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October 6, 1987

TO: File

FROM: Kent Wheeler, Reclamation Hydrologist *KW*

RE: Initial Completeness Review of Willow Creek Mid-term Permit Application, Submitted June 3, 1987, Blackhawk Coal Company, ACT/007/002, Carbon County, Utah.

SUMMARY:

The above referenced mine is having a mid-term review of the existing facilities, operational and reclamation plans. The present plan includes no plans for any disturbances (surface or underground). The above document was reviewed and found to be incomplete. The following concerns must be addressed.

UMC 771.23 Permit Application - General Requirements for Format and Context - KW

- (b) The Division recognizes that parts of this permit were excerpted from earlier documents; however, much of the data found in Exhibit 7 is not site specific enough to be used in this permit. The hydrologic calculations should be developed using data that is site specific. The references to other areas that are no longer part of this permit and are not needed for justification of values should be deleted.

Much of the information in Exhibit 7 and 10 is illegible, it appears to be photocopies of photocopies. These should be cleared up so that all of the information is legible.

UMC 783.15 Ground Water Information - KW

The mine permit has a general description of the ground water hydrology and water quality data for the region. Since the present operational plan does not include any mining activity, this data base will suffice for the activities outlined in this permit (i.e. no mining or surface disturbances associated with mining). However, before any mining activities or surface disturbances associated with mining can commence at this site two years of groundwater baseline data will need to be collected.

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This baseline data will have to be site specific. The aquifers that are present at the site will have to be defined in location, quantity, areal extent, thickness, lithology, uses, and quality. This includes the alluvial aquifer, the regional aquifer (Starpoint SS), and the perched aquifer.

Since the perched aquifer has been impacted by historic mining a piezometric map will not be necessary for this aquifer in the Willow Creek area.

UMC 783.16 Surface Water Information - KW

The applicant needs to identify the location of the Price City water treatment plant on Map 27. The location of this facility is important since the water quality standards change at this location.

UMC 783.24 Maps: General Requirements - KW

Map 8 of the Willow Creek storage area should be changed to show the permit area extending to the toe of the outslope of the pad area and up to the upper limits of the disturbed area.

UMC 783.25 Cross-Sections, Maps and Plans - KW

The applicant must commit to providing maps showing the location and extent of the subsurface water in this area prior to any mining activity.

UMC 784.11 Operational Plan: General Requirements - KW

This section has not been adequately addressed. Exhibit 7 discusses drainage and sediment control in such general terms that it appears to apply to any generic mine site. There appears to be no correlation between what is written in Exhibit 7 and Chapter 3 of the MRP and what exists on site. The operational plan should address each structure specifically describing construction, use, maintenance, proposed modifications and removal of each diversion and sediment pond.

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UMC 784.13 Reclamation Plan: General Requirements - KW

This section has not been addressed. The MRP should include detailed reclamation plans and a timetable for reclamation of all currently disturbed areas. This includes the removal of the culvert on Willow Creek. Included in the timetable should be discussion on the sediment pond removal and the monitoring of inflow to the sediment pond to meet the criteria of UMC 817.46 (u).

UMC 784.14 Reclamation Plan: Protection of the Hydrologic Balance - KW

This section needs to address the measures that will be taken to prevent degradation to Willow Creek. The outslope of the pad area does not report to to any sediment control device and is actively eroding in several sections. A detailed description including cross-sections and maps are needed to detail what will be done with the problem areas.

UMC 784.16 Reclamation Plan: Pond, Impoundments, Banks, Dams and Embankments - KW

The three sediment ponds (019, 018, 017) located on site do not meet the design criteria established in UMC 817.46. The applicant needs to submit plans for a sediment pond or a series of sediment ponds that meet this criteria. The Divisions concerns include the inslopes on the sediment ponds, the lack of discharge structures, and the location and stability of the sediment ponds.

UMC 784.22 Diversions - KW

The MRP needs to address this section. There are many inconsistencies in the present MRP concerning watershed boundaries and diversion ditches. The present watershed boundaries are shown on Map 27. These boundaries show only the undisturbed areas and not the disturbed boundaries; furthermore some of these boundaries are incorrectly shown (i.e. no watershed is delineated for culvert C-2). The incorrect boundaries should be eliminated from this map and a separate maps clearly delineating all watershed boundaries as they currently exist and as they are proposed after final reclamation should be submitted. These maps should be on a 1:200 scale. The disturbed area should be shown with 20 foot contours or surveyed cross-sections can be substituted for the 20 contours. In either event the combination of maps and/or cross-sections should clearly delineate watershed slopes, channel slopes and all hydrologic structures as well as any watershed boundaries that are to small to be shown by the 20 ft contour intervals..

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The present maps and calculations do not address the Jap canyon diversion. This diversion is of concern because of the erosion which is taking place at the lower end near the confluence with Willow Creek.

These maps should also show the location of any reaches which will be riprapped and any energy dissipators or other hydraulic structures.

UMC 817.43 Hydrologic Balance: Diversion and Conveyance of Overland Flow, Shallow Groundwater Flow, and Ephemeral Streams - KW

The narratives and tables describing the undisturbed watersheds as well as the methodology used for calculating peak flows was in such a disorder that reviewing these calculations were not possible. The applicant should clearly delineate the area that each diversion is designed for, the assumptions made for each area (e.g. T_c , watershed slope, CN, area, C, percent cover, hydrologic soils group) and the documentation of these assumptions. Presently there is a description of the soils groups found in the region, but no site specific data. To document the hydrologic soils group of each watershed a soils map is needed, otherwise the most conservative Hydrologic Soils Group (D) will be used.

To determine if the diversion ditches are capable of conveying the design event the cross-sections of each diversion should show depth of flow, depth of channel, bottom width, and side slopes.

In sections where riprap is proposed the D_{50} of the riprap material, depth of riprap, depth of filter blanket if needed, and a narrative describing the installation of the riprap is needed.

Furthermore, unnecessary information that is not used in these calculation should be removed from the document to make it a clear and concise document that is easily reviewable.

UMC 817.46 Hydrologic Balance: Sedimentation Ponds - KW

See UMC 784.16 of this document for specific problems with the sediment ponds.

The calculations used to derive 0.035 ac-ft per acre of sediment yield must be shown, along with all assumptions. This should include documentation that the sediment removed by the sediment control measures is equal to the reduction in sediment storage volume. The applicant must also commit to implementing and maintaining those measures that were used to reduce the sediment yield in the calculations.

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UMC 817.49 Hydrologic Balance: Permanent and Temporary
Impoundments - KW

- (h) The sediment ponds need to be certified to meet the criteria of this section.

UMC 817.52 Hydrologic Balance: Surface and Groundwater
Monitoring - KW

The present plan has only one groundwater monitoring station (BM-9), this station is several miles from any disturbed area and is inadequate for determining the effect of mining on the ground water system. The Division feels that with the current operational plan (no activity) a groundwater monitoring program is not necessary. However, before any mining activities (not including reclamation activities) the applicant must contact the Division to determine an appropriate ground water monitoring program. This contact should be made at least two years prior to any mining activity, this would allow for the implementation of a monitoring program that would collect new baseline data for one (1) year prior to any disturbance. The second year of baseline data could be collected during the start-up and early operations.

The surface water monitoring station located upstream from the mine site on Willow Creek is also insufficient for determining impacts caused by the permit area. This station should be moved to directly above the permit boundary. This change should be reflected on Map 27.

The applicant has proposed two monitoring stations on Price River. No surface disturbances have occurred in this region and no surface or underground disturbances are proposed in the term of the permit; therefore, the Division feels that the monitoring of this reach of river is unnecessary. If any disturbances are proposed for this area the applicant will need to resume monitoring of these stations. The Division should be contacted for help in determining the parameters that should be sampled.

In the reclamation plan there should be a narrative describing the monitoring of surface water flowing into the sediment ponds during the reclamation period. This narrative should describe the proposed monitoring points, parameters, duration of monitoring, sample frequency, and sampling devices.

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The summary of the water quality data is incomplete and incorrect. In many cases high values have not been included, thus lowering the averages. Furthermore, the data needs to be brought up to date. The last data shown was collected in 1983. After the data is made current and the summaries corrected, the Division will make a determination on the parameters that need to be sampled.

If the applicant wants to upgrade its water quality monitoring program to allow for the a fast startup when market conditions allow, they should contact the Division for help in establishing an approved monitoring program. This would eliminate the need to collect the baseline water quality data in the area before mining can proceed.

The MRP should be corrected to reflect all of the above changes.

cc: D. Darby
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1239R-61