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PRICE RIVER COAL COMPANY

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RECEIVED

APR 24 1984

DIVISION OF OIL
GAS & MINING

*ACT/007/004
#7*

April 20, 1984

Mr. D. Wayne Hedburg,
Permit Supervisor
Division of Oil, Gas & Mining
4241 State Office Building
Salt Lake City, Utah 84114

CERTIFIED MAIL

Re: Abatement Plans for N.O.V. #N84-2-2-2 - Ditches at Castle Gate

Dear Mr. Hedburg:

Your letter of April 17, 1984 indicates that Ditch "B" is inadequate since it appears to fail to meet the requirement for 0.3' of freeboard throughout its entire length. As per our phone conversation on April 20, 1984, your analyses of inadequacy must be based on an error in the chart submitted on March 28, 1984 relating to cross-section #2 for Ditch "B".

Flow characteristics and capacity have been recalculated based on a flow depth of 0.1' with 0.3' freeboard at Section #2. The ditch continues to be adequate for safe passage of the 2 year event. A modified chart and calculations are attached.

It appears that you are now requiring designs for the 10 year, 24 hour storm. Although UMC 817.43(a) grants you that latitude we feel that such a requirement is outside the abatement for N.O.V. #84-2-2-2.

We will provide the new designs as soon as possible; however, May 7, 1984 is insufficient time. You have suggested May 21, 1984 as a submittal date -- we will try for that.

Sincerely,

PRICE RIVER COAL COMPANY

R. L. Wiley
Robert L. Wiley
Environmental Engineer

RLW:dsc

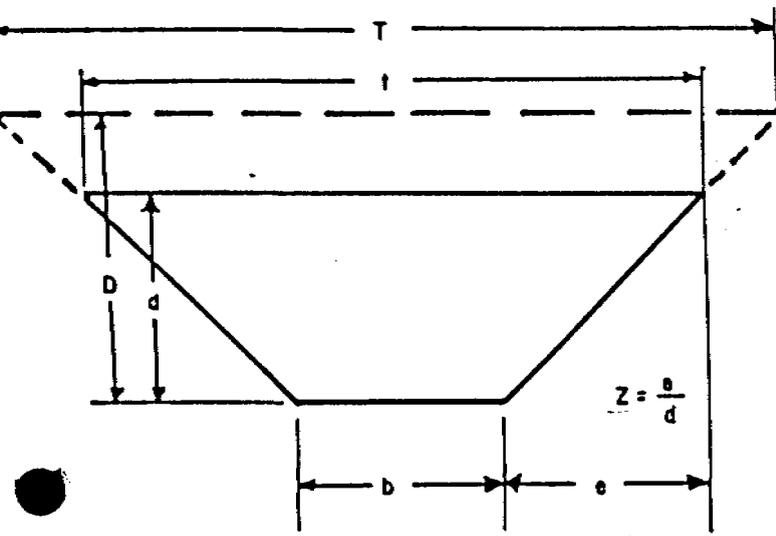
Encl.

cc: Mike Keller



DESIGN WORKSHEET FOR TRAPEZOIDAL SHAPED CHANNEL

DATE 4-20-84



FACTOR VALUES

T 14.7 l 12.2
 D 0.4 d 0.1
 b 2.2 e 5
 z 50

FORMULAS

a = X-SECT. AREA = $bd + Zd^2$ 0.72 ✓
 p = WETTED PERIMETER = $b + 2d\sqrt{z^2 + 1}$ 12.2 ✓
 R = HYDRAULIC RADIUS = $\frac{a}{p}$ 0.06 ✓
 T = TOP WIDTH = $\frac{b + 2Dz}{b + 2dz}$ 14.7 ✓
 V = VELOCITY (fps) = $\frac{1.486}{n} R^{2/3} S^{1/2}$ 0.8 ✓
 Q = CAPACITY (cfs) = aV 0.58 ✓
 n = COEF. ROUGHNESS 0.04
 S = SLOPE 0.02

OK ✓

CHANNEL LOCATION

DITCH 'B'
CASTLE GATE

EQ'D PEAK FLOW 0.55 cfs

$2.2 + 2(0.4) 50$
 40



Kenneth B. Hutchinson

Cross sectional Area $a = bd + 2d^2$ Top width $t = b + 2dZ$

b = bottom width

d = depth

$$Z = \frac{e}{D}$$

D = total depth

e = width - edge bottom to edge top - horizontally

| Section | Ditch | D | b | d | e | Z | t | a(ft ²) |
|---------|-------|-----|-----|-----|------|-------|-------|----------------------|
| 1 | B | 2.4 | 2 | 2.1 | 5 | 2.08 | 10.74 | 13.37 |
| 2 | B | 0.4 | 2.2 | 0.1 | 5 | 50.00 | 12.2 | 0.72 - use for check |
| 3 | B | 2 | 2 | 1.7 | 5 | 2.94 | 11.99 | 11.89 |
| 4 | B | 0.6 | 2 | 0.3 | 3.15 | 5.25 | 5.15 | 1.07 - use for check |
| 5 | B | 2.1 | 1 | 1.8 | 4 | 2.22 | 8.99 | 8.99 |
| 6 | B | 2.2 | 1.5 | 1.9 | 9 | 4.09 | 17.04 | 17.61 |

| | | | | | | | | |
|---|---|-----|-----|-----|-----|------|-------|----------------------|
| 1 | A | 1.3 | 3.7 | 1.0 | 8.5 | 6.53 | 20.7 | 10.23 |
| 2 | A | 1.3 | 4 | 1.0 | 8 | 6.15 | 16.30 | 10.15 |
| 3 | A | 0.9 | 4 | 0.6 | 8 | 8.89 | 14.67 | 5.60 |
| 4 | A | 1.2 | 4 | 0.9 | 1 | 0.83 | 5.49 | 4.35 |
| 5 | A | 3.5 | 5 | 3.2 | 3.5 | 1 | 11.4 | 19.20 |
| 6 | A | 1 | 5 | 0.7 | 1.5 | 1.5 | 7.1 | 4.23 - use for check |