

0012

**KAISER
STEEL**

KAISER STEEL CORPORATION
WESTERN COAL OPERATIONS
SUNNYSIDE, UTAH 84539
TELEPHONE 801-888-4421

20 August 1981

File ACT/007/007
Copy to Wayne
& Joe for
action

RECEIVED

JIM

AUG 24 1981 AUG 26 1981

James W. Smith, Jr.
Dept of Natural Resources
Div. of Oil, Gas & Mining
1588 W. North Temple
Salt Lake City, Utah, 84116

DIVISION OF
OIL, GAS & MINING

re: Viol #4 of NOV#81-1-3-5
Sunnyside Mines
ACT/007/007

Dear Jim,

Kaiser Steel Corp. submits the following information on the Mine Water Discharge Pond in response to your 8-7-81 letter. Please find enclosed a location map, & a calculation sheet on the surface runoff per the Rational Method.

Please note that the pond treats mine water only and is NOT a surface drainage sedimentation pond. The pond is 90'w x 135'l x 8'd inside, with an 8"dia inlet & 15"dia outlet.

Using the McMath Formula, the runoff for a 25yr24hr storm is: $Q = C_i A S/A = 4.88(.50).90(400/4.88) = 5.3\text{cfs}$. The Rational Method yields $Q = C_i A = .85(.90)4.88 = 3.7\text{cfs}$.

The 15"dia outlet pipe has a capacity for the 5.3cfs (2385 gpm) if surface drainage is allowed in pond PLUS 750gpm max. mine water inflow from underground pumps which yields 5.6 fps velocity with 1.2' head loss at 3150gpm. Therefore the outlet pipe is adequate.

The interceptor ditch at the base of the hillside is 1.5'w x 2'd at .5% slope which isolates the pond. The Manning formula shows the following ditch capacity:

$Q = a \frac{1.486}{n} R S = 3(1.486/.03)(3/5.5)(.005) = 6.9\text{cfs}$; therefore ditch is more than adequate to handle the runoff from a 25yr24hr storm (ditch velocity is $(6.9/3) = 2.3\text{fps}$).

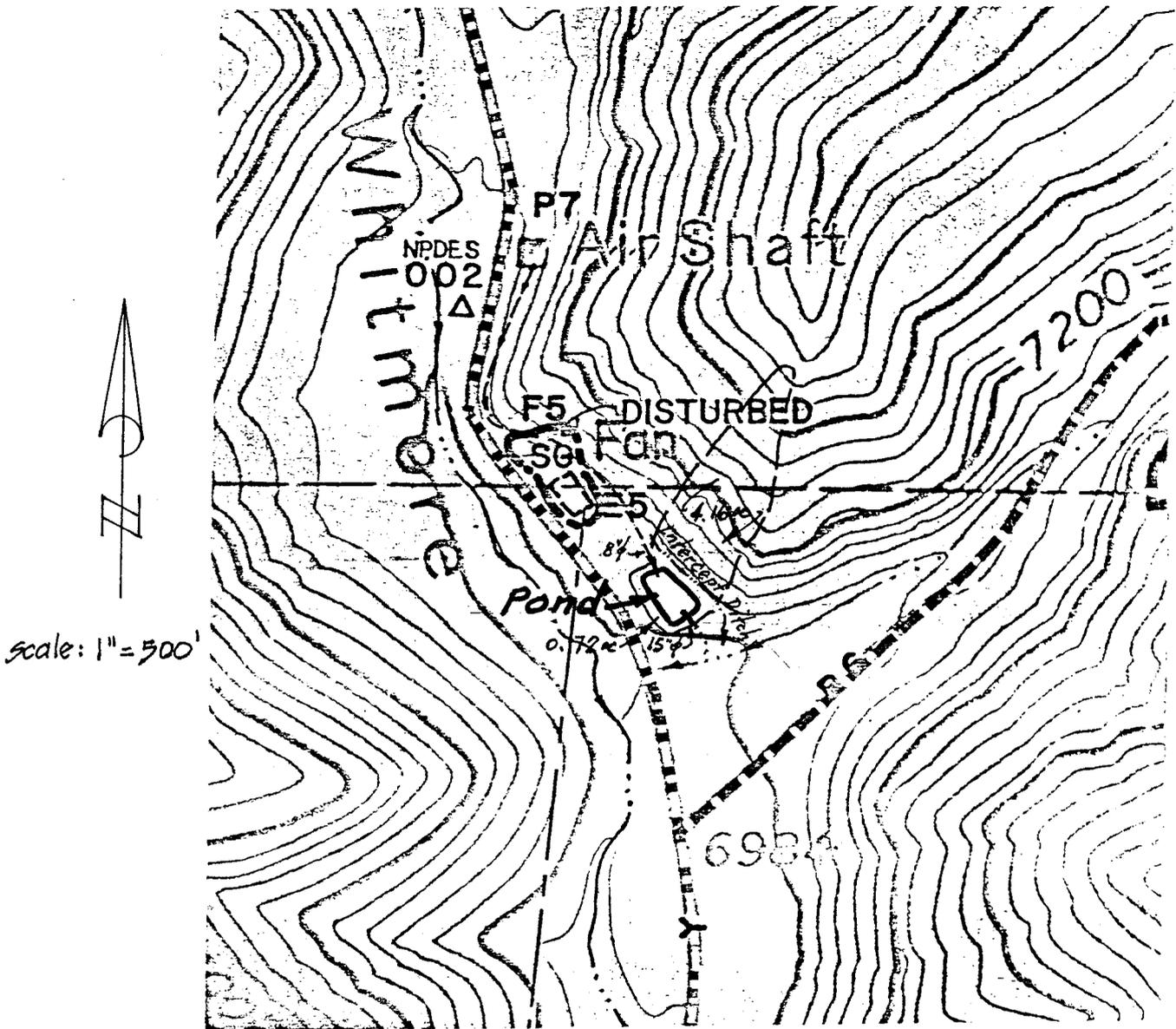
Kaiser Steel Corp. requests exemption of an overflow and emergency spillway at the Mine Water Discharge Pond.

Sincerely,


John S. Huefner PE
Recl Engineer

cc: Denise Dragoo

Enclosures



**LOCATION MAP
MINE WATER DISCHARGE POND
SURFACE DRAINAGE AREA**

SURFACE DRAINAGE

Rational Method $Q = CiA = .85(.90) 4.16 = 3.2 \text{ cfs}$

McMath Formula $Q = Aci\sqrt{5A} = 4.88(.50).90(400/4.88)^{.7} = 5.3 \text{ cfs}$

INTERCEPTOR DITCH CAPACITY

Manning $Q = a \frac{1.486}{n} R^{2/3} S^{1/2} = 3 \left(\frac{1.486}{.03} \right) \left(\frac{3}{5.5} \right)^{.67} (.005)^{.5} = 6.9 \text{ cfs OK}$

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STORM DRAINAGE DESIGN

Time of Concentration
Computation Sheet

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19 Aug '81

RATIONAL METHOD

Project RUNOFF
WHITMORE CANYON

INITIAL AREA MINE WATER DISCH. POND.

A = 4.16
CA = 3.53
CAR, # = 3.18

C = 0.85
R, = 0.90"/hr 25yr 24hr
L = 700'

H₁ = 7500
H₂ = 7030
H = 470

S = $\frac{H}{L} \times 10^{-3} = \underline{.67}$

$\frac{L}{W} = \frac{L^2}{43560 \Delta} = \underline{2.70}$

P = .49

$\frac{L}{W} = \underline{2.7}$

F = 4.0

$\frac{P}{L} = \underline{.0007}$

e = 0.655

1/e = 1.525

W = $\frac{4.3560 \Delta}{L}$

B = $\sqrt{\frac{P}{L}} = \sqrt{\frac{.49}{700}} = \underline{.0265}$

Q = 15(CAR, FB)^{1.143} S^{0.2143}

(CAR, FB)^{1.143} = (.337)^{1.143}
= 0.288

Q = (15) (.288) (.918) = 3.97 cfs

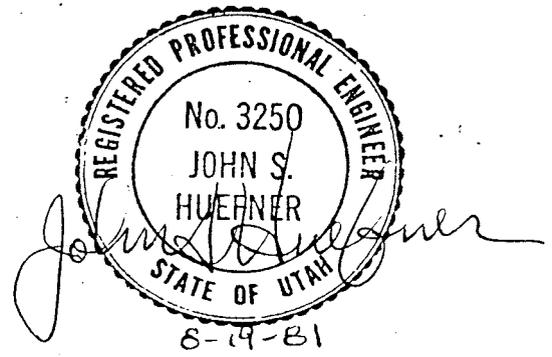
S^{0.2143} = (.67)^{0.2143} = 0.918

i_c = $\frac{Q}{CAR,} = \frac{1.25}{1.25} = \underline{1.25} \text{ %}$

t_c = $\frac{60}{i \vee e} = \frac{60}{(1.25) 1.525} = \frac{60}{(1.4)} = \underline{43} \text{ min.}$

From Graphs i = _____ %

Q = CAi = (.85 x 4.16 x .90) = 3.2 cfs



hand - GREGORY-LEWOLD METHOD.