significant extent on systematic responses to categories of violations. Increased staffing has also made it possible for individuals to perform properly the tasks to which they are assigned, and has led to greater technical competence within the program.

Fourth, the new program is primarily a written program. In permitting, performance standards, and enforcement, DER administers statutes, regulations, and program guidance that prescribe what is lawful, what procedures must be followed, and what happens if substantive or procedural requirements are violated. DER, the coal industry, and the public have a much clearer understanding of what the new program demands and how to respond. Under the old program, by contrast, there were fewer regulations but more unwritten requirements. Bureaucratic folklore and oral tradition do not provide as much clarity about program content as written requirements.

Fifth, the new program establishes mechanical rules rather than judgment rules for many of its requirements. Even where variances are allowed, DER seeks to define the variance in a mechanical way. Such rules make planning easier for the operator and compliance determinations easier for DER. Mechanical rules are particularly important in a high volume program such as this one where too much individualized attention would cause

the system to overload quickly. Significantly, it is in areas in which the new program is not well defined, such as the meaning of certain hydrologic balance requirements, that major implementation issues remain.

Sixth, the program provides for more and better information before DER makes decisions. As a result, DER is making better decisions. This is particularly true in permitting, but it is also true in enforcement where a computerized data management system is being put in place. DER's more extensive data requirements are also prompting the State's coal operators to plan future mining more carefully.

For all that, there remains a lingering concern that the new program is sometimes unnecessarily systematized, inflexible, and oriented toward procedure. A few cases do not fit the categories, and a more discretionary system might yield more appropriate results for them. In addition, the program's litigation load is a growing issue.

These changes have nevertheless all contributed to the increased effectiveness of the new regulatory program. On a day-to-day basis these changes often seem imperceptible. The program continues to be controversial, raising problems that are technically, legally, and politically difficult. The program will continue to be criticized, fairly and unfairly. Yet over the longer view, the difference is unmistakable. Though not without problems, Pennsylvania's coal mining regulatory program is much better than it used to be.

