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Muckelston: Strip-Mining Reclamation Requirements  
**STRIP-MINING RECLAMATION REQUIREMENTS IN  
MONTANA — A CRITIQUE**

I seek acquaintance with Nature,—to know her moods and manners. Primitive nature is the most interesting to me. I take infinite pains to know all the phenomena of spring, for instance, thinking that I have here the entire poem, and then, to my chagrin, I learn that it is but an imperfect copy that I possess and have read, that my ancestors have torn out many of the first leaves and grandest passages, and mutilated it in many places. I should not like to think that some demigod had come before me and picked out some of the best of the stars. I wish to know an entire heaven and an entire earth.<sup>1</sup>

Henry David Thoreau  
March 23, 1856

### I. INTRODUCTION

While the present clamor over environmental issues continues, most public attention has been focused on pollution problems concerning air and water. Little concern has been expressed over the ravaged land resulting from industrial use, except in those states burdened with emasculated landscapes. Eastern Montana is a potential strip-miner's paradise; hence, the problem of restoration can no longer be ignored and has, in recent months, become a major political issue. The state legislature has been concerned with this issue during the last two sessions, yet minimal effective progress has been made in providing adequate reclamation requirements. In order to determine what measures are necessary to reclaim spoiled land areas, consideration must be given to the detrimental effects from the stripping operation, present legal requirements for restoration, the practical implementation of reclamation procedures, and the need, if any, for more stringent regulation of the reclamation process.

Coal strip-mining involves removing layers of soil overlying the coal seam and is thus a more economical means of extracting coal from shallow beds than sub-surface mining.<sup>2</sup> Two methods are usually employed depending on the topography of the area to be stripped.<sup>3</sup> On relatively flat terrain, *area stripping* is utilized. Initially, a cut is made across the area to be mined in the form of a long trench; the overburden is removed by explosives and excavating machines. As each successive cut is made, the spoil is dumped in the previous cut. The final cut is generally left open to fill with water. The result, unless graded, is a series of spoil banks which resemble the ridges of a washboard.<sup>4</sup>

<sup>1</sup>E. PORTER, "IN WILDNESS IS THE PRESERVATION OF THE WORLD" 56 (1967).

<sup>2</sup>U. S. DEP'T. OF INTERIOR, SURFACE MINING AND OUR ENVIRONMENT 33 (1967); Note, *Local Zoning of Strip Mining*, 57 KY. L. J. 740 (1969).

<sup>3</sup>R. Donley, *Some Observations on the Law of the Strip-Mining of Coal*, 11 ROCKY MT. MINERAL L. INST. 124, 125 (1966); ENVIRONMENT, *supra* note 2 at 34.

<sup>4</sup>*Id.*

On a hilly or mountainous terrain, *contour stripping* is employed. The overburden removed is deposited at the outer edge of the cut. More cuts are then made along the hillside. The visual effect is a bench along a hill, bordered on one side by a highwall and on the other by a rim of deposited overburden which forms a slope down the hillside.<sup>5</sup>

The mining operation usually contains four stages: clearing the site to be mined, removing the overburden, extracting the coal and transporting it to market.<sup>6</sup> For effective reclamation, it is necessary to integrate reclamation procedures into these various stages.

In 1967 the Department of the Interior reported that in the United States, prior to 1965, approximately 3.2 million acres of land<sup>7</sup> had been disturbed by surface mining.<sup>8</sup> Coal mining accounted for 41 percent of the total acreage disturbed.<sup>9</sup> As of January 1, 1965, 26,900 acres in Montana had been affected by surface mining, 19,600 of which remained unreclaimed.<sup>10</sup> During the same period, strip mining of coal affected only 1,500 acres of the aforementioned total,<sup>11</sup> but it is estimated that 3.1 million acres of land in eastern Montana contain coal deposits extractable by the stripping method.<sup>12</sup> On the basis of these figures it is apparent that Montana's coal potential has barely been tapped. The statistics also indicate that little reclamation has been achieved in Montana. With the probability of an increase in coal production, the necessity of reclamation requirements is even greater.

## II. ENVIRONMENTAL EFFECTS

Strip mining disrupts the balanced ecosystem in four general ways: (1) pollution of air, (2) pollution of water, (3) disruption of soil cover and vegetation growing thereon, and (4) destruction of the aesthetic value of the landscape.<sup>13</sup>

The contribution of coal strip-mining to air pollution is relatively slight. Dust which is activated by digging and hauling overburden and smoke from any combustion occurring when the coal is exposed to air is minimal and provide irritants which are more annoying than toxic.<sup>14</sup>

<sup>5</sup>*Id.*

<sup>6</sup>ENVIRONMENT, *supra* note 2 at 37.

<sup>7</sup>*Id.* at 39. This figure included only excavation and areas required to dispose of spoil or waste from mining operations. An additional 320,000 acres were affected by access roads and exploration activities.

<sup>8</sup>The term "surface mining" does not refer to coal strip-mining alone; it includes other fuels and minerals extracted by removing overlying strata, e.g., sand, gravel, phosphate, marble, gold and copper.

<sup>9</sup>ENVIRONMENT, *supra* note 2 at 39.

<sup>10</sup>*Id.* at 111, app. I, table 2.

<sup>11</sup>*Id.* at 110, app. I, table 1.

<sup>12</sup>1969 GOVERNOR'S CONFERENCE ON MINED LAND RECLAMATION AND MONTANA MINING LAW, PROCEEDINGS AND RECOMMENDATIONS 37 (June 1970).

<sup>13</sup>ENVIRONMENT, *supra* note 2 at 56; E. Clyde, *Legal Problems Imposed by Requirements of Restoration and Beautification of Mining Properties*, 13 ROCNY MT. MINERAL L. INST. 191, 211 (1967).

<sup>14</sup>ENVIRONMENT, *supra* note 2 at 56, 68; C. Boley & W. Kube, *Western Coals: Some Problems of Reclamation and Restoration*, WESTERN RESOURCES PAPERS 195 (Vol. 8, 1966).

Water, however, is highly affected by the stripping operation. In removing overburden, certain sulphur-bearing minerals are exposed.<sup>15</sup> While Montana's lignite deposits are generally low in sulphur content, the sulphur factor increases in other types of coal.<sup>16</sup> When exposed to air and water, these sulphur-bearing minerals oxidize, forming sulfuric acid which may enter streams via surface runoff or ground water. Streams with high-acidity in turn upset the balance of animal life and vegetation in the area dependent on the water source.<sup>17</sup> The exposure of acidic minerals also poses problems in later attempts to revegetate spoil banks.<sup>18</sup>

Since the topsoil and vegetative cover is stripped from the mined area and left in conglomerated heaps, resulting spoil banks and stripped land areas lack the protective timber and other plant growth which regulates surface runoff. Consequently, the area loses most of its immunity to erosion from water and wind. In areas of high precipitation, the sediment yield increases, clogging streams and endangering the area by possible landslides.<sup>19</sup>

Research conducted in Kentucky indicated that [sediment] yields from coal strip-mined lands can be as much as 1,000 times that of undisturbed forest. During a four-year period, the annual average [sediment yield] from Kentucky spoil banks was 27,000 tons per square mile while it was estimated at only 25 tons per square mile from forested areas.<sup>20</sup>

Although erosion is directly related to the amount of precipitation, these problems will still exist to some degree in semi-arid regions.<sup>21</sup>

Perhaps the most obvious detriment caused by coal strip-mining is the destruction of the natural landscape, leaving instead eyesores of spoil banks, open cuts and access roads. As the timber and other plant life thriving on the topsoil is cleared in preparation for mining, wildlife dependent on the area for its habitat and food supply are also displaced. The aesthetic beauty of the surrounding landscape is diminished by the despoilation of one small area.<sup>22</sup> It is probably the aesthetic quality more than any other factor that brings the reclamation problem to public attention. After decades of watching scenic areas disappear

<sup>15</sup>ENVIRONMENT, *supra* note 2 at 56, 63. *Legal Problems, supra* note 13 at 199.

<sup>16</sup>Sulphur content of U.S. coals varies from 0.2 percent to 7.0 percent. Approximately 69 percent of the Montana deposits contain 0.7 percent or less of sulphur. Western Kentucky coals average about 3 percent sulphur or more while 91 percent of West Virginia's reserves have a sulphur content of 3 percent or less. U.S. BUREAU OF MINES, DEP'T. OF INTERIOR, CIRCULAR No. 8312, SULPHUR CONTENT OF UNITED STATES COALS 1, 3, 4 (1966).

<sup>17</sup>ENVIRONMENT, *supra* note 2 at 63.

<sup>18</sup>*Observations, supra* note 3 at 127.

<sup>19</sup>ENVIRONMENT, *supra* note 17.

<sup>20</sup>*Id.*

<sup>21</sup>"At some idle surface mines in arid country, the effects of wind and water erosion are still evident on steep spoil banks that were abandoned many years ago." ENVIRONMENT, *supra* note 2 at 63.

<sup>22</sup>*Proceedings of the White House Conference on Natural Beauty, Beauty for America*, ch. 12 (1965); ENVIRONMENT, *supra* note 2 at 52, 56, 63; *The Missoulian*, Nov. 19, 1970 at 11, col. 1.

beneath the giant teeth of industry, many states belatedly recognized that abatement of barren landscapes could only be accomplished by placing specific obligations on industry to restore what they have disrupted. The advancement of legislation oriented to solving environmental problems has been slow, but in some states controls have been strengthened by creating centralized administration of the reclamation process, penalizing operators who fail to reclaim and specifying reclamation requirements.

### III. PRESENT RECLAMATION REQUIREMENTS—COMPARISONS

Reclamation legislation falls into two categories: basic reclamation emphasizes preventive measures which will reduce the detrimental side-effects of strip mining, such as erosion and pollution; rehabilitation extends the basic reclamation process further to restore the stripped area to some productive use, such as recreational areas, agriculture use or wildlife refuges.<sup>23</sup> In prelude to the following analysis of the basic provisions in some states, it should be noted that the legislation of Kentucky and West Virginia are generally concerned with basic reclamation while Montana, Wyoming and North Dakota appear to speak to rehabilitative programs.<sup>24</sup>

#### A. KENTUCKY AND WEST VIRGINIA

Since Kentucky and West Virginia rank among the top coal-producing states in the nation,<sup>25</sup> their legislation has formed a basis on which other states have built their restoration programs. By 1965, the acreage disturbed by the strip-mining of coal in Kentucky totaled 119,200 while in West Virginia, 192,000 acres had been affected.<sup>26</sup> Both states have created a Division of Reclamation within their respective Departments of Natural Resources to administer the reclamation of strip-mined lands.<sup>27</sup> An operator must obtain a permit to mine in either state,<sup>28</sup> which is conditioned upon submission of reclamation plans with the application for the permit<sup>29</sup> in addition to payment of fees and performance bonds.<sup>30</sup> The fees and bonds are deposited in a special reclamation fund.<sup>31</sup>

<sup>23</sup>ENVIRONMENT, *supra* note 2 at 81.

<sup>24</sup>Compare KENTUCKY REVISED STATUTES § 350.202 (1969) [hereinafter cited as KRS] and WEST VIRGINIA CODE § 20-6-1 (Cum.Supp. 1970) [hereinafter cited as W. VA. CODE] with WYOMING STATUTES § 30-96.4 (1957) (Supp. 1969) [hereinafter cited as W.S. 1957]; NORTH DAKOTA CENTURY CODE § 38-14-01 (Supp. 1969) [hereinafter cited as ND]; and REVISED CODES OF MONTANA §§ 50-1001, 1005 (1947) (Supp. 1970) [hereinafter cited as R.C.M.1947].

<sup>25</sup>Observations, *supra* note 3 at 123, 124; ENVIRONMENT *supra* note 2 at 115, app. I, table 11.

<sup>26</sup>ENVIRONMENT, *supra* note 2 at 110, app. I, table 1.

<sup>27</sup>KRS § CEJ.JEJ; W.VA. CODE § 20-6-3.

<sup>28</sup>KRS § 350.060(1); W.VA. CODE § 20-6-8.

<sup>29</sup>KRS §§ 350.060(6), 350.090; W.VA. CODE § 20-6-9.

<sup>30</sup>KRS § 350.060(7); W.VA. CODE §§ 20-6-8, 20-6-16.

<sup>31</sup>KRS § 350.140; W.VA. CODE § 20-6-8.

In Kentucky, the application fee is fifty dollars plus twenty-five dollars per acre disturbed;<sup>32</sup> the performance bond ranges from one hundred to five hundred dollars per acre, with a minimum bond of two thousand dollars.<sup>33</sup> West Virginia requires an initial application fee of one hundred dollars which is reduced to fifty dollars on renewal<sup>34</sup> plus a performance bond similar to Kentucky's with a minimum of three thousand dollars.<sup>35</sup> In both states the Division has the discretion to deny an application to strip mine in an area which in its judgment could not be properly reclaimed or may prove a hazard to public health or the aesthetic value of the landscape.<sup>36</sup>

Mandatory reclamation procedures include covering the exposed coal seam with four feet of non-toxic material, sealing off acid water, burying all acid-producing and other toxic materials, and preventing or treating surface runoff.<sup>37</sup> According to the method of strip-mining utilized, certain techniques of backfilling and grading are required<sup>38</sup> followed by revegetation in conformance with the proposed reclamation plan.<sup>39</sup> Revegetation may be deferred if investigation proves that the soil is presently unsuitable for planting.<sup>40</sup> After each stage of reclamation, that is, backfilling, grading and providing vegetative cover, a

<sup>32</sup>KRS § 350.060(7).

<sup>33</sup>*Id.* which states in part: In determining the amount of the bond within the above limits, the commission shall take into consideration the character and nature of the overburden, the future suitable use of the land involved and the cost of backfilling, grading and reclamation to be required. In a particular instance where the circumstances are such as to warrant an exception, the Commission, in its discretion, may reduce the amount of the bond for a particular operation to less than the required minimum.

<sup>34</sup>W.VA. CODE § 20-6-8.

<sup>35</sup>*Id.* § 20-6-16.

<sup>36</sup>KRS § 350.085; W.VA. CODE § 20-6-11.

<sup>37</sup>KRS § 350.090; W.VA. CODE § 20-6-14.

<sup>38</sup>W.VA. CODE § 20-6-13; KRS § 350.093 which states in part: (1) On lands where the method of operation does not produce a bench (area strip mining), complete backfilling shall be required, beginning at or beyond the top of the highwall and sloped to the toe of the spoil bank at a maximum angle not to exceed the approximate original contour of the land with no depressions to accumulate water. Such backfilling shall eliminate all highwalls and spoil peaks. Whenever directed by the division, the operator shall construct in the final grading, such diversion ditches or terraces as will control the water runoff on long uninterrupted slopes. Additional restoration work may be required by the division according to regulations adopted by the commission.

(2) On lands where the method of operation produces a bench (contour strip mining), terrace backfilling shall be required and performed as follows:

(a) All highwalls must be reduced or backfilled. The steepest slope of the reduced or backfilled highwall and of the outer slope of the fill bench shall be no greater than forty-five degrees from the horizontal; provided however, if the highwall is composed of solid rock and sufficient soil is not available to backfill or cover the solid rock suitable to establish vegetative cover, the commission, by regulation, may make modifications to the requirements of this section;

(b) The table portion of the restored area shall be a terrace with a slope toward the reduced highwall of not greater than ten degrees;

(c) The restored area shall have a minimum depth of four feet of fill over the pit from which the coal has been removed;

(d) There shall be no depressions to accumulate water but lateral drainage ditches connecting to natural or constructed waterways shall be constructed whenever directed by the division. The requirements in West Virginia are substantially the same.

<sup>39</sup>KRS § 350.095; W.VA. CODE § 20-6-10.

<sup>40</sup>KRS § 350.100(2); W.VA. CODE § 20-6-15.

portion of the bond set aside for that stage is refunded.<sup>41</sup> Reclamation of the stripped area must generally be completed within one year after expiration of the permit.<sup>42</sup>

Provisions have been made in both states with regard to reclamation of those lands mined prior to the enactment of restoration requirements. In Kentucky, the state may acquire those "orphaned land areas" which operators have left bereft and reclaim them with state and federal funds.<sup>43</sup> However, no land may be acquired to which a bond is attached,<sup>44</sup> thus it is necessary for a bond to be forfeited on land presently mined and not restored before the state may intervene and reclaim. West Virginia has a unique approach to this problem. Instead of placing the burden on taxpayers to reclaim orphaned land, it requires all operators to pay a special reclamation fee of thirty dollars per acre before they may engage in strip-mining;<sup>45</sup> these monies are applied solely to the reclamation and rehabilitation of derelict lands by the director of natural resources.<sup>46</sup>

The requirements of Kentucky and West Virginia reveal a trend in those states where strip-mining is a major industry to leave less of the determination of reclamation procedures to the discretion of the mine operators. Both states insist on the commencement of the reclamation process before the mining operation has ceased; backfilling and grading, for instance, are required to be completed within specified time limits before the machinery is removed from the stripped area.<sup>47</sup> This not only insures the completion of these processes but reduces the cost to the speaker.<sup>48</sup>

Since contour stripping is the primary method of coal strip-mining in these states,<sup>49</sup> many opponents of more stringent reclamation laws discount comparisons of reclamation problems in the Appalachian regions with portents of what may occur in regions where area stripping is employed and strip-mining of coal is minimal as in Montana. However, it is neither necessary nor practical to await development of erosion and pollution problems, regardless of the method of mining utilized, before instituting basic reclamation procedures which could have prevented the problems initially.

<sup>41</sup>KRS §§ 350.093(6), 350.110; W.VA. CODE §§ 20-6-10, 20-6-15.

<sup>42</sup>KRS § 350.100(1); W.VA. CODE § 20-6-12. Failure to comply with reclamation requirements within the designated time limits results in revocation of the permit and forfeiture of the bond. No subsequent permit will be issued until the operator who forfeited has paid the bond amount as well as any additional sum deemed necessary to adequately reclaim the area. KRS § 350.130; W.VA. CODE §§ 20-6-25, 20-6-8.

<sup>43</sup>KRS §§ 350.152, 350.153.

<sup>44</sup>*Id.* § 350.158.

<sup>45</sup>W.VA. CODE § 20-6-17.

<sup>46</sup>*Id.*

<sup>47</sup>KRS § 350.093(4); W.VA. CODE § 20-6-10.

<sup>48</sup>ENVIRONMENT, *supra* note 2 at 37, 39.

<sup>49</sup>*Id.* at 34.

## B. WYOMING, NORTH DAKOTA AND MONTANA

Wyoming, North Dakota and Montana along with six other western states contain over 53 percent of the nation's coal reserves,<sup>50</sup> however, the strip-mining of coal in these states is embryonic compared to the development of this industry in Kentucky and West Virginia.<sup>61</sup> Thus the legislation of these states provide marked contrast to their eastern counterparts for it usually lacks specificity as to what reclamation requirements must be fulfilled by the operator.

In Wyoming, an operator pays a fifty dollar fee<sup>52</sup> and performance bond<sup>53</sup> of an amount determined by the commissioner of public lands who administers the reclamation act.<sup>54</sup> The nature of the restoration program is left almost entirely to the discretion of the mine operator who need only submit an annual report stating what steps have been taken to reclaim the mined area.<sup>55</sup> The only mandatory requirement is that peaks and ridges be graded to a rolling topography.<sup>56</sup> Only "if practicable" must the operator seal the exposed coal seam with at least two feet of cover and revegetate.<sup>57</sup> If he fails to comply, there is no specific provision made for penalties. There is no minimum bond required nor is a specific amount set out to be collected in case of forfeiture. Furthermore, Wyoming's reclamation statute excuses any operator who has completed strip mining on an area prior to the effective date of the act from any obligation to reclaim these orphaned lands,<sup>58</sup> but omits any provisions as to how these areas will be restored.

In 1967 the Montana legislature set forth the standard of "useful production" for reclamation of those lands on which strip-mining of coal had been conducted.<sup>59</sup> The act incorporating this standard provides that the Montana Bureau of Mines and Geology is authorized to enter into contracts with those operators presently strip-mining coal in the state to provide for reclamation of those lands affected.<sup>60</sup> By entering into such a contract, any strip coal mine operator may annually receive credit against his license tax in an amount equal to one-half of the reasonable value of the reclamation work done in the previous year.<sup>61</sup>

<sup>50</sup>G. Sullivan, *Land Reclamation Problems and Their Effect on the Nation's Coal Industry*, WESTERN RESOURCES PAPERS 185 (Vol. 8, 1966). Of the coal resources in the nation, Wyoming contains 7 percent of the total; North Dakota contains 20.5 percent and Montana contains 12.5 percent. U.S. GEOLOGICAL SURVEY AND BUREAU OF MINES, DEP'T. OF INTERIOR, MINERAL POTENTIAL OF EASTERN MONTANA—A BASIS FOR FUTURE GROWTH 52 (prepared at the request of Senator Mike Mansfield, 1964).

<sup>51</sup>ENVIRONMENT, *supra* note 2 at 115, app. I, table 11.

<sup>52</sup>W.S. 1957, § 30-96.5(7).

<sup>53</sup>*Id.* § 30-96.8.

<sup>54</sup>*Id.* § 30-96.10.

<sup>55</sup>*Id.* § 30-96.6(e).

<sup>56</sup>*Id.* § 30-96.6(a).

<sup>57</sup>*Id.* § 30-96.6(e), (d).

<sup>58</sup>*Id.* § 30-96.4.

<sup>59</sup>R.C.M. 1947, §§ 50-1001 to -1004.

<sup>60</sup>*Id.* § 50-1002.

<sup>61</sup>*Id.* § 50-1004.

Such reasonable value is determined by the Bureau which inspects each operation annually and reports its findings to the state board of equalization.<sup>62</sup>

The term "reclamation" is not defined specifically by the 1967 act, but its statement of policy encourages reclamation of stripped land to avoid soil and stream pollution by returning the land to useful production.<sup>63</sup> This is the only mention made of any standard for reclamation but what constitutes useful production is not defined. Moreover, the major portion of the statement of policy is devoted to a descriptive analysis of the coal production potential of this state and the legislature's determination to implement such production as soon as possible to enhance the economic welfare.<sup>64</sup> The act omits any specifications of reclamation standards to be met by mine operators in their contracts and by such omission, leaves the determination of such standards to the Bureau. Furthermore, no provision is made for penalizing operators who fail to reclaim.

At best, the 1967 act can only be defined as a step-forward or an indication of interest by the state in acknowledging that a reclamation problem does exist in Montana. Its practical effect was merely codification of existing practice. Apparently the glaring deficiencies of the act prompted further legislation from the 1969 session.<sup>65</sup> While the 1969 act carries over the standard of useful production, it defines productive use to include reforestation, revegetation for grazing or crop-harvest, wildlife refuges, lakes or ponds, and recreational or industrial sites.<sup>66</sup> From its expression of concern over improving or maintaining the tax base and safeguarding the health and welfare of the people as well as the aesthetic value of the land, contrary to the 1967 act, the latest statement of policy seems more environmentally-oriented.<sup>67</sup>

Under the 1969 enactment, any operator who engages in strip-mining where the overburden exceeds ten feet in depth<sup>68</sup> has the option of either contracting for the reclamation of the area disturbed or obtaining a permit to mine from the Bureau.<sup>69</sup> To obtain a permit, the operator must submit a bond which attaches to the acreage affected and payment ranging from a \$25 fee and \$7.50 per acre for areas of ten acres or less to a \$275 fee and \$2.50 per acre for areas exceeding fifty acres.<sup>70</sup> These

<sup>62</sup>*Id.*

<sup>63</sup>*Id.* § 50-1001.

<sup>64</sup>*Id.*

<sup>65</sup>*Id.* §§ 50-1005 to -1007.

<sup>66</sup>*Id.* § 50-1005.

<sup>67</sup>*Id.*

<sup>68</sup>Three-fourths of the coal deposits in Montana lie in beds 120-1,000 feet below the surface. U. S. GEOLOGICAL SURVEY AND BUREAU OF MINES, *supra* note 50 at 49.

<sup>69</sup>R.C.M. 1947, § 50-1007.

<sup>70</sup>*Id.* § 50-1008(2) which states in part: For an area of ten (10) acres or less to be affected during the permit term, a fee of twenty-five dollars (\$25) and an amount equal to the amount of seven dollars fifty cents (\$7.50) multiplied by the number of acres to be affected between two (2) and ten (10) acres, inclusive; for an area

fees are deposited in the general fund in the state treasury.<sup>71</sup> The permit can be renewed annually without payment of any additional fees.<sup>72</sup>

Under the permit system, an operator is required to submit a reclamation plan not later than the first day of December following the first year of the permit term;<sup>73</sup> this plan designates the productive use to which the land shall be reclaimed. The operator must grade all peaks and ridges to the original grade or one in conformance with the use designated in his plan<sup>74</sup> as well as revegetate the disturbed surface in accordance with the use proposed.<sup>75</sup> Reclamation must be completed within three years of the expiration of the permit, with an allowable extension not to exceed five years.<sup>76</sup> However, the 1969 act deems an area reclaimed after the second seeding or planting, whether the seeding is successful or not.<sup>77</sup> If the operator fails to reclaim the land affected by his strip-mining, he forfeits \$200 per acre of the bond deposited and upon forfeiture, is released from any further obligation to reclaim the affected area.<sup>78</sup> When forfeiture occurs, the Bureau is empowered with the authority to reclaim the affected area.<sup>79</sup>

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of more than ten (10) acres but not more than fifty (50) acres to be affected during the permit term, a fee of one hundred dollars (\$100) and an amount equal to the amount of three dollars fifty cents (\$3.50) multiplied by the number of acres to be affected between eleven (11) and fifty (50) acres, inclusive; for an area of more than fifty (50) acres to be affected during the permit term, a fee of two hundred seventy-five dollars (\$275) and an amount equal to the amount of two dollars fifty cents (\$2.50) multiplied by the number of acres to be affected in excess of fifty (50) acres. Upon the receipt of the application, a bond or security and all fees due from the operator, the commission shall issue a permit to the applicant which shall entitle him during the permit term to engage in surface coal mining on the land therein described.

<sup>71</sup>*Id.* § 50-1012.

<sup>72</sup>*Id.* § 50-1008(5).

<sup>73</sup>*Id.* § 50-1009(8).

<sup>74</sup>*Id.* § 50-1009(1)-(5) which states:

(1) All ridges and peaks of land affected by surface coal mining within six hundred sixty (660) feet of existing right of way and which are visible from any public road maintained with public funds, public building or cemetery that is being maintained in a usable condition, shall be graded to a rolling topography traversable by machines necessary for maintenance in accordance with planned use, with slopes having a grade no greater than the original grade of the overburden of that area prior to mining.

(2) The operator shall construct earth dams, where lakes may be formed, in accordance with sound engineering practices if necessary to impound water, provided the formation of the lake or ponds will not interfere with underground or other mining operations.

(3) On all affected land which is to be afforested the operator shall construct reasonable access roads through the area.

(4) On all affected land which is to be seeded to pasture the operator shall wherever reasonable stake off all peaks or ridges to a minimum width of thirty-five (35) feet at the top.

(5) On all affected land which is to be used for crops including hay, the operator shall grade peaks and ridges and fill valleys in such manner that the reclaimed land will not have grades greater than the original grades of the overburden of the area prior to the coal-mining operation.

<sup>75</sup>*Id.* § 50-1009(9).

<sup>76</sup>*Id.* § 50-1009(10).

<sup>77</sup>No planting is necessary where pools or lakes may be formed by rainfall or surface runoff. *Id.*

<sup>78</sup>*Id.* § 50-1011(5).

<sup>79</sup>*Id.* § 50-1011(6).

North Dakota's requirements are substantially the same as the 1969 reclamation act of Montana,<sup>80</sup> except in two areas. The permit system is used exclusively<sup>81</sup> and its reclamation act is administered by the state mine inspector<sup>82</sup> under the auspices of the state public service commission.<sup>83</sup>

#### IV. PROPOSED REVISIONS FOR MONTANA

The preceding discussion illustrates the diverse approaches to reclamation and poses problem areas to which states are still seeking practical solutions. Who should administer the reclamation process to insure compliance by industry? What method of regulation of strip mining best insures the reclamation of land? What is the minimum amount that should be required in performance bonds to achieve adequate reclamation? Are penalties on forfeiture high enough to encourage reclamation by the operators instead of the state?

##### A. VOLUNTARY CONTRACT V. PERMIT

Superficially it appears that the specific requirements set out in Montana's 1969 reclamation act indicates a maturation of legislative minds regarding the needs for insuring restoration of strip-mined lands; however, that act failed to rectify the most patent loophole in the 1967 legislation, that is, permitting reclamation on the basis of a contract without setting standards that must be included in the contract. Out of all the state legislation previously discussed, Montana stands strikingly alone in this permissive concept. It is of little surprise that of all the strip-mining operations presently being conducted in this state, none of the operators chose to employ the permit method.<sup>84</sup> The numerous weaknesses of the contract system are exemplified by the following provisions extracted from an agreement presently in effect in Montana:<sup>85</sup>

(a) a plan of reclamation must be submitted within twelve months after mining has commenced but designation of the productive use is entirely in the operator's discretion based on technical and scientific knowledge available. However, adoption of the plan is based on the value of the land surface prior to mining, the cost of reclamation and the reasonable value of the surface after reclamation;

<sup>80</sup>N.D. §§ 38-14-01 to -14-13.

<sup>81</sup>*Id.* § 38-14-04.

<sup>82</sup>*Id.* § 38-14-11.

<sup>83</sup>*Id.* § 38-14-02(12).

<sup>84</sup>MONT. LAW FORUM 3 (1970). "The state now has weaker voluntary contract [sic] with four coal companies . . . They are: Knife River Coal Co., Peabody Coal Co., Western Energy Co., and Rosebud Coal Sales Co." *The Missoulian*, Dec. 16, 1970 at 16, col. 6.

<sup>85</sup>The material included in the following paragraphs (a)-(g) was obtained from a contract entitled "Surface Coal Mine Land Reclamation Agreement." To maintain anonymity, the mine operators are not identified. Access to these contracts is not readily available unless one is located in the Butte area. A Bureau spokesman stated that these contracts are open to public inspection at the Bureau of Mines and Geology; however, no copies would be sent out if requested. Interview with Robert Matson, Bureau of Mines and Geology, by telephone, December 21, 1970.

(b) peaks and ridges were to be graded to a width of fifteen feet at the top;

(c) coal seams were to be covered with at least two feet of earth or spoil material unless already covered by two feet of water;

(d) in final cuts and other depressed areas where water could collect, no backfilling and revegetation was necessary;

(e) planting could be held in abeyance for ten years to allow for natural weathering and leaching of toxic material and, if at the end of that time, plant growth was still inhibited, then the area would be considered unplantable;

(f) a performance bond of approximately two hundred dollars per acre (exact amount unknown) was required; and

(g) reclamation was to be completed within three years after the adoption of the reclamation plan. This contract was subject to termination by mutual consent or by either party upon giving six months notice. Any amendments to the agreement had to be approved by both parties.

It is evident that such agreements do not provide the state with authority to prohibit or prevent detrimental effects from occurring or permit the state to insert new reclamation procedures into these operations without the agreement of the operators. Furthermore, the agreement makes no provision for its enforcement, thus necessitating court action by the Bureau.

Effort has been made within the last year to alleviate the leniency of these contract terms by creating a model contract form which more adequately insures restoration of the strip-mined area.<sup>86</sup> In the most recent draft the contract incorporates many of the reclamation requirements present in the permit sections of the 1969 statute:

(a) before mining commences the operator must submit a reclamation plan designating the productive use to which the land shall be restored to the Bureau which must be approved or disapproved within sixty days of its receipt;<sup>87</sup>

(b) the Bureau will work in conjunction with an Advisory Committee composed of a member from the following: Soil Conservation Committee, Fish and Game Department, Office of State Forester, Department of State Land and Investments, Water Resources Board, Department of Planning and Economic Development, and the Department of Health;<sup>88</sup>

<sup>86</sup>Montana Council on Natural Resources, Surface Coal Mine Land Reclamation Contract, Draft Copy (October 30, 1970); see also *The Missoulian*, Dec. 16, 1970 at 16, col. 6.

<sup>87</sup>Model Contract, *supra* note 86 at Sec. I.

<sup>88</sup>*Id.* at Sec. Land Definitions (c).

(c) measures which prevent erosion and pollution require an operator to provide drainage controls, cover the coal seam, stockpile removed soil and replace it at a depth sufficient for plant growth on slopes of 2:1 or less, grade spoil banks to a minimum width of twenty-five feet, unless otherwise specified, and remove or bury waste material;<sup>89</sup>

(d) vegetative cover in accordance with the land use designated need only be provided "to the extent reasonable and practicable" and only two seedings are required;<sup>90</sup>

(e) payment of a performance bond or a reasonable alternative in a minimum amount of two hundred dollars per acre disturbed;<sup>91</sup> and

(f) reclamation is to be concurrent with mining operations "as feasible" and completed within a "specified reasonable length of time."<sup>92</sup> The latter term is not defined. The contract may still be terminated by mutual consent or by either party giving six months notice if all the "obligations arising from mining operations already conducted have been performed."<sup>93</sup>

While providing slight improvement over previous agreements, the deficiencies of the proposed model contract expose the fallacies of the contract system. Ambiguous terms fail to bind the operator to complete reclamation within a specified, predetermined time, to revegetate at all if some determination of impracticality is made, or to conform, if he refuses, to reclamation procedures that may be deemed necessary in the future. In order for the state to maintain its control over strip-mining reclamation and to assure the public that adequate restoration will be accomplished, it is mandatory that the voluntary contract system be abolished. Testimony at a meeting of the Governor's Conference Committee on Mined-Land Reclamation emphasized the necessity for this action<sup>94</sup> but apparently failed to make any impact on the Committee whose later recommendation was to retain the contract system and repeal certain provisions of the 1969 statute pertaining to the permit system.<sup>95</sup>

## B. ADMINISTRATION

As noted earlier, administration of reclamation procedures in the various states has been entrusted to various entities: specially-created divisions of reclamation, the commissioner of public lands, the state mine inspector, and in Montana, the Bureau of Mines and Geology. The obvious fault in allowing the Bureau this power is that it is basically industry-

<sup>89</sup>*Id.* at Sec. II (c)-(f).

<sup>90</sup>*Id.* at Sec. II (b). But see Sec. II (k).

<sup>91</sup>*Id.* at Sec. VI.

<sup>92</sup>*Id.* at Sec. II (1).

<sup>93</sup>*Id.* at Sec. IX. Upon failure to complete reclamation within the time specified, the Bureau may enjoin further mining, sue for damages for breach of contract, for payment of performance bond, or for both. Sec. III.

<sup>94</sup>CONFERENCE, *supra* note 12 at 4.

<sup>95</sup>*Id.* Recommendation V at 60.

oriented; there is little, if any, check and balance provided.<sup>96</sup> Discussion on removing the administrative power from the Bureau at this point may be moot in light of the re-organization of state agencies that will take place; however, it is essential to recognize what type of administrator is necessary.

In West Virginia and Kentucky, the Division of Reclamation operates under the auspices of the Commission on Reclamation, composed of the director of natural resources, the chief of the division of reclamation and the director of the department of mines.<sup>97</sup> This would be a workable solution for the administration dilemma in Montana. The Governor's Conference Committee initially recommended that the administration should be placed in the state land commission;<sup>98</sup> however, it later emphasized the necessity of a commission which would be free from partisan political pressures and suggested that a qualified expert be hired by the land board on a tract basis, or as an alternative, that a professor of mined-land reclamation be established at Montana State University who could also serve as the administrator.<sup>99</sup> Most recent releases indicate the Committee has vetoed the latter proposal and the choice now lies between the water resources board or a new board.<sup>100</sup>

#### C. ADEQUACY OF PERFORMANCE BONDS

The most controversial concern in the reclamation issue is determination of the basic costs of restoration of coal strip-mined areas and where the burden of these costs should be allocated. Industry-oriented groups claim that making the miner pay the total costs discourages the attraction of industry into the state thus reducing state revenues; taxpayers, on the other hand, are outraged if reclamation costs are passed on to them in the form of increased taxes. Most of the uproar stems from inadequate cost data analysis as to what is financially necessary to attain various reclamation objectives. In order to fill the statistical void, the federal government has been studying reclamation programs throughout the nation.<sup>101</sup> In 1967, the Department of the Interior estimated that the cost of a basic reclamation program included approximately \$100 to \$200 per acre for revegetation and \$100 per acre for minimum grading of area stripping to confine silt and sediment and cover toxic materials.<sup>102</sup> At the minimum then it costs approximately \$200 per acre merely to control erosion and pollution; however, to develop a stripped-area to a productive use level, the expenditures increase.

Rehabilitation of stripped areas to cropland use requires at least an estimated \$600 per acre; for rangeland, \$500 per acre; for recreational

<sup>96</sup>*Id.* at 4.

<sup>97</sup>W.VA.CODE § 20-6-6; KRS § 350.024.

<sup>98</sup>CONFERENCE, *supra* note 12, recommendation V at 60.

<sup>99</sup>The Missoulian, Oct. 6, 1970 at 16, col. 1.

<sup>100</sup>The Missoulian, Dec. 20, 1970 at 18, col. 1.

<sup>101</sup>ENVIRONMENT, *supra* note 2 at 82.

<sup>102</sup>*Id.*

purposes, close to \$700 per acre; and for wildlife habitats, \$400 per acre.<sup>103</sup> These figures indicate that in Montana, where the legislative policy directs reclamation in rehabilitative terms, restoration costs of its 3.1 million acres of potential coal reserves reach staggering proportions.<sup>104</sup>

To place this seemingly onerous burden on industry alone reinforces its lament that it will be reclaimed out of business,<sup>105</sup> but the latter survey also indicates that in 1960 the approximate reclamation costs per ton of lignite coal mined by stripping in Montana ranged from .013 dollars to expend \$300 an acre for reclamation to .034 dollars for \$800 an acre.<sup>106</sup> Therefore, reclamation even to the luxurious point of providing a productive use seems achievable at minimal costs to industry. A British industrialist noted that after meeting the extensive restoration requirements in England, the average cost of this reclamation was one dollar per ton of coal mined; but even after meeting this cost, his company managed to make a profit of two dollars per ton on strip-mined coal.<sup>107</sup>

Montana presently recovers only \$200 per acre on bond forfeiture under the model contract form and the 1969 permit system.<sup>108</sup> This amount affords only minimal basic reclamation; it would not finance most rehabilitative programs. If the state legislature intends to accomplish the reclamation ideals declared in its statements of policy, bond penalties must be increased.

#### IV. CONCLUSION

Certainly there are no quick, simple solutions to the reclamation problems in Montana; however, this comment dispenses inescapable conclusions that can no longer be ignored. Although the Appalachian situation has not occurred in Montana, the devastation of that area can be attributed in part to political hedging of state governments which acted belatedly from hindsight rather than foresight.

Legislation must be initiated which corrects the ills of past enactments. Regulation of the reclamation process must be strengthened before acreage disturbed by strip-mining coal and other minerals and fuels reaches insurmountable proportions. Adequate reclamation cannot be accomplished by requiring revegetation "to the extent practicable

<sup>103</sup>*Id.* at 84.

<sup>104</sup>Reclamation costs in the Fort Union area are estimated in the range of \$300 to \$800 per acre, broken down as follows: (1) leveling to a rolling topography, \$200; (2) topsoiling, \$150 to \$400; and (3) revegetation, \$50 to \$200. CONFERENCE, *supra* note 12 at 28.

<sup>105</sup>For industry's viewpoint, see T. Gwynn, *The Effect of Strip Mining on the Human Ecosystem*, Dec. 12, 1969 (unpublished public relations report of Montana-Dakota Utilities Co.).

<sup>106</sup>The precise breakdown is as follows: \$.013 to expend \$300/acre; \$.017 for \$400/acre; \$.021 for \$500/acre; \$.026 for \$600/acre; \$.030 for \$700 and \$.034 for 800/ acre. ENVIRONMENT *supra* note 2 at 114, app. I, table 7.

<sup>107</sup>*Proceedings of the White House Conference on Natural Beauty*, *supra* note 22 at 326.

<sup>108</sup>Model Contract, *supra* note 9, Vol. 9, No. 1, 1947, § 50-1011(5).

and reasonable" and then relieving the operator of further obligations after the second seeding; by allowing an operator to place the burden of restoration on the state by forfeiting a bond of a mere two hundred dollars per acre; and by allowing reclamation to be a product of the bargaining table.

The permissiveness of the contract system cannot be tolerated. To insure complete regulation of the reclamation process, operators must be required to obtain permits which place specific obligations on them to complete designated restoration requirements. Administration must be placed in an entity that is not a mere extension of the mining industry. As long as provisions for hearings and appeal exist, industry has the opportunity to state its position. In designating an administrator, consideration should be given to the technical expertise necessary to plan all aspects of reclamation programs. Funds must be allocated to promote research in accomplishing successful revegetation, land planning and cost analysis. The amounts of bond forfeitures must be increased to secure adequate financing of mined-land restoration. If orphaned land areas exist in Montana, monies to reclaim these areas should be a cost of industry under provisions similar to West Virginia.

While the earth lies victim to public apathy and abatement of pollution is a political foil, more landscape will disappear and, perhaps, irreparable injury to our environment will occur. If this is the cost of industrial-economic progress, it will be borne by future generations who may someday echo Thoreau's lament.

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