SOLDIER CREEK COAL COMPANY

Additions to the January
1984 Submittal

DOCUMENTS

SOLDIER CREEK COAL CO.

Telephone (801) 637-6360

P.O. Box I
Price, Utah 84501

April 4, 1984

Dianne Nielson-Director
Utah Division Oil, Gas and Mining
4241 State Office Building
Salt Lake City, Utah 84114

Re: Response to OSM's February 1984 Determination of Adequacy

Dear Ms. Nielson:

Pursuant to our meeting of February 28, 1984, enclosed you will find (7) copies of our response to your February DOA. This submittal complies with your March 8, 1984, letter. The soils information previously requested by April 20, is also included at this time.

Please contact us if you have any questions concerning this material.

Sincerely,

SOLDIER CREEK COAL COMPANY

J.T. Paluso

J.T. Paluso
Chief Engineer

Enclosures

JTP/jb

RECEIVED
APR 6 1984
DIVISION OF
OIL, GAS & MINING

Instructions for the collation of the March 30, 1984, material into Soldier Creek Coal Company's Mining and Reclamation Plan, January 1984 submittal. The new material is a combination of written documents and maps. The written material can be found in the enclosed folder and the maps can be found in the enclosed envelope.

Chapter 1

"Remove Old Page"	"Insert New, 3/30/84, Page"
1-2	1-2
1-3	1-3
	1-4d after 1-4c
	1-4e after 1-4d
	1-4f after 1-4e
1-5	1-5
	1-6 after 1-5
	1-7 after 1-6
	1-8 after 1-7

Chapter 2

"Remove Old Page"	"Insert New, 3/30/84, Page"
2-4	2-4
	2-4a after 2-4
2-7	2-7
2-8	2-8
2-9	2-9
2-9a	2-9a
2-10	2-10
	2-10a after 2-10
2-11	2-11
2-14a	2-14a
2-14b	2-14b
2-14c	2-14c

"Into the References and Correspondence Section insert the following"

Coal Lease Readjustment - SL-051279-063188

Coal Lease U-50722

Authorization to Mine

Right-of-Way U-52071

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	Right-of-Way U-50167
"Remove Old Map"	"Into the Maps and Drawings Section Insert New Map"
Surface Ownership Map E013 Unsuitability Study Areas Map D150	Surface Ownership Map E013 Unsuitability Study Areas Map D150 Surface Ownership Map C151 Lease Delineation Map D173
<u>Chapter 3</u>	
"Remove Old Page"	"Insert New, 3/30/84, Page"
3-2 to 3-33	3-2 to 3-34
	"Into the References and Correspondence Section Insert the following"
	DOGM, 10/15/82, letter
	DOGM, 5/16/83, letter
3-34	3-34
"Remove Old Map"	"Into the Maps and Drawings Section Insert New Map"
Reclamation Map E010	Reclamation Map E010
Diversion Map E011	Diversion Map E011
Final Contour Map E014	Final Contour Map E014
Upper Storage Yard Section and Detail C144	Upper Storage Yard Section and Detail C144
	Fan and Substation Site Topographic Map E015
	New Fan Site and Watershed 1 Drainage-Sections and Details D171
Lagoon Site and Pipeline Plan D141	Lagoon Site and Pipeline Plan D141

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Sewage Lagoon Reclamation Map D143	Sewage Lagoon Reclamation Map D143
Tentative Mine Plan For Gilson Seam D161 and D162	Tentative Mine Plan For Gilson Seam D161 and D162
Tentative Mine Plan for Rock Canyon Seam D159 and D160	Tentative Mine Plan For Rock Canyon Seam D159 and D160
Maximum Subsidence Map D163	Maximum Subsidence Map D163
<u>Chapter 4</u>	
"Remove Old Page"	"Insert New, 3/30/84, Page"
4-2 4-12	4-2 4-12
	"Into the References and Correspondence Section Insert the Folowing"
	Harold R. Marston, 3/19/84, letter
	4-13
<u>Chapter 5</u>	
"Remove Old Page"	"Insert New, 3/30/84, Page"
5-5	5-5
	"Into the Maps and Drawings Section Insert New Map"
	Potential Cultural Survey Areas D174
<u>Chapter 6</u>	
	"Into the Maps and Drawings Section Insert New Map"
	Geologic Cross-Sections Map C153
<u>Chapter 7</u>	

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"Remove Old Page"	"Insert New, 3/30/84, Page"
7-2	7-2
Remove Land Use Map D154 Figure 8, from R & M's report	Insert Land Use Map D154
7-4 to 7-10	7-3a before 7-4 7-4 to 7-15
	"Into the References and Correspondence Section Insert the Following"
	Assignment of Water Right
7-11	DOGM's Water Quality Data 7-16
"Remove Old Map"	"Into the Maps and Drawings Section Insert New Map"
Seep Map D157	Seep Map D175

<u>Chapter 8</u>

"Remove Old Page"	"Insert New, 3/30/84, Page"
8-2 8-12 8-13	8-2 8-12 8-13
	Insert Ford, Bacon and Davis, "Soil Suitability Analyses"
8-14	8-14 after Ford, Bacon and Davis Report
	8-15
"Remove Old Map"	"Into the Maps and Drawings Section Insert New Map"
Soils Association Map D142	Soils Assoication Map D142
	Soils Removal and Reclamation Map E016

<u>Chapter 9</u>

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"Remove January 1984 Robert M. Thompson Report, 1-21"	"Insert Amended March 1984 Robert M. Thompson Report, 1-24"
"Remove Old Map"	"Into the Maps and Drawings Section Insert New Map"
Vegetation Map D158	Vegetation Map D158
	Reference Areas Layout Plan D172
<u>Chapter 10</u>	
"Remove Old Page"	"Insert New, 3/30/84, Page"
10-2 to 10-11	10-2 to 10-12
	"Into the Reference and Correspondence Section Insert the Following"
	UDWR, 2/28/84, letter
10-12	10-13
"Remove Old Map"	"Into the Maps and Drawing Section Insert New Map"
Wildlife Use Maps D151-D153	Wildlife Use Maps D151-D153
<u>Chapter 11</u>	
	"Insert New, 3/30/84, Page"
	11-12a after 11-12
<u>Chapter 12</u>	
"Remove Old Page"	"Insert New, 3/30/84, Page"
12-2 12-15	12-2 12-15 12-16 after 12-15 12-17 after 12-16 12-18 after 12-18

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CONTENTS

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1.1 Introduction

On March 7, 1983, Soldier Creek Coal Company received the Division of Oil, Gas and Mining's Apparent Completeness Review (ACR) of their Mining and Reclamation Plan (MRP). The following report is Soldier Creek Coal Company's response to the ACR and the Office of Surface Mining's December 1983 and February 1984 Determination of Adequacy (DOA). This response is meant to, first, answer all questions contained in the ACR and DOA's and, second, update the information contained in the Applicant's 1981 MRP. If there is any conflicting information between the 1981 MRP and this response, the information within this response supersedes the 1981 MRP.

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1.2 Cross Reference (February 1984 DOA to Soldier Creek Coal Company's Response)

UMC 771.23		
(e) (1)	-	Chapter 2, Map Section, E013 & C151
	-	Chapter 3, Map Section, E014
	-	Chapter 3, Map Section, D159-D162
	-	Chapter 3, Map Section, E011 & D143
(2)	-	Chapter 2, Map Section, D173
UMC 782.13		
(a) (2)	-	Chapter 2, Section 2.2.2, P. 2-4
(3)	-	Chapter 2, Section 2.4, pp. 2-9, 2-9a & 2-10
(e)	-	Chapter 2, Section 2.2.13 pp. 2-6 & 2-7
(g)	-	Chapter 2, Section 2.2.15 p. 2-7
UMC 782.14		
(a)	-	Chapter 2, Section 2.3.4, p. 2-8
UMC 782.15		
(a)	-	Chapter 2, Section 2.4, pp. 2-9, 2-9a & 2-10
UMC 782.21	-	Chapter 2, Section 2.14, pp. 2-14a, 2-14b & 2-14c
UMC 783.22	-	Chapter 4, Correspondence Section
UMC 784.26	-	Chapter 11, Section 11.4 p. 11-12a
VEGETATION		
1.	-	Chapter 9, Amended 3/1984 Report, A11
2.	-	Chapter 9, Section 9.2, Amended 3/1984 Report, p. 1
UMC 784.24		
(f)	-	Chapter 9, Map Section, D156 & D158 Also, as discussed in the 3/15/84 meeting, the access road to the sewage lagoon will not be included in the permit area.
UMC 784.13		
1.	-	Chapter 3, Table 3.3 p. 3-33
2.	-	Chapter 9, Section 9.2, Amended 3/1984 Report, pp. 5, 21 & 22
3.	-	Chapter 8, Map Section, E016 Chapter 9, Section 9.2, Amended 3/1984 Report, p. 6
4.	-	Chapter 8, Section 8.10, p. 6

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UMC 817.111

1. - Chapter 9, Section 9.2, Amended 3/1984 Report, p. 9
   Chapter 8, Section 8.10, p. 1
2. - Chapter 9, Section 9.2, Amended 3/1984 Report, pp. 18, 19 & 20
   Chapter 8, Section 8.10, pp. 1 & 2
3. - Chapter 9, Section 9.2, Amended 3/1984 Report, pp. 9, 10 & 11
4. - Chapter 8, Section 8.10, pp. 2 & 3

UMC 817.114 - Chapter 9, Section 9.2, Amended 3/1984 Report, p. 13
   Chapter 8, Section 8.10, p. 4

UMC 783.21 - Chapter 8, Map Section, D142

UMC 817.22

1. - Chapter 8, Section 8.10, p. 4
   Chapter 8, Note, p. 8-12
2. - Chapter 3, Section 3.2.11, p. 3-9
   Chapter 8, Section 8.10, pp. 4 & 7
3. - Chapter 3, Map Section, E012, E010, C143, C144, C147, C148, C149, D143, D155, D171, SH & C1
   Chapter 8, Map Section, E016
   Chapter 8, Section 8.10, All

UMC 817.23

1. - Chapter 8, Note, P. 8-12
2. - Chapter 8, Section 8.10, pp. 14 & 15

UMC 817.24

1. - Chapter 8, Section 8.10, p. 15
2. - Chapter 8, Section 8.10, p. 15
   Chapter 3, Table 3.3, p. 3-33

UMC 784.21

1. - Chapter 10, Section 10.2, p. 10-3
2. - Chapter 10, Section 10.2, p. 10-4
3. - Chapter 10, Sections 10.2, 10.3 & 10.5 pp. 10-4, 10-7, 10-8 & 10-11
4. - Chapter 10, Sections 10.3 & 10.5, pp. 10-7, 10-8 & 10-10

UMC 817.97 - Chapter 10, Section 10.3, p. 10-7

CULTURAL RESOURCES

1. - Chapter 5, Note, p. 5-5
2. - Chapter 5, Note, p. 5-5

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UMC 783.15		
1.	-	Chapter 7, R & M Report, Map D154, Figure 8
2.	-	Chapter 10, Section 10.2, p. 10-3
UMC 784.14	-	Chapter 7, Section 7.1.1, p. 7-3a
UMC 784.23	-	Chapter 3, Section 3.5.4, p. 3-19
UMC 817.152		
1.	-	Chapter 7, Table 7.1, pp. 7-12, 7-13 & 7-14
2.	-	Chapter 7, Table 7.1, pp. 7-10 & 7-11
UMC 817.54	-	Chapter 7, Section 7.4, pp. 7-6, 7-7, 7-8, & 7-9 Chapter 12, Section 12.5, pp. 12-16 & 12-17
UMC 783.25, UMC 784.11		
(a)	-	Chapter 6, Map Section, Drawings D159-162
UMC 817.101, UMC 784.13	-	Chapter 3, Map Section, Map E010
MAP VERIFICATION	-	Chapter 1, Section 10.4, p. 1-6
ROCK DISPOSAL SITE	-	Chapter 1, Section 10.5, p. 1-8

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1.3 Acknowledgements

Soldier Creek Coal Company has tried to acknowledge all persons and/or organizations which contributed to the preparation of this Mining and Reclamation Plan. Special thanks is extended to Robert M. Thompson, R & M Consultants, Vaughn Hansen Associates, Utah Division of Wildlife Resources and Ford, Bacon and Davis. In addition to these contributors, the staff of Soldier Creek Coal Company was used extensively in all submittals.

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1.4 Map Certification

I J.T. Paluso do hereby certify that the following list of maps and revisions have been reviewed by me and were found to be complete and accurate as of the March 30, 1984 submittal.

D141	Lagoon Site and Pipeline Plan
D142	Soils Association Map
D143	Sewage Lagoon Reclamation Map
D145	Rock Canyon - Sunnyside Interburden
D146	Gilson - Rock Canyon Seam Interburden
D147	Sunnyside Seam Isopach
D148	Rock Canyon Seam Isopach
D149	Gilson Seam Isopach
D150	Unsuitability Study Areas
D151	Wildlife Use Map - Mule Deer, Elk, Moose
D152	Wildlife Use Map - Snowshoe Hare, Cottontail, Grouse, Mourning Dove
D153	Wildlife Use Map - Riparian Zones and Raptor Nest Locations
D154	Land Use Map
D155	Upper Yard - Sections & Details
D156	Reference Study Areas Map
D157	Seep Map
D158	Vegetation Map
D159	Tentative Mine Plan for 5 Years (1984-1988) Rock Canyon Seam
D160	Tentative Mine Plan for Years 1989-2003 Rock Canyon Seam (Remaining Life of Mine)
D161	Gilson Seam Mine Plan - Years 1986-1988
D162	Gilson Seam Mine Plan - Years 1989-2003
D163	Maximum Subsidence Map

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D171	New Fan Site and Watershed 1 Drainage - Sections and Details
D172	Reference Areas Layout Plan
D173	Lease Delineation Map
D174	Potential Cultural Survey Areas
C143	Upper Storage Yard - Sections and Details
C144	Upper Storage Yard - Sections and Details
C147	Sediment Pond - Sections and Details
C148	Parking Lot - Sections and Details
C149	Watershed #1 Drainage - Plan and Profile
C150	Conveyor Belt Structure
C151	Surface Ownership Map
C153	Geologic Cross-Sections Map
A120	Mine Opening Seal
SH & C1	Sewage Lagoon Details
E010	Reclamation Map
E011	Diversion Map
E012	Surface Disturbance Map
E013	Surface Ownership Map
E014	Final Contour Map
E015	Fan and Substation Site Topographic Map
E016	Soils Removal and Relocation Map
	Mine Map
	Premium Coal Company Progress Map

Registered Professional Engineer
No. 4028
J. THOMAS PALUSO
State of Utah

T-4028 3/29/84

J.T. Paluso UT 4028

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1.5 Rock Disposal Site

Soldier Creek Coal Company at a February 28, 1984, meeting with O.S.M. and U.D.O.G.M. agreed to eliminate the proposed rock disposal site from the Mining and Reclamation Plan. If a rock disposal site is deemed necessary in the future, the required permitting work will be submitted at the appropriate time.

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2.2 Identification

2.2.1 The permit Applicant for the property known as Soldier Canyon Mine is:

Soldier Creek Coal Company (SCCC)
Soldier Canyon Mine
P.O. Box I
Price, Utah 84501
(801) 637-6360

2.2.2 The legal and equitable owners of record of all areas to be directly affected by surface facilities and operations are:

Surface - United States of America
U.S. Department of the Interior
Bureau of Land Management
Utah State Office
University Club Building
Salt Lake City, Utah 84111

Coal - United States of America
(Address the Same as Above)

Map E-013 and Drawing C151 located at the end of this chapter depicts the surface, coal and mineral ownership on the Applicant's mine permit area.

2.2.3 The holder of record of lease hold interests in the areas to be affected by surface operations or facilities is the United States of America and the holder of record of lease hold interest in the coal to be mined is the Applicant. Right-of-ways U-50167 and U-52071

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grants SCCC the right to construct surface facilities in T. 13 S. R. 12 E., Section 18, SW 1/4 NE 1/4 and at the sewage lagoon site.

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The Bernard Iriart Estates
303 East 1st North
Price, Utah 84501

Sunedco Coal Company
P.O. Box 35B
Lakewood, Colorado 80235

(For additional details of the ownership of contiguous areas see Map E013 and Drawing C151.)

2.2.14 The name of the mine is Soldier Canyon Mine and the MSHA Identification Number is 42-00077.

2.2.15 Land, interests in land, options, or pending bids on interests held or made by the Applicant for land contiguous to the permit are:

Township 12 South, Range 12 East, SLB&M
- Section 30: W 1/2, W 1/2 of SE 1/4
- Section 31: W 1/2, SE 1/4, S 1/2 of NE 1/4, NW 1/4 of NE 1/4

Township 12 South, Range 11 East, SLB&M
- Section 25: All

Township 13 South, Range 12 East, SLB&M
- Section 5: W 1/2
- Section 6: All

Township 13 South, Range 11 East, SLB&M
- Section 1: All
- Section 10: E 1/2 of E 1/2
- Section 11: All
- Section 12: W 1/2 of W 1/2
- Section 13: SW 1/4, NW 1/4 of NW 1/4, S 1/2 of NW 1/4
- Section 14: N 1/2, N 1/2 of S 1/2, SE 1/4 of SE 1/4
- Section 15: NE 1/4 of NE 1/4

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2.3 Compliance Information

2.3.1 The Applicant has not had a federal or state mining permit suspended or revoked in the past five years.

2.3.2 The Applicant has not forfeited a mining bond or similar security deposited in lieu of a bond.

2.3.3 The Applicant has received six violations in the past three years. Copies of the violations are located at the end of this chapter.

2.3.3.1 The date of issue, regulatory authority, and brief description of the violations are shown on the violation copies.

2.3.3.2 The remedial action required for each violation was set forth in a letter from the Utah Division of Oil, Gas and Mining to Mr. Tom Paluso, dated March 17, 1983. A copy of the letter is located at the end of this chapter.

2.3.3.3 The Applicant has abated all the violations. All information pertaining to the abatement of the violations is located at the end of the chapter.

2.3.4 No subsidiaries, affiliates or persons controlled by or under common control with the Applicant have had a federal or state mining permit suspended or revoked in the past five years. Also, no mining bond or similar security deposited in lieu of a bond has been forfeited by any of the above mentioned parties.

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2.4 (UMC 782.15) Right of Entry and Operation Information

2.4.1 Soldier Creek Coal Company bases their right to enter and begin underground coal mining activities on the control of two coal leases, an authorization to mine, several right-of-ways and a state mining permit. The Ownership Maps, E013 and C151 show the permit area boundary, the lease area boundary, the surface disturbance area and the ownership of all associated lands in and around Soldier Canyon Mine. Copies of the coal leases and authorization to mine are included in the correspondence section of this chapter. Also, a letter from Leon E. Berggren, Area Manager BLM, to James Smith, DOGM, stating Soldier Creek Coal Company's authorization to construct all works involved in mining and preparing coal for market is included in the correspondence section of Chapter 7.

Lease, SL-051279-063188

Township 13 South, Range 12 East, SLB&M

Section 7: All

Section 8: W 1/2

Section 17: NW 1/4

Section 18: Lot 1, N 1/2 NE 1/4, SE 1/4 NE 1/4, NE 1/4 NW 1/4

Township 13 South, Range 11 East

Section 12: E 1/2 E 1/2

Section 13: NE 1/4 NE 1/4

Containing 1,548.31 Acres

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Lease, U-50722

Township 13 South, Range 11 East, SLB&M

Section 12: E 1/2 W 1/2, W 1/2 E 1/2

Section 13: NW 1/4 NE 1/4, NE 1/4 NW 1/4

Containing 400 Acres

Authorization to Mine

Township 13 South, Range 12 East, SLB&M

Section 18: S 1/2 NW 1/4

Township 13 South, Range 11 East, SLB&M

Section 13: SE 1/4 NE 1/4, NE 1/4 SE 1/4

Containing 160 Acres

Right-of-Way, U-52071

Township 13 South, Range 12 East, SLB&M

Section 18: NW 1/4 NE 1/4 SW 1/4 NE 1/4,
NW 1/4 SW 1/4 NE 1/4 SW 1/4 NE 1/4,
NE 1/4 SE 1/4 NW 1/4 SW 1/4 NE 1/4

Containing 3.75 Acres

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Right-of-Way, U-50167

Section 24: Beginning at a point North 313.28' and West 155.41' from the Southeast corner of Section 24; thence

N 44° 21' 57" W 168.00', thence

N 45° 38' 00" E 312.00', thence

S 44° 21' 59" E 168.00', thence

S 45° 38' 01" W 312.00 to the point of beginning

Containing 1.20 Acres

2.4.2 Lease SL-051279-063188 was acquired in September 1974, lease U-50722 was acquired on September 1, 1982 and the Authorization to Mine was acquired on December 11, 1974

2.5 <u>(UMC 782.16) Relationship to Areas Designated Unsuitable for Mining</u>

Soldier Creek Coal Company has no areas on his lease that are designated as unsuitable for mining and knows of no areas adjacent to his operation that have been designated unsuitable for mining. The Bureau of Land Management during their preparation for coal leasing printed a summary of the applications of unsuitability criteria to the Price River/Range Creek Coal area. In the booklet the Bureau lists 20 different criterion that might deem lands unsuitable for mining. The areas adjacent to the permit area mentioned in the booklet are shown on Map D150. All lands shown have been made available to mining under certain stipulations. The Eagle Nest lands, Criterion 11, are open to mining with the stipulation that no surface construction or exploration will be

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allowed between February 15 and June 15. The Public or Private Improvement lands, Criterion 3, are open to mining after a review and approval of the mining plans. There are no plans to conduct or locate any surface operation or facility within 300 feet of an occupied dwelling.

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2.6 Permit Term

2.6.1 Soldier Creek Coal Company commenced its operation with a complete rehabilitation of Soldier Canyon Mine in August of 1975. The rehabilitation consisted of a general clean-up to meet federal safety standards, driving of two rock tunnels and the installation of a conveyor belt system. The work was completed in June 1976. Surface rehabilitation work began in August of 1975 and continued until completion in May 1978. The outside rehabilitation work included the construction of a substation, power centers, office, warehouse, shop and bathhouse. Construction of a sedimentation pond was completed in November of 1979 and a sewage lagoon was completed in October of 1982.

The applicant began limited mining on June 14, 1976 and has continued mining to the present date. Projected mine plans are shown on Drawings D159 through D162.

2.6.2 The Applicant will conduct coal mining activities on his lease until he exhausts all economically minable coal reserves. The operation, Soldier Canyon Mine, is an active mine, so the Applicant requests a permit term of 5 years.

2.7 Personal Injury and Property Damage Insurance

Attached is a certificate of liability insurance that the Applicant presently holds.

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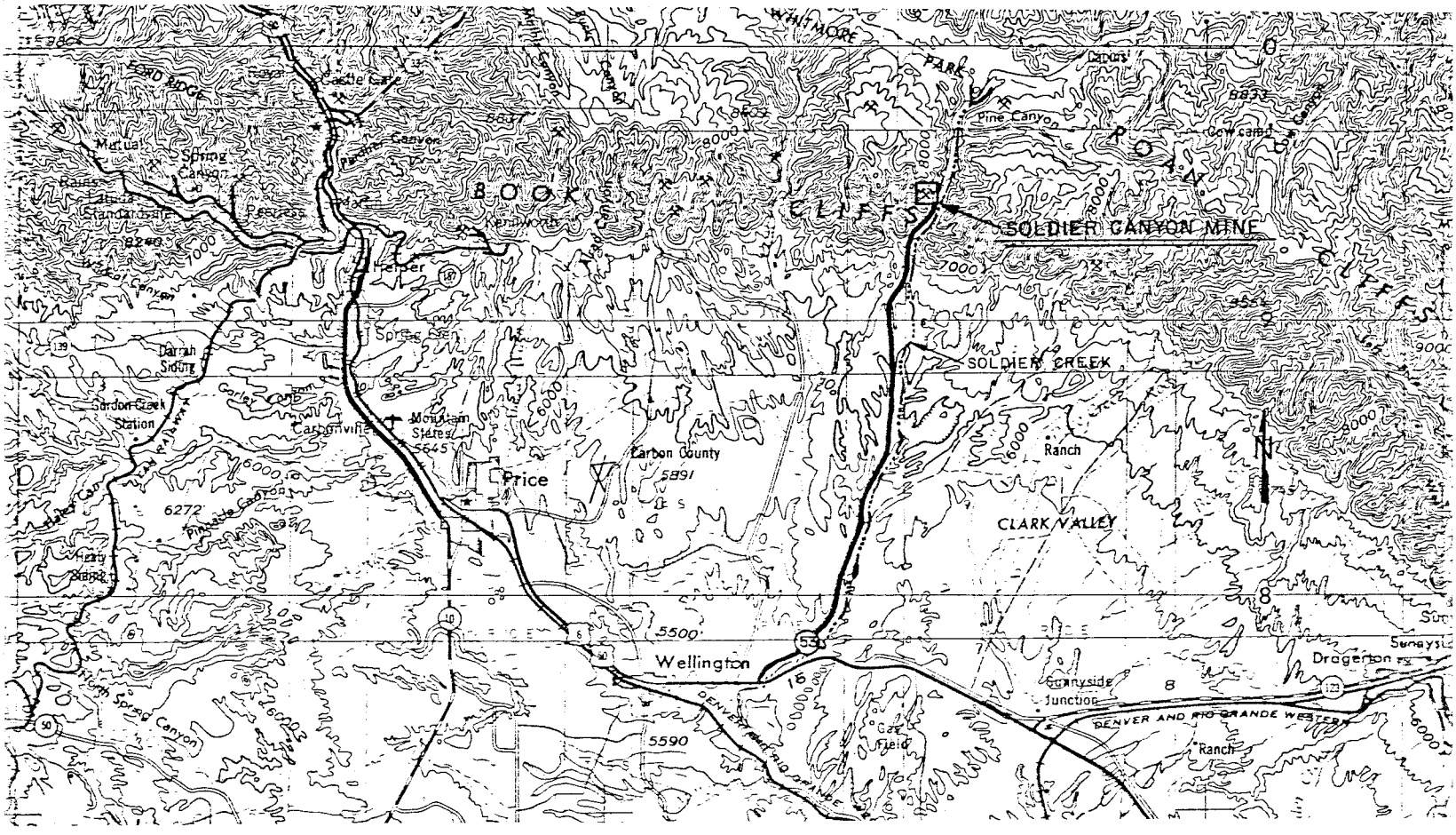
2.10 (UMC 782.21) Newspaper Advertisement and Proof of Publication

A copy of the following public notice will be run as a newspaper advertisement in a local newspaper when the application is deemed complete and approved. Proof of the publication will be sent to the Utah Division of Oil, Gas and Mining and the Office of Surface Mining no later than 4 (four) weeks after the last date of publication.

PUBLIC NOTICE

Soldier Creek Coal Company
P.O. Box I
Price, Utah 84501

Soldier Creek Coal Company is operating and plans to continue to operate a coal mine northeast of Price, in Carbon County, Utah. (See figure below)



MILES
0 1 5 10

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Soldier Canyon Mine and the associated lands involved in the project are shown on the following U.S.G.S. 7.5 minute quadrangle maps:

Deadman Canyon

Pine Canyon

Soldier Creek Coal Company has placed a copy of their application on file for public inspection at the following address:

Carbon County Recorder's Office
Carbon County Courthouse
Price, Utah 84501

Any written comments, objections or requests for informal conferences on the application may be submitted to the following regulatory agencies:

Office of Surface Mining
Brooks Towers, 1020 15th Street
Denver, Colorado 80202

Utah Division of Oil, Gas and Mining
4241 State Office Building
Salt Lake City, Utah 84114

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Soldier Creek Coal Company's proposed permit area is described by the following:

Township 13 South, Range 12 East, SLB&M

Section 7: All

Section 8: W 1/2

Section 17: NW 1/4

Section 18: N 1/2 of N 1/2, SE 1/4 of NE 1/4, S 1/2 of NW 1/4, NW 1/4 of NE 1/4 of SW 1/4 of NE 1/4, NW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of NE 1/4, NE 1/4 of SE 1/4 of NW 1/4 of SW 1/4 of NE 1/4

Township 13 South, Range 11 East, SLB&M

Section 12: E 1/2, E 1/2 of W 1/2

Section 13: N 1/2 of NE 1/4, SE 1/4 of NE 1/4, NE 1/4 of SE 1/4 NE 1/4 of NW 1/4

Section 24: Beginning at a point North 313.28' and West 155.41' from the Southeast corner of Section 24, thence N 44° 21' 57" W 168.00', thence N 45° 38' 00" E 312.00', thence S 44° 21' 59" E 168.00', thence S 45° 38' 01" W 312.00' to the point of beginning.

Soldier Creek Coal Company plans to conduct mining activities within 100 feet of a public road during the 5 year permit term. State Highway 53 is the public road and the affected portion is the stretch within the permit area, Township 13 South, Range 12 East, Sections 18 and 7, Carbon County, Utah.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SERIAL NUMBER
Salt Lake 051279-
063188

COAL LEASE READJUSTMENT

This lease, entered into on January 4, 1935, by the United States of America (the lessor) through the Bureau of Land Management (BLM) and

California Portland Cement Company
800 Wilshire Boulevard
Los Angeles, California 90017

(the lessee) is readjusted effective as of

Sec. 1. STATUTES AND REGULATIONS. This lease readjustment is subject to the terms and provisions of the Mineral Leasing Act of February 25, 1920, 41 Stat. 437 as amended, 30 U.S.C. §§ 181-263, hereafter referred to as the Act. This lease is also subject to all regulations of the Secretary of the Interior (including, but not limited to, 30 CFR Part 211 and 43 CFR Group 3000) which are now or hereafter in force and which are made a part hereof, except that no amendment to the regulations made subsequent to the effective date hereof shall alter the rental and production royalty requirements in sections 5 and 6 of this lease until the next readjustment of this lease.

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Sec. 2. RIGHTS OF LESSEE. The lessor, in consideration of the rents and royalties and other conditions hereinafter set forth hereby grants to the lessee the exclusive right and privilege to mine and dispose of all coal in the following-described tracts (leased lands) situated in the State of Utah:

T. 13 S., R. 11 E., SLM, Utah
Sec. 12, E½E½;
Sec. 13, NE¼NE¼.
T. 13 S., R. 12 E., SLM, Utah
Sec. 7, all;
Sec. 8, W½;
Sec. 17, NW¼;
Sec. 18, lot 1, N½NE¼, SE¼NE¼, NE¼NW¼.

containing 1,548.31 acres, more or less, in Carbon County, together with the right to construct all works, buildings, structures, equipment, and appliances which may be necessary and convenient for the mining and preparation of the coal for market, and, subject to the conditions herein provided, to use so much of the surface as may reasonably be required in the exercise of the rights and privileges herein granted for so long as this lease remains in full force and effect under any provisions of the law and the applicable regulations thereunder.

Sec. 3. DILIGENCE. The lessee shall engage in the diligent development of the coal resources subject to the lease by timely preparation for and initiation of production of coal from this lease or from the Logical Mining Unit (LMU) of which this lease is a part so that coal is actually produced in commercial quantities before June 1, 1986, except that the period of time during which production of coal in commercial quantities must be achieved may be extended as provided in the regulations, 43 CFR 3520.2-5. After diligent development is achieved, the lessee shall maintain continued operation of the mine or mines on the leased lands as defined in the regulations.

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Sec. 4. BOND. The lessee shall file with the appropriate BLM office a lease bond in the amount of $240,000, for the use and benefit of the United States, to insure payment of rentals and royalties and to insure compliance with all other terms of this lease, the exploration and mining plans, the regulations and the Act. An increase in the amount of the lease bond may be required by the lessor upon approval of the exploration or mining plan or upon approval of a change in either plan, or at any other time during the life of the lease to reflect changed conditions.

Sec. 5. RENTAL. An annual rental of $3 for each acre or fraction thereof shall be paid in advance on or before the anniversary date of this lease. Rentals under this lease shall be payable for each and every year during the continuance of the lease. Rentals paid for any year prior to this readjustment shall be credited against the royalties for that year. Rentals due and payable on and after the lease year commencing on the effective date of this readjustment may not be credited against royalties (43 CFR 3503.3-1).

Sec. 6. PRODUCTION ROYALTY. The lessee shall pay a production royalty of 12½% of the value of coal produced by strip or auger mining methods and 8% of the value of coal produced by underground mining methods. The value of coal shall be determined as set forth in the regulations. Production royalties paid for a calendar month shall be reduced by the amount of any advance royalties paid under this lease to the extent that such advance royalties have not been used to reduce production royalties in a previous month. Production royalties shall be payable the final day of the month succeeding the calendar month in which the coal is mined.

Sec. 7. ADVANCE ROYALTY. Upon request by the lessee the Mining Supervisor may accept, for a total of not more than ten years, the payment of advance royalties in lieu of the condition of continued operation for any particular year. Any payment of advance royalties in lieu of continued operation shall be pursuant to an agreement, signed by the lessee and the Mining Supervisor, which shall be made a part of this lease. The agreement shall include a schedule of payments and shall be subject to the advance royalty conditions set forth in the regulations. The advance royalty shall be based on a percent of the value of a minimum number of tons which shall be determined on a schedule sufficient to exhaust the leased reserves in 40 years from June 1, 1976.

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Sec. 8. METHOD OF PAYMENTS. The lessee shall make rental payments to the appropriate BLM office until either production royalties or advance royalties become payable. Thereafter, all rentals, production royalties and advance royalties shall be paid to the Mining Supervisor. All remittances to BLM shall be made payable to the Bureau of Land Management; those to the Geological Survey shall be made payable to the United States Geological Survey.

Sec. 9. EXPLORATION PLAN. As specified in the regulations, the lessee shall submit to the Mining Supervisor an exploration plan before conducting any exploration on the leased lands, except casual use, between the effective date of this lease and the date of approval of the mining plan. The lessee shall not commence exploration until the Mining Supervisor has approved the exploration plan. Thereafter, the lessee shall conduct all exploration in accordance with the approved exploration plan.

Sec. 10. MINING PLAN. As specified in the regulations 30 CFR 211.10(a)(1), the lessee shall submit a mining plan to the Mining Supervisor not later than three years after the date of readjustment of this lease. Until the Mining Supervisor has approved the mining plan, the lessee shall not conduct any operations on the leased lands except casual use or, if an exploration plan has been approved, exploration. Thereafter, the lessee shall conduct all operations in accordance with the approved mining plan.

Sec. 11. LOGICAL MINING UNITS (LMU). This lease is automatically considered to be an LMU and may be combined with other land, including other Federal leaseholds and non-Federal interests in coal, to form a larger LMU. The mining plan for such enlarged LMU must include a production schedule that provides for the mining of all the LMU reserves, both Federal and non-Federal, in a period of not more than 40 years from the date of the approval of the plan. The definition of LMU and LMU reserves and other conditions applicable to them are set forth in the regulations (43 CFR 3520.2-6).

Sec. 12. OPERATIONS ON LEASED LANDS. In accordance with the conditions of this lease, the exploration and mining plans, the regulations,

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Act, the lessee shall exercise reasonable diligence, skill, and care in all operations on the leased lands. The lessee's obligations shall include, but not be limited to the following:

(a) The lessee shall conduct all operations on the leased lands so as to avoid injury to life, health, or property;

(b) The lessee shall conduct operations in such a manner as may be needed to avoid or, where avoidance is impracticable, to minimize and, where practicable, to repair damage to: (i) any forage and timber growth on Federal or non-Federal lands in the vicinity of the leased lands: (ii) crops, including forage and timber, or improvements of a surface owner; or (iii) improvements, whether owned by the United States or by its permittees, licensees, or lessees. The lessor must approve the steps to be taken and the restoration to be made in the event of the occurrence of damage described in this subsection.

(c) The lessee shall minimize to the maximum extent possible wasting of the mineral deposits and other resources, including but not limited to surface resources which may be found in, upon, or under such lands.

Sec. 13. CULTURAL RESOURCES.

(a) Before the approval of a mining plan, the authorized officer may require a survey of all or part of the leased land to provide an inventory of any historical, cultural, and archaeological values. The survey shall be conducted by a qualified professional archaeologist, approved by the authorized officer, and a report of the survey shall be submitted to the authorized officer. The approval of an exploration or mining plan or the continuation of lease operations may be conditioned on the approval of the survey report and the approval of measures to protect the historical, cultural, and archaeological values. The cost of any survey or measures to protect such values discovered as a result of the survey shall be borne by the lessee and items and features of historical, cultural, or archaeological value shall remain under the jurisdiction of the United States.

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(b) If any items or features of historical, cultural or archaeological value are discovered during lease operations, the lessee shall immediately notify the Mining Supervisor and shall not disturb such items or features until the Mining Supervisor issues instructions. If the lessee is ordered to take measures to protect any items or features of historical, cultural, or archaeological value discovered during lease operations, the cost of the measures shall be borne by the lessor and such items and features shall remain under the jurisdiction of the United States.

Sec. 14. AUTHORIZATION OF OTHER USES AND DISPOSITION OF LEASED LANDS.

(a) The lessor reserves the right to authorize other uses of the leased lands by regulation or by issuing, in addition to this lease, leases, licenses, permits, easements or rights-of-way, including leases for the development of minerals other than coal under the Act. The lessor may authorize any other uses of the leased lands that do not unreasonably interfere with the exploration and mining operations of the lessee, and the lessee shall make all reasonable efforts to avoid interference with such authorized uses.

(b) The lessor reserves the right (i) to sell or otherwise dispose of the surface of the leased lands under existing law or laws hereafter enacted insofar as said surface is not necessary for the use of the lessee in the extraction and removal of the coal therein, or (ii) to dispose of any resource in such lands if such disposal will not unreasonably interfere with the exploration and mining operations of the lessee.

(c) If the leased lands have been or shall hereafter be disposed of under laws reserving to the United States the deposits of coal therein, the lessee shall comply with all conditions as are or may hereafter be provided by the laws and regulations reserving such coal.

Sec. 15. EQUAL OPPORTUNITY CLAUSE. The lessee agrees that during the performance of this contract:

(a) The lessee will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.

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Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The lessee agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the lessor setting forth the provisions of this Equal Opportunity Clause.

(b) The lessee will, in all solicitations or advertisements for employees placed by or on behalf of the lessee, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(c) The lessee will send to each labor union or representative of workers with which the lessee has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the lessor, advising the labor union or workers' representative of the lessee's commitments under this Equal Opportunity Clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The lessee will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, as amended, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the Secretary of the Interior and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the lessee's noncompliance with the Equal Opportunity Clause of this lease or with any of said rules, regulations, or orders, this lease may be cancelled, terminated, or suspended in whole or in part and the lessee may be declared ineligible for further Federal Government contracts or leases in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, as amended, and such

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other sanctions as may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, as amended, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The lessee will include the provisions of subsections (a) through (g) of this section in every contract, subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, as amended, so that such provisions will be binding upon each contractor, subcontractor, or subcontract, or purchase order as the Secretary of Labor may direct as a means of enforcing such provisions including sanctions for noncompliance; however, in the event the lessee becomes involved in, or is threatened with, litigation with a contractor, subcontractor or vendor as a result of such direction by the Secretary of Labor, the lessee may request the lessor to enter into such litigation to protect the interests of the lessor.

Sec. 16. CERTIFICATION OF NONSEGREGATED FACILITIES. By entering into this lease, the lessee certifies, as specified in 41 CFR § 60.18, that he does not and will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not and will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. As used in this certification, the term "segregated facilities" means, but is not limited to, any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The lessee further agrees that he will obtain identical certifications from prospective contractors and subcontractors unless they are exempt under 41 CFR § 60.15.

Sec. 17. EMPLOYMENT PRACTICES. The lessee shall pay all wages due persons employed on the leased lands at least twice each month in lawful money of the

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United States. The lessee shall grant all miners and other employees complete freedom to purchase goods and services of their own choice. The lessee shall restrict the workday to not more than 8 hours in any one day for underground workers, except in cases of emergency. The lessee shall employ no person under the age of 16 years in any mine below the surface. If the laws of the State in which the mine is situated prohibit the employment, in a mine below the surface, of persons of an age greater than 16 years, the lessee shall comply with those laws.

Sec. 18. MONOPOLY AND FAIR PRACTICES. The lessor reserves full authority to promulgate and enforce orders and regulations under the provisions of sections 30 and 32 of the Act (30 U.S.C. §§ 187 and 189) necessary to insure that any sale of the production from the leased lands to the United States or to the public is at reasonable prices, to prevent monopoly, and to safeguard the public welfare, and such regulations shall upon promulgation be binding upon the lessee.

Sec. 19. ASSIGNMENT. This lease may be assigned, upon approval of the authorized officer, in accordance with the provisions of 43 CFR Subpart 3506. An assignment will become effective on the first day of the month following approval by the authorized officer or, if the assignee requests, the first day of the month of the approval.

Sec. 20. UNLAWFUL INTEREST. No member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, either before or after he has qualified and during his continuance in office, and no officer, or employee of the Department of the Interior, (except as provided in 43 CFR 7.4(a)(3)), shall hold any share or part in this lease or derive any benefit therefrom. The provisions of section 3741 of the Revised Statutes as amended, 41 U.S.C. § 22, and the Act of June 25, 1948, 62 Stat. 702 as amended, 18 U.S.C. §§ 431-433, relating to contracts, shall form a part of this lease insofar as they may be applicable.

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Sec. 21. RELINQUISHMENT OF LEASE. The lessee may file a request to relinquish all or any legal subdivision of this lease. The request shall be filed in duplicate with the authorized officer. The authorized officer shall approve the relinquishment if he determines that the lessee has complied with the requirements of the lease, the exploration and mining plans, the regulations and the Act. Upon approval, the relinquishment shall be effective as of the date it is filed, subject to the continued obligation of the lessee and his surety to pay all accrued rentals and royalties and to comply with all other requirements of the lease, the regulations, the exploration and mining plans, the regulations and the Act.

Sec. 22. NONCOMPLIANCE. Any failure to comply with the conditions of this lease, the exploration and mining plans, the regulations or the Act shall be dealt with in accordance with the procedures set forth in the regulations.

Sec. 23. WAIVER OF CONDITIONS. The lessor reserves the right to waive any breach of the conditions contained in this lease, except the breach of such conditions as are required by the Act, but any such waiver shall extend only to the particular breach so waived and shall not limit the rights of the lessor with respect to any future breach; nor shall the waiver of a particular breach prevent cancellation of this lease for any other cause, or for the same cause occurring at another time.

Sec. 24. READJUSTMENT OF TERMS AND CONDITIONS.

(a) The lessor may propose the reasonable readjustment of any conditions of this lease, including royalty rates, the next readjustment to be effective on January 4, 1995 and subsequent readjustments to be effective at ten year intervals thereafter. The lessor shall notify the lessee whether he intends to readjust conditions and, if he intends to readjust, the nature of the readjustments. If it is feasible, the lessor shall give such notice 120 days before the effective date of the readjustment. In any event, until the lessee has been notified either that the lease terms will be readjusted or that they will not be readjusted,

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the lessor reserves the right to require readjustment. Unless the lessee, within 30 days after receipt of such notice, files with the lessor an objection to the proposed readjusted conditions or relinquishes the lease as of the effective date of the readjustment, the lessee shall be deemed conclusively to have agreed to such conditions.

(b) If the lessee files objections to the proposed readjusted conditions with the lessor and agreement cannot be reached between the lessor and the lessee within a period of 60 days after the filing of the objection, the lease may be terminated by either party upon giving 30 days' notice to the other party; however, the lessor's right to terminate the lease shall be suspended by the lessee's filing of a notice of appeal pursuant to section 28 of this lease, and if the lessee is ultimately successful in his appeal, the lease shall continue without the change in the provisions, the imposition of which, the lessee appealed. If the lessee is unsuccessful in his appeal and, within 30 days of the decision on appeal notifies the lessor that he accepts the decision rendered upon such appeal, then the lease shall continue as amended by the decision.

(c) If the lessee files objections to the proposed readjusted conditions, the existing conditions, except those concerning royalties, shall remain in effect until there has been an agreement between the lessor and the lessee on the new conditions to be incorporated in the lease, or until the lessee has exhausted his rights of appeal under section 28 of this lease, or until the lease is terminated; however, the readjusted royalty provisions shall be effective until there is either agreement between the lessor and the lessee or until the lease is terminated. If the readjusted royalty provisions are subsequently rescinded or amended, the lessee shall be permitted to credit any excess royalty payments against royalties subsequently due to the lessor.

Sec. 25. DELIVERY OF PREMISES. Upon termination of this lease for any reason, or relinquishment of a part of this lease, the lessee shall deliver to the lessor in good order and condition all or the appropriate part of

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leased lands. Delivery of the leased lands shall include underground timbering and such other supports and structures as are necessary for the preservation of the mine or deposit, and shall be in accordance with all other applicable provisions of the regulations for the completion of operations and abandonment.

Sec. 26. PROPRIETARY INFORMATION. Geological and geophysical data and information, including maps, trade secrets, and commercial and financial information which the lessor obtains from the lessee shall be treated in accordance with 43 CFR Part 2.

Sec. 27. LESSEE'S LIABILITY TO LESSOR.

(a) The lessee shall be liable to the United States for any damage suffered by the United States in any way arising from or connected with the lessee's activities and operations under this lease, except where damage is caused by employees of the United States acting within the scope of their authority.

(b) The lessee shall indemnify and hold harmless the United States from any and all claims arising from or connected with the lessee's activities and operations under this lease.

(c) In any case where liability without fault is imposed on the lessee pursuant to this section, and the damages involved were caused by the action of a third party, the rules of subrogation shall apply in accordance with the law of the jurisdiction where the damages occurred.

Sec. 28. APPEALS. The lessee shall have the right to appeal (a) under 43 CFR 3000.4 from an action or decision of any official of BLM (b) under 30 CFR Part 290 from an action, order, or decision of any official of the Geological Survey, or (c) under the applicable regulation from any action or decision of any other official of the Department of the Interior arising in connection with this lease, including any action or decision pursuant to section 24 of this lease with respect to the readjustment of conditions.

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Sec. 29. SPECIAL STIPULATIONS.

Definition

The Area Mining Supervisor shall mean the authorized representative of the U.S. Geological Survey. The authorized officer of the surface management agency shall mean the District Manager, Moab District Office, Bureau of Land Management, 125 West 2nd South, P. O. Box 970, Moab, Utah 84532.

Lease Stipulations

General

1. All work or development on the lease area will be authorized only under an approved plan, submitted in accordance with 30 CFR Subpart 211 and 43 CFR subpart 3041. Final approval of plans and orders for subsequent remedial actions are the responsibility of the area mining supervisor. Prior to approval of any plan, the area mining supervisor shall consult with the authorized officer of the surface management agency as to the adequacy of the surface use, environmental protection and reclamation aspects of the plans.

2. Prior to any deviation from the approved mining plan, the lessee must file an amended mining plan which must be approved in advance. Any proposed action of the lessee that requires the approval of the area mining supervisor will be subject to additional stipulations, conditions of approval or modification of proposed plans as deemed necessary by the authorized officer of the surface management agency to protect the surface resources, and environment including the restoration and reclamation of the leased lands. If subsequent activities of the lessee are found to create irreparable or extensive damages to the leased lands, they may be suspended until either the plan is modified, mitigating measures are provided, or alternatives to the plan are agreed upon.

3. The lessee shall ensure that full compliance with the stipulations is made by all persons acting in his behalf, including operators, and by

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all his employees, agents, contractors, subcontractors and employees of contractors or subcontractors. Copies of the stipulations attached to the lease will be available at exploration and operating sites and will be made known to all on-the-ground construction, exploration, and operating personnel.

Surface Uses and Facilities

1. The location of all development and operational facilities shall be presented on an approved mining and reclamation plan in accordance with 30 CFR Subpart 211 and 43 CFR subpart 3041. The lessee may be required to relocate such facilities to prevent unnecessary disruption of surface resources and in consideration of rehabilitation potential, public health and safety. Approved surface facilities shall not be used for purposes other than those stated and approved in the mining and reclamation plan. The lessee shall not permit other uses to emanate or evolve from such facilities unless specifically approved by the mining supervisor.

2. All support facilities structures, equipment and similar developments will be removed from the lease area within one year after the final termination of use of such facilities. Areas occupied by such facilities will be rehabilitated in accordance with an approved reclamation plan to a productive land use or to a state approximating former conditions as specified by the area mining supervisor in consultation with the authorized officer.

3. All operations will be conducted to protect the aesthetic and scenic values. Consideration will be given site selections to reduce adverse visual impacts. Where alternative sites are available, the alternative involving the least damage to the scenery and other resources shall be selected if it is comparable from a technical standpoint with the proposed development site. Permanent structures and facilities will be designed to be architecturally compatible with the surrounding landscape where possible and will harmonize with the natural landscape, and screening techniques will be employed to reduce scenic impacts. The

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use of a qualified landscape architect may be required by the area mining supervisor in consultation with the authorized officer to design and achieve a final landscape compatible with the natural surroundings. Alteration or removal of the vegetative cover, specifically trees or shrubs, is to be accomplished to achieve the effect of natural-occurring vegetative openings. Construction practices requiring the alteration or modification of the existing topography will be accomplished in such a manner that the modified landscape will be compatible with and graded into the adjoining land form. The creation of unusual, objectionable, or unnatural land forms and vegetative landscape features will be avoided. Where unavoidable, objectionable features shall be reclaimed upon termination of use of the lease area as directed by the area mining supervisor in consultation with the authorized officer.

4. The lessee will be held responsible for compliance with state and federal laws pertaining to protection of cultural and paleontological values. Prior to entry upon the land to conduct surface disturbance activities, a complete inventory of all cultural and paleontological values of the area to be disturbed or occupied may be required by the authorized officer, surface management agency, or area mining supervisor. The survey will be completed by a qualified professional approved by the authorized officer and area mining supervisor. An acceptable report of the results and information of the survey will be provided to the authorized officer and area mining supervisor. If any cultural values are observed during operations, they will be left intact and the authorized officer surface management agency notified. The lessee will be required to take such measures as deemed necessary to preserve or avoid destruction of antiquities. This may include an intensive survey and salvage of artifacts, relocation of proposed facilities or other protective measures deemed necessary by the authorized officer to facilitate protection. All costs of the survey and salvage of artifacts will be borne by the lessee and all objects of antiquity salvaged will remain under the jurisdiction of the U.S. Government.

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Roads

1. No roads shall be used or constructed for the exploration or operation of the lease that are not contained in the approved exploration or mining plan. The location and route of each road is subject to the approval of the area mining supervisor in consultation with the authorized officer. The lessee may be required to use alternate routes if the proposed road location is excessively disruptive to the surface resources, difficult to maintain, or represents a safety hazard.

2. When appropriate, the lessee will make application to the authorized officer of the surface management agency for a right-of-way permit pursuant to 43 CFR 2811, across national resource lands and roads for the purpose of providing access to the lease area.

3. Activities employing wheeled or tracked vehicles will be conducted to minimize surface damages. Drill pads and temporary access roads used for exploration or other purposes may not require construction to provide adequate access or facilities. The area mining supervisor in consultation with the authorized officer shall determine when the construction of such roads and areas is necessary, construction standards to be employed, and final disposition of such roads or areas.

4. The area mining supervisor may require the use of existing access roads or trails to the extent possible for the exploration, development or operation of the lease.

5. All access, haul and other support roads and trails shall be constructed and maintained in such a condition so as to control and minimize channeling and other erosion problems. All roads shall be constructed to standards adequate to support the anticipated use to be made of such roads. The lessee shall state specifically within the approved mining and/or exploration plan all construction methods, standards, and specifications including support facilities such as bridges, culverts

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and cattle guards, etc., to be employed in the construction or use of any road or trail. The area mining supervisor in consultation with the authorized officer may approve or set such standards that are deemed necessary to minimize disruption of the surface resources and/or maintain the reclamation potential.

6. The lessee may be required at any time during the life of the lease to upgrade, modify or abandon any road constructed or used for the exploration or operation of the lease, if the road does not adequately support the present use, proves to be excessively disruptive to the surface resources, represents a safety hazard or is no longer required for the operation or exploration of the lease.

7. Maintenance of all roads used in the exploration and operation of the lease shall be the responsibility of the lessee. The area mining supervisor in consultation with the authorized officer may approve or set such standards that are deemed necessary to minimize disruption of the surface resources and/or maintain the reclamation potential. The area mining supervisor may require a regular maintenance program or upgrading of existing roads such as, but not limited to, ditching, draining, culverts, graveling, or capping of the road bed.

8. The roads will be available for any other public use, unless restricted in writing by the area mining supervisor.

9. Final disposition and conditions of abandonment of all roads shall be approved by the area mining supervisor with the concurrence of the authorized officer. The lessee may be required to employ such practices as deemed necessary to effect proper abandonment of all roads used in the exploration and operation of the lease.

Air and Water

1. All lease operations shall be conducted so as to comply with the Federal Water Pollution Control Act (33 U.S.C. 1151-1175) and the Clean Air Act (42 U.S.C. 1857 and following).

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2. Water quality shall be maintained at present levels or to standards which meet or exceed state and federal requirements, whichever is greater. The lessee shall not permit toxic chemicals, metals, pesticide, untreated human and animal waste, thermal pollution, or permit excessive sedimentation and floating debris to enter and cause degradation of water quality. Pollution, channeling or any erosion or degradation of lands, water quality, streams, lakes, or domestic livestock resource will not be allowed.

3. Solid and liquid wastes containing either injurious, deleterious materials or other potential contaminants shall be disposed of in a manner that will not cause degradation of surface or ground water. The lessee shall take such measures and precautions deemed necessary by the area mining supervisor to assure the safe containment and disposal of such materials.

4. Stockpiles and disposal ~~sites~~ shall be selected and prepared so as to avoid downward percolation of pollutants into aquifers and prevent surface runoff from disposal sites from entering the drainage system.

5. All surface damages which would result in accelerated soil movement and potential air and water degradation shall be corrected. Those areas not required for the continued operation of the lease shall be reclaimed upon termination of the construction activities or the surface use of all or any part of a site or lease area. The lessee shall employ such practices as deemed necessary by the area mining supervisor to prevent the loss of soil and the sedimentation of drainages.

6. Disturbance of drainage ways and high erosion hazard areas shall be avoided. Surface construction or land disturbance activities shall not occur within any floodplain or channel of any water course except at drainage crossings designated in an approved plan of operation. Drainages shall not be blocked nor shall the lessee cause, through his operations, the siltation or accumulation of debris in the drainage channels. All damages to drainages resulting from the operations of the lessee shall be corrected to the satisfaction of the area mining supervisor.

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7. The lessee will comply with any applicable county, state and federal laws and regulations concerning the use of poisonous substances, including insecticides, herbicides, fungicides, rodenticides, and other similar substances. Prior to the use of such substances, the lessee will obtain from the area mining supervisor approval of a written plan for such use. The plan shall state the type and quantity of material to be used, the animal or plant to be controlled, the method of application and such other information as may be required. All use of such substances shall be in accordance with the approved plan. If the use of a chemical is prohibited by the Secretary of the Interior, it shall not be used. If use of a chemical is limited by the Secretary of the Interior, it shall be used only in accordance with that limitation.

8. The lessee shall conduct his mining operations in such a manner so as not to affect the surface water flow or the availability of such waters for surface use. Loss of surface water due to the lessee's operations shall be prevented or the situation corrected to the satisfaction of the area mining supervisor in consultation of the authorized officer.

9. Casual accumulations of water on waste piles shall be avoided, and, where necessary, surface waters shall be directed around the piles.

10. If the fill and rip rap structure constructed for use as a parking and operations area within Soldier Canyon causes alteration and excessive erosion of the stream channel, contributes to the degradation of water quality, or proves inadequate to prevent or control erosion of the fill material, the lessee will be required to reconstruct the structure in such a manner and incorporate such protective measures as may be required by the area mining supervisor and authorized officer to prevent degradation of water quality.

11. The air quality will be maintained at an acceptable level that does not degrade the aesthetics, cause environmental deterioration or create

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health and safety hazards. The lessee will be required to employ such practices or to follow such procedures as determined necessary to maintain air quality standards and control all potential air pollutants resulting from the operation of the lease.

12. The lessee shall provide the necessary dust control measures to suppress air pollutants resulting from the construction or operation of roads, work areas, processing operations and other actions or functions that could cause degradation of air quality. Dust from unpaved roads, parking areas, unreclaimed waste piles, coal stockpiles, and other similar potential sources of dust shall be controlled by either watering or other methods approved by the area mining supervisor.

13. Burning is permissible only by prior written consent of the area mining supervisor in consultation with the authorized officer, and in compliance with state and federal air quality standards and laws. All vegetative and other material cut, uprotted or otherwise accumulated will be disposed of as specified by the area mining supervisor.

Noise

1. In the absence of specific noise pollution standards, the lessee is responsible for keeping noise at or below levels safe and acceptable for humans and wildlife. Noise control shall be considered an integral part of any activities under the lease. All vehicles, heavy equipment and machinery used on the lease area shall be properly equipped with an adequate muffler system. An acceptable noise baffling system shall be incorporated into the operation of all airway fans. Natural topography and vegetation may be used if adequate noise abatement can be achieved.

Sanitation

1. All garbage and foreign debris will be removed to an authorized dump site at least weekly or as otherwise specified. Sanitary facilities

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for all solid and liquid waste disposal will meet all state, federal, and local codes and regulations. Disposal of all vegetative and other material cut, uprooted or otherwise accumulated will be disposed of as specified by the area mining supervisor. All areas of use will be kept clean and free of debris. The lease area shall be maintained in a neat appearing condition at all times, consistent with the operation of the lease.

2. All access routes and areas of use will be kept clean of all garbage and foreign debris.

Hazards

1. All hazardous areas including those areas used for the containment of hazardous materials shall be adequately fenced, posted, covered or other protective measures installed to minimize hazards and prevent access to humans, livestock, waterfowl and other wildlife to the satisfaction of the area mining supervisor.

2. Proper precautions will be taken at all times to prevent and suppress fires. The lessee will be held responsible for suppression and rehabilitation costs for any fires on the national resource lands caused by the negligence of his operators, employees, contractors, or sub-contractors. Fire lines and clearing shall be built and maintained in the vicinity of stationary machinery, portals, vents, and shafts or other facilities where fire could originate. All internal combustion engines shall be equipped with properly functioning spark arresters or mufflers. No refuse burning will be permitted on the lease area. The lessee shall maintain suitable fire fighting hand tools at each work site in sufficient numbers to equip all workmen. Tools shall be maintained solely for the purpose of fire fighting.

3. The area mining supervisor upon the request of the authorized officer may establish safe operating speeds and standards for Soldier Canyon road to minimize hazards for livestock and motorists from mine operations.

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4. Mine openings and associated electrical, loading, and other operational facilities will be fenced and/or posted with warning signs as determined necessary by the area mining supervisor in consultation with the authorized officer.

Reclamation

1. Upon cessation of the use of all or any part of the lease surface for construction, exploration or operation, including all or part of waste piles, roads, storage yards, etc., all other disturbed areas will be reclaimed to a productive land use or to a state approximating former condition as determined by the authorized officer of the surface management agency as directed through the area mining supervisor.

2. The area mining supervisor in consultation with the authorized officer shall approve or may prescribe such construction and rehabilitation methods and practices as determined to achieve desired reclamation results. Reclamation is critically site specific; therefore, such prescription as issued by the area mining supervisor in consultation with the authorized officer may include determination of the final topography, drainage system, revegetation methods, seed mixtures, soil treatments and amendments, stockpiling or topsoil, segregation of spoil materials, surface manipulations, waste disposal, ripping of compacting soils, and other practices deemed necessary to rehabilitate disturbed areas.

3. Final grading of backfill areas, waste piles and other unconsolidated materials shall be so performed so as to present a surface susceptible to revegetation and to a desired land form.

4. The entire topsoil structure shall be stripped from all areas where soil disturbance is necessary and stockpiled in such a manner and place that will allow easy restoration to the disturbed area. The topsoil will be returned to all disturbed areas, including road cuts and fills that are not required for the continued basic operation of the lease.

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5. Except for soild rock faces, and excavations used for impoundment of water, those areas disturbed by operations conducted by the lessee shall be graded to a natural contour and revegetated when their use is no longer required by the operator. Final grading of backfill areas, waste piles, and other unconsolidated materials shall be so performed so as to present a surface susceptible to revegetation and to a desired land form. All areas shall be seeded with a seed mixture containing at a minimum six species of grasses, forbs, and shrubs native to the lease area. The authorized officer will specify the seed mixture, method and rate of application for specific sites. Seeding shall be done during the first fall upon final termination of use. Seeding shall be repeated until a satisfactory stand of vegetation is obtained that is acceptable to the authorized officer.

Miscellaneous

1. All existing improvements including but not limited to fences, gates, cattle guards, roads, trails, pipelines, bridges, water developments, campgrounds or other improvements placed on the national resource lands shall not be disturbed unless authorized by the surface management agency. Where disturbance or use is made of such facilities, they shall be left in their original or better condition. Damaged or destroyed improvements shall be replaced, restored or appropriately compensated for at the discretion of the authorized officer of the surface management agency.

2. The lease area shall be available for other public uses including but not limited to livestock grazing, hunting, camping, hiking, and picnicking unless specifically prohibited.

3. All survey monuments, witness corners, reference monuments and bearing trees must be protected against destruction, obliteration or damage. Any damaged or obliterated markers must be re-established at the lessee's expense, in accordance with accepted BLM survey practices

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as set forth in the Manual of Surveying Instructions. A complete record of the monumentation and the methods used in re-establishment will be furnished to the Chief, Branch of Cadastral Survey at the appropriate State Director's Office, BLM.

4. The lease area will be available for any other public use, unless restricted in writing by the authorized officer.

5. Drill holes and other excavations shall be conditioned at all times to prevent injury to persons, livestock, and wildlife, and will be permanently sealed or filled upon completion of explorations to the satisfaction of the area mining supervisor and in consultation with the authorized officer.

6. The clearing of timber, stumps, and snags will be kept to a minimum and due care will be used to avoid unnecessary scarring or removal of ground vegetative cover.

7. No explosives may be used without prior written consent of the area mining supervisor.

8. The lessee shall perform an adequate hydrologic study to secure baseline data concerning the surface and subsurface water occurring on or flowing through the lease area. The results of the study shall be furnished to the area mining supervisor prior to the approval of the mining plan. The study shall provide such data and information as considered necessary by the mining supervisor and authorized officer.

9. The lessee will be required to establish a surface subsidence monitoring system to measure the effects of the underground mining activities on the land surface. A satisfactory series of monitoring points shall be established on the lease area. The monitoring shall be conducted by a method and in a manner approved by the area mining supervisor. The results of the monitoring shall be reported periodically to the

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mining supervisor and authorized officer. The area mining supervisor may require the lessee to employ such measures and precautions deemed necessary including mining methods extent and manner of coal extraction to assure that neither damage to surface facilities loss of perennial streams occurs nor hazardous conditions are created.

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IN REPLY REFER TO

3400
(SL-051279
063188)
(U-066)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Moab District
Price River Resource Area
P. O. Drawer AB
Price, Utah 84501

FEB 28 1984

Mr. Chris Allen
Mining Engineer
Soldier Creek Coal Company
P. O. Box I
Price, UT 84501

Dear Mr. Allen:

Pursuant to your telephone request to Allen Vance of this office, a copy of the Authorization to Mine order and the application are enclosed.

If we can be of further help please let us know.

Sincerely yours,

Leon E. Berggren
Area Manager

Enclosures:
1-Copy of Authorization to Mine
2-Copy of Application for Authorization

RECEIVED
FEB 29 1984
SC3

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

MAR 30 '84

SL-051279-
063188

Office of the Area Mining Supervisor
Conservation Division
8426 Federal Building
125 South State Street
Salt Lake City, Utah, 84138

December 11, 1974

Mr. A. C. Powell
Vice President
California Portland Cement Company
800 Wilshire Boulevard
Los Angeles, California 90017

Dear Mr. Powell:

By a letter dated December 6, 1974, you requested permission to mine the limited amount of Federal coal in the following described tracts which lie between the south boundary of your coal lease SL-051279-063188 and the burned or oxidized coal outcrop.

T. 13 S., R. 11 E., SLB & M
sec. 13, SE¼NE¼

T. 13 S., R. 12 E., SLB & M
sec. 18, S½NW¼

Information in this office indicates there may be a small remnant of coal in the NE¼SE¼ sec. 13, T. 13 S., R. 11 E., SLB & M, that should also be recovered from the mine on your Federal leasehold.

The coal outcrop is along precipitous cliffs and the remaining coal in these tracts is accessible only through coal lease SL-051279-063188 and would probably be lost unless mined in the development of your leasehold.

Pursuant to the authority granted under 30 CFR 211.51(d), California Portland Cement Company is ordered to mine any merchantable coal in the tracts requested and the NE¼SE¼ sec. 13 noted above, so that it will not be lost.

Coal mined under this order will be reported under coal lease SL-051279-063188. The royalty and other terms will be as required in coal lease SL-051279-063188 at the time the coal is mined.

Sincerely yours,

Jackson W. Moffitt
Area Mining Supervisor

cc: State Director, BLM
Reston
JWMoffitt:fo

MAR 30 '84

THERALD N. JENSEN
JAMES T. JENSEN

JENSEN LAW OFFICES
190 NORTH CARBON AVENUE
PRICE, UTAH 84501

(801) 637-1542

DECEMBER 6
1974

GEOLOGICAL SURVEY
DEC 6 - 1974
SALT LAKE CITY, UTAH
MINING BRANCH

MR. JACKSON W. MOFFITT
AREA MINING SUPERVISOR
BRANCH OF MINING OPERATIONS
U. S. GEOLOGICAL SURVEY
ROOM 8426
FEDERAL BUILDING
125 SOUTH STATE STREET
SALT LAKE CITY, UTAH

RE: CALIFORNIA PORTLAND CEMENT COMPANY

CALIFORNIA PORTLAND CEMENT COMPANY, AS YOUR RECORDS WILL DISCLOSE, IS THE LESSEE OF FEDERAL COAL LEASE NO. SL-051279 - 063188. APPLICATION IS HEREBY MADE FOR THE RIGHT TO MINE THE COAL LYING WITHIN THE CONTIGUOUS NARROW STRIP OF LAND PARTICULARLY DESCRIBED AS FOLLOWS:

TOWNSHIP 13 SOUTH, RANGE 11 EAST, SLB & M:

SECTION 13: SE¼NE¼

TOWNSHIP 13 SOUTH, RANGE 12 EAST, SLB & M.

SECTION 18: S½NW¼

THIS APPLICATION IS MADE PURSUANT TO THE PROVISIONS OF SECTION 54 (D) AS IT IS SET FORTH IN "OPERATING REGULATIONS FOR COAL MINES" AND AS WE UNDERSTAND, PURSUANT TO THE PROVISIONS OF THE ACT OF CONGRESS APPROVED FEBRUARY 25, 1920 RELEVANT THERETO.

THE COAL WHICH WE SEEK TO MINE IS SITUATED IN AN OTHERWISE INACCESSIBLE ESCARPMENT OF THE BOOK CLIFFS AND THE COAL CAN ONLY BE ECONOMICALLY APPROACHED AND EXTRACTED FROM OUR EXISTING FEDERAL COAL LEASE. WE BELIEVE THAT THIS SMALL, ISOLATED STRIP OF COAL WILL NOT EXCEED IN WIDTH SIXTEEN HUNDRED FEET AT THE WIDEST POINT AND WE BELIEVE IT IS TOTHE BEST INTEREST OF THE UNITED STATES GOVERNMENT, OURSELVES AND THE PUBLIC THAT THIS COAL BE MINED IN ACCORDANCE WITH THIS APPLICATION.

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THERALD N. JENSEN
ATTORNEY AT LAW

ECEMBER 6, 1974

MR. JACKSON W. MOFFITT
PAGE TWO

IF THERE IS ANYTHING FURTHER REQUIRED IN CONNECTION WITH THIS APPLICATION, WILL YOU PLEASE CONFER WITH THE UNDERSIGNED OR WITH OUR LOCAL PRICE,UTAH ATTORNEY, MR. THERALD N. JENSEN.

A. C. POWELL, VICE PRESIDENT
CALIFORNIA PORTLAND CEMENT COMPANY
800 WILSHIRE BOULEVARD
LOS ANGELES, CALIFORNIA 90017

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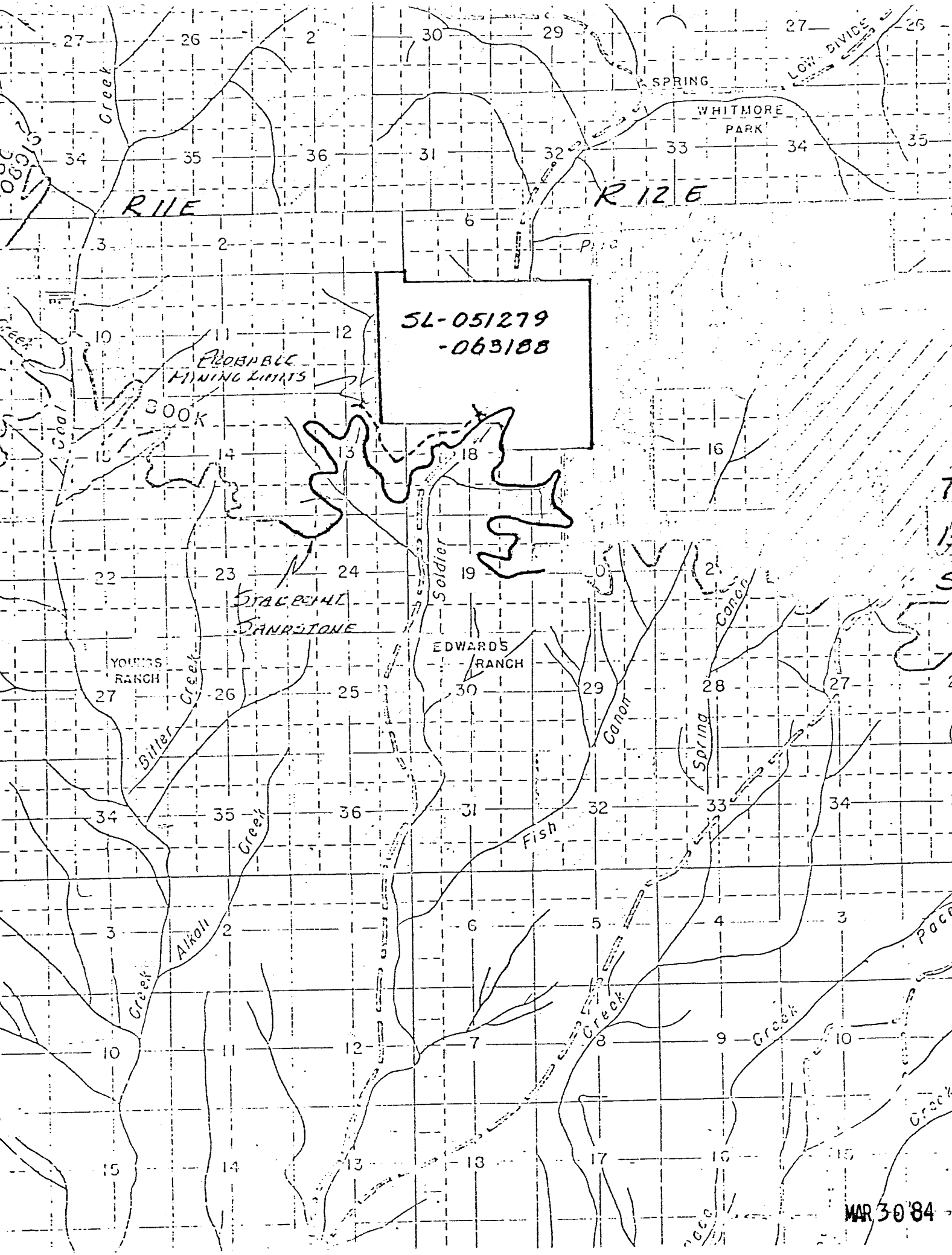
SL-051279
-063188
PROBABLE MINING LIMITS
BOOK
STACEPOLE SANDSTONE
YOUNGS RANCH
EDWARDS RANCH
WHITMORE PARK
SPRING
LOW DIVIDE
R11E
R12E
Coal Creek
Soldier Canon
Canon Spring
Fish Creek
Alkali Creek
Bitter Creek
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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Serial Number

U-50722

COAL LEASE

This lease, is entered into on SEP 16 1982, by the United States of America, t lessor, through the Bureau of Land Management, and

Soldier Creek Coal Company
P. O. Box 1
Price, Utah 84501

, the les

and shall become effective on SEP 1 1982, (effective date).

Sec. 1. STATUTES AND REGULATIONS--This lease is issued pursuant and subject to the te and provisions of the Mineral Leasing Act of February 25, 1920, 41 Stat. 437, as amend 30 U.S.C. Sections 181-263, hereafter referred to as the Act; and of the Surface Minin Control and Reclamation Act of 1977, 30 U.S.C. Section 1201, et seq., the Federal Coal Leasing Amendments Act of 1976, as amended, 90 Stat. 1083-1092, and, in the case of ac quired lands, the Mineral Leasing Act for Acquired Lands of September 7, 1947, as amen 30 U.S.C. 351-359, et seq. This lease is also subject to all regulations of the Secre of the Interior (including but not limited to, 30 CFR Part 211 and Chapter VII and 43 Group 3400), and to all regulations of the Secretary of Energy promulgated pursuant to Section 302 of the Department of Energy Organization Act of 1977, 42 U.S.C. Section 71 which are now in force or (except as expressly limited herein) hereafter in force, and all of such regulations are made a part hereof.

WITNESSETH:

Sec. 2. RIGHTS OF LESSEE--The lessor, in consideration of any bonus paid (or to be pa if deferred), rents and royalties and other conditions hereinafter set forth, hereby grants and leases to the lessee the exclusive right and privilege to mine and dispose of all coal in

T. 13 S., R. 11 E., SLM, Utah
Sec. 12, E½W½, W½E½;
Sec. 13, NW¼NE¼, NE¼NW¼.

containing 400.00 acres, more or less, and subject to the conditions, limitatio and prohibitions provided in this lease and in applicable acts and regulations, the ri to construct all works, buildings, structures, equipment, and appliances which may be necessary and convenient for the mining and preparation of the coal for market, and, subject to the conditions herein provided, to use so much of the surface as may reaso ably be required in the exercise of the rights and privileges herein granted for a per of 20 years and so long thereafter as the condition of continued operation is met.

Sec. 3. DILIGENT DEVELOPMENT AND CONTINUED OPERATION--The lessee shall engage in the igent development of the coal resources subject to the lease. After diligent develop is achieved, the lessee shall maintain continued operation of the mine or mines on the leased lands. The terms diligent development and continued operation are defined in t applicable regulations in Titles 10, 30, and 43 of the Code of Federal Regulations.

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Sec. 4. BOND--The lessee shall file with the appropriate Bureau of Land Management office a lease bond in the amount of $ 300,000.00 , for the use and benefit of the United States, to insure payment of deferred bonus payments, rentals and royalties and to insure compliance with all other items of this lease, the regulations and the Act (except for reclamation within the area covered by a surface mining permit issued under the permanent regulatory program by the regulatory authority) and, if appropriate, for the protection of the interests of the surface owners on the leased lands. An increase in the amount of the lease bond may be required by the lessor at any time during the life of the lease to reflect changed conditions.

Sec. 5. RENTAL--An annual rental of $3.00 for each acre or fraction thereof shall be paid in advance on or before the anniversary date of this lease. This section shall not be subject to revision except in the course of lease readjustment.

Sec. 6. PRODUCTION ROYALTY--The lessee shall pay a production royalty of 12½ percent of the value of coal produced by strip or auger mining methods and 8 percent of the value of coal produced by underground mining methods. The value of coal shall be determined as set forth in 30 CFR 211. Production royalties paid for a calendar month shall be reduced by the amount of any advance royalties paid under this lease to the extent that such advance royalties have not been used to reduce production royalties in a previous month. However, production royalties payable after the 20th year of the lease shall not be reduced by advance royalties paid during the first 20 years of the lease. Production royalties shall be payable the final day of the month succeeding the calendar month in which the coal is sold, unless otherwise specified in 30 CFR 211. The royalty rates provided in this section shall not be subject to revision except in the course of lease readjustment.

Sec. 7. ADVANCE ROYALTY--Upon request by the lessee, the District Mining Supervisor may accept, for a total of not more than 10 years, the payment of advance royalties in lieu of the condition of continued operation consistent with the regulations in 43 CFR 3473 and 30 CFR 211. The advance royalty shall be based on a percent of the value of a minimum number of tons which shall be determined in the manner established by the regulations in 43 CFR 3473.

Sec. 8. METHOD OF PAYMENTS--The lessee shall make rental payments to the appropriate Bureau of Land Management (BLM) office until production royalties become payable. Thereafter, all rentals, production royalties and advance royalties shall be paid to the appropriate office of the United States Geological Survey.

Sec. 9. EXPLORATION PLAN--The lessee shall not commence any exploration, except casual use, on the leased lands without an approved exploration plan. Exploration plans for leased lands covered by an approved mining permit shall be submitted to the Regional Director of the Office of Surface Mining in accordance with the regulations in 30 CFR Chapter VII. Exploration plans for leased lands not covered by an approved mining permit shall be submitted to the District Mining Supervisor in accordance with the regulations in 30 CFR 211.

Sec. 10. MINING PLAN--In accordance with the regulations in 30 CFR 211 and Chapter VII, the lessee shall submit a mining and reclamation plan not more than three years after the effective date of this lease. Mining operations shall not commence until after the mining and reclamation plan is approved. The mining and reclamation shall be conducted in accordance with the approved mining and reclamation plan. Exploration activities which were not included in the approved mining and reclamation plan require submittal of exploration plans in accordance with Section 9 of this lease.

Sec. 11. LOGICAL MINING UNIT (LMU)--This lease is automatically considered to be an LMU. This LMU may be enlarged, adjusted or diminished in accordance with the applicable regulations in Titles 10, 30, and 43 of the Code of Federal Regulations. The mining plan for the LMU shall require that the reserves of the LMU will be mined within a period of 40 years in accordance with 30 CFR 211 and 43 CFR 3400.0-5. The definition of LMU and LMU reserves and other applicable conditions are set forth in the regulations in 43 CFR 3400.0-5 and 3475, 30 CFR 211, and Title 10 of the Code of Federal Regulations.

Sec. 12. OPERATIONS ON LEASED LANDS--(a) In accordance with conditions of this lease, the exploration and mining and reclamation plans, the permit issued pursuant to 30 CFR Chapter VII, and all applicable acts and regulations, the lessee shall exercise reasonable diligence, skill, and care in all operations on leased lands.

(b) The lessee shall minimize to the maximum extent possible wasting of the coal deposits and other mineral and nonmineral resources, including but not limited to, surface resources which may be found in, upon, or under such lands.

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Sec. 13. SPECIAL STATUTES--The lessee shall comply with the provisions of the Federal Water Pollution Control Act, 33 U.S.C. 1151-1175, and the Clean Air Act, 42 U.S.C. 7401, et seq.

Sec. 14. AUTHORIZATION OF OTHER USES AND DISPOSITION OF LEASED LANDS--(a) The lessor reserves the right to authorize other uses of the leased lands by regulation or by issuing, in addition to this lease, leases, licenses, permits, easements, or rights-of-way, including leases for the development of minerals other than coal under the Act. The lessor may authorize any other uses of the leased lands that do not unreasonably interfere with the exploration and mining operations of the lessee, and the lessee shall make all reasonable efforts to avoid interference with such authorized uses.

(b) The lessor reserves the right: (i) to sell or otherwise dispose of the surface of the leased lands under existing law or laws hereafter enacted insofar as said surface is not necessary for the use of the lessee in the extraction and removal of the coal therein, or (ii) to dispose of any resource in such lands if such disposal will not unreasonably interfere with the exploration and mining operations of the lessee.

(c) If the leased lands have been or shall hereafter be disposed of under laws reserving to the United States the deposits of coal therein, the lessee shall comply with all conditions as are or may hereafter be provided by the laws and regulations reserving such coal.

Sec. 15. EQUAL OPPORTUNITY CLAUSE--The lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and the rules, regulations and relevant orders of the Secretary of Labor.

Sec. 16. CERTIFICATION OF NONSEGREGATED FACILITIES--By entering into this lease, the lessee certifies that he does not and will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not and will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The lessee agrees that a breach of this certification is a violation of the Equal Opportunity clause of this lease. As used in this certification, the term "segregated facilities" means, but is not limited to, any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. Lessee further agrees that (except where lessee s obtained identical certifications from proposed contractors and subcontractors for ecific time periods) lessee will obtain identical certifications from proposed contractors and subcontractors prior to award of contracts or subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause; that lessee will retain such certifications in lessee's files; and that lessee will forward the following notice to such proposed contractors and subcontractors (except where proposed contractor or subcontractor has submitted identical certifications for specific time periods). Notice to prospective contractors and subcontractors of requirement for certification of nonsegregated facilities. A Certification of Nonsegregated Facilities, as required by the May 9, 1967 order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a contract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity clause. Certification may be submitted either for each contract and subcontract or for all contracts and subcontracts during a period (i.e., quarterly, semiannually, or annually).

Sec. 17. EMPLOYMENT PRACTICES--The lessee shall pay all wages due persons employed on the leased lands at least twice each month in lawful money of the United States. The lessee shall grant all miners and other employees complete freedom to purchase goods and service of their own choice. The lessee shall restrict the workday to not more than 8 hours in any one day for underground workers, except in case of emergency. The lessee shall employ no person under the age of 16 years in any mine below the surface. If the laws of the State in which the mine is situated prohibit the employment, in a mine below the surface, of persons of an age greater than 16 years, the lessee shall comply with those laws.

Sec. 18. MONOPOLY AND FAIR PRACTICES--The lessor reserves full authority to promulgate and enforce orders and regulations under the provisions of Sections 30 and 32 of the Act (30 U.S.C. Sections 187 and 189) necessary to insure that any sale of the production from the leased lands to the United States or to the public is at reasonable prices, to prevent monopoly, and to safeguard the public welfare, and such orders and regulations shall upon promulgation be binding upon the lessee.

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Sec. 19. TRANSFERS--

/x/ This lease may be transferred in whole or in part to any person, association or corporation qualified under 43 CFR 3472.1-1 to hold a lease.

/ / This lease may only be transferred in whole or in part to another public body, or to a person who will mine the coal on behalf of and for the use of the public body, or to a person for the limited purpose of creating a security interest in favor of a lender who agrees to be obligated to mine the coal on behalf of the public body. The transferee must be qualified under 43 CFR 3472.

/ / This lease may only be transferred in whole or in part to other small businessess qualifying under 13 CFR 121 and 43 CFR 3472.2-2(c).

Any transfer of this lease in whole or in part is subject to the procedures and requirements for approval in the relevant regulations in 43 CFR 3400. A transfer will become effective on the first day of the month following its approval by the authorized officer, or, if the transferee requests, the first day of the month of the approval.

Sec. 20. RELINQUISHMENT OF LEASE--The lessee may file a relinquishment of the entire lease, a legal subdivision or aliquot part thereof, but not less than 10 acres, or any bed of the coal deposits therein. The relinquishment shall be filed in triplicate with the authorized officer. Upon the determination by the authorized officer that the public interest shall not be impaired, that all accrued rentals and royalties have been paid and that all of the obligations of the lessee under the regulations and the lease terms have been met, the relinquishment shall be accepted effective the date filed.

Sec. 21. NONCOMPLIANCE--Any failure to comply with the conditions of this lease, the approved exploration and mining and reclamation plans, the regulations, or applicable acts, shall be dealt with in accordance with the procedures set forth in the regulations.

Sec. 22. WAIVER OF CONDITIONS--The lessor reserves the right to waive any breach of the conditions contained in this lease, except the breach of such conditions as are required by the Act, but any such waiver shall extend only to the particular breach so waived and shall not limit the rights of the lessor with respect to any future breach; nor shall the waiver of a particular breach prevent cancellation of this lease for any other cause, or for the same cause occurring at another time.

Sec. 23. READJUSTMENT OF TERMS AND CONDITIONS--(a) The lease is subject to readjustment on the 20th year after the effective date and on each 10th year thereafter. In order that the lease may be readjusted as close as possible to the dates when it becomes subject to readjustment, the lessor may propose the terms of readjustment of any conditions of this lease, including rental and royalty rates, before the 20th year after the effective date and before each 10-year interval thereafter. The authorized officer shall notify the lessee whether he intends to readjust the terms and conditions of the lease and, if he intends to readjust, the nature of the readjustments in accordance with the regulations in 43 CFR 3451. Unless the lessee, within 60 days after receipt of the proposed readjusted terms, files with the lessor an objection to the proposed readjusted conditions or relinquishes the lease as of the effective date of the readjustment, the lessee shall be deemed conclusively to have agreed to such conditions.

(b) If the lessee files objections to the proposed readjusted conditions, the existing conditions shall remain in effect until there has been an agreement between the lessor and the lessee on the new conditions to be incorporated in the lease, or until the lessee has exhausted his rights of appeal under Section 31 of this lease, or until the lease is relinquished, except that the authorized officer may provide in the notice of readjusted lease terms that the readjustment or any part thereof is effective pending the outcome of the appeal. If the readjusted royalty provisions are subsequently rescinded or amended, the lessee shall be permitted to credit any excess royalty payments against royalties subsequently due to the lessor.

Sec. 24. DELIVERY OF PREMISES--Upon termination of this lease for any reason, or relinquishment of a part of this lease, the lessee shall deliver to the lessor in good order and condition all or the appropriate part of leased lands. Delivery of the leased lands shall include underground timbering and such other supports and structures as are necessary for the preservation of the mine or deposit, and shall be in accordance with all other applicable provisions of the regulations, including 30 CFR 211 and Chapter VII, for the completion of operations and abandonment.

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Sec. 25. PROPRIETARY INFORMATION--Geological and geophysical data and information, including maps, trade secrets, and commercial and financial information which the lessor obtains from the lessee shall be treated in accordance with 43 CFR Part 2, 30 CFR 211.6 and other applicable regulations. Total lease reserve figures developed from this information will not be confidential.

Sec. 26. LESSEE'S LIABILITY TO LESSOR--(a) The lessee shall be liable to the United States for any damage suffered by the United States in any way arising from or connected with the lessee's activities and operations under this lease, except where damage is caused by employees of the United States acting within the scope of their authority.

(b) The lessee shall indemnify and hold harmless the United States from any and all claims arising from or connected with the lessee's activities and operations under this lease.

(c) In any case where liability without fault is imposed on the lessee pursuant to this section, and the damages involved were caused by the action of a third party, the rules of subrogation shall apply in accordance with the law of the jurisdiction where the damages occurred.

Sec. 27. INSPECTIONS AND INVESTIGATIONS--(a) All books and records maintained by the lessee showing information required by this lease or regulations must be kept current and in such manner that the books and records can be readily checked at the mine, upon request, by the Regional Director or District Mining Supervisor or their representative.

(b) The lessee shall permit any duly authorized officer or representative of the lessor at any reasonable time (1) to inspect or investigate the leased lands, the exploration and mining and reclamation operations, and all surface and underground improvements, works, machinery, and equipment, and all books and records pertaining to the lessee's obligations to the lessor under this lease and regulations and (2) to copy, and make extracts from any such books and records.

Sec. 28. UNLAWFUL INTEREST--No member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, either before or after he has qualified and during his continuance in office, and no officer, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(3), shall hold any share or part in this lease or derive any benefit therefrom. The provisions of Section 3741 of the Revised Statutes, as amended, 41 U.S.C. Section 22, and the Act of June 25, 1948, 62 Stat. 702, as amended, 18 U.S.C. Sections 431-433, relating to contracts, enter into and form a part of this lease insofar as they may be applicable.

Sec. 29. APPEALS--The lessee shall have the right to appeal (a) under 43 CFR 3000.4 from an action or decision of any official of the Bureau of Land Management (b) under 30 CFR Part 290 from an action, order, or decision of any official of the United States Geological Survey, or (c) under applicable regulation from any action or decision of any other official of the Department of the Interior arising in connection with this lease, including any action or decision pursuant to Section 23 of this lease with respect to the readjustment of conditions.

Sec. 30. DEFERRED BONUS--This lease is issued subject to the payment of $880,000.00 by the lessee as a deferred bonus. Payment of the deferred bonus by the lessee shall be made on a schedule specified in Section 31 (Special Stipulations) of this lease.

Sec. 31. SPECIAL STIPULATIONS--

The District Mining Supervisor shall mean the authorized representative of the Minerals Management Service and the Regional Director shall mean the authorized representative of the Office of Surface Mining. The Authorized Office shall mean the State Director, Bureau of Land Management. The Authorized Officer of the Surface Management Agency shall mean the Forest Supervisor, Forest Service or District Manager, Bureau of Land Management as appropriate. Surface management agency for private surface is the Bureau of Land Management, except within Forest boundaries, the surface management agency for private surface shall be the Forest Service.

1. The Lessee will be responsible to comply with all applicable Federal, State and local laws and regulations.

2. In accordance with Sec. 523(b) of the "Surface Mining Control and Reclamation Act of 1977," surface mining and reclamation operations conducted on this lease are to conform with the requirements of this Act and are subject to compliance with Office of Surface Mining Regulations, or as applicable, a Utah program equivalent approved under cooperative agreement in accordance with Sec. 523(c) and final determination of suitability

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for mining. The United States Government does not warrant that the entire tract will be susceptible to mining.

3. The coal contained within the lease area and authorized for mining under this lease shall be extracted only by underground mining methods.

4. All support facilities, structures, equipment, and similar developments will be removed from the lease area within two years after the final termination of use of such facilities. All disturbed areas and those areas occupied by such facilities will be rehabilitated in accordance with an approved reclamation plan, 30 CFR 211 and the "Surface Mining Control and Reclamation Act of 1977" or approved Utah program as applicable.

5. (a) before undertaking any activities that may disturb the surface of the leased lands, the Lessee may be required to conduct a cultural resource intensive field inventory in a manner specified by the Regional Director and the Authorized Officer of the surface managing agency on portions of the mine plan area and adjacent areas, or exploration plan area, that may be adversely affected by lease related activities and which were not previously inventoried at such a level of intensity. The inventory shall be conducted by a qualified professional cultural architect, as appropriate), approved by the Authorized Officer of the surface managing agency and a report of the inventory and recommendations for protecting any cultural resources identified shall be submitted to the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area) and the Authorized Officer of the surface managing agency. The Lessee shall undertake measures, in accordance with instructions from the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area), to protect cultural resources on the leased lands. The Lessee shall not commence the surface disturbing activities until permission to proceed is given by the Regional Director or the District Mining Supervisor as appropriate.

(b) The Lessee shall protect all cultural resource properties within the lease area from lease-related activities until the cultural resource mitigation measures can be implemented as part of an approved mining and reclamation plan or exploration plan.

(c) The cost of conducting the inventory, preparing reports, and carrying out mitigation measures shall be borne by the Lessee.

(d) If cultural resources are discovered during operations under this lease, the Lessee shall immediately bring them to the attention of the Regional Director (or the District Mining Supervisor as appropriate), and the Authorized Officer, Surface Management Agency. The Lessee shall not disturb such resources except as may be subsequently authorized by the Regional Director (or the District Mining Supervisor). Within two (2) working days of notification, the Regional Director (or the District Mining Supervisor, as appropriate) will evaluate or have evaluated any cultural resources discovered and will determine if any action may be required to protect or preserve such discoveries. The cost of the data recovery for cultural resources discovered during lease operations shall be borne by the surface managing agency unless otherwise specified by the Authorized Officer, Surface Management Agency.

(e) All cultural resources shall remain under the jurisdiction of the United States until ownership is determined under applicable law.

6. Before undertaking any activities that may disturb the surface of the leased lands, the Lessee shall contact the Regional Director and Authorized Officer of the Surface Management Agency to determine whether the Lessee will be required to conduct a paleontological appraisal of the mine plan and adjacent areas, or exploration plan areas, that may be adversely affected by lease-related activities. If the Regional Director and Authorized Officer, Surface Management Agency, determine that one is necessary, the paleontological appraisal shall be conducted by a qualified paleontologist approved by the Authorized Officer of the Surface Management Agency, using the published literature and, where appropriate, field appraisals for determining the possible existence of larger and more conspicuous fossils of scientific significance. A report of the appraisal and recommendations for protecting any larger and more conspicuous fossils of significant scientific interest on the leased lands so identified shall be submitted to and approved by the Regional Director and the Authorized Officer, Surface Management Agency. When necessary to protect and collect the larger and more conspicuous fossils of significant scientific interest on the leased lands, the Lessee shall undertake the measures provided in the approval of the mining and reclamation plan or exploration plan.

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(a) The Lessee shall not knowingly disturb, alter, destroy, or take any larger and more conspicuous fossils of significant scientific interest, and shall protect `l such fossils in conformance with the measures included in the approval of the .ning and reclamation plan or exploration plan.

(b) The Lessee shall immediately bring any such fossils that might be altered or destroyed by his operation to the attention of the Regional Director or the District Mining Supervisor, as appropriate. Operations may continue as long as the fossil specimen or specimens would not be seriously damaged or destroyed by the activity. The Regional Director or the District Mining Supervisor, as appropriate, shall evaluate or have evaluated such discoveries brought to his attention and, within five (5) working days, shall notify the Lessee what action shall be taken with respect to such discoveries.

(c) All such fossils of significant scientific interest shall remain under the jurisdiction of the United States until ownership is determined under applicable law. Copies of all paleontological resource data generated as a result of the lease term requirements will be provided to the Regional Director or the District Mining Supervisor, as appropriate.

(d) The cost of any required salvage of such fossils shall be borne by the United States.

(e) These conditions apply to all such fossils of significant scientific interest discovered within the lease area whether discovered in the overburden, interburden, or coal seam or seams. Fossils of significant scientific interest do not include those fossils commonly encountered during underground mining operations such as ferns and dinosaur tracks. Skeletal remains shall be considered significant.

7. The Lessee shall, prior to entry upon the lease, conduct an intensive field inventory for threatened and endangered plant and/or animal species, bald or golden eagles, or migratory species of high Federal interest on those areas to be disturbed and/or impacted including the access routes to the lease area. The inventory shall be conducted by a qualified specialist(s) approved by the Authorized Officer, Surface Management Agency, and a report of the inventory and recommendation for the protection of these species submitted to and approved by the Authorized Officer, Surface agement Agency, and Regional Director or District Mining Supervisor as appropriate. An acceptable report of any findings shall include the specific location, distribution, and habitat requirements of the species. The Lessee shall protect these species within the lease area from any activities associated with operations conducted under the terms of the lease and shall undertake such protective measures as may be required by the Authorized Officer, Surface Management Agency, and Regional Director or District Mining Supervisor as appropriate.

8. Powerlines used in conjunction with the mining of coal from this lease shall be constructed so as to conform with the publication "Suggested Practices for Raptor Protection on Powerlines" (Edison Electric Institute, 1975). When feasible, powerlines will be located at least 100 yards from public roads.

9. The Lessee shall provide for the suppression and control of fugitive dust on all haul roads, and at coal handling, transportation, and storage facilities in accordance with the regulatory requirements as contained in 30 CFR 817.95 (or 30 CFR 816.95 as applicable), dated December 31, 1979. The migration or road surfacing and subsurface materials into streams and water courses shall be prevented.

10. Underground mining operations shall be conducted in such a manner so as to prevent surface subsidence that would: (1) cause the creation of hazardous conditions such as unacceptable escarpment failure and landslides, (2) cause damage to surface structures, and (3) damage or alter the flow of perennial streams. The Lessee in his mining plan shall provide specific measures for the protection of escarpments. The Regional Director in consultation with and concurrence of the District Mining Supervisor and Authorized Officer, Surface Management Agency in consideration of conservation of the coal resource, shall approve such measures and may prescribe any additional measures to be employed such as mining methods, specify the amount of coal recovered, and determine any corrective measures considered necessary to assure that escarpment failure does not occur except at specific locations, or that hazardous conditions are not created.

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(c) Deferred Bonus Payment Schedule:

The balance of the bonus bid shall be paid in equal annual installments in the amount of $220,000.00 due and payable on the next four anniversary dates of the lease.

If the lease is relinquished or otherwise cancelled or terminated, the unpaid remainder of the bid shall be immediately payable to the United States.

THE UNITED STATES OF AMERICA

By _____
(Signing Officer)

CHIEF, MINERALS SECTION
(Title)

SEP 16 1982
(Date)

WITNESS TO SIGNATURE OF LESSEE

_____

_____

_____

_____
(Signature of Lessee)
Vice President and General Manager

_____
(Signature of Lessee)

September 8, 1982
(Date)

MAR 30 '84

IN REPLY REFER TO
2890
U-50167
(U-066)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Moab District
Price River Resource Area
P. O. Drawer AB
Price, Utah 84501

CERTIFIED--RETURN RECEIPT REQUESTED
Certification No. 4248949

JUL 02 1982

DECISION

Right-of-Way Granted
Details of Grant

Serial Number:	U-50167
Name of Holder:	Soldier Creel Coal Company P. O. Box I Price, Utah 84501
Map Showing the Location and Dimensions of Grant	
Map Designation:	Deadman Canyon and Pine Canyon 7½ Minute USGS Topographic Maps
Dimensions:	Pipeline: Width, 15 feet, 7.5 feet on each side of a described centerline by approximately 10,000 feet in length Sewage Lagoon: Site dimension, 312 feet by 168 feet Road: Width, 15 feet, 7.5 feet on each side of a described centerline by approximately 468 feet in length
Legal Description:	SLB&M, T. 13 S., R. 12 E., Section 18, Lot 4, NE¼SW¼NE¼, NE¼SW¼, SE¼SW¼, NW¼SE¼, Section 19, Lot 1, Lot 2, Lot 3, Lot 4, T. 13 S., R. 11 E., SE¼SE¼SE¼, Section 24
Permitted Use:	Installation, use and maintenance of an area for a sewage pipeline, and sewage lagoon. Use and maintenance of an existing road
Authority:	Federal Land Policy and Management Act of 1976 (90 Stat. 2776; 43 USC 1761, Section 501(a)(1)(6), (7)

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Effective Date:	Effective the date of this decision
Termination Date:	Thirty (30) years from the date of this decision
Rental:	$25 advanced rental, actual charges will be determined after a formal appraisal

Pursuant to the authority vested in the undersigned by Order No. 701 of the Director, Bureau of Land Management, dated July 23, 1964 (20 F.R. 10526), amended and redelegated, a right-of-way bearing the above referenced serial number is hereby granted, subject to the details shown above, and subject to the terms and conditions in Appendix A, attached hereto and made a part thereof.

Leth E. Burgess
Area Manager

Enclosures (2)
1-Terms and Conditions
2-Form 1842-1

MAR 30 '84

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Moab District
Price River Resource Area
P.O. Drawer AB
Price, Utah 84501

IN REPLY REFER TO: 2890
U-52071
(U-066)

June 7, 1983

Mr. Christopher P. Allen
Soldier Creek Coal Company
P.O. Box I
Price, Utah 84501

Dear Mr. Allen:

Enclosed is executed right-of-way grant U-52071. Please contact Mark Mackiewicz if you have any questions.

Sincerely yours,

Leon E. Berggren

Leon E. Berggren
Area Manager

Enclosure:
Right-of-Way Grant

RECEIVED
JUN 8 1983
SC3

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Moab District
Price River Resource Area
P.O. Drawer AB
Price, Utah 84501

IN REPLY REFER TO: 2890
U-52071
(U-066)

RIGHT-OF-WAY

U-52071

Section A

1. There is hereby granted, pursuant to Title V of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1761), a nonexclusive, nonpossessory right-of-way to:

Soldier Creek Coal Company
P.O. Box I
Price, Utah 84501

In case of change of address the Holder shall immediately notify the the Authorized Office.

2. To use, subject to terms and conditions set out below, the following described Public Land.

Salt Lake Base and Meridian, Utah
T. 13 S., R. 12 E., Sec. 18:
NE¼SW¼NE¼, NW¼SW¼NE¼

3. Description of the right-of-way facility and purpose:

The right-of-way is for the operation and maintenance of an existing sediment pond, access road and storage area. The area contained within the right-of-way is 3.75 acres more or less.

A map showing the location of the right-of-way over the above described public land is attached hereto as "Exhibit A".

TERMS AND CONDITIONS

Section B

1. The right-of-way Holder agrees to comply with all the applicable regulations contained in 43 CFR 2800.

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2. If the right-of-way holder violates any of the terms and conditions to this grant, the Authorized Officer, after giving written notice may declare the grant terminated.

3. This grant is subject to all valid rights existing on the effective date of this grant.

4. There is hereby reserved to the Authorized Officer the right to grant additional rights-of-way or permits for compatible uses, on, over, under, or adjacent to the lands involved in this grant.

5. The Holder shall comply with the applicable Federal and State laws and regulations concerning the uses of pesticides (i.e., insecticides, herbicides, fungicides, rodenticides, and other similar substances) in all activities/operations under this grant. The Holder shall obtain from the Authorized Officer approval of a written plan prior to the use of such substances. The plan must provide the type and quantity of material to be used; the pest insect, fungus, etc., to be controlled; the method of application; the location for storage and disposal of containers; and other information that the Authorized Officer may require. The plan should be submitted no later than December 1 of any calendar year that covers the proposed activities for the next fiscal year (i.e., December 1, 1983, deadline for a fiscal year 1985 action). Emergency use of pesticides may occur. The use of substances on or near the right-of-way shall not be used if the Secretary of the Interior has prohibited its use. A pesticide shall be used only in accordance with its registered uses and within other limitations if the Secretary has imposed limitations. Pesticides shall not be permanently stored on public lands authorized for use under this grant.

6. The Holder agrees not to exclude any person from participating in employment or procurement activity connected with this grant on the grounds of race, creed, color, national origin, and sex, and to ensure against such exclusions, the Holder further agrees to develop and submit to the proper reviewing official specific goals and timetables with respect to minority and female participation in employment and procurement activity connected with this grant. The Holder will take affirmative action to utilize business enterprises owned and controlled by minorities or women in its procurement practices connected with this grant. Affirmative action will be taken by the Holder to assure all minorities or women applicants full consideration of all employment opportunities connected with this grant. The Holder also agrees to post in conspicuous places on its premises which are available to contractors, subcontractors, employees, and other interested individuals, notices which set forth equal opportunity terms; and to notify interested individuals, such as bidders, contractors, purchasers, and labor unions or representatives of workers with whom it has collective bargaining agreements, of the Company's equal opportunity obligations.

7. The right-of-way herein granted is subject to the express covenant that it will be modified, adapted, or discontinued if found by the Secretary to be necessary, without liability of expense to the United States, so as not to conflict with the use and occupancy of the land for any authorized works which may be hereafter constructed thereon under the authority of the United States.

8. The Holder shall indemnify the United States against any liability for damage to life and property arising from the occupancy or use of public lands under this grant.

9. All survey monuments, witness corners, reference monuments and bearing trees must be protected against destruction. Any damaged or obliterated markers must be reestablished in accordance with accepted survey practices at the expense of the Holder.

10. The Holder shall comply with applicable Federal and State laws and regulations issued thereunder, existing or hereafter enacted or promulgated, affecting in any manner construction, operation, maintenance or termination of facilities located on the right-of-way to include all applicable regulations in 30 CFR Chapter VII and regulations developed to implement the Coal Mining Reclamation Act of 1978 (U.C.A. 40-10-1 et. seq.) Chapter I Parts U.M.C. 700-845.

11. No construction activities are authorized under this right-of-way grant, unless approved in writing by the Authorized Officer.

12. When all development and rehabilitation have been completed, a joint compliance check of the right-of-way shall be made by the Holder and the Authorized Officer to determine compliance with the terms and conditions of this grant. The Holder shall perform at his own expense any required modifications or reclamation work needed to comply with the terms of the grant.

13. Upon termination of the right-of-way the Holder shall remove all improvements, and recontour and revegetate the area in accordance with the Soldier Creek Coal Company Mining and Reclamation Plan (3/23/81).

14. The right-of-way shall be relinquished to the United States if the authorized uses are no longer needed.

15. Rental: A $25 advance rental deposit is required pending the determination of fair market rental value of the use authorized by this grant. This right-of-way is not in effect until the Holder has paid the stipulated advance rental deposit.

16. Term of the Grant: 30 years.

a. This right-of-way grant shall terminated 30 (thirty) years from the effective date of this grant unless prior thereto it is relinquished, abandoned, terminated, or otherwise modified pursuant to the terms and conditions of this grant or of any applicable Federal law or regulation.

b. This grant may be renewed so long as it is still being used for the purposes granted, and is operated and maintained in accordance with all the provisions of this grant and pursuant to the regulations under which it is granted. If renewed the right-of-way will be subject to regulations existing at the time of renewal, and such other terms and conditions deemed necessary to protect the public interest.

c. This grant is subject to review at the end of 20 years from the date of executions, and at regular intervals thereafter not to exceed 10 years.

Section C

The effective date of this right-of-way grant is the date of execution by the Authorized Officer.

The undersigned agrees to the terms and conditions of the right-of-way grant.

The right-of-way is executed this 7 day of June, 1983.

Soldier Creek Coal Company
Name of Organization, Company or Corp.

6 day of June, 2013
Termination Date

By: [signature]

[signature]
Area Manager

Title: Vice President & General Manager

Date: May 27TH 1983

Affix Corporate Seal

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3.1 Scope

The objective of this chapter is to address the mining operation and its impact on the environment. The sections within this chapter give details on the surface facilities, underground mining operations, environmental protection plans and reclamation plans. Information on bonding will be submitted following approval from the Utah Division of Oil, Gas and Mining.

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3.2 Surface Facilities

3.2.1 Existing surface buildings and structures that are used in connection with or to facilitate the underground coal mining activities at Soldier Canyon Mine are located 12 miles north of Wellington, Utah. All structures lie on federally owned land.

3.2.2 The locations of these existing structures are depicted on Drawing E011.

3.2.3 A list, in chronological order, of the existing structures and a brief description of their condition is as follows:

Original Substation - Construction began March 1976 and was completed April 1976. It is in good condition and is protected by a 7 foot chain link fence.

Belt Conveyor Structure - Construction began May 1976 and was completed June 1976. This structure is in good condition and is maintained routinely.

Original Fan and Water Tank - Construction began May 1976 and was completed July 1976. They are in good condition and are operating without problems.

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Coal Loadout Bin - Construction began June 1977 and was completed July 1977. It is in good condition and maintained by Coal Service Company.

Original Maintenance Shop - Construction began August 1977 and was completed October 1977. It is in good condition and maintained regularly by maintenance personnel.

Warehouse, Offices and Bathhouse - Construction began November 1977 and was completed March 1978. It is in good condition and is maintained regularly by cleaning and maintenance personnel.

Rockdust Storage Bin and Compressor - Construction began August 1978 and was completed September 1978. It is in good condition and maintained regularly.

Parking Lot - Construction began October 1978 and was completed in October 1979. It is in good condition with no cracks or erosion noted.

Upper Yard Storage Shed - Construction began and was completed in October 1979. It is in good condition and maintained by surface maintenance personnel.

Sedimentation Pond - Construction began October 1979 and was completed November 1979. It is in good condition, showing no tension cracks or leakage, but does contain a small amount of sediment.

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Crib Wall - Construction began July 1980 and was completed August 1980. Condition of the wall is good but there is a small amount of erosion to the soil behind the wall that is not effecting the stability.

Training Room, Ambulance Storage, New Shop and Storage Shed - Construction began December 1981 and was completed February 1982. It is in excellent condition and is cleaned and maintained by maintenance personnel.

Sewage Lagoon and Pipeline - Construction began August 1982 and was completed October 1982. It is in excellent condition and both the dikes and the area around the site have been revegetated.

New Intake Rock Slope - Construction began December 1982 and was completed April 1983. It is in good condition and well maintained.

Exhaust Shaft and Substation Site - Construction begain in December 1982 and is scheduled for completion in November 1983.

3.2.4 The Applicant uses conveyor belts to carry coal from underground workings to the surface facilities. On the surface, the coal is conveyed to and stored within a 600-ton surge bin. The coal is then trucked down the canyon to the loadout facility. The Applicant performs no additional processing or preparation on the coal before shipment.

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3.2.5 The present power source in use at the mine employs a 46 KV. primary voltage and a 4,160 V. secondary voltage which is fed into the mine. The future substation, which will be completed in November 1983, will have 4,160 V. and a 13,800 V. secondary output into the mine.

3.2.6 Soldier Creek Coal Company purchases all culinary water from D & D Equipment and Supply Distributors of Helper, Utah. D & D purchases culinary water from Price City and Wellington City public water loadouts. Deliveries are made twice a day and total approximately 3000 gallons. The holding tank at the mine site has a capacity of 60,000 gallons.

3.2.7 The wastewater system at Soldier Canyon Mine was changed from an Ecolo-Chief wastewater treatment system to a sewage lagoon system in the fall of 1982. The lagoon system includes a septic tank, approximately 2 miles of 4 inch sewer line and 2 self-contained lagoons.

The septic tank is located at the mine site and is used to collect all solids before releasing the water into the 4 inch line. The water is then transported to the lagoons by the 4 inch line via gravity flow. Along the line there are several cleanouts to ensure proper functioning of the line. The water exits the pipeline and empties into the containment lagoons. The lagoons consist of two clay-lined cells with a designed capacity of over 3200 gallons a day.

The sewage lagoon system was designed by Horrocks and Carollo Engineers with all plans and designs approved by the Utah Division

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of Health. Letters submitted to Horrocks and Carollo from the Department of Health are located at the end of this chapter.

3.2.8 The water diversion structures located on the Applicant's property are shown on Drawing E011. The design of these structures has been done by Vaughn Hansen Associates and is contained within the Soldier Canyon Mine Runoff Control Plan located at the end of Chapter 7 in the 1981 submittal. The upgraded half-round culvert was approved by the Division of Oil, Gas and Mining in a letter addressed to David Spillman from Thomas Munson. A copy of this letter is located at the end of this chapter.

3.2.9 The Applicant has a sedimentation pond which was designed by Vaughn Hansen Associates. The Utah Division of Oil, Gas and Mining approved the sediment pond along with the Runoff Control Plan for Soldier Canyon Mine in a letter dated November 23, 1979 from Thomas J. Suchoski to Carl Pollastro. A copy of this letter is located at the end of this chapter and a copy of the Runoff Plan is located at the end of Chapter 7 in the 1981 submittal.

3.2.10 There is one road leading to Soldier Canyon Mine, Utah Highway 53. This road is paved to the mine site and all transportation occurs over this road. The road is maintained by Carbon County.

There are no railroad spurs located in the mine lease area or running up Highway 53. The parking areas are shown on Drawing E011.

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3.2.11 The total acreage of surface disturbance is approximately 11.5 acres. This includes the sewage lagoon site, which is off the lease area, located some 2 miles southwest of the mine site.

3.2.12 Soldier Creek Coal Company has no future plans for any additional disturbances.

3.2.13 The only existing structures that will be modified are the parking lot and the dirt drainage ditch. Both projects were completed by November 30, 1983 and were constructed in such a manner so as to minimize the risk of harm to the environment.

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3.3 Operation Plan

3.3.1 Mining Plans

3.3.1.1 The orientation of Soldier Canyon Mine has been and will continue to be in such a manner that maximizes the recovery of the coal reserves and minimizes the amount of surface disturbance. An up-to-date mine map is enclosed at the end of the chapter.

Multiple seam mining will be carried out when it can be accomplished avoiding hazardous mining conditions and when it is economically feasible.

3.3.1.2 The location of all shafts, slopes and portals is shown on the mine map located at the end of this chapter.

3.3.1.3 The method of mining employed at Soldier Canyon Mine is the room and pillar method.

3.3.1.4 The development of mains, submains and panels will be as stated within Soldier Canyon Mine's Roof Control Plan, Ventilation Plan and past mining practices. Both plans were included in the 1981 submittal.

3.3.1.5 Pillar extraction is carried out in accordance with the Roof Control Plan for Soldier Canyon Mine.

3.3.1.6 The Roof Control Plan, Ventilation System and Methane and Dust Control Plan and the Electrial Map were included in the 1981 submittal.

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3.3.2 Barrier pillars will be designed in accordance with State and Federal regulations. Any variance of the regulations will be addressed in a separate application to the appropriate regulatory agency.

3.3.3 The Bureau of Land Management (BLM) governs the conservation and royalty payments of the coals located within Soldier Creek Coal Company's lease. Mining plans for all three seams will be approved by the BLM before any mining is done. This prior approval ensures the diligent development and extraction of all minable coals.

3.3.4 All equipment used on the surface and underground is listed in Table 3.1 of the 1981 submittal.

3.3.5 The Applicant has submitted a comprehensive training program to the Mine Safety and Health Administration for approval. A copy of this program can be found in the correspondence section of this chapter. Verbal approval was given for this program and written approval is forthcoming.

3.3.5.1. Signs and markers have been placed at each point of access to the mine plan area. Perimeter signs have been placed to delineate the distrubed areas. The signs and markers conform to the regulations contained in UMC 817.11.

3.3.5.2 All surface facilities have been fenced off and gates installed for access and security reasons. The employee parking lot is the only unfenced disturbed area.

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3.3.5.3 Fire protection at Soldier Canyon Mine is made up of fire hydrants, water sprays and fire extinguishers. The placement of these protection items complies with State and Federal regulations for surface and underground activities.

3.3.5.4 All explosive containers used at the mine are built to meet or exceed the specified requirements set forth by the Mine Safety and Health Administration. The surface storage containers are placed in a position to insure the protection of the environment and all personnel.

The Applicant has no present or future plans for the use of explosives on the surface. If at any time explosives are used on the surface, the use will comply with regulations UMC 817.61 - .68.

3.3.6 The Applicant runs three shifts per day at this operation, days, nights and graveyard shifts. The annual production is approximately 590,000 tons. The approximation will vary to fluctuations in coal demand. The average number of working days per year is 250. The Applicant presently employs 91 personnel, 64 hourly and 27 salary.

3.3.7 The Mine Permit Area and the Mine Plan Area will be defined as one and the same. This will be done because the Applicant plans to reach the boundaries of his lease at the end of the permit term. A mine progress map is included at the end of the chapter.

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3.3.8 The surface disturbance incorporated into the Applicant's operation is detailed on the Surface Disturbance Map located at the end of the chapter. This area will have perimeter signs posted to delineate the disturbed areas from the non-disturbed areas.

3.3.9 Exploration of the Sunnyside coal seam has proven this seam to be non-minable. An isopach map of this seam and an interburden map for the Rock Canyon and Sunnyside seams are shown in the map section of Chapter 6. Additional information will be submitted to the Bureau of Land Management for the justification for not mining this seam.

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3.4 Environmental Protection

3.4.1 - 3.4.8 The protection and preservation of all environmental concerns will be carried out as stated in each of the specific chapters in this report and the 1981 submittal. The Applicant will notify the appropriate regulatory agency of any slide, slump, rock fall or any other disturbance which will have an adverse affect on the environment. The remedial action taken to correct any and all environmental concerns will be consistent with the requirements of the specific regulatory agency. Also, the Division of Oil, Gas and Mining (DOGM) will be notified if any acid-forming or toxic forming wastes are discovered by the mining operation. A plan for handling the wastes will be made following notification and submitted to DOGM for their approval.

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3.4.9 Waste Disposal Plans

Soldier Creek Coal Company plans to dispose of all underground development waste within the Soldier Canyon Mine. The problem with the disposal of development waste during 1982 and 1983 was due to the excavation of an exhaust shaft and intake slope which produced large quantities of development waste. Since the completion of these two projects, Soldier Creek Coal Company sees no future development that would produce significant amounts of development waste. All future development waste will be handled underground.

Non-coal wastes that are inherent in the mining operation are disposed of by the following means:

1) Oil and Grease - All of these products are returned to one of a number of distributors.
2) Old Mining Machinery - Machinery is sold or scrapped for its cash values.
3) Garbage - Garbage hauling is contracted to licensed company to remove and properly dispose of all debris.

These methods will continue to be the means of non-coal waste disposal for current mining operations. There will be no disposal of non-coal waste within the mine permit area and no plans currently exist to permit a site for non-coal waste disposal. Temporary storage sites for non-coal waste are within underground workings, inside the surface storage sheds and in refuse bins located within the disturbed area.

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3.5 Reclamation Plan

3.5.1 Contemporaneous Reclamation

Two types of contemporaneous reclamation will be done when necessary for land stabilization during the Applicant's mining operation. The first will be an intermediate reclamation which will cover land that will be redisturbed at the end of the mine during final reclamation. Second will be permanent reclamation which will cover land that will never again be disturbed by the Applicant.

Intermediate reclamation will use the soil stabilization and soil practices mentioned in Chapter 8. The seed mixture that will be used is the temporary mixture listed in the report on vegetation resources by Bob Thompson. These sites will be annually monitored by the Applicant's staff to ensure the areas are stable and in fair condition.

Permanent reclamation will use the same soil practices and will follow the reclamation guidelines for final reclamation. These guidelines include the final reclamation seed mixture list in Bob Thompson's report, the success analysis and the final bond release for the appropriate area.

The Applicant foresees little, if any, use of contemporaneous reclamation activities within his mine plan area. Should there arise a need for this type of reclamation, it will be consistent with one of the two reclamation plans, intermediate or permanent.

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The total land acreage that is subject to contemporaneous reclamation is approximately 1.4 acres. The lands that fall within this reclamation are the areas surrounding the sewage lagoon, 1.25 acres; the topsoil stockpile and sediment pond dike, 0.13 acre; and an area above the new intake slope, 0.02 acre. These areas are shown on Drawing D143 and maps E012 and E013. The area surrounding the sewage lagoon is the only location that will not be redisturbed during final reclamation. These sites will also be used to judge the success of specific seeds, soil depths and soil stabilization practices. The results of these contemporaneous reclamation practices will help ensure the success of the final reclamation procedures.

3.5.2 Soil Removal and Storage

This has been covered in Chapter 8, Soil Resources.

3.5.3 Final Abandonment Plans

3.5.3.1 The lease will be abandoned when all economically recoverable coal reserves are exhausted. This abandonment will initiate the final reclamation. Abandonment will be planned so that revegetation of the area can take place in early fall of the same year. (See Table 3.3 for timetable details).

3.5.3.2 All underground mine openings will be sealed in accordance with state and federal regulations. Mine slope accesses will be sealed as shown on drawing A120. All drillholes or boreholes will be sealed by cementing or grouting for the entire length of the borehole. The shaft will be sealed by backfilling with concrete and other debris produced during the demolition of surface

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structures. After backfilling, the shaft will be capped with 6 inches of concrete.

3.5.3.3 All surface structures will be removed and disposed of at the conclusion of mining operations. The structures will be demolished as stated in the reclamation plan and no salvage value will be included in the reclamation costs. There will be no structures left after final reclamation except the concrete cap over the shaft which will be covered by rock and earthen material.

3.5.3.4 The sewage lagoon will be reclaimed as stated in the abatement procedures for violation group 82-5-1-5. The sewage lagoon and all associated structures are shown on Drawings D143 and SH&C 1 which are located in the map section of this chapter. Drawing D143 also shows the final reclamation contours and Drawing SH&C 1 shows details of the structures and cross sections of the lagoon. The revised septic tank which collects all solids from the system is located under the bathhouse facility. All information regarding violation group 82-5-1-5 is located in the correspondence section of Chapter 2.

The sediment pond will be recontoured during final reclamation after the structures and foundations have been taken out and before revegetation. Drawings C147, E010 and E014 show the final contours and cross sections to be achieved following reclamation. All structures, overflow and decant devices, will be taken out during reclamation and the area will be reseeded with the mixtures given in Chapter 9. A riprapped drainage channel will be made to direct the drainage from the revegetated area and Watershed #1 toward Soldier Creek.

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3.5.4 Backfilling and Grading Plans

3.5.4.1 The surface disturbance at Soldier Canyon Mine will be backfilled and graded as shown on Maps E010, E014 and E016 and Drawings C143-144, C147-149, D155 and D171. These maps and drawings also show the locations, areal extent and cross sections of all source areas. The nature of the growth mediums (i.e. topsoil, subsoil or a mix), found in the source areas is given in the Soils Report by Ford, Bacon and Davis. This report is located in Chapter 8. The thickness of topsoil redistribution will be 6 inches or greater over the entire disturbed area.

The postmining drainage channel that will be used throughout final reclamation is shown in Table 3.2, located at the end of this chapter. All drainage channels shown in the cross sections and in the Final Contour Map, E014, will be constructed as per the design in Table 3.2.

3.5.4.2 Highwalls that exist within the disturbed area will be reduced by means of slope terracing. This will provide a break in the length of the slope and will be helpfull in moisture retention and stabilization of the replaced soils. The material that will be used as a growth medium will be taken from the following areas:

Parking Lot	
(Sections N, O & P, Drawing C148)	9,800 cubic yards
Sediment Pond	
(Sections K, L & M, Drawing C147)	5,500 cubic yards
Sewage Lagoon	
(Drawings D143 & S4 & C1)	2,000 cubic yards

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Crib and Retaining Walls

(Sections F, G & H, Drawing D155) 3,700 cubic yards

Upper Fan Site

(Sections Q, R, S, T, U, V, W & X, Drawing D171) 5,300 cubic yards

TOTAL CUBIC YARDS AVAILABLE 26,300

Material that will be used as fill will be taken from the following area:

Fan Site

(Sections A1, B1, C1, Drawing D171) 3,000 cubic yards

Final contours for this fan site are shown on Map E010 and existing contours are shown on Map E015.

The total volume of material needed to reduce the highwalls and reclaim the disturbed area with at least 6 inches of soil is as follows:

Sections A, B, & C (Drawing C143)	5,400 cubic yards
Sections F, G, H, & J (Drawing D155 & C144)	10,400 cubic yards
Sections Q, R, S, T, U, V, W & X (Drawing D171)	2,800 cubic yards
Sewage Lagoon (Drawing C143)	1,400 cubic yards
Main Facilities 6 inch layer (Map E016)	2,600 cubic yards
TOTAL CUBIC YARDS NEEDED	22,600

The parking lot and sediment pond will have no soils added to the respective sites. The soils present at these sites will be used for all reclamation and revegetation. The fan site will have only minimal soil, 310 cubic yards, added to approximate the premining contours.

3.5.4.3 The redistribution of soil and fill material will commence after the removal of the surface structures, concrete and asphalt as depicted on Table 3.3. The redistribution will be done with the help of the equipment listed in the costs for backfilling and recontouring.

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Backfilling will begin with the lower slope areas and continue up slope until reaching proper soil depth and final contours.

Fill materials taken from the fan site by the crawler, loader, backhoe and dump truck will be used as initial layers to reduce the high-walls. Soil material will then be placed over the fill in successive layers until all material has been placed in the proper areas. General replacement will require the use of all the listed equipment. In steep areas soil replacement will require extensive use of the crane and backhoe.

After redistribution of the soils and fill materials is complete the final contouring will commence with both hand and heavy equipment work. This work will consist of final grading, channel completion and seedbed preparation. Soil reclamation and revegetation will begin at the first possible date after completion of the backfilling and regrading. Table 3.3 at the end of this chapter shows the approximate timetable for all reclamation activities.

3.5.5 Revegetation Plan

All soils will be prepared as stated in Chapter 8, Soil Resources and the seed mixtures that will be used throughout the operation are listed in Chapter 9, Vegetation Resources. The revegetation and reclamation plans detailed in Chapter 3, 8 and 9 will consistently be used when reclaiming intermediate sites or during final reclamation.

3.5.6 (UMC 784.13) Schedule, Method and Cost Estimate for Reclamation

The following list is the schedule, method and cost estimate for final reclamation.

1) Removal and Disposal of all Surface Structures

There are two types of structures within the disturbed site, prefabricated and site-built structures. The site-built

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structures will be demolished by a wrecking ball, crane and dozer. The crane will use the ball to demolish structures and the dozer will complete the surface demolition. Prefabricated buildings will be torn down using a cutting torch, crane, loader and a jackhammer. These buildings are bolted and welded so the critical joints will be cut or ripped open and the crane and loader will dispose of them.

The demolished structures will be placed on trucks and hauled to an approved site if they are not suitable for disposal within the mine. Items suitable for disposal within the mine will be placed in the mine. The crane and loader will be used to load and to carry the pieces to the trucks or mine.

The cost estimate for the removal of the structures is as follows:

		$/hr	
1- Grove Model 68 Crane	40 hours @	56.75	2,270.00
1- Cat D-8 Dozer	20 hours @	177.50	3,550.00
1- Cat 950 Loader	40 hours @	96.75	3,870.00
1- General Foreman	40 hours @	15.65	626.00
1- Equipment Operator	40 hours @	13.45	538.00
1- Equipment Operator	20 hours @	13.45	269.00
1- Equipment Operator	40 hours @	13.45	538.00
8- Laborers	40 hours @	7.05	2,256.00
2- Jack Hammers	40 hours @	1.60	128.00
1- Air Compressor	40 hours @	10.00	400.00
2- Cutting Torches	40 hours @	10.00	800.00
			$15,245.00

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Cost for Disposal of Bulk Material

(items not suitable for disposal within the mine)

Truck Haulage Cost $0.85/Mile

40 Round Trips 50 Miles/Round Trip

(0.85) (40) (50) = $1,700.00

2) Removal and Disposal of Concrete and Asphalt

The removal of concrete and asphalt will consist of pad or road removal and foundation removal. The pad or road removal will consist of ripping the concrete or asphalt with the dozer and loader. The equipment will use their ripper bar, blade and/or bucket to dislodge the concrete or asphalt from the respective sites. The foundation removal will first consist of removing the soils around the foundation to provide access to the concrete. The dozer will then rip and demolish the foundation with its blade and ripper bar. Jack hammers will be used to remove pieces of foundation which cannot be reached by the heavy equipment. The debris will then be hauled to either the shaft or slope opening and disposed of inside the mine. The loader will load the truck and help carry the debris to the place of deposition.

Cost of Demolition and Disposal of Concrete and Asphalt

			$/hr	
1- 10 Cubic Yard Dump Truck	20 hours	@	27.25	545.00
1- Cat D-8 Dozer	28 hours	@	177.50	4,970.00
1- Cat 950 Loader	28 hours	@	96.75	2,709.00
1- Air Compressor	20 hours	@	10.00	200.00
1- General Foreman	28 hours	@	15.65	438.20
2- Jack Hammers	20 hours	@	1.60	64.00

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2- Equipment Operators	28 hours	@	13.45	753.20
5- Laborers	20 hours	@	7.05	705.00
				$10,384.40

3) Backfilling and Recontouring all Disturbed Areas

Section 3.5.4 details the specific methods that will be employed during all regrading of the disturbed lands. The cost estimate for the backfilling and recontouring is as follows:

			$/hr	
1- Groove Model 68 Crane	50 hours	@	56.75	2,837.50
1- 955L Crawler Loader	50 hours	@	75.75	3,787.50
1- Cat 950 Loader	50 hours	@	96.75	4,837.50
1- 10 Cubic Yard Dump Truck	50 hours	@	27.25	1,362.50
1- John Deere 410 Backhoe	50 hours	@	36.00	1,800.00
1- General Foreman	50 hours	@	15.65	782.50
4- Equipment Operators	50 hours	@	13.45	2,690.00
3- Laborers	50 hours	@	7.05	1,057.50
				$19,155.00

4) Sealing of Mine Openings

Section 3.5.3.2 details the methods that will be used to seal all underground openings. The cost for sealing the openings during final reclamation is as follows:

3 - Underground Miners	40 hours	@	14.60/hr	1,752.00
5 - Seals		@	1,728/ea	8,640.00
				$10,392.00

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5) Soil Reclamation and Revegetation

Chapters 8 and 9 detail the specific methods to be used during final reclamation. There will be approximately 10.3 acres of ground to reclaim. 9.3 acres will be reclaimed using the final reclamation seed mixture and 1.0 acre will be reclaimed using the riparian seed mixture. Straw mulch will be used on approximately 8.3 acres and hydro-seeding with tackifier and netting on the final 2.0 acres. The cost for the soil reclamation and revegetation is as follows:

Final Reclamation Seed Mixture	9.3 acres	@ $	140.86/acre	1,310.00
Riparian Seed Mixture	1.0 acre	@ $	2,056.69/acre	2,056.69
Straw Mulch	8.3 acres	@ $	48.00/acre	398.40
Fertilizer	8.3 acres	@ $	110.00/acre	913.00
Netting	6.0 acres	@ $	620.00/acre	3,720.00
Staples	6.0 cases	@ $	29.00/case	174.00
Hydro-Seeding (this will include tackifier and fertilizer)				
	2.0 acres	@ $	90.00/acre	180.00
	Mobilization	@	800.00/Visit	800.00
			$/hr	
1- John Deere 301A	24 hours	@	9.40	225.60
1- General Foreman	24 hours	@	15.65	375.60
1- Equipment Operator	24 hours	@	13.45	322.80
4- Laborers	24 hours	@	7.05	169.20
				$10,645.29

6) Monitoring of Reclaimed Areas Until Bond Release

The monitoring procedures that will be followed are detailed in Chapter 9. The monitoring will be done during the appropriate times and in such a way that the revegetated areas are not harmed. Following final bond release the fences surrounding the property will be taken down. The cost for monitoring these areas is as follows:

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Expected Consultant Cost				6,000.00
1- John Deere 410 Backhoe	8 hours	@	36.00	288.00
1- Equipment Operator	8 hours	@	13.45	107.60
1- 10 Cubic Yard Dump Truck	8 hours	@	27.25	218.00
1- Laborer	8 hours	@	7.05	56.40
				$ 6,670.00

7) Sewage Lagoon Reclamation $ 4,574.00

(A cost breakdown for this reclamation is given in a May 16, 1983 letter from UDOGM to Soldier Creek Coal Company. This letter is included in the correspondence section of this chapter).

8) Ventilation Facility Reclamation $11,723.76

(A cost breakdown for this reclamation is given in an October 15, 1982 letter from UDOGM to Soldier Creek Coal Company. This letter is included in the correspondence section of this chapter).

9) Mobilization and Demobilization $12,000.00

10) Mine's Coordination Staff $10,016.00

11) Total Cost for Reclamation $112,505.45

3.5.7 Bonding

A bond for the total reclamation cost of final abandonment will be submitted when the costs and methods have been approved by the Utah Division of Oil, Gas and Mining. This bond will be incorporated into the bond we now hold for the sewage lagoon, ventilation facilities and other specific sites.

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All bonds will be released after completion of the reclamation on the specific project. This bond release will include all bonds except the bonded costs for soil reclamation, revegetation and monitoring. These final bonds will be released when the requirements of each area have been completed as detailed in Chapter 9.

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Table 3.1: Soil Stability

Soils that will be used as growth and fill material during final reclamation are found on existing slopes, throughout the area, ranging upwards to 100 percent, 1 foot vertical for every 1 foot horizontal, and having an average slope of 71 percent, 1 foot vertical for every 1.4 feet horizontal. Slopes that will be created during final reclamation will be approximately 59 percent, 1 foot vertical to 1.7 feet horizontal. Tests were run on two soil types to determine their failure envelopes. The two envelopes are shown on the following pages and all slopes created will be kept below the threshold limits for failure.

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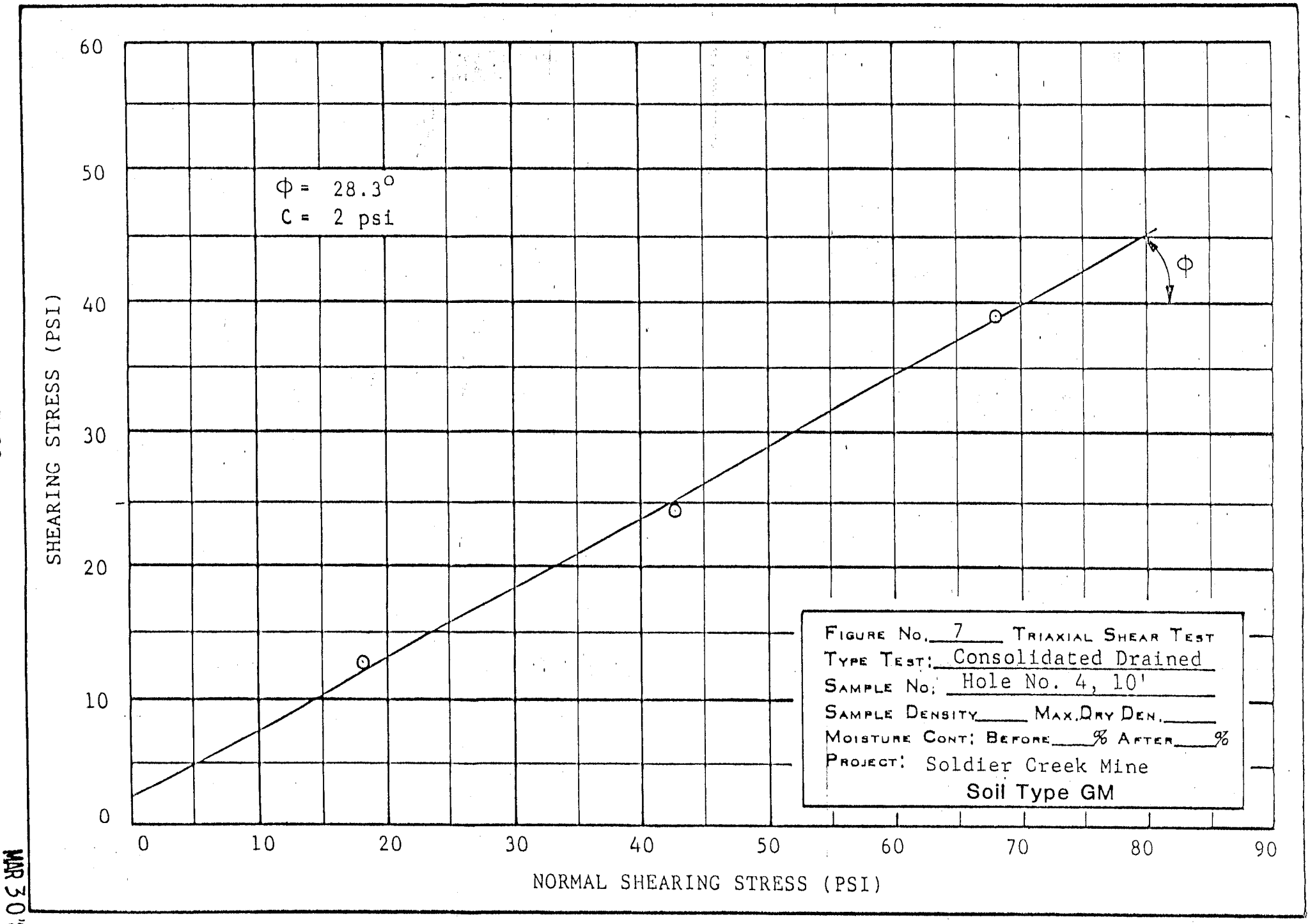
60
50
40
30
20
10
0
SHEARING STRESS (PSI)
0
10
20
30
40
50
60
70
80
90
NORMAL SHEARING STRESS (PSI)
Φ = 28.3°
C = 2 psi
Φ
FIGURE No. 7 TRIAXIAL SHEAR TEST
TYPE TEST: Consolidated Drained
SAMPLE No: Hole No. 4, 10'
SAMPLE DENSITY ____ MAX. DRY DEN. ____
MOISTURE CONT: BEFORE ____% AFTER ____%
PROJECT: Soldier Creek Mine
Soil Type GM

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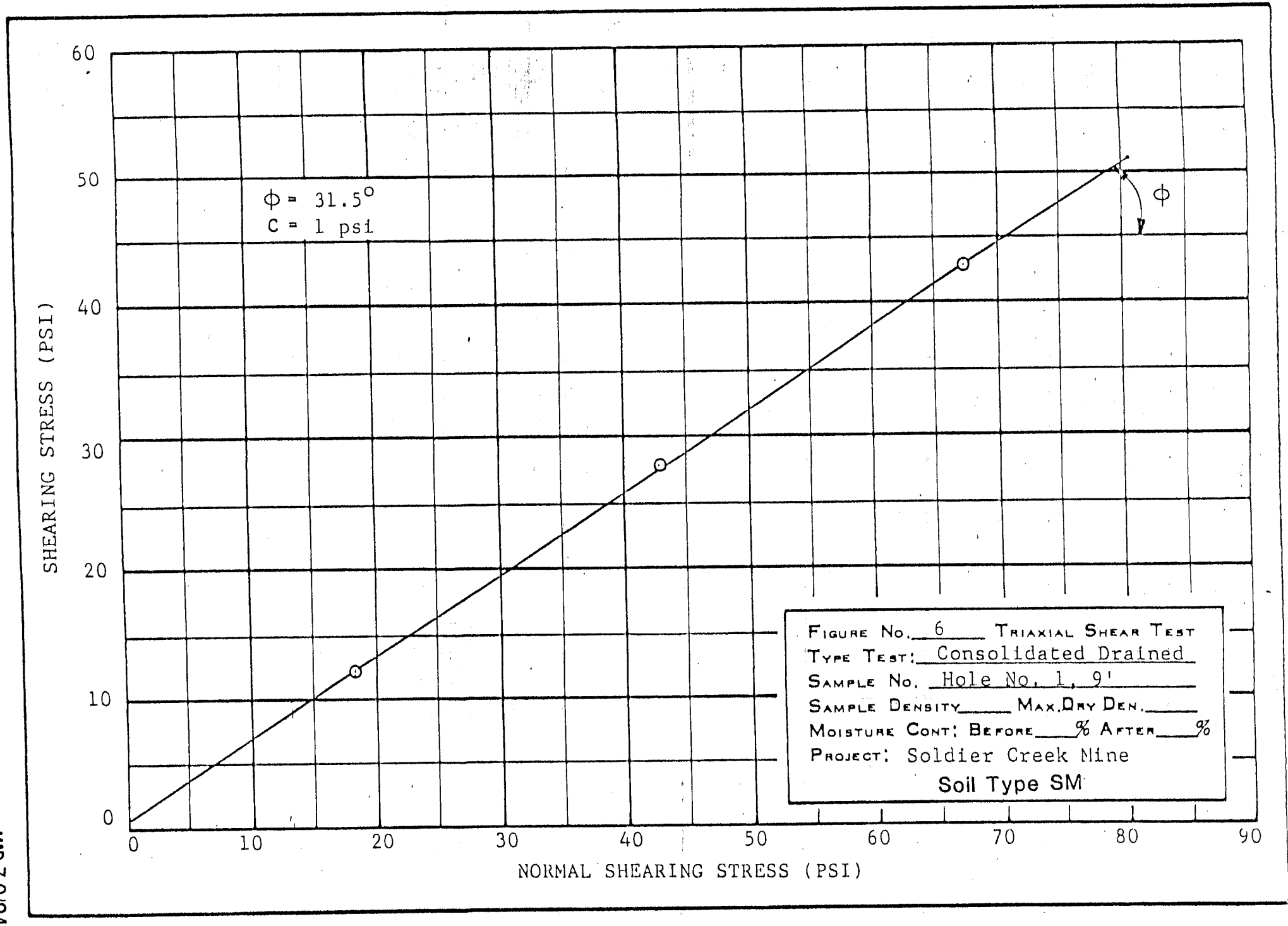
60
50
40
30
20
10
0
SHEARING STRESS (PSI)
0
10
20
30
40
50
60
70
80
90
NORMAL SHEARING STRESS (PSI)
Φ = 31.5°
C = 1 psi
Φ
FIGURE NO. 6 TRIAXIAL SHEAR TEST
TYPE TEST: Consolidated Drained
SAMPLE NO. Hole No. 1, 9'
SAMPLE DENSITY ____ MAX. DRY DEN. ____
MOISTURE CONT: BEFORE ____% AFTER ____%
PROJECT: Soldier Creek Mine
Soil Type SM

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Table 3.2: Drainage Channel Stabilization Design

This table refers to the drainage channel that will be created after final reclamation. The calculations for the rip-rap protection were made using information taken from the Office of Surface Mining's "Surface Mining Water Diversion Design Manual, September 1982."

Maximum Slope - 20% (Drawing C-146)

Design Discharge - 27 cfs

Channel Base Width - 6 ft.

Using Figure 5.4 D_{50} = ?

D_{50} = 0.9 ft. We will use D_{50} = 1.0 ft.

d = 0.30 ft.

So, D_{50} Medium Size of Rock - 12 inches

D_{max} Maxiumum Size of Rock - 15 inches

D_{15} Minimal Size of Rock - 4 inches

Freeboard Requirements (F.B.)

C_{fb} = 0.3 ft. So, F.B. = 1.0 ft.

Assume

$D_{85'}$ = .9 inches

$D_{50'}$ = .4 inches

$D_{15'}$ = .1 inches

From U.S. Armp Corps of Engineers Filter Criteria

$$\frac{D_{15}}{D_{85'}} < 5 \quad ; \quad \frac{4 \text{ inches}}{0.9 \text{ inch}} = 4.44$$

$$\frac{D_{15}}{D_{15'}} < 40 \quad ; \quad \frac{4 \text{ inches}}{0.1 \text{ inch}} = 40.00$$

$$\frac{D_{50}}{D_{50'}} < 40 \quad ; \quad \frac{12 \text{ inches}}{0.4 \text{ inch}} = 30.00$$

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This will be the Filter Base Requirements:

$D_{85'}$ = 0.9 inch

$D_{50'}$ = 0.4 inch

$D_{15'}$ = 0.1 inch

The Final Channel Configuration is Shown Below:

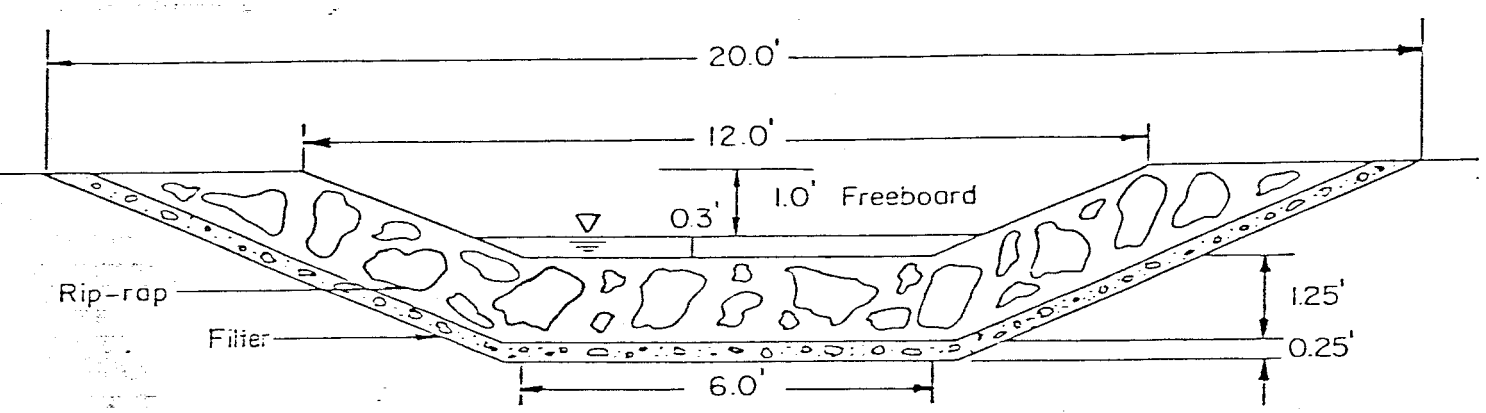

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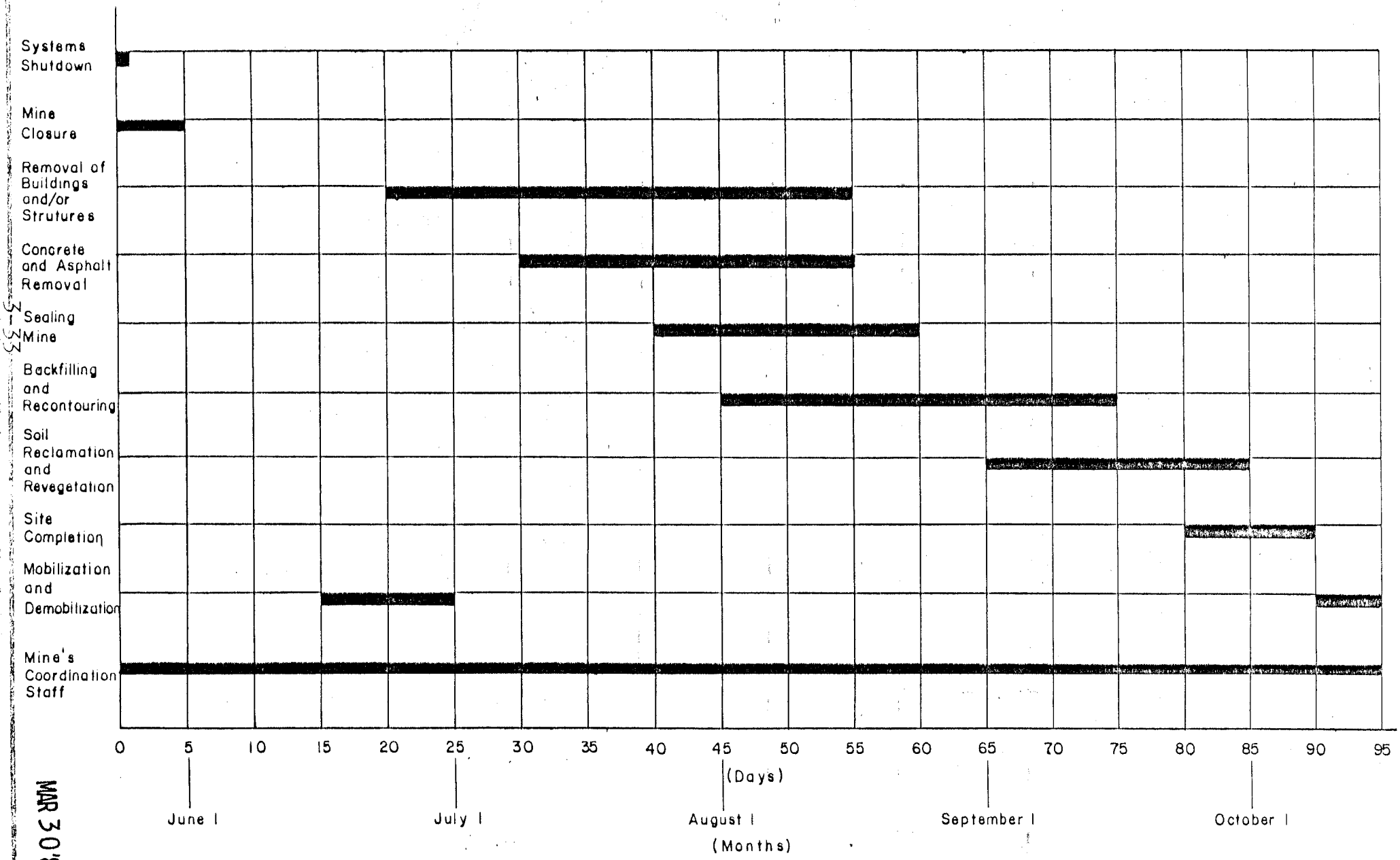
TABLE 3.3: FINAL RECLAMATION AND REVEGETATION TIMETABLE



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3.6 References and Correspondence

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STATE OF UTAH
NATURAL RESOURCES & ENERGY
Oil, Gas & Mining

4241 State Office Building • Salt Lake City UT 84114 • 801-533-5771

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Gregory P. Williams, Director

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October 15, 1982

Mr. David Spillman
Mine Engineer
Soldier Creek Coal Company
P.O. Box 1
Price, Utah 84501

RE: Updated Bond Estimate
Ventilation Modification
Soldier Canyon Mine
ACT/007/018

Dear Dave:

The bond estimate has been revised to reflect the change in use of equipment from a D-8 to a 955L Crawler Loader. The updated estimate is $11,723.46. The breakdown of costs is as follows:

A.	Equipment removal	$ 469.50
B.	Demolition & Disposal of Concrete	
	1. Concrete Motor House Walls & Roof	1,035.60
	2. Floor Slab & Pedestal for Motor	1,569.20
	3. Foundations	1,562.80
	4. Concrete Pads for Substation	965.40
C.	Shaft Sealing	1,740.00
D.	Miscellaneous	
	1. Fencing	254.20
	2. Guard Rail	127.10
	3. Diesel Tank	190.65
	4. Haulage	340.00
E.	Topsoil Placement & Regrading	
	1. Stockpiling	1,374.50
	2. Regrading	713.60
F.	Revegetation	381.21
G.	Monitoring	1,000.00
	TOTAL	11,723.76

If you have any questions on this please don't hesitate to contact me.

Sincerely,

Pamela Grubaugh-Littig

PAMELA GRUBAUGH-LITTIG
RECLAMATION ENGINEER

PGL/tck

cc: Tom Portle, DOGM
Floyd Johnson, OSM

Board/Charles R. Henderson, Chairman • John L. Bell • E. Steele McIntyre • Edward T. Beck
Robert R. Norman • Margaret R. Bird • Herm Olsen

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STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dr. G. A. (Jim) Shirazi, Division Director

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May 16, 1983

Mr. Tom Paluso
Soldier Creek Coal Company
P.O. Box I
Price, Utah 84501

Attention: David Spillman

RE: Bond Requirements
Relative to NOV 82-5-1-5
Soldier Canyon Mine
ACT/007/018
Folder No.'s 3 & 7
Carbon County, Utah

Dear Mr. Paluso:

Please find the enclosed bonding requirement as promised in an April 28, 1983 letter. As stated in that letter posting of adequate bond will allow the termination of NOV 82-5-1-5, #1 of 5.

Please post this bond as soon as possible. At that time the Division will be able to terminate the above referenced NOV and correspondence will be directed to this modification.

Should you have any questions please call.

Sincerely,

THOMAS L. PORTLE
RECLAMATION SOILS SPECIALIST

TLP/lm

cc: Allen Klein, OSM
Jim Smith, DOGM
Joe Helfrich, DOGM
Pam Grubaugh-Littig, DOGM
John Whitehead, DOGM
Bart Kale, DOGM

enclosure

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SOLDIER CREEK COAL COMPANY
RECLAMATION COST OF SEWAGE LAGOON

A. Demolition and Disposal of Concrete, Miscellaneous Pipe and Fixtures within the Sewage Lagoon

1.	D-8 (1) for 3 hrs @ $177.50/hr =	$532.50
2.	John Deere (1) 410 loader/backhoe for 3 hrs @ $36/hr =	108.00
3.	Supervisor (1) 8 hrs @ $15.65/hr =	125.20
4.	Equipment Operators for 6 hrs @ $13.45/hr =	80.70
5.	Laborers (2) for 8 hrs @ $7.05/hr =	112.80
		$959.20

B. Fence Removal

1.	John Deere 410 loader/backhoe (1) for 6 hrs @ $36/hr =	$216.00
2.	Equipment Operator (1) 6 hrs @ $13.45/hr =	80.70
3.	Laborers (2) for 6 hrs @ $7.05/hr =	84.60
		$381.30

C. Haulage of Refuse

50 mile round trip to Price City Landfill 2 round trips (2) ($0.85)(50) =	$85.00

D. Topsoil Replacement and Regrading

1.	Cat D-8 for 6 hrs @ $177.50/hr =	$1,065.00
2.	John Deere 301A for 8 hrs @ $11.30/hr =	90.40
3.	Disc - 8 ft for 8 hrs @ $50/day	50.00
4.	Equipment Operator for 8 hrs @ $13.45/hr =	107.60
		$1,313.00

E. Seeding

1.	Seed for 2 ac @ $216.04/ac =	$ 432.08
2.	Mulch for 2 ac # $60/ac =	120.00
3.	Laborers (4) for 18 hrs @ $7.05/hr =	507.60
		$1,059.68

F. Monitoring

8 hrs @ $15/hr = $120 for 3 yrs	$360.00

SUBTOTAL	$4,158.18
10% Contingency	415.82
	$4,574.00 (1983 Dollars)

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3.7 Maps and Drawings

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4.6 References and Correspondence

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CARBON COUNTY
PRICE, UTAH 84501

March 19, 1984

Sarah Bransom
Office of Surface Mining
WESTERN TECHNICAL CENTER
Brooks Towers, 1020 15th Street
Denver, Colorado 80202

Dear Ms. Bransom,

I am writing this letter in behalf of Chris Allen of Soldier Creek Coal Co. to clarify the counties position in regards to conducting underground mining activities in the CE-1 and CE-2 zones. At the time these zones were applied in the county most of the mines were already in operation. The county and mines were and still are in agreement that underground mining can and shall take place in the subsurface of these zones without conflicts with the zoning ordinances.

The surface and support structures of Soldier Creek Coal were approved and already in place at the time of the enactment of this ordinance.

I hope this letter will help clear up your concerns on this matter. Please call if you have any further questions.

Sincerely,

Harold R. Marston
Carbon County Planner

CC: Chris Allen
P.O. Box I
Price, Utah 84501

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4.7 Maps and Drawings

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whether or not adverse effects to any site listed on the NRHP will occur as a result of mining. The survey will also be directed to comply with EO11593 and the National Historic Preservation Act.

Prior to the construction of the sewage lagoon site, the BLM was requested to determine the need for a survey. The Bureau determined that since the site was previously disturbed by an old county road and gravel storage site, there was no need for a cultural survey. However, a visual check was made of the area for any obvious sites before construction commenced.

5.3 Public Parks

Research of the mine plan area by both the Bureau of Land Management and the Forest Service showed there exists no public parks within or adjacent to the area, therefore, mining will have no adverse affect.

Note: Soldier Creek Coal Company has committed to a 10 percent random survey during the summer of 1984, but will change the random survey to a survey of 210 acres of high interest land shown on Drawing D174. This drawing is provided in the map section of this chapter. Also, prior to any ground surface disturbance in the vicinity of a cultural site eligible for nomination to the NRHP, Soldier Creek Coal Company will consult with and obtain the approval of SHPO and OSM concerning the development and implementation of appropriate impact mitigation measures.

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7.1.1 (UMC 784.14) Potential Mine Inflows and Discharge

Waddel, 1983, reports that the annual recharge to the aquifers near Soldier Canyon Mine is 2 inches/year. Barring large inflows into the mine, the maximum rate of inflow steady state, long term, would be 2 inches/year. The actual inflow, net increase of volume/year, is likely to be lower than this given the low hydraulic conductivities (as low as 20 to 30 feet/year) and consequent low hydraulic gradients. In addition, computer simulations show that the long term flow component is northward along the bedding planes. Water in the mine will tend to follow this trend and discharge northward into the regional aquifer system. Based on the above maximum recharge rate and a 10 foot entry height, it would take 48 to 60 years for the mine to fill up with water, if no natural or man-made discharge occurred. In reality this period would be longer since the mine is hydrologically connected to the lower aquifers. Water in the mine would migrate northward to the lower elevations and feed the lower aquifers.

With regard to outflows through the mine portals subsequent to mine flooding, the quality of such waters should be approximately the same as that of the sump water if the flow rates are low. For high and initial outflows, the suspended load in the outflows could be substantially higher, followed by lower loads for subsequent flows. The portal areas would be subject to a flushing action in this situation. Concentration of dissolved pollutants should be less than or equal to for sump water. Water quality data for mine sumps is given on Table 19 of the R & M report. Accurate predictions of water quality in this case are not possible.

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7.2 Surface Water Hydrology

7.2.3.1 (UMC 784.22) Diversions: The size of all diversions within the surface disturbance area is shown on Map E011. The undisturbed drainage from Watershed #1 is diverted across the disturbed area by a 30 inch culvert and into Soldier Creek. This drainage empties from the 30 inch culvert and onto a bedrock portion of the streambed. The disturbed drainage is collected by a network of 18 inch by 18 inch concrete ditches, 24 inch half-round culverts, 24 inch culverts and cobblestone ditches and directed into the sediment pond. Design details for this network are given in the Vaughn Hansen Associates' "Soldier Canyon Mine Runoff Control Plan" and by additional information submitted to the Utah Division of Oil, Gas and Mining. The additional information and approvals for design are shown at the end of this chapter.

7.2.3.2 (UMC 817.43, .44 and .47) Hydrologic Balance: The shaft site is not tied into the runoff control program for the main facilities and storage yards. The sediment control for the shaft site, because of the minimal size (0.4 acre) and low runoff potential (0.016 cubic feet per second), consists of grading the area gently into the natural drainage and placement of a 4 inch layer of gravel over the entire area. Straw bales will be used if further reduction of sediment is needed. Details of the site were sent to the Utah Division of Oil, Gas and Mining in documents prepared by Kaiser Engineers for Soldier Creek Coal Company and conditional approval was granted on September 3, 1982. Copies of the Utah Division of Oil, Gas and Mining's conditional approval and Soldier Creek Coal Company's acceptance of the approval is included at the end of this chapter.

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The reclamation of the shaft area will be consistent with all final reclamation plans. Pre-disturbance contours of the area are shown on Map E011 (labeled Exhaust Fan and Substation Site). These contours will be the approximate final contours after reclamation of the area. A copy of the reclamation cost and bond approval is included at the end of the chapter.

The permanent drainage channel to be created during final reclamation is shown on Map E010. This channel will collect all drainage from Watershed #1 and the disturbed area, except the shaft site. The channel will be completely rip-rap lined and approximate dimensions are shown on Table 3.2. The slope, location and longitudinal profile of the channel are shown on Drawing C149. The energy dissipators will be the rip-rap material that lines the channel and the bedrock that makes up the Soldier Creek streambed at the conclusion of the channel.

7.3 (UMC 785.19 and 822) Alluvial Valley Floors

The topography and water resources of the mine permit area are shown on Drawing D153, located at the end of Chapter 10. The steep mountainous terrain with narrow valleys, characteristic of the area, do not contain the flood plains and terraces underlain by unconsolidated stream-laid deposits needed to constitute an alluvial valley floor. In addition to the terrain, the area has not been or could not be subjected to flood irrigation and/or subirrigation. The limited area, terrain and intermittent nature of the streams are the reasons for no agricultural production within the mine permit area.

There has been a positive identification of an alluvial valley floor adjacent to the mine permit area. The area is south of the

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main facilities and the sewage lagoon site. The only disturbances that the mining operation could have on the alluvial valley floor are as follows:

1) Reduction of the water supply

2) Degradation of the water quality

3) Location of a mine facility within the alluvial valley floor

The mitigative measures that will be taken to limit any disturbance to the alluvial valley floor are to monitor the surface waters for quality and quantity and to locate mine facilities away from any alluvial valley floor. Corrective measures will be taken if the mining operation harms the quality or quantity of surface water. The measures will be the best technically available at the time of disturbance.

7.4 <u>(UMC 817.54) Water Rights and Replacement</u>

7.4.1 Soldier Creek Coal Company believes that the potential for significant water losses from Soldier Creek into the mine workings is minimal. This belief is based on existing hydrologic and geologic information and past mining experience.

Underground mining operations have been conducted beneath Soldier Creek in two areas, i.e., Main East and the Pump Slope Mains. Both sections encountered greater than normal quantities of water. Further analysis has shown that this inflow can be attributed directly to other man-made features and not just simply the proximity of the mining operations to the stream channel.

The Pump Slope Mains were developed in conjunction with a vertical ventilation shaft. The inflow of water is isolated to the immediate vicinity surrounding the surface to mine connection.

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The Main East development intercepted drill hole RP4. The water inflow is isolated to the entry nearest this drill hole. RP4 was drilled in 1974 by Premium Coal Company. Further investigation has shown that problems encountered during drilling prevented the hole from being adequately cemented.

In both sections water inflow is directly associated with a man-made feature that penetrates strata overlaying mine workings from the surface, thus providing an avenue for water flow through the impermeable layers of the overlaying strata.

Other entries not associated with the man-made features exhibit no abnormal inflow of water. Therefore, it is believed that future mining operations beneath the stream channel will in no way jeopardize the flow in Soldier Creek.

7.4.2 In the event that unknown conditions would result in a substantial loss of flow from Soldier Creek into the mine, the following contingency plan would be implemented.

1) The necessary regulatory agencies will be notified of any major inflow of water encountered during mining.
2) Pumping of water would commence as soon as possible. This would restore any lost flow directly to Soldier Creek via the existing mine discharge system. (Please note that an 8 inch discharge line was recently installed in conjunction with the ventilation shaft. This substantially increases the mine's discharge capabilities.)
3) Data concerning flow and quality will be collected in accordance to the approved water monitoring program. The

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frequency of sampling may be increased in order to better assess total impact to the hydrologic system.

4) An assessment of the geologic formation and/or anomalies associated with the inflow of water will be made.

5) Based on the hydrologic and geologic data collected, a plan to mitigate water loss would be implemented. This may include solutions such as high pressure grouting of the geologic formation and/or sealing a portion of the mine with barriers capable of withstanding the expected hydrologic pressure. If the inflow is isolated to a specific area located on the surface, lining of the stream channel can be a successful solution.

7.4.3 The water rights owned by Soldier Creek Coal Company are described by the documentation presented in the correspondence section of this chapter. Upon completion of mining operations, if deemed necessary these water rights will be used to mitigate water loss affecting other water users.

7.4.4 The contingency plan that will be implemented should Soldier Creek Coal Company, through a subsidence effect, dry up any major perennial spring or seep is as follows:

1) Contact the necessary regulatory agencies as soon as the problem is encountered.

2) Any water flowing into the mine, associated with the spring or seep, will be pumped directly into Soldier Creek.

3) All data concerning quantity and quality of the affected water will be collected using an approved water monitoring plan.

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4) An assessment of the geologic conditions associated with the severed waters will be made to determine the method to replace them.

5) Methods that will be considered are:

   a) High pressure grouting to seal fractures.

   b) Channel lining of the affected area.

   c) The installation of water retention devices in affected areas.

   d) The purchasing of part of a mitigation project that is now being set-up by the Utah Division of Wildlife Resources.

   (The last two methods would be used together to suffice mitigative responsibilities for both water and habitat replacement.)

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Table 7.1: Water Monitoring Plan

The information contained within this plan will supersede any plan and/or plans submitted to the Utah Division of Oil, Gas and Mining or the Office of Surface Mining prior to March, 1984.

Surface Water Monitoring

The location of all surface water monitoring points is shown on Figure 8. This can be found at the end of R & M's Report, Section 7.1. The points listed as above mine and below mine will be used to monitor Soldier Creek. The springs to be monitored are S31-1, G88, G89 and G90 (S8-1). Spring G88 and G89 will be monitored because these springs may have flow contribution from the aquifer which Soldier Creek Coal Company has an effect on. Springs S31-1 and G90 will be monitored because they either have water rights associated with them or they are perennial springs supporting high wildlife utilization or riparian/wetland habitat.

Sampling Plan

Above and Below Soldier Creek

Timeframe	Quantity	Quality
April	x[1]	z[4]
May	x	y[2]
June	x	y
July	x	y
August	x	z

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Springs

Timeframe	Quantity	Quality
February	x	y
June	x	z
July	x	f[3]
August	x	y
November	x	z

[1]x - Flow in gallons per minute.

[2]y - Abbreviated water quality parameters; pH, temperature, total suspended solids, sodium, potassium, calcium, magnesium, iron (total), chloride, bicarbonate, sulfate, carbonate and total dissolved solids. A cation/anion balance in milliequivalents per liter will be given for each sample analysis and field specific electrical conductance.

[3]f - Field water quality parameters; pH, temperature, electrical conductance and calculated total dissolved solids.

[4]z - Complete suite of parameters recommended by the Utah Division of Oil, Gas and Mining (UDOGM) listed in the correspondence of this chapter.

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In-Mine Groundwater Monitoring

All points and/or areas of defined measurable flow, greater than 1 gallon per minute, will be sampled monthly for flow and field quality parameters. All sites that will now be monitored are shown on the seep map located at the end of this chapter. New sources will be monitored for flow rate and field quality parameters and then added to the regular monitoring if they continue to flow for 30 days. In addition to the monthly monitoring, sources will be monitored quarterly using an abbreviated water quality list and biannually using a full list of quality parameters.

Sampling Plan

Baseline

TIMEFRAME	QUANTITY	QUALITY
January	x[1]	m[2]
February	x	q[3]
March	x	b[4]
April	x	m
May	x	q
June	x	m
July	x	m
August	x	q
September	x	b
October	x	m
November	x	q
December	x	m

[1]x - Flow in gallons per minute.

[2]m - Monthly field quality parameters; pH, temperature, electrical conductance and calculated total dissolved solids.

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[3]q - Quarterly laboratory quality parameters; pH, temperature, sodium, potassium, calcium, magnesium, iron (total), chloride, bicarbonate, sulfate, carbonate and total dissolved solids. A cation/anion balance in milliequivalents per liter will be given for each sample analysis.

[4]b - Biannual laboratory quality parameters; the Utah Division of Oil, Gas and Mining's recommended suite of parameters lists in the correspondence section of this chapter.

After Baseline

TIMEFRAME	QUANTITY	QUALITY
February	x[1]	a[2]
May	x	f[3]
August	x	c[4]
November	x	f

[1]x - Flow in gallons per minute.

[2]a - Abbreviated water quality parameters; pH, temperature, sodium, potassium, calcium, magnesium, iron (total), chloride, bicarbonate, sulfate, carbonate and total dissolved solids. A cation/anion balance in milliequivalents per liter will be given for each sample analysis.

[3]f - Field water quality parameters; pH, temperature, electrical conductance and calculated total dissolved solids.

[4]c - Complete suite of parameters recommended by the Utah Division of Oil, Gas and Mining (UDOGM) listed in the correspondence section of this chapter.

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The baseline sampling plan will be carried out for one year and after this Soldier Creek Coal Company will evaluate the information with UDOGM to check if it will satisfy the needed information parameters. If the information does not satisfy the parameters an extension of the baseline monitoring will be agreed on by both parties. If the information is sufficient the monitoring will change to the after baseline plan.

Water quality data will be submitted for all sites on a quarterly basis, March, June, September and December. The in-mine monitoring report will include a map showing all locations and an indication of the geologic source. The surface water monitoring report will also contain a map showing all locations that are being monitored and a general description of the area. Annually, Soldier Creek Coal Company will detail a single report of all water monitoring sites which will include flow, ground water consumption and an assessment of the data taken over the year.

In addition to the surface and in-mine water monitoring, all water pumped out of the mine under an NPDES permit will be monitored monthly. The monitoring will consist of measurements for acidity, alkalinity, iron (total), oil and grease, suspended soils, total dissolved solids, pH, temperature and quantity. Reports that are submitted to the Environmental Protection Agency on a quarterly basis will also be submitted to DOGM.

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Addendum to Table 7.1

Estimated Mining Related Water Consumption

The total consumption of groundwater, due to mining, is a combination of moisture added to the coal mined and evaporation due to ventilation of the mine works. It is estimated that 5,000,000 gallons of water are added annually to the coal produced. This is based on an annual production of 520,000 tons with the inherent moisture of coal being 4% and the average final moisture being 8%. The estimated annual loss of groundwater due to evaporation is 12,000,000 gallons. This is based on 400,000 CFM of air continuously entering the mine at 33% humidity and leaving the mine at 80% humidity. The total annual consumption of groundwater is therefore, 17,000,000 gallons or 52.2 acre-ft.

Note: Implementation of Soldier Creek Coal Company's proposed groundwater monitoring program will verify all consumption and discharge of groundwater.

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7.4 References and Correspondence

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Entry No. 131930
Indexed ✓
Abstracted ✓
Rec. Fee 2.00

STATE OF UTAH)
COUNTY OF CARBON) SS
FILED AND RECORDED FOR
Calif. Portland Cement
Oct 4 11 0 AM '74
BOOK 150 OF Records
PAGE 117
ANN O'BRIEN
COUNTY RECORDER

ASSIGNMENT OF WATER RIGHT

WE, CLEMENTE J. MARINONI, JOHN A. MARINONI, JOSEPH A. MARINONI AND AURELIA M. COOLEY, FORMERLY DOING BUSINESS UNDER THE NAME AND STYLE OF PREMIUM COAL COMPANY, A PARTNERSHIP, FOR GOOD AND VALUABLE CONSIDERATION, RECEIPT OF WHICH IS HEREBY ACKNOWLEDGED, HEREBY CONVEY AND ASSIGN TO CALIFORNIA PORTLAND CEMENT COMPANY, A CALIFORNIA CORPORATION, 800 WILSHIRE BOULEVARD, LOS ANGELES, CALIFORNIA 90017, APPLICATION NUMBER 25778 FOR THE USE OF 0.25 CFS OF WATER WITH PRIORITY OF MAY 6, 1954 AND A PERIOD OF USE FROM JANUARY 1ST TO DECEMBER 31ST FOR INDUSTRIAL USE FOR COAL MINING OPERATIONS. SAID APPLICATION IS FURTHER IDENTIFIED AS W.U.C. NUMBER 203, MAP NUMBER 44. THE POINT OF DIVERSION OF SAID WATER RIGHT IS SOUTH 780 FEET AND EAST 900 FEET FROM THE NORTH QUARTER CORNER OF SECTION 18, TOWNSHIP 13 SOUTH, RANGE 12 EAST OF THE SALT LAKE MERIDIAN.

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WE FURTHER CERTIFY THAT WE FORMERLY DID BUSINESS UNDER THE NAME AND STYLE OF PREMIUM COAL COMPANY, A PARTNERSHIP, AND THAT SAID PARTNERSHIP IS DISSOLVED AND THAT WE ARE THE SOLE PARTIES INTERESTED IN THE WATER APPLICATION DESCRIBED IN THE FOREGOING PARAGRAPH.

WITNESS OUR HANDS THIS 31ST DAY OF JULY, 1974.

Clemente J. Marinoni
CLEMENTE J. MARINONI

John A. Marinoni
JOHN A. MARINONI

Joseph A. Marinoni
JOSEPH A. MARINONI

Aurelia M. Cooley
AURELIA M. COOLEY

FORMERLY DOING BUSINESS UNDER THE
NAME AND STYLE OF
PREMIUM COAL COMPANY
A PARTNERSHIP

STATE OF UTAH)
: SS.
COUNTY OF CARBON)

PERSONALLY APPEARED BEFORE ME THIS 31ST DAY OF JULY, 1974, CLEMENTE J. MARINONI, JOHN A. MARINONI, JOSEPH A. MARINONI AND AURELIA M. COOLEY, THE SIGNERS OF THE FOREGOING INSTRUMENT WHO DULY ACKNOWLEDGED TO ME THAT THEY EXECUTED THE SAME, AND THAT THEY FORMERLY DID BUSINESS UNDER THE NAME AND STYLE OF PREMIUM COAL COMPANY, A PARTNERSHIP.

Jeanette C. Walsh
NOTARY PUBLIC

MY COMMISSION EXPIRES:
SEPTEMBER 17, 1975

RESIDENCE: PRICE, UTAH

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1970

Form 114
25M 4-63

IN THE SEVENTH JUDICIAL DISTRICT COURT, IN AND FOR THE COUNTY OF CARBON STATE OF UTAH

IN THE MATTER OF THE GENERAL DETERMINATION OF RIGHTS TO THE USE OF WATER, BOTH SURFACE AND UNDERGROUND, WITHIN THE DRAINAGE AREA OF THE PRICE RIVER AND OF THE DRAINAGE AREA OF THE GREEN RIVER FROM THE CONFLUENCE OF THE PRICE AND GREEN RIVERS TO THE CONFLUENCE OF THE GREEN AND COLORADO RIVERS EXCLUDING THE DRAINAGE AREA OF THE SAN RAFAEL RIVER IN UTAH

STATEMENT OF WATER USER'S CLAIM
CODE NO. 91 SERIAL NO. 203
MAP NO. 44

NOTE: This blank is sent to you in accordance with Utah Law. The information called for herein will be used in connection with the adjudication of water rights on the above mentioned drainage area. All questions applicable to your claim must be answered fully, and one copy of this form must be filed with the Clerk of the District Court at Price, Utah, within sixty (60) days from date of service of the attached Notice. A copy shall be filed with the State Engineer, State Capitol, Salt Lake City. Failure to file the attached Statement of the Water User's Claim with the Clerk of the District Court within the time stated will forever bar and estop you from asserting any right to the use of water from said drainage area.

1. Name of Claimant Premium Coal Company
355 North 5th West Interest Claimed Full
2. Address Price, Utah 84501
3. Name of particular spring, spring area, stream, well, tunnel or drain from which water is diverted is Underground Water in Carbon County.
4. Priority date claimed May 6, 1954 Date when water was first used
Date when work on diverting system was first begun Date when diverting system was completed
Nature of work
5. Class of Right (Indicate by X):
(a) Right to surface water initiated by beneficial use before 1903 Claim No.
(b) Right to underground water initiated before 1935 Claim No.
(c) Right decreed by court, cite title of case
(d) X Application filed, State Engineer's Office No. 25778 Cert. of App. No. Elect.
(e) Right acquired by adverse use prior to 1939
6. Nature (Indicate by X), Amount, and Annual Period of Use (by month & day):
(a) Irrigation Sec. Ft. from to (both dates incl.)
(b) Stockwatering Sec. Ft. from to (both dates incl.)
(c) Domestic Sec. Ft. from to (both dates incl.)
(d) Municipal Sec. Ft. from to (both dates incl.)
(e) Industrial Sec. Ft. 0.25 from January 1 to December 31 (both dates incl.)
7. Direct Flow Appropriation (must be described with reference to U. S. Government Survey Corner)
(a) Point of diversion from spring, spring area, stream, well, tunnel, drain S. 780 ft. and E. 900 ft. from N¼ Cor., Sec. 18, T13S, R12E, SL B&M.
(b) Description of spring area
(c) Point of rediversion or point of return to natural channel
(d) If flow is intermittently diverted, list by number or description, all rights involved
8. Where water is used for irrigation purposes:
(a) Area irrigated in legal subdivisions of land by 40-acre tract. (All sources of water for same land or lands must be described in each instance by name or claim number)
(b) Do you get water under a ditch owned by several users If so, give names of all users and divisions of interest
9. Where water is used for Stockwatering:
(a) Number of each kind of stock watered
(b) All sources of water for same stock. (Describe by name or claim number)
10. Where water is used for Domestic:
(a) Number of families or their equivalent All sources of water for same use. (Describe by name or claim number)

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11. Where water is used for Municipal Purposes:
(a) Name of city or town supplied ..... Population .....
Number of families ..... Quantity of water .....

12. Where water is used for a purpose not above enumerated:
(a) Nature of Use ..... Extent of Use .....
Industrial use for coal mining purposes and operation.

13. Appropriation for Storage Purposes:
(a) Name of reservoir .....
(b) Location of reservoir by legal subdivisions described by 40-acre tracts .....
(c) Maximum capacity of reservoir in acre feet ..... : Year construction commenced .....
Completed .....: Water first used ..... Is reservoir located on or off stream.....
(d) Period of Storage from ..... to ..... (both dates incl.). Period of use from .....
to..... (both dates incl.). Maximum area in acres inundated ..... Max. depth in feet.....
Average depth in feet..... Is reservoir drained each year..... Maximum number of fillings per year. ... Is reservoir used for equalizing purposes..... If feeder canal is used, give maximum carrying capacity in sec. ft.....

14. Diverting Works:
(a) Surface water diverting dam: Material composed of .....
Max. length ..... Max. height ..... Max. width at bottom..... Max. width at top. .....
(b) Underground water diverting works: Is well flowing or pump. ..... Depth of well.....
Diameter of well ..... Length of drain..... Width of drain ..... Depth of drain.....
Diameter of drain..... Length of tunnel ..... Width of tunnel..... Height of tunnel.....
Type of pump ..... Capacity of pump.....
(c) Surface and underground water conveying works: Length of ditch to first place of use ..... Width of ditch at top ..... Width of ditch at bottom ..... Depth of water..... Grade of ditch per 1000 ft. ..... Material through which ditch passes. ..... Maximum length of pipe line to first place of use..... Diameter of pipe line ..... Grade of pipe line per 1000 feet .....

15. The undersigned hereby enters his appearance and waives service of summons or other process.

STATE OF UTAH
COUNTY OF ..... } SS. (To be used if claimant is an individual)

..... being first duly sworn, upon oath deposes and says that he is the claimant whose name appears hereon, that he has read the foregoing statement of his claim and knows the contents thereof, that he has signed the same, and that the answers set forth therein are true to his best knowledge and belief.

Mrs. Cecilia M. Cooley
Signature of Claimant Petitioner

Subscribed and sworn to before me this 24 day of September 19 65

Fern K. Brown
NOTARY PUBLIC

My Commission Expires May 31, 1972

STATE OF UTAH
COUNTY OF ..... } SS. (To be used if claimant is a corporation or an estate)

..... , being first duly sworn, upon oath deposes and says that he is the ..... of the above claimant, that he makes this certification on behalf of said claimant, that he has read the foregoing statement of claim and knows the contents thereof, and that he has signed the name of said claimant to said statement, that the answers set forth therein are true to his best knowledge and belief.

Subscribed and sworn to before me this ..... day of ..... 19.....

NOTARY PUBLIC

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(EXAMPLE)

FIELD MEASUREMENTS FORM

Site: _____ Date: _____

Spring/stream/well/other Company: _____

_____1/4, Section____, Township____ N.S., Range____ E.W.,_____County, Utah

Source (Formation): _____

Point of Collection: _____

Air Temperature: _____ Time: _____

Discharge: _____ Methods: _____

Water Level (well): _____

pH (adjusted to 25°C): _____

Specific Conductance (mhos/cm adjusted to 25°C): _____

Appearance of Water: _____

General Weather Conditions: _____

Comments: _____

_____

_____

Quality Samples Taken: yes ( ) no ( )

Sample Filtered?: _____ Acidified?: _____

Name of Samplers): _____

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(EXAMPLE)

WATER QUALITY
LAB ANALYSIS REPORT FORM

Company or Operator: _____

Site: _____ Spring/stream/well/other

Date Collected: _____ Time Collected: _____

Date(s) Analysis(es) Completed: _____

Specific Conductance (mhos/cm at 25°C): _____

Total Suspended Sediment (mg/l): _____ Lab pH: _____

Turbidity (jtu): _____ Total Dissolved Solids (mg/l): _____

Charge-Mass Balance (Cation-Anion balance): _____

Oil and Grease (mg/l): _____

	(Unfiltered) Total mg/l	(Filtered) Dissolved mg/l
Carbonate (CO_3)	_____	_____
Bicarbonate (HCO_3)	_____	_____
Chloride (Cl)	_____	_____
Sulfate (SO_4)	_____	_____
Calcium (Ca)	_____	_____
Magnesium (Mg)	_____	_____
Sodium (Na)	_____	_____
Potassium (K)	_____	_____
Fluoride (F)	_____	_____
Nitrate (NO_3) + N	_____	_____
Orthophosphate (PO_4)	_____	_____
Boron (B)	_____	_____
Nickel (Ni)	_____	_____

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Water Quality Lab Analysis Report Form (continued)

	(Unfiltered) Total mg/l	(Filtered) Dissolved mg/l
Arsenic (As)	_____	_____
Barium (Ba)	_____	_____
Aluminum (Al)	_____	_____
Iron (FE)	_____	_____
Manganese (MN)	_____	_____
Cadmium (Cd)	_____	_____
Copper (Cu)	_____	_____
Lead (Pb)	_____	_____
Zinc (Zn)	_____	_____
Chromium (Cr)	_____	_____
Mercury (Hg)	_____	_____
Selenium (Se)	_____	_____
Vanadium (V)	_____	_____

*And other as required by the Division or desired by the operator.

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Table 1. Baseline Water Quality Parameter List

		Units	Required(3)
Field:(2)	Water Levels or Flow		X
	pH		X
	Dissolved Oxygen(1)	mg/L	
	Conductivity at 25° c	umhos/cm	X
	Temperature at 25° c	C°	X
Turbidity		JTU	
Total Suspended Solids(1)		mg/L	X
Total Combustable Solids(1)		mg/L	X only if visible coal fines, oil or grease
Total Dissolved Solids		mg/L	X
Total Hardness (as $CaCO_3$)		mg/L	X
Chemical Oxygen Demand		mg/L O_2	
Aluminum (Al)		mg/L	X
Arsenic (As)		mg/L	X
Barium (Ba)		mg/L	X
Boron (B)		mg/L	X
Carbonate (CO_3^{-2})		mg/L	X
Bicarbonate (HCO_3^{-1})		mg/L	X
Cadmium (Cd)		mg/L	X
Calcium (Ca)		mg/L	X
Chloride (Cl^{-1})		mg/L	X
Chromium (Cr)		mg/L	X
Copper (Cu)		mg/L	X
Fluoride (F^{-1})		mg/L	X
Iron - Total (Fe)		mg/L	X
	Dissolved (Fe)	mg/L	
Lead (Pb)		mg/L	X
Magnesium (mg)		mg/L	X
Manganese (mn)		mg/L	X
Mercury (hg)		mg/L	X
Molybdenum (Mo)		mg/L	X
Nickel (Ni)		mg/L	X
Nitrogen: Ammonia (NH_3)		mg/L	X
Nitrate $(NO_3)^{-1}$, Nitrite (NO_2)		mg/L	X
Potassium (K)		mg/L	X
Phosphate:	Total (PO_4^{-3}) (1)	mg/L	X Surface Water
	Dissolved	mg/L	X Ground Water
Selenium (Se)		mg/L	X
Sodium (Na)		mg/L	X
Sulfate (SO_4^{-2})		mg/L	X
Sulfide (S^{-1})		mg/L	X
Zinc (Zn)		mg/L	X
Other:	Gross Alpha	pic/L	Optional
	Gross Beta	pic/L	Optional

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Table 1. (continued)

These are the parameter requirements for surface and ground water. Total ionic constituent for surface water. Dissolved ionic constituent for ground water. Other parameters as deemed relevant by the Division (i.e., Be, Bi, Ag, Sr, etc.).

(1) Only for surface water samples.

(2) At the time of sampling.

(3) Those with (X) are required for baseline monitoring, those blank may be required. Some of the required parameters may be deleted after a review of a year's baseline by the Division.

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Table 2. Procedures for Preservation of Water Samples.

Parameter	Preservative	Maximum Holding Period
Acidity-alkalinity	Refrigeration at 4°C	24 hours
Biochemical oxygen demand	Refrigeration at 4°C	6 hours
Color	Refrigeration at 4°C	24 hours
Sulfate	Refrigeration at 4°C	7 days
Chemical oxygen demand	2 ml H_2SO_4 per liter	7 days
Oil and grase	2 ml H_2SO_4 per liter at 4°C	24 hours
Organic carbon	2 ml H_2SO_4 per liter (pH 2)	7 days
Calcium	None required	7 days
Chloride	None required	7 days
Fluoride	None required	7 days
Hardness	None required	7 days
Specific conductance	None required	7 days
Turbidity	None available	7 days
Cyanide	NaOH to pH 10	24 hours
Dissolved oxygen	Determine on-site	No holding
pH	Determine on-site & lab	No holding
Metals, total	4 ml HNO_3 per liter	6 months
Metals, dissolved	Filtrate: 3 ml 1:1 HNO_3 per liter	6 months
Nitrogen, ammonia	40 mg $HgCl_2$ per liter-4°C	7 days
Nitrogen, nitrate-nitrite	40 mg $HgCl_2$ per liter-4°C	7 days
Phosphorus	40 mg $HgCl_2$ per liter-4°C	7 days
Sulfide	2 ml zinc acetate per liter	7 days

Reference--Introduction to Natural Water Chemistry, Gordon K. Pagenkopf, 1978, Marcel Dekker, Inc., New York, New York.

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7.5 Maps and Drawings

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The fertilizers will be included in the drill seed mixtures and in the hydro-seed mixtures so that both seeds and fertilizers will be applied at the same time. When fertilizer is hand broadcast it will occur after seeding but prior to raking in the seeds.

There will not be a specific maintenance application plan for nutrients. The only time that nutrients will be reapplied to a reclaimed area is if the revegetation of the area fails. At this time the soils will be retested to determine if they are lacking proper nutrients and if tests show the lack of proper nutrients they will be added and the ground revegetated.

8.9 Mining Operation's Effects on Soils

Any effects the mining operations will have on any soils will be minimal due to the non-toxic nature of the materials used on the surface and the minimal area of surface disturbance.

Note: Approximately 6 inches of topsoil was stripped from the fan site. This amounted to 310 cubic yards of material which was stored at the sediment pond. Topsoil stripped at the sewage lagoon was of variable depth and amounted to 2000 cubic yards. This material was stored in the sewage lagoon dikes.

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8.10 Soil Suitability Analyses

The following report was prepared by Ford, Bacon and Davis for Soldier Creek Coal Company. This report contains information on the soils within the disturbed area. These soils will be used during final reclamation as growth medium.

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SOIL SUITABILITY ANALYSES FOR SOLDIER CREEK COAL COMPANY'S SOLDIER CANYON MINE

PREPARED FOR

SOLDIER CREEK COAL COMPANY
PRICE, UTAH

UC-551
MARCH 1984

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Note: The maps S-2 and S-3 that are referred to in this report are contained within Soldier Creek Coal Company's submittal and have the following titles and drawing numbers associated with them:

S-2, can be found in the map section of Chapter 3 listed as the Diversion Map, E011.

S-3, can be found in the map section of Chapter 3 listed as the Sewage Lagoon Reclamation Map, D143.

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UMC-784.13
Number 4.

All slopes, except pre-existing rock outcrops, will be reclaimed. Reclamation includes the application or redistribution of: topsoil, mulch, seed and fertilizer. For more information on soil nutrients and amendments see Table S-3.

UMC-817.111 REVEGETATION
Number 1.

All areas except for pre-existing rock outcrops will be reclaimed. After backfilling, regrading, scarification of the regraded surface and redistribution of 6 inches of topsoil plus fertilizing and seeding, then mulch will be applied. Slopes steeper than 30 percent will be hydroseeded. The hydroseed mulch application rate will be 1-2 tons per acre with a tackifier (binding agent) added to ensure the mulch remains in place. Fertilizer application rates will be identical for the areas that are broadcast or drilled. Mulch will be added to the surface of the soil, at the rate of 1-2 tons per acre, and crimped into the soil or tacked down using anchored netting. Detailed descriptions of the types and amounts of soil nutrients to be applied during reclamation are located in Section UMC-817.22 Topsoil, Table S-3.

2.b

When the cuts and bench areas are backfilled the soil and rock material will be compacted in a maximum of 18 inch lifts. The more coarse, rockier materials, will be segregated during backfilling, and will be placed on the bottom of the fill with the finer grained materials being salvaged for distribution on the surface. After final grades have been achieved and the area contoured to blend with the existing contours, the upper 18 inches of the backfill material will be ripped parallel to the contours producing a scarified surface. Ripping the

backfilled material will eliminate the deleterous effects of compaction, promote root penetration, provide a scarified surface to eliminate slippage of the redistributed topsoil, reduce erosion potential, and increase infiltration. After ripping and scarification the topsoil will be redistributed in a uniformly thick 6 inch layer. The redistributed topsoil will be hand raked parallel to the contour to remove the cobble sized rock fragments and to produce a scarified surface which will increase infiltration, provide a good seedbed by promoting a positive seed-soil contact, reduce erosion and increase the ability of the Hydroseed mix (and binding agent) to adhere to the soil.

Number 4.

Upon completion of the backfilling, grading and recontouring, a uniform 6 inch layer of topsoil will be redistributed on all "reclaimed" areas. As previously described the compacted backfill will be ripped parallel to the contour and the topsoil redistributed over this scarified surface. Steep slopes, as outlined on Map E-016 will be hydroseeded. The uniform 6 inch topsoil layer plus hydroseeding will be sufficient to establish and enhance vegetative growth.

Vegetative test plots (map S-2 & 3) will provide support documentation concerning the use of the 6 inches of topsoil, the recommended seed mixtures, plus types and rates of application of fertilizer and mulch.

The 6 inch layer of redistributed topsoil plus the fines in the upper 18 inches, and deeper, of backfilled material and the addition of soil nutrients and amendments will surpass the existing background soil conditions of the general area and the reference area. (See Table S-1).

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TABLE S-1

SOIL LABORATORY ANALYSES

*1 Sample	pH	a % OM	b SP	c EC	d SAR	e 1/3 Bar	f 15 Bar	g N	NO_3-N ppm	P ppm	K ppm	h HCO_3	h Ca	h Na	h Mg	Sand	Silt	Clay	i Texture	> 2mm
1	8.1	2.22	31.0	1.1	3.7	14.4	6.0	.09	6.8	5.9	218	1.8	7.3	8.3	2.6	56	29	15	SL	2.6
2	7.9	1.28	32.7	3.1	.8	13.6	6.5	.05	5.2	1.3	111	1.1	24.3	3.6	10.9	46	37	17	L	8.2
3	8.3	1.52	28.4	.5	.4	11.3	5.4	.05	2.1	5.1	172	2.5	2.8	.6	1.6	56	29	15	SL	11.2
4	8.3	.72	27.0	.4	.5	13.3	5.1	.03	.6	.5	184	2.0	2.0	.6	1.4	55	31	14	SL	.4
5	7.9	4.17	29.7	4.5	.5	13.6	6.7	.18	8.5	5.4	106	1.4	21.2	2.9	36.7	59	28	13	SL	33.0
6	8.0	14.3	33.4	1.0	.8	15.9	8.2	.14	1.9	1.7	75	2.1	5.8	1.9	4.4	50	33	17	L	53.5
7	8.2	1.52	27.1	.6	.4	10.7	4.8	.05	3.9	2.7	133	1.9	4.0	.7	1.6	62	24	14	SL	39.6
8	8.1	2.21	30.2	2.5	1.0	13.4	6.1	.06	12.3	1.5	127	2.1	11.7	3.5	14.8	57	27	16	SL	21.2
9	8.1	2.27	28.2	5.2	1.1	13.0	6.2	.05	22.4	2.7	227	1.4	19.5	6.1	39.8	51	31	18	L	24.7
10	7.8	3.14	27.4	5.0	.9	11.3	5.2	.06	2.1	1.2	56	1.3	23.4	5.1	33.3	55	31	14	SL	41.1
11	8.2	3.65	33.8	3.4	1.6	15.0	7.4	.09	5.4	1.2	130	1.6	11.8	7.1	25.5	46	36	18	L	24.6
12	8.2	1.41	34.3	.6	.3	15.0	7.2	.06	1.7	4.1	91	1.9	4,1	.6	2.5	44	38	18	L	10.4
13	8.3	.74	35.1	1.8	3.8	16.0	7.9	.05	2.4	2.9	130	1.6	4.2	8.8	6.3	40	40	20	L	3.4
14	8.3	.76	33.9	1.8	3.3	15.1	7.3	.04	5.0	2.9	178	1.3	4.8	7.8	6.4	43	39	18	L	14.2
15	8.1	1.00	26.2	.5	.4	8.7	3.9	.04	2.5	4.7	89	1.6	3.2	.6	1.2	65	21	14	SL	8.5
16	8.0	1.41	31.5	2.6	2.1	9.8	4.8	.04	4.1	1.3	172	1.6	13.0	7.1	10.2	59	27	14	SL	2.4

a = Percent organic mater
b = Water percentage at saturation
c = Electrical conductivity in mmos/cm
d = Sodium adsorption ratio
e = Percent soil moisture at 1/3 bar suction
f = Moisture percentage of soil water at 15 bars suction
g = Nitrogen in percent
h = Milliequivalents per liter of solubles in saturation extract
i = Texture L - loam SL - sandy loam
*1 = For location of test pit see maps D-143 and E-016

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Similar soils were disturbed near the mine site during the installation of a subsurface gas distribution line. No special precautions were taken to protect the "topsoil" or subsoils, or to ensure segregation during the installation of the pipe line. Rough surface grading and seeding, of native and introduced grasses, were the only reclamation measures installed. However, these measures were sufficient to allow for the adequate revegetation of the disturbed areas.

UMC-817.114 REVEGETATION: MULCHING AND OTHER SOIL STABILIZING PRACTICE

As previously described, all areas except pre-existing rock outcrops will be reclaimed. The reclaimed areas will receive seed, fertilizers, mulch or hydromulch. The rock outcrops are delineated on Map E-016.

UMC-817.22 TOPSOIL: REMOVAL
1.b

Soldier Creek Coal Company has not and is not proposing any additional surface disturbance. As required by law, should any new facilities or surface expansion become necessary, then Soldier Creek Coal Company would amend their permit and include all necessary data for approval of that amendment.

2-2nd Paragraph

The justification for use of 6 inches of redistributed topsoil will be based on test plots. The test plots will be established on the locations delineated on Maps S-2 and 3. The exact description of the vegetative test plots are described in detail in the vegetation section. The vegetative test plots will use representative soils types, plus the approved seed mix and the recommended types and application rates for both fertilizer and mulch.

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TABLE S-2

SOIL SUITABILITY FOR RECLAMATION

Sample	% OM		SP		pH		EC mmhos/cm		SAR		AWC %		Texture[b]		> 2 mm %		MC[c]		K[d] in/hr	
1	2.22	G[a]	31.0	G[a]	8.1	F[a]	1.1	G[a]	3.7	G[a]	8.4	F[a]	SL	G[a]	2.6	G[a]	Fr	G[a]	.6-2.0	G[a]
2	1.28	F	32.7	G	7.9	F	3.1	G	.8	G	7.1	F	L	G	8.2	G	Fr	G	.6-2.0	G
3	1.52	G	28.4	G	8.3	F	.5	G	.4	G	5.9	F	SL	G	11.2	G	Fr	G	2.0-6.0	G
4	.72	F	27.0	G	8.3	F	.4	G	.5	G	8.2	F	SL	G	.4	G	Fr	G	2.0-6.0	G
5	4.17	G	29.7	G	7.9	F	4.5	F	.5	G	6.9	F	SL	G	33.0	F	Fi	F	2.0-6.0	G
6	14.3	G	33.4	G	8.0	F	1.0	G	.8	G	7.7	F	L	G	53.5	P	Fi	F	2.0-6.0	G
7	1.52	G	27.1	G	8.2	F	.6	G	.4	G	5.9	F	SL	G	39.6	P	Fi	F	2.0-6.0	G
8	2.21	G	30.2	G	8.1	F	2.5	G	1.0	G	7.3	F	SL	G	21.2	F	Fi	F	2.0-6.0	G
9	2.27	G	28.2	G	8.1	F	5.2	F	1.1	G	6.8	F	L	G	24.7	F	Fr	G	2.0-6.0	G
10	3.14	G	27.4	G	7.8	G	5.0	F	.9	G	6.1	F	SL	G	41.1	P	Fi	F	2.0-6.0	G
11	3.65	G	33.8	G	8.2	F	3.4	G	1.6	G	7.6	F	L	G	24.6	F	Fr	G	2.0-6.0	G
12	1.41	F	34.3	G	8.2	F	.6	G	.3	G	7.8	F	L	G	10.4	G	Fr	G	.6-2.0	G
13	.74	F	35.1	G	8.3	F	1.8	G	3.8	G	8.1	F	L	G	3.4	G	Fr	G	.6-2.0	G
14	.76	F	33.9	G	8.3	F	1.8	G	3.3	G	7.8	F	L	G	14.2	G	Fr	G	.6-2.0	G
15	1.00	F	26.2	G	8.1	F	.5	G	.4	G	4.8	P	SL	G	8.5	G	Fr	G	2.0-6.0	G
16	1.41	F	31.5	G	8.0	F	2.6	G	2.1	G	5.0	F	SL	G	2.4	G	Fr	G	2.0-6.0	G

a = Suitability: G = Good, F = Fair, P = Poor
b = Texture: SL = Sandy Loam, L = Loam
c = Moist Consistency: Fr = Friable, Fi = Firm
d = K = Permeability in inches per hour

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TABLE S-3

REQUIRED SOIL NUTRIENTS AND AMENDMENTS

Area	Sample	OM %		NO_3-N ppm		P ppm		K ppm	
Topsoil Stockpile	1	2.22	1-2 tons /acre [a]	6.8	40 lbs /acre [b]	5.9	30 lbs /acre [c]	218	0 [d]
Sed. Pond Mixed	2	1.28	1-2 tons /acre	5.2	40 lbs /acre	1.3	30 lbs /acre	111	0
Sed. Pond Soil Horizon AB	3	1.52	1-2 tons /acre	2.1	40 lbs /acre	5.1	30 lbs /acre	172	0
Sed. Pond Soil Horizon C	4	.72	1-2 tons /acre	.6	40 lbs /acre	.5	30 lbs /acre	184	0
Parking Lot Mixed	5	4.17	1-2 tons /acre	8.5	20 lbs /acre	5.4	30 lbs /acre	106	0
Parking Lot Mixed	6	14.3	1-2 tons /acre	1.9	20 lbs /acre	1.7	30 lbs /acre	75	0
Up Storage Mixed	7	1.52	1-2 tons /acre	3.9	40 lbs /acre	2.7	30 lbs /acre	133	0
Up Storage Mixed	8	2.21	1-2 tons /acre	12.3	20 lbs /acre	1.5	30 lbs /acre	127	0
Up Storage Mixed	9	2.27	1-2 tons /acre	22.4	20 lbs /acre	2.7	30 lbs /acre	227	0
Crib Wall Mixed	10	3.14	1-2 tons /acre	2.1	40 lbs /acre	1.2	30 lbs /acre	56	30 lbs /acre
Parking Lot Mixed	11	3.65	1-2 tons /acre	5.4	40 lbs /acre	1.2	30 lbs /acre	130	0
Sewage Lagoon Composite	12	1.41	1-2 tons /acre	1.7	40 lbs /acre	4.1	30 lbs /acre	91	0
Sewage Lagoon Mixed	13	.74	1-2 tons /acre	2.4	40 lbs /acre	2.9	30 lbs /acre	130	0
Sewage Lagoon Mixed	14	.76	1-2 tons /acre	5.0	40 lbs /acre	2.9	30 lbs /acre	178	0
Fan Site Composite	15	1.00	1-2 tons /acre	2.5	40 lbs /acre	4.7	30 lbs /acre	89	0
Fan Site Composite	16	1.41	1-2 tons /acre	4.1	40 lbs /acre	1.3	30 lbs /acre	172	0

a = 1-2 tons per acre of straw or native grass hay
b = Sulfur coated urea 45-0-0
c = Triple super phosphate 0-46-0
d = Potassium nitrate 13-0-44

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One vegetative test plot will be located by the sewage lagoon on the loam soils which are present in the area. A second test plot area will be immediately above the office and warehouse on the sandy loam soils behind the crib wall. A third test plot currently exists on the topsoil stockpile. The sandy loam textured topsoil was seeded and covered at the suggested mulch rate (1-2 tons per acre) with straw which was tacked down using anchored jute netting.

Number 3.

TABLE S-4

Area	Sample Number	Storage Method	Acres	Volume yd^3
Topsoil Storage	1	Segregated	.03	310
Sediment Pond	2, 3, 4	Disturbed and Mixed	1.31	5,190
Parking Lot	5, 6, 11	Mixed	.62	9,800
Upper Storage Pad	7, 8, 9	Mixed	.88	5,300
Fan Site	15, 16	Disturbed	.39	3,000
Sewage Lagoon	12, 13, 14	Mixed	1.2	2,000
Crib Wall	10	Mixed	.28	3,700

TOPSOIL STORAGE AREA

Approximately 310 cubic yards of topsoil, the upper six inches was stripped prior to the installation of the fan and stockpiled on the southern portion of the sediment pond area. The topsoil stockpile is approximately fifty feet by thirty feet in width and six feet deep. The surface of the stockpile was seeded, covered by mulch and jute netting anchored over the mulch. The stockpile has sufficient vegetative cover to prevent unacceptable erosion and to protect the

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topsoil. The topsoil in the stockpile will be redistributed over the fan site after the fill material has been removed and the area recontoured.

The soils material in the topsoil stockpile has a good suitability rating for reclamation in all parameters except for pH. The pH of 8.1 has fair suitability. The application of 40 pounds per acre of sulfur coated urea will have a mitigating effect on the pH. This topsoil is well suited to providing a plant growth media for vegetative growth. (See Table S-2).

SEDIMENT POND

The sediment pond area has two additional sources of topsoil and/or subsoil other than the topsoil stockpile. One thousand-eight hundred and sixty two cubic yards of material are available from soil materials hauled to the sediment pond area which were used to construct portions of the dike. This material came from the development of the mine facilities and primarily contains soils materials with some overburden. The overburden materials, about 600 cubic yards, will be separated and used for backfill, the remaining 1200 cubic yards is available for use as substitute topsoil. Sample 2 is representative of this soil which is rated as possessing good suitability ratings except for the following parameters which were rated as fair: organic matter, pH and the available water capacity.

The 1.28 percent organic matter present in the soil will be amended by the application of 1-2 tons per acre of mulch. The pH at 7.9 will be decreased by the addition of 40 pounds per acre of sulfur coated urea. The AWC at 7.1 percent is sufficient to sustain and promote vegetation. The moisture percentage of the soil will be increased by the addition of mulch which will also increase infiltration, reduce erosion and lower the soil temperature through shading.

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The other source of soil at the sediment pond is the relatively undisturbed, insitu soil. Three thousand, three hundred and twenty-eight cubic yards of this material is available, of this one thousand-two hundred thirty eight cubic yards is available from a mixed A-B horizon 1.6 feet deep. The remaining two thousand ninety cubic yards is available from C horizon, 1.6 to 4.3 feet in depth. The mixed A-B horizon (Sample 3) has good suitability ratings for all parameters except pH and AWC. The pH of 8.3 has a fair suitability and will be lowered by the addition of 40 pounds per acre of sulfur coated urea. The available water holding capacity of 5.9 percent has a fair AWC although the AWC is sufficiently adequate to sustain the healthy vegetation which exists at the site. The C soil horizon (Sample 4) has good suitability in all parameters except for the percentage of organic matter, pH and the available water capacity, which all have fair suitability ratings. The .72 percent organic matter will be adjusted by the application of 1-2 tons per acre of mulch (straw, native grass hay, or hydromulch). The 8.3 pH will be effectively lowered through the addition of 40 pounds per acre of sulfur coated urea (45-0-0). While the AWC value is suitable for existing vegetation the soil will receive increased infiltration, decreased evaporation and soil temperatures by the application of mulch.

PARKING LOT

Reclamation plans call for removing the nearly 10 feet of fill material from the parking lot pad. From the .62 acre pad 9800 cubic yards of backfill and/or substitute topsoil are available. Based on observations during the test pit logging and sampling, 40 percent of the materials (3,920 cubic yards) are available for substitute topsoil redistribution, the remaining 5,880 cubic yards will be used as backfill. These materials will be removed leaving the relatively undisturbed original soil inplace. (This is the same insitu soil as in the sediment pond area and it will receive the same soil nutrients and amendments).

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The fine grained fraction of the parking lot pad fill material which will be used as a plant growth medium is represented by samples 5, 6, and 11.

The organic matter ranges from 3.65 to 14.3 and has good suitability for reclamation. Although, 1-2 tons per acre of mulch will be uniformly added to all reclaimed areas.

The saturation percentage values range from 27.1 to 33.8 and have good suitability.

The pH values range from 8.0 to 8.2 and have a fair suitability for reclamation. Sulfur coated urea (45-0-0), added at a rate of 40 pounds per acre, thereby lowering the pH to enhance vegetative regrowth.

The electrical conductivity values range from 1.0 to 3.4 and 4.5. The first two values are rated as good and the latter as fair, being slightly saline. No mitigation is planned for the slightly saline soil.

The SAR values range from .5 to 1.6 and have a good suitability rating.

The AWC values are rated as fair and range from 6.1 to 7.7 percent. The application of 1-2 tons per acre of mulch (straw, native grass hay or hydromulch) will increase infiltration, decrease evaporation and lower the soil temperature which will partially mitigate for the fair AWC values.

The texture has a good suitability rating for reclamation, although, the values for the percent greater than 2 mm ranges from 24.6 to 33.0 and 53.5, with the first two values rated as fair and the latter as poor. However, it is believed that acceptable stands of vegetation will still be produced. A test plot will be established behind the crib wall on an area which also has a poor suitablity

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rating because of the percent greater than 2 mm. Partial mitigation will be achieved during redistribution of the topsoil, by mixing of the materials. The moist consistency ranges from firm to friable and ratings from fair to good respectively. No mitigation measures, other than mixing of the soils, are planned.

The permeability rate for all three sample areas is 2.0 to 6.0 inches per hour and are rated as having good reclamation suitability.

UPPER STORAGE AREA

The upper storage area is represented by samples 7, 8 and 9. This material is primarily colluvial soils which were cut to create a storage area. Reclamation plans call for regrading and redistributing the material to the pre-mining contours. The more coarse, rockier material will be placed at the bottom of the backfill with the fines being constantly segregated and stockpiled during the backfilling operations for redistribution over the backfill.

This soil has good suitability for use as a plant growth medium as shown by the following parameters: organic matter, saturation percentage, SAR, texture, and permeability.

The pH values of 8.1 to 8.2 are considered fair and will be decreased by the application of 40 pounds per acre of sulfur coated urea (45-0-0).

The EC values range from .6 to 2.5 and 5.2 mmhos/cm. The latter value of 5.2 is rated as fair being slightly saline. No mitigation is planned for the slightly saline soil. A test plot will be installed behind the crib wall on soils which are slightly saline. The results of the test plot will prove the soils ability to support acceptable stands of vegetation.

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The AWC values are considered fair. Mulch will be added to the soil at the rate of 1-2 tons per acre. The mulch will increase infiltration, decrease evaporation and soil temperature to partially mitigate for the fair AWC values.

The coarse fraction (percent greater than 2 mm) values range from 21.2 to 24.7 and 39.6. The first two values are considered fair and the later poor for reclamation suitability. A test plot located behind the crib wall on soils with a poor suitability rating for the coarse fraction will test the soils ability to produce acceptable stands of vegetation.

The moist consistency characteristics range from firm to friable, with a firm MC having fair suitability and a friable MC having good suitability for reclamation. No mitigation will be made for the firm MC.

CRIB WALL

The soils of the crib wall area, represented by sample 10, have a good suitability rating for organic matter, saturation percentage, pH, SAR, texture and permeability.

The electrical conductivity value of 5.0 mmhos/cm has a fair suitability. No mitigation will be made for the slightly saline soil.

The 6.1 percent AWC value will be partially mitigated by the application of 1-2 tons per acre of mulch (straw, native grass hay, or hydromulch).

The 41.1 percent coarse fraction will be mixed with other soils to reduce the overall coarse fraction percentage. A test plot has been designed and will be installed in this area to prove the soils capability of sustaining acceptable levels of vegetation.

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The firm moist consistency has a fair suitability. No mitigation will be made for the firm moist consistency.

SEWAGE LAGOON

The soils used to construct the sewage lagoon embankments will also be used for reclamation. The disturbed area associated with the sewage lagoons will be reclaimed by redistributing the embankment materials, with the area being returned to its original contours. The soils are represented by Samples 12-14. The soils have a good suitability for reclamation for the following parameters: saturation percentage, electrical conductivity, SAR, texture, coarse fraction, moist consistency and permeability.

The percent organic matter ranges from .74 to .76 and 1.41, and are considered to have fair suitability. 1-2 tons per acre of mulch (straw or native grass hay) will be applied to the surface of the reclaimed sewage lagoon area.

The pH ranges from 8.2 to 8.3 and are considered fair. Sulfur coated urea (45-0-0) will be added at the rate of 40 pounds per acre. A partial mitigation will be achieved through the application of fertilizer.

The AWC for the sewage lagoon soils range from 7.8 to 8.1 percent and have fair reclamation suitability. Mulch will be applied, at the rate of 1-2 tons per acre, which will increase infiltration, and decrease evaporation and soil temperatures through shading.

FAN SITE

The fan site will be reclaimed with soil from the topsoil stockpile. The suitability of which has been previously discussed. However, it is important to discuss the partially disturbed subsoil at the fan site which will be used in reclamation.

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The fan site subsoils are over 5 feet in depth and have good suitability in the following parameters: saturation percentage, electrical conductivity, SAR, texture, percent greater than 2 mm, moist consistency and permeability.

Being a subsoil the percent organic matter ranged from 1.00 to 1.41 which is considered fair. However, by applying 1-2 tons per acre of mulch (straw or native grass hay) the organic matter percentage will be mitigated and a good suitability rating could be applied.

The pH, values 8.0 and 8.1, is considered fair. Forty pounds per acre of sulfur coated urea (45-0-0) will partially mitigate for the pH by lowering it to the more neutral range.

The AWC values of 4.8 and 5.0 are considered poor and fair respectively. Mulch will be applied at the rate of 1-2 tons per acre. The mulch will increase infiltration and decrease evaporation and soil temperature through shading.

UMC-817.23 TOPSOIL: STORAGE
2

The topsoil stockpile is located on the southeast portion of the sediment pond area. The stockpile is adequately protected from runoff, water and wind erosion and instability.

The stockpile was placed on the insitu soil downstream of the incised sediment pond. The west and north portions of the pile butt directly against the pre-existing hillslope. The stockpile has a flat top with a 6 inch protective gravel cover. (The stockpile is incorporated into a small pvc pipe storage yard which is covered with gravel and enclosed by a wire mesh fence. Liquids or materials which might provide a source of toxic or hazardous materials are restricted from the area). The exposed southeast

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facing slope has moderate slopes 2.5 horizontal to 1 vertical, and is well vegetated. The exposed face has mulch tacked down by anchored jute netting. The topsoil stockpile has approximately 85 percent vegetative cover with the remainder of the area being covered by the mulch and jute netting.

The area is protected from runoff by the sediment pond and road diversions. Protection from water and wind erosion is provided by the 6 inch gravel cap on top and the well vegetated southeast facing slopes. The soil was emplaced on a stable foundation utilizing acceptable engineering practices to achieve the appropriate level of compaction to insure slope stability.

The area is well marked and identified as a topsoil stockpile. The protection measures previously mentioned ensure the long term stability and protection of these topsoil resources.

UMC-817.24 TOPSOIL REDISTRIBUTION

As provided in the Reclamation section of this permit application (Chapter 3), Soldier Creek Coal Company does not plan to redistribute the topsoil in any area until that area is backfilled, recontoured and scarified. Immediately after the preceeding measures are completed in an area then that area will be staked on 100 foot centers, to ensure a uniform distribution of topsoil, over the entire stabilized area. Upon completion of the redistribution, the soil will be randomly sampled to ensure a uniform 6 inch layer has been emplaced and to obtain composite samples for analyses to determine the current requirements for soil nutrients and amendments. The area will then be hand raked (30 percent slopes) or mechanically raked, parallel to the contour, to remove the cobble sized fragments and as final seedbed preparation. The area will then be seeded and fertilized, by either broadcasting, drilling or hydroseeding. Mulch will be applied at the specified rate and tacked in place by anchored netting or a tackifer (binding agent) if hydromulched.

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INVESTIGATION

SOIL SUITABILITY

SOLDIER CREEK COAL COMPANY

A total of 16 soil samples were obtained from 8 potential sources for topsoil (plant growth medium) and/or areas needing reclamation. The areas soils sampling methods and general remarks are presented for each area.

TOPSOIL STOCKPILE - SAMPLE 1

Using a 3 inch bucket auger a 5.5 foot deep hole was advanced and sampled. A composite sample was obtained by mixing the contents from each advancement of the bucket auger. The sample was split with half of the sample salvaged for laboratory analyses and the remaining half returned to the test hole.

The material from the stockpile will be used for reclamation of the fan site.

SEDIMENT POND STORAGE PAD FILL - SAMPLE 2

Approximately 1,862 cubic yards of fill material was placed to create a portion of the sediment pond embankment and a storage pad. This material is predominately fine grained, containing up to 15-25 percent cobbles in some portions of the fill. A bucket auger was advanced to 4.5 feet with a composite sample being collected and submitted for soil analyses. This material will be used for reclamation of the coal storage area, with the coarse fraction separated and used for backfill.

SEDIMENT POND INSITU SOILS - SAMPLES 3 AND 4

The insitu soils at the sediment pond will be used for reclamation of the sediment pond area. These upper horizons (A & B) are slightly disturbed and intermixed from the sediment pond construction

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activities. The C horizon is undisturbed. These soils were sampled from a fresh channel cut into an exposed face. The relatively disturbed A-B horizon is 0.0 feet to 1.6 feet (Sample 3). For the A-B horizon a composite channel sample from the surface to the 1.6 foot depth was collected. For the C horizon a channel sample from the 1.6 to the 4.3 foot depth was collected (Sample 4). Coarse alluvial materials with 30 percent fines underlay the C horizon from 4.3 feet to 13.0 feet.

PARKING LOT PAD - SAMPLES 5, 6 AND 11

Approximately 10 feet of fill material has been added to the terrace underlying the parking lot pad. The fill material will be removed and used as substitute topsoil and backfill. The parking lot area will be reclaimed by revegetating the insitu soils underlying the fill material. These soils were not sampled as they are represented by Samples 3 and 4.

Samples of the parking lot fill were obtained by excavating two backhoe test pits and one bucket auger test hole. The backhoe test pit located on the northeast side of the pad (Sample 5) was excavated to a 7.0 foot depth and a composite sample collected. This test pit had 40 to 55 percent coarse fragments and boulders. The other backhoe test pit was located on the southeast facing slope. This test pit was excavated to a 6.5 foot depth and a composite sample collected. This test pit had 40-50 percent coarse fragments and boulders. The bucket auger test hole was advanced on the south west portion of the pad and reached 5.0 feet in depth. A composite sample was collected as the hole advanced. The bucket auger hole had less than 15 percent gravels (Sample 11).

While the parking lot fill material is being excavated the coarse and fine fractions will be separated and segregated. The

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coarse materials will be used for backfill and the fine grained materials for substitute topsoil.

UPPER STORAGE PAD - SAMPLES 7, 8 AND 9

The upper storage pad was constructed by cutting a "dug way" in the existing alluvial soils of the hillslope. Only the overburden soils were excavated and used to construct this pad. The area will be reclaimed by regrading and recontouring the material into its nearly original position. Sample 7, a composite sample, was collected from a fresh channel cut into the exposed south slope of the pad. Sample 8 a composite sample was collected from a 4.5 foot deep backhoe test pit in the pad. Sample 9 was collected from the outslope at the pad where a 4.0 foot hole was excavated and sampled. The soils in this area contained 35-40 percent coarse fragments. These coarse fragments will be segregated from the fines during backfilling and reclamation. The coarse fragments will be used for backfill and the fines for substitute topsoil.

FAN SITE - SAMPLES 15 AND 16

Two fresh channel samples were obtained from exposed soil profiles along the streambank, the upper horizons were previously removed and stockpiled at the sediment pond prior to construction. Sample 15 was from an east facing slope and represents the 0.5 to 5.5 foot interval. Sample 16 was collected from a north east exposure and represents the 0.5 to 6.0 foot interval. This area was not underlain by a visible layer of coarse alluvial materials.

SEWAGE LAGOON SAMPLES 12, 13 AND 14

Sample 12 is a composite sample of the insitu soil at the boundary of the disturbed area. This sample is representative of the horizons used to construct the embankments. The sample represents the interval from the surface to a 5.5 foot depth.

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Sample 13 is from the northern portion of the embankment and is a composite sample for the 0 to 5.5 foot interval. Sample 14 is from the embankment opposite the southern most sewage cell. A composite sample from the surface to a 5.5 foot depth was collected.

These soils are fine grained and contained less than 2 percent gravels or cobbles.

CRIB WALL - SAMPLE 10

A test pit was excavated to 2.5 feet in the fill materials behind the crib wall. The soil was frozen and inpenetrable by shovel, pick or backhoe. The 0.0 to 2.5 foot material was sampled and analyzed. The crib wall material appears to be a worst case situation and a vegetative test plot will be placed on these soils to test their reclamation suitability.

The soils were analyzed at Utah State Universities' Soil Laboratory, an approved soils and agricultural laboratory.

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8.11 References and Correspondence

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8.12 Maps and Drawings

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VEGETATION INFORMATION

DETERMINATION OF ADEQUACY

SOLDIER CANYON MINE

ROBERT M. THOMPSON

JANUARY 1984

(AMENDED MARCH 1984)

MD 309

The information contained within this amended report updates the January 1984 report and supersedes any conflicting information contained in the September 1983 report.

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UMC 783.19 Vegetation

1. The vegetation maps, D156 and D158, contain all data that is requested as per UMC 771.23 (b) and (e), UMC 783.19 (a) and (b) and UMC 783.24 (f).
2. A vegetation map with descriptions of the vegetation types equivalent to the data provided for the main facilities will be completed at the first possible time during 1984. The latest completion date for this vegetation mapping will be June 1984. Upon completion, the map and vegetation results will be forwarded to the Utah Division of Oil, Gas and Mining and will be included within the Mining and Reclamation Plan.
3. The acres presently disturbed by mining operations are:
   (a) Mine Facilities - 10.28 Acres
   (See Map E012)
   (b) Sewage Lagoon - 1.20 Acres
   (See Drawing D143)

   Both the map and the drawing are located in Chapter 3.
4. Vegetation type 2C has been redefined and does not extend into any of the presently disturbed mine facility sites. None of this vegetation type will be impacted by any future mine activities. If any of this type is impacted in the future, it will be restored to near its present conditions. If needed a reference area will be established and data collected before and after treatment.
5. All riparian vegetation types (2A, 2B and 2C) that are impacted or disturbed during the mining operation will be reclaimed to near their pre-disturbed condition for each type. See riparian zone reclamation plan for specific details.
6. All type 2C vegetation is located and labeled on the vegetation type map. Acres within this type have been corrected and changed in Table 1. Acres of disturbed lands are shown in Table 1.

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7. Species Diversity:

The Shannon-Wiener Diversity Index will be used to calculate diversity for both the distrubed and undisturbed reference areas. The formula to be used is as follows:

$$H' = \sum Pi \log Pi \qquad \text{(Formula 1)}$$

Where: H' = Diversity measure

$Pi = Ni/N$

Ni = Cover value of species i

N = The sum of all species cover values.

This formula will be used to test all the data collected. Other formulas may be used at a later date to help determine specie diversity and other important values.

8. Six reference areas will be established in selected undisturbed sites during the late spring/early summer of 1984. The approximate location of these sites is shown on Drawings D156 and D143 with the final location to be approved by the Utah Division of Oil, Gas and Mining. The areas will be approximately 100 feet by 300 feet in size and will be staked out on the ground during the establishment of the sites. After completion of final reclamation, comparable reference areas will be established in the reclaimed adjacent sites. The following areas will be compared:

(a) Reference Area #1 - Vegetation type 5A, upper mine fan and storage area.

(b) Reference Area #4 - Vegetation type 4A and 2A. Sediment pond and across creek in sagebrush.

(c) Reference Area #2 - Vegetation type 5B, upper covered storage shed and steep slope above mine entrance.

(d) Reference Area #3 - Vegetation type 3A, north storage area and main mine facilities.

(e) Reference Area #5 - Vegetation types located at the sewage lagoon.

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(f) Reference Area #6 - Vegetation type 2A, riparian vegetation zones.

9. The following data will be collected for each reference area: (1) cover by each specie; (2) total vegetation cover (shrub and herbaceous combined), plus cover by litter, rock and bare ground, the sum of which will total 100 percent; (3) woody plant density for shrubs and trees, if the reference area is representative of a shrub or tree community; (4) site productivity will be determined for each area; and (5) present range conditions will be determined with the use of the "Range Analysis Handbook, USDA 1978." The above information will be derived from study plots which will be randomly placed within the reference areas. The approximate location of the reference sites is shown on Drawings D143, D156 and D158. Drawings D156 and D158 are located in the map section of this chapter and Drawing D143 is located in the map section of Chapter 3. The number of study plots needed will vary from a minimum of 10 to a maximum of 50 depending on the specific area. The statistical adequacy for each area will be determined using the following formula:

$$N = t^2 s^2 / (d\bar{x})^2 \qquad \text{(Formula 2)}$$

N = Minimum number of samples

t = The t value for a 2-tailed test

(t = 1.645, 90% confidence, herbaceous types)

(t = 1.282, 80% confidence, shrub & forest land types)

s = The sample standard deviation

d = The desired change in the mean

(0.1 change will be desired)

$\bar{x}$ = The sample mean of the parameter in question.

Each reference area will be laid out in a grid system as shown on Drawing D172. The grid system has 100 points located within it and all study plots will be randomly placed throughout the system at one of the points. Belt transects will also be placed at random footages along the 0 foot to 300 foot side. These transects will collect the same data as the study plots but will be

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used as an additional method to better describe the shrub and tree areas. The study plots will be approximately 9.6 square feet in area and the belt transects, when used, will be approximately 4.356 feet by 100 feet in length. The belt transect method was selected to help in the tree and shrub land areas because of the wide variance of age, classes in each specie and the groupings of shrubs on each site. Percent cover by each specie and total vegetative cover will be determined by occurrence estimates of the percent basal area each species make up to the total vegetative cover. Data will be shown as follows:

$$\text{Percent Cover} = \frac{\text{Total Coverage Value}}{\text{Total Number of Plots Sampled}} \quad \text{(Formula 3)}$$

Plant density by each specie and total density will be determined by (a) using the basal area percentage cover for each specie of grasses and forbs, and (b) stem counts for shrubs and trees. Basal area coverage will also be determined for shrubs and trees.

Site productivity will be determined from estimates of the forage produced by each specie found in each 9.6 square foot study plot. The potential site productivity will also be estimated. Range conditions will be determined for each reference area using the standards for range conditions in the "Range Analysis Handbook, USDA 1978."

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UMC 784.13 Reclamation Plan

1. The implementation and completion of all reclamation activities will begin with the abandonment of the mine and demolition of the mine facilities. Revegetation of the disturbed sites will begin in late summer or early fall (the year demolition begins) and will be completed the same year. Table 3.3 at the end of Chapter 3 gives the specific timetable of the planned starting and completion dates for each major step of reclamation. Information on the costs incurred for reclamation is given in Chapter 3, Section 3.5, along with plans for backfilling, stabilizing, regrading, removing, storing and redistributing topsoil.

2. The seeding rates for the final reclamation seed mixture, intermediate/temporary reclamation seed mixture and riparian zone reclamation seed mixture are as follows:

	Seed Rate Pounds/Acre (PLS)	
	Drilled	Broadcast
Final Mixture	12	21
Intermediate/temporary mixture	12	19
Riparian mixture	11	21.5

(See attached seed mixtures for specific seed rates)

The proposed seed mixtures and rates are similiar to those recommended by the Utah Division of Wildlife Resources for wildlife habitat restoration. The small changes in the rates and/or additional seeds have been made to enhance the habitat following reclamation. Specific details on seeds and seed rates recommended by the Utah Division of Wildlife Resources were provided in Chapter 10 of Soldier Creek Coal Company's 1981 submittal.

Drill seeding will be done with a range land seeder or similar device and broadcast seeding will be done with a cyclone seeder or similar device. Hand planting will be done only in the riparian zone where stems or seedlings will

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be planted at a rate of 2900 stems/acre. This application rate is a result of the high mortality experienced by stems and/or seedlings.

3. Germination rates for all seeds will be at or above 95 percent with pure live seed (PLS) counts at or above 90 percent. Specialty seeds or those in short supply with germination rates less than 95 percent or with pure live seed counts less than 90 percent will have the application rates increased until the difference is made up in quantity.

4. All disturbed areas will have topsoil replaced to a minimum depth of 6 inches except rock outcrop areas. These areas are shown on Map E016 located at the end of Chapter 3. The steep slopes will have topsoil replaced on them through the use of a backhoe and/or crane. After the placement of topsoil a dozer will do the gross grading and then final contouring will be done by hand raking. Approximately 2 acres of ground will see this type of soil replacement and will also be the only areas hydromulched. The rate and type of hydromulched and tackifier will be determined at the time of treatment. All additional areas will have topsoil replaced on them through the use of dozers, loaders and dump trucks. The contouring will be done by a dozer or crawler and compaction reduced with the use of a ripper bar attached to a dozer.

5. Fertilizers will be applied to all disturbed sites that are found lacking specific nutrients. They will be applied very early in the spring when there is a good moisture supply in the soil, in the fall after rains or prior to snowfall. Fertilizing at these times will limit the burning of any plants. For specific details see the Chapter 8, Soils Report by Ford, Bacon and Davis.

6. No shurbs or tree seedling will be planted on any of the disturbed sites except the riparian zone. The numbers per acre, their approximate locations and spatial arrangements are described in the Riparian Zone Reclamation Plan.

7. Crested wheat grass is included in the final reclamation seed mix. This grass specie is very well adapted and is widely used for reseeding disturbed

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range sites, deteriorated watershed areas and many other reclamation projects. It has the ability to grow in very poor soils and low precipitation zones. It has also proven to be highly desirable forage plant for both wildlife and livestock. Some good references to the qualities and characteristics of this plant can be found in the Journal of Range Management Volume 36 #1, 1983 and Volume 36 #2, 1983.

Orchard grass, smooth brome and stream bank wheat grass will be used to limited extent in the riparian zone. These are all proven grasses for reclamation projects.

8. None of the treated areas will be irrigated or have any supplemental water added.

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UMC 817.111 Revegetation

1. The success of the revegetation and other reclamation treatments will be measured and compared to the baseline data obtained from the adjacent untreated reference study areas. Within each type of treatment an area will be established to gather the proper data. The locations of all areas will be approved by the Division of Oil, Gas and Mining. Random study plots will be located in the treated areas along with belt transects in the shrub types to measure the effects of the treatment and its response. The following items will be compared to the baseline data obtained from the untreated reference areas:

   (a) Total ground cover: Includes cover by vegetation, (basal area) litter and rocks. Treated areas should be 90 percent or better than the comparable untreated reference areas. Example: Reference Area #4 total ground cover is presently 45 percent. The adjacent comparable treated site shall have a ground cover of at least 41 percent by the sixth year after treatment.

   (b) Productivity: The amount of desirable forage species (dry wt.) will be determined for each reference area. Productions should be at least 60 percent of the estimated potential for the site (Range Analysis Handbook, USDA 1978) at the sixth year after treatment.

   (c) Shrub density: The number of planted shrubs should be near 80 percent of the total number of plants that are found on the untreated site. However, they will be of a younger age class (seedling and young plants) at the sixth year after treatment.

   (d) Species diversity: Importance value and relative frequency standards will be developed from the data obtained from each

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reference area. Data for the above will be obtained during the spring and summer of 1984.

2. Forage production on both treated and untreated sites will be compared. The pounds of forage of desirable species (does not include annuals or weedy plants) will be compared with what is being produced now and will be in the future.

3. All reclaimed areas will receive some type of soil stabilization. The three to be used are straw mulch crimped into the soil at a rate of 1 to 2 tons per acre, straw mulch crimped into the soil and covered by netting at the same rate and hydromulch with tackifier at a rate to be determined at the time of treatment. There will be approximately 3.2 acres of reclaimed land using just the straw, 6.0 acres of reclaimed land using the straw and netting and 2.0 acres of reclaimed land using the hydromulch with tackifier. See Map E016 and Drawing D143 in Chapter 3 for site locations. For additional details on the types of mulches and fertilizers that will be used see Chapter 8, Soils Report by Ford, Bacon and Davis. The application methods for fertilizers will be hand broadcasting, drilling or hydromulching.

4. Detailed information for the treated sites after final reclamation is given in the Revegetation Monitoring Plan of this report.

5. There will be several sites within the permit area and by the sewage lagoon that will be used to check the abilities of the acreage to recover from mine activities. The following areas will be used as field trial study sites:

   (a) Sewage lagoon site

   (b) Sediment pond site

   (c) Crib wall site

   These sites are shown on Map E012 and Drawing D143 located at the end of Chapter 3.

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The reclamation methods that have been used at the sewage lagoon and the sediment pond, along with the methods to be used at the crib wall area are as follows:

Sewage lagoon;

(a) soil depth - 3 to 9 inches

(b) seed mixture - drill seeded

Grasses	Seed Rate Pounds/Acre (PLS)
Western wheatgrass	1.5
Indian ricegrass	1.5
Crested wheatgrass	1.5
Forbs	
Yellow sweetclover	1.0
Utah sweetvetch	0.5
Alfalfa var: ranger	1.0
Small burnet	1.0
Shrubs	
Birchleaf mountain mahogany	1.0
Utah serviceberry	0.5
Four-wing saltbush	2.0
Total	11.5 pounds/acre

(c) fertilizer - ammonium nitrate, rate 100 pounds/acre

(d) mulch - none

(e) soil type - see soil test results in Chapter 8, Soils Report by Ford, Bacon and Davis.

Sediment Pond;

(a) soil depth - 6 to 12 inches

(b) seed mixture - hand broadcasted

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Mixture	Seed Rate Pounds/Acre (PLS)
Intermediate wheatgrass	4.0
Slender wheatgrass	4.0
Great Basin wildrye	4.0
Russian wildrye	4.0
Alfalfa var: ranger	2.0
Yellow sweetclover	2.0
Total	20.0 pounds/acre

(c) fertilizer - none

(d) mulch - straw crimped into soil and netting, rate 2 tons/acre.

(e) soil type - see soil test results in Chapter 8, Soils Report by Ford, Bacon and Davis.

Crib wall;

(a) soil depth - 3 to 6 inches

(b) seed mixture - hand broadcasted, see final seed mixture

(c) fertilizer - see Chapter 8, Soils Report by Ford, Bacon and Davis.

(d) mulch - straw crimped into soil and netting, rate 2 tons/acre.

(e) soil type - see soil test results in Chapter 8, Soils Report by Ford, Bacon and Davis.

The monitoring plan used to gather information will be consistant with the plan for final reclamation given in this report. All information gathered will be sent to the Utah Division of Oil, Gas and Mining. Both the sewage lagoon site and the sediment pond site have been completed and the crib wall site will be developed during the spring of 1984.

6. None of the treated acres will be irrigated or will have any additional supplemental water added. Noxious weeds that become established on the

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disturbed areas will be controlled. A survey of the reference and disturbed areas will be conducted periodically throughout the life of the mine and all noxious weed infestations will be located and treated. Surveys will be conducted every 3 to 5 years depending on the density of the weeds found. Treatment measures or herbicides to be used will depend upon the weeds found. A list of noxious weeds of Utah is included and a listing of the present herbicides that can be used for their control. At present grazing by livestock is not a problem on the permit area except around the sewage lagoon area where some fencing may be needed to protect the seedlings until they can be maintained. Other critical areas may develop after treatments and if needed these sites will be fenced. Fences will be maintained for at least 5 years after treatment or until bond release. All reference areas established will be maintained until after bond release or until the data they supply is no longer needed for evaluation of the sites.

7. Most of the revegetation methods and procedures have been covered in this revegetation plan, but some of the details will probably need to be refined at the time of treatment.

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UMC 817.114 Mulching

All areas that will be reclaimed during final reclamation or contemporaneous reclamation will be mulched to help ensure the protection and germination of seeds, increase moisture retention of the soils and control erosion from wind and water. The types of mulch and fertilizer to be used are given in this report and the Soils Report by Ford, Bacon and Davis located in Chapter 8.

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RIPARIAN ZONE RECLAMATION PLAN

The riparian zone or vegetative type within Soldier Creek Coal Company's permit area is very limited. It occurs only as very narrow strips along both live and intermittent streams. This vegetative type contains three different plant communities or habitats. These are:

2A Cottonwood - Box Elder - Squawbush - Bluegrass

2B Cottonwood - River Birch - Redtop

2C Cottonwood - Oakbrush - Sedge

Only types 2A and 2B will be impacted by present or future mine activities and mostly the 2A type near the present mine facilities. In this area approximately one-third of a mile of stream reach will be impacted. Within this impact area the following reclamation measures will be applied.

I. Bank Stabilization

II. Stream Bottom Stabilization

III. Detailed Restoration and Maintenance Plan

Reclamation Procedures and Methods

I. Stream Bank Stabilization

(a) Areas along the stream where the banks are presently cutting and unstable will be reclaimed as shown on Drawings C147 and 148. The toe of the slope near the stream edge will, if needed, be rip-rapped (1 foot in size) and planted with willows and the riparian mix. The upper slopes will be mulched and seeded with straw mulch and the final reclamation seed mixture. Seeds will be drilled into suitable sites or hand broadcast and raked into other sites. Some squawbush plants, either seedling or seeds, will be planted on the upper drier slopes. Slopes over 20 percent gradient and subject to heavy runoff will be mulched, seeded and covered with netting to help prevent soil erosion. Clean straw at the rate of 2 tons per acre will be used as the mulch.

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(b) Both willows (Coyote and Booth) and Narrowleaf Cottonwood tree cuttings or seedlings will be planted along the toe slopes and sand bars of the stream. The cuttings will be obtained from a source near the mine. Willows will be planted in suitable sites at the rate of about 1200 stems per acre. This is one stem every 6 feet. Cottonwood trees will be planted at the rate of about 200 trees per acre and placed only in suitable sites that will enhance the general landscape of the area.

II. Stream Bottom Stabilization

Soldier Creek is not an active fishery. It is a very unstable stream with high water flow in the spring and approaches zero flow in the late fall. Large rocks will be placed in the bottom of the channel in connection with bank stabilization to help prevent down cutting and bank cutting. Sites for this type of treatment will be determined at the time of reclamation and with the approval of the Division of Oil, Gas and Mining.

III. Detailed Restoration and Maintenance Plan

Before any stream bank or stream bottom stabilization measures can be taken, a detailed work plan will be developed. This plan will show:

(a) Detailed map of stream reaches needing treatment and locations of each treatment.

(b) Detailed Willow and Cottonwood cuttings or seedlings planting.

(c) Mulching, seeding and fertilization rates.

(d) Rip-rap and place rock areas.

(e) Schedule for completing and maintaining of sites

(f) Monitoring studies

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Monitoring Studies

(a) Two sites will be selected and marked for reference in planting sites along the stream. The number of live cuttings will be counted in the reference site after planting during the 2nd, 4th and 6th years. At least 60 percent of the cuttings or seedlings should be growing at the 6th year reading to be termed a success. Sites not attaining this will require some additional planting.

(b) Reference sites will also be used to measure the success of the seeding and soil stabilization treatments. Seeding success or failure will be determined from random study plots within the reference areas. Species (both native and introduced) should make up at least 80 percent of the composition, ground cover (litter and vegetation) at least 65 percent and vegetative productivity at least 600 pounds per acre of desirable seeded species. Success will be based on the above being attained at the 6th year after treatment. Sites where seeding fails will be reseeded and maintained at their productivity levels.

(c) All study reference sites will be statistically measured comparing the treated sites with the untreated sites. The "t-test" will be used as the statistical measure.

(d) Checks will be made and data will be collected on how the rip-rap and placed rocks stabilize the stream bank and bottom. The effectiveness and durability of these structures will be used to determine their value.

(e) A reference area will be established in the riparian zone in the summer of 1984. An approximate location is shown on the Reference Study Areas Map D156.

Riparian Treatment Sites (Refer to Reference Study Areas Map, D156)

Zone 1 Open Stream Banks

These sites well be reshaped to conform with the adjacent land area. Sites

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will be mulched with 1 to 2 tons of clean straw per acre. The straw will be mixed with the topsoil using either a disk or harrow. If the sites are too rocky, the mixing will be done with a ripper mounted on a piece of heavy equipment such as a tractor. Seeding will be done with a broadcast seeder on the rocky sites and drill seeded on the gentler sites. The final reclamation seed mixture will be used on these sites.

Zone 2 Rip-Rap Sites

In these sections the stream bank will be laid back and mulched with straw. Broadcast seeds and rip-rap will be placed along the stream edges. Willows will also be planted along the stream edge in sites with suitable moisture and soil. Coyote willows will be planted at 6 foot intervals along the stream edge. Booth willows will be planted in groups of 3 to 10 at each suitable site. These will be on an approximate 2 to 4 foot interval and the groups will not cover more than 200 square feet of the areas. The riparian seed mixture will be used here and will be applied at the rate of 21.5 pounds per acre.

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REVEGETATION MONITORING PLAN

The following plan was developed to describe the techniques and methods that will be used to monitor and evaluate the success of the reclamation treatment on the disturbed areas.

Reference Study Sites or Areas

Reference study sites will be established in undisturbed near natural condition areas that are adjacent to sites that have been disturbed during the mining operation and activities. The study areas, 100 feet x 300 feet, have been selected and will be marked on the ground. The approximate locations of these sites are shown on the Reference Study Areas Map, D156 and Drawing D143. Six reference study areas will be established adjacent to the disturbed areas. The same number of areas will be located in the treated areas after reclamation has taken place.

Study Plots and Transect Locations

All study plots and belt transects will be located randomly within each study area. The transects will be selected form the 0 foot to 300 foot side and points established along each of these lines. The study plots and transect lines will be located using the table of random numbers. At least 10 study plots and three belt transects will be located in each study area. The number of plots and transects needed for an adequate sampling will be determined by Formula 1.

Study Plots and Belt Transect Size

Study plots will be 9.6 square feet in size and will be located at a point in the grid system. Belt transects will be 4.356 feet x 100 feet in size. The study plots will be used to collect data on (1) species cover, (2) frequency, (3) percent ground cover, (4) forage production and (5) specie diversity or importance. Belt transects will be used to collect data on (1) density of shrubs and trees, (2) number of stems per acre, (3) basal or square foot coverage, (4) aerial cover and (5) age or plant height class.

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Timeframe for Establishment of Reference Areas

Six reference study areas will be located as shown on the Reference Study Areas Map and will be as follows:

#1 Slope above fan and storage area

#2 Steep slope above mine entrance

#3 Slope above north storage area

#4 Across creek in sagebrush

#5 Sewage lagoon area

#6 Riparian Zone

All reference areas listed above will be located on untreated sites during the summer of 1984. All plots and belt transects will be located and data collected by the end of summer 1984. Data on these plots and transects will be collected every 5 years, starting in 1984, until the mine is abandoned. This data will establish a good baseline to help develop vegetation standards and guidelines for future revegetation on treated sites.

Reference areas located in the treated sites will be similar to those established in the untreated area. Data will be collected from these beginning the second year after treatment and repeated again the fourth and sixth years after treatment. Data on (1) ground cover, (2) forage productivity, (3) shrub density, (4) species diversity or importance value and (5) relative frequency will be compared between the treated and untreated sites.

For bond release the following are suggested levels that should be met:

(a) Ground cover density; must be at or above 80 percent of that found on the comparable untreated sites.

(b) Forage production: should be at or above 90 percent of that found on the untreated site. Estimated potential production should be near 60 percent for the site.

(c) Shrub density; the number of planted or native shrubs should be near 80 percent of those found on the untreated site. However, they

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will be mostly seedlings or young plants.

(d) Species diversity; importance value and relative frequency standards will be developed from the data obtained from each reference area. All the differences will be compared statistically. The above standards and levels of achievement may need to be modified as more data is collected and better information is available.

Along with these 4 items, the Utah Division of Oil, Gas and Mining will be notified for their comments and approval prior to bond release. Rills and/or gullies greater than 9 inches that form after reclamation will be filled with available site material, regraded, reseeded and mulched as per the revegetation plan.

The method for determining the fertility of soil and when testing will be done is given in the Soils Report by Ford, Bacon and Davis.

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Seed Mixture for Final Reclamation of Disturbed Sites:

Species		Pounds/Acre (PLS) Rate of Seeding	
Grasses		Drilled	Broadcast
Bluebunch Wheatgrass	Agropyron spicatum	1	2
Western Wheatgrass	Agropyron smithii	1	2
Crested Wheatgrass	Agropyron cristatum	2	4
Great Basin Wildrye	Elymus cinereus	1	2
Forbs			
Lewis Flax	Linum lewisii	1	1
Yellow Sweetclover	Meliotus officinalis	1/2	1
Ladak Alfalfa	Medicago sativa-ladak	1	1
Globemallow	Sphaeralcea coccinea	1/2	1
Small Burnet	Sanguisorba minor	1	1
Shrubs			
Fourwing Saltbush	Atriplex canescens	1	2
Bitterbrush	Purshia tridentata	1	2
Rabbitbrush	Chrysothamnus nauseosus var. albicaulis	1/2	1
Big Mtn. Sagebrush	Artemisia tridentata var. vaseyana	1/2	1
		12	21

Seed Mixture for Intermediate and Temporary Reclamation of Disturbed Sites:

Species		Pounds/Acre (PLS) Rate of Seeding	
Grasses		Drilled	Broadcast
Intermediate Wheat-grass	Agropyron intermedium	2	4
Crested Wheatgrass	Agropyron cristatum	2	3
Orchard Grass	Dactylis glomerata	2	4
Smooth Brome Grass	Bromus inermis	2	2
Western Wheatgrass	Agropyron smithii	2	3
Forbs			
Yellow Sweetclover	Melitotus officinalis	1	2

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Forbs cont.		Pounds/Acre (PLS) Rate of Seeding Drilled	Broadcast
Ranger Alfalfa	Medicago sativa ranger	1	1
		12	19

Seed Mixture for Riparian Zone Reclamation Sites:

Species		Pounds/Acre (PLS) Rate of Seeding	
Grasses		Drilled	Broadcast
Orchard Grass	Dactylis glomerata	1/2	1
Streambank Wheatgrass	Agropyron riparian	2	4
Smooth Brome Grass	Bromus inermis	2	4
Blue Wildrye Grass	Elymus glucium	1	2
Kentucky Bluegrass	Poa pratensis	1	2
Crested Wheatgrass	Agropyron cristatum	1	2
		7 1/2	15
Forbs			
Yellow Sweetclover	Meliotus officinalis	1	2
Chickpea Milkvetch	Astrogalus cicer	1	2
Mtn. Fleabane	Erigeron speciusus	1/2	1
Pacific Aster	Aster chilensis	1/2	1
Lupine	Lupinus alpestris	1/2	1/2
		3 1/2	6 1/2

Shrubs and Trees		Stems/Acre Cuttings or Seedlings
Coyote Willow	Salix exigua	1200
Booth's Willow	Salix boothii	1200
Squaw Bush	Rhus trilobata	300
Narrowleaf Cottonwood	Populus angustifolia	200

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List of Noxious Weeds of Utah

1984

Common Name	Scientific Name
Morning glory	Convolvulus arvensis
Tall white top	Lepidium latifolium
Canada thistle	Cirsium arvensis
Leafy spurge	Euphorbia esula
Quack grass	Agropyron repens
Russian knapweed	Centaurea repens
Johnson grass	Sorghum halepense
Musk thistle	Carduus nutans
White top	Cardaria draba
Scotch thistle	Onopardum acanthium
Bermuda grass	Cynodon dactylon
Dyers woad	Isatis tinctoria

Noxious Weeds Found Within the Permit Area and Control Herbicides

Morning glory	2-4D
Canada thistle	2-4D, Tordon 22K and Tordon 2K
Quack grass	Roundup, Amitrol
Musk thistle	Banvil, 24D, Round, Tordon
White top	Amitrol T
Dyers woad	Roundup and Amitrol T

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Table 1: Total acres and acres distributed in each vegetative type. Soldier Creek Coal Company's mine permit area. (Does not include the sewage lagoon area).

Vegetative Type	Acres Total	Acres Disturbed	Percent of Total Acres
1) Mountain Sage Brush			
1A	50	0	2.4
2) Stream Bottoms			
2A	53	3.0	2.5
2B	24		1.1
2C	27		1.3
Total	104		4.9
3) Mountain Brush			
3A	164	5.0	7.8
3B	107		5.1
Total	271		12.9
4) Douglas Fir - Timbered Slopes			
4A	515		24.4
4B	572		27.0
4C	19		1.0
Total	1106		52.4
5) Open Grass and Low Brush			
5A	121	2.0	5.7
5B	82	0.3	3.9
Total	203		9.6
6) Pinyon - Juniper			
6A	104		4.9
6B	55		2.6
Total	159		7.5
Rocks and Ledges			
8	218		10.3
TOTAL	2111	10.3	100

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10.1 Scope

This chapter is an assessment of the existing habitats contained within and adjacent to the permit area. The report referred to in this chapter was submitted in the 1981 permit application.

10.2 Existing Fish and Wildlife Resources

The existing fish and wildlife resources that are found within and adjacent to the permit area are listed in a report prepared by the Utah Division of Wildlife Resources. The report, "Fish and Wildlife Resource Information Soldier Creek Coal Company, Soldier Canyon Mining Project and Proposed Emergency Lease Area", was done at our request to fulfill the requirements of the State of Utah and is found in the previous submittal.

Mappings of the existing fish and wildlife resources that are found within and adjacent to the permit area are shown on Drawings D151, D152 and D153. These drawings relate data from the Utah Division of Wildlife Resources' Report on the permit and adjacent areas. The information provided is on raptor nest locations, high-value springs and associated wetland locations, the various ranges for deer and elk, the snowshoe hare and cottontail rabbit distribution, and the lands used by various species of grouse. All known riparian/wetland areas associated with the mine permit area are shown on Drawing D153. These three drawings are included at the end of this chapter. Information on all existing riparian/wetland areas within and adjacent to the mine plan area was obtained by the mine staff with the help of Vaughn Hansen Associates, R & M Consultants, Kidd Waddell, Pacific Gas and Electric Company, area ranchers and aerial photographs.

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The U.S. Fish and Wildlife Service conducted the latest raptor survey within and adjacent to the permit area. The survey was done during 1981 and 1982 and located the following sites:

1. Golden Eagle Nest (Occupied 1981; Tended 1982)
2. Golden Eagle Nest (Inactive 1981 & 1982)
3. Praire Falcon Scrape (Potential Scrape 1981)
4. Golden Eagle Nest (Active 1981; Tended 1982)
5. Golden Eagle Nest (Tended 1981)
6. Golden Eagle Nest (Tended 1981 & 1982)
7. Praire Falcon Scrape (Active 1982)
8. Golden Eagle Nest (Inactive 1981 & 1982)
9. Golden Eagle Nest (Inactive 1981 & 1982)
10. Buteo (Redtail) Nest (Inactive 1981 & 1982)

Locations of these sites are shown on Drawing D153 along with all wetland areas associated with springs, seeps or streams. These wetlands have been determined by the Utah Division of Wildlife Resources to be of high value to wildlife in the area. No testing has been done on Soldier Creek to determine whether there exists a fishery. The potential for a limited fishery is here but because of minimal planned impact to Soldier Creek no affect is expected. A letter concerning this from the Utah Division of Wildlife Resources is included in the correspondence section of this chapter. Verification of the wildlife use of all monitored springs will be made in concurrence with the Utah Division of Oil, Gas and Mining.

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10.3 (UMC 784.21 and 817.97) Mitigation and Expected Impacts on Fish and Wildlife

The potential effects of the present operation on the fish and wildlife within and adjacent to the permit area are as follows:

1) Loss of Habitat
2) Displacement of Wildlife
3) Extermination of Wildlife
4) Reduction of Productivity

The first, loss of habitat, occurs when surface facilities or mining operations affect the surface lands in such a manner that the present habitat changes. Second, displacement of wildlife, could occur as a result of mining operations and could exclude wildlife that originally lived or migrated through these areas. Third, extermination of wildlife, could be a result of the inability of certain species to exist in the newly created habitat or the inability to relocate to an appropriate habitat. The last, reduction of overall wildlife productivity could be a result of all of the above plus stress associated with continued exposure to the mining activity.

The following mitigative measures will be incorporated into the Mining and Reclamation Plan to protect and ensure the continued existence of the fish and wildlife associated with the mine permit area and adjacent areas.

General Mitigative Measures:

1) Surface disturbance will be limited to the minimum number of acres needed to continue a viable mining operation. Presently, the total disturbed area is limited to 11.50 acres. The acres of each vegetation type that comprise this total are 50 acres, type 3A; 3.0 acres, type 2A; 2.0 acres, type 5A; 1.2 acres, pinyon-

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juniper area at sewage lagoon; and 0.3 acres, type 5B. The unknown vegetation type at the sewage lagoon will be typed during the summer of 1984 This acreage includes all surface disturbance shown on Map E012 and Drawing D143. Both drawings can be found at the end of Chapter 3. No further surface disturbance is foreseen by Soldier Creek Coal Company.

2) All critical habitats will be protected from any negligent disturbance. This will include any habitat directly affected by the mining operation. Habitats that presently coexist with the mining operation will be left undisturbed with no additional protection. This will include any raptor nests and all riparian zones associated with Soldier Creek.

3) All of the surface disturbances will be reclaimed in such a manner that these areas will support and enhance the habitats for fish and wildlife. This will be accomplished through the use of specific seed mixtures, soil stabilization practices and noxious weed controls.

4) Employees will be educated in the importance that fish and wildlife have on their environment. A film was obtained from the Utah Division of Wildlife Resources and Plateau Mining to help in this education. The film has been and will continue to be shown during the annual training day. Also, during the weekly safety meetings, employees are periodically reminded of the need for precautions relating to fish and wildlife, such as precautionary driving during months of heavy deer populations.

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Specific Mitigative Measures:

1) Aquatic Life Forms - The quality and quantity of Soldier Creek will be ensured and not diminished because of mining operations through the use of proper mining methods and the continued monitoring of Soldier Creek. Protection for Soldier Creek from underground activities will be provided by establishing a 100 foot buffer zone on either side of the stream. This area will be set aside as an area of nonsubsidence. This will be accomplished by not allowing secondary mining in the areas shown on Drawings D159 through D163. These drawings are located in the map section of Chapter 3. Subsidence monitoring points established by Soldier Creek Coal Company will be monitored annually as an added protection for the stream and to check all areas within the mine permit area. If any problem is detected it will be remedied through proper reclamation procedures. Additional details are described in Chapter 7. These measures will help ensure the protection and preservation of any and all aquatic life forms during and after mining operations.

2) Riparian and High-Value Habitats - All riparian/wetland and high-value habitats within the disturbed area will be restored to conditions equivalent to the riparian zone reference area (see Chapter 9). Riparian/wetland and high-value habitats outside the disturbed area will be maintained as they now exist within and adjacent to the mine permit area. The restoration and maintenance of riparian/wetland and high-value habitats will be accomplished through proper reclamation procedures and reduced disturbances in these areas. The only time mining operations will encroach on these lands is when no other viable site can be found and then complete site plans, including reclamation procedures, will be submitted to the Utah Division of Oil, Gas and Mining

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for review and approval. Any major perennial spring or seep important to wildlife will be replaced following the procedures detailed in Section 7.4 of Chapter 7. The vegetation associated with the wetlands will also be replaced by reseeding and mulching the effected areas. If any areas cannot be reclaimed to a habitat similar to the one prior to the disturbance, Soldier Creek Coal Company will buy into a riparian/ wetland mitigation project now being established by the Utah Division of Wildlife Resources. The Utah Division of Oil, Gas and Mining, as previously stated, and the Utah Division of Wildlife Resources will be consulted prior to any disturbance or permanent reclamation activity for approval and/or any new development that could improve wildlife habitat restoration and revegetation success.

3) Mammals - All sites known as dens, breeding areas or food caches will be protected from disturbance during utilization by each specific species. This will be accomplished by improving employees' knowledge of the delicate nature of the ecosystems in the mine permit area and adjacent areas. We will attempt to limit the surface disturbance to the acreage previously mentioned and will attempt to eliminate all obstructions to migrating species. "Deer Crossing" signs will be placed at strategic locations on the road leading to Soldier Canyon Mine in an effort to help lower road mortalities.

4) Raptors - All nest, roost or scrape sites will be protected from future disturbances. This will be accomplished by providing buffer zones around the sites and minimizing the subsidence of escarpments. Buffer zones will be provided if future disturbances are placed close to an active nest, roost or scrape site. Sites that coexist with mining operations will not be disturbed. Escarpment failure should not occur, but if it does the nest site will be removed if

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possible and relocated, or the nest site will be rebuilt at another location. All powerlines that are associated with the mining operation have been built so that they provide raptor protection. All of these measures shall provide the birds of prey with the protection needed to coexist with mining operations and also after final mine abandonment.

These specific and general mitigative measures, along with the monitoring plan, Section 10.5, will establish firm guidelines for the protection of all fish and wildlife within the mine permit area and adjacent areas. The specific reclamation plans for all disturbed areas are given in Chapter 9 and Chapter 3. These plans when completed will create an environment that will support the ecosystems found in these areas and will produce habitats similar to the ones that existed prior to disturbance.

10.4 Stream Buffer Zone Determination

The Applicant will follow all regulations concerning the encroachment of future surface disturbances on any perennial or intermittent streams. All surface disturbances, approximately 11.5 acres, will remain as is with only general maintenance performed to ensure functional use and help reduce impacts to Soldier Creek.

10.5 Fish and Wildlife Monitoring

Soldier Creek Coal Company will monitor three separate items to ensure that fish and wildlife habitats are preserved within and adjacent to the mine permit area. The items to be monitored are the water resources of the area, subsidence over the mine permit area and vegetation monitoring of reference sites and contemporaneous reclamation sites.

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Water monitoring will be done on surface and ground waters. The quality and quantity of these waters will be continually monitored as stated in Table 7.1, Water Monitoring Plan, located at the end of Chapter 7. Any diminution of these waters by the mining operation will be recognized and mitigative measures taken to restore the affected waters. Section 7.4 discusses the potential methods for water replacement which might include high pressure grouting, pumping, channel lining and others.

Surface subsidence will be monitored to ensure the protection of the fish and wildlife in the mine permit area. This monitoring will be carried out by aerial photogrammetric surveys, ground surveys and visual surveys of the mine permit area. Section 12.3 discusses in detail the subsidence monitoring plan, a report with an assessment of all findings will be submitted annually to the Utah Division of Oil, Gas and Mining. This monitoring will help ensure the protection of surface features, escarpments and streams by recognition of potential problems and correcting them.

The last monitoring will be done on the vegetative resources in the reference areas and contemporaneously reclaimed areas. This type of monitoring will be directed toward an assessment of the total reclamation; nutrients, seed mixtures, mulching and soil depth. All information obtained from this type of monitoring will be included in the Mining and Reclamation Plan at the leisure of Soldier Creek Coal Company or when requested by the Utah Division of Oil, Gas and Mining. Chapters 3 and 9 detail the reclamation and revegetation procedures to be used throughout the life of the mine.

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The above mentioned items will be monitored by Soldier Creek Coal Company's staff as stated unless a different program is mutually agreed upon by the Utah Division of Oil, Gas and Mining and Soldier Creek Coal Company. A spring-by-spring monitoring of their wildlife utilization will not be carried out unless the Utah Division of Oil, Gas and Mining and the Office of Surface Mining deem this necessary for gaining a mining permit.

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10.6 Reference and Correspondence

Private communication with John Livesay, Supervisor, Southeastern Region, Utah Division of Wildlife Resources, Price, Utah, 16 March 1981.

Utah State Division of Wildlife Resources, Dalton, Farnsworth Smith, Wallace, Wilson, Winegardner, "Vertebrate Species of Southeastern Utah", publ. no. 78-16, 1978.

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state of utah

DIVISION OF WILDLIFE RESOURCES

DOUGLAS F. DAY
Director

EQUAL OPPORTUNITY EMPLOYER

1596 West North Temple/Salt Lake City, Utah 84116/801-533-9333

February 28, 1984

Reply To SOUTHEASTERN REGIONAL OFFICE
455 West Railroad Avenue, Box 840, Price, Utah 84501
(801) 637-3310

Chris Allen
Soldier Creek Coal Company
P. O. Box I
Price, Utah 84501

Dear Chris:

In response to your request for information relative to the limited value non-game fishery in Soldier Creek, the following is provided for your use.

As you know, four species of non-game fish may, during years of exceptionally high water flow, inhabit the portion of Soldier Creek proximal to the Soldier Canyon Mine. This was documented to your company on March 16, 1981, and to my recollection was also documented in the initial submission of a mine reclamation plan for the Soldier Canyon Mine.

Operations by Soldier Creek Coal Company at the Soldier Canyon Mine, as identified in the original MRP submission and in follow-up documents, (the most recent being the January 27, 1984 response by Soldier Creek to the Determination of Adequacy), indicate that mine operations will not affect the non-game fisheries potential in the stream.

Chris, it is important that you understand that the potential for fishery in Soldier Creek in the area of the mine is almost non-existent during low to normal water level years. It is only during exceptionally high run-off years that the likelihood that any of the four non-game fishes reaching that area in the stream would be realized.

The Division appreciates Soldier Creek Coal Company's concern for the wildlife resource associated with the mine plan area.

Again, thank you.

Sincerely,

John Livesay, Supervisor
Southeastern Region

JL:LBD:db

cc: Darrell Nish
Jim Munson
Mary Boucek

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10.7 Maps and Drawings

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11.4 (UMC 784.26) Climatological and Air Quality Data

Due to an oversight by the Utah Division of Environmental Health, Soldier Creek Coal Company was not issued an approval order for the Soldier Canyon Mine. The Soldier Canyon Mine has been operating on an approval order for an inactive mine. This approval error occurred due to Soldier Creek Coal Company's inactive Hidden Valley Mine and active Soldier Canyon Mine having similar estimates for fugitive dust emissions. When operating plans for Hidden Valley Mine were dropped, its approval order was inadvertently given to Soldier Canyon Mine. This oversight will take approximately 4 weeks to rectify. When the approval order is granted, it will be forwarded to the Office of Surface Mining and the Utah Division of Oil, Gas and Mining.

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12.4.5 The sediment control measures that will be used during final reclamation for both sites are straw bales placed at strategic locations. After reclamation the sediment control measures will be revegetation, mulching and rip-rapping the drainage channel of the main mine facilities.

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12.5 Stream Channel Protection and Long-Term Stability

12.5.1 Section 12.2.2 has demonstrated that the pillar size utilized by Soldier Creek Coal Company provides more than adequate support, under maximum overburden, to prevent disturbance of Soldier Creek.

A zone of no secondary mining beneath Soldier Creek has been proposed to protect and ensure the long-term stability of the stream channel. All pillars will be left intact in this zone since only initial development mining will be allowed. The proposed zone is depicted on drawings D159 through D163, Chapter 3.

12.5.2 Any adverse effects which underground operations may have on the stability and/or the hydrologic balance will be detected through approved monitoring programs. The water monitoring program is presented in Chapter 7 and the subsidence monitoring program is presented in Chapter 12, Section 12.3.

A contingency plan to mitigate loss of flow from Soldier Creek into the mine is provided in Chapter 7, Section 7.4.

In the event that unknown conditions are encountered, which may threaten the long-term stability of the Soldier Creek stream channel, the following contingency plan would be implemented.

1) The necessary regulatory agencies will be notified.
2) An assessment of the geologic formation and/or anomalies that threaten stability of the stream channel will be made.

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3) Based on the geologic data collected, a plan to mitigate subsidence effects to the stream channel would be implemented. This may include solutions such as back stowing specific entries with waste rock and/or a grout mixture.

12.5.3 To ensure the maximum long-term protection of the stream channel, some mine entries will require additional reclamation at the time of abandonment. These entries include only those associated with the ventilation shaft construction. This is as per the DOGM Conditional Approval, dated September 3, 1982 (see Chapter 7, References and Correspondence).

At the time of abandonment, Soldier Creek Coal Company will back stow all entries which are associated with the ventilation shaft and immediately beneath the stream channel. This was determined necessary due to the minimal thickness of overburden in the area (less than 100 feet in the southern most entries and just over 200 feet in the northern most entries). Please note that back stowing was determined most necessary in entries with less than 100 feet of overburden. Back stowing in entries with 100 to 250 feet of overburden was considered only as an additional safeguard. Areas with overburden in excess of 250 feet will not require back stowing to ensure long-term stability. This is based on pillar strength and overburden characteristics. A contingency plan for unexpected conditions is presented in Section 12.5.2.

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12.6 References and Correspondence

Peng, Syd S., Coal Mine Ground Control, New York: John Wiley & Sons, 1967.

Obert, Leonard and Duvall, Wilbur, Rock Mechanics and Design of Structures in Rock, New York: John Wiley & Sons, 1967.

National Coal Board, London, Subsidence Engineer's Handbook, London: Camgate Litho Limited, 1975.

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