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TO: File #2

From: David Darby, Hydrologist 

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

Summary

An analysis was conducted on the Geology and Subsidence sections of the Starpoint Mine's Mining and Reclamation Plan as part of the five-year renewal. Cyprus Plateau Mining Company made changes to the plan and this review identifies some deficiencies to the plan. The actual technical review will incorporate the changes addressing these deficiencies.

Technical Analysis

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.22; R645-301-623, -301-724.

Analysis:

The applicant is required to provide geologic information to meet the requirements of R614-301-601. Characterization of the lithology and structure in the adjacent and mine plan area provides the basis for analyzing to groundwater quality and groundwater movement, coal reserves and surface subsidence.

Stratigraphy

Analysis:

The applicant presents a geologic description of the mine plan area in Section 600 of the Star Point MRP, Volume II. A generalized stratigraphic column in Figure 624.100a illustrates the stratigraphic sequence and the General Surface Map, Sheet No. 624.110a outlines the lateral extent of surface geologic surface features, including topographic features, faults and



stratigraphic units (formations). The site is characterized by Cretaceous and Tertiary formations deposited along the western edge of an ocean basin.

The Blackhawk Formation is the only formation in the area that contains coal bearing units. There are three coal beds of interest to CPMC, the lowest minable bed in sequence is the Hiawatha seam, the middle bed is the Third seam and upper minable bed is the Wattis seam. The Tank seam appears above the Wattis, but is only identified in the MRP in cross-section and borehole logs. The extent and thickness is not presented.

The applicant has provided interburden, overburden and isopach Maps 624.110Ho, 624.110Hi and 624.110 H for all minable coal seams. Coal outcrops are depicted on the same maps.

Drill hole lithologic information was submitted in Volume VIII. This information is held in confidence. The information provides pertinent information on drill hole depth, lithologic facies and lithologic elevations.

Findings:

The information is adequate to meet the requirements of the regulations.

Structure

The minesite is dissected by several fault exhibiting two dominate directions. The faults are shown in several of the geologic maps and depict the known a inferred fault areas. The major fault pattern trends north-south caused by tensil forces acting during the quaternary period. These fault patterns are the eastern extent of the Basin and Range development during the Quaternary Period. Three major faults are identified on the maps as the Pleasaant Valley Fault, the Trail Canyon Fault and Bear Canyon Fault. These faults, all running on the western half of the permit area, are associated with graben systems and steeply dipping normal faults. Cross-section a-a' identify the north-south faulted areas and show the graben areas and the amount offset. Another set of faults trend east-west on the northern half of the permit area these faults are shown in Map 624.110a and cross-sections 624.110xc-xd.1

Structure contour Maps 624.110 Ts-Ws and Hs portray the upper surface structure of the mined coal beds.

Findings:

The information is adequate to meet the requirements of the regulations.

Cross-Sections

The applicant submitted geologic cross-sections, Plates Map 624.110xa-xd and cross-sections to project the vertical and horizontal extent of the lithologic layers and relationships between drill holes, faults and outcrops.

Findings:

The information is adequate to meet the requirements of the regulations.

Subsidence Monitoring Information

The applicant has submitted a subsidence control plan in Section 525. The Operation Plan and production mine schedule in Table 523a and denotes existing structures in Table 526.111a. Land ownership, Map 112.500a and coal ownership, Map 112.500b are depicted in maps under Section 100.

Maps identifying mined and planned mining area are also shown in Section 100, in Map 116.100a. Hiawatha seam; Third seam, Map 116.100b and Map 116.100c, Wattis seam. Subsidence monitoring maps Maps 521.121e, 521.121f, 521.121g, 521.121g1 and 521.121g2 are located in the Map section of Section 500 identify the locations of subsidence monitoring stations.

The applicant has submitted a subsidence monitoring schedule and presented subsidence data for monitoring sites, page 500-21.

Findings:

The applicant has addressed most parts of the operation plan, however a few areas need definition to clarify the existing monitoring plan. These deficiencies are listed below.

Acid and Toxic Forming Materials

Acid and toxic forming materials were addressed by the applicant in Exhibit 231.200a. Analyses were performed on a variety of roof, parting and floor core samples from the Hiawatha, Third and Wattis Coal Seams.

Findings:

A review of the roof, floor and coal seam data presented anomalous levels of pyritic sulfur. pH levels, selenium and boron. The cause for these levels is a concern for handling

purposes in the event that this material is stored in coal refuse. The applicant should discuss how this material will be handled. This question is likely asked under the soils section.

Summary of Deficiencies

- 1) In accordance with R645-301-624.110 the applicant should submit a map showing the location of adjacent mines in the vicinity of the mine plan area.

- 2) In accordance with R645-301-624.110 the applicant should identify the coal seams associated with Maps 521.121e, 521.121f, 521.121g, 521.121g1 and 521.121g2.

- 3) In accordance with R645-301-632, the applicant should outline the subsidence control plan and identify subsidence measures and monitoring locations for the areas on Maps 521.121g1 and 521.121g2.

- 4) In accordance with R645-301-624.330 the applicant should identify the handling and storage of acid or toxic forming materials from roof, and floor rock.