0003

PRICE RIVER COAL COMPANY

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

December 9, 1982

CERTIFIED RECEIPT REQUESTED
No. 562043

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

Re: Drainage Control Improvements at the Castle Gate Preparation Plant

Dear Mr. Tetting:

The following drainage control improvements will be installed to bring the preparation plant surface facility into compliance with permanent performance standards. The situation with the present drainage controls was outlined in PRCC's MRP revision on pp. 146-147.

A number of new drawings and designs are included to more fully explain our intentions. These should be reviewed in conjunction with Chapter III, Section 3.4, Exhibit 3.4-1 and Chapter VII, Section 7.4.

PROJECT OUTLINE

PHASE ONE: DIVERSION OF OVERLAND FLOW

Diversions will be installed to direct undisturbed area runoff around surface facilities thus reducing sediment pond capacity requirements. The areas to be diverted are the drainage basins designated as CG-6 and CG-7 at the mouth of Barn Canyon and portions of basins CG-5 and CG-4 near the mouth of School House Canyon.

Barn Canyon Diversions

Open ditch and berm type diversions have been installed along the south side of the Barn Canyon storage area and along the east side of the refuse pile access road in order to drain basins CG-6 and CG-7. The total area is about 16 acres (see Table 7.5, MRP). The ditches are designed for the ten year, 24-hour storm peak discharge. Nine cubic feet per second was used for ditch design for both CG-6 and CG-7, although this exceeds peak flow for both areas. These will be temporary (life of mine) diversions and will be seeded as soon as appropriate.

Both ditches terminate and flow into a culvert as shown on Exhibit 3.4-1 and attachments CGE-101 and CGE-102. Designs for inlet and outlet structures are shown on Attachment CGE-105. The pipe is designed to pass about 15 cfs, directing drainage north to the Barn Canyon channel. The pipe will empty into another open channel about 100' short of Barn Canyon.

Ditch and Culvert Design

Designs for structures is based on discussions found in Chapter VII, Section 7.4 of the MRP revision. Using the Manning equation with a design flow of 9 cfs, an average slope of 4% and a coefficient of roughness for bare soil of 0.035 the following typical cross-sectional ditch area will be attained:

Ditch for 9 cfs

$$Q = \frac{1.486}{n} \quad AR^{2/3} \quad S^{1/2}$$

where:

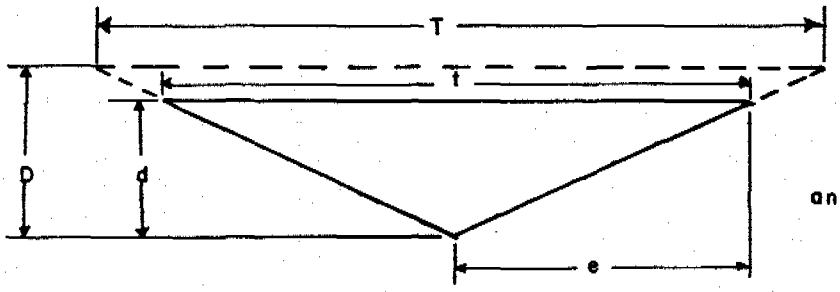
$n = 0.035$

$S = 0.04$

$A = zd^2$

$$R = \frac{zd}{2\sqrt{z^2 + 1}}$$

if a triangular cross section is used with the characteristics



and z=e/d

try:

$d = 1'$
$e = 2'$

then:

$z = 2'$
$t = 2dz = 4$

so:

$A = 2$
$R = 0.45$

then: $\left(\frac{1.486}{0.035}\right)\left(2\right)\left(0.45\right)^{2/3}\left(0.04\right)^{1/2} =$

$\left(42.46\right)\left(2\right)\left(0.59\right)\left(0.2\right) = \underline{10.02}$ cfs

Culvert Sizing

Using 15 cfs peak flow and the highway department nomograph on page 416 of the MRP, a 24" cmp on a minimum 5% grade with 29" of headwater control is adequate.

School House Canyon Diversions

A ditch and berm has been installed along an old road grade diverting about 7.1 acres of drainage areas CG-4 and CG-5 into the spillway overflow channel of the refuse pile pond. The peak flow from the ten year, 24-hour storm is about 7.2 cfs. The ditch design used for the Barn Canyon diversions is adequate for this diversion.

Truck Dump Diversion and Culvert

A diversion along the east side of the truck dump and access road will be diverted through a 12" cmp as shown on Attachment CGE-104-1. This culvert will discharge into proposed pond 012A and carry the runoff from about one acre.

PHASE TWO: NEW POND CONSTRUCTION

Pond 011

It is proposed that we modify the existing filter backwash pond, adjacent to the old water treatment plant for utilization as a sedimentation pond. This pond has been in existence since about 1920. Modifications will include removing the backwash water line (which will be re-routed into the former secondary clarification tanks for recycling) and raising the inlet elevation of the pond discharge pipe. Attachment CGE-103 depicts this construction.

The water level will be raised 5.6 feet, yielding a maximum holding capacity of about 65,000 ft.^{3} at 9.6' depth.* The pond will catch runoff from the clean coal stacking areas, the north end of the coal processing area and the Barn Canyon storage area, comprising about 13.3 acres. Runoff characteristics and required capacities are as follows: **

Area (ac.)	Rain Fall 10-yr. storm (1.9")	Runoff 25-yr. storm (2.3")	Volume of Runoff (ft^3) 10-yr storm	Volume of Runoff (ft^3) 25-yr storm	Sediment Storage (ft^3) (.035 ac/ft per acre)	Required 10-yr Storm Retention	Pond Capacity (ft^3) 25-yr. Storm Retention
13.3	0.8"	1.0"	38,623	48,279	20,277	58,900	68,556

As can be seen, the proposed pond will not quite hold the twenty-five year, 24-hour storm runoff. A discharge structure will allow passage of the excess runoff.

* The depth of the existing pond is 4' where it can be measured from the bank. It is probably deeper in the center.

** See Chapter VII, Section 7.4 for bases of calculation.

WHAT ABOUT THE PONDS ~~AREA~~ NORTHERN EMBANKMENT? SLOPE, STABILITY

Peak runoff from the twenty-five year, 24-hour event is the formula Q = CiA to be about 15 cfs. The 18" cmp riser v freeboard should easily allow this discharge rate. The disc also equipped with an emergency decant system.

SHOULD BETTER DEFINE ON A MAP THE DISTURBED AREAS ASSOC. W/EACH POND

The existing brushy vegetation within the proposed water storage area will be removed during construction.

See CGE-101 and CGE-102 for drainage areas and flow directions.

Existing pond 011 will be removed and drainage directed to the new structure.

Pond 012

The existing pond 012 is inadequate since it catches drainage from about 100 acres of undisturbed area, for which it was not designed, and has no suitable discharge structure. Two new ponds are proposed to alleviate this problem. The ponds will be interconnected to combine their capacities and located as shown on Attachment CGE-101. CGE-104-1, 104-2 and 104-3 show construction details.

The ponds, designated 012A and 012B, will collect runoff from about 20.7 acres of disturbed area (although, about 2 acres of this is undisturbed and vegetated). Runoff and retention capacities area as follows:

Area (ac.)	Rain Fall 10-yr. storm (1.9")	Runoff 25-yr. storm (2.3")	Volume of Runoff (ft^3) 10-yr storm	Volume of Runoff (ft^3) 25-yr storm	Sediment Storage (ft^3) (.035 ac/ft per acre)	Required 10-yr Storm Retention	Pond Capacity (ft^3) 25-yr. Storm Retention
20.7	0.8"	1.0"	60,113	75,141	31,559	~~91,672~~ 96,714	~~106~~,700 112,658

The constructed capacities of pond 012A and 012B are:

012A: 88,160 ft^3

012B: 25,700 ft^3

Combined: 113,860 ft^3

I SMALL DETAIL NOTICE THAT OVERFLOW FROM THE OVERFLOW & PROCCESSING PONDS WILL GO TO PONDS 012

ALSO, WHAT HAPPENS TO OVERFLOW FROM PONDS 012

The combined ponds will be capable of retaini from the twenty-five, 24-hour storm. Primary disc are, however, provided. See CGE-106 for construct

WHAT HAPPENS TO FILL FROM POND 012-A IS ~~FILL~~ ANY, OR ALL USED FOR EMBANKMENT OF 012-B? DOES ALL FILL STAY ON SITE?! ARE SMALL CATCH BASINS ALONG RD. STILL GOING TO BE MAINTAINED?

Old pond 012 will be retained for the time. be diverted around it. It will continue to catch area via the pipe to be installed by Utah Power an truck turnaround.

Peak runoff from the twenty-five year, 24-hour event is calculated from the formula Q = CiA to be about 15 cfs. The 18" cmp riser with a minimum 3' of freeboard should easily allow this discharge rate. The discharge structure is also equipped with an emergency decant system.

The existing brushy vegetation within the proposed water storage area will be removed during construction.

See CGE-101 and CGE-102 for drainage areas and flow directions.

Existing pond 011 will be removed and drainage directed to the new structure.

Pond 012

The existing pond 012 is inadequate since it catches drainage from about 100 acres of undisturbed area, for which it was not designed, and has no suitable discharge structure. Two new ponds are proposed to alleviate this problem. The ponds will be interconnected to combine their capacities and located as shown on Attachment CGE-101. CGE-104-1, 104-2 and 104-3 show construction details.

The ponds, designated 012A and 012B, will collect runoff from about 20.7 acres of disturbed area (although, about 2 acres of this is undisturbed and vegetated). Runoff and retention capacities are as follows:

Area (ac.)	Rain Fall 10-yr. storm (1.9")	Runoff 25-yr. storm (2.3")	Volume of Runoff (ft^3) 10-yr storm	Volume of Runoff (ft^3) 25-yr storm	Sediment Storage (ft^3) (.035 ac/ft per acre)	Required 10-yr Storm Retention	Pond Capacity (ft^3) 25-yr. Storm Retention
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The constructed capacities of pond 012A and 012B are:

012A: 88,160 ft^3

012B: 25,700 ft^3

Combined: 113,860 ft^3

The combined ponds will be capable of retaining without discharge the runoff from the twenty-five, 24-hour storm. Primary discharge and emergency decant structures are, however, provided. See CGE-106 for construction details.

Old pond 012 will be retained for the time. The 100+ acre drainage area will be diverted around it. It will continue to catch some runoff from around the scale area via the pipe to be installed by Utah Power and Light Company as part of their truck turnaround.

Construction Scheduling

Designs for drainage control improvements are submitted as partial compliance to NOV #82-4-14-1. The designs for these modifications have been under development since early 1982. The construction should take place during March and April 1983 baring weather complications. We will attempt to bid and finalize a construction contract during your review. We do not anticipate any design changes since we have made every effort to design within the requirements of performance standards and known DOGM policy. We should, however, closely co-ordinate your review and our bidding procedures so as not to "screw-up" the contracts with last minute changes that cause cost overruns.

Time constraints should allow for a lag of a few weeks after this submittal to begin bidding. I hope that this will allow for some initial review and comments relative to design criteria.

Sincerely,

PRICE RIVER COAL COMPANY

R. L. Wiley
Environmental Engineer

RLW:jp

Attachments 8

cc: K. B. Hutchinson
E. L. Haub
G. Cook
S. McNeal, Utah Dept. Health

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

December 9, 1982

CERTIFIED RECEIPT REQUESTED
No. 562044

Steven R. McNeal, Public Health Engineer
Division of Water Quality
Utah Department of Health
150 West North Temple
Salt Lake City, Utah 84110

Re: New Sediment Ponds at Castle Gate Coal Preparation Facility

Dear Steve:

Please review for approval the enclosed pond plans. These proposed structures will replace existing ponds 011 and 012. We would expect to maintain the same effluent limitations and monitoring requirements.

We would hope to begin construction as soon as the winter breaks.

The designs should be self-explanatory and in compliance with Utah Department of Health requirements. Should you have any additional comments, please contact me.

Sincerely,

PRICE RIVER COAL COMPANY

R. L. Wiley

R. L. Wiley
Environmental Engineer

RLW:jp

Enclosures

cc: K. B. Hutchinson
E. L. Haub
G. Cook
[redacted]