

**FEDERAL REGISTER: 61 FR 68777 (December 30, 1996)**

DEPARTMENT OF THE INTERIOR

AGENCY: Office of Surface Mining Reclamation and Enforcement (OSM)

Abandoned Mine Land Reclamation Program Guidelines

**ACTION:** Notice of revised guidelines for abandoned mine land reclamation programs and projects.

**SUMMARY:** The Office of Surface Mining Reclamation and Enforcement (OSM) has revised the Abandoned Mine Land Reclamation Program Guidelines which were published March 6, 1980 (45 FR 14810). Comments were requested in the Notice of Intent to revise these guidelines published May 22, 1995 (45 FR 27123). Based on comments received, amendments to the Surface Mining Control and Reclamation Act of 1977 and policies adopted by OSM since 1980, the guidelines have been revised and are printed below.

**EFFECTIVE DATE:** December 30, 1996.

**FOR FURTHER INFORMATION CONTACT:**

Mr. Gene Krueger, Chief, Division of Reclamation Support, Office of Surface Mining Reclamation and Enforcement, 1951 Constitution Avenue, N.W. Washington, D.C. 20240. Telephone: (202) 208-2937.

**SUPPLEMENTARY INFORMATION:**

The Abandoned Mine Land (AML) Reclamation Program Guidelines are issued to provide general guidance to States, Indian Tribes, the U.S. Department of Agriculture, and OSM in the administration of reclamation activities carried out under programs authorized by Title IV of the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.) (SMCRA). These guidelines are considered to be statements of policy and do not establish new legal requirements or obligations on the public and are subject to change at the discretion of OSM.

The term "as amended" was added to the revised guidelines to indicate that guidelines reflect all amendments to SMCRA.

The definition of eligible lands has been expanded to include certain lands abandoned after August 3, 1977, in accordance with amendments to Section 404 of SMCRA and that definition has been included in Section A of these guidelines. The definition coincides with the definition of eligible lands found at 30 CFR 870.5.

Reference to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and its relationship to AML reclamation has been included in these guidelines at section C.5., Toxic Materials.

A new subpart, B.3.a.(1)(d), was added to allow special consideration for AMD sites and the utilization of the Appalachian Clean Streams Initiative (ACSI).

A new subpart, B.5.e., was added to indicate that coal seams left in place were deemed unrecoverable during reclamation and any future attempts to mine such seams would have to comply with permit requirements in place at the time of new mining.

The entire section titled "Experimental and Demonstration Practices" was eliminated because the Act, as amended, no longer provides for funding experimental and demonstration practices. However, new language was included in item B.3.b.(2) to allow for test plots and/or field trials when necessary to determine which technology is best suited to a particular problem area.

Incorrect regulatory cites, brought about by statutory and/or regulatory changes, were corrected.

Some portions of the proposed guidelines were edited for clarification or to eliminate redundant and verbose language.

Comments were requested on the proposed guidelines and a total of seven comments were received. Six were from State authorities and one from the Navajo Nation. All comments received were considered in the process of drafting the final guidelines and are available for inspection at the address listed above. A "response to comments" document has been prepared by OSM and is available on request by contacting the individual listed under FOR

## FURTHER INFORMATION CONTACT:

### Availability of Copies

Additional copies of the revised guidelines are available for inspection and may be obtained at the following offices:

OSM, Department of the Interior, Room 120 South Interior Building, 1951 Constitution Avenue, N.W., Washington, D.C. 20240, (202) 208-5365.

OSM, Appalachian Regional Coordinating Center, Three Parkway Center, Pittsburgh, Pennsylvania 15220, (412) 937-2828.

OSM, Mid-Continent Regional Coordinating Center, 501 Belle Street, Alton, Illinois 62002, (618) 463-6460.

OSM, Western Regional Coordinating Center, 1999 Broadway, Suite 3320, Denver, Colorado 80202, (303) 672-5500.

Dated: December 23, 1996.

Kathrine Henry,

Acting Director, Office of Surface Mining Reclamation and Enforcement.

## **ABANDONED MINE LAND (AML) RECLAMATION PROGRAM GUIDELINES FOR RECLAMATION PROGRAMS AND PROJECTS**

### CONTENTS

#### A. Definitions

#### B. Program Considerations

1. Land, Water, or Mineral Rights Required for Reclamation
  - a. Consent requirements and responsibility
  - b. Written consent versus police power
  - c. Monitoring and maintenance
  - d. Property acquisition
2. Jurisdictional Responsibilities
  - a. Reclamation program legal requirements
  - b. Environmental evaluation requirements
  - c. Interstate coordination requirements
3. Selection Criteria (Nonemergency)
  - a. Reclamation site ranking
  - b. Reclamation considerations
  - c. Reclamation extent
  - d. Cooperative efforts
  - e. Joint projects
4. Emergency Projects
  - a. Authority for emergency reclamation
  - b. Emergency project considerations
  - c. Emergency project examples
  - d. Abatement procedures
5. Incidental Recovery of Coal in Conjunction with Reclamation Activities
  - a. Resource recovery potential
  - b. Incidental recovery of Coal
  - c. Active mining permit requirements
  - d. Recovered coal disposition
  - e. Future coal recovery

6. Abandoned Structures and Equipment
  - a. Investigation and report
  - b. Ownership rights
  - c. Disposal revenues or benefits
7. Borrow and Disposal Areas
  - a. Site selection
  - b. Adverse impacts
8. Program and Project Evaluation
  - a. General Evaluation considerations
  - b. Evaluation report
9. Maintenance of Reclamation Work
  - a. Planned Maintenance
  - b. Unplanned Maintenance
10. Noncoal Projects
  - a. Guideline applicability
  - b. Priorities under Section 409
  - c. Priorities under Section 411

#### C. Site Considerations

1. Mine Drainage
  - a. General considerations
  - b. At-source control measures
  - c. Treatment measures
  - d. Coal refuse piles and coal waste embankments
2. Active Slides and Slide-Prone Areas
  - a. Site evaluation factors
  - b. Remedial measures
3. Erosion and Sedimentation
  - a. Erosion and sediment control considerations
  - b. Erosion control practices
  - c. Sediment trapping practices
4. Vegetation
  - a. Existing vegetation inventory and evaluation
  - b. Vegetative requirements
5. Toxic Materials
  - a. Sampling and analysis considerations
  - b. Planning considerations
  - c. Sites eligible under CERCLA.
6. Hydrologic Balance
  - a. Planning considerations
  - b. Surface-water considerations
  - c. Ground-water considerations
7. Public Health and Safety
  - a. Dump sites
  - b. Highwall danger
  - c. Mine openings and subsidence
  - d. Radiation emission
  - e. Domestic water supplies
  - f. Surface and underground mine fires
  - g. Hazardous/Explosive gases

8. Esthetics and Visual Values
  - a. Visual degraders
  - b. Esthetics problem solutions
9. Fish and Wildlife Values
  - a. Project identification requirements
  - b. Determining fish and wildlife values and goals
  - c. Planning considerations
  - d. Installing and maintaining established fish and wildlife habitat values
10. Air Quality
  - a. Air quality standards
  - b. Coordination requirements
  - c. Air quality degradation and improvement

## **A. DEFINITIONS**

1. *ABANDONED PROPERTY* -Real and personal property, associated with past mining activities, that has been forsaken or deserted by an owner. This includes real estate, structures, and equipment.

a. Abandoned Structures-Abandoned permanent improvements or fixtures firmly attached to the land and considered as part of real property. Abandoned structures include but are not limited to coal tipples, coal washers, storage and grading facilities, loading docks, rail spurs, concrete foundations, dams, reservoirs, and bridges. Other items such as crushers, elevators, bins, loaders, conveyors and similar equipment are within this definition if firmly affixed to the land.

b. Abandoned Equipment-Abandoned movable items not affixed to the land. Such items are considered as personal property and include equipment and dismantled machinery not affixed to the land and which could be moved. These items include but are not limited to shovels, scrapers, tires, machinery parts, trailers, trucks, electrical substations on skids, feeders, and loaders.

c. Disposal-The act of sale, federal utilization, demolition, removal, and the burning and burial of scrap or other debris resulting from abandoned structures and equipment.

2. *ACT* -The Surface Mining Control and Reclamation Act of 1977 enacted as Public Law 95-87 (30 U.S.C. 1201 et seq.), as amended.

3. *ADMINISTERING AGENCY*- The agency that has the responsibility for carrying out a reclamation program or project. This includes OSM for federal reclamation projects; U.S.D.A., Natural Resources Conservation Service (NRCS) for the Rural Abandoned Mine Program; designated State reclamation agencies for projects carried out under an approved State Reclamation Plan; and Indian tribes for projects carried out under an approved Indian Reclamation Plan.

4. *ELIGIBLE LANDS* -Lands and water which were mined for coal or which were affected by such mining, wastebanks, coal processing, or other coal mining processes and left or abandoned in either an unreclaimed or inadequately reclaimed condition prior to August 3, 1977, and for which there is no continuing reclamation responsibility. Provided, however, that lands and water damaged by coal mining operations after that date and on or before November 5, 1990, may also be eligible for reclamation if they meet the requirements specified in 30 CFR 874.12 (d) and (e). Eligible lands and water for noncoal reclamation purposes are those sites that meet the eligibility requirements specified in Section 409 of the Act or, following certification of the completion of all known coal problems, those in 30 CFR 875.14. For additional eligibility requirements for water projects, see 30 CFR 874.14, and for lands affected by remining operations, see Section 404 of the Act.

5. *EMERGENCY* -A sudden danger condition or impairment that constitutes a situation with a high probability of substantial physical harm to the health, safety, or general welfare of people before the danger can be abated under normal program procedures. [\*68779]

6. *HYDROLOGIC BALANCE* -The relationship between the quality and quantity of water inflow to water outflow from an abandoned mine land site. The relationship includes water storage and transfer within hydrologic units as they now exist or may have existed.

7. *TOXIC MATERIALS* -Earth materials or wastes resulting from mining operations which, if acted upon by air, water, or micro-biological processes are likely to produce chemical or physical conditions in soils or water that are detrimental to the biota or water use.

## **B. PROGRAM CONSIDERATIONS**

### *1. LAND, WATER, OR MINERAL RIGHTS REQUIRED FOR RECLAMATION*

#### a. Consent Requirements and Responsibility

In addition to the rights of entry required by 30 CFR 877, other consents required by the specific type of reclamation program should be obtained. In water limited areas reclamation programs that propose to restore or alter water quality or quantity should not be undertaken until the appropriate water right consents are obtained. If the mineral estate is severed from the surface estate, consents should be obtained from both parties. All necessary consents should be obtained for a time period sufficient to complete the reclamation activities. The administering agency has the responsibility to assure that no reclamation work is carried out without such consents.

#### b. Written Consent Versus Police Power

Written consent from the owner of record and lessee or his authorized agent should be the preferred means for obtaining agreements to enter lands in order to carry out reclamation work. Entry by use of police power is restricted to those reclamation projects that will protect public health, safety, and general welfare as authorized under Sections 407(a), 407(b), 409(c), and 410 of the Act, as amended, and should be undertaken only after due care and deliberation has exhausted all possibilities of obtaining written consents.

#### c. Monitoring and Maintenance

Written consent by the landowner should include considerations for monitoring and maintenance, including rights of entry as necessary.

#### d. Property Acquisition

Acquisition of property may be undertaken only under the conditions specified in Sections 407 and 409 of the Act, as amended.

### *2. JURISDICTIONAL RESPONSIBILITIES*

#### a. Reclamation Program Legal Requirements

The administering agency should ensure compliance with all applicable Federal, State, Tribal, and local laws and coordination with the appropriate agencies as necessary.

#### b. Environmental Evaluation Requirements

Appropriate steps to achieve compliance with the National Environmental Policy Act of 1969 (NEPA) must be undertaken for every proposed AML reclamation project. Authorization by the Council on Environmental Quality (CEQ) at 40 CFR 1506.11 to abate emergency conditions without preparing an environmental document does not relieve OSM or the States/Tribes of the responsibility to complete consultation duties or obtain necessary permits in accordance with other Federal, State and local laws.

(1) Where emergency circumstances at the site require immediate abatement action, and the environmental document cannot be completed prior to the initiation of action, OSM and the States are authorized to act, but the action taken must be limited to that necessary to control the immediate impacts of the emergency.

(2) Actions which remain to be taken at the site of an emergency after the abatement of the immediate impacts require the preparation of an environmental document.

#### c. Interstate Coordination Requirements

Where reclamation is proposed that may affect adjoining States or other jurisdictional authorities, the administering agency should coordinate planning and implementation of these projects with those entities.

### 3. SELECTION CRITERIA (NONEMERGENCY)

#### a. Reclamation Site Ranking

Procedures for selecting nonemergency sites to carry out reclamation activities should incorporate weighting factors to rank the proposed sites in accordance with priorities established in Section 403 of the Act. General instructions for determining the AML priority of a site are contained in the OSM Abandoned Mine Land Inventory Manual. Noncoal sites must comply with Section 409 or 411 as appropriate. Negative weights should be considered for adverse impacts resulting from the proposed project. Generally, reclamation of lower priority projects should not be initiated until all known higher priority projects have been completed, are in the process of being reclaimed, or have been approved for funding by the Secretary. However, lower priority projects, or contiguous work may be undertaken in conjunction with high priority projects in accordance with these guidelines.

(1) The administering agency may give priority consideration to reclamation projects where:

(a) The landowner(s) consent to participate in post reclamation maintenance activities of the area;

(b) Reclamation provides multiple benefits to the landowner(s) and where those benefits have a greater cumulative value than other projects, and/or;

(c) Reclamation provides offsite public benefits.

(d) Acid Mine Drainage (AMD) is a major problem and/or the Appalachian Clean Streams Initiative (ACSI) can be utilized in restoration of streams polluted with AMD.

#### b. Reclamation Considerations

The following items should be considered in determining whether a nonemergency site should be reclaimed.

(1) The lands proposed for reclamation are eligible as defined by Section 404, 409, or 411 of the Act.

(2) Problems associated with the site can be abated by utilizing current available technology or horizon technology with a high probability of success to prevent or minimize present or future adverse effects. When necessary to determine which technology is best suited to a particular problem area, test plots and/or field trials are allowed. Such activities are appropriate and do not constitute "research" as prohibited by the Act, as amended.

(3) Reclamation can be carried out in a manner that minimizes maintenance to achieve a self-sustaining reclamation solution. Self-sustaining implies reclamation which is permanent and stable under the prevailing environmental and land-use conditions utilizing current technology. Projects which require continuous maintenance and/or operating costs should be undertaken only if a commitment exists to bear these indefinite costs.

(4) Reclamation activities can be planned in a manner that is cost effective and compatible with the proposed post reclamation land use as intended by the landowner(s).

(5) Reclamation activities and post reclamation land use is cost effective and compatible with surrounding land uses, complies with local, State, tribal, [\*68780] and Federal requirements, and is acceptable to the community involved.

(6) If the project area is to be remined or developed in the foreseeable future and these activities will eliminate the adverse effects of past mining, reclamation should only be undertaken where the offsite adverse impacts from the affected area are so severe as to cause significant danger to public health and safety or to the environment if not abated before the proposed remining or development takes place.

#### c. Reclamation Extent

The amount of reclamation performed on a site depends upon the priority, funding available, and technology available for reclaiming the site. When it is cost effective to do so, consideration should be given to including lower priority problems in the reclamation plan when contracting for the elimination of a high priority problem. However, the primary purpose of the reclamation should be to address the higher priority problems. Factors that should be considered in determining the amount of reclamation to be done at a site include-

(1) The total area of affected land and water.

(2) Uniformity/diversity of the problem(s) over the entire site.

- (3) Minimum reclamation needed to restore the site and additional low priority work needed, if any.
- (4) Availability of funds.
- (5) Cost effectiveness of the proposed work.
- (6) Proposed post reclamation land use.
- (7) Onsite, offsite, and multiple land use benefits.
- (8) Post reclamation maintenance required and landowner participation in that maintenance.
- (9) Accommodating landowner(s) land use and treatment requests, if possible without incurring additional costs above that required for the minimum reclamation needed.
- (10) The possibility of remining.

#### d. Cooperative Efforts

In addition to the landowner consent requirements described in Section B Part 1 of these guidelines, a maintenance agreement between the administering agency and the landowner(s) may be incorporated as part of the reclamation plan to insure the continued success of the reclamation project. Estimated costs as well as financial and administrative responsibilities should be recognized in any agreement.

#### e. Joint Projects

Joint undertakings between the administering agency and the landowner(s) or other local, State, tribal, or Federal agencies are supported and encouraged.

### 4. EMERGENCY PROJECTS

#### a. Authority for Emergency Reclamation

Authorities and requirements for rights of entry to carry out emergency reclamation projects are contained in Section 410 of the Act.

#### b. Emergency Project Considerations.

(1) Emergencies are differentiated from Priority 1 projects by interpretation of the phrases "sudden danger" and "high probability of substantial physical harm" in the definition of "emergency" contained in these guidelines.

(2) Justification for emergency action must be based on whether immediate action is crucial to eliminate the danger of harm to persons. The time element referenced by the phrase "before the danger can be abated under normal program operation procedures" means that the danger is so imminent that time is not available for normal project contractual procedures.

(3) A limited amount of nonemergency work may be conducted in conjunction with emergency abatement if such work is cost effective in reclaiming the entire project site.

#### c. Emergency Project Examples

The following list illustrates examples of sudden situations with a high probability of causing substantial physical harm to the health, safety, and general welfare of people:

- (1) Subsidence suddenly occurring in or near populated areas or roadways.
- (2) Mine water "blow-outs" in or near highly used public areas.
- (3) Landslides caused by movement of spoil material or mass movement due to drainage or seepage from abandoned coal mines threatening to destroy homes and businesses or block roads and stream channels.
- (4) Actual or potential failure of unstable coal refuse impoundments, processing waste banks, or abandoned sediment control structures caused by unusual precipitation events significantly imperiling downstream populated areas.
- (5) Mine or coal refuse fires that impair the health or safety of residents in populated areas.

#### d. Abatement Procedures

(1) Reclamation procedures are site specific and often cannot be determined until after onsite inspection and evaluation of the nature of the emergency, number of people affected, resources available, and existing time constraints.

(2) Emergency reclamation need not resemble final restoration. The objective of emergency reclamation is to stabilize the problem and eliminate the danger to the public. Additional reclamation, to fully reclaim the area, may be carried out under regular reclamation programs at a later date or, as noted above at Part 4.b.(3), may be performed in conjunction with emergency work if cost effective.

### 5. INCIDENTAL RECOVERY OF COAL IN CONJUNCTION WITH RECLAMATION ACTIVITIES

#### a. Resource Recovery Potential

Prior to conducting reclamation activities on land containing coal refuse piles, coal waste impoundments, or abandoned mine workings with remaining coal resources, the economic and technical feasibility of further coal recovery should be evaluated for that project area. The State administering agency determines if any coal can be recovered and may consult the State regulatory authority, as necessary, in making this determination.

#### b. Incidental Recovery of Coal

If coal is recovered during reclamation and is determined to be incidental to the reclamation activities, the associated coal recovery activity is exempt from Title V regulations, in accordance with Section 528 of the Act and 30 CFR Part 707. The State regulatory authority is responsible for determining the exemption and is responsible for enforcing the requirements of 30 CFR Part 707. Exemption criteria include:

- (1) Coal recovery must be incidental to reclamation activities.
- (2) The project must be government-financed as defined in 30 CFR Part 707.
- (3) All coal recovered must be contained within the project area.

#### c. Active Mining Permit Requirements

If coal recovery is not incidental to the reclamation project or does not meet other requirements for exemption, the State regulatory authority will ensure that all permits required under Title V are obtained before reclamation activities commence.

#### d. Recovered Coal Disposition

Any revenues received from the sale of coal which was recovered incidental to reclamation should be deposited to the Fund pursuant to Section 401(b)(4) of the Act or otherwise used to offset the cost of reclamation. Applicable consents [\*68781] should clearly authorize the extraction of coal and communicate the disposition of the coal and associated revenues.

#### e. Future Coal Recovery

If the mineral estate under the area to be reclaimed contains unmined coal seams, reclamation activities should include reasonable and cost effective efforts to protect the future recoverability of those seams. However, coal seams left in place during reclamation will be deemed to be unrecoverable at the time of reclamation and any future attempts to mine such seams will have to comply with any permit requirements in place at the time the new mining is proposed.

### 6. ABANDONED STRUCTURES AND EQUIPMENT

#### a. Investigation

(1) The administering agency should perform an onsite investigation of abandoned structures or equipment and encourage the landowner(s) to recover any salvage value by disposal prior to the initiation of any reclamation project.

- (2) The onsite investigation should be conducted by the administering agency and should address-
  - (a) The type, quantity, age, and apparent condition of all abandoned structures or equipment.

- (b) The structural soundness, visual quality, historical significance, effect on proposed reclamation activities, and land uses in the area. The structural soundness of the structure should be evaluated in relation to public health, safety, general

welfare, and the post reclamation use.

(c) The disposal or retention of the structures or equipment in accordance with local, State, tribal, and Federal laws.

(d) Methods to eliminate the safety hazards associated with structures or equipment that are retained on the reclaimed site.

#### b. Ownership Rights

The landowner(s) may recover any salvage value by disposal of the abandoned structures or equipment prior to the initiation of any reclamation project. The administering agency is responsible for securing consent to dispose of or modify the abandoned structures or equipment not disposed of by the landowner(s).

#### c. Disposal Revenues or Benefits

Any revenues or benefits received from the sale or use of abandoned structures or equipment as a result of reclamation should be used to offset the cost of reclamation or deposited to the Fund pursuant to Section 401(b)(4) of the Act. All such revenues or benefits should be documented in the project file.

### 7. BORROW AND DISPOSAL AREAS

#### a. Site Selection

The borrow and disposal areas created by reclamation activities should be subject to and conducted in accordance with applicable local, State, tribal, or Federal reclamation requirements. Borrow and disposal areas should be located on the site of the reclamation project if possible. Offsite borrow and disposal areas should be utilized only when no onsite area is available and it is necessary to protect the health and safety of the public, provide an area more suitable for reclamation and less prone to constitute a hazard in itself, produce an improved land use, or protect the environment.

#### b. Adverse Impacts

Adverse impacts of the selected areas should be minimized by disturbing the smallest possible area; providing adequate drainage, dust, and erosion control measures; protecting historic and cultural values; protecting visual esthetics; protecting fish and wildlife values; protecting the health and the safety of the community and the public; and reclaiming the borrow and disposal area after termination of the project.

### 8. PROGRAM AND PROJECT EVALUATION

#### a. General Evaluation Considerations

Reclamation activities are to be evaluated on a regular basis to determine the effectiveness of the program/project in reclaiming abandoned lands. The objective is to identify those abatement/control methodologies that have been effective over time as well as those with demonstrated deficiencies that need to be improved or changed. Project evaluation measures the success or failure of the applied techniques while program evaluation determines the effectiveness of the overall program, including regulations and policies. Evaluation efforts include, but are not limited to, recording accomplishments, making onsite reviews before, during, and after reclamation, and analyzing fund management.

#### b. Evaluation Report

The administering agency will prepare a report on its findings and recommendations. Recommendations should be used to modify program operations on future reclamation activities so that deficiencies will not reoccur. If requested, the report should be made available to other agencies in order to share information and improve the AML program nationwide.

### 9. MAINTENANCE OF RECLAMATION WORK

#### a. Planned Maintenance

Reclamation should be done in a manner to minimize or eliminate continued long-term maintenance. When long-term maintenance is required, it should be identified during the planning and design stages and should be developed in cooperation with the landowner(s) and/or appropriate agencies through formal agreement. Maintenance plans should include maintenance requirements, inspection schedules, technical assistance needed, and funding requirements.

#### b. Unplanned Maintenance

AML projects often involve conditions unforeseen during the design period, that may affect the achievement of permanent reclamation and long term stability. Reclamation programs should develop and implement general policies for performing post construction monitoring to address unanticipated maintenance needs. The plan should include, at a minimum:

- (1) A plan for post construction monitoring of sites to determine maintenance needs;
- (2) A procedure for determining when and when not to perform additional maintenance when problems are identified in the field;
- (3) A procedure to determine when a site has reached long term stability, and that future monitoring is unneeded, including a landowner notification policy;
- (4) A method for dealing with situations where landowner practices make future maintenance unproductive.

### 10. NONCOAL PROJECTS

#### a. Guideline Applicability

States with approved reclamation plans may undertake noncoal reclamation projects under the specific provisions in Section 409 of the Act or after certification that all coal related problems have been reclaimed, as authorized in Section 411 of the Act.

#### b. Priorities Under Section 409

Noncoal projects to be reclaimed under Section 409 of the Act must be at the request of the Governor of the State or the governing body of an Indian tribe and must comply with the priorities stated in Section 403(a)(1), except that the term "coal" does not apply. The reclamation must be for the protection of public health, safety, general welfare, [\*68782] and property from extreme danger of adverse mining practices.

#### c. Priorities Under Section 411

Noncoal projects to be reclaimed under Section 411 of the Act may not proceed until the State has certified that all coal problems have been resolved. Planning and design work for reclamation of noncoal projects may commence prior to completion of all coal projects.

## C. SITE CONSIDERATIONS

### 1. MINE DRAINAGE

#### a. General Considerations

The reclamation plan should attempt to minimize or control mine drainage and include procedures to treat impounded waters containing toxic materials prior to release. At-source control measures are preferred over long-term treatment methods to eliminate or minimize maintenance.

#### b. At-Source Control Measures

Controlling or minimizing mine drainage at its source can be accomplished by-

- (1) Mine-sealing techniques, including grout curtains and slurry trenching. Factors to be considered when planning to seal mines are the potential to develop hydrostatic heads, the accessibility of the area, and the integrity of the surrounding geologic formations.
- (2) Infiltration control and water diversion. Factors to be considered include topography, control of surface water, effects on ground water, the control of water passage through openings, and the storm event design.
- (3) Daylighting, the surface mining procedures and excavation processes utilized to expose underground mine works for partial or complete removal of the remaining material underlying the surface. Factors to be considered include the depth of overburden, marketability of the mineral, and safety measures.

### c. Treatment Measures

Secondary treatment of mine drainage can be carried out by the addition of neutralizing agents. Permanent treatment facilities should be designed to minimize operation and maintenance costs and should only be considered if no other means exists to abate the problem. Written assurance, from the landowner or any other interested party, should be obtained that the treatment facilities will be maintained after appropriations for the abandoned mine land program cease.

### d. Coal Refuse Piles and Coal Waste Embankments

Methods of reclaiming land containing coal refuse, coal wastes, or abandoned workings include, but are not limited to-

- (1) Removing the coal refuse or coal waste to an environmentally acceptable site, subject to all appropriate approvals;
- (2) Burying the refuse or waste, diverting water away from or around the reclaimed area whenever possible or layering the reuse material with clay or other impervious material, when practical, to prevent water infiltration and contamination;
- (3) Treating the refuse pile in place by-
  - (a) Diverting water around the coal refuse and/or waste,
  - (b) Collecting and conveying drainage from the refuse pile for safe disposition (an approved water pollution control facility should be used if needed to meet quality standards),
  - (c) Grading and contouring waste structures to drain water off the disposal site,
  - (d) Covering the refuse with a suitable thickness of nontoxic or nonacid-forming material or treating the refuse with lime or other material to prevent acid or other toxic drainage, or
  - (e) Any combination of the above treatments.

## 2. ACTIVE SLIDES AND SLIDE-PRONE AREAS

### a. Site Evaluation Factors

Factors that should be considered on a case-by-case basis in the evaluation of slides or slide-prone areas include-

- (1) The topography of the ground surface as an indication of past landslide activity and potential instability. Topographic data collected should include contour maps at 2- to 5-foot intervals, surface drainage characteristics, locations of ponded surface water, and slope profiles.
- (2) The geology of the subsurface. Rock formations and geologic structure including folds, faults, joints, and shear zones should be identified whenever possible. This information may be useful in comparing the landslide potential of various areas.
- (3) The soil or spoil material. Description of the slide-prone material should include its texture, permeability, and engineering properties as well as the related soil-rock ratios.
- (4) Ground water sources. Springs and seeps, dump areas, adits, auger holes, drill holes, and coal seams should be identified.
- (5) Vegetative cover. Vegetation will affect the stability of the slide or slide-prone area. Deep masses of roots may provide sufficient reinforcement to distort the geometry of the slide and trees with deep tap roots may curtail severe movement. Vegetative cover within a landslide area should be compared to that within the surrounding area and with that present at known landslide areas.
- (6) Other physical factors. These include timber coverage or lack of it on slopes, parent material and volume of spoil, proximity to other slides, or other data specific to the slide area which may be helpful in designing the best structural specifications for stabilizing the area.
- (7) U.S. Geological Survey slide-prone maps, U.S. Department of Agriculture soil maps, and other related data.

### b. Remedial Measures

Reclamation and stabilization of slide areas may be achieved by one or more of the following methods, typically a combination of-

- (1) Removing unstable material or by terracing.
- (2) Installing surface and/or subsurface drainage such as rip-rap channels, french drains, pumping wells, etc.
- (3) Installing support and reinforcement systems such as retaining walls, gabions, vertical pilings, etc.
- (4) Revegetation.

### 3. *EROSION AND SEDIMENTATION*

#### a. Erosion and Sediment Control Considerations

Erosion and sediment control measures should be designed in accordance with Federal, State and local laws and should-

(1) Minimize erosion from the reclamation site and adjacent lands, minimize water pollution from sediment, acid drainage, and other toxic materials, and provide conditions suitable for the planned land use.

(2) Maintain the soil resource within acceptable soil loss limits. Allowable sheet and rill erosion rates should be commensurate with the soil resulting from reclamation. Information relative to allowable soil loss limits may be obtained from local NRCS Office.

(3) Expose the least amount of land at any one time, with the more hazardous areas exposed for the shortest time and during the season when extreme rainfall is least likely to occur.

(4) Complete reclamation activities so Revegetation can take place at the most advantageous time of year.

(5) Control foot and vehicular traffic and grazing until vegetation is established. [\*68783]

#### b. Erosion Control Practices

Well established vegetation is generally the most cost-effective means of erosion control. Other methods may include one or more of the following, in conjunction with vegetation, to achieve temporary and/or permanent erosion control.

(1) Mulches may be used for temporary erosion control and in some cases stabilizing agents such as gravel, stone, and concrete blocks may be used for permanent protection.

(2) Permanent structural measures may be used to divert runoff, reduce slope length, and provide for an effective runoff disposal system.

(3) Temporary vegetation and/or structural measures may be needed for erosion control during reclamation. Provisions should be made to remove the temporary control measures and stabilize the area when they are no longer needed.

#### c. Sediment Trapping Practices

When erosion controls are incapable of preventing excessive sediment buildup, either during reclamation or permanently, the excess sediment should be controlled to prevent offsite contamination.

(1) Temporary sediment control measures such as filter strips, sediment traps, and sediments basins, should be stabilized and maintained during their planned life.

(2) Permanent sediment basins should be maintained and the sediment removed when it accumulates to the design level. The use of permanent sediment basins should be minimized because of the continuing maintenance responsibility.

### 4. *VEGETATION*

#### a. Existing Vegetation Inventory and Evaluation

The administering agency should complete an inventory and evaluation of existing vegetation and site conditions prior to developing the design and specifications for a project. The permanent vegetation selected to cover the reclaimed mine land should be compatible with the site characteristics and the intended land use of the reclaimed and surrounding land and provide adequate erosion control.

#### b. Vegetative Requirements

The vegetation portion of the project design and specifications should be developed considering requirements itemized for each of the following cases:

(1) In areas where the present plant species are inadequate or undesirable and only a change in vegetation is needed-

(a) Necessary erosion and sediment control structures should be installed to protect the area from excessive erosion and sedimentation during the vegetation establishment period. Temporary vegetation may be used alone or in combination with a mulch or other stabilizing agent in accordance with the needs of the site.

(b) The newly planted area should be protected from excessive use, especially livestock grazing, during the establishment period.

(2) In areas where changes in topography and vegetation are needed-

(a) Changes in topography should be made to improve esthetics aspects of the site, permit establishment of desirable vegetative cover, and insure compatibility with the planned land use;

(b) Temporary vegetation should be used to protect stockpiles of soil materials for a short time or to provide temporary cover until the permanent vegetation is established.

(3) In areas where the present spoil material is unsuited for vegetation the spoil material should be covered or replaced with material that will support the desired vegetation. If covering or replacement costs are prohibitive, attempts should be made to create a suitable plant growth medium upon which vegetation may be established.

(4) In areas where alteration of the site to support vegetation is impractical sediment should be confined to the immediate area if feasible. Surface runoff should be treated to an acceptable level of quality before discharging offsite if necessary.

## 5. TOXIC MATERIALS

### a. Sampling and Analysis Consideration

The administering agency should sample sites suspected of containing administering agency should sample sites suspected of containing toxic materials. Chemical and/or physical analyses may include, but are limited to;

(1) pH (paste).

(2) SMP Buffer (tests pH of solution prior to weathering).

(3) Net acidity or alkalinity, or potential acidity.

(4) Total sulfur (sulfate and sulfide).

(5) Electrical conductivity (mmhos/cm).

(6) N,K,P and USDA texture class when material is to be used as post-reclamation plant growth medium.

(7) Organic matter (quantity and type).

(8) Visual and/or microscopic identification of potential toxic or acid forming materials.

### b. Planning Considerations

The administering agency should consider the following items in their planning efforts on projects containing toxic materials:

(1) Critical toxic limits.

(2) Containment or segregation of toxic materials using sealed pits or embankments and/or covering the toxic materials with compacted clay or some other suitable material.

(3) Site preparation, including grading, backfilling, scarification, and application of appropriate growing medium, chemical fertilizers, lime gypsum, mulches, or sludge.

(4) Water management control, including surface and subsurface drainage, sediment control, and soluble toxic elements.

(5) Necessary monitoring and required maintenance, if any.

c. Sites Eligible Under CERCLA. AML sites containing AMD or other toxic material may be eligible for clean-up under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) if included on the national priority

list (NPL). Listing of a site on MPL makes the site ineligible for AML funding.

## 6. *HYDROLOGIC BALANCE*

### a. Planning Considerations

After identification of areas needing restoration of the hydrologic balance, the administering agency should consider the following items in their planning.

- (1) Evaluation of procedures needed to reduce or eliminate pollution to receiving surface and subsurface waters, including technical and economic constraints.
- (2) Potential beneficial and/or adverse effects of proposed restoration activities on offsite hydrologic systems.
- (3) Post reclamation land use of the site and surrounding area.

### b. Surface-Water Considerations

Restoration of surface drainage should maximize erosional and ecological stability. Factors to be considered include, but are not limited to:

- (1) Type of reconstruction materials to be used, stream gradient, fish and wildlife habitat, and compatibility with adjoining undisturbed surface drainage.
- (2) Use of the reclaimed area as a source of ground-water recharge and the potential for downstream flooding.
- (3) Feasibility of long-term, self-maintaining erosion control measures to enhance stream and flood plain stability.
- (4) Construction of water impoundments which do not adversely [\*68784] affect the restoration of the hydrologic balance and are in accordance with applicable local, State, tribal, or Federal requirements.

### c. Ground-Water Considerations

Restoration of ground water should be done in a manner that will not diminish or degrade water leaving the site. Factors to be considered include, but are not limit to:

- (1) Evaluation of the re-established water table, relative to the reclaimed land surface.
- (2) Evaluation of the ground-water recharge capacity, considering the underlying aquifers and backfill materials.
- (3) Identification of toxic and/or acid forming materials and procedures to eliminate or minimize contamination of the water table.

## 7. *PUBLIC HEALTH AND SAFETY*

### a. Dump Sites

Abandoned mine sites used as dumps are usually excellent breeding places for insect and vermin and could pose a hazard to public health. The presence of a dump in an abandoned mine site should not be considered the primary reason for reclamation, but may be considered in raising the site priority in the same objective category. Prior to any reclamation work on dumps, the local, State and/or tribal agency should be encouraged to abate the problem under other existing authorities and consulted regarding proper disposal methods.

### b. Highwall Danger

Highwalls may create a significant danger to public health or safety when there is public use of the area above the highwall and/or there is evidence of sloughing that may damage structures or block roads and stream channels. Reclamation techniques include, but are not limited to:

- (1) Reducing the highwall height,
- (2) Backfilling and grading the highwall to a stable slope, or
- (3) Providing a physical barrier to limit accessibility and material movement.

#### c. Mine Opening and Subsidence

(1) The administering agency should consider the following items when planning for subsidence control projects:

(a) Exploratory drilling to determine the locations, size, and condition of abandoned underground mine openings with the potential to subside (except in emergencies).

(b) Proximity to populated areas with high public use.

(c) Notification to all local, State, and tribal land use planning agencies of potential subsidence areas.

(2) Restricting entry to mine openings by constructing physical barriers and/or fencing for emergency situations until the opening can be properly reclaimed.

#### d. Radiation Emission

Where radiation constitutes a potential public health or safety problem, the administering agency should coordinate with other pertinent agencies prior to reclamation activity. Normally, this coordination is done during the development of the State reclamation standards for radiation.

#### e. Domestic Water Supplies

Control measures designed to protect or restore domestic water supplies should consider the number of people affected, the type and concentration of pollutant(s), and the type and cost of control technology. Clean-up or restoration of domestic water supplies should be restricted to source control where possible.

#### f. Surface and Underground Mine Fires

Only fires associated with abandoned mines or in virgin seams associated with other abandoned mine reclamation problems are eligible for Title IV funding.

(1) Prior to initiating control or extinguishment efforts, geologic investigations should be carried out to determine the extent of the fire and the amount of remaining combustible material.

(2) Reclamation design and procedures should include method to control or eliminate hazardous gases, fumes, and other types of air pollution associated with the fire.

#### g. Hazardous/Explosive Gases

Toxic gases, other than those associated with mine fires, may require site specific control or treatment procedures. For example, methane seeking into a residence must be vented and should be monitored for a reasonable amount of time to ensure the area is safe. Whenever possible gases should be vented or sealed off at their source.

### 8. *ESTHETICS AND VISUAL VALUES*

Reclaimed lands should, to the extent that it is feasible, conform to the visual aspects of the surrounding landscape. The reclamation design and procedures should take into consideration the proximity to public high use areas and the visual impact within the context of the viewing distance.

#### a. Visual Degradations

The administering agency determines what conditions are visually degrading and should be considered for visual improvement. Visual degradations may include, but are not limited to, highwalls, erosion, discolored water, haul roads, refuse piles, slurry ponds, spoil piles, abandoned mining equipment and structures, garbage and refuse dumps, open pits, and deforestation.

#### b. Esthetics Problem Solutions

Solutions for esthetics problems may involve removal of offensive material or condition, strategic placement of screening materials, and/or the use of appropriate plant species. Guidelines and standard to evaluate visual resources developed by the U.S. Forest Service, NRCS, U.S. Bureau of Land Management, National Park Service, and other agencies should be adapted for use in evaluating and planning visual solutions.

## 9. FISH AND WILDLIFE VALUES

### a. Project Identification Requirements

The administering agency should periodically provide a list of proposed and on-going abandoned mine land activities to the conservation or land management agencies with responsibilities for fish and wildlife or their habitats and should request pertinent information and suggestions from these agencies.

### b. Determining Fish and Wildlife Values and Goals

The administering agency should review information provided by the conservation and land management agencies with responsibilities for fish and wildlife or their habitats to determine the pre-reclamation fish and wildlife values of abandoned mine land sites. The administering agency should then determine the fish and wildlife goals for each project, in relation to that project's determined fish and wildlife values and the program priority objectives.

### c. Planning Considerations

The administering agency should encourage the consideration of fish and wildlife values in all reclamation activities, including those whose primary purposes for reclamation are related to public health, safety, or general welfare. If fish and wildlife values are determined to be among the goals of the reclamation efforts, the administering agency should incorporate them into the reclamation plan. [\*68785]

### d. Installing and Maintaining Established Fish and Wildlife Habitat Values

The administering agency should insure that all fish and wildlife measures contained in the selected plan are implemented and should encourage the landowner(s) to maintain them at or above the planned level.

## 10. AIR QUALITY

### a. Air Quality Standards

All reclamation activities should be conducted in accordance with applicable local, State, tribal, or Federal air quality standards.

### b. Coordination Requirements

Local, State, tribal, or Federal air quality officials should be contacted prior to reclamation planning activities for requirements concerning air quality permit procedures, applicable standards, and possible control measures.

### c. Air Quality Degradation and Improvement

Long-term air quality improvements which will result from reclamation should have priority over possible short-term air quality degradation caused by reclamation construction.