

# RECLAMATION PLANNING FOR MINESOIL CONSTRUCTION FOR THE GULF COAST AND WEST CENTRAL STATES— *OSMRE'S GUIDELINES IN PROGRESS*<sup>1</sup>

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**Abstract.** This paper is intended as an informal progress report on a project which has been undertaken at the OSMRE Western Technical Center in Denver to develop a technical guideline document for reclamation planning for minesoil construction for the gulf coast and west central states. In this paper we present a brief overview of some of the technical issues which have in part created the need for such a guideline document, the purposes and scope of the guidelines, and a skeleton of an outline which has been developed for a draft guideline document. Readers should note that what is presented here is still strictly preliminary and has not been reviewed or sanctioned by OSMRE. Suggestions and comments to OSMRE are welcome.

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## WHY A MINESOIL GUIDELINE?

Standards for revegetation success, by which mining companies are released from their reclamation bonds, are defined in terms of above ground vegetation characteristics. But reclamation specialists have more and more come to appreciate that the achievement of success standards on the ground—and most especially the long term maintenance of successfully reclaimed vegetation stands—critically depends on edaphic factors, i.e., characteristics of the “minesoils” which support the above ground vegetation. This understanding has sparked the recognition on the part of OSMRE (Office of Surface Mining Reclamation and Enforcement) of the need for better planning for the uses and disposition of topsoil and other potential plant growth media at coal mining operations, particularly in the gulf coast and west central states of Louisiana, Texas, Oklahoma, Arkansas, Illinois, Kansas, Missouri, and Iowa. In response to this need, OSMRE has undertaken to produce a guideline document for reclamation planners and regulators which will provide a technical basis for resource decision-making and regulatory compliance with respect to soils and overburden which may be used in reconstructing plant rooting zones during reclamation.

At this point, the guideline document is in the very germinal stage of development. This brief paper introduces the project. At this time it is not certain

when a draft guideline document would be ready for release. Those who may be interested in finding out more about it may want to contact Scott Fisher at the OSMRE Western Technical Center in Denver. He will be glad to discuss the guideline document informally.

In addition to the general need for such a guideline document, a number of technical/regulatory issues have arisen regarding soils and reclamation at coal mining operations in some of the gulf coast and west central states which underscore the need for a guideline document. Perhaps the most significant of these is the issue of substituting spoil for replaced topsoil. In certain instances the lack of clear technical guidance in support of policies on topsoil substitution have created permitting delays and misunderstandings between mining companies and regulatory authorities. Another technical issue which has been problematic is the issue of reclaiming prime soils which are not prime farmland. To what extent do the regulatory performance standards require consideration of *potential* soil productivity? Another problem area is the rejection by Judge Flannery of the absolute regulatory requirement for soils baseline information. Prime farmland investigations are yet another area deserving clarification.

With these issues in mind, an annotated outline of a guideline document has been developed which is currently undergoing review and revision. An extensive literature search has also been conducted, and publications are being reviewed for research and other technical information which would be relevant guideline recommendations.

The purpose of the guideline document will be to describe a planning *process* for coal mines for the characterization, salvage, and redistribution of topsoils, soils, and non-soil materials under the requirements of SMCRA. It is the intent of this process to ensure that two basic provisions of SMCRA are met in minesoil construction during reclamation: first, that minesoils will be as productive as undisturbed soils, and second,

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that mine soils be capable of supporting an approved post-mining land use.

The guideline document is oriented to requirements and conditions in the gulf coast states of Louisiana and Texas and the west central states of Arkansas, Illinois, Oklahoma, Kansas, Missouri, and Iowa. Conditions generally encountered in these states relevant to mine soil construction include moist climates and significant occurrences of agricultural lands.

Permitting under SMCRA is essentially a resource planning process. Mine soil construction is a key element in the success of reclamation, especially in the long term. Although bond release criteria are normally defined in terms of vegetation, it is the productive capability of the plant growth medium (mine soil) that governs the success of revegetation. Recently some researchers have advocated use of soil parameters in determining reclamation success (a general requirement along these lines for prime farmland is given in SMCRA).

Reclamation planning involves an integrated systems approach; the guideline document cannot address *all* aspects of a reclaimed system. By focusing on mine soils, it should be recognized that isolating this aspect from other system components (e.g., hydrology) can create an unnatural or artificial perspective in some instances; but it should be further recognized that mine soils are perhaps the most central issue in the overall pursuit of reclamation planning and implementation.

## STATUTORY AND REGULATORY BACKGROUND

A reclamation permit is a "contract" between a mining company and the regulatory authority. Although a permit will have specific "revegetation success standards," in fact all aspects of a reclamation plan are potential compliance issues subject to enforcement.

In terms of the guideline document, no further definition of the term "reclamation" will be offered. Reclamation is intended only to mean the complete and successful implementation of an approved reclamation plan under the requirements of SMCRA.

Relevant sections of SMCRA and the federal Permanent Regulatory Program rules and regulations have been abstracted to provide a specific framework of constraint for the guideline document. It has been diligently endeavored not to establish recommendations in the guideline document which are beyond proper regulatory scope. Naturally, because of the complexity of some of the technical issues addressed in the guideline document, a certain amount of interpretation is unavoidable. (If regulations were written to preclude interpretation, or if issues were so

well clarified in the language of the regulations that interpretation was not necessary, why would there be a need for guidelines?) But every effort will be made to ensure that guideline recommendations have a firm basis in the law and regulations—and the abstracted versions which were made have provided a more convenient means of accomplishing this goal.

## ELEMENTS OF MINE SOIL CONSTRUCTION PLANNING UNDER SMCRA—A PROPOSED OUTLINE

What follows is a condensation of the tentative outline which has been developed for the mine soils guideline document. A few brief notes are included in the outline. There are four primary sections. The first two, "Baseline Information Requirements" and "Operation and Reclamation Plan," deal with general permitting requirements. Inclusion of land use in these two sections because of the emphasis in SMCRA that reclamation decisions be land use driven. The latter two sections deal with the special situations of "Prime Farmland" and "Topsoil Substitution." As mentioned previously, these issues are of particular importance in the gulf coast and west central states.

It should be readily apparent that the outline is essentially a synopsis of relevant requirements found in the federal Permanent Regulatory Program.



### I. Baseline Information Requirements

#### *Land Use/Productivity*

*[Note: Information contained in other baseline sections of a permit application may also pertain to land use requirements and should be referenced where appropriate, such as hydrology/geology, e.g., areas of instability; vegetation, e.g., site specific production information, T&E; cultural resources, e.g., archeological considerations; wildlife, e.g., wetlands, T&E; and prime farmland reconnaissance or investigations, where needed]*

- Map
- Current uses per defined categories
- Historical uses, where required
- Capability to support a variety of uses
- Productivity

*[Note: there are three areas in every permit application where production or productivity information is needed: soils baseline, vegetation baseline, and land use baseline]*

### **Materials Characterization—Soil**

- Soil survey

*[Note: Current federal regulations do not include a requirement for soil survey information, but such information is required by most state program regulations; this guideline assumes that such information would be necessary in most reclamation planning efforts.]*

- Soil laboratory characterization
- Soil data interpretation

### **Materials Characterization— Geology/overburden**

## **II. Operation and Reclamation Plan**

### **Post-mining Land Use Decision**

- Surface owner preference; lease obligations
- Change in land use?
- Revegetation involved?
- Capability to support a variety of uses?
- Productivity?
- Map showing locations of different land uses
- Zoning compliance
- Compliance with 816.133 (Post-mining land use)

### **Mining and Reclamation**

- Topsoil salvage & stockpiling
- Backfilling and Grading
- Soil Redistribution
- Revegetation
- Post-mining Management & Monitoring

## **III. Prime Farmland**

## **IV. Topsoil Substitution**



