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TO: File

FROM: David Darby, Geologist

RE: Technical Deficiency Review, Castle Gate Coal Company (CGCC), Price River Complex, ACT/007/004, Carbon County, Utah

Summary

A completeness review was conducted on Castle Gate Coal Company's Mining and Reclamation Plan (MRP). An Updated MRP was submitted on June 23, 1989. The MRP was designed to supply complete information to delineate environmental compliance and final reclamation procedures.

This review accounts for the geologic, hydrologic and subsidence portions of the application package. This review was conducted to ensure that the information presented in the MRP is complete, concise and consistent with current mining rules and regulations outlined in Utah's Coal Mining Regulations and the federal regulatory program under 30 CFR regulations.

There are seven mineable coal seams within the 7,619 acre mine permit area. CGCC has mined only from the Sub-3 seam (No. 3 Mine in Hardscrabble Canyon) and the D seam (No. 4 and No. 5 Mines located in Sowbelly Gulch. The No. 5 and No. 4 Mines were abandon in 1988. Mining operations ceased in the Sub-3 seam in 1989.

The following comments indicate the status of technical issues and their completeness for the following regulations.

UMC 817.52 Hydrologic Balance

GROUND WATER

Applicants Proposal

Castle Gate Coal Company extracts coal from the upper coal-bearing members of the Blackhawk Formation, a unit of the Cretaceous Mesaverde Group which is prominent throughout the Wasatch Plateau.

Extensive mining in the area prior to Castle Gate Coal Company's development resulted in many abandon mine workings which have distorted the normal ground water flow pattern. Due to the extensive historic disturbance from mining over the past 85 years a piezometric contour map would be indeterminable.

Ground water sources were studied by monitoring spring and in-mine flows on and adjacent to the mine plan area. Baseline data necessary to validate the long term hydrologic consequences has been collected. Ongoing ground water monitoring programs designed to monitor the impacts of mining on the hydrologic balance are being conducted. The ground water monitoring program is outlined in Volume 1, Section VII, whereas, the locations for the monitoring sites are shown on Plate 1.

A total of 61 seeps and springs were located. Of these springs, 48 springs issued from formations above the Blackhawk Formation. Only 3 issued form the Blackhawk Formation.

Ground water flow into the mines have been determined and are shown on Table 7-2. The rates of inflow are extremely low given the rate of flow over the area mined.

Mining impacts are addressed in Volume 1, Section 7.1-10. Ground water intercepted in the mine is utilized in the mining process or discharged to the surface where it is treated via a sedimentation pond.

Compliance

The information submitted to characterize the geology and ground water regime is sufficient to determine the probable hydrologic consequences for the next 5-year permit term.

The applicant has submitted sufficient ground water information assessment of the recharge source, however it is determined that mine water discharge flows should be monitored to help determine identify long term impacts.

Stipulation - UMC 817.52 Hydrologic Balance-DWD

The applicant will be required to monitor the amount of water discharged from each mine on each monitoring occasion will be monitored at the mine mouth through the use of totalizing flow meters. Totals shall be recorded and submitted to the Division on a quarterly basis.

UMC 817.121-126 Subsidence Control Plan

Applicant's Proposal

The applicant plans to maximize coal recovery using by employing multiple seam mining and the longwall method of bulk coal extraction. Room and pillar mining will take place where longwall mining is not feasible. Designs have been planned based on all available information concerning project area, geologic, hydrologic and stratigraphic characteristics.

Mining operations in the mine plan area took place at depths averaging in excess of 1,500 feet.

Subsidence monitoring is presented in two parts, Past Monitoring on Page 8 of Section 3.1-2, Volume 1 and Future Monitoring, on Page 11 of Section 3.1-2, Volume 1. seam is considered non-minable where the thickness is less than five feet of the interburden between two seams becomes less than 30 feet. General information on subsidence is outlined on Page 32 of Chapter VI, Volume 3.

Past Monitoring

An established grid survey on the surface has been used over all area of bulk extraction to monitor surface subsidence and to develop the data required to establish complete control of this aspect of mining, as described in section 3.1-2 of Volume 1.

Subsidence has been monitored on the surface overlying longwall panels from 1978 to 1983. As a general rule, a minimum of 3 monuments were placed above each panel. Extreme topographic relief caused limited access.

No buildings or structures exist within the angle of draw (45 degrees) of planned longwall mining.

The monitoring program began on June 30, 1978, and reports have routinely been submitted to the USGS since that time. Figure 3.1-1 is a copy of the last report. Exhibit 3.2-1A shows the locations of the monitoring stations and control points for the active mining areas. Surface changes are not apparent to the eye and there has been no damage to the existing surface land use which primarily grazing.

Future Monitoring

Past subsidence monitoring indicated that subsidence impacts were unnoticeable from a land use standpoint, over the majority of the affected surface. Future subsidence monitoring will be limited to control points placed within the Price River corridor. Such points will be established a the approximate locations shown on Exhibit 3.21B one year in advance of intended mining. Monitoring will be take place on a yearly basis.

Compliance

The applicant has not submitted sufficient information to address all subsidence issues for the past and future 5-year permit term. The future subsidence monitoring plan as proposed by the applicant has not received approval from the Regulatory Authority. An formal application for an amendment change must be submitted to the Division for changes to the subsidence monitoring plan.

No subsidence mitigation measures have been proposed to ensure post mining land use. Figure 3.1-1 was copied to that the monitoring stations are not legible.

Stipulations- UMC 817.121 Subsidence-DWD

The applicant will be required to conduct a current subsidence survey over the areas that have been mined since 1978. The survey should consist of measuring existing monument location to establish changes from subsidence. Areas should be identified on a map that have been mined since 1983, but have not been monitored for subsidence. The following information should also be presented for such areas, the overburden height, the type of mining method used and the coal seam mined.

The applicant shall submit a mitigation plan to ensure that the pre-subsidence usefulness and value of land will be maintained. Castle Gate Coal Company shall commit to restore areas impacted by subsidence caused surface cracks which are of a size and nature to cause injury or death to grazing livestock or wildlife. Restoration will encompass backfilling cracks and recontouring the affected land surface and replacing surface water resources that are intercepted as a result of mining. Restoration shall be undertaken after the review of annual subsidence surface has stabilized. All areas of needed restoration will be completed prior to bond release. Live stock owners will be compensated at fair market value for any livestock which are injured or killed as a direct result of surface hazards caused by subsidence.

The applicant will be required to resubmit clear and legible copies of Figures 3.1-1, 6-11 and 6-12.

dwd/DWD

cc. Sue Linner
B Team