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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Norman H. Bangert
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

June 13, 1991

Mr. Roger Skaggs
Blue Blaze Coal Company
P.O. Box 784
Price, Utah 84501

Dear Mr. Skaggs:

Re: Technical Deficiency Document, Blue Blaze Coal Company, Blue Blaze Mine,
PRO/007/020, Folder #2, Carbon County, Utah

Enclosed please find the technical deficiency document for the Blue Blaze Mine
Permit Application Package.

If you have any questions, please call me.

Sincerely,

A handwritten signature in cursive script that reads "Pamela Grubaugh-Littig".

Pamela Grubaugh-Littig
Permit Supervisor

jbe
Enclosure
AT007020.002

**TECHNICAL DEFICIENCIES
BLUE BLAZE COAL COMPANY
Carbon County, Utah
PRO/007/020
June 1991**

R614-301-100 GENERAL CONTENTS (SMW)

115.300 Please make a statement as to the road which runs through the proposed site on to Beaver Creek. Is this a public road or does it provide access to public property?

121. Please change all reference to the coal mining regulations to the current R614 Coal Mining Rules.

R614-301-200 SOILS (HS)

In the third paragraph on page 8-10, the applicant refers to Plate 8-1. Did the author mean to indicate Plate 8-2, Topsoil Isopach and Handling Map?

In the last paragraph on page 8-12, the author states that the present and potential productivity statement, normally included within the range site and condition class, are unavailable. However, in Appendix 6, these productivity statements are provided. Please make necessary text changes and alter the PAP when and if the new range site and condition classes are determined (refer to Susan White's comments R614-301-321.200)

On page 3-47, the applicant states that "3 feet of noncombustible material will cover coal outcrops." This should state that '4 feet of noncombustible . . .'

The information photocopied from the Soil Survey of Carbon Area is publically available and should therefore be removed from Appendix 5.

On page 3-29, the applicant states that "Disturbed areas will be vegetated where practical . . .," all area disturbed during mining and reclamation activities must be reclaimed. Please make necessary revisions.

The mass balance calculations on page 8-10 are incorrect (refer to R614-301-231). The volume estimate for soils excavated from soil stripping area #7 (Plate 8-2) should be 8578.7 yds³ not 6,384.3 yds³. This will alter the total volume of excavated topsoil.

223. The soils map for the Blue Blaze mine site does not meet the standards of the National Cooperative Soil Survey as incorporated by reference R614-302-314.100.

The soil map unit (Shubert gravelly loam) which encompasses soil pits #1, #2, #4, and #5 (Plate 8-1) is an unacceptable taxon at the Order I soil survey intensity. Soil site #1, #2, and #4 are classified as pedons within the Entisol soil order (Suborder-Fluvent). Soil pit #5 is classified as a pedon within the Mollisol soil order (Suborder-Boroll). Map units must consist dominantly of one component or of two or more components which are identified in the name of the map unit. A taxonomic unit description describes the ranges in soil properties exhibited in the polypedons for the maps in a survey area that are referenced by the taxonomic unit (SCS, 430-V Issue 6, Soil Survey Manual). A soil series denotes a group of soils that have horizons similar in arrangement and in differentiating characteristics. This is clearly not the case for the soil map unit (Plate 8-1) which encompasses pits #1, #2, #4, and #5 (Profile Description: page 8-3 through 8-7).

Furthermore, areas of taxonomic classes (i.e., series) rarely, if ever, coincide precisely with mappable areas. Therefore, it is highly unlikely that map units described for the mine area coincide directly with the designated series.

Additionally, on page 8-1, the applicant states the following "Soil names and classifications given in this report are tentative. The soils in this report are names for similar soils that are presently being mapped by the SCS in the area. The soils have been correlated by the SCS." The first and third sentences and claims are implicit contradictions.

It is assumed by this reviewer that the following relationships exist:

- 1) The soil profile descriptions located on pages 8-3 through 8-9 numerically correspond to the "Pits #" delineated on Plate 8-1.
- 2) The soil profile descriptions correlate, according to the submitted information, as follows:

<u>Soil Number</u>	<u>Soil Name</u>	<u>Family or Higher Taxonomic class</u>
#1	Shupert Series	Fine-Loamy, Mixed (Calcareous) Frigid Ustic Torrifluvents
#2	Shupert Series	Loamy-Skeletal, Mixed (Calcareous) Frigid Ustic Torrifluvents
#3	Curcanti Series	Fine-Loamy, Mixed (Calcareous) Frigid Ustic Torriorthents

#4	Shupert Series	Loamy-Skeletal, Mixed (Calcareous) Frigid Ustic Torriorthents
#5	Shupert Series	Fine-Loamy, Mixed Pachic Haploborolls
#6	Senchert Series	Fine-Loamy, Mixed (Calcareous) Frigid Ustic Torriorthents
#7	Brycan Series	Fine-Loamy, Mixed Pachic Haploborolls

Therefore, the following relationship described in the Soil Survey of Carbon Area, Utah (page 294) is in direct conflict with the information provided in the PAP.

<u>Soil Name</u>	<u>Family or Higher Taxonomic Class</u>
Shupert Series	Fine-Loamy, Mixed (Calcareous) Frigid Typic Ustiflurvents
Curecanti Family	Loamy-Skeletal, Mixed Typic Argiborolls
Senchert Series	Fine-Loamy, Mixed Argic Pachic Cryoborallis
Brycan	Fine-Loamy, Mixed Ceumulic Haploborolls

Based on the technical review described above, the Division finds that the majority of the soil survey baseline information is erroneous and contradictory. Therefore, other portions of the PAP regarding soil salvage depths areal extent of various soils and topsoil mass balance calculation must be revised and is contingent upon the submission of accurate information. The Division recommends a complete overhaul of this section in order to comply with this and other sections of the state regulatory program.

231. The topsoil mass balance calculation (page 8-10) and subsequent qualifying statements (i.e., 7.4 acres of disturbance) indicate to the reader that the applicant is unaware of his/her obligation to reclaim all surface acreage which is disturbed during mining and reclamation activities. Regardless of pre-disturbed conditions, all surface area disturbed during mining and reclamation activities must be bonded and reclaimed (R614-301-553.500 previously mined areas).

According to Plate 8-2, there will be approximately 10.3 acres of disturbance. According to Plates 3-1, 3-8, pages 8-21, 3-7, and mass balance calculations on page 8-10, only 7.4 acres of disturbance will occur. The following areas have been omitted from the disturbed area: topsoil stockpiles; the unhatched area northeast of the old concrete garage; the area around the Castle Gate A Seam Fan Portal which will be cleared of

vegetation (and topsoil); etc. Other incidental areas have also been omitted from the disturbed area. Again, the applicant must be informed that revisions (editorial and technical) must be revised throughout the entire PAP document.

232. The #1 soil isopach area (Plate 8-2), as characterized (pages 3-19 and 8-3), cannot be considered suitable topsoil for final reclamation. When compared with the Division Guidelines for the Management of Topsoil and Overburden, Table 2, the following constituents are rated as unacceptable or poor: Texture; saturation percentage; percent coarse rock fragments. The material in question is the result of sediment deposition behind a coal waste impounding structure. It is, therefore, derived from eroded (sheet and rill erosion) material which has been transported by precipitation and concentrated overland flow. The applicant must revise narratives, maps, and mass balance calculations to reflect this finding.

234. The applicant must commit to conducting land surveys of the topsoil stockpiles once they are completed. If insufficient volumes exist to redistribute topsoil over the entire disturbed area, then the applicant must commit to fulfilling the requirements of R614-301-233, Topsoil Substitutes and Supplements.

Additionally, the applicant must commit to removing all contaminated material from the site of the topsoil stockpiles prior to topsoil storage.

The applicant must also describe the methods for controlling wind and water erosion on the topsoil stockpiles. This would include, but not be limited to the following: Interim seed mixture and fertilization; mulching or surface stabilization; construction of containment berms or silt fences; etc.

242. On pages 8-23 and 3-29, the applicant describes the redistribution of soil. The description must include: a commitment to scarify and the specific depth of scarification; a commitment to maximize surface roughness; and a commitment to mulch all reclaimed areas (this should include the rate of mulch application per acre).

243. The applicant must more fully describe the soil testing procedures prior to seeding. Procedures should include sampling frequency, sample depths and laboratory methods employed.

On page 3-51, the applicant lists soil parameters to be tested for fertilize requirements. This list should include Electrical Conductivity and Sodium Absorption Ratio.

R614-301-300 BIOLOGY (SMW)

321.200 A statement of productivity and range condition of the reference area from the U.S. Soil Conservation Service must be included in the permit. The information on page 9-9 does not correlate with the reference areas as designated on Plate 9-1.

331. Page 3-42 commits to interim revegetation and refers to section 9-7. Section 9-7 on page 9-4 refers to the vegetation maps. Please clarify.

On page 3-52, the permittee commits to using the interim seed mixture, if available. The permittee must commit to notifying and obtaining Division approval prior to any substitutions in the seed mixture.

The permittee has committed to interim revegetation. However, a commitment must be made also to the establishment of the vegetation. If first seeding does not establish, then a second and third attempt must be made.

333. Page 3-58 of the permit states that Blue Blaze Coal Company will leave islands of natural vegetation in new disturbed sites as part of minimizing impacts to wildlife. Please detail and locate on a map the areas proposed to be avoided in construction.

341.100 Figure 3-11 identifies the chronology of reclamation steps. Seed ordering must occur three to six months prior to seeding in order to secure all species of the approved seed mixture. The chronology must also indicate transplant or containerized stock ordering at least a year prior to planned planting.

341.210 Page 3-56 identifies containerized stock to be planted during final reclamation. The permittee must detail (either description or a map) where these plants will be planted. For example, the Aspen should be planted within the canyon bottom or on moist sites and not on the exposed south facing slopes.

341.220 Page 3-53 states that steep slopes will be hydroseeded, hand broadcast or other appropriate methods. Please detail "other appropriate methods".

The permittee must commit to raking all broadcast seed (final or interim reclamation) to ensure proper seed/soil contact.

The plan must detail methods of containerized stock planting. Consideration must be given to watering the stock at the time of planting and other times during year one, if drought conditions exist.

341.230 2000 pounds of straw or hay mulch is not adequate for erosion control. The permittee must commit to applying a minimum of 4000 pounds mulch per acre.

Hydromulch is not a suitable mulch for slopes in final reclamation. The permittee must commit to using erosion control matting (not jute) on all slopes. If during interim revegetation the permittee can demonstrate hydromulch will control erosion and provide for plant establishment, the Division will, at that time, consider the request for the use of hydromulch.

341.250 The permittee must fully describe the methods (sampling) to be used to determine the success of revegetation. Qualitative methods must be performed annually. Quantitative sampling methods must be done in years 2, 5, 7, 9 and 10.

342.100 Page 3-58 states that woody plant density will be determined successful when 242 plants per acre are established. As stated before by the Division, this is not an adequate success standard for the post mining land use of wildlife.

The plan must identify other enhancement measures. Replacing the vegetation is bringing the site back to the original state. The regulations require enhancement, such as rock piles, for small mammals, snags, etc.

353.250 Please provide a statement that all seed purchased will comply with all applicable state and federal seed laws.

356.120 Please include a statement repeating the success standard requirements of this regulation to which the appropriate areas apply.

356.232 Please commit to the 80-20 rule of this section.

356.250 The applicant should be aware that some of the proposed disturbed area qualifies as a premined area. On these areas, the success standard is considerably less demanding. Prior to redisturbance of vegetative cover, measurements must be made. The permit must state the correct success standards and predisturbance data.

358.100 Please commit to promptly notify the Division of any state or federally listed endangered or threatened species within the permit area of which the operator becomes aware.

358.400 The permittee must detail the revegetation and enhancement of the tributary to Gordon Creek during final reclamation. Designate which containerized stock will be planted. The permittee must also commit to planting 1000 Salix cuttings per acre along the creek banks.

R614-301-400 LAND USE AND AIR QUALITY (SMW)

411.130 The permittee states that the premining land use has limited livestock grazing. During Division inspection of the site on two occasions, at least 1000 sheep were observed grazing in the proposed mine area. Please explain this apparent discrepancy.

411.142 The letter from State History (page 5-13a) must be updated. Additionally, the letter states "a known site(s) exist in the project area." All sites within or adjacent to the permit area must be clearly shown on a map.

R614-301-500 ENGINEERING (JK)

513.300 Page 3-7 states that "[a]ll development and non-coal waste rock will be disposed of in underground 'gob' areas which consist of entries and cross-cuts no longer needed for the operation of the mine." The applicant must include here a commitment to submit, for Division and MSHA approval, a detailed plan for this disposal operation, and this before disposing of any such material underground.

521. Map 3-1 (Surface Facilities) is cluttered and unclear. Check all contour lines to make sure that they continue and that they do not cross themselves or intersect other contour lines, as they do in places. Include the area by the Castle Gate Fan, which is to be cleared of vegetation, in the disturbed area. Designate all highwalls as highwalls and distinguish between pre-existing highwalls and highwalls which will be created for the operation.

Map 3-6 (Premining Topography) must include the topsoil storage area to the west of the main road in the area of proposed disturbance. Existing highwalls must also be shown.

542 Map 3-7 (Post-Mining Topography) must show all retained/reduced highwalls and label them as such.

Map 3-8 (Reclamation Map) is cluttered and unclear as Map 3-1 is. Check all contour lines to make sure that they continue and that they do not cross themselves or intersect other contour lines, as they do in places. Include the area by the Castle Gate Fan, which is to be cleared of vegetation, in the disturbed area. Include the pond and the topsoil storage area to the west of the main road in the disturbed area. Show all retained/reduced highwalls and label them as such.

542.300 Maps 3-2A and 3-2B (Premining/Design Profiles) and 3-7A and 3-7B (Post-Mining Topographic Profiles) are not consistent. Several of the cross-sections shown on these plates are inconsistent with one another; i.e., the surfaces shown on 3-2 are different from the corresponding surfaces shown on 3-7. Also, for clarity, do not show premining, operational, and post-mining surfaces on the same profile. Show premining and operational surfaces on Maps 3-2A and 3-2B. Show operational and post-mining surfaces on Maps 3-7A and 3-7B, even if the two surfaces are identical or if the post-mining surface is identical to the premining surface. And where operational and post-mining surfaces or premining and post-mining surfaces are identical, note that fact beside the particular profile.

542.800 The reclamation cost estimate found on pages 3-60 through 3-63 is still not verifiable and, therefore, is still not adequate. The cost estimate must include some detail as to how the applicant arrived at the time estimates stated therein. For example, in item (b) Soil Placement (Backfilling and Grading), it is not enough to just say that backfilling and grading of the Upper Portal Pad will take 10 days. The text must include some detail showing how the estimate of 10 days was arrived at. The volume estimates required under R614-301-553.100 can be divided by machine productivity per day to obtain these time estimates.

A planimeter check of the total disturbed area, as represented on Plate 3-1, yields a disturbed area of about 10.5 acres rather than the 7.4 acres used in the MRP. The figure of 10.5 acres must be used for the total disturbed area. All references to and calculations which use the figure of 7.4 acres, including topsoil distribution, backfilling and grading, and the reclamation cost estimate, must be changed to reflect the 10.5 acre figure.

553.100 The applicant must provide mass balance calculations to show that there is adequate volume of material to 1) achieve the anticipated operational surface configuration, and 2) achieve the anticipated post-mining surface configuration. The mass

balance calculations must use either the cross sections already in the MRP or else new cross-sections derived by the applicant for this purpose. The calculations should be done using either the attached form or an equivalent form.

553.600 The applicant must clearly specify which highwall(s) will be created for his operation and which are already in existence from previous operations. The highwall(s) created for the applicant's operation cannot merely be reduced, but must be completely backfilled since the post-mining land use of grazing and wildlife habitat is identical to the premining land use (see R614-302-271.100). The highwalls which are already in existence from previous operations must be completely backfilled unless the applicant can demonstrate, to the Division's satisfaction, that there is not a sufficient volume of material available to do so (see R614-301-553.620 and R614-301-553.520). It must be emphasized that complete backfilling of the highwalls will affect the volume estimates required under R614-301-553.100, as well as the reclamation cost estimates. These must be changed to reflect this.

R614-301-700 HYDROLOGY (TM)

722.500 The applicant is required to provide sufficient slope measurements or contour maps to adequately represent the existing land surface configuration of proposed disturbed areas.

The following plates will need the following items corrected to come into compliance with this regulation. As a general comment, all plates must provide accurate contours depicting premining, operational, and post-mining topography.

Plate 3-7 Post-Mining Topography

- 1) The contours are inaccurate and confusing and must be corrected.
- 2) The watershed areas found on Plate 7-4 must be shown on Plate 3-7 at least partially, matching contours from Plate 7-4. The watershed areas are to verify the undisturbed and the disturbed reclaimed areas draining to each diversion.

Plate 7-4 Drainage Areas A-F are not clearly depicted, as drainage area A overlaps another drainage boundary. These drainage areas need to be clearly depicted on Plates 3-7 and 7-5.

Plate 7-5 Contours are confusing and the drainage areas and contours from Plate 7-4 need to match, in order that drainage areas from Plate 7-4 can be specifically identified. In addition, all alternative sediment control areas need to be identified on this map, as well as, described in the text, including treatment of watershed area treated, percentage of total disturbed drainage area, and maintenance and monitoring plan.

731.300 (HS) The applicant must commit to covering all acid- and/or toxic-forming materials within at least four feet of nonacid- and/or nontoxic-forming materials.

The applicant continues to describe various procedures for disposing of coal waste, underground development waste, contaminated material, etc. Plate 8-4 depicts a "Debris Burial Site," page 3-28 refers to removing the material from the permit area and hauling it to the Carbon County Landfill, page 3-50 refers to compacting contaminated material into diversions. Additionally, the applicant states that the coal waste embankment in the vicinity of test pit #8 will be shipped off with run-of-mine coal (page 3-12). However, surface facilities maps, reclamation maps, and even the post mining topography maps show the embankment in place. The applicant must be consistent as to the disposal procedures for the aforementioned waste materials. The applicant must also be made aware that if underground development waste in "gobbed" underground that specific plans for disposal must be formulated by the applicant and approved by MSHA and the Division (R614-301-513.300).

The material within the coal mine waste embankment (material in the vicinity of test pit #8) is toxic-forming. The concentration of hot water soluble Boron is unacceptable (i.e. $\geq 5\text{mg/Kg}$) when compared with the Division Guidelines for the Management of Topsoil and Overburden, Table 2. Therefore, the applicant must comply with R614-301-731.300 and material handling and disposal provisions of R614 rules for the material in question.

740. The applicant has provided inaccurate peak flow data, no justification for curve numbers based on soil type, cover, and land use taken from established Soil Conservation Service curve number table. The computer program used by the applicant gives inaccurate peak flows values as evidenced by the data presented in Table 7-5. Confirmation of the data given in Table 7-5 cannot be carried out until the plates are confirmed regarding watershed areas. All areas referenced in Table 7-5 must be easily identified on the appropriate plate or plates prior to PAP approval. Contours and watershed areas are the core of any watershed analysis.

The applicant will provide a riprap gradation and installation methodology for filter cloth.

Plate 7-6 Sediment Pond Detail Map does not show a decant at a level two feet above the 60% cleanout level or 18 inches above the maximum sediment level. This is necessary to comply with State Health's regulatory requirements regarding decant elevations and Division regulatory requirements under rule R614-301-742.223.32. The storage capacity for the 10-year, 24-hour storm event exists between the decant and the top of the principal spillway. The emergency spillway is required to safely pass the 25-year, 6-hour storm in combination with the principal spillway. The operator may eliminate the three dewatering holes on the principle spillway and provide an inverted dewatering nipple at the proper decant elevation.

742. The applicant has failed to provide adequate documentation regarding any disturbed areas which do not drain to the sediment pond and are treated with alternative sediment controls. The following information will be provided if these areas exist. The amount of watershed area draining to the control, type of control (silt fence, straw bale, etc.), amount of runoff treated, and maintenance and monitoring plan. If no areas will be treated by alternative controls, then the applicant must state this and provide documentation in the plan.

742.120 The applicant is responsible for providing sediment control techniques to control erosion and control sediment during reclamation from all reclaimed areas of the permit area. Treatment of all reclaimed areas will be required until bond release. No reclaimed channels will be allowed without the treatment of reclaimed area drainage for sediment control. If alternative controls are used, then a Best Technology Currently Available (BTCA) argument will be presented as part of the reclamation plan. Information from test plots demonstrating sediment yield from disturbed areas, water quality parameters including acidity, total suspended, and dissolved solids and an erosion control methodology assessment will be provided by the applicant during the operational phase of the operation. This information will then become part of the PHC determination and the BTCA plan.

763.100 Siltation structures cannot be removed until two years after the last augmented seeding and will be maintained until removal is authorized by the Division and the Disturbed area has been stabilized and revegetated. The applicant will revise statements in the PAP which are not in compliance with this rule (pages 3-46).

