Chapter 4

Western Surface Mine Regulation

Contents

List of Tables

List of Figures

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INTRODUCTION

Western surface coal mining is a highly regulated activity, especially when the surface or coal is federally owned. From a company's exploration for coal reserves, through securing the rights to develop those reserves, to mining and reclamation, the company must obtain a wide variety of permits and must ensure that its activities comply with the conditions of those permits as well as with a host of other Federal, State, and local laws and regulations. Moreover, many of the Federal laws governing coal development provide for State permitting programs consistent with the Federal program, resulting in permit application review at both the Federal and State level, The scope of Federal agency involvement in this process is much broader in the Western United States than in other parts of the country because of the Federal Government's extensive ownership of both surface and mineral resources.

At each step in Western coal development and its regulation, existing data are analyzed in increasing detail and supplemented by more directed data-gathering efforts. This is possible because the amount of land being evaluated at each successive stage in the process becomes progressively smaller as the land moves closer to leasing and development. Prior to development, the ultimate level of detail in data collection and analysis is in support of a mining and reclamation plan and permit application under the Surface Mining Control and Reclamation Act of 1977 (SMCRA). After development, emphasis shifts to the gathering and analysis of monitoring data to ensure compliance with the plan and permit, and to demonstrate reclamation success.

This chapter describes the Federal and State regulatory process for Western coal development, from leasing through reclamation and bond release (see table 4-1). in describing that process, the chapter focuses on data and analysis requirements as an introduction to chapters 5 and ***6,*** and on performance and design standards as an introduction to chapters 7 and 8. While the greatest emphasis is placed on the coal leasing program and on the provisions of SMCRA, other related programs are described, including the National Environmental Policy Act (N EPA), and the Clean Air and Water Acts. A wide range of other Federal laws that could affect surface coal mining and reclamation in the West are listed at the end of the section on permitting and regulation; State laws are summarized in tables 4-3 through 4-7 at the end of the chapter.

THE COAL LEASING PROGRAM'

Because the Federal Government owns 50 to 60 percent of the coal reserves in the six major Federal coal States, much Western coal must be leased from the Bureau of Land Management (BLM; or, in a few cases, the U.S. Forest Service) before it can be mined. Of the 76 active surface coal mines in the five State study region in 1983, 52 (roughly 70 percent) incorporated Federal coal. Under the Federal Coal Leasing Amendments Act of 1976 (FCLAA), BLM holds competitive lease sales for new production tracts on a schedule and in amounts determined by the market demand for coal. Companies also may request lease sales to be scheduled for bypass tracts (a lease needed to prevent leaving "islands" of unmined coal) and maintenance tracts (needed to continue operations at an existing mine).

A company begins planning for coal leasing long before the sale actually is held by gathering data about the coal and other resources in a particular area under an exploration permit. Coal resource data gathered u rider such a permit is pro-

[1] U n less otherwise noted, the text i n this section is adapted from reference 3.

Table 4-1.—Planning and Regulation of Western Federal Coal Development

Bureau of Land Management[a]	OSM/Regulatory authority	Coal company
Leasing:		
Permit and supervise coal exploration on Federal lands		Collect and analyze coal resource data
Evaluate coal resources		Prepare formal expressions of interest for specific lease tracts
Planning for management of ail resources based on inhouse and published data		Prepare bids for lease tracts
Apply unsuitability criteria		
Planning for coal lease sale based on above plus some field data		
Prepare regional lease sale EIS		
Prepare lease stipulations		
Determine lease bond		
Hold lease sale		
Permitting:		
Delineation of permit area	Delineation of permit area	Compile existing data on all mineral and ecological resources on mine site from inhouse, BLM, USGS, SCS, FWS, etc. sources
Responsible for all nonlessee activity on leased land prior to onset of mining	Review permit application package and make recommendations on mining and reclamation plan	Formulate first approximation of mining and reclamation plan
Approve designation of postmining land use in permit application package	Prepare EA and/or EIS for permit	Complete baseline data collection on all aspects of mine site
Review permit application package for efficient extraction of the mineral resource, consistency with the resource area management plan, and compliance with lease stipulations	Determine performance bond	Analyze data to predict impacts of mining and demonstrate success of proposed reclamation
Concur in approval of permit application and issuance of permit	Prepare permit stipulations	Prepare permit application package
	Issue permit	Collect and analyze additional data and revise permit application package, if necessary
Mining:		
Oversee production of the coal resource	Conduct inspections of the mine site to ensure compliance with the permit	Collect high-intensity geologic and hydrologic data as pit moves across mine site
Oversee uses of Federal surface outside the permit area including rights-of-way and activities ancillary to mining	Review monitoring data submitted in accordance with the permit to ensure compliance	Collect monitoring data on hydrologic and wildlife impacts as mining proceeds
	Act to correct violations, if necessary	Continually refine mining and reclamation plan based on new data collected
	Enforce and collect penalties for violations, if necessary	Prepare applications for modifications to permit, if necessary
	Review and approve applications for permit modifications	Prepare application package for permit renewal every 5 years, if not initially issued for life-of-mine
	Review and approve applications for permit renewals	Reclaim mined areas as contemporaneously as possible with mining
		Monitor revegetation and hydrologic restoration
Evaluation of reclamation success:		
Inspect for compliance with any special requirements for protection of surface resources and postmining land use	Develop criteria for evaluating success of reclamation (if not specified in the permit) for all three phases of bond release	After backfilling and grading, prepare application for Phase I bond release (Up to 60%)
Concur in reclamation bond release	Review applications for bond release and conduct onsite inspections and evaluations	After surface stabilization and initial revegetation, prepare application for Phase II bond release (15 to 25°/0)
Release lease bond	Release reclamation bond	Ten years after last seeding, fertilizing, irrigating, or other work, prepare application for final bond release

[a]Or other surface management agency (e.g., US. Forest Service).

SOURCE: Office of Technology Assessment.

prietary, but must be made available to BLM on a confidential basis in support of an expression of interest in a particular lease tract (see below) to assist BLM in identifying areas with high coal development potential that should be considered for coal leasing. Data on noncoal resources may be gathered during exploration to enable the company *to* estimate the potential costs of development and exploration; such data also are proprietary but do not have to be shared with DOI preleasing. BLM and the companies also may use coal resource data collected by Federal agencies in earlier minerals surveys (e.g, by the U.S. Geological Survey or the Bureau of Mines).

Most of the required preleasing data collection and analysis is carried out by BLM field personnel consistent with section 3(a) of FCLAA, which requires that lands considered for leasing shall have been included in a comprehensive land use plan and that lease sales be compatible with that plan. The comprehensive land use planning procedures developed by the Department of the Interior (DOI) to implement section 3(a) of FCLAA are based on the mandates in the Federal Land Policy and Management Act of 1976 (FLPMA).

FLPMA requires a multidisciplinary and comprehensive Federal land use planning process that maintains an up-to-date inventory of public land resources, giving priority to the designation and protection of areas of critical environmental concern (ACECS); projects *all* potential future uses of public lands and resources (not just coal development); and identifies opportunities for the development or conservation of particular resources, considering the relative scarcity of the resource values involved and the availability of alternative means for realizing those values. This land use planning is to be guided by the principles of multiple use of lands and resources, sustained yield of renewable resources, and conservation of depletable resources. The land use plan must protect the quality of scenic, historical, environmental, air and water, and archeological values, including ACECS; preserve certain lands in their natural conditions; provide **food and habi**tat for fish and wildlife and domestic animals; and provide for outdoor recreation and human occupancy and use (1 8). Planning activities must be coordinated with those of other Federal, State, and local agencies; and must afford the public adequate opportunity to comment on the management of public lands.

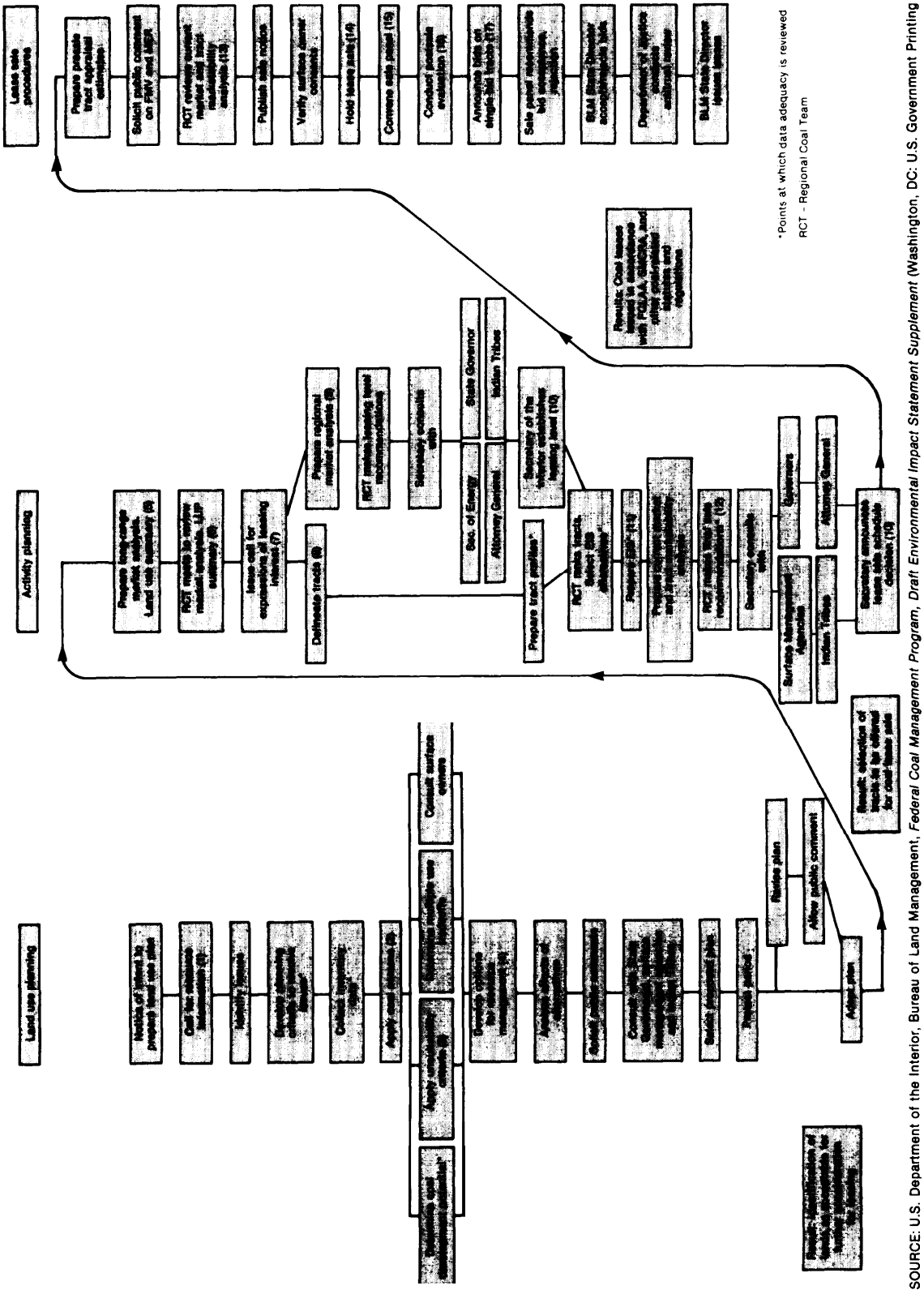
Based on these general planning mandates, DOI structured the Federal coal leasing program around an initial comprehensive land use planning process which applies to all Federal lands and all resources on those lands, followed by "activity" planning for the development of specific resources or uses, such as coal leasing (see fig. 4-1). As noted above, a decision to offer a tract for lease is made in the context of a "tiered" system of planning and analysis, in which the level of analytical detail increases over time, while the size of the area being evaluated decreases. Thus, early in the process when few data are available, large land areas are classified according to their relative value for development of all possible resources. Lands that are identified as potentially suitable for coal leasing at this stage are then subjected to increasingly detailed analyses as the lands move closer to actual coal development, with the most comprehensive analyses occurring after leasing with the development of a mining and reclamation plan and permit application under SMCRA.

Land Use Planning

The principal objective of the land use planning process is to establish a multiple resource use management strategy for each of the "planning units" set up by BLM for the admi nitration of public lands.[2] This is accomplished through identification of *all* potential land uses and or opportunities for the development of particular resources based on their relative values. Coal development is one possible land use, and, during land use planning, four screens are used to identify the acceptability of public lands for further consideration for leasing. The screens focus on coal development potential, the environmental acceptability of lands for mining, multiple use management, and surface owner preferences

[2] It should be noted that many of the land use planning requirements described below also apply to other agencies that manage Federal lands overlying coal deposits (e.g., the U.S. Forest Service). The land use planning schedules and priorities within these agencies need to be coordinated closely with BLM's planning for lease sales.

Figure 4-1.— Coal Leasing Program Flowchart (Proposed Action)



SOURCE: U.S. Department of the Interior, Bureau of Land Management, *Federal Coal Management Program, Draft Environmental Impact Statement Supplement* (Washington, DC: U.S. Government Printing Office, 1985).

about mining (where the Federal Government does not own the surface) (see box 4-A). Based on the results of the application of these screens, lands determined to be acceptable for further consideration for coal development are carried forward into activity planning for leasing.

For past lease sales, BLM applied these screens based on data available in-house as well as the published literature. This included earlier BLM land use planning documents, any environmental impact statements (EISS) prepared for earlier projects in the planning area, and the data from previous coal lease sales. These documents were updated through techniques such as areal mapping or limited field surveys. Under FLPMA, however, land use planning also must include a full EIS on resource management alternatives, and future planning efforts probably will involve additional field surveys to accumulate data at a sufficient level of detail to satisfy the requirements of NE PA.

Activity Planning and Lease Sales

After general resource planning for a management area is complete, subsequent planning focuses on a specific activity—in this case, coal leasing. Like land use planning, activity planning is predicated on a tiered system of increasingly detailed reviews of smaller and smaller areas until specific lease tracts are delineated. Activity planning culminates in a Secretarial decision on the tracts and tonnages to be offered for lease and the schedule for lease sales in that region.

Information from land use planning about areas' acceptability for mining, plus coal resource data from formal industry expressions of interest in particular areas, are used to develop initial draft leasing levels and to delineate tracts. After tract delineation, BLM field staff conduct a site-specific analysis (SSA) of the full range of environmental, social, economic, and other resource values on each tract. The SSAS provide the basis for detailed tract profiles, which are used to select combinations of tracts for analysis in the EIS for the lease sale (see below).

The SSA generates the greatest level of detail of information about a tract available to BLM before a lease sale. According to the programmatic EIS for leasing,

> . . . the information . . . must be sufficiently detailed so that the Department would be reasonably certain that the lease would be economically and environmentally acceptable, but in less detail than would be required of a lessee at the time a mining plan would be approved (s).

Following preparation of the tract profiles, the Regional Coal Team (RCT)[3] ranks tracts according to their acceptability for leasing after considering factors such as coal economics, impacts on the natural environment, and socioeconomic impacts (1 5). Tract rankings and SSAS do not necessarily affect tract delineation, although tract boundaries can be adjusted as the results of SSAS or tract rankings, or tracts may be dropped altogether at this stage.

The RCT uses these rankings to select combinations of tracts that meet the regional and alternative leasing levels. These must include a "preferred alternative" that optimizes the economic and resource benefits of leasing and minimizes the social and environmental costs. The environmental impacts of the leasing alternatives are then assessed in detail in an EIS for the lease sale. As a part of the tiered system, the data and analyses for the EIS expand on the information in the SSAS and tract profiles, but focus on particular combinations of tracts. Lease stipulations may be proposed in the EIS to protect environmentally sensitive areas (see box 4-B).

Following publication of the final EIS, written surface owner consent is confirmed, and the Secretary consults with the affected State Governors and the surface management agency prior to approving a combination of tracts and tonnages to meet a regional leasing level and establishing final dates for maintenance, bypass, and new production tract lease sales, Then DOI issues a notice of lease sale, performs the economic evaluation, and holds the sale.

[3]The Regional Coal Team is a DOI/State organization made up of a representative of the Governor from each State in the region and the BLM State Director from each State involved. Each RCT is chaired by the BLM State Director from the State with the greatest direct concern.

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industrial development, 4) mineral production, 5) human occupancy, 6) outdoor recreation, 7) timber production, 8) watershed protection, 9) wilderness preservation, and 10) preservation of public (unique or scarce) values (10). In general, a multiple-use trade-off is appropriate when one land use (e.g., mining) would absolutely preclude other valuable resource uses which are not covered by the 20 unsuitability criteria (13).

The surface owner preference screen requires that coal resources underlying privately owned surface not be considered for surface mining if a significant number of the surface owners object to leasing during the initial consultation with BLM. If underground mining is technically or economically infeasible, the land could still be considered for leasing, but it must be assigned a low priority compared with lands without surface owner conflicts (14). Final surface owner consents to leasing are not obtained until the end of activity planning.

SURFACE MINE PERMITTING AND REGULATION

Once a company has leased or purchased coal resources, it must prepare a comprehensive plan for the development and reclamation of the coal and obtain a variety of permits under Federal and State laws. The most extensive Federal regulations related to surface mining arise under the Surface Mining Control and Reclamation Act of 1977 (SMCRA), which establishes performance standards for mining and reclamation and requires mine operators to obtain a permit to ensure that those standards will be met. Other significant permitting and regulatory requirements arise under the Clean Air and Water Acts, and the National Environmental Policy Act. A listing of other Federal laws potentially affecting western coal development may be found at the end of this section. Tables 4-3 through 4-7 at the end of the chapter list the State laws affecting surface mining.

SMCRA is implemented by the Office of Surface Mining (OSM), within the Department of the interior, and by State agencies under approved regulatory programs consistent with SMCRA. Most Federal environmental legislation is implemented by the Environmental Protection Agency (EPA), with permitting and enforcement also delegated to States with approved programs. While the discussion in this section will emphasize the Federal regulatory programs, it should be kept in mind that in all of the Western States studied, the State regulatory authorities have the primary responsibility for surface mining permitting and enforcement, with OSM (and EPA) providing oversight and technical assistance.

Surface Mining Control and Reclamation Act

In regulating surface mining, the purposes of SMCRA are to:

- establish a nationwide program to deal with adverse impacts of surface mining;
- assure that the rights of surface landowners are fully protected from surface mining operations;
- assure that surface mining does not occur where reclamation is not technologically and economically feasible;
- assure that surface mining is conducted so as to protect the environment;
- assure that reclamation occurs as contemporaneously as possible with mining;
- assure vital coal supply is provided and strike a balance between environmental protection and agricultural productivity on one hand, and coal supply on the other;
- assist the States in developing and implementing a program to achieve the purposes of SMCRA;
- assure appropriate procedures for public participation in development, revisions, and enforcement of regulations, standards, reclamation plans, or programs established by the Secretary or any State under SMCRA; and
- provide for research and development, training of mining specialists, and State research centers (1 6).

Box 4-B.—Role of Lease Stipulations in Reclamation Planning and Permitting

The Bureau of Land Management frequently attaches stipulations to its coal leases to ensure protection of the surface environment during mining and reclamation. These stipulations commonly address mining impacts on wildlife, cultural and paleontological sites, surface water drainages, and other features of the premining environment. The frequency in use and the scope of lease stipulations have increased over time, particularly since the implementation of FCLAA and FLPMA. OTA's recent study, *Environmental Protection in the Federal Coal Leasing Program*, found that, in some instances, lease stipulations requiring data collection and analysis were used to defer decisions to the permitting stage that should have been made prior to leasing. In other cases, stipulations that specified particular reclamation methods or designs were viewed as usurping the regulatory authorities' decisionmaking power (3). Because of these findings, OTA was asked to try to determine, in this assessment, what the fate of such lease stipulations has been during the mine planning and permitting processes.

BLM must concur in the issuance of a permit for a leased tract. Where both Federal surface and Federal coal are involved—the most common case—both BLM's local Solid Minerals Branch and the Environmental Planning and Assistance Branch review a permit application to ensure efficient extraction of the mineral and environmental soundness and consistency with the applicable resource management plan. BLM's permit review procedures vary from State to State, but most often the surface compliance and environmental review is carried out at the resource area level.[1] The resource area manager circulates relevant sections of the application to staff specialists in the various areas of environmental concern. Most resource area offices have at least one, often more, of each of the following: range scientists, geologists, wildlife biologists, soil scientists, cultural resource specialists, archeologists, and foresters. After review by these professionals, BLM either concurs in the application or sends comments to OSM explaining problems it has found with the application.

OTA encountered several problems in determining how lease stipulations are treated in BLM's permit application review. First, none of the tracts leased since implementation of the new leasing program has completed the permitting process, so the fate of many recent stipulations has not yet been determined. BLM has, however, been imposing some types of environmental stipulations on coal leases for many years, plus a number of emergency and maintenance leases with stipulations have been issued since 1979 for extensions of existing operations that are now being mined.

Second, while the treatment of these two sets of stipulations during mine planning and permitting could offer some indication of the possible fate of more recent lease stipulations, OTA found that there is no clear "paper trail" marking the fate of lease stipulations. Neither BLM nor OSM makes a finding that lease stipulations have been complied with when they approve a reclamation plan. In fact, there is virtually no written documentation of BLM's environmental review of permit applications. The only way to discover what occurred during that review is to interview the BLM personnel involved. The turnover and rotation of BLM district and field office staff is so rapid, however, that many of the resource area managers, district managers, and division chiefs OTA spoke with had never reviewed a permit application. Environmental field staff, in particular, tended to be unfamiliar with the permit review process itself.

Moreover, there are few decision records or guidelines to aid BLM's environmental planning specialists in reviewing permit applications. The resource area management plan provides a record of decisions made on the unsuitability criteria for lease tracts, and the environmental impact statements on land use and leasing decisions document the environmental and socioeconomic concerns about coal development. However, these documents rarely provide the kind of detailed guidance needed to determine whether the mitigation measures in the mine plan are adequate to comply with lease stipulations.

Although general guidelines and criteria may not accommodate the unique features of each mine site, the absence of such guidelines or criteria is cause for concern because most BLM lease stipulations are so vague and general that permit applicants and regulatory authorities have great latitude in deciding how

[1]The exception among the five Western States seems to be Wyoming, where the district Solid Minerals Branch coordinates the entire permit review and the district environmental staff review the permit application. Only if they found large problems with an application would the district involve the resource area specialists (1).

to satisfy stipulations. This is particularly true of the stipulations in older leases but also, to some extent, of the "boilerplate" stipulations such as the standard cultural and paleontoiogical stipulations. Moreover, due to the high turnover in BLM field staff, the personnel reviewing a permit application usually are not the same as those who performed the preleasing analysis and developed the stipulations, and may have little or no prior experience with permit application review to guide them.

Based on OTA'S analysis of this process, it is clear that BLM's primary concern during the permit review is whether the mine plan will ensure full and efficient recovery of the Federal coal resources. In most instances, permit review is overseen by the Solid Minerals Branch and review of environmental considerations is secondary. Even within the environmental review, however, OTA found that lease stipulations are given little attention. Rather, that review primarily emphasizes compatibility with the designated postmining land use and with the resource area management plan. Lease stipulations are often not even mentioned by BLM officials as a consideration.

BLM officials contacted by OTA emphasized that permitting and reclamation are the responsibilities of the States and OSM, and that the Bureau followed the State or OSM'S lead in reclamation-related matters. On the other hand, State and OSM officials argue that ensuring compliance with lease stipulations is BLM's responsibility as the Federal surface management agency. Because stipulations are so vague and general in comparison to the extensive and detailed regulatory requirements for a mining and reclamation plan and permit application, OSM and State regulatory authorities rarely find the stipulations relevant to permitting.

To accomplish these objectives, Congress charged the Secretary of the Interior, acting through OSM, to develop and issue a Federal regulatory program to carry out the provisions of SMCRA, to assist the States technically and financially in developing programs that both meet the goals and minimum standards of SMCRA and reflect local requirements and conditions, to review and approve or disapprove State programs, and to enter into cooperative agreements with States with approved programs for the regulation of surface mining on Federal lands within the State.

The basic elements of the Federal regulatory program, as established in SMCRA, are performance and design standards that cover most aspects of surface mine reclamation, and the requirements for a detailed mining and reclamation plan to be submitted in support of a permit application. Special provision is made for experimental practices to encourage advances in mining and reclamation techniques. To ensure that the performance and design standards are met, and that a mine remains in compliance with the plan and permit, SMCRA requires regular monitoring and inspections of surface mining operations, with a range of enforcement penalties for violations. The act further requires permittees to file a performance bond in an amount sufficient to assure the completion of the reclamation plan if the work had to be completed by the regulatory authority (see ch. 7).

This section briefly reviews the general data and analysis requirements for the permit application package and for demonstrating that the performance standards and design standards will be met. The specific data requirements for the various disciplines–hydrology, soils and overburden, revegetation, and wildlife—are discussed in chapter 5, and the analytical techniques for predicting the impacts of mining and the success of reclamation in chapter 6. It should be noted that many of the provisions of the Federal regulatory program were ruled invalid in court decisions between July 1984 and July 1985, and it may be several years before the new rules are issued in their final form (see box 4-C). Where the court rulings substantially affect data or analysis requirements, this is noted in the text.

Permit Application Package: Legal and Regulatory Requirements

The permit application and the supporting mining and reclamation plan are the primary means

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of implementing SMCRA. Therefore, the data and analysis requirements are extensive. The application and plan are used to predict the impacts of mining and reclamation on all aspects of the environment, ensure that the performance standards will be met, establish standards for judging the success of reclamation, and provide the basis for determining postmining land uses. The SMCRA requirements for a permit application package, including the detailed mining and reclamation plan, essentially are divided into three segments: the baseline description of the mine site, the plan for recovery of the coal resource, and the reclamation plan and demonstration that reclamation is economically and technologically feasible.

The baseline description of the mine site provides the basis for estimating the impacts of mining on the natural and human environment, for comparing the premining and postmining conditions, and for establishing the postmining land use. Thus, the permit application package must include accurate maps or plans, to appropriate scale, clearly showing the land to be affected and its boundaries, as well as owners of all surface areas abutting the permit area and other on- and offsite features (for instance, gas and oil wells, buildings, parks, cemeteries, transmission lines, pipelines). Additional data requirements for environmental resources include the significant known archaeological sites as well as cultural and historic resources that are listed or eligible for listing on the National Register of Historic Places. The plan must specify how impacts on parks or historic places will be minimized.

The plan for recovery of the coa/ resource must describe: 1) the type and method of coal mining operation that exists or is proposed; 2) the anticipated annual and total production of coal by tonnage; 3) the engineering techniques proposed to be used in mining and reclamation, and a description of the major equipment; 4) the anticipated or actual starting and ending dates of each phase of the mining operation and the acreage affected; 5) a detailed estimated timetable for accomplishment of each major step in the reclamation plan; and 6) an estimate of the cost per acre of reclamation. Maps of the permit and adjacent areas also must show the existing and proposed facilities related to the mining and reclamation operations (e.g, coal loading, topsoil stockpiles, sedimentation ponds), and the plan must specify how these facilities will be built, maintained, and removed.

The demonstration of reclaimability must take into consideration the physical, climatological, and other characteristics of the site. Therefore, the regulatory authority may require that the permit application describe the climatological factors peculiar to the locality, including average seasonal precipitation, average direction and velocity of prevailing winds, and seasonal temperature ranges. The reclamation plan also must describe how the permittee plans to comply with the performance standards and with applicable air and water quality laws and regulations and any health and safety standards.

The postmining land use provisions of SMCRA require that all affected land be restored to a condition capable of supporting the uses that it could support prior to any mining, or higher or better uses of which there is a reasonable likelihood (see ch. 8). The reclamation plan must describe the premining condition of the land to be covered by the permit, including: 1) existing land uses; 2) the capability of the land prior to mining to support a variety of uses, giving consideration to soil and foundation characteristics, topography, and vegetative cover; and 3) the productivity of the land prior to mining, as well as the average yield of food, fiber, forage, or wood products under high levels of management.[4]

[4] "Capability" and "productivity" are not defined in the Federal regulations implementing SMCRA. For the purposes of BLM management of Federal lands, "capability" is defined as "the ability or potential of a unit of land to produce resources, supply goods and services or allow resource uses under a set of management practices at a given level of management intensity without permanently impairing the resource involved, Capability depends upon a fixed set of conditions which are relatively stable over time, including, but not limited to, climate, slope, landform, soils, and ***geology.*** Most land has an inherent capability to produce one or more resources, or goods and services, under natural conditions. Capability analyses shall permit identification of specific uses or management practices that cannot be allowed on specific land areas due to physical conditions, "

In describing the use proposed to be made of the land following reclamation, the applicant must discuss the utility and capacity of the reclaimed land to support a variety of alternative uses, and the relationship of the proposed postmining land use to existing land use policies and plans, including the consideration given to consistency with surface owner plans and applicable State and local land use plans. The application package must explain in detail how the proposed postmining land use is to be achieved, what support activities may be needed to achieve it, and the detailed management plans to be implemented for range or grazing lands.

Permit Application Package: Preparation and Approval Process

In meeting the data and analysis requirements for a permit application package, the company usually begins by reviewing the existing data on the mine site and its mineral and other resources. The sources of data that may be reviewed in this process include in-house data gathered during exploration; BLM management plans, site-specific analyses for leasing, and EISS; and data available from other agencies on specific disciplines (e.g., wildlife surveys from State Game and Fish Departments, soil surveys from the Soil Conservation Service; see ch. 5). Based on the available data, the company prepares a first approximation of the mining and reclamation plan and defines specific data and analysis needs more clearly. The company will then collect and analyze the baseline data and put together the full permit application package, which is submitted to the State regulatory authority.

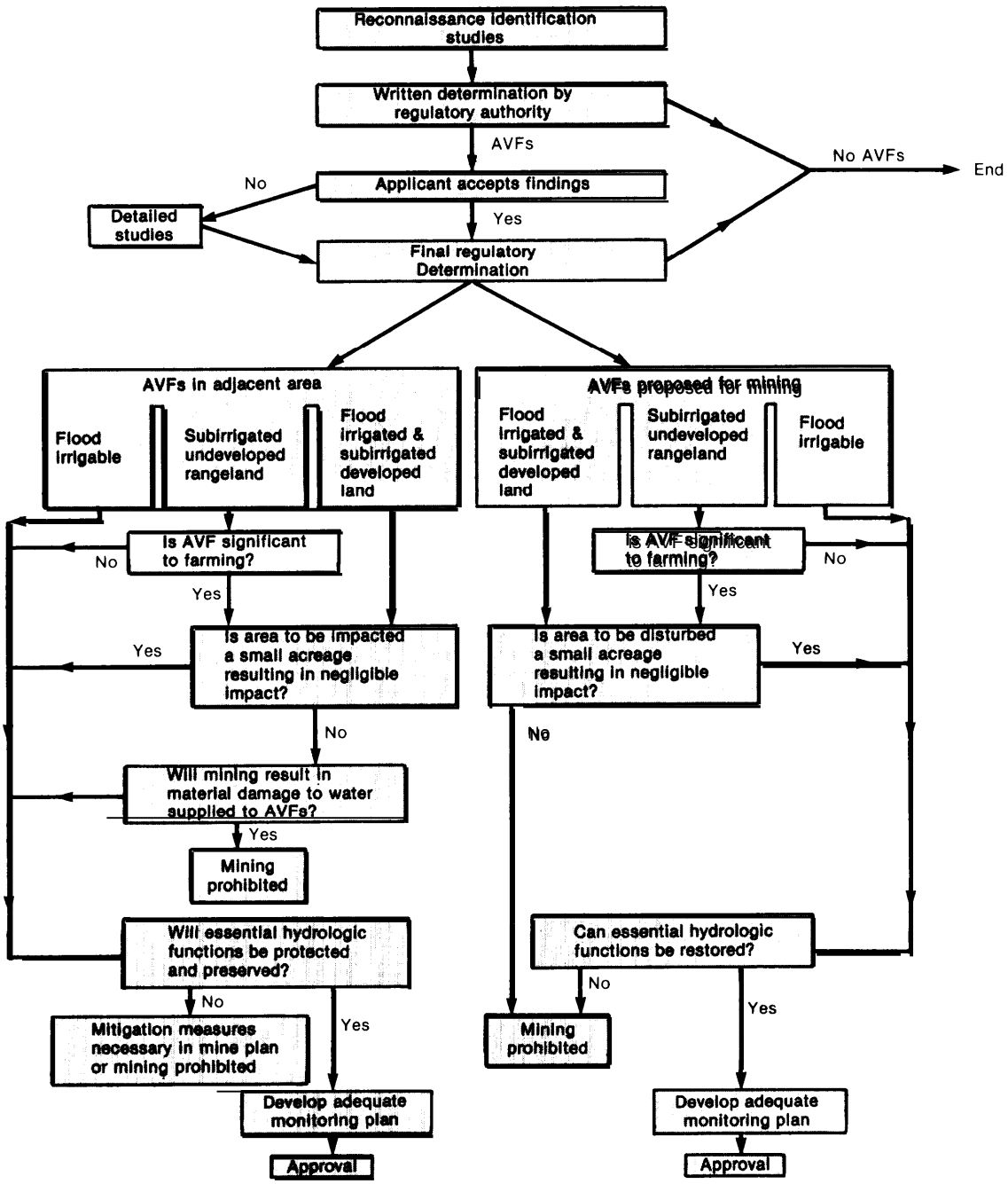
The State reviews the full package in detail, frequently performing some analysis in order to verify the results of the company's analysis. If the State finds the package deficient or has further questions (e.g., about the validity of assumptions used, or of data generated by statistical techniques), the company works with the regulatory authority and performs additional data collection and/or analysis until the permit application package is approved at the State level. It is then submitted to OSM, and the review process repeated until the permit is granted. If uncertainties about the reclamation plan remain (e.g., the potential for deleterious overburden strata, ability of a proposed reclamation technique to meet the performance standards), stipulations may be imposed on the permit to require special monitoring or research. Finally, the regulatory authority sets the amount of the reclamation bond. Once that bond has been filed, the company may begin mining.

Before issuing a permit, the regulatory authority must find that the application is complete and accurate; that all of the legislative and regulatory requirements for permit applications and reclamation plans have been met and all fees paid; and that the applicant has demonstrated the following:

- reclamation can be accomplished under the reclamation plan;
- the regulatory authority has assessed the probable cumulative impact on the hydrologic balance of all anticipated mining in the area (see below) and the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area;
- the area proposed to be mined is not included in an area classified as unsuitable under SMCRA or is not under study for such classification;
- mining, if undertaken west of the 100th meridian, would not interrupt, discontinue, or preclude farming on alluvial valley floors (AVFS) that are irrigated or naturally subirrigated, and would not materially damage the quantity or quality of water in surface or underground water systems that supply AVFS (see fig. 4-2);[5]
- in split estate areas (where the Federal Government owns the coal but not the surface), the applicant has submitted written consent of the surface owner to mining; and
- the application includes a schedule listing any and all notices of violations of SMCRA or any other law or regulation related to air or water environmental protection incurred by the applicant in connection with any sur-

[5]The AVF provisions exclude undeveloped rangelands which are not significant to farming and AVFs of such small acreage as to be of negligible impact on a farm's agricultural production.

Figure 4-2.—Flowchart of Alluvial Valley Floor Regulatory Process



SOURCE: U.S. Department of the Interior, Office of Surface Mining, *Annual Report of the Office of Surface Mining* (Washington, DC: U.S. Government Printing Office, 1983).

face mining operation during the 3 years prior to the date of the application, including the final resolution of such notices, and, if the applicant's ongoing operations are in violation of SMCRA, a declaration that the violation has been or is being corrected to the satisfaction of the regulatory authority.

Performance Standards

Section 515 of SMCRA establishes both general performance standards, and those specific to a particular discipline (e.g., hydrology), that cover virtually all aspects of surface mining, These are minimum standards, and the Federal or State regulatory programs may impose standards that are more stringent. SMCRA or the regulations often specify the mining and reclamation techniques that may be used to meet the performance standards, unless the operator demonstrates in the permit application that an alternative technique will beat least as effective. Such a demonstration may be expensive to prepare, however, especially given the risk that the alternative technique will not be permitted. Therefore, most operators rely on proven techniques unless there is a decided cost advantage to the alternative method due to site-specific considerations.

During the course of mining and reclamation, a company continually collects additional data and monitors the impacts of mining in order to demonstrate compliance with the permit and the performance standards. Thus, very detailed geologic data, as well as hydrologic and wildlife monitoring data are collected as the pit advances. The company refines the reclamation plan based on these data. If the term of the initial permit was

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not for the life-of-the-mine, the additional data collection and analysis performed after the onset of mining also is used to support the application for permit renewal.

General Performance Standards.–SMCRA requires that all surface coal mining operations be conducted so as to maximize utilization and conservation of the fuel resource in order to avoid reaffecting the land in the future. Under the regulations related to coal recovery, surface mining activities also must use the best appropriate technology currently available to maintain environmental integrity. In addition, operators must ensure that all reclamation efforts proceed in an environmentally sound manner and as contemporaneously as practicable with mining, and the regulatory authority may establish schedules that define contemporaneous reclamation.

Surface and Groundwater Systems.–All surface coal mining operations must be conducted so as to minimize disturbances to the prevailing hydrologic balance at the mine-site and in associated offsite areas, and to the quality and quantity of water in surface and groundwater systems both during and after mining and reclamation. Three basic hydrologic analyses are required under SMCRA to demonstrate that these standards will be met: 1) a determination of the probable hydrologic consequences (PHC) of mining and reclamation, on- and offsite, on the quantity and quality of surface and groundwater systems (including dissolved and suspended solids) under seasonal flow conditions; 2) an assessment of the probable cumulative hydrologic impacts (CHIA) of all anticipated mining in the area, particularly with regard to water availability; and 3) a hydrologic restoration plan that addresses the impacts predicted in the PHC determination and the CHIA, as well as the means to be used to meet the performance standards. In addition, the regulations impose specific design standards related to surface features such as siltation structures, diversions, impoundments, stream buffer zones, etc.

The PHC determination generally is based on baseline hydrologic, geologic, and other information, but an operator may use modeling techniques, interpolation, or other methods to generate data statistically representative of the site. The Federal regulations list four required sets of findings for the PHC determination. It must determine, first, whether adverse impacts may affect the hydrologic balance, and second, whether acid-, alkaline-, or toxic-forming[7] materials are present that could result in postmining surface or groundwater contamination. If adverse impacts or deleterious materials are found, supplemental data and analyses are needed to evaluate them and to plan remedial and reclamation activities (see chs. ***5*** and ***6).*** Third, the PHiC determination must address the potential for contamination, diminution, or interruption of surface or groundwater used for domestic, agricultural, industrial or other purposes. if any of these effects is predicted to occur, the reclamation plan must contain information on water availability and alternative water sources, including the suitability of such sources for the pre- and postmining land uses. Fourth, the PHC analysis must estimate the potential impacts on sediment yield from the disturbed area; acidity, total suspended solids (TSS), total dissolved solids (TDS), and other important water quality parameters of local impact; flooding or streamflow alteration; surface and groundwater availability; and other characteristics required by the regulatory authority. Standard methodologies for water quality sampling and analyses are listed in the Federal regulations.

The cumulative hydrologic impact assessment (CHIA) usually is performed by the regulatory authority based on hydrologic and geologic information provided (when available) by appropriate Federal or State agencies. If not available from such agencies, however, the permit applicant must collect sufficient data for the mine-site and

[6]The Federal regulations define 1'best technology currently available' as ''equipment, devices, systems, methods, or techniques which are currently available anywhere as determined by the Director, even if they are not in routine use. The term includes, but is not limited to, construction practices, siting requirements, vegetative selection and planting requirements, animal stocking requirements, scheduling of activities . . Within the constraints of the permanent program, the regulatory authority shall have the discretion to determine the best technology currently available on a case-by-case basis ."(9).

[7]"Toxic" is defined in the Federal regulations as "chemically or physically detrimental to biota''; it refers to the potential need for special handling of overburden strata and not to the disposal of toxic waste.

surrounding areas so that the regulatory authority can perform this assessment, as the permit cannot be approved until this information is made available and incorporated into the application. a For purposes of permit approval, the CH 1A must be sufficient to determine whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

The hydrologic reclamation plan, including relevant maps and descriptions, indicates how the performance standards related to protection and restoration of water quality and the hydrologic balance will be met. This plan must be specific to local hydrologic conditions, and must describe the steps to be taken during mining and reclamation through bond release to minimize disturbances to the hydrologic balance; prevent material damage outside the permit area; meet applicable Federal and State water quality laws and regulations; and protect the rights of present water users or provide alternative sources of water where such protection cannot be assured, The plan must specifically address adverse hydrologic consequences identified in the PHC determination and the CHIA, and appropriate preventive and remedial measures.

The regulations specify that, in meeting the performance standards, mining and reclamation practices that minimize water pollution and **changes** in flow shall be used i n preference to water treatment.

Overburden Handling.–Operators must backfill the pit, compact the backfilled overburden (where advisable to ensure stability or to prevent leaching of toxic materials), and grade it in order to restore the approximate original contour (AOC) of the land with all highwalls, spoil piles, and depressions eliminated. Small depressions may be left if they are needed in order to retain moisture, create and enhance wildlife habitat, or assist revegetation. Mines with very thick or very thin overburden may be exempted from the AOC requirement if the operator demonstrates that the thickness prevents attaining AOC.

Additional backfilling and grading requirements in SMCRA specify that operators stabilize and protect all surface areas, including spoil piles, to effectively control erosion and attendant air and water pollution, stabilize all waste piles in designated areas through construction in compacted layers, including the use of incombustible and impervious materials if necessary, and assure that the final contours of waste piles will be compatible with the natural surroundings.

Topsoil Handling.–After backfilling and grading of the overburden, the topsoil, or the best material available to support vegetation, must be restored to the mined area in a manner that will achieve an approximately uniform, stable thickness consistent with the approved postmining land use, contours, and surface water drainage systems. When the topsoil has to be stockpiled, the operator must protect it from wind and water erosion and keep it free of contamination by acid or toxic material by providing a temporary cover of quick growing plants (or other means). If the natural topsoil is too poor to sustain vegetation, or if other strata can be shown to be more suitable, these strata must be removed, segregated, and protected in the same manner. The data requirements for demonstrating the suitability of topsoil (or of selected overburden materials proposed to be used as a topsoil supplement or substitute) are discussed in chapter 5. The regulatory authority may require that the topsoil and subsoil be removed, stockpiled, and replaced separately ("two lifts") if necessary to meet the revegetation requirements. Two-lift topsoiling is required in North Dakota and Montana (sometimes Colorado), and practiced at several mines in other States in the study region (see chs. 3 and 8).

While the surface is exposed (i.e., prior to establishment of a permanent, stabilizing vegetative cover), erosion must be controlled. If rills and gullies form in regraded and topsoiled areas that disrupt either the postmining land use or revegetation, or that cause or contribute to violation of water quality standards, they must be filled, regraded, or otherwise stabilized, retopsoiled, and revegetated. The regulations also require, if nec-

[a] If the annual production from the mine will be less than 100,000 tons, the determination of probable hydrologic consequences and the results of test borings or core samplings shall, upon written request of the operator, be performed by a qualified public or private laboratory designated and paid by the permit agency.

essary to promote successful revegetation, treatment (e.g., disking, ripping) of the regraded land, and application of nutrients and soil amendments.

Revegetation.—SMCRA requires the operator to establish on regraded areas (and all other affected land) a diverse, effective, and permanent vegetative cover of the same seasonal variety native to the area, capable of self-regeneration and plant succession, and at least equal in extent of cover to the natural vegetation of the area.[9] The vegetative cover also must be capable of stabilizing the soil surface from erosion. The reclamation plan must describe existing vegetative types and plant communities with sufficient detail to predict the potential for reestablishing vegetation and to allow evaluation of the vegetation as important fish and wildlife habitat.

Specific provisions related to the timing of revegetation, and the use of mulching and other soil stabilizing practices are included in the regulations, as are standards for the success of revegetation (see ch. 7). Disturbed areas must be planted during the first normal period of favorable planting conditions—that planting time generally accepted locally for the type of plant materials used—after replacement of the topsoil (or other plant growth medium). Suitable mulch or other soil stabilization practices must be used on all areas that have been regraded and topsoiled, unless seasonal, soil, or slope factors make such stabilization unnecessary. In areas with less than 26 inches of annual precipitation (most of the study area), operators must assume responsibility for successful revegetation for 10 years after the last year of augmented seeding, fertilizing, irrigation, or other work (see ch. *7).*

Wildlife.–Operators must, to the extent possible using the best technology currently available,lo minimize disturbances and adverse impacts of mining and reclamation on fish, wildlife, and related environmental values, and achieve enhancement of such resources where practicable. Each permit application must include a detailed fish and wildlife plan that indicates how the performance standards will be met, including specific information on impact control measures, management techniques, and monitoring methods. if enhancement of wildlife resources and habitat is not practicable, this also must be demonstrated in the mining and reclamation plan. The Federal regulations add special provisions related to endangered species, bald and golden eagles, and wetlands and habitats of unusually high value, and they specify design standards for certain aspects of operations.

Operators must avoid disturbing, enhance where practicable, or restore wetlands and vegetation along rivers, streams, ponds, and lakes, as well as other habitats of unusually high value for fish and wildlife (e.g., cliffs supporting raptor nests, wintering and nursery areas, breeding areas, etc.; see ch. 3). Operators also must ensure that electric powerlines and other transmission facilities are designed and constructed to minimize electrocution hazards to raptors (fig. 3-11); that haul and access roads are located and operated so as to avoid or minimize impacts on important fish and wildlife species; and that fences, conveyers, and other potential barriers are designed to permit passage for large mammals.

No surface mining activity may be conducted that will jeopardize endangered or threatened species, or will destroy or adversely modify their designated critical habitats. Similarly, mining may not result in the unlawful taking of a bald or golden eagle, and its nest or eggs. If an operator becomes aware of endangered or threatened species or eagles within the permit area, he must report them promptly to the regulatory authority, which then consults with fish and wildlife agencies to identify whether, and under what conditions, mining may proceed (see ch. 3, box 3-P and related text).

Experimental Practices

SMCRA allows experimental departures from the environmental protection performance standards when the operator can demonstrate that

[9]The regulatory authority may approve the use of introduced species only where desirable and necessary to achieve the approved postmining land use, although the use of such species may be approved on a temporary basis when necessary to achieve a quick-growing, stabilizing cover, and the permit and reclamation plan **include** measures to establish permanent native vegetation.

[10]In this context, "best technology currently available" is defined in the Federal regulations as "equipment, devices, systems, methods, or techniques which will minimize, to the extent possible, disturbances [of] and adverse impacts on fish, wildlife and related environmental values, and achieve enhancement of those resources where practicable. "

such departures: 1) will encourage advances in mining and reclamation or will allow special postmining land uses; 2) are potentially more, or at least as, environmentally protective, during and after mining, as practices under the performance standards; 3) do not encompass a larger area or are not more numerous than necessary to determine the effectiveness and economic feasibility of the experimental practice; and 4) do not reduce the protection afforded public health and safety. Requests for experimental practices are subject to special public notice requirements and must be approved by the Director of OSM.

An application for an experimental practice must describe the nature of the practice (including supporting maps, plans, and data); the performance standards for which variances are requested; and the duration of the practice. The application also must include a monitoring plan to ensure the collection, analysis, and reporting of sufficient data to enable the regulatory authority to evaluate the practice's effectiveness and to identify, at the earliest possible time, potential risks to the environment and public health and safety. As discussed in chapter 9, experimental practices are difficult to obtain and expensive to conduct. As a result, few companies propose them unless there are clear cost advantages to doing so.

Experimental practices are reviewed by the regulatory authority every 21/2 years. After review, the regulatory authority may require reasonable modifications of the practice necessary to ensure that the activities fully protect the environment and public health and safety.

Monitoring Requirements

SMCRA specifies that the regulatory authority may require monitoring or other data collection relative to surface mining and reclamation, in general, and to disruption of aquifers, in particular, to assist in the development, administration, and enforcement of programs and permits. Special monitoring requirements relate to alluvial valley floors and to air quality control (see discussion of Clean Air Act, below). The regulatory authority is responsible for establishing standards and procedures for ensuring the reliability and validity of monitoring data collection and analysis.

Surface and groundwater monitoring plans are based on the results of the PHC determination, and on the analysis of all baseline hydrologic, geologic, and other data. Operators must monitor parameters affecting the suitability of surface and groundwater for pre- and postmining land uses as well as those related to compliance with the performance standards. The surface water monitoring plan also must address the effluent limitations established under the Clean Water Act (see below).

A special monitoring system is required to be installed, maintained, and operated on all AVFS during surface coal mining and reclamation operations and continued until all bonds are released. It must provide sufficient information to allow the regulatory authority to determine that the essential hydrologic functions of AVFS are being preserved outside the permit area or reestablished within the permit area throughout the mining and reclamation process; that farming on AVFS significant to agriculture is not being interrupted, discontinued, or precluded; and that the operation is not causing material damage to the quantity or quality of water in the surface or underground systems that supply protected AVFS. Monitoring must be conducted at adequate frequencies to indicate long-term trends that could affect compliance with the special AVF performance standards. The operator must make all monitoring data collected and analyses thereof available to the regulatory authority on a routine basis.

Inspections and Enforcement

SMCRA requires the regulatory authority to conduct regular inspections of surface mining and reclamation operations to ensure that they are in compliance with the performance standards and the mining and reclamation plan and permit. The regulatory authority must conduct an average of at least one partial inspection (onsite or aerial review of some of the permit conditions and program requirements) per month for active operations (as necessary for inactive), and an average of at least one complete onsite inspection every 3 months. Any potential violation ob-

served during a partial inspection must be investigated in detail within *3* days, unless it poses an imminent danger to public health and safety or the environment, in which case it must be inspected immediately.

An immediate order to cease all mining and reclamation operations is issued for violations that create such an imminent danger, or when an operator has failed to abate a lesser violation within the prescribed period. A cessation order remains in effect until the violation is abated. Notices of violation (NOVS) are issued for conditions that do not create an imminent danger or harm. Civil monetary penalties are assessed for cessation orders and NOVS based on a "point" system that takes into account the operator's history of previous violations; the seriousness of the violation based on the probability of occurrence of the event which the violated standard was intended to prevent; the extent of potential or actual damage; the operator's degree of negligence; and good faith attempts to comply. The maximum penalty **(70** points or more) is $5,000 per day. For operations that show a willful pattern of violations, the OSM Director may suspend or revoke the permit.

Clean Water Act

The Clean Water Act establishes national water quality goals to be achieved through State management plans that include water quality standards. These standards consist of the designated uses of the waters involved, including their use and value for public water supplies; propagation of fish and wildlife; recreational, agricultural, industrial, and other purposes; and navigation. In addition, the standards include water quality criteria for receiving waters based on these uses.

The water quality standards generally are to be achieved through effluent limitations on discharges from point sources. Effluent limitations are restrictions established by the State or EPA on quantities, rates, and concentrations of chemical, physical, biological, and other constituents that are discharged from point sources. Effluent limitations for surface coal mines regulate discharges of iron, manganese, and TSS, as well as the pH. In general, the act requires all categories of point sources to apply the best practicable control technology currently available in order to meet the effluent limitations.

Effluent limitations and water quality standards are implemented through State certification programs and through the National Pollutant Discharge Elimination System (N PDES). All point sources must obtain State certification that the discharge will not violate any effluent limitations, water quality standards, or New Source Performance Standards (NSPS). Under NPDES, a facility may be issued a permit for a discharge on the condition that the discharge will meet all applicable water quality requirements. NPDES permits are issued under EPA-approved State programs, or where a State program has not been approved, by EPA.

Effluent limitations have been established for mining operations, broken down into those applicable to acid and alkaline discharges. Under the Clean Water Act, mining operations must obtain NPDES permits and must use the best available control technology to comply with EPA or State effluent limitations. As discussed in chapter 8, sedimentation control ponds historically have been considered the best technology to control discharges of TSS to surface streams.

Clean Air Act

The Clean Air Act establishes a national system of air quality regulation in which EPA is responsible for developing Federal regulations and standards, and the States must implement plans consistent with the Federal program. The central feature of the Clean Air Act is the requirement that EPA promulgate National Ambient Air Quality Standards (NAAQS) in terms of ambient concentrations of pollutants. Primary standards are designed to protect human health, and secondary standards are intended to safeguard public welfare. EPA has established primary and secondary NAAQS for sulfur oxides, particulate matter, nitrogen dioxide, hydrocarbons, photochemical oxidants, carbon monoxide, ozone, and lead.

Every new major source of emissions is required to undergo a preconstruction review. Air quality control regions that are in violation of any

NAAQS or, at the opposite extreme, those where the air is already much cleaner than the standards require, are subject to more stringent requirements under the act with respect to the permitting of new point sources.

Air quality concerns regarding surface coal mining activities focus on fugitive dust and its effect on total suspended particulate. Thus far, air quality concerns have had only a minor effect on Western coal development. In some areas of the Powder River Coal Region of Wyoming fugitive dust emissions from surface mining have exceeded the NAAQS. Other Western coal operations are within pristine areas subject to the more stringent new source performance and prevention of significant deterioration standards. Mining operations in these areas have had to adopt better dust control measures or reduce the scope of their operations.

All Western surface mining activities with projected production exceeding 1 million tons per year (tpy) must include in their permit application package an air pollution control plan for fugitive dust. In addition, operators must devise a monitoring program that will provide sufficient data to demonstrate that the control practices are effective enough to comply with applicable Federal and State air quality standards.

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) restructured Federal agency decisionmaking in favor of a systematic, interdisciplinary approach that would ensure that environmental amenities and values would receive appropriate consideration along with traditional economic and technical factors. NEPA was the first major environmental legislation approved by Congress, and it has remained the most far-reaching in scope.

NEPA requires all Federal agencies to include a detailed statement in every recommendation or report on proposals for legislation and other "major Federal actions significantly affecting the quality of the human environment" that describes:

- possible environmental impacts of the proposed Federal action,
- any adverse environmental effects that cannot be avoided should the proposed action be implemented,
- alternatives to the proposed action and their environmental impacts,
- the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity as it applies to proposed Federal actions, and
- any irreversible and irretrievable commitments of resources that would result from implementation of the proposed action,

In order to determine whether a proposed action is "major" and will "significantly" affect the environment, Federal agencies prepare a preliminary environmental assessment (EA). The EA provides a brief examination and analysis of the proposed action and alternatives to it, a discussion of the need for the action, and an examination of potential environmental impacts. If an EA indicates that an action is not "major" or that it will not "significantly" affect the environment, the agency may publish a "finding of no significant impact" (FONSI), and then will not have to prepare a detailed EIS.

All coal-related activities that would have a significant impact on the environment and that need Federal authorization require a full environmental impact statement (EIS). This includes Federal land use planning and regional Federal coal lease sales, and, in some cases, permits to conduct surface mining operations under SMCRA.

Federal regulations may also require the preparation of an EIS when rulemaking is initiated by significant new circumstances or information relevant to environmental concerns. The initiation of the new Federal coal management program in 1979 was accompanied by a detailed programmatic **EIS** prepared in accordance with NEPA. That EIS was revised in 1985 to reflect changes proposed to be made in the leasing program, as well as more up-to-date coal resource and demand data (4).

Other Federal Legislation

In addition to the specific requirements of the Federal acts discussed above and the State pro-

grams implementing them, as well as the State legislation listed in tables 4-3 through 4-7, a wide range of other laws affect surface mining in the Western United States. These are listed below:

- **Act of September 28, 1976: Provides for the regulation of mining activity within, and repeals the application of mining laws to, areas of the National park System.**
- **American Indian Religious Freedom Act of 1978: Mitigates potential harm to American Indian religious sites.**
- **Antiquities Act of 1906: Regulates antiquities excavation and collection, including fossil remains.**
- **Archaeological and Historical Preservation Act of 1974; Archaeological Salvage Act: Provides for recovery of data from areas to be affected by Federal actions; provides** for preservation of data, including relics and specimens, at every Federal construction project.
- **Bald Eagle Protection Act of 1969: Protects bald and golden eagles.**
- **Endangered Species Act of 1973: Protects endangered and threatened** species and critical habitat affected by Federal actions; requires prior consultation with Fish and Wildlife Service.
- **Fish and Wildlife Coordination Act of 1934:** Requires consultation about water resource development actions that might affect fish or associated wildlife resources.
- **Forest and Rangeland Resources Planning Act of 1974: provides for a comprehensive system of land and resource management planning for National Forest System lands.**
- **Historic Preservation Act of 1966 (as amended): Establishes systems of classifying properties on or eligible for inclusion on National Register of Historic Places; mandates Federal agency consultation with Advisory Council and State historic preservation** officers.
- **Migratory Bird Treaty Act of 1918: Requires enhancement of, and prevention of loss of, migratory bird habitats.**
- **Mining and Minerals Policy Act of 1970: provides broad principles for mineral re**source development.
- **Multiple Use-Sustained Yield Act of 1960: Requires management of National Forests under principles of multiple use so as to produce a sustained yield of products and services.**
- **National Forests Management Act of 1976: Provides** for a comprehensive system of land and resource management planning for National Forest System lands.
- **National Trails System Act:** Provides for establishment and protection of trails.
- Noise **Control Act of 1976:** Requires publication of information on limits of noise required to protect public health and welfare; preempts local control of railroad equipment and yard noise emissions.
- **Resource Conservation and Recovery Act:** Establishes guidelines for collection, transport, separation, recovery, and disposal of solid waste.
- **Safe Drinking Water Act of 1974:** Establishes mechanism for National Primary Drinking Water Standards.
- **Soil and Water Resources Conservation Act of 1977:** Requires appraisal by Secretary of Agriculture of information and expertise on conservation and use of soils, plants, woodlands, etc.
- **Wild and Scenic Rivers Act:** Provides for preservation of certain rivers or portions thereof in their natural state.
- **Wilderness Act of 1964:** Provides for establishment of wilderness reserves; requires preservation of wilderness areas in an unimpaired condition.

FEDERAL AGENCY RESPONSIBILITIES

A number of Federal agencies are involved in the administration of the laws and regulations described in this chapter. Most environmental legislation (e. g., Clean Air and Water Acts, Noise Control Act, Resource Conservation and Recovery Act, Safe Drinking Water Act) is administered

by the Environmental Protection Agency. EPA also approves EISS prepared under NEPA, although the Council on Environmental Quality is responsible for promulgating regulations to implement NEPA. Federal land management agencies include the Bureau of Land Management and Fish and Wildlife Service within DOI, and the U.S. Forest Service within USDA. This section will focus on management responsibilities for Federal coal and surface mining regulation, which rest primarily with the Department of the Interior and its various agencies.

Until January 1982, DOI'S functions and responsibilities for managing Federal coal were divided among the Office of Surface Mining, the U.S. Geological Survey (USGS), and the Bureau of Land Management. BLM was responsible for administering the provisions of FLPMA and FCLAA related to land use planning and the leasing of Federal coal. Regulation of coal development on Federal leases was shared by OSM and USGS, with OSM administering SMCRA, and the USGS determining coal reserves present on Federal lease tracts, developing coal resource economic evaluations for leases (recommendations for bonus bids and royalty rates), and preparing development and mineral resource recovery requirements for Federal leases. USGS also was responsible for overseeing coal exploration operations, and for reviewing mine plans and inspecting mines for compliance with resource, conservation, and recovery requirements (4).

In 1982, the Secretary of the Interior created, on an experimental basis, the Minerals Management Service (MMS), which assumed all major coal-related functions of the USGS Conservation Division. This organizational structure remained in place until late in 1982, when the Secretary consolidated the primary onshore mineral operations and leasing functions of the MMS into BLM, and made permanent the creation of the MMS. Thus, all aspects of leasing and production of coal resources are now within the purview of BLM, which, in addition to its overall responsibilities under FCLAA and FLPMA, enforces diligent development of leases, assures maximum economic recovery and conservation of mineral resources, and evaluates the economics of mining. BLM also must review permit applications and reclamation plans for proposed mines on federally leased coal for the resource considerations listed above, as well as for compliance with any lease stipulations for environmental protection or other purposes, and must concur in OSM'S approval or disapproval of a permit. MMS retains responsibilities for auditing leases and collecting rents, royalties, and bonuses due the Federal Government on the sale and production of onshore minerals. (4)

Other DOI agencies with coal-related responsibilities are the Fish and Wildlife Service (FWS), USGS, Bureau of Mines, and Bureau of Reclamation. The FWS conducts surface mining studies to assess and predict the impacts of coal-related activities on fish, wildlife, and their habitats. FWS also monitors work related to impacts on wildlife in general and on endangered species in particular, and consults with BLM and OSM on fish and wildlife issues related to land use planning, coal leasing, and surface mine reclamation.

The Bureau of Mines conducts advanced coal mine health and safety research and demonstration projects on backfilling and subsidence. USGS provides technical assistance (including extensive databases; see ch, 5) for hydrologic studies, and administers a coal exploration program that provides maps, local and regional stratigraphy and correlation networks, and coal resource assessments **(4).**

The U.S. Forest Service is responsible for land use and activity planning on National Forest System lands. They apply the unsuitability criteria for coal leasing on these lands and, although BLM retains the responsibility for activity planning and for lease sales and administration, the Forest Service must consent to leases and may add terms and conditions to a lease to protect environmental values. The Forest Service also must concur with OSM on surface mining permits and reclamation plans for mining operations on National Forest lands (4).

STATE PROGRAMS FOR THE REGULATION OF SURFACE MINING AND RECLAMATION

While SMCRA established a nationwide program for regulating surface coal mining and reclamation, it also recognized that, because of the diversity in terrain, climate, biologic, chemical, and other physical conditions in areas subject to mining, the primary governmental responsibility for regulation should rest with the States. To assume exclusive jurisdiction over such regulation, States were required by SMCRA to develop and submit to DOI a State program which demonstrates that the State has the capability of carrying out the provisions of the act and achieving its objectives.

Under SMCRA, the minimum requirements for a State regulatory program are:

- a State law that provides for regulation in accordance with SMCRA, including effective implementation and enforcement of a permit system, and sanctions for violations of State laws, regulations, or permit conditions;
- rules and regulations consistent with those established by DOI under SMCRA;
- a State regulatory authority with sufficient administrative and technical personnel and funding to ensure the requirements of SMCRA can be met;
- a process for designation of areas as unsuitable for surface mining in accordance with SMCRA, provided that designation of Federal lands as unsuitable shall be performed exclusively by DOI after consultation with the States; and
- a process for coordinating the review and issuance of permits with any other State or Federal permit process applicable to proposed operations.

State laws or regulations may be more stringent than, or may relate to areas not covered by, SMCRA and the Federal regulations, but they may not be less stringent or less comprehensive. if a State fails to submit a program, submits one that is unacceptable, or fails to implement, enforce, or maintain an approved program, then DOI prepares and implements a Federal program for the State. In developing and implementing a Federal program for a State, DOI must consider the nature of that State's terrain, climate, biological, chemical, and other relevant local physical conditions. SMCRA also provides for Federal enforcement of a State program if the State is not enforcing it adequately.

Each of the five States in the study area has an approved regulatory program under SMCRA, as well as permitting authority under the Clean Air and Water Acts. Tables 4-3 through 4-7 list the State laws that may affect mining and reclamation. These laws are implemented through regulations and other interpretive documents such as guidelines, technical memoranda, field manuals, etc. Discussions of the State programs as they relate to baseline and monitoring data and analytical methods may be found in chapters 5 and **6.** Detailed discussions of the State provisions related to surface and groundwater hydrology, soils and overburden, revegetation, and wildlife are included in the technical reports appended as volume 2 of this assessment.

Table 4.3.—Colorado Legislation Affecting Coal Development

Lead State agency	Legislation	Purpose	Major relevance
Department of Health:			
—Water Quality Control Commission	Water Quality Control Act	Establishes and administers water quality standards in State waters; requires NPDES permits	Requires site review and permitting for projects involving water, sewage, and waste disposal; establishes critera for erosion control dams
—Air Pollution Control Commission	Air Pollution Control Act	Establishes and administers air quality standards	Requires mines to use dust preventive measures in all mining procedures, including construction
State Land Use Commission	Land Use Act of 1974	Protects the utility, value, and future of all lands within the State, including the public domain and privately owned land	Local governments have the duty to identify, designate, and administer areas and activities of State interest, including mineral resource areas and mining
	Antiquities Act of 1973	Provides for the protection of historical, natural, or archeological values and for data recovery	Establishes areas containing or having significant historical, natural, or archeological resources as being of State interest; BLM must coordinate with State Historic Preservation Officer before approving mine plans or rights-of-way
Department of Natural Resources			
—Division of Mines	Mining Employees Safety Act	Provides for mine safety	Monitors mine safety practices
—Mined Land Reclamation Board	Mined Land Reclamation Act of 1976	Provides for the reclamation of land subjected to surface disturbance by mining; to conserve natural resources; protect wildlife and aquatic resources; and establish recreation, home, and industrial sites to protect and perpetuate the taxable value of property	Mine operation must obtain a permit, based on a plan of operations that includes a reclamation section; Board must hold public hearings and the applicable county must approve permit issuance
	Mined Land Reclamation Act of 1979	Mitigates impacts, assures reclamation, perpetuates existing regulations, and ensures that CO can carry out the purposes of SMCRA	Provides strict timeframe for issuing permits; permit requirements and performance standards similar to SMCRA; apply to surface operations and surface impacts incident to underaround coal mines

SOURCE: U.S. Department of the Interior, Bureau of Land Management, *Federal Coal* Management *Program, Draft Environmental Impact Statement* ***Supplement*** **(Washington, DC: U.S. Government Printing Office, 1985).**

Table 4-4.—Montana Legislation Affecting Coal Development

Lead State agency	Legislation	Purpose	Major relevance
Department of Natural Resources and Conservation	Major Facility Siting Act	Provides for review and regulation of major facilities	Grants authority to require and review long range planning by certain utilities, to give approval to generation and conversion plant sites and associated facilities, and to require preconstruction certification of such facilities
Environmental Quality Council	Environmental Policy Act	To promote efforts to prevent or eliminate damage to the environment, to enrich the understanding of the ecological systems and natural resources important to the State	Requires EIS for all coal mine permit applications
Department of Health and Environmental Sciences	Water Pollution Control Law Solid Waste Management Act Clean Air Act	Protect the environment and reduce pollution	Establish standards and minimum amounts of deviation of pollutant substances
Depar ment of State Lands	Strip and Underground Mine Reclamation Act	Protects resources and the environment	Detailed standards for the method of mining, blasting, subsidence, stabilization, water control, backfilling, grading, highwall reduction, topsoiling, and revegetation for lands affected by mining
	Strip Mined Coal Conservation Act	Prevents waste of marketable coal	
—Board of Land Commissioners	Antiquities Act	Protects historic, prehistoric, archeological, paleontological, scientific, or cultural sites and objects on State lands	Requires registration and protection of sites

SOURCE: U S. Department of the Interior, Bureau of Land Management, *Federal Coal Management Program, Draft Environmental Impact Statement Supplement* **(Washington, DC: U.S. Government Printing Office, 1985)**

Table 4-5.-New Mexico Legislation Affecting Coai Development

Lead State agency	Legislation	Purpose	Major relevance
Environmental lmprovement Division	Environmental lmprovement Act of 1971	Establishes responsibilities for environmental management and consumer protection programs	Programs include water supply and pollution; liquid and solid wastes; air quality management; noise control; occupational health and safety
	Air Quality Control Act	Establishes and enforces regulations to prevent or abate air pollution	Requires submission of plans, specifications, and other information before issuing a permit for the building or modification of any new source of air pollution; requires that coal-handling machinery be equipped and haul roads be sprayed to prevent fugitive dust
Coal Surface Mining Commission	Surface Mining Act of 1979	Issues surface mining regulations	Requires permits for full range of protection on affected areas; reclamation plans and performance standards consistent with SMCRA
Energy and Minerals Department —Mining and Minerals Division	Surface Mining Act of 1979	Enforces surface mining regulations	Reviews and issues permits
Natural History Museum	Mining and Minerals Division Regulations	Provides for the recovery of paleontological data	Requires mines on State lands to notify the State Department of Finance and Administration, Office of Cultural Affairs, if important fossils are found
State Game Commission	Regulation 563	Protects State endangered species and subspecies	May make certain lands off limits to coal development
Historic Preservation Officer	Cultural Properties Act of 1969	Protects historical values	Regulates antiquities excavation and collection; requires data collection
Water Quality Control Commission	Water Quality Control Act	Protects surface and ground water	Establishes and administers a comprehensive water quality program and develops a continuing planning process, adopts water quality standards, certifies permits, issues groundwater regulations for surface and underground mines
State Engineer	N.M. State Annotation 72-2-1 (1953 Compil.)	Provides for the general supervision, measurement, appropriation, and distribution of State waters	Reporting requirements for any person drilling to a depth of 10 feet or more and finding a water body or water-bearing stratum; permitting requirements for mine dewatering in a declared underground water basin

SOURCE: U.S. Department of the Interior, Bureau of Land Management, *Federal Coal Management Program, Draft* ***Environmental*** *Impact Statement Supplement* **(Washington, DC: U.S. Government Printing Off Ice, 1985).**

Table 4-6.—North Dakota Legislation Affecting Coal Development

Lead State agency	Legislation	Purpose	Major relevance
Department of Health	Air Pollution Control Act	Establishes and administers air quality standards	Requires a permit for any plans to build, install, modify, or use any air contaminant source
	Solid Waste Management and Land Protection Act	Establishes solid waste disposal standards	Required to approve or disapprove permits for solid waste disposal plans; enforces ND NSPS
Environmental Health and Engineering Services	Water Pollution Control Act	Establishes and administers water quality standards	Facilities must meet standards
Environmental Control	Century Code (NDCC 23-25)	Protects air quality	Provides means of preventing significant deterioration of air quality from energy development; involves review of application for permit for new facilities and monitoring of operating facilities
	NDCC 23-29	Manages solid waste disposal	Requires permits for solid waste disposal facilities
	NDCC 61-28	Protects water quality	Requires permit to discharge mine water
Water Commission —State Engineer	NDCC 61-04	Administers water use	Permits must be secured for all water appropriations greater than 5,000 acre-feet for industrial uses
	NDCC 61-02, 61-16	Administers water use	Permits must be secured with the approval of the local water management district for building dikes or dams for water storage greater than 12.5 acre-feet
	NDCC 61-01	Administers water use	Permits must be obtained, with approval of local water management district, for drainage
State Geologist	NDCC 38-121	Provides for data recovery	Requires a permit for coal exploration and the filing of exploration data
Land Commission	NDCC 15-05	Protects and administers coal resources	Responsible for leasing State coal; coordinates with Federal leasing to prevent speculation
Public Service Commission	Surface Owners Protection Act	Protects surface owner rights	Requires approval by surface owners before permitting mining plans
	NDCC 38-14	Regulates surface mining	Requires a permit for coal surface mining and reclamation under regulatory program consistent with SMCRA
	Facility Siting Act	Regulates facility siting	Requires certification of site and corridor compatibility; requires route permit for transmission facility within the corridor

SOURCE: US. Department of the Interior, Bureau of Land Management, *Federal Coal Management Program, Draft Environment/ Impact Statement Supplement* **(Washington, DC: U.S. Government Printing Office, 1985).**

Table 4-7.—Wyoming Legislation Affecting Coal Development

Lead State agency	Legislation	Purpose	Major relevance
Department of Environmental Quality —Land Quality Division —Water Quality Division —Air Quality Division	Environmental Quality Act of 1973 —Land quality regulations —Water quality standards —Ambient air quality regulations —Solid waste management regulations	Protects land, air, and water quality	Requires permits and licenses to mine upon approval of mining and reclamation plan under regulations consistent with SMCRA; permits for coal mines after approval of plans for monitoring and controlling air pollution; permits to build settling ponds and waste water systems; NPDES permits for mine discharge; construction fill permits and industrial waste facility permits for solid waste disposal for coal mines
Industrial Siting Administration	Industrial Development Information and Siting Act of 1975	Protects environment and socioeconomic	Requires extensive information and permit before powerplants and other energy facilities can be built
Commissioner of Public Lands	Title 36	Protects and manages State lands	Responsible for administering, leasing, and managing State lands
Land Use Administration	Land Use Planning Act	Protects and manages State lands	Requires county land use plans, which could conflict with or require modification of some energy development proposals
State Engineer	Industrial Development information and Siting Act	Administers and protects State waters	Any storage, impoundment, pipeline, diversion, or use of surface or groundwater for mining and coal processing requires a permit

SOURCE: U.S. Department of the Interior, Bureau of Land Management, *Federal Coal Management Program, Draft Environmental Impact Statement Supplement* **(Washington, DC: U.S. Government Printing Office, 19S5).**

CHAPTER 4 REFERENCES

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13. 43 CFR **3420.1-4(e)(3)**
14. 43 CFR 3420.1-4(e)(4).
15. 43 CFR 3420.3-4.
16. 30 U.S.C. 1202.
17. 30 U.S.C. 1278.
18. 43 U.S.C. 1701 (a)(8).