File ACT/007/004
Folder No's 2,

0009

PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

September 5, 1984

CERTIFIED RECEIPT REQUESTED
Certified No. P290 262 321

Susan Linner, Permit Supervisor
Division of Oil, Gas, and Mining
4241 State Office Building
Salt Lake City, Utah 84114

Re: Goose Island Reclamation Plan Review

Dear Ms. Linner:

Thank you for your swift review of our Goose Island Reclamation Project and the comments provided in your 8-31-84 letter. Price River Coal Company provides the following itemized response.

Reclamation Plan Review
Price River Complex
Goose Island
ACT/007/004, Folder No. 2
August 31, 1984

UMC 817:22 Topsoil: Removal - TLP

The quality of proposed substitute topsoil must be documented. A map should be provided which depicts the sample location(s). Data presented to affirm the quality of substitute material shall be referenced to this map.

See attached annotated HCE-100 for sample locations. Three sample pits were excavated in the proposed borrow site. The site is presently occupied by two formerly used storage pads constructed prior to 1977 by the cut and side cast method.

Pit #1
Excavated to a 12' depth. Composite samples obtained at 2' intervals. Represents area of deepest proposed material borrow, also deepest side cast - mostly subsoil.

Pit #2
Excavated about 8' into the undisturbed bank between the upper and lower former storage pads.

Pit #3
Excavated about 6' deep on lower pad into material apparently side cast from upper pad. Probably encounter buried topsoil in bottom.

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Samples were sent to a testing lab on 8-13-84. The results, reported by phone on 8-31-84 are as follows:

Parameter	Texture	pH	Organic Matter (%)	Saturation (%)	CEC
Pit #1	Sandy Loam	8.4	0.95	35	8.90
Pit #2	Sandy Loam	8.1	1.00	35	9.8
Pit #3	Sandy Loam	8.0	1.50	36	10.80

	EC	SAR	N(ppm)	P(ppm)	K(ppm)
Pit #1	0.39	0.43	0.40	35.2	69.0
Pit #2	0.40	0.33	0.95	39.6	114.0
Pit #3	0.46	0.34	3.40	34.2	114.0

Actual lab sheets will be forwarded when received.

By incorporation from UMC 817.85(d) and by virtue of the OSM letter of April 24, 1984 the applicant must provide the sample and/or methods location for proposed rock waste cover. (Also see comments under UMC 817.85(d).

A new composite sample will be analyzed. Also see comments under 817.85(d).

Describe the implements to be used for substitute topsoil removal and segregation. Include a discussion of how large boulder which will be used for riprap will be segregated.

Materials will be transferred directly from the borrow site to their final position using equipment most suited for the job including but not limited to scraper, front end loader and truck.

Rocks for riprap will be "chased out" as they appear during excavation and stored for later use. During topsoil placement any rocks greater than 6" diameter will be raked out and stored.

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The permanent program permit application states (3-166) 1.5 feet of rockwaste/ substitute soil not one foot as in the April 18, 1984 submission. A commitment that as a minimum between 1 and 1.5 feet replacement cover will be provided must be received by the Division of Oil, Gas and Mining.

Approximately 10,000 yds^3 of rockwaste exists to be used as refuse cover. After grading, refuse to be covered may extend to 4.0 acres allowing 1.54' cover with equal distribution. Between 1' and 1.5 feet will be placed over all refuse areas.

Values presented in the April 18, 1984 submission which summarize the June 2, 1982 Native Plants data are in error (transposition error for EC unrealistic value for Boron). With regard to Boron DOGM AMR program data from essentially the same materials show a maximum value of 7.7 ppm versus the NPI number of 200.4 ppm. (see table 2.1 from August 1983 D'Appolonia report to DOGM Project No. RM83-L375 "Engineering and Design of Abandoned Mine Land Reclamation, Kenilworth Project." (see attachment).

Stipulation 817.22(1)-TLP

The applicant shall supply a complete analysis of the coal processing waste to complement the existing data. This shall be accomplished within 90 days of approval of this plan.

Agreed. A sample has already been obtained and will be sent off this week.

UMC 817.24 Topsoil: Redistribution-TLP

Please provide the methods of topsoil redistribution including preparation of the underlying material, scarification, and actual redistribution, or reference the MRP where appropriate.

Topsoil will be spread using equipment suitable for the job such as dozers, graders and scrapers. Subsoil will be scarified to a minimum depth of 6' using multiple dozer mounted, shallow rippers or other suitable equipment (see MRP, pp. 8-29).

UMC817.25 Topsoil: Nutrients and Amendments-TLP

Please provide a plan ensuring the application of necessary soil fertility amendments. Include the amount of amendment required, the form in which the nutrient will be applied and the means by which amendments will be provided.

Inorganic fertilizer will be used to adjust soil nutrient levels. Nitrogen ratios are generally used to determine total quantities. Past analyses have indicated N levels generally less than 10 ppm in native unmanaged soils (see MRP, pp. 8-49 to 8-57). Topsoil to be used on this site ranges from 0.4 ppm to 3.4 ppm. Should 10 ppm be adequate for native plant survival (specific recommendations for native plants are unavailable to us) only 25 lbs/acre need be added. However, to offset

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N demand caused by decay of organic mulch, provide a temporary flush of erosion controlling cover crops, N will be applied at a rate of 100-150 lbs/acre.

We have two fertilizer mixes available at this time; 16-16-8 and 30-10-0. About 54 bags of 16-16-8 and 40 bags of 30-10-0 will be used for the entire project. Equal distribution would provide 159 lbs N/acre, 97 lbs P/acre and 33 lbs K/acre. Nutrient levels would be brought within ranges of 33-38 ppm N, 20-60 ppm P, and 7-121 ppm K.

Fertilizer will be broadcast and incorporated using disc and/or chain harrows and shallow rippers.

UMC 817.85(c)(1-2)-JRH

Coal Processing Waste Banks; spread into layer of no more 24 inches and attain 90% maximum dry relative density.

Rob Wiley of PRC has indicated that these conditions have been addressed in the construction specifications for the Goose Island area reclamation work and are part of the bid proposal.

Provide compaction and layering requirements as they are to be implemented at the Goose Island area and provide the methods used to test and check these requirements.

Excerpts from the bid contract are attached. These are not for publication, public, or private distribution. Such detail is not required by 817.85(c)(1-2). It is only a performance standard. It is likely that our contract specifications are excessive for refuse materials with their low dry density (average about 83 lbs/ft.^{3}) and coarse texture. Optimum compaction will likely be approximated during placement operations.

Testing will be by any suitable standard method including nuclear density equipment, sand cone, etc.

For additional data on coal refuse see MRP, Appendix 3.4C, pp. ix - xxi.

UMC 817.85 Coal Processing Waste Banks: Construction Requirements-TLP

(d) *The ability of the applicant to comply with UMC 817.111-.117 is related to quality of the subsoil substitute material. The data submitted (letter of April 25, 1983 and February 29, 1984 demonstates [sic] lack of toxicity but does not address the nutritive quality of such materials as related to revegetation. The applicant must provide a plan to enhance the fertility of this material and to provide all necessary fertility amendmends as per UMC 817.25. Subsoil must be fertilized independently of topsoil (e.g. in a separate operation).*

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See comments under 8]7.25.

We intend to broadcast and incorporate fertilizer in the rockwaste layer prior to topsoil placement. It is intended that about 30% of the fertilizer will be distributed in the alternate subsoil layer which should be similar to characteristics found in natural soils in this area.

UMC 817.101-.103 Backfilling and Grading: General Requirements-TLP

Provide methods of grading, compaction and/or scarification necessary to ensure stability and good materials contact.

See comments under 817.85(c)(1-2) JRH. Material handling will be similar to any modern earthwork operation. All final grades are shown on drawings provided.

UMC 817.101(4)(iii) Backfilling and Grading General Requirements-JRH

The slope of the terrace outslope shall not exceed 1v:2H (50%).

Cross-sections provided by Price River Coal indicate slopes in some areas that exceed 1v:2h. Slopes as steep as 1v:1.73h can be found which lead to the drainage channels. Rob Wiley of PRC has indicated that these slopes will be reduced to 1v:2h as per requirements above and so that revegetation equipment can be safely and effectively used in the area.

Provide revised sections with slopes rediced to 1v:2h.

Provided to R. Hardin on 8-16-84.

30 CRF 77.215(h)-HRH

"Refuse Piles' shall be constructed in compacted layers not to exceed two feet.

Okay.

UMC 817.171(c) Roads: Class III: Location:-JRH

Stream fords are prohibited unless they are specifically approved by the Division as temporary routes across ephemeral or intermittent streams that will not adversely affect stream sedimentation of fish, wildlife, and related environmental values. All other stream crossings shall be made using temporary bridges,

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culverts, and other structures designed, constructed, and maintained to meet the requirements of UMC 817.173.

PRC has requested variance on this for HCE-108; a permanent ephemeral stream crossing. This stream crossing is proposed as a ford with 6" minus cobbles located in the bottom of the channel. It was indicated by Rob Wiley that the request for the variance is based on the assumption that very little traffic will occur on the road since it is only access to a substation located on the other side of the channel. PRC has requested that the road remain permanent so that access to the upper part of Hardscrabble Canyon can be maintained for access to grazing. Also, current plans for the substation would indicate that the substation will be decommissioned in the next two or three years and access by PRC to the substation will no longer be required.

Because the stream crossing is through an ephemeral channel and there will be limited usage by the operator of the road, a ford through the channel is acceptable. Utilizing a ford in the channel will allow for the road to remain for grazing access without having to maintain a culvert or bridge structure after reclamation.

Okay . . . Thank you.

Hydrologic Evaluation of the proposed stream channel configurations and stream ford, depicted on Exhibits HCE-101, 108, and 109, show that these plans are acceptable as to channel capacity and riprap sizing. No information is present regarding the need for a filter blanket. This needs to be addressed considering the expected water velocities in the restored channels.

Therefore, PRC must submit a committment [sic] within 10 days, to conduct and submit to the Division for approval, an evaluation of the need of a filter blanket and if needed the design and gradation for the filter blanket to be used. This valuation must include a textural analysis of the sub-grade materials used as fill in the proposed stream channel. Use of only natural materials (no filter cloths) will be considered for use as filter blanket materials.

The submission of the required commitment is herewith, committed to and submitted. Therefore, conduction of the condition will be commissioned, committed and submitted as soon as possible.

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PRC has also requested a temporary stream crossing on HCE-101; a temporary ephemeral stream crossing designed to pass the 10-year, 24 hour storm, using two 60" CMP's. This plan is acceptable as the two 60" CMP culverts are capable of passing approximately 200 CFS which is greater than the 10 year - 24 hour peak flow.

Thank you.

Sincerely yours,

PRICE RIVER COAL COMPANY

R. L. Wiley

Rob L. Wiley
Environmental Engineer

RLW:jp

Attachments

cc: K. Hutchinson
G. Cook

BID EXCERPTS

Disposal of Materials: (continued)

b. Suitable Material. This excavated material shall first be used to form embankments. Dispose excess material in area designated by Owner's Engineer.

Stockpiles:

The location and size of the stockpiles are subject to the approval of the Engineer. After the stockpiles have been depleted or are no longer needed, the residual materials shall be spread and blended with the surrounding topography. The stockpile areas shall then be neartly dressed, smoothly graded, sloped for drainage, and left in a sightly condition.

Backfill:

Materials used for backfill shall be suitable for machine compaction and shall be free of rock fragments having any dimension greater than four inches. Fill shall be placed loose in four-inch layers or as otherwise specified and machine compacted to form a dense firm mass.

Embankment:

a. General. Embankments and required fills will be constructed of materials obtained from the required excavations.

b. Preparation: Areas to be filled shall be stripped to a depth of four inches and then the next eight inches shall be scarified and compacted to the density requirements hereinafter specified.

If the required density is unobtainable due to excessive moisture, organic substances, or other causes, the Contractor may be required, as directed by the Engineer, to remove and waste the in-place material to a depth prescribed by the Engineer before starting embankment; and/or to place an initial layer of rock, hard shale, or granular material of a thickness prescribed by the Engineer.

Embankment: (continue

All existing earth slopes against which embankments are to be placed shall be plowed or deeply scarified so as to allow blending of the in-place material with the embankment material. When directed by the Engineer, the slopes shall be benched before the embankment is placed.

c. Materials for Formation of Embankments. Embankments shall be formed of satisfactory soil, granular material, shale rock, or random materials, defined hereinafter. The test methods used to determine the various properties shall be as follows:

Liquid Limit	ASTM Designation:	D 423
Plasticity Index	ASTM Designation:	D 424
Grain Size Analysis	ASTM Designation:	D 422

(1) Soil. Soil material shall be considered as layers or deposits of disintegrated rock lying on or near the surface of the earth which have resulted from natural processes, such as weathering, decay and/or chemical action in which not more than 35 percent by weight of the grains or particles pass the No. 200 sieve.

(2) Granular Material. Granular material shall be considered as natural or synthetic mineral aggregate, such as broken or crushed rock, gravel, sand, or slag which can be incorporated in an 8-inch loose depth layer and in which not more than 35 percent by weight of the grains or particles pass the No. 200 sieve. The plasticity index shall be not more than 10.

d. Placing Embankment. No embankment shall be placed on frozen material. During the process of excavation and embankment construction, the area shall be maintained in such a condition that it will be well drained at all times. Depositing and compacting in layers shall begin at the lowest point of the fill below the grade, at the bottom of ravines, and at the foot of slopes on sidehills. Unconsolidated soil or random materials shall be removed as directed by the Engineer, replaced and compacted as herein specified before placing embankment theron. The layers shall be

Embankment: (Continued)

constructed approximately parallel with the finished grade. Each layer, before starting the next, shall be levelled and smoothed by means of power-driven graders, bulldozers or other suitable equipment approved by the Engineer as to weight, capacity, and adequacy of power to do the work. Layers shall extend across the entire fill at the level of depositing. Each layer, before starting the next, shall be compacted.

Materials to be used in any area shall be free of stumps and spongy or frozen soil and reasonably free of organic materials, such as leaves, grass, roots, or other objectionable materials or substances which will prevent satisfactory compaction. Soil, granular material, soft shale, and random material shall be placed in successive layers not exceeding 12-inches in thickness before compaction. Hard shale shall be placed in successive layers not exceeding 24-inches before compaction and as much less layer thickness as the size of excavated material will permit. Rock shall be placed in layers of thickness as prescribed hereinafter. The plan and sequence of grading operations shall be such as to make use of all rock obtained from excavation in accordance with the following provisions:

(1) Base. Rock occurring in the excavation shall be placed to form the base for embankments, to form the outer edges of embankments under construction, or to widen previously constructed embankments.

(2) Layers. Embankments made of rock shall be formed by placing the rock in approximately level layers of substantially uniform thickness. The thickness of the layers shall be determined by the size of the rock and shall not exceed 8-inches for the upper two feet of any embankment and shall not exceed 36-inches for underlying portions. The rock shall not be greater in any dimension than two feet and shall be placed so that the slope shall conform

substantially with the requirements of the drawings. Where rock is used on top of an embankment of other material, the top of the embankment shall be sloped from the center to the sides at the rate of approximately one-half inch per foot. Provisions shall also have been made for rock side slopes with a minimum thickness of two feet from the base of the fill to the top.

(3) Sizes. In all rock slopes, the larger rocks shall be placed at the outer face and the smaller rocks and spalls near the center.

(4) Distribution. The rock shall not be dumped in place but shall be distributed by blading or dozing in a manner to assure proper placement, with the larger rock well distributed and the voids filled so that pockets and bridging will be reduced to a minimum.

(5) Insufficient Material. When there is insufficient material other than rock encountered in the excavation to permit its being properly compacted in layers and upon approval by the Engineer, the rock shall be placed for the full width of the embankment with the larger rock well distributed and the voids filled with smaller rocks. The materials other than rock shall be reserved to be placed as directed by the Engineer. The upper two feet of any rock embankment shall be filled solid so as to remove voids, using spalls, rock dust, or earth for that purpose. Each 8-inch layer shall be filled and compacted before the next layer is placed.

(6) Top. The top of the rockfill shall be a uniform surface at least 6-inches below the bottom of the proposed sub-base for the full width of the embankment section. The remaining embankment shall consist of suitable material as specified herein for sub-grade.

Embankment: (Continued)

e. Compaction of Embankments. Embankment consisting of soil, granular material, shale, and random material which does not contain sufficient moisture to be compacted to the requirements specified herein shall receive applications of water as directed by the Engineer. Water shall be applied with suitable sprinkling devices and shall be thoroughly incorporated into the material which is to be compacted. Embankment materials which contain excess moisture shall be dried prior to or during compaction as necessary to obtain satisfactory compaction. Layers of soil shall be moistened or dried to a tolerance of plus three percentage points or minus four percentage points from optimum at the time compactive effort is applied, except that soils which evidence pronounced elasticity as the result of compactive effort shall be dried to optimum moisture content, if necessary, to achieve stability. Determination of the actual and optimum moisture contents shall be made to the satisfaction of the Engineer. Water shall be added to or excess moisture removed from soils by the use of plows, discs, or by other approved methods when so ordered by the Engineer. Each layer of the embankment shall be uniformly compacted to the following requirements:

Soil and materials having less than 35 percent of particles retained on the three-fourth inch sieve shall be compacted at the specified moisture content until the dry density is not less than 95 percent of the maximum density at optimum water content. The in-place dry density of soil layers placed and compacted shall be determined in accordance with the same testing procedure. Such tests shall be taken through the full depth of each course after the course has been compacted. One test shall be taken through each course for every 10,000 square feet of material placed.

Materials that have 35 percent or more of particles retained on the three-fourth inch sieve shall be compacted to the satisfaction of the Engineer.

Hard shale shall be broken down in placing by manipulating with tractors,

90%+

Embankment: (Continued)

bulldozers, power graders, rollers, and other approved devices until voids between particles are substantially filled. The moisture content and compaction shall be as directed by the Engineer. Rock shall be placed and compacted, using the equipment specified in the following paragraph to the satisfaction of the Engineer.

f. Compaction Equipment. Sufficient levelling and compacting equipment shall be provided to do the work of levelling and compacting without delay after the material has been deposited. When the equipment is inadequate for the rate of depositing, the rate of excavation and placement of fill shall be reduced to a rate not to exceed the capacity of the levelling and compacting equipment with particular attention to the loss of moisture during the delay.

Vibratory compactors, grid, paddle-foot, or vibratory rollers, or other compacting equipment approved by the Engineer shall be used for fills constructed of materials which are predominately rock or hard shale. Approved pneumatic or power driven backfill tampers shall be used in areas inaccessible to rollers.

Three-wheel rollers shall weigh not less than 10 tons. They shall be of sturdy construction and especially designed for heavy work. They shall be in good mechanical condition and have sufficient power to travel over rough surfaces and steep grades.

Pneumatic tire rollers shall operate on two axles in such a manner that the rear group of tires will not follow in the tracks of the forward group. They shall be mounted on a rigid frame and have a loading platform or body suitable for ballast loading. The pneumatic tired rollers under working conditions shall have a minimum rolling width of 60 inches and shall give a minimum compression of 325 pounds per inch of width of tire tread. Single axle pneumatic rollers of an approved type may be used, providing the

requirements as to width and compression per inch of width of tire tread as aforementioned are met.

Tamping rollers shall consist of metal rollers, drums, or shells surmounted by metal studs with self-cleaning tamping feet projecting not less than seven inches from the surface of the roller, drum, or shell. The cross-sectional area and spacing of tamping feet and the weight of the roller shall be such that the compaction or density for the particular material shall be obtained as hereinbefore specified. The minimum load upon each foot when any one row of feet is supporting the whole weight of the roller shall be 250 pounds per square inch. Each tamping roller shall consist of at least two sections not rigidly joined.

Grid rollers shall consist of drums at least five feet in diameter whose cylindrical faces present the appearance of an open woven bar mesh. Each drum shall be at least two and one-half feet long and they shall be independently mounted close together on the same axle. The complete roller, when operating without ballast, shall weight not less than six tons or 200 pounds per inch of length of roller drum. Arrangements shall be provided for adding ballast, as directed by the Engineer, to such an extent that the total weight of the unit can be increased to at least 15 tons and 500 pounds per inch of length of roller drum. Grid rollers shall make at least three complete coverages of each layer or until the required density is obtained.

The use of trucks, carryalls, scrapers, tractors, tractor wagons, or other haulage equipment shall not be considered in lieu of compacting equipment hereinbefore prescribed, but the traffic of such hauling equipment shall be distributed over the fill in such a manner as to make use of the compacting afforded thereby as an addition to compacting by rolling or vibrating.

E-2 DESIGN DETAILS

The work to be performed will include backfilling and grading. Refuse covering, resoiling, channel reconstruction, riprap placement and excavation and embankment associated will access road modification.

E-2-1 Backfilling and Grading

The site will be backfilled and graded to the approximate contours and elevations shown on design drawings HCE-102, HCE-103, HCE-104, HCE-105, HCE-106, and HCE-107. Approximately 26,000 yds^3 will be excavated and placed. Excavation used in backfilling and grading operations will be classed as unclassified excavation.

E-2-1-1 Selective Placement

Three separate earth materials will be recognized. These are:

1. Coal refuse material (black)
2. Mine rock waste (gray to brown)
3. Topsoil

The refuse and rock waste will be used for achieving the subgrade (6" below final grade). Topsoil will be used for covering material and achieving final grade. All refuse material will be covered with a minimum of 12" of rock waste. All rock waste will be covered with a minimum, uniform, 6" layer of topsoil.

E-2-1-2 Materials Placement and Compaction

Refuse and rock waste to be used as fill will be placed in lifts no greater than 2 feet thick and compacted with suitable rubber tired or rolling equipment. Topsoil will be spread with a minimum amount of compactive effort.