

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

June 24, 2005

TO: Internal File

THRU: D. Wayne Hedberg, Permit Supervisor

THRU: Wayne Western , Team Lead

FROM: Priscilla Burton, Environmental Scientist III/Soils

RE: Gob Gas Vent Hole GVH-4, Andalex Resources, Inc., Centennial Project, C/007/0019, Task # 2273

SUMMARY:

The gob vent holes are located within the permit boundary on privately held surface in T. 12 S., R. 11 E. (p. 1-1 and Fig. 1-1, Aberdeen Mine GHV Proposed Location Map). Carbon County Soil Survey information indicates that vent holes fall within Map Unit 117 and 105.

Gob vent hole #4 is required to meet MSHA ventilation requirements for panel #6. Gob vent holes 1 and 3 (also referred to as 2A in previous submittals) are also located in panel #6 and were drilled in April. In panel #7, scheduled to be mined next year, GVH 5 was drilled in April 2005 and GVH 6 is being drilled this week. Locations are shown on Figure 1-1 of Appendix X. The surface of GVH 1, 3, 5, & 6 is privately owned by Dave R. and Mildred Cave, et al.; the surface of GVH 4 is owned by and Mathis Land, Inc.

The approval letter should highlight the commitment made in the plan to contemporaneously reclaim the mud pits and staging areas at all disturbed sites during this field season before weather restricts access. This action will stabilize the sites and prepare the sites to handle spring thaws, reduce the acreage of disturbance by at least half, and will provide peace of mind to the landowners.

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TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

The gob vent holes are located within the permit boundary on privately held surface in T. 12 S., R.11 E. (p. 1-1 and Fig. 1-1, Aberdeen Mine GHV Proposed Location Map). Carbon County Soil Survey information indicates that vent holes fall within Map Units 117 (Trag-Beje – Senchert complex) and 105 (Senchert family-Senchert complex). Known soils resource information has been provided in Attachment 2-1 (Order 3 level information from the 1988 Carbon County Soil Survey and site specific information).

GVH #3 and #4 are on gently sloping terrain on top of a ridge at an elevation of 8,500 ft. The soil is similar to Senchert soil (Map Unit 104). The soils to be disturbed are Mollisols, meaning they have a well developed, dark colored, base-rich topsoil horizon extending to a depth of 24 – 36 inches. The subsoil is a clay loam. These soils have 15 - 22% rock fragments on the surface. Vegetation includes sagebrush, grasses, vetch, lupine and other forbs.

GVH #1, 5 and 6 are located on concave slopes of the ridge. These sites are located in Trag soil (Map unit 117), also mollisols. The Trag soil has a 24 – 26 inch topsoil horizon over a clay subsoil (C horizon). The soils have no rock fragments. GVH 5 differs from GVH 1 and 6 in that the C horizon has little carbonate content (no effervesence). The vegetation includes snowberry, sage, rabbitbrush, flax, grasses, lupin, quaken aspen.

The Senchert soil is in the High Mountain Loam (Thurber Fescue) range site. The senchert soil is in the High Mountain Loam (Aspen) woodland site. The Trag-Beje-Senchert complex contains the Mountain Loam (Salina Wildrye)-Mountain Shallow Loam (Mountain Big Sagebrush)-High Mountain Loam (Aspen) woodland range sites. In a normal year production from all these range sites is expected to be between 1,200 and 1,500 lbs/ac dry weight. In a favorable year the productivity would be expected to increase to 2,000 lbs/ac dry wt. Attachment 3-1 provides more specific information for the gob vent hole productivity.

Laboratory analysis of the representative pedons is found in Attachment 2-1.

Findings:

Information provided meets the requirements of Environmental Resources – Soils.

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

The site is undeveloped rangeland at an elevation of 8,500 ft., with no developed water resources. There is no prime farmland at this location.

Findings

The Division finds that there is no prime farmland at the location of the gob vent holes.

OPERATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Topsoil Removal and Storage

The plan indicates that a qualified person will be on site to ensure that the surface eighteen inches of topsoil will be salvaged from the 1.0 acre gob hole vent sites and placed in a topsoil stockpile. The subsoil layer (from 18 – 24 inches in the profile) will be removed and utilized in berms surrounding the site and the topsoil stockpiles. Thus, a total of 24 inches of surface soil will be stockpiled at the gob hole vent sites: approximately 2400 yds³ in a stockpile and 30 yds³ in berms. Topsoil will be removed in a single layer using a dozer. Topsoil stockpile dimensions are provided in Table 2-2.

Gob hole vent soils will be stockpiled temporarily. During this temporary period, the stockpile will be protected with a silt fence and seeded. Most of the stockpiled soil will be

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replaced after the well is developed and operational. This contemporaneous reclamation of each drill pad will occur in the same year as pad development, before winter weather limits access to the site. The soil remaining after contemporaneous reclamation of mud pits and unneeded areas will be stockpiled at a 2h:1v slope for final reclamation of the decommissioned wells. Soil stockpiled at 2h:1v will be seeded with the grasses listed in the reclamation seed mix (p-3-21, MRP). Soil storage in berms, as described in Section 232.500, will surround the pile and the perimeter of the site. The well site will be fenced.

At the time of salvage, soils will be sampled for the parameters described in Section 243 to provide baseline information and to determine whether nutritive amendments are required at the time of reclamation.

Mud pit development will require further excavation as described in Section 231. Should bedrock be encountered before 15 ft, then multiple pits will be developed on the site or a portable mud pit will be employed.

Findings:

The information provided meets the requirements of R645-301-230 for topsoil and subsoil salvage.

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Redistribution

Section 341.200 indicates an 18 – 24 inch depth of ripping over the regraded site followed by an 18 inch topsoil replacement depth for contemporaneous and final reclamation (Section 242, Table 2-3). The topsoil will be left roughened in preparation of seeding.

The mud pits will be filled with a mixture of cuttings and subsoil. The cuttings will be covered with a minimum of four feet of soil, including the 18 inches of topsoil. The drilling method is by air and will produce little volume of liquid, however a foam will be used. (MSDA sheets on the foam are provided in Appendix X-1.)

Findings:

The information provided meets the requirements for topsoil and subsoil replacement.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Acid- and Toxic-Forming Materials and Underground Development Waste

Gob Vent Holes Amendment X

The drilling method is by air and will produce little volume of liquid, however a foam will be used. MSDA sheets on the foam are provided in Appendix X-1. The information indicates that appropriate measures (mud pit, berms) are being taken to ensure that the components of the drilling fluid are contained.

Findings:

The information provided meets the requirements of R645-301-731.311 for identification and burial of acid/toxic forming materials.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

General

Figure 5-2 illustrates the portion of the site to be reclaimed contemporaneously. Mud pits will be dried and cuttings will be mixed with excavated soils. The mixture of cuttings will be covered with four feet of soil, including the 18 inches of topsoil (Section 231.100). Section 341.200 describes the methods of surface reclamation.

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Findings:

The information provided meets the requirements for contemporaneous reclamation (R645-301-352) and sediment control as described in R645-301-532.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

The topsoil stockpile will be left in a roughened state and seeded with the grasses found in the seed mix (Sec. 234.200). The seed mix on page 3-21 of the MRP lists great basin wildrye, bluebunch wheatgrass, slender wheatgrass, mountain brome (*Bromus inermis*), Indian ricegrass, and Sandberg bluegrass. According to the Carbon Co. Soil Survey, the above list of grasses parallels the grass species that are prevalent in soils map units 105 and 117.

For contemporaneous and final reclamation areas, the site will be roughened and the complete mix of grasses, forbes, and woody species given on page 3-21 of the MRP will be applied. The Permittee will apply a wood fiber mulch at 2,000 pounds per acre to all reclaimed areas.

If the grasses listed on page 3-21 of the MRP seed mix are not available, then the Permittee could substitute from the following list derived from the Carbon County Soil Survey for Map Unit 117:

Stipa (including Letterman needlegrass (*Stipa lettermanii*), needle and thread grass (*Stipa comata*), Columbia needlegrass (*Stipa columbiana*);
Koeleria cristata or Prairie junegrass,
Festuca thurberi or thurber fescue,
Elymus glaucus or blue wildrye).

Outslopes of gob vent access roads will be protected with vegetation and silt fences (Section 242 and Section 527.100). Rills and gullies will be repaired as described in section 244.300.

Findings:

The information provided in the application meets the requirements of R645-301-244 for soil stabilization.

RECOMMENDATIONS:

Approval is recommended. The approval letter should highlight the commitment made in the plan to contemporaneously reclaim the mud pits and staging areas at all disturbed sites during this field season before weather restricts access. This action will stabilize the sites and prepare the sites to handle spring thaws, reduce the acreage of disturbance by at least half, and will provide peace of mind to the landowners.