PAD NO.:	DATE:	KEYWORD:	PRIORITY:

I.	HEALTH, SAFETY AND GENERAL WELFARE INFORMATION	Yes	No
1.	Has there been any occurrence of injury or death to a person, or accident or damage to improved property in the area, due to HS&GW problems?		
2.	Is the underground mine fire(s) within the limits of populated area or at any occupied dwellings or structures?		
3.	Is the underground mine fire(s) ***migrating*** in the direction of an existing population center and/or occupied development(s)? Documentation of migration shall consist of any one of the following three options:		
3A.	***Option A:*** Do existing maps show mine workings are either beneath or adjacent and contiguous to the impact area?		
3B.	***Option B:*** Is there evidence of both historical and present UMF migration in the direction of the impact area? Does evidence confirm that mine workings are either beneath or adjacent and contiguous to the impact area? *Note: Evidence may include, but is not limited to, borehole temperatures, gas analysis, ventilation pattern, surface expression, aerial photography, and thermal infrared mapping.*		
3C.	***Option C:*** Does Geotechnical evaluation confirm burn front migration in the direction of the impact area? And, does the Geotechnical evaluation confirm that the mine workings are either beneath or adjacent and contiguous to the impact area?		
4.	Has the existence of hazardous gases been confirmed through the collection and laboratory analysis of ambient air samples taken from an occupied dwelling/structure?		
4A.	Within an occupied structure/dwelling do hazardous gases from an underground mine fire present a hazard to public health or safety? A "positive" answer must be supported by a comparison of actual gas analysis to standards used in the State/Tribe for either indoor air quality or workplace air quality.		
4B.	Does venting of hazardous gases from an underground mine fire, in close proximity to occupied structures, public facilities or areas of intense visitation, cause a hazard to public health or safety? A "positive" answer must be supported by a comparison of actual gas analysis to standards used in the State/Tribe for short term exposure.		
5.	Does the problem meet the General Welfare Criteria outlined in Chapter 6 of the AML Inventory Manual for: a) Immediate Vicinity of a Residential Area? b) Adverse Economic Impact on the Local Community?		

PAD NO.:	DATE:	KEYWORD:	PRIORITY:

A positive answer to Question 1 indicates the problem can qualify to meet Priority 1 criteria with the adequate justification included in the narrative description.

A positive answer to Question 2, 3 or 4, OR a positive answer to Question 5 indicates the problem can qualify to meet Priority 2 criteria with the adequate justification included in the narrative description.

II. RECLAMATION PROBLEM DESCRIPTION (Evidence of Extreme Danger and Health Safety, and General Welfare Problems for Underground Mine Fires)

6. Narrative evidence of Priority 1 (Extreme Danger) Underground Mine Fire problems:

7. Narrative evidence of Priority 2 (HS&GW) Underground Mine Fire problems:

III. BASIS FOR YOUR COST ESTIMATE(S):

PAD NO.:	DATE:	KEYWORD:	PRIORITY:

I. HEALTH, SAFETY AND GENERAL WELFARE INFORMATION

PART I. Physical condition of the highwall		Yes	No
1.	Is the height greater than 6 feet?		
2.	Slopes a. Danger to people 1. Is there loose material on the face, and is the slope greater than 35 degrees? OR 2. Is the slope greater than 50 degrees? b. Is there danger to vehicles on road above the DH?		
PART II.	**Dangers**		
If it meets the criteria necessary to be a DH in Part I, positive answers to Questions 3 through 15 can qualify the problem as Priority 2. If it meets the criteria necessary to be a DH in Part I, positive answers to Questions 3, 4, 7, or 10 can qualify the problem as Priority 1. It is not necessary to answer all of the questions in the affirmative, and the questions may be given different weights of support in the narrative description. Multiple segments of a dangerous highwall should be consolidated on a single form. The physical characteristics and priority criteria for each segment should be noted in the narrative description. A positive answer to Question 17 indicates the problem can qualify to meet Priority 2 criteria with adequate justification included in the narrative description.			
	Potential dangers below highwall		
3.	Can materials falling from the highwall cause injury to residents or serious damage to occupied structures (and the surrounding yards) located in close proximity to the bottom of the highwall? If so, the problem can qualify to meet Priority 1 criteria with an adequate justification included in the narrative description.		
4.	Has an improved road(s) beneath the highwall been closed by rockfalls and is it likely to be closed again because of continued deterioration of the highwall? If so, it can qualify as a Priority 1 condition because it can prevent access by emergency vehicles.		

PAD NO.:	DATE:	KEYWORD:	PRIORITY:

I.	HEALTH, SAFETY AND GENERAL WELFARE INFORMATION (Continued)	Yes	No
5.	Can traffic on an improved road(s) be endangered by falling rocks? The road(s) must have improved thoroughfares. Roads that provide access only to the bench or mine are not considered in the classification.		
6.	Can improved property be damaged by falling material from the highwall? Could intensive use areas where large numbers of people gather beneath the highwall be exposed to falling rocks? Must involve large number of people over a long period of time.		
	Roads located above the highwall		
7.	Has a highwall(s) that is actively sloughed (i.e., deteriorating highwall), progressed to within 10 feet of the surface of a publicly maintained road? If so, it can qualify as a Priority 1 situation.		
8.	Is there a heavily traveled, maintained road(s) capable of speeds of at least 40 mph and used by the public to travel through the area to other destinations within 40 feet of the highwall?		
9.	Is there an unimproved road(s) accessible to conventional road vehicles drive road vehicles within 15 feet of the top of the highwall?		
	Danger of falling from top of the highwall		
10.	Is there an occupied structure(s), (including houses, apartments, schools, grocery stores, shopping malls, factories, and other retail stores where concentrations of people can be expected) located within 300 feet of the top of the highwall? If so, that portion of the highwall can qualify as Priority 1.		
11.	Is there an occupied structure(s), (including houses, apartments, schools, grocery stores, shopping malls, factories, and other retail stores where concentrations of people can be expected) located within 500 feet of the top of the highwall? If so, that portion of the highwall can qualify as Priority 2.		
12.	Is there an occupied structure(s) located within 500 feet of the top of the highwall? If so, that portion of the highwall qualifies as a Priority 2.		
13.	Are there numerous inhabited dwellings that are outside of the 500 feet, but it can be demonstrated that inhabitants are intensively visiting the top of the highway? If so, it can qualify as Priority 2.		
14.	Is there a park(s) and/or recreation use area(s) located within 500 feet of the top of the highwall with evidence of intensive public visitation to the top of the highwall?		

PAD NO.:	DATE:	KEYWORD:	PRIORITY:

I.	HEALTH, SAFETY AND GENERAL WELFARE INFORMATION (Continued)	Yes	No
15.	Is there an area(s) of intense visitation on top of the highwall--even if guardrails or natural barriers are present? And, is the road(s) to area(s) both accessible to the public and in a condition sufficient to allow access by a vehicle?		
16.	Although a hazardous water body is a different kind of problem from dangerous highwalls, the two overlap in the numerous cases of water-filled pits beneath a last-cut highwall. Is the public congregating at the water body for recreation (swimming, fishing, etc.), and is the public either exposed to danger by traversing the highwall to access the water or does the public use the highwall as a diving platform, parking area, or rest area?		
17.	Does the problem meet the General Welfare criteria outlined in Chapter 6 of the AML Inventory Manual for: a. Immediate Vicinity of a Residential Area? b. Adverse Economic Impact on the Local Community?		

II. RECLAMATION PROBLEM DESCRIPTION (Evidence of Extreme Danger and Heath, Safety, and General Welfare Problems for Dangerous Highwalls).

18. Narrative evidence of Priority 1 (Extreme Danger):

PAD NO.:	DATE:	KEYWORD:	PRIORITY:

19. Narrative evidence of Priority 2 (HS&GW) Dangerous Highwall problem:

III. BASIS FOR YOUR COST ESTIMATE(S):

CHAPTER 6

CRITERIA FOR BASING PRIORITY ON "GENERAL WELFARE"

In addition to the health and safety criteria identified in the Keyword Definitions, coal related projects[3] can be considered high priority if the narrative description on the Priority Documentation form indicates that the problem to be reclaimed affects the protection of general welfare, i.e., the problem area is located in the immediate vicinity of a residential area or has an adverse economic impact upon a local community.

The Priority Documentation Forms identify specific criteria relevant to health and safety problems. Some mine related problems may have other negative impacts on the general welfare not addressed in the those forms. **A mine related feature may be considered a Priority 2 general welfare problem if it has an adverse economic impact on a local community or if it is in the immediate vicinity of a residential area.**

If mine related features meet one of these conditions, the preparer should select the Priority 2 keyword that most closely describes the feature and complete the unit and cost information on the OSM-76 Form. Follow the documentation requirements identified below for the appropriate keyword.

Immediate Vicinity of a Residential Area

- In order for an area to qualify under this category, the problem or feature proposed to be addressed must be within one mile from the nearest affected structures in a residential area.
- A residential area is a group of structures including homes, apartments, schools, grocery stores, shopping malls, retail stores, etc., where concentrations of people can be expected.
- An isolated problem area that affects individual homes that are not in close proximity to each other would not qualify under this category.

---

[3] These criteria for basing priority on "general welfare" are special cases based upon section 402(g)(4)(C) of SMCRA. Their purpose is to give States/Tribes more latitude to assign a priority 2 to coal related problems. Since a State or Tribe may fund any priority 2 coal related problem, there is no need to establish criteria for priority 1 problems based on general welfare.

A State or Tribe wishing to fund non-coal related problems prior to certification must base their reason for doing so on section 409 of SMCRA, "Filling Voids and Sealing Tunnels." Section 409(c)(1) references section 403(c)(1) "except for purposes of this section [section 409] the reference to coal in section 403(a)(1) shall not apply." Section 403(a)(1) does include protection of general welfare. States, Tribes, and OSM must use sound judgment when assigning a priority 1 to any eligible problem, coal or non-coal, based on the protection of general welfare.

Documentation and narrative evidence which the preparer should gather and make available for OSM under program evaluation activities include:

1. Map of local vicinity with problem area, mine related features and residential area(s) indicated.

2. Narrative description of the problem area and current area conditions.

3. Statement from the landowner(s) agreeing with the proposed reclamation plan.

Adverse Economic Impact on the Local Community

- Under this category a local community may be a group of people sharing a common physical location such as: locale populated by people having a common ethnic or religious origin, school district, municipality, geographic boundary, etc.

- If a local community is different from the examples provided, a preparer should document how local community is defined. Any definition used, however, must show how a group of people are linked, and how the affected people consider themselves a "community."

Examples of adverse economic impacts may include:

- Water quality damages that result in lost community services or benefits (i.e., stream previously providing a community sport fishery that no longer supports aquatic life).

- Impacts that increase the cost of community services (i.e., water treatment costs, road maintenance, water service maintenance).

- Impacts that have resulted in population migration away from the affected area.

- Impacts discouraging industrial or residential development.

- Decreases in revenues to municipality, school district, etc., that reduce the ability to provide ordinary public services.

Documentation and narrative evidence which the preparer should gather and make available for OSM under program evaluations include:

1. A description of the current conditions, including any unusual characteristics, features or hazards. If certain features meet the priority 1 or 2 standards for health and safety problems, describe those separately from the remaining site characteristics. Use maps and photos where appropriate.

2. A description of the local community. Explain how the "community" is defined. Describe how the local community is adversely affected by the problem area. Provide examples on how current conditions directly impact any or all of the following factors:

--the use or enjoyment of surrounding properties;
--the monetary value of the surrounding properties;
--land use potential;
--local tourist or sporting industries;
--availability of community services; or
--other economic aspects of the community.

Provide available market values (as compared to pre-mining market values if available, or compared to current market values of similar properties in nearby residential areas that are unaffected by past mining) or other financial data to support conclusions.

3. An indication of landowner(s) concern of the problem and agreement with the proposed reclamation.

4. An explanation of how reclamation of the AML feature will offset, eliminate or otherwise mitigate the adverse affect.

ADDITIONAL DOCUMENTATION FOR POST ACT SITES AS REQUIRED BY SMCRA SECTION 402(g)(4)(B)

5. A discussion of the reclamation plan filed by the operator and the proposed post-mining land use. Indicate the amount of any available bond funds, including those available from the State bonding pool.

CHAPTER 7

ESTIMATING AML RECLAMATION COSTS

Recommended Estimating Method

States, Tribes, Natural Resources Conservation Service, OSM Regional Coordinating Centers, and the Field Offices have many years experience with reclamation and the associated costs. It is recommended that this experience be used to estimate the Inventory costs for the various keywords. Costs should be based on knowledge of local conditions, recent construction costs, and/or published construction estimating guides (such as Means and Dodge). Indicate on the priority documentation the method used for developing the cost estimate.

Estimated costs must be only those costs that would result from a reasonable approach to abating the impact of the AML problem. Costs associated with reclamation techniques that would not be attempted by the State/Tribe should not be entered. For example, if the only reasonable approach to abating impacts from an underground mine fire is to construct fencing to prohibit entry to areas of hazardous gas venting, the cost associated with daylighting the entire fire should not be entered.

Completed costs should reflect final contract costs for construction only. Maintenance costs are not to be included. If major remedial work requiring an Authorization To Preceded is conducted, the associated construction costs should be included.

When AML keywords have been abated in some way other than through SMCRA programs, including RAMP, such as private reclamation, remining, natural causes, etc., the cost figure to be entered into the "Completed" column should be zero since there were no AML funds used.

1984 Cost Guidelines

The following cost guidelines were included in the 1984 Inventory Manual. They are provided as a supplement to aid the preparer in developing costs for new or different problem types or as a starting place for developing cost estimates. These guidelines are for the purpose of estimating inventory costs and are not intended as reclamation guidelines. The use of these guidelines should be documented under the "basis for your cost estimate" on the Priority Documentation Forms.

1. **REVEGETATION**. REVEGETATION of spoils, bench, pits (when filling is not required), gob material, and haul roads

   a. Spot plantings and a few scattered silt control structures, no grading: $ 500/acre

b. Conditioning and ground cover, no grading:

≤10 acres: $1,500/acre

> 10 acres: $1,000/acre

c. Smoothing with rubber-tired equipment (some grading), conditioning, ground cover:
≤10 acres $2,000/acre

> 10 acres: $1,500/acre

d. Significant grading, conditioning, ground cover:

≤10 acres $5,000/acre

> 10 acres: $3,500/acre

e. For toxic soil, double cost/acre for the affected acreage.

f. For burning acres (surface burning), double the cost/acre for the affected acreage.

g. For extremely large piles of mine wastes (generally over 40 feet high or with an average depth of 15 feet or more or containing more than 25,000 cubic yards of material/acre) where removal of material is likely to be required in addition to grading, it may be appropriate to calculate cost according to the volume of material involved rather than by the acreage disturbed using a cost of $4/cubic yard.

2. SLURRY AREAS

a. ≤ 10 acres : $15,000/acre
b. >10 acres: $10,000/acre

3. HIGHWALLS

Earthmoving costs are based on the volume of material to move, so reclamation cost estimates should be based on a presumed fill volume. Assuming that a triangular fill section with a constant, uniform slope will be placed against a highwall face, assumed to be vertical, then the cross-sectional area should be multiplied by the appropriate highwall length to estimate the required fill volume. A cost rate factor (dollars per cubic yard) is then multiplied by the calculated fill volume to arrive at the backfilling and grading cost.

The fill height can vary depending upon the availability of spoils. If enough fill material exists near the highwall to completely cover the highwall face, the effective fill height will equal the actual highwall height. If no spoils are available to cover the highwall face, it may be necessary to cut or blast the highwall face to eliminate the highwall. Material at the top of the highwall could be moved to the base of the highwall for fill material. In the most extreme situation half of the highwall height could be removed, making the effective fill height ½ the

original highwall height. All other spoil conditions could result in an effective fill height between ½ and the original total highwall height.

Next, the geometry of the fill slope is considered. Reclaimed slope grades will vary depending upon land use, hydrology, and the prevailing terrain. For cost estimation purposes a single slope grade is usable for all reclaimed slopes. A uniform slope of 2.7:1 (horizontal: vertical) is used because it falls well within the range that is used in practice, and the grade simplifies the reclamation cost calculations.

Once the height and slope grade of the triangular fill section is determined, the base distance is set and the required fill volume can be calculated by multiplying the cross-sectional fill area by the highwall length. Once the volume is known, a cost rate can be applied. A volumetric cost rate (dollars per cubic yard) can be used to estimate the cost of rough backfilling and grading a highwall. For estimation purposes a national cost rate of $.80 per cubic yard is used.

After rough backfilling and grading is completed, final grading, top soiling, and revegetation may be necessary. In addition, other reclamation costs, such as equipment mobilization and sedimentation control, could be incurred and should be indicated on the documentation of the cost estimate.

Required Fill Volume Equation

a. Required Fill Volume (V) = ½ triangular base (b) x highwall height (h) x highwall length (L).

b. Assuming a 2.7:1 reclaimed slope grade and a vertical highwall, the fill volume equation is:

$V = \frac{1}{2}\ bhL$
$= \frac{1}{2}(2.7h \times h \times L)$, where the triangular base (b) = 2.7h
$= 2.7/2\ h^2 L$

Because all highwall dimensions are reported in feet it is necessary to divide the calculated volume by 27 to arrive at the required fill volume in cubic yards. Then, the equation for the required volume of fill is:

$V = 2.7/54\ h^2 L\ (yd^3) = 0.05\ h^2 L\ (yd^3)$.

4. SLIDES

Slides are generally in the $100,000 to $500,000 range when located in areas where major improvements exist. For slides that require only correction of drainage patterns or some grading, estimate costs on the amount of acreage to be disturbed and the type of work needed in order to stabilize the slide.

5. WATER PROBLEMS (costs vary considerably with volume, plus water quality and treatment method chosen)

a. Water treatment

Treatment of small flows < 15 gpm

(often limestone drains, air seals, aeration weirs): $1 to $10,000

Treatment of flows from about 15 -100 gpm: $10,000 to $100,000

Treatment of flows from about 100-500 gpm: $100,000 to $500,000

Treatment of flows > 500 gpm:> $500,000

b. Stream cleaning: $10,000 to $50,000/mile

c. Treating/draining ponds: $1,600/acre foot or $5,000/million gallons

d. Backfilling pits and draining and backfilling ponds or pits: $8000/Ac/10' depth

6. STRUCTURES

Large steel or reinforced concrete structures:$50,000 each

Use discretion when estimating costs for other structures. Base estimates on the size, condition, accessibility, and type of construction material (wood, sheet metal, etc.) of the structure to be dismantled.

7. PORTALS and VERTICAL OPENINGS

a. Sealing portals or shafts by blasting: $2,000/opening

b. Sealing portals or shafts by methods other than blasting (economies of scale assume openings are in same general area)

1- 2 openings: $5,000 each
3- 5 openings: $4,000 each
6-10 openings: $3,000 each
> 10 openings: $2,000 each

8. UNDERGROUND MINE FIRES

The handling of earth material in cubic yards is common to all UMF control techniques. The cost factor is based on the cubic yard. The cost factor is multiplied by the volume of the UMF. The State/Tribe, OSM Coordinating Centers and NRCS should document in narrative form the evidence used to calculate volume estimates.

Reclamation Cost Guidelines

Reclamation costs should be based on the cubic yardage of overburden overlying the mine fire. Estimates of areal extent and depth for UMF cost determination should be based on Geotechnical data and/or observable surface features. Surface features include ground cracks and ground openings (that may or may not be venting visual steam, combustion products, and heat emissions), dead and dying vegetation, lack of forest/organic litter, burned trees, and elevated ground temperatures.

Cost Determination

The estimator should:

a. Determine the following mine fire parameters:

1. Surface area of the estimated burn zone.

2. Average depth of overburden to the bottom of the coal seam.

3. Volume of the burn area in cubic yards.

Multiply surface area (ft^2) by the average overburden depth in feet for total cubic feet. Divide by 27 for total cubic yards.

4. Geotechnical drilling may be useful in determining volume estimates.

5. Narrative and objective evidence for establishing burn zone and surface area should be provided on the supplemental form.

b. Determine reclamation cost: Multiply total cubic yards by the unit value of $2.50 per cubic yard.

9. LARGE SUBSIDENCE PRONE AREAS IMPACTING PROPERTY

a. Establishing Areal Extent

Use the standardized procedure for defining the areal extent of a subsidence prone area. This procedure employs the type of land use and depth of mining to arrive at an areal allocation factor to be multiplied by the number of subsidence events. Suggested areal allocation factors are given in the following table:

Guidelines For Setting Areal Extent of impact Area		
Type of Land Use	Mining Depth	Area (Acres/event)
A. Highly Developed	> 100	5
	50 - 100	4
	< 50	3
B. Developed (Suburban, industrial)	≥50	2
	< 50	1
C. Rural (limited use, individual settings	≥50	1
	< 50	½

b. Subsidence Reclamation Cost

A standardized cost/acre unit of $50,000 has been developed. The areal allocation factor (determined in Section A) is multiplied by $50,000. These estimated costs do not include administrative or design development costs.

10. POLLUTED MINE DRAINAGE

Reclamation costs of large flows of polluted mine drainage may be affected by several variables. These include:

- Seasonal flow rate variability
- Variability of the pH and iron content (or other pollutants) of the drainage
- The number of drainage sources
- The impact on any receiving streams
- The interrelationships between drainage in the Problem Area and that from other Problem Areas.

Water treatment methods may be very site-specific with such options as air seals, aeration weirs, holding ponds, limestone drains, recharge control, and treatment plants being considered. For purposes of formulating cost estimates, it is assumed that treatment plants could be required for the larger flows although it is recognized that this means of addressing a particular problem might not prove to be the most appropriate after required engineering studies have been done.

It is also recognized that use of a water treatment facility does not provide true reclamation but only abatement of the problem for as long as plant maintenance is continued. This is an example of a problem not being addressed in full during the course of the AML program. In order to provide the required cost estimates, some very broad assumptions should be made:

- The flow rate is the average rate over a year's time
- A treatment facility will be needed
- Lime with sludge removal method will be used
- Treatment costs for moderate acidity will apply in all cases

The Appalachian Regional Commission's 1960 publication, Acid Mine Drainage in Appalachia, is a suggested resource. The table on page 60 of the book gives estimated costs for water treatment associated with water treatment plants of three sizes. The following rough guidelines are based on the figures in the table and may be used to estimate current treatment costs.

GUIDELINES FOR LARGE POLLUTED MINE WATER FLOW MITIGATION	
Total flows of polluted mine drainage	Cost of treatment/ 1,000 gals/day (in $)
500 -600 gpm	.74
600 -700 gpm	.70
700-1,200	.66
1,200 - 2,400 gpm	.64
2,400 - 3,600 gpm	.62
3,600 - 5,500 gpm	.60
5,500 - 9,000 gpm	.58
9,000 - 15,000 gpm	.56
15,000 or more	.54

Water problems involving wells and septic systems require more individual consideration. Providing new cased wells or installing new water lines may be the most cost effective method in the long run when addressing polluted domestic water supplies.

CHAPTER 8

DIRECTIONS FOR CREATING PLANNING UNITS AND PROBLEM AREAS

Creating Planning Units (PU)

Each State in the Nation has been divided into Water Cataloging Units (WCU) by the Water Resources Council. These appear on the State's Hydrologic Unit Map, which was prepared by the U.S. Department of the Interior, U.S. Geological Survey, in cooperation with the U.S. Water Resources Council.

In preparation for conducting the original AML Inventory, each State/Tribe or their contractor prepared 1:250,000 map overlays that identified WCUs and delineated Planning Units (PU) within the WCU. The entire WCU may be 1 PU or subdivided into several PUs. Problem Areas (PA) are located within the PU.

When a new Problem Area is identified, its Planning Unit and WCU location can be obtained from one of the above sources. Since Planning Units were designated for all known areas where coal reserves occurred, it is likely that new coal Problem Areas will be located in one of these existing Planning Units. If not, it should be immediately adjacent to one. The simplest way to take care of this situation is to adjust the Planning Unit boundary to include this new Problem Area. However, non-coal features may not be in or near a designated PU and a new PU will need to be made. Be sure the adjustment to the boundary of an existing PU or the boundary of a new PU do not cross a WCU line.

When a new Planning Unit needs to be created, use the following method:

1. First note how other Planning Units in the State/Tribe were determined and try to use the same methodology. In general, Planning Units east of the Mississippi River correspond to watersheds. Planning Units in the West were defined in a number of ways, including quadrangles, grazing districts (Navajo), townships, counties, or entire Water Cataloging Units.

2. Use the WCU as 1 PU or subdivide the WCU into several PUs.

3. Give the PU a unique name and number.

4. Add the new PU to the map.

Creating Problem Areas (PA)

A Problem Area is a subdivision of a planning unit, containing one or more AML-related keywords or one or more non-coal mining related keywords together with immediately adjacent impacted land and water. The PA should be large enough to contain significant problems but small enough that a single project could reasonably be expected to address all of the problems.

A Problem Area is a uniquely defined geographic region. AML reclamation within a PA can be accomplished by more than one program. For example, most of the AML reclamation in a PA may have been accomplished by the State AML program, but OSM conducted an emergency AML project and the Rural Abandoned Mine Program (RAMP) had several reclamation projects. A separate PAD must be created for each program within a PA. The same PA number is used for each PAD submitted related to a PA. The complete PAD identifier (AMLIS Key) is the PA number plus the program identifier. If AML reclamation had been conduced by the State, OSM (emergency), and RAMP, three PADs would be submitted:

State/Tribe	PA Number	Program Identifier
XX	111111	SGA- State Program Funding
XX	111111	FRE- Federal Reclamation Program
XX	111111	RUA- RAMP

Since Problem Areas consist of AML impacted areas, the Problem Areas in a Planning Unit will seldom cover **all** the area in a Planning Unit. If a new problem is identified which is not in an existing Problem Area but is immediately adjacent to one, the preparer may adjust the boundary of the existing Problem Area to include the new problem. However, if a new Problem Area needs to be created, consider the following criteria in determining its boundaries:

1. The Problem Area should be within a Planning Unit boundary.

2. Problem Areas should be confined to a single county. Separate Problem Areas should be created whenever the AML problem spans county lines.

3. Problem Areas should be large enough to contain significant impacts. The area can contain any combination of health, safety, general welfare, and restoration problems. The extent of the problem (subsidence, for example) should form the limits of the Problem Area.

4. The new PA will have a unique name and number and an associated Program Area Code.

CHAPTER 9

PROBLEM AREA MAPPING

A map must be prepared for each problem area (PA) showing:

Quadrangle name
PA boundaries
PA number
Approximate location of each keyword feature.

The map format will be, at a minimum, an 8 ½ x 11 copy of a 7.5 minute quadrangle map. You may supplement the 7.5 minute map with a sketch map to show the location of hazards clustered in a small area. Since the map is a part of the Problem Area Description (PAD), the map will be maintained by the agency that created the PAD (State/Tribe/Federal Program/ RAMP).

Maps will be updated to add new features when they are added to the Inventory. Reclaimed hazards will not be removed from the map in order to maintain the historical record of keyword feature location. You may develop a symbol to denote reclaimed features.

Electronic Mapping Options

In lieu of paper maps, electronic maps can be used. Electronic maps include paper maps scanned into AMLIS, maps generated by GIS software, and paper maps converted into a numbering system that can be read by the computer- digitized. Electronic maps must meet the same minimum requirements as described above, and must be maintained as part of the permanent record.

AMLIS now has the capability to store electronic maps should the user choose to use this feature. If maps are maintained electronically in the AMLIS files, hard copy or in-house electronic maps would not be required.

CHAPTER 10

EMERGENCY PROGRAM INVENTORY UPDATE RESPONSIBILITIES

Background

In the past, AML emergency project accomplishments have been placed in the Inventory only by States with emergency program responsibilities. To establish program-wide accomplishments, OSM had to gather information from Federal emergency program officials and then try to report them in a manner consistent with all other types of AML projects. Such a process did not provide OSM with well defined results of the AML reclamation program. With the issuance of this Manual, OSM is requiring that all emergency program projects be included in the Inventory at the time they are completed.

Requirements

The following requirements apply to both State and Federal emergency projects:

1. All Federal and State emergency projects must be placed in the AML Inventory at the time that they are completed. OSM records the information for federally administered emergencies and States record the information for state administered emergencies.

2. Program officials are encouraged to enter the projects in Problem Areas. Placing the completed emergency projects in established Problem Areas will allow for more complete location information, and, will allow program officials to take advantage of the mapping capabilities of AMLIS.

3. If placement into a Problem Area is not possible, all emergencies must be entered into specially created county emergency PADs. These specially created PADs will contain information for all emergencies in a county not included in another PAD. Include the latitude and longitude of each individual emergency project in the county.

4. Those emergency projects affecting a high priority project funded under another program require a PAD submission at time of completion.

5. When preparing a PAD to report completion of reclamation under the State or Federal Emergency Program, features and costs should be reported in question 19, Priority 1 Data.

CHAPTER 11

RAMP
INVENTORY UPDATE RESPONSIBILITIES

Background

In the past, Rural Abandoned Mine Program (RAMP) AML Inventory information has been placed in the Inventory by OSM as a result of PADs and PAD updates submitted through the States from the U.S. Department of Agriculture, Natural Resources Conservation Service. This system resulted in a number of problems. Occasionally, features contained in the Inventory of AML problems submitted by RAMP were also contained under the State AML program. In some instances, this causes a double counting of potential AML impacts. In addition, problems reclaimed by RAMP could still appear as unreclaimed impacts under the State program.

Unfunded RAMP Problems

Unfunded RAMP problems will remain in the Inventory even though there is some double counting. The State and RAMP programs are encouraged to work together to develop a consistent Inventory of unfunded problems. When using AMLIS to query the Inventory prior to creating a report, downloading data, or creating a map, a message will appear warning the user that there may be some double counting of unfunded RAMP and State program unfunded problems.

Requirements

RAMP Program Responsibilities:

The following requirements apply to RAMP officials:

1. All unfunded RAMP projects must be put in the Inventory. The State and RAMP programs are encouraged to work together to develop a consistent Inventory of unfunded problems.

2. All RAMP funded projects must be shown in the Inventory as "funded" when a construction contract is signed and moved to "completed" at the time of completion.

3. Prior to the development of information for inclusion into the AML Inventory, RAMP officials must coordinate with the appropriate State AML program officials to ensure that Problem Areas are accurately defined and designated. In the cases where RAMP is proposing work that would alter an existing Problem Area, RAMP officials must coordinate with the State to ensure that the data in the Inventory are accurate upon completion of the process. For example, RAMP might reclaim a problem shown as unfunded in the State AMLIS information.

4. When RAMP proposes work that results in a new Problem Area, RAMP officials must coordinate with the State AML program officials to obtain a new Problem Area number (State assigns number).

5. Once the Problem Area information is developed by NRCS, RAMP officials must coordinate with the State AML program officials to have the data entered into the AML Inventory.

State Program Responsibilities:

1. State AML program officials are to control the assigning of Problem Area numbers and must be responsive to RAMP to ensure that all unfunded RAMP problems are placed into the Inventory and then updated when appropriate.

2. State AML programs must coordinate with the appropriate RAMP to ensure that Problem Areas are accurately defined and designated. In the cases where RAMP is proposing work that would alter an existing Problem Area, State AML program officials must coordinate with the RAMP to ensure that the data in the Inventory are accurate upon completion of the process. The State and RAMP programs are encouraged to work together to develop a consistent Inventory of unfunded problems.

3. When RAMP coordinates with the State to obtain a new PA number, State AML program officials must ensure that the new Problem Area is properly numbered (State assigns number), does not overlap any existing Problem Areas, and the new PAD does not contain information that conflicts with existing Inventory data.

4. Once RAMP develops Problem Area information, State AML program officials must coordinate with RAMP to have the data entered into the AML Inventory.

CHAPTER 12

ABANDONED MINE LAND INVENTORY GLOSSARY

TERM	DEFINITION
Abandoned Mine Land Inventory System (AMLIS)	A computerized database containing the AML Inventory information. AMLIS stores data and related information and provides information (reports, maps, data files) showing the status of unfunded, funded and completed AML problems for pre-SMCRA coal State grant reclamation programs, the Federal Reclamation Program and the U.S. Department of Agriculture's Natural Resources Conservation Service (USDA/NRCS) Rural Abandoned Mine Program (RAMP). In addition, AMLIS contains funded and completed problems for the following programs/priorities: State grant reclamation programs/Priority 3 (environmental problems on standalone sites), Priority 4 (facilities), and Priority 5 (development of public lands); post-SMCRA interim coal sites and insolvent surety coal sites; acid mine drainage sites; and non-coal sites. AMLIS contains information on completed problems for State and Federal emergency programs, remining, and reclamation accomplished through other means, such as private citizens. It also contains information about research conducted under the old Priority 4 that Congress eliminated in 1990.
Abandoned Mine Land Problem Area Description (PAD) (Form OSM-76)	A paper or electronic form describing AML problems.
Abandoned Mine Land Inventory	A national system for recording health, safety, general welfare, and environmental impacts associated with abandoned coal mines. It also contains limited information on non-coal mine related problems. The Inventory contains information on the location, type, and extent of AML impacts, as well as information on the cost associated with the reclamation of those problems. The Inventory is based upon field surveys by State, Tribal, and OSM program officials, and is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed. The AML Inventory consists of the information collected about AML impacts, the guidance documents for managing the information, and the AMLIS computerized database.

Acid Mine Drainage Plans	Any State may establish under State law an acid mine drainage abatement and treatment fund from which amounts (together with all interest earned on such amounts) are expended by the State to implement **acid mine drainage abatement and treatment plans**. Plans for each qualified Hydro logic unit must contain the following information: an identification of the qualified Hydro logic unit; an evaluation of the extent to which acid mine drainage is affecting the water quality and biological resources; an identification of the sources of acid mine drainage; an identification of individual projects and measures proposed to be undertaken to abate and treat the causes or effects of acid mine drainage and their cost; identification of existing and proposed sources of funding for such measures; and an analysis of the cost-effectiveness and environmental benefits of abatement and treatment measures.
AML Fund	A special fund created on the books of the Treasury of the United States and administered by OSM.
AML Problem Priority	The AML Inventory system is based upon the priorities established by Congress in Section 403 of SMCRA. In general, the priorities are defined in terms of their potential impacts on public health, safety, general welfare, and to the environment.
Approved Reclamation Plan	A plan submitted and approved under part 884 of 30 CFR.
Associated Priority 3 Coal	A priority 3 problem that can be reclaimed with some additional expense while reclaiming priority 1 and 2 problems.
Authorization to Proceed	A formal notification from OSM that a National Environmental Policy Act (NEPA) review is complete and the State/ Tribe may proceed with project construction.
Certification	The Governor of a State, or the head of a governing body of a Tribe, with an approved abandoned mine land reclamation program, may certify to the Secretary of the Interior that all of the known coal problem priorities stated in section 403(a) of SMCRA for eligible lands and waters have been addressed. The Secretary, after notice in the Federal Register and opportunity for public comment, shall concur with such certification if the Secretary determines that such certification is correct.
Completed	An AML reclamation project is considered completed for purposes of the AML Inventory after the final construction inspection is performed.

Eligible Lands and Waters	As specified in sections 404 [coal] and 411 [non-coal] of SMCRA, land and waters which were mined for coal and other minerals, or which were affected by such mining or processing and abandoned or left in an inadequate state of reclamation, and for which there is no continuing reclamation responsibility under State or other Federal laws. Section 404 contains cross-references to other SMCRA sections for lands and waters eligible for reclamation: 402(g)(4) post-SMCRA interim program and insolvent surety sites; 403(b)(1) water supply projects; and 409 pre-certification non-coal related problems.
Emergency	A sudden danger or impairment that presents 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 operation procedures.
Federal Reclamation Program	An OSM program that conducts emergency and high priority reclamation in States/Tribes not having their own emergency or AML programs.
Federal Assistance Manual	Official repository of policies and procedures for the management and administration of OSM's financial assistance programs.
Form OSM-76	See Abandoned Mine Land Problem Area Description (PAD) (Form OSM-76)
Funded	An AML reclamation project is considered funded for purposes of the AML Inventory when a OSM approves an Authorization to Proceed or a construction contract has been signed.
Historical Coal Distribution	A formula based on the amount of coal historically produced in the State or from the Tribal lands concerned, prior to August 3, 1977.
Insolvent Surety Sites	Lands and waters mined for coal or affected by coal mining practices where the mining occurred and the area was left in either an unreclaimed or inadequately reclaimed condition between August 4, 1977 and November 5, 1990; where the surety of the mining operator become insolvent during such period, and that, as of November 5, 1990, funds immediately available from proceedings relating to such insolvency or from any financial guarantee or other sources are not sufficient to provide for adequate reclamation or abatement at the site.

Interim Permit Site	Lands and water mined for coal or affected by coal mining practices where the mining occurred and the area was left in either an unreclaimed or inadequately reclaimed condition between August 4, 1977 and the date on which the Secretary approved a State regulatory program for a State or September 28, 1994, for a Tribe; where funds for reclamation or abatement that are available pursuant to a bond or other form of financial guarantee or from any other source are not sufficient to provide for adequate reclamation or abatement at the site.
Keyword Feature	A "keyword feature" is a specific on-the-ground feature that meets the definition of one of the AML Keywords. Within a problem area there may be many occurrences of a keyword. For example, a problem area may contain seven different portals or three different segments of dangerous highwall, each of different length and/or priority. For purposes of this Manual, each of these on-the-ground features is considered a separate keyword feature.
Keyword	An AML "keyword" is a defined category of AML problem type (i.e. DH = dangerous highwall).
Minimum Program	Program established by Congress in 1988 [now in Section 402 (g)(8)] to ensure funding reclamation of high priority problems in States/Tribes where the annual distribution is otherwise too small for the State/ Tribe to administer a program and conduct reclamation.
Non-program States and Tribes	States/ Tribes having eligible AML problems but no AML program.
OMB Circular A-102	Provides Administrative requirements for "Grants and Cooperative Agreements with State and Local Governments." Issued 10/7/94.
OSM 76 Form	See Abandoned Mine Land Problem Area Description (PAD) (Form OSM-76)
Planning Unit	Subdivision(s) of Water Cataloging Units (WCU) established by the Water Resources Council.
Pre-SMCRA	Prior to the enactment of SMCRA on August 3, 1977.

Priority 1	An AML problem category meeting the conditions under Section 403(a)(1) [coal], or 411(c)(1) [non-coal] of SMCRA concerning the protection of public health, safety, general welfare, and property from extreme danger of adverse effects of mining practices or a condition that could reasonably be expected to cause substantial physical harm to persons or property, and to which persons or improvements on real property are currently exposed.
Priority 2	An AML problem category meeting the conditions under Section 403(a)(2) [coal] or 411(c)(2) [non-coal] of SMCRA concerning the protection of public health, safety and general welfare from adverse effects of mining practices or a condition that is threatening people but is not an extreme danger.
Priority 3	An AML problem category meeting the conditions under Section 403(a)(3) [coal] or 411(c)(3) [non-coal] of SMCRA concerning the restoration of land and water resources and the environment previously degraded by adverse effects of mining practices or a condition that is causing degradation of soil, water, woodland, fish, wildlife, recreational resources, or agricultural productivity.
Priority 4	Funding under section 403(a)(4) and 411(e) and (f) for protection, repair, replacement, construction or enhancement of water supply utilities, roads and other such facilities serving the public adversely affected by mineral mining and processing practices, and the construction of public facilities in communities impacted by coal or other mineral mining or processing practices as they relate to the priorities stated in SMCRA 411(c).
Priority 5	Funding under section 403(a)(5) for the development of publicly owned land adversely affected by coal mining practices including land acquired for recreation and historic purposes, conservation, reclamation purposes, and open space benefits. After certification, States/Tribes may address Priority 5 problems created by non-coal mining.
Priority Documentation Forms	Forms providing guidance on establishing priorities for certain AML keywords. Previously called Supplemental Forms.

Problem Area	A subdivision(s) of a planning unit, containing one or more keyword(s) together with immediately adjacent impacted land and water.
Problem Area Description	See Abandoned Mine Land Problem Area Description (PAD) (Form OSM-76)
Program State/Tribe	State/Tribes having an OSM approved AML Program.
Program Area	Used to distinguish the different sources of funding for AML reclamation, most of which are different programs such as Pre-SMCRA Coal or RAMP.
Reclamation Plan	See Approved Reclamation Plan
Requests For Authorization to Proceed on Construction Projects	See "Authorization to Proceed."
Research	Research and demonstration projects relating to the development of surface coal mining reclamation and water quality control methods and techniques. Pursuant to the provisions of the 1990 amendments to SMCRA, Priority 4 coal related research and demonstration projects can no longer be funded. The old Priority 4 projects are now called Research projects. The old Priority 5 projects have been reclassified as Priority 4 projects and the old Priority 6 projects as Priority 5 projects.
Rural Abandoned Mine Program (RAMP)	A program administered by the Natural Resources Conservation Service (formerly the Soil Conservation Service) under the U.S. Department of Agriculture. It is primarily aimed at addressing problems posed by eligible AML problems in rural areas.
10% Set Aside	The 10 percent set-aside established under section 402(g)(6)(A) of SMCRA.
Unfunded	For purposes of the AML Inventory, an unfunded problem is one for which OSM has yet to approve an Authorization to Proceed or a contract for a construction project to reclaim the problem has not been signed.