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PRICE RIVER COAL COMPANY
P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

December 22, 1981

CERTIFIED MAIL - Return Receipt Requested

Mr. Thomas Tetting
Engineering Geologist
Utah State Department of Natural Resources
Division of Oil, Gas, and Mining
4241 State Office Building
Salt Lake City, Utah 84114

RE: Your Letter of December 8, 1981

Dear Mr. Tetting:

I provide this letter as written response, for your records, to the two questions of December 8, 1981.

Your questions:

QUESTION: 1. How (broadcast, drilled, etc.) and when will seeding take place?

ANSWER: In all cases, seeding will be done by broadcasting. Drilling is not suitable to most of our potential reclamation sites due to rockiness and steepness of slopes. After broadcasting, and depending on the seed mix and physical characteristics of the site, we will harrow, crimp, disc or rake to bury or compact the seed into the bed. Timing for planting will always comply with UMC 817.113(a)(1) and (2). Be assured that every effort will be made to maximize our potential for success so as not to need to repeat the costly and time consuming process of seeding.

QUESTION: 2. What is the stocking density for trees (and shrubs) planned for revegetation?

ANSWER: The major mention of stocking densities for trees and shrubs in your regulations occurs in Section 817.117 - "Revegetation: Tree and Shrub Stocking for Forest Land".

Please note that we have not designated our land use to be forest land.

UMC 817.116(b)(3)(iv) indicates a need for compliance with 817.117, but only if areas are to be developed for forest or wildlife land. We have no specific intent to

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develop wildlife habitat, although all lands are used by wildlife to some extent. We have stated that our land use is the unmanaged category with some light grazing. The grazing category was not chosen since no "active management" has occurred. The goal of our reclamation plan, under this land use, is to return the land to the most stable condition obtainable, through judicious use of various revegetation and conservation techniques. We include no tree or shrub stocking plan, nor do we feel compelled by existing regulation to do so.

Please thank Mr. Kunzler for the information he has provided on State Forestry bare root stock. We are aware of the availability and have taken advantage of the program in the past (we planted 1,000 trees last year) and will again in the future (we've ordered 1,700 trees this year).

We are currently waiting to let a contract, which includes upper site preparation (clearing, grubbing, stream channel relocation), retaining wall construction and the leachfield. We are anxious to initiate this phase of construction so that we may install support facilities when shaft construction is completed. Without these support facilities, the shafts are just two holes.

Sincerely,

R.L. Wiley

Robert L. Wiley
Environmental Engineer

RLW:ga

DETERMINATION OF COMPLETENESS REVIEW

Price River Coal Company
Crandall Canyon Modification
ACT/007/004, Carbon County

UMC 782.13 Identification of Interests

(e) The name and address of the surface and coal owners contiguous to the proposed permit area should be listed and a map provided with their interests indicated.

Determination of Completeness

The information requested has been provided and located in the original mining and reclamation plan and is complete.

UMC 782.17 Permit Term Information

(a)(2) When the permit application is judged complete for the requested time period (30 years), it will be necessary for the operator to provide a letter concerning the source of financing written by the proposed source explaining why a 30-year term is needed. If internal funding is involved, confirmation by a financing officer or person approving finances is needed.

Determination of Completeness

* The proposed source of financing is the parent company, American Electric Power. A letter or statement has been solicited from them but has not been obtained. Although this section is incomplete, the Technical Analysis may proceed with this section stipulated.

UMC 783.14

The north slope of the new channel diversion between stations 5+00 and 11+00 is very steep, what is it composed of (i.e., sandstone, shale, allvuial, etc., strata analysis for lower 15' of exposed rock in new channel)?

Determination of Completeness

The information has been provided in the applicant's response to the Apparent Completeness Review and is satisfactory.

UMC 783.15 Ground Water Information

A discussion of the impacts on the hydrologic balance is discussed on page 20; however, this discussion centers on only surface water and does not discuss ground water. Chapter VII of the Mining and Reclamation Plan does discuss the general geo-hydrologic information; however, this is in insufficient detail

and lacks data to support the claims. The applicant should present the data from their ground water monitoring program. Sufficient information as to flow rates and permeability should be provided not only to support the general claim that underground mining will not impact the ground water system but also to provide sufficient information to predict the impacts of the shaft construction.

Determination of Completeness

A summary of ground water and surface water data has been presented in the Vaughn Hansen Water Quality Summary.

Page 4, Chapter 7 states that the Blackhawk formation is of uniform low permeability and, therefore, unfeasible for a source of ground water. This is inconsistent with what was stated earlier that the Blackhawk is a mixture of sandstone, shale, mudstone and clay of which would show differing permeabilities. More substantial evidence is needed in order to claim this formation unfeasible as a source of ground water. Chapter 7 also gives hydraulic conductivity measurements, where and how were these obtained?

Determination of Completeness

The information has been provided by the applicant in the response to the Apparent Completeness Review. This section has been determined complete.

Why was ground water monitoring contained to the Blackhawk formation when others will or could be affected?

The baseline measurements presented are irregular which make it difficult to correlate between years.

Baseline sampling of springs should be quarterly instead of biannually so that trends and seasonal variations can be established.

In the baseline quality studies, a full sweep of parameters should be included in the analysis before the list is reduced.

Apparently no springs are being monitoried directly above the mine workings in the Crandall Canyon area. If any springs do exist in this area they (or same) should be monitored.

Determination of Completeness

These questions and concerns have been adequately addressed by the applicant in the response to the Apparent Completeness Review. Information has been presented in the Vaughn Hansen Report which addresses these areas of particular interest.

783.19 Vegetation Information

The statement of work for Vegetation Studies by Mariah Associates, Laramie, Wyoming, that was submitted to the Division on June 16, 1981, should meet the requirments of UMC 783.19.

Determination of Completeness

*** This information has not been submitted. The applicant has stated that Mariah Associates will soon have the vegetation study complete and it will be forwarded to the Division. When the report is submitted, this section will be complete provided the information is adequate.

783.25

The applicant shows cross-sections of material to be built up in the Crandall Canyon facility site. Those cross-sections are 4-A, 4-B and 4-C for the preliminary plot plan and 5-A and 5-B for the final plot plan. Where are the cross-sections? The applicant should delineate the extent of waste fill from the shafts on Exhibit 5 in plan view.

Determination of Completeness

The applicant has submitted the requested cross-sections as exhibits in the response to the Apparent Completeness Review. This section is complete.

The applicant should state the procedures for disposal of trash, what landfill will be used, etc. Where will oil be stored until disposal and how will it be disposed? Will solvents be disposed in the same manner? Will all oil spills in the shop be captured? Where will the oil storage be located?

Determination of Completeness

* Applicant must obtain permission from appropriate authorities for disposal of trash at the landfill and submit evidence of approval to the Division.

Applicant states that all oil and solvents will be stored in tanks and scavenged by contracted waste oil haulers. Exhibit 5 shows location of waste oil storage. All oil spills will be captured.

784.13 Reclamation Plan: General Requirements

The applicant should be more specific concerning the methods which will be used to revegetate the disturbed areas:

A. What type of mulch and rate of application will be used and how will it be secured?

Determination of Completeness

The applicant states that straw will be used at an average of three tons/acre and will be secured using a "Finn" crimper. Jute or other vegetative matting will be used on steep slopes or critical erosion area.

B. What is the exact schedule of seeding and mulching after the topsoil is applied? The reclamation plan currently states seeding and mulching will be done "as soon as possible" after resoiling.

Determination of Completeness

The applicant states that seeding and mulching will be done during the first appropriate period after resoiling when natural moisture can be expected.

C. Justification should be provided for the introduced species proposed in the seed mix. Show how these species are necessary to achieve the postmining land-use (reference can be made to pertinent research, see UMC 817.112).

Determination of Completeness

The use of introduced species was justified by the applicant.

D. Is the seed mixture shown as Pure Live Seed (PLS)? If not, the PLS seeding rate should be submitted.

Determination of Completeness

The applicant confirmed that the seeding rates were in terms of PLS.

E. The vegetation plan should reflect the goal of postmining land-use and the subsequent success criteria on which a partial bond release will be based. Thus, both postmining land-use and success criteria must be well defined in order to develop a revegetation plan.

Determination of Completeness

The applicant states that the postmining land-use is erosion control and light grazing. It was stated that the seed mix is allowing natural re-invasion on the drill sites where it has been used since 1974.

* Success criteria was not discussed. A discussion on how the revegetated areas will be monitored, what parameters will be measured, what comparison (tests) will be made, and at what level will revegetation be deemed successful should be supplied by the applicant.

F. Data should be submitted supporting the feasibility of successful revegetation using the proposed reclamation procedures. Examples of successful revegetation at the minesite to date, or at nearby mines can be used. If this information is not available, submit data taken from nearby which supports the above.

Determination of Completeness

The applicant has stated that the proposed methods are widely used and are successful. The applicant also reports that revegetation efforts on the drill sites have been successful.

G. Provide an interim revegetation plan as well as the seed mix for stabilization of cut and fill banks, outslopes of dams, etc.

Determination of Completeness

An interim revegetation plan, including the seed mix, was submitted by the applicant.

784.14 Reclamation Plan: Protection of Hydrologic Balance

(c) Currently, the seasonal evaluation of ground and surface water quality from the spring in Crandall Canyon is insufficient. It is not possible to decipher annual variation or trends in either ground or surface water data submitted. The data of 1980 and 1981, submitted by Vaughn Hansen Associates need to be summarized along with the samples obtained in 1978 to evaluate seasonal variation.

Determination of Completeness

*** The Vaughn Hansen Summary depicted two surface samples (spring and summer) attempted in Crandall Creek both of which occurred at 0 discharge. Since winter and fall samples were not attempted, the seasonal trend evaluation for Crandall Creek is not complete. Ground water monitoring of the spring in Crandall Canyon (B-22) and the observation well (B-43) appear adequate in evaluating the ground water system (Vaughn Hansen Summary). The applicant should further evaluate the cause for poor water quality in Well B-43 to justify that it is not due to Price River Coal Company's disturbance in Crandall Canyon.

The Manti-LaSal National Forest has requested clarification of the ground water monitoring program for Crandall Canyon. The Division of Oil, Gas and Mining suggests Price River Coal Company forward the Vaughn Hansen Summary to the Forest Service officials.

A surface water monitoring point was to be located above the mine facilities according to the plan (Section 3.74-3). It was to be portrayed on Exhibit 6, but there is no indication of a sample point above the facilities on this exhibit.

Determination of Completeness

This monitoring point was adequately addressed in the Vaughn Hansen summary.

Well B-43 is slated as a ground water monitoring well in Crandall Canyon. The modification plan states that a summary on the well water quantity and quality is in Exhibit 6-12 yet there is no such exhibit in either this or the Price River Complex Plan. Submit available data on quantity and quality of ground water flow, gradient of flow and direction of flow. From what formation(s) do the spring B-22 and ground water B-43 issue? B-43 is not portrayed on the map of Crandall Canyon. Provide its location.

Determination of Completeness

The applicant has adequately addressed these concerns in the Vaughn Hansen Summary.

UMC 784.20 Subsidence Control Plan

Exhibit 3-4 indicates the presence of the C_W seam in the Crandall Canyon vicinity. No dates or plans for mining were located in the mine plan. Exhibit 3-7 also indicates a seam, Sub I that has no mining sequence given either. This is located directly west of the proposed shaft locations. No dates are provided for extraction of coal from the A seam in Exhibit 3-6. A timed sequence of mining should be provided indicating these areas of overlap and include the Sub 3 and D seams to enable the Division to assess possible subsidence factors. A cross-section profile with approximate dates would be adequate.

Determination of Completeness

The applicant has stated that the preceding questions and comments were answered during the July 17, 1981, meeting with the Division or were deleted to be addressed with the main mine plan. This is correct; it is assumed that adequate cross sectional profiles are being drafted in preparation for the impending complex mine plan review.

784.23(7)

The applicant must show that the fill materials will meet a 1.5 static safety factor for steepest slopes shown.

Determination of Completeness

Applicant has stated that the only portion of the fill area that will not be bounded by a retaining wall or a natural slope is the toe area of the fill. The steepest slope for the toe area of the fill is 1v:2h. A maximum slope of 1v:2h complies with UMC 817.72(g).

The applicant should state the procedures for disposal of trash, what land fill will be used, etc. Where will oil be stored until disposal and how will it be disposed? Will solvents be disposed in the same manner? Will all oil spills in the shop be captured? Where will the oil storage be located?

Determination of Completeness

Applicant has adequately addressed these concerns on page 16 of the ACR response.

784.23(9)

Are there any explosive storage areas? Where are they located?

Determination of Completeness

The applicant has provided a map with the explosive storage area located upon it, new Exhibits 4 and 5.

784.23(10)/784.19(4)

The applicant has not shown drainage off of the fills after the final configuration as completed. Will all areas be paved? The applicant should show the extent of paving on the plot plans. The fill must be shown to be non-impounding. Are any underground springs or seeps present. Is any of this area subject to subsidence?

Determination of Completeness

Applicant has adequately addressed the above; ACR Response page 17.

784.23(11)(13)/817.166

The applicant must address reclamation of the access road. Will the road be removed?

Determination of Completeness

The mine access road will not be removed upon final reclamation. The permanent road is required for access to leased upper canyon grazing areas (Exhibit 10).

784.23(13)(11)/817.101

The applicant states that the area will be returned to AOC. The applicant should show a plot plan and cross-sections similar to Exhibit 5, 5-A and 5-B showing the postmining configuration.

Determination of Completeness

Applicant has addressed postmining contours in revised Section 3.75-C, ACR Response page 35, and shows contours on new Exhibits 9, 9A, 9B, 9C and 9D.

784.24 Transportation

(a) The applicant has specified road width, gradient, road surface and culvert, however, the applicant must furnish the Division with specifications pursuant to 817.162 for road cuts and if these slopes as specified in 817.162 are exceeded, the applicant must show that the cuts or embankments are stable by analyzing the stability and show these structures will meet a 1.5 static safety factor.

Determination of Completeness

* The applicant has submitted a road cut slope stability analysis by Rollins, Brown and Gunnell, Inc., which shows that the slopes will meet a 1.5 static safety factor.

784.24(a)

Pursuant to 817.163, the applicant must show ditches are lined to handle velocities and quantity. The applicant must show that inlets and outlets to culverts are designed for 10 fps and will not discharge on fills.

Determination of Completeness

* The applicant has submitted design calculations showing that the roadway ditch is adequate to handle a 10-year, 24-hour precipitation event with a velocity of approximately 5.2 fps. Exhibit 15 shows the culvert outlet details and Exhibit 7 shows that the culvert discharges onto a riprapped area.

817.44 Hydrologic Balance: Stream Channel Diversions

(b)(1) Give retaining wall characteristics for stream diversion including but not limited to length, height, width and determine stability. Relate this to soil factors such as permeability and texture. Although this section of the stream is considered ephemeral, the 10-year storm should be described to determine the diversion capability for handling runoff from such an event. Why is it designed for the 100-year event if it is ephemeral? Note: regulations on ephemeral vs. perennial and intermittent streams (UMC 817.43[b]) (817.44[a]).

Determination of Completness

The applicant will use "Hilfiker" welded wire walls for the stream bank and fill retaining walls. Specifications for this type of a wall have been provided to DOGM (c/o Mary Bosworth).

The applicant states that the stream is ephemeral and designs have been made for a 100-year event for the applicant's protection.

817.45 Hydrologic Balance: Sediment Control Measures

Provide design and capacity of sediment trap along with maintenance procedures. How large is the distrubed area to be drained by it?

In utilizing a filter berm for treatment of suspended solid materials, describe the following design parameters:

1. Material to be used;

2. dimensions;

3. characteristics of flow to be treated; and

4. Berm maintenance.

Determination of Completeness

* Applicant has decided to eliminate the use of filter berms for sediment control on the paved area. The alternative approach that the applicant has proposed is to collect all storm water runoff through two drain systems and route the flow through oil separators. The runoff would then be discharged through a riprapped outlet into the Crandall Creek stream channel.

Steve McNeal of the Department of Health was notified of these plans on October 23, 1981. At that time, he requested a copy of the design and locations of the oil separators and the newly proposed sediment pond 016. This request was forwarded to Mr. Rob Wiley on that same date.

Essentially, the Division finds no problem with this design, however, Health must evaluate whether these discharge points and pond 016 meet the NPDES requirements for Crandall Canyon.

817.46 Hydrologic Balance: Sedimentation Ponds

(a)(1) Plot the area of disturbance which will be drained into each sedimentation pond. Without such information DOGM cannot concur with the design factors utilized for each sedimentation pond.

Determination of Completeness

Pond #016 will drain the topsoil storage area. A new design plan was submitted in the ACR response for Pond #016 in Exhibit 15.

Exhibit 5 portrays drainage entering the diverted stream channel from a work pad area located on the northwest section of the truck access road. Apparently, this drainage is from a disturbed area but will not be routed through a sedimentation structure. Review and evaluate.

Determination of Completeness

Since a new plan for sediment control has been proposed, this point is no longer a concern.

From Exhibit 5 all drainage entering the road ditch from the storage, warehouse and shop area appears to enter the stream channel at the point where the concrete retaining wall continues on the south bank. This drainage must receive sediment treatement before being released to the stream channel.

Determination of Completeness

This runoff is covered in the new sediment control design submitted with the ACR response.

(i) From where were the maximum intensities derived for the design of spillways? Were hydrographs utilized or simulated? Provide references.

Determination of Completeness

This information was submitted on July 20, 1981. At that time, it was determined complete.

(f) Does the applicant hold an NPDES permit for the two sedimentation ponds? The Department of Health must approve the pond designs and evaluate a request for the discharge permit

Determination of Completeness

Applicant requested a NPDES extension to cover both sediment pond discharge points. The Department of Health granted construction approval in February and March 1981.

817.57 Hydrologic Balance: Stream Buffer Zones

The Department of Health reviewed the Crandall Canyon modification and made response November 18, 1980. The response discussed areas of concern in terms of a leach field location and the 100-foot stream buffer zone. Data on percolation test results and the ground water level was requested. To date, the Department of Health has received no response and, therefore, cannot recommend approval of both the sediemnt ponds and sanitary waste water systems. (Note: correspondence from Mr. Steven R. McNeal, DOH, November 18, 1980.) The Division also needs more detail on the location of the leach field in relation to the stream bed. If the Department of Health concurs with the leach field design and location, the Division will not request a variance to the stream buffer zone requirement.

Determination of Completeness

* Applicant will submit the new designs for the septic system and leach field facility as soon as they are available.

817.21 Topsoil: General Requirements

(a) There is no chemical and physical soil analysis included in the Price River Plan nor the Crandall Canyon modification. Such characterization will aid the applicant in determining the potential of top- and subsoils for use as reclamation materials. The current proposal is to remove soil to a six-inch depth but there may, in fact, be suitable materials below.

Determination of Completeness

*** Applicant has not provided chemical and physical analyses as requested by the Division. Each soil type found in the area to be disturbed must have analyses conducted and results submitted to the Division. These analyses should include: (1) ph; (2) EC; (3) soluble Ca, Mg, Na; (4) SAR; (5) available water; (6) saturation percent; (7) percent sand, silt and clay; (8) percent coarse fragments; and (9) calcium carbonate. The analyzation for nutrient availability should be conducted prior to topsoil redistribution. The availability of the nutrients will change over the 30 year life of the stockpile and tests run at the present time will not give a true prediction of nutrients needed later.

817.22 Topsoil: Removal

(b) The applicant should evaluate the volume of materials required on site for contemporaneous and interim reclamation as well as that required for final reclamation.

Determination of Completeness

The applicant has provided the needed information on the volume of soil material to be removed and stockpiled.

Based on the data obtained (817.21(a), the applicant should describe which soils will be removed, depth of removal and the volume of materials to be stored. These calculations will allow the applicant to determine the volume of substitute materials that will be required for reclamation. That volume of substrate materials which is not required until final reclamation begins may be hauled in at such time. The appropriate chemical and physical analysis must be carried out on substitute materials at that time to justify their use in the reclamation plan.

Determination of Completeness

The applicant, on page 18 of the Crandall Canyon Plan, indicates the removal of six inches from all areas except the Castle Valley and the access road area termed "made lands." In the response to DOGM's ACR, the applicant states that 18 inches of soil material has been removed from the lower site and the applicant intends to remove 18 inches from the upper site.

* The applicant must indicate the exact depth of material to be removed from each specific soil type and provide to the Division adequate justification for removal and storage. For any soil material that is to be used as a plant growth media, the chemical and physical analyses as stated in UMC 817.21 (of this response) must be forwarded to the Division for review.

817.23 Topsoil: Storage

(b) Since soil storage will occur for a minimum of 30 years, the applicant should consider using one location for topsoil stockpiling rather than the three areas slated on Exhibit 6. By utilizing one area, minimal disturbance of soil stockpile is better accomplished, and a comprehensive reclamation effort of the soil stockpile can be made.

Determination of Completeness

The applicant has presented information showing justification for three storage areas.

The mapped location of the soil stockpile on Exhibit 5 is not accurate in terms of its present location.

Determination of Completeness

The applicant has provided needed information on the correct topsoil stockpile location.

Discuss soil storage by detailing methods for erosion control, maximum slope of reclaimed stockpile and area covered by storage.

Determination of Completeness

* The applicant must submit methods for erosion control such as berms, the maximum slope of the stockpile and the area of each stockpile.

Page 19 of the Crandall submission does not provide information on any of these areas.

(b)(1)(i) The following seed mixture would be recommended over that listed in the mine plan for topsoil stabilization for the following reasons:

1. The species are easily established.

2. They have a high rating for soil stabilization.

3. There is usually poor success when trying to establish shrubs and grasses from seed at the same time.

Recommended Seed Mixture

Species	lbs/ac of PLS
Agropyron intermedium	6
Elymus cinereus	6
Hordeum vulgare	10
Medicago sativa	2-3

Determination of Completeness

The applicant has added alfalfa to his seed mix as recommended.

817.97, 817.57 Protection of Fish, Wildlife and Related Environmental Values

(d)(1) Are there important fish or wildlife species that are protected by State or Federal law with relation to haul and access roads? What will be done to minimize the impact on them?

Determination of Completeness

* The applicant made a negative declaration as to the presence of important fish or wildlife. However, during an inspection of Crandall Canyon by members of the Division staff (see memo dated August 20, 1981), a Cooper's hawk nest was observed within 30 yards of the proposed access road. Mitigation measures will need to be discussed in relation to this nest.

(4) Are there unusually high value wildlife habitats within the mine plan area, i.e., dens, strutting grounds, drumming logs, etc.?

Determination of Completeness

* The applicant made a negative declaration concerning these items. What about the Cooper's hawk nest mentioned above?

(5) What will be done to protect or restore the valuable riparian zone? What species will be impacted?

Determination of Completeness

Efforts will be made to disturb the stream as little as possible. When the facilities are no longer needed, the area will be reclaimed.

(6) How does Crandall Creek function as a fishery or food supply? What will be the impact downstream (see UMC 817.57)?

Determination of Completeness

The applicant states that some organic detritus may be added to the Price River, aiding some of the "lower food chain" organisms, and that this flow will not be hampered in any new way by development activities.

To meet these performance standards, the applicant needs to indicate commitments to mitigation measures not merely submit suggestions of what could be done.

Determination of Completeness

The applicant accepts DWR as the experts for wildlife matters and commits to operate in a fashion which adheres to DWR's suggestions.

A map of these areas (important habitat for fish and wildlife) needs to be supplied to meet the requirements of UMC 783.19(b).

Determination of Completeness

A wildlife habitat map is provided in PRCC MRP as Exhibit 10-1.

817.153 Roads

Map the various drainages contributing to the various culverts. What are flow rate contributions to culverted areas? Show sizing calculations used to derive the 10 fps discharge rate and subsequent culvert sizing.

Determination of Completeness

This information was hand delivered to Division of Oil, Gas and Mining personnel on July 20, 1981. At that time, the concerns were determined complete.

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* This is an area of concern; information supplied is adequate but problems may develop on the Technical Analysis (TA). A stipulation on the final approval may result upon completion of the final review.

*** Incomplete; more information is required prior to the initiation of a Technical Analysis (TA).