

File: ACT/007/007  
# 3, 7 + 15

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**KAISER COAL CORPORATION**  
Sunnyside Coal Mines  
P.O. Box D  
Sunnyside, Utah 84539  
Telephone (801) 888-4421

RECEIVED

June 27, 1985

JUL 05 1985

D. Wayne Hedberg  
Division of Oil, Gas & Mining  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

DIVISION OF OIL  
GAS & MINING

RE: Abatement Plan for NOV N85-4-17-3,  
2 of 3, Sunnyside Mines, ACT/007/007

Dear Mr. Hedberg:

Questions one and two of your letter of June 19, 1985 requests information concerning our abatement plan for NOV N85-4017-3, 2 of 3. Answers to those questions are as follows:

o The plate number mentioned in our submittal should have read Plate III-35 which is Ditch and Culvert Protection Measures.

o The expected vertical water velocity of 7.4 feet per second was incorrect. The correct velocity value is calculated as follows:

Accelation due to gravity	$A = 32.2 \text{ ft/sec}^2$
Velocity	$V = AT$
Position (height)	$X = 1/2AT^2 = 5 \text{ ft}$
	$T = [2X/A]^{-2}$

$$V = A[2X/A]^{-2}$$

$$V = 17.94 \text{ ft/sec}$$

The expected horizontal velocity (culvert exit velocity) of 4.45 ft/sec was calculated on a computer using the methodology shown in Sunnyside Permit Application, Appendix III-1, Culvert and Pond Size and Outlet Protection. Combining the vertical and horizontal velocities using polar coordinates gives a velocity of 18.5 ft/sec at a zenith angle of 166 degrees. As the expected velocity is high, a sprayed concrete liner as shown on Plate

III-35 will be used in place of the wire mesh anchored rip rap. The liner will extend from the spillway to the wash bottom. Width of the liner will be five feet. Extention down the wash is not possible because the wash enters a culvert under the railroad embankment.

Please call if you have questions or need additional information.

Sincerely yours,

A handwritten signature in cursive script that reads "Douglas C Pearce". The signature is written in dark ink and is positioned above the typed name.

Douglas C Pearce  
Mine Engineer