



State of Utah
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 DIVISION OF OIL, GAS AND MINING

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October 30, 1997

TO: File

THRU: Joe Helfrich, Permit Supervisor *JK for Joe Helfrich*

FROM: Robert Davidson, Soils Reclamation Specialist *RAD*

RE: UC-3 Culvert Extension, Horizon Coal Corporation, 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 inch, UC-3 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 significant information regarding the soils environmental resources as follows:

- 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 the 1996 soils investigation. 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 and stream deposited sediment. 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 ($\approx 30\%$) 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:

- UC-3 Culvert Extension Soil Salvage Locations
- Soil Specialist Supervision
- General Soil Salvage Considerations
- Jewkes Creek Soils - Special Considerations
- Soil Salvage Updates

UC-3 Culvert Extension Soil Salvage Locations

The amendment gives reference to salvaging soils (Area 12, Figure 8-2) from the bottom of Jewkes Creek and along the adjacent hillsides. Jewkes Creek soil salvage (~1.5 ft depth) includes soils located beneath and immediately adjacent the proposed culvert where the channel will be filled and compacted. The east hillside disturbance will be limited, but all available soil medium on the west hillside (~4 ft depth) will be salvaged. The total volume of soil salvage is estimated at 660 CY.

Soil Specialist Supervision

The current approved MRP requires that a qualified soils specialist be on site during soil salvage operations. Consistent with this requirement, Horizon commits to having a soils specialist from either UDOGM or the Natural Resource Conservation Service (NRCS) supervise the soils salvage during the culvert extension project.

General Soil Salvage Considerations

The vegetative cover will be removed with 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).

The amendment states that a portion of the soil salvaged from the hillsides during culvert installation will be placed (to an approximate 6 inch depth) on a slope adjacent to the culvert. The adjacent slope is located beside the upper pad area access road (Plate A, Appendix 8-1) and is designated as interim reclamation. The remaining topsoil/growth medium salvaged will be placed on the topsoil stockpile.

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 later reclamation use. Therefore, soils salvaged from the bottom of Jewkes Canyon will be segregated, dried, and identified as soil to be returned to the bottom of Jewkes Canyon during final reclamation.

Soil Salvage Updates

Table 8-3 is updated to reflect the additional 660 CY of soil salvaged from area 12, the culvert expansion area; total soil salvaged from Horizon now shows as 14,330 CY. In addition, Figure 8-2, Growth Medium Removal Locations, has been revised to show Area 12.

A new table, Topsoil/Growth Medium Recovery and Placement Calculations, is located in Appendix 8-1. The surveyed volume of soil medium in the stockpile is estimated at 10,993 CY. Information in the table, Appendix 8-1 is unclear for the following reasons:

- *The surveyed quantity (10,993 CY) of soil medium recovered in 1996 differs markedly from the actual topsoil stockpile volume of 15,312 CY and a compaction corrected volume of 13,741 CY (includes Area 10 & 11 and calculated from the report submitted by EathFax to Horizon, Appendix 8-1, Soil Salvage Practices Fall 1996, December 15, 1996). A soil stockpile deficit of 2,748 CY therefore exists and an accurate accounting of the soil resources is necessary for the Division to accurately evaluate these reported results and operation activities at the Horizon Mine:
 - *Horizon must account for the 2,748 CY soil deficit?*
 - *Was this soil used as fill during portal construction or repair of the broken**

culvert (see field report 9/9/97, Topsoil Stockpile Disturbance)?

- *Does this difference take into account the soil removed from the stockpile while repairing the crushed culvert?*
- *When were these surveys performed?*

- *Footnote (b) states that the surveyed amount (10,933 CY) excludes the hill located on the left side of Portal Canyon below the topsoil stockpile which will remain during reclamation. This "hill" presents some perplexing questions that need to be answered in order for the Division to determine the accuracy of this table:*
 - *The phrase "left side of Portal Canyon" is unclear and does not designate which direction (north, south, etc.). The assumption is north, northwest.*
 - *Does this "undisturbed" hill contain soil that should have been salvaged?*
 - *If soil was left, why is this soil part of the recovery and placement calculations?*
 - *Photographs from last fall (Figure 2 of this TA) show that all north, northwest hills located adjacent, immediately above the Portal Canyon pad and below the soil stockpile were disturbed during the 1996 fall construction period. Figure 8-2 clearly shows that no soil was salvaged from these slopes, yet the photograph (TA Figure 2) clearly shows that these hillsides were affected during construction. Therefore, if these slopes were affected during construction, why wasn't soil salvaged?*
 - *Since the amendment states that the hill will remain undisturbed, how can this statement be rectified since these north, northwest hills were disturbed?*
- *The meaning of "Soil Medium Placed" in 1997 is unclear. The assumption is that this statement refers to soil removed from the stockpile and placed in contemporaneous reclamation areas as shown on Plate A, Appendix 8-1. When, where, what and why was this soil placed? Provide affected acreage and placement depths?*
- *The meaning of "Potential Soil Medium to be Placed" for 1997 is unclear. Is this the 6" of interim soil placed during the culvert extension? Acreage and depths?*
- *Footnote (d) states that soil replacement depth will increase from 11" to 14" during reclamation. It is unclear how the "14 inches" was calculated.*
 - *Is this replacement depth based on the survey volume of 10,818 CY?*
 - *Which disturbed acreage is being used for this calculation, the 9.15 or the 8.23 acres as referenced in Appendix 3-9? Section 8.8, Plans for Redistribution of Soils," states that the "14 inches" of topsoil/growth medium is based on the total available medium divided by the total disturbed area.*

Appendix 3-9, UC-3 Culvert Extension, states that the permit will continue to reflect 9.15 acres of disturbance. Based on these facts and using the 10,818 CY of surveyed soil, the replacement depth is 9.8 inches, not 14 inches.

Findings:

R645-301-120. The new table, Appendix 8-1, Topsoil/Growth Medium Recovery and Placement Calculations, shows a soil stockpile deficit of 2,748 CY. An accurate accounting of the soil resources and information presented in the table is necessary for the Division to determine if the information is accurate and correlates with past operational activities. Please answer all concerns outlined in the Operations Analysis section listed above.

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
- Soil 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 will 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.”

Soil resources salvaged from Jewkes Creek will be redistributed to Jewkes Creek during final reclamation.

Soil Redistribution

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.

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 brought on-site and placed by Hidden Splendor Resources from the county road realignment. Soil placement is 10 to 12 inches, but the volume is not listed.
- Soils redistributed from the topsoil stockpile during the construction of the portal entries and subsequent repair of a crushed culvert beneath the stockpile. Soil placement is 10 to 12 inches.

Interim reclamation areas include:

- Soils from the proposed UC-3 culvert extension. Soil placement is 6 inches.

Findings:

The information provided meets the regulatory requirements of this section. However, additional concerns and ramifications of soil redistribution during contemporaneous and interim reclamation activities are contained in a Notice of Violation, N97-45-1-1 issued on September 18, 1997. NOV abatement requires an amendment to the existing Mine Reclamation Plan which will alter information contained in this, the UC-3 culvert extension amendment.

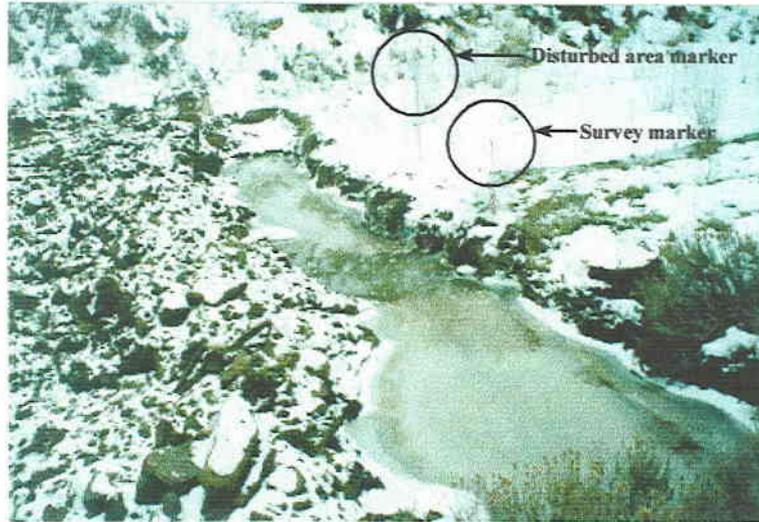


Figure 1. 10/30/96, Horizon Mine. ACT/007/020 on-site inspection . DOGM personnel - Susan White, Sharon Falvey and Robert Davidson. The upper Jewkes Creek disturbance area boundary is shown by the white disturbance marker and the orange survey stake. Jewkes Creek is draining into the excavated ditch 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.

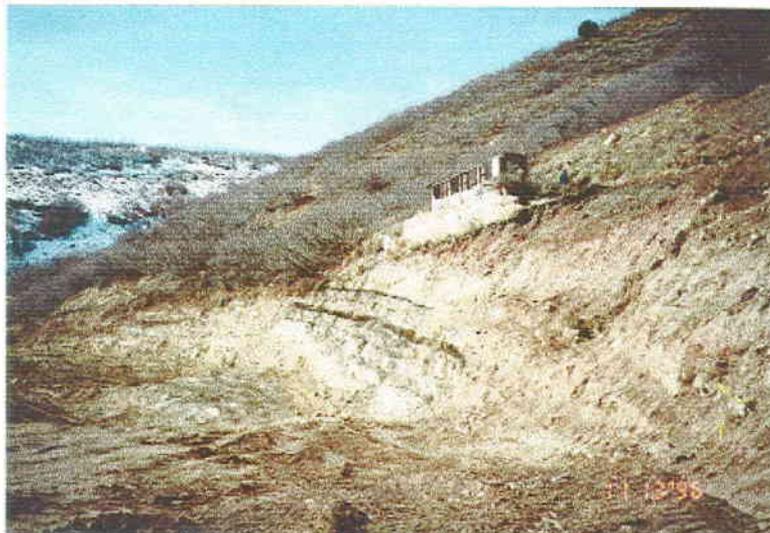


Figure 2. 11/13/96, Horizon Mine. ACT/007/020 on-site inspection . DOGM personnel - Robert Davidson and Paul Baker. North, northwest cut slopes created during fall, 1996 construction. Photo taken from the base of the soil stockpile, looking down Portal Canyon. The entire slope from the base of the stockpile to the mouth of Portal Canyon has been affected.