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March 24, 1987

TO: File

FROM: James S. Leatherwood, Reclamation Soils Specialist 

RE: Topsoil Substitute Determination, Centennial Project,
ACT/007/019-87A, Folder #2, Carbon County, Utah

ABSTRACT

The operator has submitted (Feb. 10, 1987) information pertaining to the use of soil material from the dike of the proposed decommissioned sediment pond A as a substitute to the soil temporarily stored at the pad located east of the Lower Pinnacle Portals. The applicant has submitted cross-sections and volume survey March 16, 1987. The Division has determined from the analysis (as determined by Inter-Mountain Laboratories Inc.) that the one isolated sample (zero to four and seven to twelve foot depth) represented a suitable substitute topsoil. Due to the chemical characteristics change at the four to seven foot depth, the material between this depth is not acceptable as a substitute soil. Further analysis is required to substantiate the extent of the suitable materials. The applicant must adequately address the following concerns prior to Division approval. These concerns were verbally discussed with Mike Glasson of Andalex in a telephone conversation March 24, 1987. Due to the period of time required for soil analysis (approximately 3 weeks) Mr. Glasson requested the Division to defer submitting the technical review comment until the following required information has been submitted. The Division will submit formal comments after review of said required information has been submitted. Andalex was notified, by telephone conversation with Andalex Support Staff March 25, 1987, that all information must be submitted to the land owners and BLM for their approval.

CONCERNS

UMC 817.22 Topsoil: Removal - JSL

The operator must develop a isopach map of the suitable substitute soil material. This map shall delineate the extent and depth of the soil material previously described in the first soil sample at the four to seven, zero to four and seven to twelve foot level. The unacceptable material at the four to seven foot depth may used as subsoil but may not be used for topsoil. The development of this isopach shall include a map depicting all soil sample site locations and soil data. Samples must have the

following parameters analyzed: pH, texture, electrical conductivity, calcium, and magnesium. Sample location should be in a grid like fashion with a minimum of three point locations. The soil material at each point location must be sampled at one foot intervals.

When the extent of the non-approved horizon is determined, the applicant must resubmit volume calculations describing the total amount of viable material and non-viable growth material present within the dike. All excess material (ie. greater than 6728 cyd) must be redistributed along with the required volume of soil, thereby increasing the total depth of redistribution.

The operator must commit to a topsoil storage and redistribution plan. The storage plan must include topsoil stockpile stabilization practices. Stabilization practices shall include revegetating with approved topsoil seed mix and berming. The applicant must also submit information pertaining to the protection of the stockpile from wind and water erosion, compaction and contaminants. All settled sediments within sediment pond A must be isolated from the said solicited substitute topsoil materials.

The applicant must submit water drainage plans. All water drainage associated with sediment pond A must be accounted for. The applicant must comply with the associated hydrologic regulations. Specifically UMC 817.42, UMC 817.43, UMC 817.45, UMC 817.46, UMC 817.47, and UMC 817.49. The applicant must provide hydrologic information quantitating the storage capacity of the remaining sediment ponds. The remaining ponds must adequately contain the runoff from the total disturbance area. The applicant must also address the issue of snow disposal. Snow can not be disposed in any such manner that may directly effect the soil stockpile. Therefore snow will no longer be allowed to be disposed of within sediment pond A.

Topsoil Suitability Findings

Previous concerns arose due to the negligence in salvaging topsoil. The soil material in question is not topsoil by definition. The said material was designated topsoil due to a deficiency of topsoil removal and stockpiling during surface facility construction (see attached NOV 81-3-23-1, NOV 81-3-23-1 extension, NOV 81-3-23-1 termination, March 16, 1982 memo to the file by Mr. Tom Portle, Division Reclamation Officer, and June 29, 1982 memo to file by Mr. Dave Lof, Division Reclamation officer). It was found that there was a topsoil deficit of approximately 4.2 acre-feet. It was further determined that this deficit could be made-up by removing from the proposed bath house pad approximately 0.67 acres of material at an average depth of 6.3 feet.

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To date the operator contends that the bathhouse pad temporary topsoil area is required for bathhouse construction. Past proposals included paving the soil for storage and protection. This was not acceptable to the Division. The operator now maintains that the in-situ dike material is the same as the pad materials and request the use of this soil material as a substitute topsoil. The Division has determined that the one isolated sample represented a suitable substitute topsoil material. Further analysis is required to substantiate the extent of the suitable materials.

Based on the Inter-Mountain laboratory data (see attached) all soils tested have very favorable physical and chemical characteristics (excluding the four to seven foot depths) for plant growth media. All samples were nonsaline, as evidenced by the low electrical conductivity and they are nonsodic, as evidenced by very low Sodium Adsorption Ratio. The soil has a very favorable texture ranging from a sandy loam to loam. The soil also has a favorable saturation percentage. Available magnesium is extremely high for the five to six foot depth, and relatively high for the four to five and six to twelve foot depths. The Division postulates that the high available magnesium is associated to the snow collected from the road and pad surfaces. According to personal conversation with Holland Shepherd, Reclamation Officer, the snow is usually disposed of in sediment pond A. It is a common practice to salt the roads and pads with magnesium chloride. The high amount of available magnesium is considered favorable for vegetative growth. The magnesium calcium ratio is not a concern. The soil material below seven foot depth had the same available calcium as the upper soil material. Calcium along with the available magnesium increased in availability at the four to six foot depth.

When the submitted data is compared to Table 2, DOGM Guidelines for Management of Topsoil and Overburden, all parameters excluding pH fall in the "Good" rating. The pH data generally fall in the "Fair" rating. However, the guidelines are currently under review. On March 18, 1987 the Division received comments from Dr. Dave James, Professor Soil Science, Utah State University. One of the primary concerns was the pH limitations for a "good" rating. Dr. James proposed the pH criteria to be changed from 6.1 - 7.8 to 6.1- 8.2. If this change is adopted by the Division the substitute material would be rated as a "good" substitute soil material.

jvb
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