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Strip Mine Reclamation Regulation

Lathrop M. Gates

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Along with litigation must go political action on two fronts. First, on the grass roots level, the public must be involved and educated at the very earliest stages of a project. Second, political action must be developed in the more difficult sense of identifying the actual vested interest groups that are pushing a particular project. These are often those interested in construction and land speculation; once identified, they may turn out not to be as financially or numerically strong as the local Congressman believes. Of course, if there is real power and popular support for ecologically destructive projects, then it reflects the fact that the people have not yet understood the importance of ecological balance and their own survival. If they have not, then not even the courts can save us.

ROSSELLE PEKELIS HIGGINS

STRIP MINE RECLAMATION REGULATION

I. INTRODUCTION

In September, 1971, Missouri enacted a new set of regulations dealing with strip mining.¹ This comment will explore the impact this legislation has had on the environmental and economic aspects of surface mining in Missouri and the extent to which the proposed federal legislation on strip mining would affect this impact. Because surface mining of coal and barite² presents the greatest danger to the environment, the success of regulatory efforts directed at these operations is indicative of the success of regulation of strip mining generally.

Surface mining³ of coal has developed and grown in Missouri in response to rapid technological advances. Although strip mining recovers a much greater percentage of available coal than does shaft mining,⁴ until recently it was not economically feasible to remove more than 40 feet of earth to reach the mineral. Consequently, shaft mining has traditionally accounted for nearly all of the coal production in the United States.⁵ Today,

1. Reclamation of Mining Lands (New), §§ 444.500-755, RSMo 1971 Supp. Missouri also has The Land Reclamation Act (New), §§ 444.760-786, RSMo 1971 Supp., dealing with the regulation of the mining of clay, limestone, sand and gravel. This latter act will be referred to occasionally, but the provisions are nearly identical to those of the act pertaining to coal and barite.

2. Barite is a compound with an extremely high specific gravity which is used primarily in drilling for oil and gas. The chemical grade is used in the manufacture of rubber, paint and glass. Missouri is the nation's leading producer of barite, accounting for 35 percent of the country's total in 1968. H. Wharton, J. Martin, A. Reuff, *et al.*, MISSOURI MINERALS—RESOURCES, PRODUCTION, AND FORECASTS 1, 5 (Dec. 1969) [hereinafter cited as MISSOURI MINERALS].

3. Surface mining consists of two types—contour stripping and area stripping. Area stripping is the method used throughout Missouri and in flat terrain generally. Contour stripping is used in hilly or mountainous regions.

4. Brooks, *Strip Mine Reclamation and Economic Analysis*, 6 NATURAL RESOURCES J. 13, 17 (1966); 1973 WIS. L. REV. 234, 235.

5. Although surface mining began in 1866, it was not until the 1930's that it became an important method. Brooks, *supra* note 4, at 14.

due to new and larger machinery available to the mining industry, more than 50 percent of all coal and 100 percent of Missouri's coal is mined by the strip method.⁶ Existing machines can tap coal beds at depths of up to 185 feet. Indeed, beds more than 200 feet below the surface are presently being reported by geologists as suitable for stripping.⁷ Additionally, since coal beds with a depth to thickness ratio of 10 to 1 can profitably be surface mined, it is often practical to mine relatively shallow seams which are less than three feet thick.⁸ Other factors that have contributed to the rapid nationwide growth in surface mining include increased use of coal for electric power generation⁹ and savings in transportation costs made available through the use of local coal deposits.¹⁰

Miners choose any of three possible methods of strip mining, depending on the terrain being mined. Area stripping is employed in flat regions. This mine is begun by running a long cut the length of the coal seam. The overburden is piled on the surface alongside the cut. Successive cuts are made parallel to previous ones, with the overburden from each piled in the void left by the previous cut. Naturally, the last cut is left unfilled. The land is further defaced by a long highwall on the unstripped side. This is the standard method used in Missouri.

Contour stripping is used in hilly or mountainous areas. This entails cutting away the sloping side of a hill, leaving a steep vertical wall as the cut is made. This wall faces a flat bench which is the top of the coal seam before mining. The earth above the coal, removed by the 90° angle cut into the hillside, is discarded down the hillside.

Augar mining is also used in mountainous regions, where the thickness of the earth above the coal has become too great for economic removal by contour stripping. Augurs up to seven feet in diameter drill horizontally into the mountain side and draw out the coal, leaving the mountainside with a long row of large holes and prone to subsidence.

Surface mining causes difficult problems. The most serious from both an economic and environmental standpoint is the water pollution that results from acid drainage and sedimentation. Acid drainage occurs when sulfuric acid is released from trapped sources, thereby either draining across lower land or seeping through the ground into lakes and streams. Sulfuric acid is formed from the combination of water and oxygen with the sulfur

6. TIME, Oct. 22, 1973, at 96-97; COAL AGE, Oct. 1971, at 114-115.

7. J. STACKS, STRIPPING 21 (1972).

8. In Missouri, 45 percent of the coal reserves lie in beds which are considered thin (14" - 28"), 40 percent in beds which are medium (28" - 42"), and 15 percent in beds which are thick (more than 42"). MISSOURI MINERALS, *supra* note 2, at 35.

9. While coal has decreased in importance as a home and industrial fuel, demand for it in the generation of electricity has grown because high-sulfur, lower BTU content, surface mined coal can be burned as efficiently as higher quality underground coal. Brooks, *supra* note 4, at 22. All of Missouri's recoverable coal reserves, estimated in 1967 at 11,988 million tons, are considered high-sulfur. MISSOURI MINERALS, *supra* note 2, at 35, 37.

10. Missouri, like many other states, has coal deposits not recoverable by shaft mining. The desire to avoid increasing transportation costs has led to the development of surface mining sites near demand points.

or sulfur compounds that are found in large quantities in overburden.¹¹ The combination occurs when the sulfur bearing strata are exposed to the air during stripping. If the strata are broken up and placed on top of the piled-up overburden, a more or less permanent acid drainage condition is created. Virtually all present coal mining sites in Missouri contain at least some of this sulfur-bearing overburden, and the problem is particularly acute where two seams of coal are mined simultaneously.¹²

Acid pollution is an ecological nightmare. It can form hazardous acid pools and has been responsible for rendering many miles of waterways uninhabitable by plant and animal life.¹³ Although theoretically acid pollution might be avoided by carefully covering all the overburden during the mining operation, this technique has proven difficult in practice.

Sedimentation, or siltation, occurs when steep unvegetated ridges of overburden are eroded.¹⁴ The resulting sediment inhibits aquatic life, increases the undercutting of stream beds, and clogs culverts and drains. Sedimentation can cause serious economic damage by partially filling stream beds and creating excessive flooding. Impoundment pools, which allow the sediment to settle before the run-off drains into nearby streams, can effectively prevent sedimentation.

Aside from sedimentation and acid pollution, surface mining creates an even more fundamental difficulty. In many instances, irresponsible stripping has ruined what had previously been excellent farming or grazing land. In addition, unreclaimed strip mines are extraordinarily ugly. Not only is aesthetic value lost; barren hills and pox marked valleys discourage tourism. In some states, entire counties have been desecrated and ultimately financially ruined by the destruction of their tax bases.

Other, relatively minor, hazards stem from strip mining. Fires often arise from exposed coal seams and the assorted debris which is commonly left at abandoned mining sites. Additionally, a certain amount of air pollution results from the dust which is stirred into the air by the heavy equip-

11. The term overburden as applied to the strip mining of coal means all the earth and other materials which lie above natural deposits of coal, and includes such earth and other materials disturbed from their natural state in the process of strip mining. § 444.510(10), RSMo 1971 Supp. As applied to the strip mining of barite, it refers to all the earth and other materials which lie above or immediately adjacent to the natural deposits of barite, except earth and other material removed and transported with the barite to washing or cleaning sites. § 444.510(11), RSMo 1971 Supp.

12. This is true because iron pyrite, which is high in sulfur content and thus forms sulfuric acid when combined with water and oxygen, is present in higher concentrations in the overburden located between two seams of coal.

13. It has been estimated that acid pollution of a stream will affect life in the water for 30 years. Also, a small quantity of acid water passing along a stream for one day a year will make the stream incapable of ever supporting aquatic life. This is important because pollution of streams often occurs at irregular intervals due to repeated breaks in dams that hold back acid water and by continued seepage of the acid through the soil. Meiners, *Strip Mining Legislation*, 3 NATURAL RESOURCES J. 442, 462 (1964).

14. Sedimentation is simply the deposits of soil and rocks in streams and lakes. The peaks and ridges of overburden are often piled at angles of more than 45 degrees to the horizontal and are thus very susceptible to being washed away.

ment necessary to remove the overburden and extract the coal. Noise and vibration pollution also commonly accompany the necessary blasting and heavy equipment operation. Lastly, stagnant pools, which accompany unreformed stripping, breed mosquitoes and, along with steep slopes, present hazards to children. Nearly all of these lesser problems can be alleviated or eliminated by simple measures not unique to strip mining.

The full impact of the various hazards incident to surface mining can be appreciated only when examined in conjunction with the amount of land surface mined to date, and the rate at which surface mining is proceeding. Total surface mined acreage has increased from 3.2 million in 1965¹⁵ to more than 4 million in 1972.¹⁶ Acreage disturbed by coal mining alone was 1.3 million in 1965¹⁷ and is estimated to be more than 2.7 million by 1980.¹⁸ Although it is estimated that almost half the land disturbed as of 1972 was reclaimed,¹⁹ this figure distorts the real impact because much of the reclamation to date has been superficial, failing to completely restore the land to productive use. Successful reclamation involves comprehensive action, including prompt covering of all acid-producing materials, grading of ridges to pre-mining contour, and the establishment of vegetation, either crops, pasture or wooded areas.

II. EARLY REGULATION

Because of the wide-ranging problems which accompany irresponsible, unregulated stripping it quickly became apparent in the mid-part of this century that some form of governmental regulation was necessary.²⁰ The first state to act was West Virginia, which began regulating surface mining reclamation in 1939.²¹ Other mining states followed gradually through the 1940's and early 1950's.²² This early legislation was generally mild and provided numerous exemptions. Indeed, these regulations may have heightened the devastation because they tended to lull local governments into the

15. United States Dep't of Interior, *SURFACE MINING AND OUR ENVIRONMENT* (1967).

16. *Hearings Before the Subcommittee on the Environment and Subcommittee on Mines and Mining of the Committee on Interior and Insular Affairs of the House of Representatives on H.R. 3 and Related Bills*, 93d Cong., 1st Sess., ser. 93-11, pt. 2, at 1590 (1973) [hereinafter cited as *Hearings on H.R. and Related Bills*].

17. U.S. Dep't of Interior, *SURFACE MINING AND OUR ENVIRONMENT* (1967).

18. J. Stacks, *supra* note 7 at 26.

19. *Hearings on H.R. 3 and Related Bills*, note 16 *supra*.

20. If a free market economy were allowed to run its course, it would determine the use of the land by balancing the various costs with the revenues to be derived. For most strip mined land, the present value of the net income received from strip mining exceeds the market price of the land for other uses. Thus, by private standards, strip mining is efficient. This determination, however, ignores the social costs of the operation. When these costs are considered, land previously thought to be desirable for strip mining may no longer be so when the costs of reclamation are considered.

21. Ch. 84, [1939] W. Va. Acts.

22. Indiana, 1941; Illinois, 1943; Pennsylvania, 1945; Ohio, 1947; and Kentucky, 1954.

false assumption that the problem was being handled at the state level.²³ Recently, however, new and more substantial regulations²⁴ have been enacted in nearly every state where surface mining is substantial.²⁵ Unfortunately, Missouri's legislation has been enacted only after large areas of the state have been ravaged²⁶ by strip mining.²⁷

III. WHO SHOULD REGULATE

Although this article focuses on Missouri legislation and the proposed federal legislation, ameliorating restrictions may also be derived from other sectors. For instance, private parties can insert restrictive clauses into their contracts with miners.²⁸ In fact, some surface owners have been successful in negotiating and enforcing leases or sales of mineral rights that require the miner to reclaim the land.²⁹ Although this approach is appealing insofar as it minimizes governmental interference, individual regulation by contract is generally ineffective for several reasons. First, some courts refuse to grant relief in excess of the value of the land for breach of reclamation covenants, even though that value bears no relation to reclamation costs.³⁰ In addition, land owners are often motivated by the desire to maximize their returns from the land and thus do not bargain for reclamation. Even where the land owner does demand reclamation, the type and extent of the reclamation which he requires is primarily influenced by his own needs, to the exclusion of those of the surrounding land.

Local governmental controls, by cities and counties, is an attractive possibility in some respects. Regulation at this level often proves inordinately

23. See Bosselman, *The Control of Surface Mining: An Exercise in Creative Federalism*, 9 NATURAL RESOURCES J. 137, 153 (1969).

24. The West Virginia law was reenacted with amendments in 1967 and again in 1971. The Indiana Act was most recently amended in 1967. The Illinois Act was reenacted in 1961, having been declared unconstitutional in 1947, and was most recently amended in 1971. Pennsylvania's Act has been amended ten times, last in 1972. Ohio's Act has been amended eleven times up to 1973. And the Kentucky law has been amended seven times, most recently in 1972.

25. At least 25 states have strip mine legislation regulating the mining of coal and other minerals.

26. Of course, insofar as the enlightened provisions of the new Missouri Act are attributable to the fact that the Missouri Legislature had the benefit of other states' experiences, this delay has been somewhat beneficial. In any case, the fact that the Act is so new makes it difficult to assess precisely how effective it will be after procedures and customs of reacting to its provisions are fully established. Ultimately, as this comment will show, if the new federal strip mining legislation, The Surface Mining Reclamation Act of 1973, 5.425, 93d Cong., 1st Sess. (1973), is passed, the Missouri Act will need to be amended and strengthened in some areas.

27. As of 1965, 29,500 acres of fish and wildlife habitat had already been adversely affected and 330 miles of rivers and streams had been polluted. U.S. Dep't of Interior, SURFACE MINING AND OUR ENVIRONMENT at 117 (1967).

28. See *Buchanan v. Watson*, 290 S.W.2d 40 (Ky. 1956); McCutcheon, *The Common Law Rights to Subjacent-Support and Surface Preservation*, 38 Mo. L. Rev. 234 (1973).

29. *McDonough v. Southern Oregon Mining Co.*, 177 Ore. 136, 159 P.2d 829 (1945).

30. See *Hansen v. Andersen*, 246 Iowa 1310, 71 N.W.2d 921 (1955).

susceptible to local pressures, however. For example, local mining sites may produce minerals that can be supplied to local consumers at a reduced price³¹ and provide desirable employment opportunities. Such factors could induce a municipality or county to impose inadequate requirements. Although in many states communities might assert local control through zoning laws, such county regulation is probably not possible under Missouri statutes.³² Missouri cities, however, may successfully control surface mining operations through zoning.³³

Everything considered, state or federal regulation appears to be the most practical approach. Under either of these authorities, local community requirements could receive attention, while at the same time the mineral and reclamation needs of the entire state could be considered. Unfortunately, one aspect of this potential lies unutilized because, until recently, federal regulations have been nearly nonexistent. Even now, they are limited to controlling mining on federal lands and requiring promises of reclamation from suppliers of coal for federal generating plants.³⁴ A comprehensive bill³⁵ is presently before the Congress, however, which would have a considerable effect on current surface mining operations across the nation and, to a lesser degree, in Missouri.³⁶

IV. THE MISSOURI APPROACH

A. Determining Who May Surface Mine

All states with surface mining legislation require some type of permit or license before mining operations may begin. Although Iowa regulations require only licensing of the operator with subsequent registration of each mining site after the operation has begun,³⁷ other states, notably Illinois, require a separate permit for each site if more than a minimum number of acres are to be mined.³⁸ Missouri's approach is a common one; it requires

31. This is particularly true with aggregates (sand and gravel) where transportation costs are a significant portion of the price. It is true to a lesser extent for coal, and thus provides an opportunity for local pressure to encourage surface mining in an "undesirable" area.

32. Second, third, and fourth class counties are specifically prohibited from using zoning laws to affect strip mining. See §§ 64.560, .890, RSMo 1969.

33. § 89.020, RSMo 1969, suggests that local zoning within a municipality is possible to restrict strip mining. An example is Case 363, Appeal of Peabody Coal Co., Board of Zoning Adjustment, September 15, 1970. Peabody sought a special class permit to mine on property located in northeast Columbia. Proper reclamation was required of the operator without forcing a curtailment of the mining operation, and thus a supply of coal for the city was maintained.

34. Bosselman, *supra* note 23, at 160, 161.

35. See note 26 *supra*.

36. The proposed federal legislation would likely have the effect of coercing states into establishing an effective regulatory body. Although this motive is not expressed in the bill, because mining operations in a state would be subject to exclusive federal administrative control unless the state enacts acceptable legislation, all states can be expected to enact regulations enabling them to control this industry free from federal intervention. S. 425, 93d Cong., 1st Sess. (1973), at §§ 204-205.

37. IOWA CODE ANN. § 83A.7 (Supp. 1973).

38. ILL. ANN. STAT. ch. 93, § 204 (Smith-Hurd Supp. 1974).

procurement of a separate permit for each site regardless of the size of the area to be mined.³⁹ In Missouri, all applications for permits must contain substantial information⁴⁰ aimed at identifying the land and the applicant and determining his right to mine the land. Unfortunately, the application contains few guidelines whereby the Land Reclamation Commission⁴¹ (hereinafter the Commission) can judge the applicant's dedication or ability to meet his commitments under the law. Although several states provide for permit applications in which the operator must divulge whether he has ever had a permit revoked or has ever forfeited bond in the issuing state⁴² or any other state,⁴³ the Missouri statute does not expressly require this information.⁴⁴

There are a few circumstances in which Missouri's Act specifically requires denial of a permit.⁴⁵ Contrarily, there is no explicit requirement that a permit be granted. The Act merely states that "[i]f the director is not satisfied with the information supplied by the applicant, he shall recommend denial of the permit."⁴⁶ This gives the Commission a great deal of discretion in determining which permits to deny and which to grant. As a practical matter, Missouri's approach has been for the Director to recommend approval if the application is administratively in order; no application has thus far been denied.⁴⁷

Whereas several states have required that permits be denied to operators who repeatedly violate the law,⁴⁸ the Missouri statute merely provides that a permit shall not be issued to an operator who has had a permit revoked,⁴⁹ and provides that the operator is eligible for a new permit

39. § 444.540, RSMo 1971 Supp.

40. A permit application must include: the names of persons with interest in the land, the source of the applicant's right to mine, the address of the applicant, whether the applicant holds or has held any permits under the Act, the consent of the applicant for the Commission to enter upon the land, and a map of the land. § 444.550 RSMo 1971 Supp.

41. The Land Reclamation Commission is the agency created by the Act to enforce its provisions. The Commission consists of seven members including the state geologist, the director of the department of Conservation, the executive secretary of the state water pollution board, and four other members, one of whom may be associated with the mining industry.

42. See W. VA. CODE ANN. § 20-6-8 (1973).

43. See MONT. REV. CODES ANN. § 50-1039 (Supp. 1973).

44. The statute does provide for an identification of all prior permits issued, § 444.550-1(4), RSMo 1971 Supp., and such other information which the Commission may require. § 444.550-1(6), RSMo 1971 Supp.

45. §§ 444.610-1(4), RSMo 1971 Supp. See text accompanying note 59 *infra*.

46. § 444.600-1, RSMo 1971 Supp.

47. Interview with Robert Neuenschwander, Director, Missouri Land Reclamation Commission, Oct. 19, 1973.

48. See KY. REV. STAT. § 350.130 (Supp. 1972), IND. ANN. STAT. § 46-1525 (Supp. 1972). Three violations is the number most often specified as grounds for refusing any future permits. Oklahoma denies a permit to any operator who has had one revoked. OKLA. STAT. ANN. tit. 45, § 736 (Supp. 1973-1974). A proposed bill in Wisconsin would have allowed denial of a permit if an operator had violated the mining law of another state. Senate Sub. Amend. 2 Wis. S. B. 525 § 7 (1971 Sess.).

49. § 444.680-5, RSMo 1971 Supp.

as soon as he corrects the violation that caused the prior revocation.⁵⁰ Nevertheless, the present attitude of the Commission is to exercise its statutory discretion to deny new permits to miners with bad records even after they have corrected all prior violations, absent some further indication of good faith by the operator.⁵¹

Rather than careful screening of applicants, Missouri relies heavily on its bonding requirements for assurance that operators will fulfill their obligations. Indeed, bonding requirements will become even stricter if the current proposed federal legislation on surface mining is enacted. The federal bill requires each operator to satisfy the state in which he is mining that he can both compensate third parties for personal injury and property damage resulting from the mining operation⁵² and demonstrate that his reclamation plan can be accomplished. Absent such a showing no permit would be issued.⁵³

B. Controlling What Land Shall Be Mined

Compared to the approach taken in several other states, the location of mining sites is largely unregulated in Missouri.⁵⁴ Illinois requires all permit applications to show the nature and depth of the overburden.⁵⁵ Pennsylvania and Montana specify that an application shall contain the complete results of all test bores, including an analysis of the overburden as to acid and sulfur content, and an analysis of the coal as to BTU and mineral content.⁵⁶ Such information is quite valuable to state commissions in determining whether compliance with the regulations is likely. The Missouri Act requires no such information from its applicants.

Several states bestow extensive discretion on their commissions to deny permits to mine on certain types of land. Thus, in Kentucky the issuing agency has discretion to deny a permit if experience shows that there is no probable cause to believe that the reclamation plan can be accomplished or that water pollution, erosion, sedimentation, flooding, and accumulation and discharge of acid water can be prevented.⁵⁷ Similarly, Montana allows a denial of a permit if the land has "special, exceptional, critical, or unique characteristics" such that the land would not rapidly regain its former ecological role; or that the land is of scenic, historic, archeologic, topographic, geologic, ethnologic, scientific, cultural or recreational significance.⁵⁸

In contrast, Missouri regulations contain no such guidelines to assist the Commission in exercising its discretion as to which permits to deny. Missouri

50. *Id.*

51. Interview with Neuenschwander, note 47 *supra*.

52. S. 425, 93d Cong., 1st Sess. (1973), § 203 (c). This can be done by self-insurance or by obtaining a liability insurance policy.

53. S. 425, 93d Cong., 1st Sess. (1973), § 209 (b).

54. The choice is made almost exclusively by the mining companies. Their selections are determined by the location of coal beds and demand centers.

55. ILL. ANN. STAT. ch. 93, § 205 (Smith-Hurd Supp. 1974).

56. MONT. REV. CODES ANN. § 50-1039 (Supp. 1973); PA. STAT. ANN. tit. 52, § 1396.4(a)(1) (Supp. 1974).

57. KY. REV. STAT. § 350.090 (Supp. 1972); *see also* OHIO REV. CODE ANN. § 1513.07 (Page Supp. 1972); W. VA. CODE ANN. § 20-6-11 (1973).

58. MONT. REV. CODES ANN. § 50-1042 (Supp. 1973).

law requires denial of a permit only if the mining would endanger a residence, public building, school, church, cemetery, commercial or residential building, stream, lake, public road or other property. Additionally, Missouri prohibits mining within a certain distance of adjacent land where lateral support is removed.⁵⁹ To the extent the Commission does have discretion in other cases as to which permits to approve, the Act offers the Commission little guidance as to what types of land should be licensed for mining and what types should be preserved for other uses. More specific language would be beneficial because it would encourage the Commission to examine each tract of land in order to determine whether it is suitable for surface mining.

The Missouri Act does provide the Commission with power to promulgate rules respecting the administration of the Act.⁶⁰ It also authorizes the Commission to conduct research in order to collect and disseminate information relating to surface mining and reclamation.⁶¹ It might be argued that the Commission should rely upon these provisions to adopt specific guidelines indicating which land permits should and which should not be issued, but to date, this has not happened.⁶²

Although the Missouri Act is not as detailed as those of some other states, it does require that the permit application be accompanied by a map indicating the area to be mined,⁶³ all streams, creeks or other bodies of public water, the drainage plan on and away from the affected land, and a reclamation plan.⁶⁴ Yet, nowhere does it say that location of a particular unspoiled stream in proximate locality to a proposed mining operation is ground for refusing a permit. As has been noted, the use of zoning for controlling the location of mining sites is largely prohibited by statute in Missouri.⁶⁵ Local ordinances which attempt to restrict mining raise a constitutional question of taking without compensation.⁶⁶ Thus, Missouri controls the operation of the mine and the reclamation process while, in effect, ignoring, on the face of the Act at least, the first and equally important step of mining procedure—the selection of a site.

59. § 444.610-1(4), RSMo 1971 Supp.

60. § 444.530(1), RSMo 1971 Supp.

61. *Id.*, at (2).

62. The Commission has adopted informal regulations for use as future guidelines in insuring uniformity of decisions. *See* minutes of the Land Reclamation Committee Meeting dated February 10, 1972.

63. The Missouri law is particularly ineffective in its control of barite mining sites. While the act subjects barite operators to the same provisions as coal companies in requiring the proposed mining site to be specified, the nature of the barite mining operation, which involves preliminary mining of an area before a determination can be made as to the economic feasibility of a full scale operation, has resulted in the Commission allowing these operators to define the proposed site very generally in their applications and then at the end of each year to indicate exactly what land was mined. Interview with Neuenschwander, note 47 *supra*.

64. §§ 444.550-560, RSMo 1971 Supp.

65. *See* note 32.

66. U.S. CONST. amend V. The Supreme Court has been liberal in allowing regulation by municipalities, but the prohibition of mining in rural or undeveloped areas without a legitimate health or safety justification might not pass constitutional muster. *See, e.g.,* Goldblatt v. Town of Hempstead, 369 U.S. 590 (1962).

Should the proposed federal legislation be enacted, Missouri will have to adopt more restrictive and specific legislation regarding site selection. Under the federal legislation, all states would have to begin reviewing all potential strip mine areas, within three years, in order to decide whether any proposed lands were unsuitable for strip mining because unsuitable for reclamation. Also, states would be required to insure that strip mining is compatible with existing land use plans, and that the area to be mined is not of critical environmental concern.⁶⁷ Although examples of "critical environmental concern" are provided in the federal bill, this category is vague and would allow state agencies much discretion in designating the suitability of land. In any case, prior to rejecting any application as "unsuitable" the state would be required to make a study outlining the reasons for the denial.⁶⁸ Ultimately, the federal legislation seems to mandate a weighing process which, if applied conscientiously, would offer the ideal means of insuring that the best use of the land is made.

A relatively new approach to regulating the location of strip mining is to reserve land specifically for this purpose.⁶⁹ Although reservation is seldom used for coal mining, this approach is often used in the "aggregates" (e.g., sand and gravel) industries, both because proximity of supply to areas of demand is crucial and because, if left unchecked, expanding metropolitan congestion would often prevent the mining of known deposits. These same factors may become relevant to coal mining. Missouri can scarcely afford to risk losing rich coal deposits by permitting surface use to interfere with subsequent extraction of mineral deposits. The future may witness an increased use of these reservations.

Although Missouri has only minimum control over the location of mining sites, so far no problems have resulted. This is probably because until now coal and barite mining in Missouri has occurred in predominantly rural, relatively flat, areas.

C. Control of the Mining Operation

The ultimate success of any reclamation operation is largely dependent on the extent to which the extraction process is regulated. Unless certain immediate measures are taken, complete and prompt reclamation becomes infeasible because uncontrolled, irreparable acid and sediment damage can occur before reclamation begins. Although the Missouri Act requires the eventual covering of all acid-forming material with four feet of earth or water,⁷⁰ it fails to specifically and unequivocally require immediate covering of this material.⁷¹ The Act merely states that "an operator shall com-

67. S. 425, 93d Cong., 1st Sess. (1973), at § 215.

68. *Id.* This finding requires discussion of the effect the mine in question would have on the environment, the economy and coal supplies. Of course, even if an area was deemed "unsuitable" for surface mining, a state could not interfere with existing operations or operations for which plans and commitments had been made.

69. Bosselman, *supra* note 23, at 159.

70. § 444.610-1(6), RSMo 1971 Supp.

71. § 444.610-1(6), RSMo 1971 Supp., requires only that upon completion of mining the seam and "gob" be covered. "Gob," as defined by the Act, is that

mence the reclamation of the land affected by its operation as soon as possible after the beginning of strip mining of that area⁷² The Commission attempts to ensure the covering of all acid-forming material on an ongoing basis so it is never exposed to the weather long enough to form an appreciable quantity of acid water.⁷³ Also, the Act makes up for the lack of a specific mandate by requiring that grading be completed within six months of the placement of a spoil ridge.⁷⁴ In effect, this necessitates constant grading of the overburden in order to meet the time table.⁷⁵ Thus, complete success in eliminating acid formation has proven difficult to achieve, particularly where two seams of coal are mined at one site.⁷⁶ The Commission's attitude and the grading deadline have combined to lessen the chances that acid-bearing rock will be exposed to the elements. The proposed federal legislation and several state acts contain useful provisions, not present in the Missouri Act, which might assist Missouri in effectively controlling strip mining operations. For instance, Montana law requires that only the "area" method of surface mining be used.⁷⁷ Although Missouri's mining is all done by this method currently,⁷⁸ such a provision would be invaluable as a means of insuring future control of mining in the Ozarks, where area mining is inappropriate. It would prevent the formation of "benches", which increase the danger of landslides, that are incident to "contour" stripping on the sides of hills and mountains.

West Virginia is able to control the acid run-off problem by requiring that all water accumulating on surface mined land be tested periodically for

portion of the refuse consisting of waste coal or bony coal of relatively large size which is separated from the marketable coal in the cleaning process, or solid refuse material not readily waterborne or pumpable without crushing. Thus, the Act does not specifically provide for the high sulfur content overburden near or between seams of coal. Also, the Act sets no time requirements for the immediate covering of acid material; it merely requires eventual covering. Perhaps a provision similar to one in the Ohio Act specifying that the operator shall cover immediately all toxic material, acid producing material (pyrite shale and roof coal), and anything creating a fire hazard would be helpful. OHIO REV. CODE ANN. § 1513.16 (Page Supp. 1972).

72. § 444.610-2, RSMo 1971 Supp.

73. Interview with Neuenschwander, note 47 *supra*.

74. § 444.620(1), RSMo 1971 Supp.

75. Because administration of the Act is still in its infancy, the Commission has been lenient in enforcing the time requirements if companies miscalculate their progress and thereby miss their deadline. The Director of the Commission feels, however, that within a short time, as the companies become acquainted with the time necessary to comply, the regulations will be more strictly enforced. Interview with Robert Neuenschwander, Director, Land Reclamation Commission, of October 22, 1973.

76. When two seams of coal separated by several feet are being mined, the earlier practice was to mine an area for the top seam, discarding the overburden on adjacent land. In order to mine the lower seam, the overburden was placed on top of the mined area. This resulted in the highly sulfurous material between the seams being exposed to the elements where it could produce maximum acid water run-off. The Commission says that now the material between seams is placed aside the original peak of overburden and covered immediately.

77. MONT. REV. CODES ANN. § 50-1044 (Supp. 1973).

78. All of the surface mining operations presently being conducted in Missouri are in generally flat areas of the state.

acidity.⁷⁹ The proposed federal legislation emphasizes control of drainage more than the Missouri Act⁸⁰ by requiring the state to take some affirmative action to insure that drainage is not adversely affected by stripping and by requiring states to enforce provisions that reduce the possibility of erosion and acid formation.⁸¹ Additionally, the proposed federal legislation would require operators to notify the state of their actual mining techniques and the equipment used.⁸²

In the crucial area of inspection the proposed federal bill is much better than the present Missouri act. Although Missouri specifically requires the mining companies to allow the Commission to inspect all strip mining locations,⁸³ there is no requirement that the Commission engage in regular periodic inspections;⁸⁴ the Commission's inspection duties are merely discretionary. The Commission's discretion in this area is greatly hampered because it has only one full-time inspector.⁸⁵ The federal proposal, similar to several state acts,⁸⁶ requires state inspection of all mining sites at least once a month on a random basis without prior notice to the operator.⁸⁷ This is very important because successful control is necessarily dependent on current, accurate information of actual conditions at various mining sites.

D. Reclamation Requirements and Bonding

Successful reclamation begins with a proper determination of post-mining land use. Several states have thus provided for involvement of the enforcing agency in determining the most appropriate post-mining use for a particular site. Illinois regulations provide for the restoration of land to the support of row crops, if such was the prior use and it is determined that such is the proper future use.⁸⁸ Ohio gives the state the general authority to determine land use, particularly if the administrative agency believes that general contouring will have adverse effects.⁸⁹ Other states, like Pennsylvania, require merely that the permit application contain a statement of the best prior land use;⁹⁰ this statement is generally determinative of future use.

79. W. VA. CODE ANN. § 20-6-14 (1973).

80. § 444.550-2(6), RSMo 1971 Supp., merely requires that the drainage system be indicated on a map accompanying a permit application.

81. S. 425, 93d Cong., 1st Sess. (1973), at § 212(b) (7).

82. S. 425, 93d Cong., 1st Sess. (1973), at § 212(a) (3).

83. § 444.550-1(5), RSMo 1971 Supp.

84. § 444.530(4), RSMo 1971 Supp.

85. The inspector graduated from Emporia State Teachers College with a degree in mining. He has worked at reclaiming previously mined land for the Kaysinger Basin Regional Planning Commission in the Ozarks and south central Missouri.

86. Ohio specifies that the agency *shall* designate inspection officers, OHIO REV. CODE ANN. § 1513.03 (Page Supp. 1972); Pennsylvania and West Virginia both give the inspection officer the authority to order an immediate cessation of operations if the operator is mining without a permit, is in violation of safety regulations, or violating any provision of the law. PA. STAT. ANN. tit. 52, § 1396.4(1)c (Supp. 1973-1974); W. VA. CODE ANN. § 20-6-14a (1973).

87. S. 425, 93d Cong., 1st Sess. (1973), at § 213(c).

88. ILL. ANN. STAT. ch. 93, § 206 (Smith-Hurd Supp. 1974).

89. OHIO REV. CODE ANN. § 1513.16(c) (11) (Page Supp. 1972).

90. PA. STAT. ANN. tit. 52, § 1396.4(a) (2) (Supp. 1973-1974).

Although the Missouri law is generally demanding in its reclamation requirements, it does not grant the Commission any authority to determine subsequent uses of land. Instead, within the bounds of required grading and revegetation, the operator may exercise complete discretion in deciding eventual uses.⁹¹ However, the statute directs the Commission to encourage the operator to make the land available to the people of the state for recreational use.⁹²

The proposed federal regulations would strike a balance between state domination and complete operator discretion as to the eventual land use. The proposed bill would require states to:

return all surface areas to a condition which does not present a hazard to the public health, safety, or property and is capable of supporting (a) the use which existed immediately prior to mining, or if approved [by the state] . . . (b) other alternative uses suitable to the locality.⁹³

Such state involvement is desirable insofar as it insures a sufficiency of arable land, encourages uses currently in demand, and allows states and local communities to maintain their respective tax bases. It is unfortunate, however, insofar as it permits states to dictate to an individual how he will use his land. This interference strikes some as extremely objectionable. Such regulation may be unnecessary. Prevailing practice within the mining industry is to buy strip mining land⁹⁴ and, after complying with reclamation requirements, to put it to the most productive use.⁹⁵

Regardless of ultimate post-stripping land use, the Missouri Act requires grading of any affected area to a rolling topography, except that 25 percent of the overburden may be struck off to a minimum width of 30 feet.⁹⁶ The latter option reflects a difference of opinion that exists concerning the best condition in which to leave the overburden. One theory contends that loose material in spoil ridges is more favorable environmentally than graded land because the former more readily absorbs water and supports growth.⁹⁷ Proponents of this theory point out that since grading costs are the most substantial part of the cost of reclamation⁹⁸ it would be beneficial to keep

91. § 444.610-1(7), RSMo 1971 Supp.

92. § 444.750, RSMo 1971 Supp.

93. S. 425, 93d Cong., 1st Sess. (1973), at § 213(b)(1).

94. Peabody Coal Co., the largest producer of coal in the United States, buys the land in fee simple if possible; if not, at least the surface rights. Interview with W. G. Stockton, vice-president, Peabody Coal Co., of October 24, 1973.

95. Peabody raises corn on reclaimed land in Kentucky, cattle in Illinois, and in the Black Mesa area of Arizona, prairie grazing land has been created where desert existed previously. Interview with Stockton, note 94 *supra*.

96. § 444.610-1(1)(3), RSMo 1971 Supp.

97. Interview with Dr. James Whitely, Missouri Department of Conservation, October 26, 1973; Memorandum from Dr. Whitely to the Missouri Conservation Federation, September 15, 1970.

98. In 1972, Peabody Coal Co.'s grading costs in Missouri ranged from \$321 to \$643, with an average of \$586, per acre. The highest grading cost per acre was in Montana where 28 acres were graded at a cost of \$912 per acre. This compares with a seeding cost universally below \$10 per acre for grass. While costs for planting seedlings (not available from Peabody) are undoubtedly higher, they would not approach the cost of grading. Interview with Stockton, note 94 *supra*.

grading to a minimum to insure that mining of Missouri's relatively thin coal beds remains competitive.⁹⁹

Environmentalists who do not have industry ties advocate a contrary position. They maintain that the land should be completely restored to the original contour, thereby furthering its aesthetic beauty and avoiding unknown effects on the region's ecology.

The Missouri Act, in contrast to those of several other states and the proposed federal law, permits highwalls¹⁰⁰ to remain with dams constructed to form lakes¹⁰¹ and makes no mention of top soil replacement. Notably, most of the "old" laws provide, in amended form, for either top soil replacement or highwall reduction, or both.¹⁰² The Montana Act, a relatively recent enactment, specifies with great detail what must be done with highwall grading and top soil.¹⁰³ Elimination of the highwall, a requirement of the proposed federal law,¹⁰⁴ involves a considerable added expense and is justified primarily on grounds that it is necessary to prevent the accumulation of water that could present an acid pollution problem. However, as long as regulations requiring covering of exposed acid materials and construction of proper dams are enforced, highwall grading seems wholly unnecessary because such practices should prevent the formation of acid water and, in any event, should prevent its escape from the pools. In addition, lakes are desirable. They provide water for irrigation, livestock, and recreation.

The necessity of top soil segregation and replacement, also a requirement of the proposed federal law,¹⁰⁵ is a controversial issue. Although rich top soil is undoubtedly capable of supporting a greater variety of vegetation than is other earth, its replacement would greatly increase the cost of mining reclamation. Furthermore, overburden is often higher in phosphate and potash content than top soil. Since overburden is markedly deficient only in nitrates,¹⁰⁶ proper planting can result in successful revegetation. Although Missouri's Act permits operators to select the type of revegetation,¹⁰⁷ the

99. Hayes, *Mineral Land Reclamation in Missouri* (1970); Whitely, Memorandum, note 97 *supra*.

100. The highwall is that side of the pit adjacent to the unmined land. § 444.510(7), RSMo 1971 Supp.

101. § 444.610-1(5), RSMo 1971 Supp.

102. See PA. STAT. ANN. tit. 52, § 1396.4(a)(2) (Supp. 1973-1974); OHIO REV. CODE ANN. § 1513.16 (Page Supp. 1972); W. VA. CODE ANN. § 20-6-13a (1973).

103. MONT. REV. CODES ANN. § 50-1044 (Supp. 1973). The highwall must be reduced to a maximum 20 percent grade to the original contour of the land. Top soil is to be removed in a separate layer, guarded from erosion and pollution, and kept in condition to support the same vegetation as before. After mining is completed, the top soil is to be returned as the top layer.

104. S. 425, 93d Cong., 1st Sess. (1973), at § 213(b)(2).

105. *Id.*, at § 213(b)(4). The federal law would require replacing top soil unless "another method of soil conservation would be at least equally effective for revegetation purposes." Taken literally, this would mean replacement of top soil in every instance because nothing else will support as great a variety of vegetation.

106. Interview with Whitely, note 97 *supra*; interview with Neuenschwander note 75 *supra*.

107. § 444.610-1(8), RSMo 1971 Supp.

operator's selection is subject to the Commission's approval.¹⁰⁸ One third of the mining bond remains in effect until the Commission determines that the revegetation has been satisfactorily completed.¹⁰⁹ Adherence to this provision should result in the establishment of growth regardless of the nature of the soil.

Missouri relies heavily on its bonding requirements to enforce the reclamation provisions of its act.¹¹⁰ The bond assures that in case of default, reclamation can be completed at no cost to the state. In addition, if properly set, the bond provides companies with a greater incentive to complete reclamation because otherwise they suffer a financial loss and will have considerable difficulty obtaining bonding in the future. The Missouri bonding provision is particularly effective in light of the ongoing nature of reclamation under the Missouri Act, which requires operators to complete grading of a spoil ridge within six months after placing it. This discourages default because operators know that they risk losing their entire bond after already having made this expenditure toward reclamation.

Needless to say, the persuasive power of bonds is minimal unless they accurately reflect reclamation costs.¹¹¹ Such costs vary considerably depending upon the terrain.¹¹² Missouri's Act allows the Commission to set bond for coal from \$300 to \$700 per acre and for barite from \$200 to \$500 per acre.¹¹³ This method is certainly more likely to result in an adequate amount than the former Oklahoma method which equated bond with the assessed value of the land.¹¹⁴ A more logical, if perhaps less workable, approach is

108. *Id.*

109. § 444.640, RSMo 1971 Supp. Two thirds of the bond is to be released after grading has been satisfactorily completed, and the remainder when vegetation is established.

110. Bond is normally set higher for a company of questionable financial standing than for established companies. Peabody Coal Co., Pittsburg, and Midway Coal Co. mine the great majority of coal in Missouri. In 1973, Peabody had permits to mine 1032 acres and Pittsburg and Midway 764 acres. Presently, there are three other companies mining in Missouri with permits for a total of 134 acres. The bond in 1972 was set at \$400 per acre for Peabody and \$500 per acre for all other companies. The small barite mining companies, mining only a few acres a year, are subject to a minimum bond of \$2000 total, while bond for larger companies is set at \$200 per acre.

111. If bond is set at a level appreciably below the cost of reclaiming the land, a mining company would be tempted to forfeit and reimburse the surety, thereby leaving the state with the task of reclaiming the land and the expense above what is recovered from the surety. If state money is unavailable, inadequate or only partial reclamation will be attempted.

112. Reclamation costs can vary from \$50 to \$5000 per acre. Brooks, *supra* note 4, at 27; Stockton interview, note 94 *supra*, indicates that the top figure is applicable in Montana and other western states where the coal is more than 100 feet below the surface.

113. § 444.570, RSMo 1971 Supp.

114. OKLA. STAT. ANN. tit. 45, § 708 (Supp. 1970). Oklahoma revised its law in 1971, setting bond limits from \$350 to \$600 per acre. Tennessee represents another unrealistic approach to bonding with limits from \$100 to \$200 per acre. TENN. CODE ANN. § 58-1529 (Supp. 1973).

taken in states like Ohio, and Iowa, where bond is set at the estimated cost of reclamation.¹¹⁵

A major reclamation problem in Missouri and many other states concerns land mined prior to the effective date of the law.¹¹⁶ The state is neither authorized to reclaim such land nor is any money budgeted for such purposes. The Act, however, provides for the possibility of such reclamation either by substitution or by use of federal funds. Substitution allows an operator to elect to reclaim land mined prior to the Act in place of the land he is presently mining.¹¹⁷ Substitution requires county court, as well as Commission approval,¹¹⁸ and present potentially serious problems. Presumably, a company would choose to substitute only when the prior unreclaimed land will be less expensive to reclaim than the present land. Also, in most cases land mined prior to the Act will have already infected the landscape with acid and sediment pollution. Reclamation of that land in place of the new land will double pollution by allowing the new land to create acid wastes and sedimentation. The Commission has therefore viewed requests for substitution skeptically.¹¹⁹ Permission to substitute has been granted only to barite miners.¹²⁰

The Missouri law allowing the Commission to receive federal money for the purpose of reclaiming land mined prior to the Act is not significant at present. Thus far the only federal funds disbursed for reclamation have been through regional commissions¹²¹ on a sporadic and limited basis. The proposed federal legislation, however, would establish a fund¹²² to allow the federal government to (1) purchase unreclaimed lands and reclaim them; (2) furnish up to 90 percent of the funds to enable a state to purchase unreclaimed land, which the federal government would then reclaim;¹²³ or (3) assist states in reclaiming nonfederal lands to the extent of 75 percent of the total cost.¹²⁴

115. IOWA CODE ANN. § 83A.23 (Supp. 1974-75); OHIO REV. CODE ANN. § 1513.08 (Page Supp. 1973). Ohio requires the permit application to contain an estimate of reclamation costs. OHIO REV. CODE ANN. § 1513.07 (Page Supp. 1973). Pennsylvania demands an estimate of the cost of each step of reclamation in addition to the estimate of the total. PA. STAT. ANN. tit. 52, § 1396.4(a)(2) (Supp. 1973-1974).

116. See note 27 *supra*.

117. § 444.620(2), RSMo 1971 Supp. The substitution is on an acre-for-acre basis.

118. *Id.* The county court in the affected county must first determine if the substitution is in the best interest of land usage and the public interest before the Commission may grant approval.

119. Interview with Neuenschwander, note 75 *supra*.

120. Barite mining companies have convinced the Commission that rapid technological developments in their mining operations often make re-mining of an area economically advantageous. Thus, to require reclamation by covering and planting each area as mined would greatly increase the future costs of re-mining the tract.

121. Ozark Regional Planning Commission and Kaysinger Basin Regional Planning Commission.

122. The fund would initially be \$80,000,000. S. 425, 93d Cong., 1st Sess. (1973), at § 301(b).

123. S. 425, 93d Cong., 1st Sess. (1973), at § 302.

124. *Id.*, at § 305.

In lieu of federal aid and substitution, Missouri could adopt the West Virginia approach to the problem of unreclaimed land. West Virginia imposes a reclamation tax on each acre of newly mined land; the proceeds of the tax are used to purchase and reclaim prior-mined land.¹²⁵

E. Sanctions

In addition to bond forfeiture and permit revocation, the Missouri Act authorizes the Attorney General to bring suit for injunctive relief and civil penalties if, but only if, an operator is mining without a permit.¹²⁶ A number of states provide greater sanctions. Illinois allows injunctive relief for failure to adhere to reclamation requirements.¹²⁷ A number of states provide for criminal penalties and treat each day of the violation as a separate offense.¹²⁸ In Pennsylvania, the basic fine is equal to the profits received from land mined without a license plus the cost of reclaiming the land.¹²⁹ Several states provide increased fines and terms of imprisonment for subsequent offenses¹³⁰ and for wilful violations.¹³¹ Some even allow citizens to participate in enforcement of the act by either suing the offender directly¹³² or by bringing a mandamus proceeding to compel the appropriate state official to enforce the act.¹³³ Indeed, Pennsylvania has a provision which provides for penalties not only if the operator fails to comply with the act, but also if in fact water accumulation or stream pollution results, regardless of the operator's compliance.¹³⁴

Although it is arguable that some state penalties are essentially harassment of the mining companies and are unnecessary to insure compliance with the respective acts, Missouri can scarcely be accused of that sin. Missouri could use some additional sanctions, with immediate means of enforcement, to assure timely compliance by operators. Certainly the prospect of cash expenditures in the form of fines or the fear of prison terms would seem to be a negative incentive sufficient to encourage compliance whereas the mere prospect of eventual loss of a permit or bond might not be.

V. CONCLUSION

Missouri's approach to the regulation of surface mining has been to prescribe minimum requirements for operators while giving the Commission substantial discretion in controlling the industry. The Commission, in turn,

125. W. VA. CODE ANN. § 20-6-17 (1973).

126. § 444.680, RSMo 1971 Supp. The maximum penalty that can be imposed is \$1000 for each day the violation has occurred.

127. ILL. ANN. STAT. ch. 93, § 213 (Smith-Hurd Supp. 1974).

128. See KY. REV. STAT. § 350.990 (Supp. 1972).

129. PA. STAT. ANN. tit. 52, § 1396.3a. (Supp. 1973-1974).

130. OHIO REV. CODE ANN. § 1513.99 (Page Supp. 1973). The first violation of any provision results in a fine. Subsequent violations subject the operator to imprisonment as well as a fine.

131. See MONT. REV. CODES ANN. § 50-1056 (Supp. 1973); W. VA. CODE ANN. § 20-6-30 (1973).

132. OHIO REV. CODE ANN. § 1513.15 (Page Supp. 1972).

133. MONT. REV. CODES ANN. § 50-1055 (Supp. 1973).

134. PA. STAT. ANN. tit. 52, § 1396.4(a) (2) (Supp. 1973-1974).

has attempted to enforce practices necessary to prevent major surface mining problems in Missouri. The Commission's extensive discretion in determining whether a permit should issue has resulted in uniform approval of applications administratively in order; and, in response to the few restrictions the Act imposes on what land can be surface mined, the Commission has approved all applications without a determination of the special characteristics and relative merits of various sites. These are weaknesses in the Missouri Act. Many states with more experience in the regulation of surface mining have found it advantageous or necessary, for successful regulation, to require the regulatory agency to investigate and scrutinize regions and applicants to insure dependable operators and favorable sites. Indeed, should the federal legislation be enacted, Missouri would be forced to adopt a more restrictive approach to the initial stages of regulation.

Despite the Missouri Act's weaknesses, it seems to have been fairly successful in preventing surface mining hazards. Complete reclamation, however, including restoration of vegetation, need not be accomplished until two years after the expiration of a permit;¹³⁵ it will not be until March, 1975, that the first tracts mined under the law will be fully reclaimed.¹³⁶ Therefore, while compliance with the letter of the law is possible to monitor now, it will be several years before it is possible to determine whether the Act is effectively preventing the problems which made the legislation necessary, or whether more extensive and specific guidelines for the Commission and requirements for the operator will be required.

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135. § 444.610-2, RSMo 1971 Supp.

136. Operators did not have to have a permit until six months after the effective date of the law, which would have been March 1972. The operator then has two years after the expiration of that first permit within which to complete all his reclamation, including establishing vegetative cover.