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March 20, 1998

TO: File

THRU: Joe Helfrich, Permit Supervisor

FROM: Robert Davidson, Soils Reclamation Specialist RAD

RE: UC-3 Culvert Extension, Horizon Mining, LLC, Horizon Mine, ACT/007/020-97D, Folder #2, Carbon County, Utah

SYNOPSIS:

Horizon Coal Corporation has submitted an amendment for extending Culvert UC-3 100 feet northward. The 36" culvert currently carries Jewkes Creek beneath the lower pad area and around the sedimentation pond. The purpose for the culvert extension is to alter the truck turnaround radius, thus enlarging the lower facilities pad for safety reasons.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

SOILS RESOURCE INFORMATION

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

Analysis:

The culvert extension amendment contains the following soils environmental resource information:

- Affected Area Boundary Map
- Soils Description

Affected Area Boundary Map

The disputed area for the culvert extension lies northward of the current disturbed area boundary as shown in the approved MRP and on photographs (see Figure 1 of this TA memo) taken during construction last fall, 1996. The placement of the disturbed boundary marker as shown in Figure 1 is consistent with the marked disturbance boundary as shown in the original approved Mine Reclamation Plan. However, Horizon claims this area as part of the established disturbance area because of errors in

surveying that were corrected during a survey performed during the summer of 1997. Drawing A, Appendix 3-9, shows the revised disturbance boundary as it exists in the field after the 1997 survey.

Soils Description

Since the culvert extension falls within the surface disturbance boundary, soil resource information for the proposed disturbance may be represented by the currently approved Mine Reclamation Plan (MRP). Two soil pits were excavated in the lower facilities area during 1996. The first pit was located in the bottom of Jewkes Creek channel while the second pit was located on top of the west bank of the Jewkes Creek drainage. In both locations soils were shown to be previously disturbed with past mining activity. The upper 5 feet of soils in the west bank have been previously disturbed and/or imported while the Jewkes Creek soils contained inter-bed layers of coal fines. Sample results indicate that soils in both areas are acceptable as substitute topsoil and/or backfill with the exception of the coal fines layer in the Jewkes Creek channel.

The Jewkes Creek channel soils are unique since they have a fluvial origin which terminate at bed rock located 12 feet down. The material consists mainly of sandy loam inter-bedded with coal fines (≈30%) and loam with a high bedding angle. The Jewkes Creek soils contain less than 10 percent rocks with no coarse fragments. Furthermore, the Jewkes Creek soils were shown to have hydric development associated with the riparian environment.

Findings:

The information provided meets the regulatory requirements of this section.

OPERATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

The UC-3 culvert extension project covers the following operational considerations for soil salvage and protection of the soil resource:

- Soil Salvage Locations
- Soil Specialist Supervision
- General Soil Salvage Considerations
- Jewkes Creek Soils - Special Considerations
- Soil Salvage Updates

Soil Salvage Locations

The amendment states that soil salvage included soils from the bottom of Jewkes Canyon and

along the east and west adjacent hillsides. The total amount of soil salvaged was 280 cubic yards (cy) and consisted of 156 cy of riparian soil and 124 cy of hillside topsoil.

Soil Specialist Supervision

The current approved MRP requires that a qualified soils specialist be on site during soil salvage operations. Horizon hired an independent "Environmental Consultant," Patricia K. Johnston, to supervise the soils salvage operations during the culvert extension project. A copy of a letter dated January 4, 1998, to EarthFax Engineering from Patricia K. Johnston outlining soil salvage activities has been included in the back of Appendix 3-9. *Neither the letter or Appendix 3-9 state the actual dates that the culvert extension project commenced or concluded. Neither the Mine Reclamation Plan, the letter, or Appendix 3-9 give the qualifications of Patricia K. Johnston as a "soils specialist," and therefore no conclusion can be made to her qualifications to conduct soil salvage operations.*

General Soil Salvage Considerations

The existing MRP states that the vegetation cover will be removed and incorporated into the topsoil prior to stockpiling. Trash, concrete, and debris will be hauled to a properly licensed disposal facility as it is removed from the mine site during topsoil removal (page 8-23). Plate 8-2B shows soil removal areas for the culvert extension. Plate 8-2A shows soil removal locations for the Horizon mine site prior to culvert extension. At the time of the culvert extension installation, the permanent topsoil stockpile was inaccessible during soil salvage operations. Therefore, temporary topsoil stockpiles for both the riparian and non-riparian soils were created in Area E (located on Plate A in Appendix 8-1). When conditions permit access to the permanent topsoil stockpile and with Division approval, both temporary topsoil stockpiles will be moved.

The amendment states that a portion (90 cy) of the non-riparian topsoil salvaged from the hillsides during culvert installation was placed at a 6-inch depth on a slope located adjacent to the culvert designated as Area E. After topsoil was placed and spread on Area E, the remaining non-riparian (34 cy) topsoil/growth medium salvaged was placed in a temporary stockpile in Area E, separate from the riparian, Jewkes Creek temporary topsoil pile.

Jewkes Creek Soils - Special Considerations

Since the Jewkes Creek channel soils are unique in their fluvial origin in supporting the riparian/wet meadow vegetation which currently exists on site, these soils need special consideration for salvage and storage for reclamation use. In the Jewkes Creek area during initial construction of the sediment pond, all available excavated soils were salvaged and stored in the stockpile for later reclamation. Soils in the riparian area were dried prior to salvage and the subsequent inclusion in the topsoil stockpile. These necessary steps protected these waterlogged soils from compaction and clod formation during soil salvage operations.

During the culvert extension in December 1997, the riparian topsoil salvaged from Jewkes Creek was stockpiled in a temporary stockpile in Area E, separate from the temporary non-riparian soil stockpile. A geotextile fabric was placed underneath the pile prior to creating the temporary stockpile for the purpose of determining the extent of the riparian soil when the riparian soil is transferred to the

permanent stockpile. Both the temporary and permanent riparian topsoil locations are segregated from other topsoil and are identified as riparian topsoil.

Soil Salvage Updates

Table 8-3 has been updated for soil salvage activities associated with culvert expansion. This table shows all topsoil/growth medium recovery areas, soil types, salvage depths and resulting volumes of soils stored at the top of Portal Canyon in the stockpile.

A "Topsoil Stockpile Table" is included in Appendix 8-1 showing results for topsoil recovery and placement during 1996 and 1997. The current surveyed volume of soil in the stockpile is shown as 10,494 cy. Temporary stockpiles for both riparian and non-riparian soil is shown as 156 cy and 124 cy, respectively. Total salvaged soil is therefore 10,774 cy. With in-place soils in Areas 10 and 11, the volume of soil available for reclamation is 14,507 cy.

Plate A, Appendix 8-1, shows soil distribution within the disturbance area. These are correlated with the Table in Appendix 8-1 for topsoil recovery and placement as follows:

SOIL SOURCE	CUBIC YARDS	PLATE A LEGEND
topsoil salvaged in 1996 by surveying topsoil stockpile	10,993	
topsoil redistributed 1997 from stockpile	(499)	red & green
current stockpile 1998	10494	
Area E nonrip. soil placement 1998	90	purple
Area E temporary stockpiles 1998	190	purple
total salvaged soils	10774	
Areas 10 & 11 in-place soils	3733	
Total soils available for final reclamation	14507	
Imported soils Areas A, B, & C 1997	975	blue

Findings:

The information provided meets the regulatory requirements of this section.

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

The reclamation portion of the culvert extension amendment contains the following items that are either discussed or still need additional corrections:

- Jewkes Creek Riparian Soils
- Soils Redistribution
- Contemporaneous and Interim Reclamation

Jewkes Creek Riparian Soils

Since a portion of this disturbance is a riparian area, the commitments within the Horizon permit concerning riparian reclamation apply. These commitments include replacement of the riparian soil salvaged from the Jewkes Creek riparian area as referenced in Appendix 8-1, Soil Salvage Practices Fall 1996 report submitted on December 15, 1996 to Horizon Coal Corporation from EarthFax Engineering which states the following commitment on Page 2:

> "Topsoil from Area 1, the designated riparian area, was collected and stored at the front of the topsoil pile, the southwestern corner, to be utilized for reestablishment of riparian vegetation during reclamation."

However, during portal construction with the resulting crushed culvert, the front portion of the topsoil stockpile was disturbed and the riparian soils were redistributed to "Area D" as shown on Plate A in Appendix 8-1.

The Appendix 3-9, Section 3-9.6, contains a commitment to return "riparian" soil salvaged from the culvert extension back to the floodplain in Jewkes Canyon at final reclamation. The riparian topsoil stored in the topsoil stockpile will be identified with signs to enable redistribution of the riparian soil back to the bottom of Jewkes Canyon floodplain at final reclamation. The floodplain areas are shown on Plate 3-7, Reclamation Topography.

Soils Redistribution

Horizon further states that soils and fill material disturbed during mining will be placed within the disturbed area boundary. This is consistent with the current approved MRP which contains numerous references concerning fill placement against cut slopes and high walls. During reclamation, fill excavation will be required from Portal Canyon and Jewkes Creek facility pad areas for achieving the approved channel design and reclamation contours (see Plate 3-7, Reclamation Topography, and Plate 3-7A, Post Mining Cross Sections). As shown on Plate 3-7, certain portions of contemporaneous reclaimed slopes will be affected during final reclamation. Placed soils in "Areas B, C & E" will be affected, needing a portion of the contemporaneously placed topsoil removed so that fill can be placed against these slopes to reach final reclamation topography. After reaching the desired topography, the displaced "contemporaneous" topsoil will be replaced.

Contemporaneous and Interim Reclamation

Plate A, Appendix 8-1, illustrates contemporaneous and interim reclamation areas for the Horizon surface facility areas. Contemporaneous reclamation areas include the following:

- Soils imported and placed by Hidden Splendor Resources during county road realignment. Soil placement depth is 10 to 12 inches. Volumes shown in Appendix 8-1 Table for topsoil recovery and placement.

- Soils redistributed from the topsoil stockpile during the construction of the portals and the subsequent repair of a crushed culvert beneath the topsoil stockpile. Soil placed in Area D is 10 to 12 inches, the volume listed at 499 cy as shown in Appendix 8-1 Table for topsoil recovery and placement.

Interim reclamation areas include:

- Soils placed in Area E during UC-3 culvert extension (6" depth, 90 cy).

Findings:

The information provided meets the minimum regulatory requirements for this section.

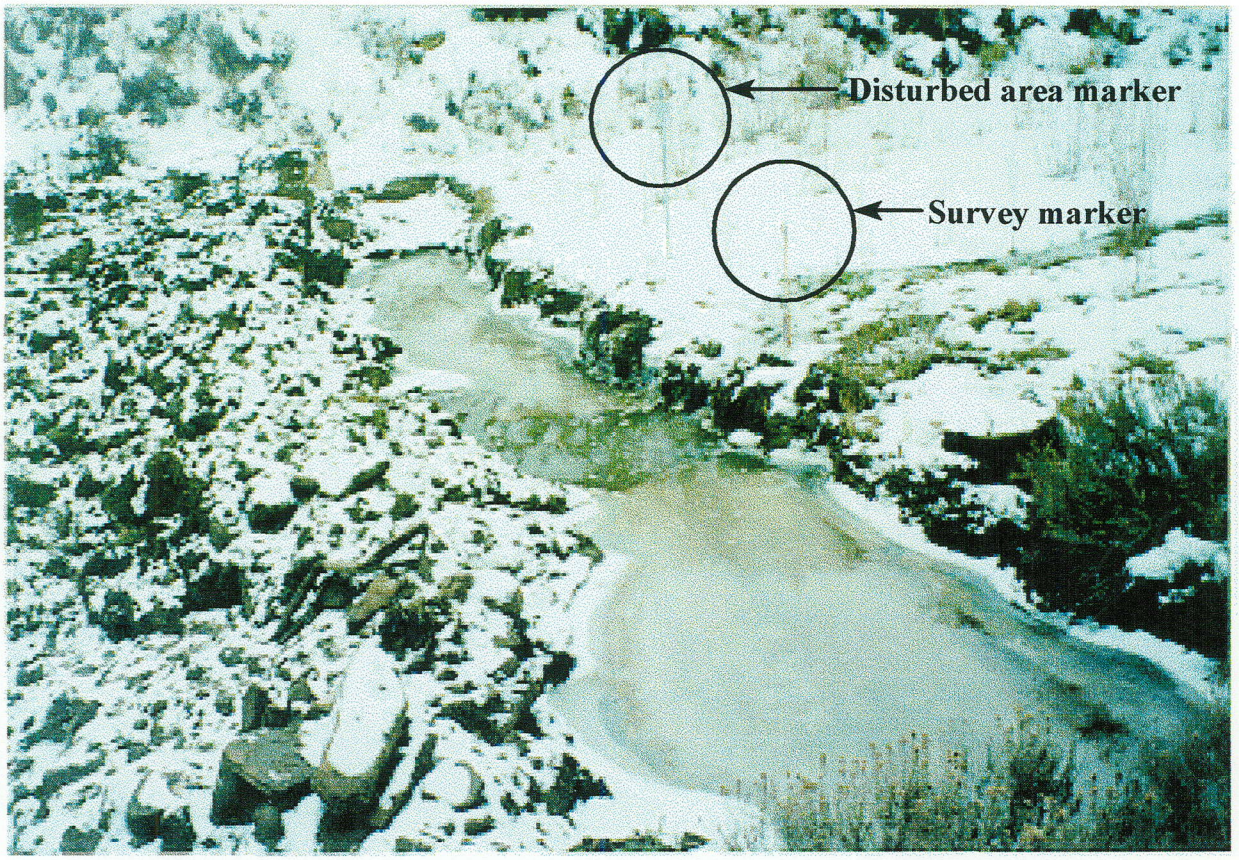

Figure 1. 10/30/96, Horizon Mine. ACT/007/020 on-site inspection . DOGM personnel - Susan White, Sharon Falvey and Robert Davidson. The upper Jewkes Creek disturbance area boundary is shown by the white disturbance marker and the orange survey stake. Jewkes Creek is draining into the excavated ditch that crosses the upper end of the meadow area with the Jewkes Creek located outside the marked disturbance area. The disturbance boundary sign and survey stake are located in the center of the drainage, just above the ditch and adjacent to the Creek. This photograph showing the placement of the disturbed boundary marker is consistent with the marked disturbance boundary as shown in the original approved Mine Reclamation Plan maps.