0016

File

SCOTT M. MATHESON
Governor

GORDON E. HARMSTON
Executive Director,
NATURAL RESOURCES

CLEON B. FEIGHT
Director

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
Salt Lake City, Utah 84116
(801) 533-5771

OIL, GAS, AND MINING BOARD

CHARLES R. HENDERSON
Chairman

JOHN L. BELL
C. RAY JUVELIN
THADIS W. BOX
CONSTANCE K. LUNDBERG
EDWARD T. BECK
E. STEELE McINTYRE

March 7, 1980

Mr. Joseph Harvey
Blazon Mining Company
P.O. Box 327
Ferron, Utah 84523

RE: Drainage Study Comments
Blazon #1 Mine
Blazon Mining Company
ACT/007/021

Dear Mr. Harvey:

The Division staff has reviewed the revised Drainage Study for the Blazon #1 Mine and offers the following comments:

1. a. No field (undisturbed area) drainage ditch was depicted above the portals. The area above the portals needs to be treated or diverted.

   b. Design plans do not show the volume capacity of the ponds. Calculations done by this office indicate that the pond is not adequately sized. (See calculations)

   c. Inlet structures of the ponds are unacceptable, as reduction of water velocity entering the ARMCO F.R.P. manhole will cause sedimentation within the manhole. This will cause reduction or blockage of the inlet capacity.

2. Areas where diversion ditches are being "dropped" around highwalls or pads to lower elevations need to rip-rapped to reduce velocity and erosion potential. A description of the materials to be used for riprap is needed.

The areas of concern are:

1. The south end of the portal pad;

2. The north end of the portal pad, and

3. The undisturbed area diversion "drop" by the sediment pond inlet.

3. How is the disturbed drainage from the portal level to be conveyed toward the sediment pond? It is not shown adequately from the plans.

4. The outer edge of all pads must be bermed to contain runoff. Cross-sections A and B, on plan 2, differ in what is indicated, this needs to be clarified.

5. Sizing of the culverts appears to be smaller than required. Little Snider Canyon plans show a 24 inch culvert. The Division's calculations indicate a 48 inch culvert minimum. The difference appears to be the time of concentration and the area of drainage. The plans call for 15 minutes time of concentration and 112 acres drainage, while the Division's calculations indicate a time of concentration of 1.017 hours and a drainage area of 490 acres. Similar differences exist for the sediment pond inlet structure culvert. The plans call for a 12 inch culvert and the Division calculations indicate a minimum size of 22 inch culvert.

As was discussed in out telephone conversation of March 6, 1980, a meeting, with yourself, your consultant and myself, would probably be the best method to review and eliminate the above mentioned concerns.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Thomas J. Suchoski

THOMAS J. SUCHOSKI
RECLAMATION HYDROLOGIST

TJS/te

cc: Don Crane, O.S.M.
Steve McNeil, State Health
Bob Morgan, Water Rights

SIZE OF SERIES OF PONDS

Blazon #1 Mine
ACT/007/021

Pond #1 and Pond #2

Section #1

L = 5.625'
depth = 2.5'
W = 10.625'
2 * 1/2 LDW = 149.4 Cu. Ft.

Section #2

L = 20'
width = 5.625'
depth = 2.5'
1/2 LDW = 140.625 ft^3

Section #3

L = 5.625'
W = 5.625'
depth = 2.5'
2 * 2 * 1/2(1/2 LWD) = 79.1 ft^3

Section #4

L = 20'
width = 3.75'
depth = 2.5'
1/2 DLW = 93.75 ft^3

Section #5

L = 5.625'
W = 3.75'
depth = 2.5'
2 * 1/2(1/2(DLW)) = 26.37 ft^3

Section #6

L = 20'
W = 10.625'
depth = 2.5'
DLW = 531.25 ft^3

Area for one pond = 1020.495 ft^3

Area for two ponds = 2040.99 ft^3

$$\frac{2040.99\ ft^3}{43560\ ft^3/ac\text{-}ft} = 0.047\ ac\text{-}ft$$

THOMAS J. SUCHOSKI
RECLAMATION HYDROLOGIST
March 5, 1980

```
@BASIC
BASIC - U8R1 S73MOD 03/05/80 15:15:4

NO PROGRAM FILE GIVEN-TPF$ ASSUMED
OLD:A
RUN

WS IDENTIFICATION
?
 BLAZON MINING COMPANY - LITTLE SNIDER CANYON
CURVE,CONC,AREA,DURATION,RAINFALL,DISTR.
?
75,1.017,0.766,24,2.4,1
INPUT FOR :BLAZON MINING COMPANY - LITTLE SNIDER CANYON
-----------------------------------------------
     STORM :                 WATERSHED :
 DIST= SCS TYPE 'B'             AREA=    .77 SQ MI
 DEPTH=  2.40 INCHES              CN= 75.00
 DURATION= 24.00 HRS       TIME CONC=  1.017 HRS
 NUMBER OF LINES  193
-----------------------------------------------

INPUT FORMAT:1=SHORT,2=LONG
?
1


OUTPUT SUMMARY
-----------------------------------------------
    RUNOFF DEPTH      .59298 INCHES
    INITIAL ABSTR     .66667 INCHES
    PEAK FLOW=     52.13 CFS    (   .10545 IPH)
    AT TIME    10.309 HRS
 VOLUME CHECK    .59417 INCHES
-----------------------------------------------
WS IDENTIFICATION
?
BLAZON - SED. POND DRAINAGE
CURVE,CONC,AREA,DURATION,RAINFALL,DISTR.
?
90,0.163,0.0081,6,1.84,1
INPUT FOR :BLAZON - SED. POND DRAINAGE
-----------------------------------------------
     STORM :                 WATERSHED :
 DIST= SCS TYPE 'B'             AREA=    .01 SQ MI
 DEPTH=  1.84 INCHES              CN= 90.00
 DURATION=  6.00 HRS       TIME CONC=    .163 HRS
 NUMBER OF LINES  293
-----------------------------------------------

INPUT FORMAT:1=SHORT,2=LONG
?
1


OUTPUT SUMMARY
-----------------------------------------------
```

ERROR being RERUN

FORM II

CULVERT PROGRAM FORMATS
* * * * * * * * * * * * * *

MINE NAME: Blazon Mining Company

WATERSHED: Little Snider Canyon

2136

CURVE NUMBER: 75

TIME OF CONCENTRATION (hour): 1.017

Y= 0.1067 * 100 = 10.7

S= 3.333

L= 8250'

AREA (square mile): 0.766

DURATION OF STORM (hour): 10yr 24hr

RAINFALL DEPTH (inch): 2.40

DISTRIBUTION TYPE (1=SCS, 2=Farmer-Fletcher):

SCS

PEAK DISCHARGE:

qp= 52.13 cfs

Culvert size: 48 in in

VOLUME:

Q= 0.59298 inches

```
    RUNOFF DEPTH      .95907 INCHES
    INITIAL ABSTR     .22222 INCHES
    PEAK FLOW=      4.48 CFS    (   .85675 IPH)
    AT TIME     2.506 HRS
 VOLUME CHECK    .96099 INCHES
-----------------------------------------------
WS IDENTIFICATION
?
ENDD

 TIME :    1.668


@FIN
```

TIME OF CONCENTRATION DETERMINATION

* *

MINE: Blazon #1 Mine

PERMIT: ACT/007/02

STRUCTURE: Sed Pond

DATE: 3/3/80

STRUCTURE	CURVE NUMBER	S	l(ft)	H(ft)	y(%)	L(hrs)	Tc(hrs)
Sed Pond	90	1.111	1,000	100	10%	0.071	0.118
Snider Canyon	75	3.33	8250	880	10.7	0.610	1.017

KENT'S FORMULA

Tc = L/0.6, hours

L = watershed lag, hours

$$L = \frac{l^{0.8}\,(S + 1)^{0.7}}{1900\,y^{0.5}}$$

l = length of the longest stream channel (ft)

S = (1000/CN) - 10, inches

y = average watershed slope in percent

Reference: Kent, K. M. 1973. A method of Estimating Volume and Rate of Runoff in Small Watersheds. U.S.D.A., SCS-TP-149 (Revised April 1973). ca. 80 pp.

LOCATION: Blazon Mining Company
Blazon #1 Mine

PRECIPITATION:

10 year-24 hour 2.40 inch; 25 year-6 hour

AREA:

Disturbed Area	0.859	0.959	acres
Undisturbed Area	4.392	0	acres
Pond Area	0.062	0.062	acres

CN:

Disturbed	90	90	
Undisturbed	75	100	

POND SIZE:

Discharge Disturbed Area	0.103	0.115	acre-feet
Discharge Undisturbed Area	0.217	0	acre-feet
Direct Precipitation	0.0124	0.0959	acre-feet
Sediment Storage	0.0859	0.0124	acre-feet
Total Storage	0.4185	0.2235	acre-feet

TIME OF CONCENTRATION: _____ hours

PEAK FLOW:

Farmer Fletcher _____ cfs

SCS _____ cfs

Run #1

```
ENTER
PRECIP.?
        2.4        IN.
AREA UNDISTURBED?
        4.392      AC.
AREA DISTURBED?
        0.859      AC.
POND AREA?
        0.062      AC.
C N UNDISTURBED?
        75.
C N DISTURBED?
        90.

DISCHARGE (DIST.):
 .1032261762       ACFT
DISCHARGE (UNDIST.):
 .2170315789       ACFT
SEDIMENT STORAGE:
        0.0859     ACFT
DIRECT PRECIP.:
        0.0124     ACFT
TOTAL STORAGE:
 .4185577551       ACFT
```

Run #2

```
ENTER
PRECIP.?
        2.4        IN.
AREA UNDISTURBED?
        0.         AC.
AREA DISTURBED?
        0.959      AC.
POND AREA?
        0.062      AC.
C N UNDISTURBED?
        100.
C N DISTURBED?
        90.

DISCHARGE (DIST.):
 .1152431932       ACFT
DISCHARGE (UNDIST.):
        0.         ACFT
SEDIMENT STORAGE:
        0.0959     ACFT
DIRECT PRECIP.:
        0.0124     ACFT
TOTAL STORAGE:
 .2235431932       ACFT
```