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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
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January 19, 1995

Mr. David McMillan
Earthfax Engineering Inc.
7324 So. Union Park Ave.
Suite 100
Midvale, Utah 84047

RE: Proposed Soil Sampling Program, AMAX Coal Company, Castle Gate Coal Mine, ACT/007/004, Crandall Canyon Area, Carbon County, Utah

#2

Dear Mr. McMillan:

The Division has completed a review of the proposed soil sampling program you submitted on December 29, 1994 for the Crandall Canyon Area of the Castle Gate Mine. A couple of issues have been identified that need further clarification before your proposed plans can be approved. Enclosed please find a technical memo which discusses the items. Please review the memo and respond to the issues identified in the recommendation section. If you have questions, please call.

Sincerely,

Daron R. Haddock

Daron R. Haddock
Permit Supervisor

enclosure
cc: H. Sauer
J. Helfrich
Lonnie Mills (AMAX)
soilplan.ama

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January 4, 1995

TO: FILE

TO: Joe Helfrich, Permit and Compliance Supervisor

FROM: Henry Sauer, Senior Reclamation Soils Specialist

RE: Proposed Soil Sampling Plan in Crandell Canyon, AMAX Coal Co., Castle Gate Mine, ACT/007/004, Folder #2, Carbon County, Utah

SYNOPSIS

EarthFax Engineering Inc.(EFE), representing the permittee has submitted (dated December 29, 1994) a proposal to sample stockpiled soil and overburden in Crandell Canyon. The purpose of the sampling plan is to identify potentially acid-and/or-toxic forming materials, demonstrate the suitability of fill material as a plant growth medium for final reclamation (i.e. proposed substitute topsoil material) and determine the fertility status and basic quality of stockpiled topsoil located at the mouth of Crandell Canyon. In addition, the general quality of the stockpiled topsoil and proposed substitute topsoil will be compared as a means of satisfying **R645-301-233.100.**

ANALYSIS

Prior to EFE's submittal a technical meeting was held on December 15, 1994 at the Division to discuss the permittee's intention. The following people were in attendance: David McMillan and Bill Hendrickson (EFE); Lonnie Mills (AMAX Coal Co.); J. Randell Harden, Paul Baker and Henry Sauer (DOGM).

The permittee's soil sampling proposal is based on the preliminary assumption that a limited amount of backfilling and grading will be achieved. The pre-mining and post-mining land use will be the same. The access road will remain as a post-mining feature. No underground storage tanks exist on site, during mining activities no machinery or maintenance facilities were in operation and no gasoline storage areas existed.

The permittee and their representatives recognize the fact that when the Division supplies an Approximate Original Contour finding the backfilling and grading plan may be significantly

revise. This would preface the requirement for additional soil and overburden sample collection and analysis.

The following technical issues must be addressed prior to Division approval.

1) The EFE assumes that no "significant vertical stratification or soil horizons" have formed within the proposed substitute topsoil material. The foundation for this assumption has not been presented. Based on this writer's experience high soluble salts may migrate with a soil/spoil profile within one growing season. One means of detecting the migration of soluble salts to the surface of a soil/spoil profile is collecting soil samples in six inch (or less) increments. This sampling protocol was originally presented by EFE during the December 15, 1994 meeting and with regard to the top one foot of the profile should be reinserted into the proposal.

2) The information in Table 3 of the proposal indicates that Soil Pits No. EF-1, EF-2, EF-5, and EF-6 will be composites. It is my understanding that the composite samples will be composed of subsample from the immediate vicinity of the sample site and of the same depth increment. If this is incorrect please contact me as soon as possible.

RECOMMENDATIONS

The following technical issues must be addressed prior to Division approval.

1) The EFE assumes that no "significant vertical stratification or soil horizons" have formed within the proposed substitute topsoil material. The foundation for this assumption has not been presented. Based on this writer's experience high soluble salts may migrate with a soil/spoil profile within one growing season. One means of detecting the migration of soluble salts to the surface of a soil/spoil profile is collecting soil samples in six inch (or less) increments. This sampling protocol was originally presented by EFE during the December 15, 1994 meeting and with regard to the top one foot of the profile should be reinserted into the proposal.

2) The information in Table 3 of the proposal indicates that Soil Pits No. EF-1, EF-2, EF-5, and EF-6 will be composites. It is my understanding that the composite samples will be composed of subsample collected from the immediate vicinity of the sample site and collected from the same depth increment. If this is incorrect please contact me as soon as possible.