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July 10, 1997

TO: File #2

THRU: Daron Haddock, Permit Supervisor

FROM: Steven M. Johnson, Reclamation Specialist

RE: Renewal Changes, Cyprus Plateau Mining Corp., Star Point Mine, ACT/007/006-96C, File #2, Carbon County, Utah

SUMMARY:

As part of the five-year renewal for the Star Point Mine, Cyprus Plateau Mining Company (CPMC) has made several changes in their Mining and Reclamation Plan (MRP). These changes include elimination of water monitoring locations and a new reclamation plan for the refuse pile. The first submittal was found deficient and, as a result, CPMC submitted additional information in July 1997. This memorandum addresses the package as completed in July.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCES
HYDROLOGIC RESOURCES

Sampling and Analysis

Analysis:

Sampling and analysis is covered on page 700-34. The MRP describes procedures that are acceptable under the coal mining regulations.

Findings:

The sampling and analysis procedures are adequate to meet the requirements of the regulations.

Baseline Information

Analysis:

Baseline information begins on page 700-35. It is separated into groundwater information, surface-water information, geologic information and climatological information. These are individually addressed in corresponding sections of this TA.

Findings:

CPMC has provided complete and accurate baseline information.

Groundwater information

Analysis:

Groundwater baseline information is found on pages 700-35 through 700-41. Water rights and water quality begins on pages 700-35 and 700-38, respectively.

Findings:

The groundwater information is complete and accurate.

Surface-water Information

Analysis:

Surface-water baseline information is in found section 724.200 beginning on page 700-42. Surface-water quality information begins on page 700-47 and quantity (rights) information is found on pages 700-42 through 700-47.

Findings:

The surface-water baseline information is complete and accurate.

Climatological Information

Analysis:

Climatological baseline information is found on pages 700-51 through 700-52.

Findings:

The climatological information is complete and accurate.

Alternative Water Source Information

Analysis:

Alternative water source information is found on pages 700-53 and 700-54 in section 727.

Findings:

The provided information on alternative water sources is complete and accurate.

Probable Hydrologic Consequences Determination

Analysis:

The probable hydrologic consequences (PHC) determination is found on pages 700-54 through 700-93. The PHC is included in Section 728 through 728.400. On page 700-93 the CPMC refers the read to section 200 for information on acid and toxic-forming materials. This section indicates that there is no acid or toxic-forming potential in the Star Point Mine; however, greater analysis on the information provided by CPMC regarding this topic is addressed in the Soils Environmental Resource section of this TA. New information about sampling in the Nuck Woodward drainage is provided on page 700-68.

Findings:

The PHC is complete and accurate; however, discussion on acid- and toxic-forming materials is subject to findings under the Soils Resource section of this TA.

OPERATIONAL PLAN

HYDROLOGIC OPERATIONAL INFORMATION

Groundwater Monitoring

Analysis:

The groundwater monitoring program is addressed beginning on page 700-101 in section 731.210. In this section beginning on page 700-102, CPMC proposes to cease monitoring of several springs. The reason for each spring's removal from the monitoring plan is provided in this section. Predominantly the reason given for removing monitoring sites is redundancy, insignificance of past data collected, and extremely poor production rates. Redundancy means that there are one or more springs within a short distance from the deleted spring that samples the same water supply. Some sites produced only one or two samples over years of attempting to make collection.

In total there are nine sites proposed for discontinuation. Despite the large number of sampling locations that will no longer produce data, there will still be enough data to analyze water quantity and water quality. The number of stations needed for a triangulation was taken into account for each discontinued station.

Findings:

All springs proposed for discontinuation from the groundwater monitoring plan are not critical for detecting mining effects on the hydrologic balance; therefore, removing them is reasonable. The new plan is complete and adequate.

Surface-water Monitoring

Analysis:

The surface-water monitoring plan, Section 731.221, begins on page 700-116. Table 731.221a lists the monitoring sites and the duration of monitoring is on page 700-117.

Findings:

The surface-water monitoring plan is complete and accurate.

Acid and Toxic-forming Materials

Analysis:

Page 700-118 says that acid- and toxic-forming material are discussed in Sections 200 and 300 of the MRP. This section further states that acid- and toxic-forming materials are not believed to be a problem.

Findings:

The hydrology discussion on acid- and toxic-forming materials is adequate and does not require any further information. However, further findings found under the Soil Resource section of this TA may require addition information regarding cover needs.

Transfer of Wells

Analysis:

On page 700-118 the CPMC states that transfers of wells will all be approved by the Division.

Findings:

The transfer of wells plan is complete.

Discharges Into an Underground Mine

Analysis:

CPMC states on page 700-118 that they do not plan to discharge water into the mine but if a need were to arise the Division would be notified. All in-mine diversions are addressed in Sections 731.100, 731.522 and 731.800.

Findings:

The information on discharging into the mines is complete and accurate.

Gravity Discharges

Analysis:

Gravity discharges are located on page 700-118. Section 731.520 and 731.522 say that gravitational discharges from the mine not likely possible from the mine because of the gradient of the geology.

Findings:

The information on gravitational discharges from the mines is complete and accurate.

Water-Quality Standards and Effluent Limitations

Analysis:

Water quality standards and effluent limitations are addressed on page 700-185. Briefly CPMC says that they will meet all limits.

Findings:

Water-quality standards and effluent limitation are adequately addressed.

Diversions

Analysis:

Diversion design generalities are discussed in Section 742.300 beginning on page 700-171. The methodologies are the predominant subject of this chapter. Channel specific designs are located in Exhibits 732.300a through 761a. Specific summaries are given in Tables 742a through 742f on pages 700-128 through 700-136.

Findings:

Operational diversion designs are complete and accurate.

Stream Buffer Zones

Analysis:

Stream buffer zone information is provided on page 700-116. The Corner Canyon Fan Breakout is the only facility considered to be in a stream buffer zone according to the MRP. This area is not near any "aquatic resource" but CPMC has marked the buffer zone anyway.

Findings:

Stream buffer zone information is complete and accurate.

Sediment Control Measures

Analysis:

Information of sediment control for the Star Point plan is provided on pages 700-126 through 700-170. In Section 742.120 on page 700-149 CPMC has provided the most specific information about the types of measures used. This section includes information on eleven alternate sediment control areas (page 700-149 and Table 742g, page 700-150). There are a number of alternate measures used according to this section. The ASCAs appear on Maps 731.720b, 542.200g, 542.200h, 731.729a, and 542.200i.

Findings:

The sediment control designs and information is complete and accurate. All sediment control areas are designed using the best technology currently available (BTCA).

Siltation Structures and Sedimentation Ponds

Analysis:

Siltation structures and sediment pond information is found on page 700-151 and is analysis under the sedimentation pond section of this TA. The sediment pond designs are located in Exhibit 525a. There is a total of eight sediment ponds and one other treatment facility that are discussed in this section. Further information is found on page 700-124 and 700-125.

Findings:

The sediment pond designs and information is complete and accurate.

Exemptions for Siltation Structures

Analysis:

Page 742.240 says that there are no small area exemption areas within the permit area.

Findings:

The small area exemption information is complete and accurate.

Discharge Structures

Analysis:

Discharge structures are discussed on page 700-182 and in the sediment pond sections. This information is predominately included along with each individual pond design.

Findings:

The discharge structure information is complete and accurate.

Impoundments

Analysis:

Impoundments are discussed in Section 733, page 700-123 and in the sediment pond section of the MRP and TA. All impoundments are part of the sediment control plan and discussed in the Sediment Pond section of this TA.

Findings:

The impoundment information is complete and accurate.

Casing and Sealing of Wells

Analysis:

Casing and sealing of wells is addressed on page 700-186 in Section 755.

Findings:

Casing and sealing of wells is addressed completely and accurately.

RECLAMATION PLAN

RECLAMATIONAL HYDROLOGY

Groundwater Monitoring

Analysis:

Groundwater monitoring is the same during mining and after. This information is addressed in the operational section of this TA.

Findings:

The groundwater monitoring plan is complete and accurate.

Surface-water Monitoring

Analysis:

Surface-water monitoring is the same during mining and after. This information is addressed in the operational section of this TA.

Findings:

The surface-water monitoring plan is complete and accurate.

Acid- and Toxic-forming Materials

Analysis:

Page 700-118 says that acid- and toxic-forming material are discussed in Sections 200 and 300 of the MRP. This section further states that acid- and toxic-forming materials are not believed to be a problem.

Findings:

The hydrology discussion on acid- and toxic-forming materials is adequate and does not require any further information. However, further findings found under the Soil Resource section of this TA may require addition information regarding cover needs.

Transfer of Wells

Analysis:

On page 700-118 the CPMC states that transfers of wells will all be approved by the Division.

Findings:

The plan for transferring of wells is complete. CPMC will not transfer any well without prior approval by the Division.

Discharges Into an Underground Mine

Analysis:

CPMC states on page 700-118 that they do not plan to discharge water into the mine but if a need were to arise the Division would be notified. All in-mine diversions are addressed in Sections 731.100, 731.522 and 731.800.

Findings:

The information on discharging into the mines is complete and accurate.

Gravity Discharges

Analysis:

Gravity discharges are located on page 700-118. Section 731.520 and 731.522 say that gravitational discharges from the mine are not likely possible from the mine because of the gradient of the geology.

Findings:

The information on gravitational discharges from the mines is complete and accurate.

Water-Quality Standards and Effluent Limitations

Analysis:

Water quality standards and effluent limitations are addressed on page 700-185. Briefly CPMC says that they will meet all limits.

Findings:

Water-quality standards and effluent limitation are adequately addressed.

Diversions

Analysis:

The reclamation diversion plans are located beginning on page 700-187. Maps 761a through 761g show the reclamation drainage and designs for the mine. Page 700-188 says that reclaimed channel designs are in Exhibit 761a.

Findings:

The reclamation diversion plans are complete and accurate.

Stream Buffer Zones

Analysis:

Stream buffer zone information is provided on page 700-116. The Corner Canyon Fan Breakout is the only facility considered to be in a stream buffer zone according to the MRP. This area is not near any "aquatic resource" but CPMC has marked the buffer zone anyway.

Findings:

Stream buffer zone information is complete and accurate.

Sediment Control Measures

Analysis:

CPMC has requested some reclamation design changes for the refuse pile, and road cuts and pad outslopes in this package. These changes are in Chapter 5, Exhibit 528.322d. Two maps from this exhibit have been included at the end of the Engineering small scale map volumes.

Page 11 of this report lists five items that will be used for sediment control in reclamation of the refuse pile. They are listed below:

- Existing sedimentation structures;
- 3 to 1, terraced side slopes;
- Hay mulch;
- Extremely roughened (pocked) slopes; and
- Revegetation.

This five-step method of sediment is best technology currently available for preventing additional contributions of sediment to streamflow or to runoff outside the permit area during reclamation.

Page 11 and 12 of the report in Appendix 522.322d discuss five measures to be used on road cuts and outslope pads. They are listed below:

- Shaping, ripping and scarifying of the outslopes;
- Placement of suitable cover material;

- Addition of soil amendments;
- Application of mulch at a rate of 1 ton/acre; and
- Revegetation.

Reclamation of this area will not include the extreme surface roughing that is included in the refuse pile reclamation. These outslopes are extremely steep in places and will be highly erodible. Mulch alone will not be sufficient to control sediment until vegetation is satisfactorily reestablished. Additional sediment control measures must be designed for these areas.

Findings:

The reclamation plan for the refuse pile and road outslope is not complete. CPMC has not adequately designed for sediment control on the road outslopes. The following deficiency is maintained.

R645-301-742.110, CPMC must design using the best technology currently available a sediment control measure for the road outslope and all other reclamation areas that prevents to the extent possible additional contributions of sediment to stream flow or to runoff outside the permit area.

R645-301-764, CPMC must show the timetable for removal of sediment control structures that treat the refuse pile, road cuts, pad outslopes, and all other reclamation areas. This timetable must be specific to each structure.

Siltation Structures and Sedimentation Ponds

Analysis:

The reclamation plan for the Star Point mine does not include designs for siltation structures and sediment ponds. The current maps do not clearly show which, if any, sediment ponds will be retained through the reclamation and there is no timetable for removing any of the sediment ponds.

Findings:

Siltation structures and sediment pond designs and timetables are missing and incomplete. Deficiencies on these items are listed under the reclamation sediment control section of this TA.

Exemptions for Siltation Structures

Analysis:

The MRP does not clearly state if there are any planned exemptions for reclamation of the mine site. Presumably, all areas will be treated by either sediment ponds or alternate sediment control measures. Clarifying the reclamation timetable and sediment control treatments use as requested under the reclamation sediment control section of this TA will benefit the MRP in showing areas planned for exemption.

Findings:

Deficiencies for this section are listed under the reclamation sediment control section of this TA.

Discharge Structures

Analysis:

There is no information on discharge structures that is specific to reclamation.

Findings:

Deficiencies for this section are listed under the reclamation sediment control section of this TA.

RECOMMENDATION:

CPMC has not satisfactorily address reclamation sediment control; therefore, their new plan should not be approved.