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April 25, 2002

TO: Internal File

THRU: Susan M. White, Senior Reclamation Specialist/Team Lead SMW

FROM: Michael J. Suflita, Senior Reclamation Specialist/Hydrologist mjs

RE: Tank Seam, Co-op Mining Company, Bear Canyon Mine, C015/025-AM02B, Outgoing, File

SUMMARY:

On February 19, 2002 the Division received an amendment to extend the existing road in the right canyon of Bear Canyon. This would extend the road about 2,000 feet in order to access the Tank Seam coal outcrop and conduct mining. There will be a pad at the top end of the road to accommodate mining activities. The existing road is within the disturbed area and the extension would be an addition to the disturbed area. The total increase in area is about 2.6 acres.

TECHNICAL ANAYLSIS:

OPERATION PLAN

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:

General

There are some confusing items in the submittal. First, most of the pages are labeled "DRAFT" which should not be the case for a proposal to modify the Mining and Reclamation Plan (MRP). This reviewer checked with Division Management and there is no Division requirement to mark submittals with the word "DRAFT". Pages with MRP additions and modifications are required to contain redline and strikeout of such text. This is sufficient to designate changes to the MRP. All pages stamped "DRAFT' will need to have that designation removed. Second, text on page 3P-3 refers to a retaining wall that is shown on Plate 2-4G. No retaining wall is shown on that Plate. There is a retaining wall shown at cross section 3+00, however, no retaining wall is shown on Plate 3-7G where the cross section location is shown. The Operator must clarify whether a retaining wall is used or not, and show that appropriately with changes to text and/or plates. Third, the text on page 7-88 simply ends abruptly in mid-sentence. The missing continuation could not be found and this needs to be corrected.

Diversions

Ten new ditches and six new culverts are added to this expansion of the disturbed area. The total increase in area is about 2.6 acres. These ditches and culverts are along and under the 2,000-foot road which accesses the Tank Seam coal outcrop. Tables are used to summarize all calculations. Where possible flows are diverted away from the new disturbed area. Examples include ditches D-42U and D-43U. This is good design as well as a regulatory requirement.

The correct design storm, 10-year, 6-hour event, was used for all calculations. The runoff curve numbers were checked for all the drainages. Similarly the Manning n numbers and slopes were verified for the drainage ditches. These were all found to be appropriate. Several of the slopes were quite steep, for example D-42U average slope is 36% and maximum slope is 63%, but the flows are minimal. D-42U only flows 0.04cfs.

All the culvert calculations were similarly found to be adequate. Manning n numbers were verified and the H/D ratio is less than 1 for all culverts. However, culvert C-40U, at the upper pad, causes the Division some concern with regard to future maintenance and possible future damage. The 12-inch diameter culvert is about 160 feet long and only slopes 0.001 (0.1%). Such a long culvert with such a low slope is very likely to plug with sediment and debris. The culvert does meet regulatory requirements as presently designed. Still, the Division would recommend the Operator employ methods to prevent plugging and to make cleanout easier. Some possibilities are: increase the slope, use a smooth pipe rather than corrugated, use a larger diameter pipe, and install a "Y" cleanout at the culvert midpoint. Certainly there should be sufficient earthen cover over the culvert to prevent crushing by heavy mining machinery. A trashrack and debris basin will be required for C-40U as explained in R645-301-742.423.3.

Stream buffer zones

Stream Buffer Zones do not apply to this amendment. All the Hydrologic drainages are on a mountain side-slope without well-defined drainages. There are shallow ephemeral drainages, however, they are located near the top of the drainage and only flow in direct response to rainfall on the immediate watershed. No stream Buffer Zones signs are needed.

Sediment control measures

Silt fences will be used below disturbed areas before construction begins. Erosion control mat and seeding will be employed on topsoil storage areas and excess fill storage areas.

The road construction sequence calls for first using a backhoe to create a berm on the downhill side of the road. This should will prevent rock and dirt from leaving the disturbed area.

Siltation structures.

There are no sediment ponds in this amendment. There is a pad or working area at the very upper end of the road at the coal seam face-up. The only runoff for this area is the result of rain falling directly on the pad. This pad is 0.47 acre in size and runoff is contained in Catch Basin 3, which is a full-containment basin with capacity for 3-years worth of sediment. There is also a commitment to inspect and clean out the basin at least quarterly. This area is designated BTCA Area Z.

Exemptions for siltation structures

There are two new BTCA Area N designations. These are locations where excess fill from the road and pad construction is stored until reclamation. One area, 0.232 acre, is located below the second switchback on the access road while the other, 0.269 acre, is located just below the hunting cabin turnoff. Both areas will be protected from erosion and saturation by berms along the upper edges of the piles. In addition, the road will be sloped away from the piles. The piles themselves will have erosion control matting and will be seeded.

BTCA Area T is the topsoil storage area of about 0.31 acre located just below the first turn below the pad area. This pile will be totally contained by a berm and will be covered with erosion control matting and be seeded.

Findings:

This section of the application does not meet regulatory requirements. Accordingly, the Permittee must address those deficiencies as found within this Draft Technical Analysis and provide the following, prior to approval, in accordance with the requirements of:

R645-301-121.200, 1) All pages stamped "DRAFT' will need to have that designation removed, 2) The Operator must clarify whether a retaining wall is used or not, and show that appropriately with changes to text and/or plates, and 3) The text on page 7-88 simply ends abruptly in mid-sentence. The missing continuation could not be found and this needs to be corrected.

R645-301-742, A trashrack and debris basin will be required for C-40U as explained in R645-301-742.423.3.

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Diversions

The road to the pad area is mostly an existing road to a hunting cabin. Only the last 200 feet and the face-up pad (0.47 acre) comprise additional road building. As part of the post-mining land use, the road will remain, except for that last 200 feet and the pad. These areas will be backfilled and restored to their natural slope during reclamation. The remainder of the road all the way down to Bear Creek will remain in place after reclamation.

Appendix 7-H, Reclamation Channel Sizing contains calculations for the reclamation ditches and culverts. The appropriate design event, a 100-year, 6-hour storm, was used for the calculations. The runoff curve numbers were checked for all the drainages. Similarly the Manning n numbers and slopes were verified for the drainage ditches. These were all found to be appropriate. The culverts installed in the Operational Phase of mining are the same ones to be left in place after reclamation and the diameters were checked to be sure they are the same.

Stream buffer zones

Stream Buffer Zones do not apply to this amendment. All the Hydrologic drainages are on a mountain side-slope without well-defined drainages. There are shallow ephemeral drainages, however, they are located near the top of the drainage and only flow in direct response to rainfall on the immediate watershed. No stream Buffer Zones signs are needed.

Sediment control measures

Silt fences will be used below disturbed areas before construction begins. Erosion control mat and seeding will be employed on reclaimed areas.

Siltation structures

Silt fences are to be installed below the disturbed area before construction is begun. The silt fence installation will be according to a diagram in the original MRP which has already been approved.

Findings:

This section of the amendment meets minimum regulatory requirements.

RECCOMENDATIONS:

The amendment should not be approved in its present form.

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