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STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

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February 10, 1987

Mr. Richard Blonquist
Summit Coal Company
P. O. Box 752
Coalville, Utah 84017

Dear Mr. Blonquist:

Re: Technical Deficiency Document, Boyer Mine, PRO/043/008, Folder
No. 2, Summit County, Utah

The Division has reviewed the Mining and Reclamation Plan (MRP) for the Boyer Mine, including material submitted December 23, 1986 in response to the Determination of Completeness Review and the hydrology information, Chapter 7, received January 23, 1987, for technical adequacy.

The attached review outlines technical deficiencies remaining in the MRP. When these deficiencies have been adequately responded to, the Division can prepare a Technical Analysis and Decision Document for a permanent program mining permit.

Please contact myself or Susan C. Linner if you need clarification on this review.

Sincerely,

A handwritten signature in cursive script that reads "L. P. Braxton".

L. P. Braxton
Administrator
Mineral Resource Development
and Reclamation Program

SCL:jvb
cc: D. Guy, Blackhawk Engineering
A. Klein
B Team
0028R-24

Technical Deficiency Document
Summit Coal Company
Boyer Mine
PRO/043/008
Summit County, Utah

February 10, 1987

UMC 782.13 Identification of Interests - DL

- (a)(2) The applicant must rewrite the section of Item 1 in Table 2-1-A which is apparently intended to describe the portion of the proposed permit area which is south of the county highway, so that it properly describes the area.

The applicant must provide information stating who owns the mineral rights to the portion of the proposed permit area which is in the SE 1/4, NE 1/4, Section 36, Township 3 North, Range 6 East.

- (e) The applicant must provide information stating who owns the surface and subsurface area contiguous to, and west of, that portion of the proposed permit area which is south of Chalk Creek.

The applicant must provide information stating who owns the surface and subsurface area in Section 26, Township 3 North, Range 6 East which is contiguous to the extreme west end of the proposed permit area.

General Comment

The applicant must provide an accurate, updated revision of Plate 2-1 correcting "J. L. Wilde," "Bow Valley Petroleum Co.," Etc.

UMC 782.17 Permit Term Information - DL

- (a) In Section 2.6.3 of the application Summit states that the total surface acres affected will be about 10 acres. This probably approximates the number of acres disturbed by "surface operations" but does not represent the area affected by "underground coal mining activities." The applicant must provide the number of acres of surface lands which will be affected by "underground coal mining activities."

UMC 784.13 Reclamation Plan: General Requirements - RS

- (b)(1) The reclamation timetable on P. 3-89 should be corrected to show that the sedimentation system (pond and all associated diversions) will remain onsite until the revegetation and water quality criteria of UMC 817.46(u) are met.

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

Page 7-9 states that operational monitoring will continue for a period of one (1) year following cessation of operations. This should be corrected to read two (2) years in order to be in accordance with the Division's monitoring guidelines.

UMC 784.16 Reclamation Plan: Ponds, Impoundments, Banks, Dams, and Embankments - RS

- (a)(3)(iv) The application should include plans to remove the sedimentation pond and system (i.e. removal of sediments, backfilling, grading, and revegetation plan).

UMC 817.22 Topsoil: Removal - JSL

The applicant's proposal does not adequately address the requirements of this section. The applicant has submitted a soil stripping map (Plate 8-1a) and soil removal procedures (Appendix 8-1). However the total volume of soil actually removed is speculative. If the soil stripping map is accurate the total volume of the topsoil removed would equal 17,664 cyd. Appendix 8-1 states that 6333 cyd of soil material has been removed. Also, the operator references outdated 30 CFR's on pages 3.54 and 3.70.

Outdated 30 CFR references 784.15 (pg. 3-54 section 3.5.4), 783.21 and 783.22 (pg. 3-70, section 3.6.2) must be deleted from the permit package. Plate 3-1a must be updated to correlate with the soil removal plans outlined in appendix 8-1. The last page of appendix 8-1 is illegible. Please resubmit.

UMC 817.23 Topsoil: Storage - JSL

The applicant's proposal does not adequately address the requirements of this section. The topsoil storage area delineated on plate 3-1 indicates a storage capacity of 4500 cyd. However, in appendix 8-1 6333 cyd of stored topsoil is reported. The total capacity of the topsoil stockpile delineated on plate 3-1 must be updated to reflect the recently surveyed volume of material. Please also include the calculations and surveyed cross sections used to derive the topsoil stockpile volume.

UMC 817.24 Topsoil: Redistribution - JSL

The exact depth of ripping that will take place after the topsoil has been redistributed is conflicting. Page 3-82 has a ripping depth of 20 cm while page 8-15 reports a 15 cm ripping depth. The exact ripping depth should be established through the depth of soil redistribution. However the depth of topsoil redistribution is also conflicting. Page 8-12 and 8-14 has a six inch redistribution depth while page 3-82 has a 12 inch redistribution depth.

The applicant must establish an unambiguous topsoil redistribution and ripping depth throughout the MRP. The applicant must also submit Figure 9-1 (plant seedlings) as referred to on page 3-84.

UMC 817.25 Topsoil: Nutrients and Amendments - JSL

The applicant does not adequately address the requirements of this section. Page 3-83a states that the fertilizer will be incorporated into the slurry mulch. This procedure is not acceptable due to the increased potential of seedling salt burn. The applicant must update the fertilizer methodology reported on page 3-83. Incorporating fertilizer into the slurry mulch is unacceptable. Fertilization should take place prior to discing the topsoil.

The language in section 8.5, page 8-11 must be updated to include the soil data listed in appendix 8-2.

UMC 817.42 Hydrologic Balance: Water Quality Standards and Effluent Limitations - RS

- (a)(3) The application should include plans for a catch basin to treat the drainage from the powder magazine/coal waste disposal area. A plan and commitment to sample the discharge from this basin (as such discharge occurs) should be included. Parameter to be sampled should follow the operational parameters listed in the Division's monitoring guidelines.

UMC 817.43 Hydrologic Balance: Diversions and Conveyance of Overland Flow, Shallow Ground Water Flow, And Ephemeral Streams - RS

Supporting documentation for the information found in Tables 7-1 and 7-2 must be submitted. Specific items required are as follows:

- 1) The drainage area for each diversion should be depicted on a map which is referenced in that table. The diversion above the topsoil stockpile should be listed in the table and identified as a separate diversion on plate 7-1.

- 2) The assumptions used for the time of concentration calculation should be submitted. These include formula used, hydraulic length, and watershed slope with method of determination.
- 3) The manning's n-value used should be representative of the channel lining to be installed. The proposed riprap size of 6" equates to a manning's n-value of 0.035 while the 9" riprap equates to a value of 0.038. The use of the following formula in the design will assist the operator with the design work:

$$n=0.0395 (D_{50})^{1/6} \quad \text{where: } D_{50} = \text{riprap in feet}$$

- 4) The application should include a cross-section of each diversion depicting the diversion configuration, depth of flow, riprap depth and freeboard depth.
- 5) The slope value shown in table 7-2 should be referenced to an appropriate map and/or field survey data.
- 6) Velocity values computed with the proposed riprap lining should be presented. These values must reflect that the riprap size will be stable at that velocity.
- 7) All areas of each diversion that require riprap should be depicted on a map.
- 8) Calculations demonstrating the lack of need for riprap in the disturbed diversions should be submitted.
- 9) The method used and supporting calculations for the determination of culvert exit velocities should be submitted. A description of the energy dissipator size (i.e. width and extent of dissipator) should be submitted.
- 10) The application should be corrected to depict placement of the 36" CMP for the entire length of UD-1 from the upstream limit of site disturbance to a point located opposite the drop drain proposed at the first bend of the access road.
- 11) It is recommended that a trash rack be proposed for culvert UD-1.
- 12) Descriptions and designs for the diversions in the powder magazine/coal waste disposal area must be addressed and submitted.

UMC 817.44 Hydrologic Balance: Stream Channel Diversions - RS

The application must contain designs for the reclamation of the channel in the vicinity of UD-1 that conform to the criteria of this regulation.

UMC 817.46 Hydrologic Balance: Sedimentation Ponds - RS

The calculation of runoff volume for the pond must include the area above UD-1 that will drain to the pond. A curve number reflecting the disturbed nature of the site (landslide) should be used.

Supporting documentation (i.e. inflow/outflow hydrographs) must be submitted to support the determination of the detention time presented in Table 7-4. As an alternative, the applicant may elect to utilize the 1/4" holes as a dewatering device by proposing the installation of a gate/valve on the discharge system and committing to retain all storm runoff (equal to or less than a 10 yr.-24 hr. event) in the pond prior to manual dewatering.

The application should clarify items 14. and 15. in Table 7-14. The design event, discharge value (with calculations), and spillway size capacity calculations (i.e. stage-discharge curve with assumptions and calculations) must be submitted.

The application should commit to the inspections required under section (t) of this regulation. An effective means to demonstrate compliance with this regulation is the submittal of a sample inspection form to be used with a commitment to quarterly inspections.

UMC 817.47 Hydrologic Balance: Discharge Structures - RS

Designs for an energy dissipator for the primary and emergency discharge structures must be submitted.

UMC 817.48 Hydrologic Balance: Acid Forming and Toxic Forming Materials - JSL

The applicant's proposal does not adequately address the requirements of this section. The Acid Base Potentials (ABP) of the floor and roof material were calculated to be -22.9 and -64.5 respectively. An ABP of less than or equal to -5 tons CaCO_3 /1000 tons material equivalence is defined as an acid- or toxic- forming material (ATFM). Therefore this material has been determined to be an ATFM. The applicant fails to identify the ATFM throughout the mine plan (pg. 3-38 and 3-56). The current plan does not address any plans to prevent water from coming into contact with ATFM. The

plan also neglects the time in which the ATFM must be buried and disposed of. The waste disposal site needs further chemical characterization prior to Division approval. Due to potential burial of ATFM during previous pad construction the pad materials must also be characterized.

The applicant must commit to dispose all ATFM within 30 days after it is first exposed on the mine site. If the 30 day period is not feasible the operator must develop and submit a plan for the temporary storage of the ATFM material. If temporary storage is determined the viable option, the operator must submit the following: 1) reasoning for temporary storage determination; 2) storage location, delineate on plate 3-1; 3) a commitment to dispose all ATFM within a 90 day from the date that the material is exposed to the surface; 4) type and depth of impermeable material that ATFM waste will be temporarily stored on; and, 5) detailed plans to protect the ATFM from erosion and contact with surface water. Include all necessary cross sections and diagrams.

The soil at the ATFM burial site must have the neutralization potential (NP) analyzed. The NP will then be used to determine the total depth of soil material required to adequately prevent groundwater or vegetative degradation. The applicant must submit a minimum of three soil samples from the disposal site.

The potential for groundwater contamination within the mine pad must be quantified. This determination will be based upon: 1) volume of rock material removed during portal face development and buried within the pad; 2) volume of soil constituents within the pad; and, 3) the ABP analysis of the pad materials. The ABP analysis will consist at a minimum of 2 sample sites with the following sampling depths: 0-12", 12-36", 36-60", 60-84", and 84-108". The samples must not be composited. The sample must be characteristic of the sampling depth. If both rock and soil are incorporated within a specific depth both materials must be analyzed separately.

Due to the variability of sulfur in the roof and floor materials, the Division requires that the operator submit representative chemical samples of the roof, mid-seam, and floor after every 1000 feet of mine entry for the five year permit term of the mine. The following parameters must be analyzed: pH, texture, boron, total sulfates, pyritic sulfur, calcium carbonate percentage, acid-base potential, electrical conductivity and selenium.

UMC 817.52 Hydrologic Balance: Surface and Ground Water Monitoring - RS

The samples from the wells proposed in section 7.1.7 on page 7-2 should be taken at equal quarterly periods throughout the year and not only during the summer months as stated.

The application should commit to submittal of the results of the sampling program to the Division within 30 days.

The surface water sampling program should be revised to include a sample point to be used to determine the quality of the drainage entering the sedimentation pond during the postmining phase of the operation. This information is necessary to demonstrate compliance with UMC 817.46(u).

UMC 817.59 Coal Recovery - JRH

In section 3.4.3.2.5, the operator indicates that access to future reserves is not applicable to the mining plan. The operator needs to address potential reserves to the north and west of the property belonging to the U.P.R.R. and the U.S. which may have recoverable reserves. Retreat of the panels shown by the operator will provide no means for access to these areas from the proposed facilities. Due to the dip and surface features surrounding the property, cover increases greatly in those directions. The operator shall indicate what measures will be taken to protect these reserves.

UMC 817.97 Protection of Fish, Wildlife and Related Environmental Values - LK

The applicant must provide a written commitment to the Division to report any future siting of any plant or animal within the permit area that is listed as threatened or endangered by the Secretary of the Interior.

The applicant needs to provide evidence that the powerline within the permit area has been constructed according to current raptor protection technology. This may be in the form of detailed drawings (to scale) of all power pole configurations, or by having the power poles inspected by the U. S. Fish and Wildlife Service to determine if the design is acceptable. If it is determined that the poles are not safe, Summit Coal Company will need to modify the poles to provide adequate safety for raptors.

The applicant must provide a written commitment to the Division, not to use persistent pesticides on the permit area without first obtaining the approval of the Division.

UMC 817.101 Backfilling and Grading: General Requirements - JRH

In the reclamation plan, the operator does not address sediment control during the reclamation of the operations. The operator must leave the sediment pond and necessary diversion structures in place until revegetative cover is established. The reclamation plan, the schedule for reclamation activities and the bond estimate must reflect the timing, sequence and costs associated with sediment control structures and other treatments as may be required during reclamation.

The bond estimate and the reclamation plan should break out and clearly show those costs involved with the installation of temporary sediment control structures, and the removal of diversions and the sediment pond(s) upon successful revegetation of the site.

UMC 187.103 Backfilling and Grading: Covering Coal and Acid- and Toxic- Forming Materials - JRH

Costs and quantities required for the covering of the coal waste materials is not included in the reclamation plan or the bond estimate. These items must be included in the plan in order to determine this section technically complete. Any additional borrow material which may be required in order to cover the waste must be quantified and located on the plan and drawings.

UMC 817.103 Backfilling and Grading: Covering Coal and Acid- and Toxic-Forming Materials - JSL

The applicants proposal does not adequately address the requirements of this section. Refer to UMC 817.48 for further review. The applicant may have to implement plans to compact backfilled material at the underground waste disposal site. Methodology and design specifications for disposal and compaction will be dependent upon the NP test referred to under UMC 817.48.

UMC 817.106 Regrading or Stabilizing of Rills and Gullies - JSL

The applicants proposal does not adequately address the requirements of this section. There is no commitment to regrade, stabilize and revegetate all rills and gullies greater than nine inches in depth. The applicant must commit to regrade, stabilize and revegetate according to performance standards UMC 817.111 through 817.116 all rills and gullies greater than nine inches deep.

UMC 817.116 Revegetation: Standards for Success - LK

The applicant must provide plans to the Division to re-evaluate the range condition of the reference area every five years, during the field season prior to submitting an application for permit renewal. The applicant must also submit a revised Plate 9-1 (Range Site Map) which shows the correct location of the reference area.

The applicant must provide a revised revegetation monitoring plan to the Division for review and approval. The monitoring plan must provide for adequate statistical sampling for cover, woody plant density and productivity for the last two years of the bond liability period.

UMC 817.121 Subsidence Control: General Requirements - DD

The applicant needs to show that protection of the road in the canyon can be accomplished and establish an angle of draw for projected subsidence in accordance with the overburden of the area.

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