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ACT/007/018

# SOLDIER CREEK COAL CO.

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RECEIVED

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DIVISION OF OIL  
GAS & MINING

January 31, 1986

Mr. Lowell P. Braxton  
Division of Oil, Gas and Mining  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, UT 84180-1203

*Cover letter to  
file # 7  
Plans to # 15*

Re: Abatement Plans for NOV N85-4-15-1  
Soldier Canyon Mine  
ACT/007/018

Dear Mr. Braxton:

Enclosed please find seven copies of our abatement plans for NOV N85-4-15-1. These plans are being submitted in response to the Division's December 30, 1985, letter.

Sincerely,

SOLDIER CREEK COAL COMPANY

J.T. Paluso  
Chief Engineer

JTP:pp  
Enclosures

# FILE COPY

Abatement Plans for NOV N85-4-15-1  
Sedimentation Pond Modification  
Soldier Creek Coal Company  
Soldier Canyon Mine  
ACT/007/018  
January 31, 1986

Introduction

Notice of Violation N85-4-15-1 was issued to Soldier Creek Coal Company on May 2, 1985. This violation was issued because the top width and side slopes of the sedimentation pond embankment did not comply with the approved plans. Noncompliance was primarily due to excessive erosion of the embankment, caused by high flows within the adjacent Soldier Creek channel.

In response to the Division's December 30, 1985, letter, the following plans and information are being submitted for final abatement of the aforementioned violation.

Proposed Construction and Embankment Modifications

General

It is proposed that the sedimentation pond embankment be modified so that the minimum top width shall be approximately 12 feet. This would require the thickening of approximately 80 feet of existing embankment (see Drawing D193 and Figure 1). The majority of the construction will be confined to the existing pond interior with disturbance of the outslope kept to a minimum.

The thickened embankment shall be constructed from suitable material with a slope up to, but not steeper than, 2h:1v. The material shall be placed in layers of such thickness to facilitate the compaction equipment.

It is proposed that the stream channel adjacent to the embankment be cleared of unnecessary obstructions. This shall enhance the flow characteristics of the stream channel, thus minimizing the potential embankment erosion. A backhoe, which would be available from the embankment construction, could clear boulders from the stream channel with minimal disturbance.

Embankment Construction - Source of Material

The preferred source of embankment material would be obtained through expansion of the existing sedimentation pond. This source would provide the necessary material without reducing the present pond containment volume. Possible areas of expansion would be in the southwest direction, into the existing pad area and/or in the northwest direction, deepening the pond and reducing the thick embankment at this point.

Prior to actual construction, test pits shall be excavated into the areas of possible pond expansion. This shall verify not only the suitability of the material but, the feasibility of the proposed expansion. If it is determined that sufficient quantities of suitable material can not be obtained within the pond area, all or part of the required fill material will be obtained from an independent source. Local contractors have indicated that suitable material is available from local, contractor run, barrow pits.

#### Construction Schedule

In order to implement the proposed construction plans, the sediment pond should be as completely dry as possible. Typically, dry conditions have occurred from mid June to mid July, thus, construction is scheduled to begin during this period. This schedule is, of course, contingent on actual precipitation and contractor availability. It is expected, however, that construction will be completed no later than September 30, 1986.

#### Construction - Completion

Compliance with the approved construction plans shall be certified by a registered professional engineer following construction completion.

All surface disturbance shall be revegetated in accordance with your approved Mining and Reclamation Plan.

#### Stability Analysis

A stability analysis of the sedimentation pond embankment was conducted by EarthFax Engineering, Inc. Their report, which is enclosed, has shown that adequate safety factors can be maintained assuming worst case conditions. Analyses indicate that a 2h:1v interior slope and an outslope with a fully eroded toe would have a minimum safety factor of 2.40 and 1.25 respectively. This assumes that the embankment is saturated and a 9.5 feet embankment top width is maintained.

#### Requested Variance from UMC 817.46(m)

Soldier Creek Coal Company requests a variance from UMC 817.46(m), which requires a combined average outslope and inslope of the pond embankment to be at least 5h:1v. Justifications for this requested variance are as follows:

1. The stability analyses prepared by EarthFax Engineering, Inc., have shown that a 2h:1V interior slope and the existing outslope will maintain safety factors well in excess of the minimum required.
2. Excessive disturbance to the Soldier Creek channel would be necessary if the outslope were to be altered significantly.
3. Flattening of the interior slopes would reduce containment volume of the pond beyond design minimums.

Sedimentation Pond Design Parameters  
(Refer to Drawing E030)

Runnoff Volume - 10 year, 24 hour storm (2.08 in.)

<u>Drainage</u>	<u>CN</u>	<u>Q(in)</u>	<u>Acres</u>	<u>Volume (ac-ft)</u>	<u>Disturbed Acres</u>
WS3	75	0.421	6.8	0.24	-
WS4	75	0.421	9.4	0.33	-
WS5	75	0.421	3.6	0.13	-
WS6	90	1.163	2.1	0.20	2.1
WS7	90	1.163	3.6	0.35	3.6
Road	90	1.163	0.9	0.10	0.9
Parking	90	1.163	0.5	0.05	0.5
Sed. Pond	-	1.251	1.0	0.10	-
Total				1.50	7.1

Q = Direct runoff volume in inches.

CN = Curve number which is a dimensionless expression relating storm rainfall to soil moisture storage and runoff.

Note: The detailed design of the existing sedimentation pond was prepared by Vaughn Hansen Associates. This plan was reviewed by the Division and approved in a letter dated November 23, 1979. The design methodology and values determined in the Vaughn Hansen Associates, Runoff Control Plan, were utilized in this modification where applicable.

Sediment Storage Requirements

In accordance with UMC 817.46 (b) (2), 0.1 ac-ft of sediment storage shall be provided for each disturbed acre upstream from the pond. Thus, with 7.1 acres of disturbed area within the upstream drainage area, the pond shall contain a sediment storage pool with a volume of 0.71 ac-ft.

Storage Requirements of the Modified Sedimentation Pond

In order to project the worst case condition, it is assumed that all additional embankment material is provided from an independent source. This is as shown in Drawing D194. Based on this drawing and known elevations of existing facilities the following information was determined.

<u>Description</u>	<u>Volume (ac-ft)</u>	<u>Elevation</u>
60% of the Sediment Storage	0.43	6,646.16
Sediment Storage	0.71	6,646.95
Existing Decant System	1.38	6,649.80
Existing Emergency Spillway	2.88	6,654.10

This indicates that the pond will consist of a sediment storage pool, (0.71 ac-ft), a dead storage pool, (0.67 ac-ft), and a runoff control pool (1.50 ac-ft).

Proposed Monitoring and Contingency Plan

The sedimentation pond shall be inspected quarterly in accordance to UMC 817.46(r) and UMC 817.49(h). During these inspections the pond embankment shall be examined for structural weakness, erosion of the outslope by Soldier Creek, any loss of embankment top width due to erosion, and other hazardous conditions.

The proposed sedimentation pond modifications call for thickening a narrow portion of the now existing embankment. This thickening shall result in a minimum top width of approximately 12 feet (the minimum top width required by UMC 817.41(1) is 9.5 feet). Therefore, Soldier Creek Coal Company believes that should stream erosion threaten stability of the embankment, it would be detected during routine inspections long before it encroached on the 9.5 feet minimum width. Also, an adequate factor of safety would be maintained assuming the worst case condition (the embankment outslope eroded to a vertical wall with a 9.5 feet top width, the pond is full, and the embankment saturated). This factor of safety was determined to be 1.25 by EarthFax Engineering, Inc., in their enclosed January 29, 1986 report.

It is proposed that if the embankment top width were to erode to 9.5 feet or less, stabilization of the embankment outslope would be required. This shall be accomplished by installation of riprap, gabion baskets, culverting, etc., as approved by the Division.

