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March 29, 2002

TO: Internal File

FROM: Dana Dean, P.E.; Reclamation Specialist

RE: Lion Deck Modified Reclamation Plan, Star Point Mine C/007/006-AM02B

SUMMARY:

In response to a Division letter dated July 14, 2000 requesting improved topographic mapping of the Lion's Deck area, Plateau Mining Corporation submitted an amendment application on February 14, 2002. The application includes improved topographic mapping, which more accurately depicts reclamation volumes and watershed definitions. Because of the refinement in the reclamation design, new channel designs were necessary. Operational culvert 46B will be replaced by SPRC-44 to allow reclamation of the access road to Pond 001. Four channels have been added to the plan and 6 culverts have been removed.

TECHNICAL ANAYLSIS:

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:

General

The Star Point Mine is located near the headwaters of the Price and San Rafael river basins, with the Carbon/Emery county line marking the watershed divide. Hydrologic resources of the area are described in Volume III of the MRP.

Diversions

The approved plan includes the removal of most of the culverts and temporary diversion facilities associated with mining and reclamation. All sedimentation ponds and Treatment Facility Number 1, were designed to be temporary in nature and will be removed or filled. Flows will be returned to natural channels or constructed channels that best fit the natural flow of the current topography.

Those culverts which will be retained are indicated on Maps 761a through 761c and are associated with roads that will remain in-place, consistent with post-mining land use. Map 761a has been updated in this amendment application in accordance with the watersheds and channels updated by refined mapping. There has been no change to retained culverts.

There have been few changes to operational culverts based on the new topography and watershed information. Operational culvert 46B will be replaced by SPRC-44 to allow reclamation of the access to Pond 001. Four new broad swale channels have been added to the plan, SPRD-20b, SPRD-20c, SPRD-44, and SPRD-45. All of these channels are indicated on Exhibit 761a (map) and Map 761a. Reclamation Culverts SPRC-17a, 17b, 18, 19a, 19b, and 20 have been removed from the plan.

Modified channel design can be found in an addendum to Exhibit 761a, included in the amendment application. Designs are based on the USCS Curve Number Technique (1972) and the Triangular Unit Hydrograph Approach of the USCS (1972). The SCSHYDRO program (Hawkins and Marshall, 1979) was used for runoff depth and peak flow calculations. A 10 year, 6 hour storm event of 1.40 inches was assumed.

Channels falling into the "Standard Broad Swale Design" and "Standard Riprap Channel Design" are found in Table 761a on Page 700-189 of the proposed amendment. Details of the design of these two types of channels can be found in Exhibit 761a in the MRP. The standard broad swale design will generally be installed high in the watershed on steep reclaimed slopes where drainage areas and discharges are limited. The standard riprap channel will be installed lower in the watershed where anticipated flows will be higher.

Site-specific reclamation channel designs including dimensions, maximum velocity, and d_{50} riprap requirements are found in Table 761b on page 700-190. These channels are generally in the lower reaches of the watershed where higher flows are anticipated.

Reclamation culvert diameters, peak flow, outlet velocity and required outlet protection are found in Table 761c on page 700-190.

The designs and maps associated with the hydrological design are certified by Layne Jensen, P.E. of Earth Fax, Engineering.

Findings:

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

RECCOMENDATIONS:

It is recommended that the proposed amendment be approved for incorporation into the plan.

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