VALLEY CAMP OF UTAH, INC.

Scofield Route
Helper, Utah 84526

17 June 1982

Emery County ~~Clerk~~ Recorder
Courthouse
Castle Dale, Utah 84513

Dear Sir:

This letter will serve as cover for one (1) copy of Valley Camp of Utah, Inc. "Apparent Completeness Review", as delivered to your office by T. G. Whiteside, Senior Mining Engineer at Valley Camp.

Also included with the "Apparent Completeness Review" is one (1) copy of a report by Vaughn Hansen Associates, to be made a part of the ACR as an attachment.

Please indicate receipt of the above mentioned documents by appropriate notation hereon below.

Yours very truly,

T. G. Whiteside
Senior Mining Engineer

RECEIVED Inez E. Magnuson
EMERY COUNTY ~~CLERK~~ Recorder

DATE June 17, 1982

APPARENT COMPLETENESS REVIEW

COMMENTS

VALLEY CAMP OF UTAH, INC.

BELINA #1 AND #2

UTAH #2

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27 May 1982

INTRODUCTION

Response comments to the Valley Camp of Utah, Inc. Apparent Completeness Review, as issued to the applicant on October 20, 1981, are compiled in this Volume labeled "Valley Camp of Utah, Inc., ACT/007/001, ACT/007/014, Volume V. Additional supportive information accompanies this submittal under cover of "Hydrologic Inventory and Baseline Study of the Valley Camp Lease Area, Carbon and Emery Counties," by Vaughn Hansen Associates. These two books comprise the total A.C.R. response by the applicant.

Comments found in Volume V are not formated in proper numerical sequence, since responses were made in direct relationship to the organizational format as found in the Apparent Completeness Review.

Due to circumstances relating to the acquisition of information by consultants, which is presently unavailable, some sections are not adquately addressed. Such sections are addressed by comments explaining any lack of response.

A new Table of Contents, applicable only to this Volume, has been provided to permit a more efficient review.

28 February 1983

1. UMC 782.13 IDENTIFICATION OF INTERESTS

Pursuant to 782.13(b)(2), the applicant must submit the address of Quaker State Oil Corporation. The applicant should state the title for Mr. Haynes. Pursuant to 782.13(e), the applicant shall include all addresses of surface owners of property affected and contiguous to the permit area. Missing are addresses for:

Voyle and Emma Bagley
Louis and Anna Kosec
Larry O. and Ira Baer
Skyline Land Company
LDS Church
Utah Natural Gas

The applicant shall include addresses of coal owners contiguous to the permit area. Missing is the address of:

George Telonis

1. COMMENTS

The address of the Quaker State Oil Corporation is:

Quaker State Oil Refining Corporation
P. O. Box 989
Oil City, Pennsylvania 16301

Mr. Haynes is no longer employed by Valley Camp of Utah. His replacement is Mr. Walter L. Wright (See Volume I, Page 1).

The missing addresses are provided on pages 1A, 1B and 1C.

ACR-1

7 May 1982

Figure ACR-1

Revised

Coal Ownership of Property Affected
And Contiguous to Permit Area

(For location of these ownerships,
see Coal Ownership Map, Map A-1, Volume IV)

Kanawha & Hocking Coal & Coke Company, P. O. Box 218, Triadelphia, West Virginia 26059

United States of America, Department of the Interior, Bureau of Land Management, University Club Building, Salt Lake City, Utah 84138

Utah Power & Light Company, P. O. Box 899, Salt Lake City, Utah 84110

Western Reserve Coal Company, Inc., c/o Dean Phillips, P.O. Box 188, Lewiston, Missouri 63452

Kaiser Steel Corporation, 300 Lakeside Drive, Oakland, California 94666

Coastal States Energy Company, Nine Greenway Plaza, Houston, Texas 77046

Noal Tanner, 2796 North Arapahoe Lane, Provo, Utah 84601

Carbon County, County Courthouse, Price, Utah 84501

Stagstead, Inc., 4301 North MacArthur, Oklahoma City, Oklahoma 73122

George Telonis, c/o Angelo Georgedes, 761 North 300 East, Price, Utah 84501

1 R,7 ACR-2 Revised

7 May 1982

Figure ACR-2

Revised

Surface Ownership of Property Affected
and Contiguous to Permit Area

(For location of these ownerships,
see the Surface Ownership Map, Map A, Volume IV)

United States of America, Department of Agriculture, U. S. Forest Service, 599 West Price River Drive, Price, Utah, 84501

Kanawha & Hocking Coal & Coke Company, P. O. Box 218, Triadelphia, West Virginia 26059

Milton A. & Bessie Oman, 61 South Main, Salt Lake City, Utah 84115

Jack Otani, P. O. Box 501, Clear Creek, Utah 84517

Della & Hilda Madsen, Meadow, Utah 84644

Hellenic Orthodox Church, Price, Utah 84501

Calvin Jacob, 754 S. Cherry, Orem, Utah 84057

Helen & Nick Marakis, P. O. Box 576, 150 East First South & P. O. Box 805, 160 East First South, Price, Utah 84501

George Telonis, c/o Angelo Georgedes, 761 North 300 East, Price, Utah 84501

Robert & Ellen Radakovich, 340 North 600 East, Price, Utah 84501

L. Clan Stilson, 537 South 560 East, Orem, Utah 84057

Alpine School District, 50 North Center, American Fork, Utah 84003

Scott Cook, Fountain Green, Utah 84632

Ted Miller, c/o L. Clan Stilson, 537 South 560 East, Orem, Utah 84057

Rescu-Med, Inc., P. O. Box 1115, Provo, Utah 84601

Fig ACR-2 Cont

7 May 1982

Figure ACR-2 (cont)

Revised

Voyle & Emma Bagley, 1138 Bluebell Lane, Tempe, Arizona 85281

Louis & Anna Kosec, Route #1, Box 12, Helper, Utah 84526

Larry O. & Ira Baer, Box 338, Gunnison, Utah 84634

Skyline Land Company, Morris & Betty Cook, Box 232, Moroni, Utah 84646

L.D.S. Church, 336 South Third East, Salt Lake City, Utah 84111

Utah Natural Gas, c/o Mountain Fuel Supply Company, P. O. Box 11368, Salt Lake City, Utah 84111

2. UMC 782.14 COMPLIANCE INFORMATION

Valley Camp Coal Company and subsidiaries are listed as the operators of operations in West Virginia (Appendix B); however, no violations are listed. If Valley Camp of Utah, Inc. is the permittee (page 4), it is necessary to address violations received for the other Valley Camp Operations such as those in West Virginia during the period (approximately) February 1978-February 1981.

2. COMMENTS

Violations for Other Valley Camp Operations are listed on pages 2A through 2H.

The violations listed on pages 2A through 2F were issued by the West Virginia Department of Resources.

The violations listed on pages 2G and 2H were issued by the Office of Surface Mining.

There are no outstanding violations at this time.

1-9 ADR-3

WEST VIRGINIA COMPLIANCE HISTORY 7 May 1982
Figure ACR-3

ALEXANDER MINE

1. Issued: 2/25/81 Terminated: 5/8/81 No Penalty
Ch. 20, Art. 6, Sec. 42, 6A; Sec. 7B.03
Discharged water from areas disturbed by the surface effects of underground mining with pH of less than 6.0 and iron greater than 7.0 mg/l.

V. C. NO. 1 MINE

1. Issued 11/19/81 Terminated: 12/18/81 No Penalty
Ch.20, Art.6, Sec. 42; Sec. 7B.03
Discharged water with iron concentration in excess of 7.0 mg/l from areas disturbed by the surface effects of underground mining.

V. C. NO. 3 MINE

1. Issued: 9/17/81 Terminated: 10/2/81 No Penalty
Ch.20, Art. 6, Sec. 42; Sec. 7B.03
Permitted the discharge of water with iron concentration greater than 7.0 mg/l from areas disturbed by the surface effects of underground mining.

V. C. NO. 9 TUNNEL
PERMIT NO. EM-20

1. Issued: 7/23/80 Terminated: 1/21/81 No Penalty
Ch. 20, Art. 6, Sec. 23A, 23B; Sec. 7A.02, 7A.03
Failed to maintain water quality control data as required by the Director.

V. C. NO. 12-A MINE
PERMIT NO. EM-21

1. Issued: 7/23/80 Terminated: 1/22/81 No Penalty
Ch. 20, Art. 6, Sec. 23A, 23B; Sec. 7A.02, 7A.03
Failed to maintain water quality control data as required by the Director.

2. Issued: 10/6/81 Terminated: 10/21/81 No Penalty
Ch. 20, Art. 6, Sec. 42; Sec. 8C. 01
Failed to properly install drainage system in accordance with approved plan.

V. C. NO. 15 MINE
PERMIT NO. EM-24

1. Issued: 10/23/79 Terminated: 10/24/79 Assessment: $1,000
Ch. 20, Art. 5A, Sec. 3.01 (f)
Unlawfully caused pollution to the Left Fork of Kelleys Creek.

2. Issued: 7/23/80 Terminated: 1/22/81 No Penalty
Ch. 20, Art. 6, Sec. 23A, 23B; Sec. 7A.02,7A.03
Failed to maintain water quality control data as required by the Director.

Figure ACR-3
WEST VIRGINIA COMPLIANCE HISTORY 7 May 1982
V. C. No. 15 Mine (continued)

3. Issued: 10/6/81 Terminated: 10/21/81 No Penalty
Ch. 20, Art. 6, Sec. 42; Sec. 8C.01
Failed to properly construct drainage system in accordance with approved plan.

4. Issued: 12/8/80 Terminated: 1/22/81 No Penalty
Ch. 20, Art. 6, Sec. 23B; Sec. 8D.01
Failed to certify that drainage system was installed according to approved plan.

5. Issued: 2/5/81 Terminated: 2/20/81 No Penalty
Ch. 20, Art. 6, Sec. 42; Sec. 4.09
Failed to erect a permanent monument.

V. C. NO. 15-A MINE
PERMIT NO. EM-23

1. Issued: 7/23/80 Terminated: 1/22/81 No Penalty
Ch. 20, Art. 6, Sec. 23A, 23B; Sec. 7A.02, 7A.03
Failed to maintain water quality control data as required by the Director.

2. Issued: 12/8/80 Terminated: 1/22/81 No Penalty
Ch. 20, Art. 6. Sec. 23B; Sec. 8D.01
Failed to certify drainage in accordance with approved plan.

3. Issued: 2/5/81 Terminated: 7/14/81 No Penalty
Ch. 20, Art. 6, Sec. 42; Sec. 4.09
Failed to erect a permanent monument.

4. Issued: 10/6/81 Terminated: 10/21/81 No Penalty
Ch. 20, Art. 6, Sec. 42; Sec. 8C.01
Failed to properly construct drainage system in accordance with approved plan.

V. C. NO. 36 MINE
PERMIT NO. EM-19

1. Issued: 7/23/80 Terminated: 1/22/81 No Penalty
Ch. 20, Art. 6, Sec. 23A, 23B; Sec. 7A.02, 7A.03
Failed to maintain water quality control data as required by the Director.

WITCHER CREEK BATHOUSE
PERMIT NO. I-527

1. Issued: 12/1/80 Terminated: 1/22/81 No Penalty
Ch. 20, Art. 6, Sec. 23B; Sec. 8D.01
Failture to certify drainage system construction.

Cont

WITCHER CREEK HAULROAD
PERMIT NO. H-57

1. Issued: 12/18/78 Terminated: 2/1/79 No Penalty
   Ch. 20, Art. 6, Sec. 14; Sec. 7.01
   Failed to impound, drain or treat all runoff water so as to reduce soil erosion and pollution of streams and other waters.

2. Issued: 1/17/79 Terminated: 5/15/79 No Penalty
   Ch. 20, Art. 6, Sec 14; Sec. 5.11
   Placed acid producing or toxic material (coal) upon the surface of the haulroad.

3. Issued: 11/26/79 Terminated: 12/7/79 No Penalty
   Ch. 20, Art. 6, Sec. 11
   Allowed ongoing surface mining operations to cause, or be likely to cause stream pollution.

BUFFLICK TIPPLE
PERMIT NO. I-508

1. Issued: 12/30/80 Terminated: 1/22/81 No Penalty
   Ch. 20, Art. 6, Sec. 23B; Sec. 8D.01
   Failed to certify that drainage system was constructed in accordance with approved plan.

2. Issued: 2/5/81 Terminated: 3/11/81 No Penalty
   Ch. 20, Art. 6, Sec. 42
   Failed to install and certify drainage system.

DONALDSON PREPARATION PLANT
PERMIT NO. R-523

1. Issued: 4/5/79 Terminated: 2/22/80 Assessment: $1,000.
   Ch. 20, Art. 5A, Sec. 3.01 (f)
   Unlawfully caused pollution to Big Hollow, a tributary of Kelley's Creek.

V. C. NO. 6 SURFACE MINE
PERMIT NO. 16-75

1. Issued: 7/25/78 Terminated: 7/25/78 No Penalty
   Ch. 20, Art. 6, Sec. 14; Sec. 7C.01
   Discharged water from the permit area with a pH of less than 5.5.

2. Issued: 4/24/79 Terminated: 7/13/79 No Penalty
   Ch. 20, Art. 6, Sec. 9.11
   Failed to backfill and regrade within 60 days of mining.

3. Issued: 7/23/80 Terminated
   Ch. 20, Art. 6, Sec. 7A.03, 7A.02
   Failed to maintain water quality control data as required by the Director.

3 cont

WEST VIRGINIA COMPLIANCE HISTORY 7 May 1982
Figure ACR-3
V. C. NO. 6 SURFACE MINE
PERMIT NO. 47-79

1. Issued: 10/8/79 Terminated: 2/4/80 No Penalty
Ch. 20, Art. 6, Sec. 14
Placed material or other substances beyond or outside the land which is under permit or for which bond has been posted.

2. Issued: 12/17/79 Terminated: 12/28/79 No Penalty
Ch. 20, Art. 6, Sec. 9A
Failed to properly construct and certify drainage system in accordance with approved pre-plan.

3. Issued: 2/19/80 Terminated: 2/20/80 No Penalty
Ch. 20, Art. 6, Sec. 9A; Sec. 8A.02
Discharged or permitted the discharge of water over a spoil slope without adequate drainage structures.

4. Issued: 3/11/80 Terminated: 4/10/80 No Penalty
Ch. 20, Art.6, Sec. 9A; Sec. 8C.01
Failed to properly construct drainage system in accordance with approved pre-plan.

5. Issued: 4/10/80 Terminated: 6/23/80 No Penalty
Ch. 20, Art. 6, Sec. 9A; Sec. 8C.01
Failed to properly construct, certify and maintain drainage system in accordance with approved pre-plan.

6. Issued: 4/10/80 Terminated: 6/23/80 No Penalty
Ch. 20, Art. 6, Sec. 8A
Placed debris, spoil material, and waste mineral matter on natural downslope of mining cut on slope of 20 degrees or greater.

7. Issued: 7/23/80 Terminated: 9/11/80 Assessment: $115.
Ch. 20, Art. 6, Sec. 42; Sec. 9B.02
Caused debris and spoil material to be placed on the natural downslope below the initial mining cut.

8. Issued: 7/23/80 Terminated: 12/3/80 Assessment: $110.
Ch. 20, Art. 6, Sec. 23A, 23B
Failed to maintain water quality control data as required by the Director.

9. Issued: 8/1/80 Terminated: 8/12/80 Assessment: $110.
Ch. 20, Art. 6, Sec. 24; Sec. 5.11
Surfaced a haulageway with acid producing or toxic material or with material which creates a concentration of suspended solids in surface drainage.

10. Issued: 8/1/80 Terminated: 8/12/80 No Penalty
Ch. 20, Art. 6, Sec. 9A; Sec. 8A.02
Discharged or permitted the discharge of water over a spoil slope without adequate drainage structures.

3 cont

WEST VIRGINIA COMPLIANCE HISTORY 7 May 1982
Figure ACR-3
V. C. NO. 6 SURFACE MINE (continued)
PERMIT NO. 47-79

11. Issued: 8/1/80 Terminated: 8/30/80 No Penalty
Ch. 20, Art. 6, Sec. 24; Sec. 9.11
Failed to keep operation current.

12. Issued: 8/1/80 Terminated: 9/18/80 Assessment: $110.
Ch. 20, Art. 6, Sec. 14
Placed material or other substances outside land which is under permit and for which bond has been posted.

13. Issued: 8/1/80 Terminated: 10/22/80 Assessment: $110.
Ch. 20, Art. 6, Sec. 9A; Sec. 8C.01
Failed to construct a drainage system according to the approved pre-plan.

V. C. NO. 17 SURFACE MINE
PERMIT NO. 154-77

1. Issued: 8/21/78 Terminated: 10/3/78 No Penalty
Ch. 20, Art. 6, Sec. 14
Placed overburden and earth beyond or outside the area of land that is under permit; placed spoil downslope of the coal seam.

2. Issued: 10/10/78 Terminated: 11/12/78 No Penalty
Ch. 20, Art. 6, Sec. 14
Placed or caused to be placed overburden and other materials outside the area of land that is under permit and for which bond has been posted.

3. Issued: 10/10/78 Terminated: 11/16/78 Assessment: $100.
Ch. 20, Art.6, Sec. 9A
Failed to install a drainage system.

4. Issued: 5/25/79 Terminated: 7/13/79 No Penalty
Ch. 20, Art. 6, Sec. 8A
Placed spoil material on the natural downslope below the initial bench or mining cut on slopes of 20 degrees or greater.

5. Issued: 2/19/80 Terminated: 2/20/80 No Penalty
Ch. 20, Art.6, Sec. 9A; Sec. 8A.02
Discharging or permitting the discharge of water over a spoil slope without adequate drainage control structures.

6. Issued: 6/23/80 Terminated: 12/3/80 No Penalty
Ch. 20, Art. 6, Sec. 8A
Placed or caused to be placed debris, spoil material and waste mineral matter on natural downslope below mining cut on slopes of greater than 20 degrees.

7. Issued: 7/23/80 Terminated: 12/3/80 No Penalty
Ch. 20, Art. 6, Sec. 23A, 23B; Sec. 7A.02, 7A.03
Failed to maintain water quality control data as required by the Director.

V. C. NO. 17 SURFACE MINE (continued)
PERMIT NO. 154-77

8. Issued: 8/26/80 Terminated: 1/21/81 No Penalty
Ch. 20, Art. 6, Sec. 14
Placed materials or other substances beyond or outside of land which is under permit or for which bond has been posted.

9. Issued: 2/9/81 Terminated: 4/1/81 No Penalty
Ch. 20, Art. 6, Sec. 42; Sec. 8C.01
Failed to properly construct a drainage system.

10. Issued: 2/9/81 Terminated: 4/1/81 No Penalty
Ch. 20, Art. 6, Sec. 13(d)
Placed debris, spoil material below initial mining cut.

11. Issued: 3/11/81 Terminated: 7/23/81 Assessment: $100.
Ch. 20, Art. 6, Sec. 42; Sec. 8C.01
Failed to properly construct drainage system.

Violations Issued Under Authority of The Surface Mining Control and Reclamation Act to The Valley Camp Coal Com West Virginia Facilities

Figure ACR-3

7 May 1982

Citation Number	Facility	Date Issued	Nature of Violation	Disposition	Assessment
Nov. 79-I-16-5	No.8 Preparation Plant	3/3/79	1 of 4 30 CFR 715.17 (a) 2 of 4 30 CFR 715.20 (a) 3 of 4 30 CFR 717.17 (a) 4 of 4 30 CFR 717.20 (b)	Terminated 6/5/79 " " " " " "	$480 No Penalty $1,500 No Penalty
Nov. 79-I-16-6	No.8 Central Shops	3/3/79	1 of 2 30 CFR 715.17 (a) 2 of 2 30 CFR 715.20 (a)	Terminated 6/5/79 Vacated 3/5/79	No Penalty
Nov. 79-I-15-19	Donaldson Refuse Area	6/19/79	30 CFR 717.17 (a)	Terminated 7/18/79	No Penalty
Nov. 79-I-38-39	No.1 River Tipple No. 3 Prep. Plant	7/26/79	30 CFR 717.14 (e) 30 CFR 717.20	Terminated 8/30/79	$1,400
Nov. 79-I-91-16	No.8 Central Shops	11/7/79	30 CFR 715.17 30 CFR 717.17	Vacated 5/8/80	
Nov. 79-I-91-18	No. 8 Refuse Area	11/7/79	30 CFR 715.17 (a) 30 CFR 717.17	Terminated 12/7/79	$1,400
Nov. 80-I-38-3	Alexander Refuse Area	2/12/80	30 CFR 717.17 (a)	Vacated 5/13/80	
Nov. 80-I-38-4	Alexander Refuse Area	2/12/80	30 CFR 717.17 (a)	Vacated 5/13/80	
Nov. 80-I-38-23	No.3 Preparation Plant	5/12/80	Section 522 (e) (4)	Appeal Decision Pending	
Nov. 80-I-38-24	No.3 Refuse Area	5/12/80	1 of 2 30 CFR 717.17 (a) 2 of 2 30 CFR 717.17 (a)	Terminated 8/29/80 Terminated 5/30/80	$900 $1,400
Nov. 80-I-38-25	No.3 AMD Plant	5/12/80	30 CFR 710.11 (a) (2)	Terminated 7/31/80	$1,100

Figure ACR-3

7 May 1982

Citation Number	Facility	Date Issued	Nature of Violation	Disposition	Assessment
Nov. 80-I-38-39	No.3 Refuse Area	6/30/80	30 CFR 717.17 (a)	Terminated 6/30/80	$500
Nov. 80-I-38-40	Alexander Refuse	7/29/80	30 CFR 717.17 (a)	Terminated 7/31/80	$1,500
CO 80-I-38-10	No.3 Preparation Plant	7/29/80	Section 522 (e) (4)	Appeal Decision Pending	
CO 80-I-38-11	Alexander Refuse Area	7/29/80	30 CFR 717.17 (a)	Terminated 7/31/80	$1,500
CO 80-I-38-13	No.3 Refuse Area	8/28/80	30 CFR 717.17 (a)	Terminated 7/29/80	$750
Nov. 80-I-38-69	No.1 Refuse Area	11/20/80	30 CFR 717.20 (a)	Terminated 2/20/80	No Penalty
Nov. 80-I-38-70	No.3 AMD Plant	11/21/80	30 CFR 717.17 (a)	Terminated 12/21/80	No Penalty

3. UMC 782.18 PERSONAL INJURY AND PROPERTY DAMAGE INFORMATION

The liability insurance expires on April 1, 1981 (Figure 1-7). The applicant must show at the time of application, that the policy is in force for the underground coal mining activities for which the permit is sought. The applicant must show that the policy has a rider requiring the insurer notify the Division whenever substantive changes are made in the policy, including any termination or failure to renew (UMC 806.14).

3. COMMENTS

The copy of the Insurance Certificate showing necessary riders is attached.

Certificate of Insurance

acord

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

782, 8

NAME AND ADDRESS OF AGENCY
Figure ACR 4
Alexander & Alexander, Inc.
P. O. Box 2896
Winston-Salem, North Carolina 27102

NAME AND ADDRESS OF INSURED
Valley Camp of Utah, Inc.
Scofield Route
Helper, Utah 84526

COMPANIES AFFORDING COVERAGES

COMPANY LETTER A	The Travelers Insurance Company
COMPANY LETTER B	U.S. Fire Insurance Co.
COMPANY LETTER C	First State Insurance Co.
COMPANY LETTER D	
COMPANY LETTER E	

This is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

COMPANY LETTER	TYPE OF INSURANCE	POLICY NUMBER	POLICY EXPIRATION DATE	Limits of Liability in Thousands (000)	EACH OCCURRENCE	AGGREGATE
A	GENERAL LIABILITY ☒ COMPREHENSIVE FORM ☒ PREMISES—OPERATIONS ☒ EXPLOSION AND COLLAPSE HAZARD ☒ UNDERGROUND HAZARD ☒ PRODUCTS/COMPLETED OPERATIONS HAZARD ☒ CONTRACTUAL INSURANCE ☒ BROAD FORM PROPERTY DAMAGE ☒ INDEPENDENT CONTRACTORS ☒ PERSONAL INJURY	TR-SLG-165T412-3-82	4/1/83	BODILY INJURY	$	$
				PROPERTY DAMAGE	$	$
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$ 1,000	$ 1,000
				PERSONAL INJURY		$ 1,000
	AUTOMOBILE LIABILITY ☒ COMPREHENSIVE FORM ☒ OWNED ☒ HIRED ☒ NON-OWNED	TR-CAP-165T409-2-82	4/1/83	BODILY INJURY (EACH PERSON)	$	
				BODILY INJURY (EACH ACCIDENT)	$	
				PROPERTY DAMAGE	$	
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$ 1,000	
B.	EXCESS LIABILITY ☒ UMBRELLA FORM	523-191248	4/1/83	BODILY INJURY AND PROPERTY DAMAGE COMBINED	$ 1,000	$ 1,000
C	☐ OTHER THAN UMBRELLA FORM	917-268				
A	WORKERS' COMPENSATION and EMPLOYERS' LIABILITY	TR-UB-165T436-8-82	4/1/83	STATUTORY		
					1,000	EACH ACCIDENT
B	OTHER Cargo Liability	HCL-11137	Until Cancelled	$125,000 per vehicle		

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES

or materially changed

Cancellation: Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will ~~[illegible]~~ mail 30 days written notice to the below named certificate holder but failure to mail such notice shall impose no obligation or liability of any kind upon the company.

NAME AND ADDRESS OF CERTIFICATE HOLDER
Division of Oil, Gas, and Mining
Department of Natural Resources
4241 State Office Building
Salt Lake City, Utah 84114
Attn: Mr. Ron Daniels

DATE ISSUED: April 1, 1983

AUTHORIZED REPRESENTATIVE
Alexander & Alexander, Inc.

ACORD 25 (1-79)

4. UMC 782.19 IDENTIFICATION OF OTHER LICENSES AND PERMITS

Figure 1-7 lists some permits for which no information is provided regarding license number, approval, or submittals (i.e. status). These include: "Crossing of State 96;" county rights-of-way; and sewage disposal system. What approval has been obtained from MSHA regarding the underground waste structure noted on page 41a?

Volume 3, page 4, states there are 2 wells and an agreement with the Alpine School System to supply culinary water. There is no indication under the listing of other licenses and permits that water rights have been obtained for the ground water systems, or that an agreement has been worked out with the Alpine School System. The applicant must show evidence of water rights for all water used.

Pursuant to USGS comments per attached letter, the applicant must submit the Roof Control and Ventilation System and Methane and Dust Control Plans approved by MSHA as part of the mining and reclamation plan.

4. COMMENTS

The permit listing has been revised and follows. This list also describes water rights.

The underground waste structure and the portal sedimentation pond are two separate structures. The underground waste structure design and construction are described in the Golder Report, "Surface Facilities Grading Plan," found in the Appendix A. No MSHA approval is required.

The Roof Control and Ventilation System, and Methane and Dust Control Plans are found in the Appendix B.

Figure ACR 5
Figure 1-7 (Revised) 7 May 1982

OTHER PERMITS AND LICENSES

Permit Name and Address	License #, Approval, or Submittal Date	Requirements, Contents, and Remarks
U.S. GEOLOGICAL SURVEY 2040 Administration Bldg. 1745 W. 1700 South Salt Lake City, UT 84138		
Mining and Reclamation Plan	Approval Letter - 10 Feb. 1977	Emphasis on mining operation and coal resources
U.S. OFFICE OF SURFACE MINING Brooks Tower, Second Floor 1020 15th Street Denver, CO 80202		
Notice of Intent to Explore	N/A at this time, will be submitted when required.	N/A at this time, submit prior to exploration.
Mining and Reclamation Plan	Included in permit application to the State of Utah.	Emphasis on surface operation and reclamation. Included in permit application.
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) Region VIII, 1860 Lincoln St. Denver, CO 80295		
Prevention of significant Deterioration (PSD) Permit (Air)	Not required, letter dated 7 May 1980 and 23 May 1975 from Utah Dept. of Health	1. Process emission, 2. Impact of secondary growth, 3. Air cleaning equipment.
Oil Spill Prevention Control & Countermeasure Plan (SPCC)	Plan is on file at Mine Office	1. Facility drainage, 2. Bulk storage tanks, 3. Transfer operations, 4. Loading and unloading. On file.

Figure ACR 5
Figure 1-7: Continued
(Revised)

7 May 1982

Permit Name and Address	License #, Approval, or Submittal Date	Requirements, Contents, and Remarks
U.S. EPA-Continued		
National Pollutant Discharge Elimination System (NPDES) Permits (Water)	UT-022985 24 August 1977	Processed by State and approved by EPA
U.S. FOREST SERVICE Price, UT 84501		
Surface Distribution & Reclamation Plan	Agreement dated 9/25/79	Emphasis on subsidence and hydrology
Exploratory drilling Permits	Not required at this time	Location Depth, N/A at this time, prior to drilling
Seismic Drilling Permit	Not required at this time	Requires approval of plan, proper abandonment & reclamation, N/A at this time
Special Use Permit	Not required at this time	1. Land description, 2. Purpose, 3. Size and improvements. Applies to off-lease activites on or off USFS land associated with a project of USFS land.
U.S. TREASURY DEPARTMENT Washington, D.C.		
Explosive Storage and Useage Permit	Explosives are not normally used. When used, they are purchased in small quantities and handled according to state and federal regulations	Use of explosives - during construction - during operation

Figure ACR 5
Figure 1-7: Continued
(Revised)

Permit Name and Address	License #, Approval, or Submittal Date	Requirements, Contents, and Remarks
U.S. FEDERAL COMMUNICATION COMMISSION Washington, D.C.		
License in the Private Operational Fixed Microwave Radio Service	License #2744-15886	
MINE SAFETY AND HEALTH ADMINISTRATION U.S. Dept. of Labor P.O. Box 25367 Denver Federal Center Denver, CO 80225		
ID No. and Safety Plans. Operator & Contractors	Belina #1 - #42-01279 Coal Handling Facilities #42-01126 Belina #2 - #42-01280	
Roof Control Plan - Mine	August, 1980 Approved	Reviewed every 6 months. Commencing mine development after establishing mine ventilation
Ventilation System-Methane and Dust Control Plan-Mine	July 28, 1980 Approved	Reviewed every 6 months. Commencing mine develoment after establishing mine ventilation
Escapeway Map	July 28, 1980 Approved Updated Monthly	Underground mine. Commencing underground mining.
Fan Installation Plan	July 28, 1980	Commencing mine development after construction

Figure ACR-5
Figure 1-7: Continued
(Revised)

Permit Name and Address	License #, Approval, or Submittal Date	Requirements, Contents, and Remarks
Mine Safety and Health Administration--Continued		
Fan Stoppage Plan	July 28, 1980	Commencing underground mining
Fire Fighting and Excavation Plan	Exercise every 90 days	Pertains to surface structures. Commencing operations.
Training Program	8 hours referesher min. per year for experienced and upon hire for inexperienced.	Detailed training report. 1. 24-hour Miner Training, 2. Hazard Review. 3. Commencing mining.
Plan for Sealing Abandoned Sections	Ventilation Plan - July 1980	Part of ventilation system - methane and dust control plan 75.330-1. Commencing mine development after establishing mine ventilation.
Program for Smoking Materials	Once per week UMS 1007 Record	Commencing mining
Emergency Medical Assistance	Carbon Hospital & Private Ambulance 24 hour service.	Commencing construction
Statement Listing Electrical Equipment	Electrical equipment location shown on map in Mine Office	Commencing underground mining
Plan for Providing for Safety of Workmen	Company safety rules are provided	Commencing construction
Communications Systems Plan	Telephone, short wave pagers	During construction
Fire fighting & Excavation Plan & Training	Part of ventilation Plan. Sec. 75-1713-30 training every 90 days	1. Location of fire, equipment, escapeways, travel routes, 2. Excavation procedure. During construction.

Figure ACR 5

Figure 1-7: Continued
(Revised)

Permit Name and Address	License #, Approval, or Submittal Date	Requirements, Contents, and Remarks
Mine Safety and Health Administration--Continued		
Emergency Shelter Plan	None	During construction
Clean-up Program	Part of ventilation plan, July 28, 1980	Cleanup and removal program for accumulation of coal, dust, and other combustibles. During construction.
Mining Around Oil or Gas Wells Program	N/A at this time.	Avoidance or temporarily abandoning well. Prior to mining within 300' of a well.
Refuse Pile Plan Cert. and Aband.	No pile planned	Report within 180 days of acknowledgement of preliminary location letter. 1. Construction and maps, 2. Drainage and stability. 3. Cross section. Prior to starting pile.
Impoundment Plan Cert. Inspec. and Aband. - Water, Sediment, or Slurry	N/A at this site.	1. Watershed effect. 2. Foundation, 3. Construction material. 4. Drawings & graphs, 5. Runoff & spillway, 6. Slope stability. Prior to construction of ponds of 20 acre-feet or dam height of 20 ft. or more. Applies to water, sediment, or slurry ponds.

Figure ACR 5

Figure 1-7: Continued
(Revised)

Permit Name and Address	License #, Approval, or Submittal Date	Requirements, Contents, and Remarks
UTAH INDUSTRIAL COMMISSION (MINE HEALTH & SAFETY)		
Notice of Intent to Mine	Operating mine, so N/A at this time	General mining maps, start of employment.
Permit to Operate Equipment	Operating mine, so S/A at this time	Diesel equip., etc. Start of equipment operations
Explosive Storage Certificate of Compliance	Explosives are not normally used. When used, they are purchased in small quantities and stored according to state and federal regulations.	1. Location of magazine, 2. Explosives to be stored. Prior to storing explosives.
Ground Control Plan	N/A	Start of construction. Safe Control of spoil banks, Prior to mining. N/A.
UTAH DEPARTMENT OF HEALTH Div. of Environmental Health Salt Lake City, UT 84110		
Wastewater Disposal - Belina Site	Construction Permit - August 30, 1979	Guidelines for construction & standards for operation
Utah #2	Construction Permit - March 3, 1975	Permission to build
Office	Construction Permit issued December 4, 1975	Permission to build
Air Quality	Approved by Letter, August 17, 1981	Air quality approval-air pollution control plan

Figure ACR 5
Figure 1-7: Continued
(Revised)

Permit Name and Address	License #, Approval, or Submittal Date	Requirements, Contents, and Remarks
Utah Dept. of Health--Continued		
Utah #2 Coal Handling Facility	Approved by Letter May 23, 1975	Air quality approval-air pollution control plan
Bureau of Solid Waste - Solid Waste Management Disposal Facility Permit	Solid waste hauled from site by Contractor to Carbon Co. Landfill	1. Plot of map, 2. Special provisions, 3. Type of waste, 4. Soil description.
UTAH DIVISION OF OIL, GAS, AND MINING 1588 W. North Temple Salt Lake City, UT 84116		
Monitoring Well Permit	N/A at this time.	1. Location and depth, 3. Use and method. N/A at this time.
Mining and Reclamation	Part of mining permit application submitted, ACT/007/001	
DEPARTMENT OF TRANSPORTATION P.O. Drawer R Price, UT 84501		
Eccles Canyon Road Improvement	Agreement dated Jan. 1980 with counties involved.	Coordination with DOH concerning improvement and funding.
Crossing of State 96 - Permit	Application for Permit will be filed in 4th Quarter, 1984	(Other state right-of-way required from appropriate agency if cross state land). Prior to contruction of conveyor, crossing permit will be obtained.

Figure ACR 5
Figure 1-7: Continued
(Revised)

Permit Name and Address	License #, Approval, or Submittal Date	Requirements, Contents, and Remarks
STATE ENGINEER Division of Water Rights 200 Empire Bldg. 231 E. 400 South Salt Lake City, UT 84111	See State Engineer at end of section.	
Underground Water Appropriation		1. Source and use, 2. Point of diversions, 3. Storage.
Belina Portal Water Well	Water Rights Exchange Application #1691	Application approved.
Utah #1 Water Well	Water Rights Exchange Application #777	Application approved.
Point of Diversion, Change Application, Upper Eccles, Lower Eccles, Scofield Reservoir, Clear Creek	N/A at this time.	Applies to 160 ac-ft. (30 acre feet presently at Upper Eccles) N/A at this time.
Test Well Permit	Letter of Approval - 1/30/80	
Groundwater Monitoring Well	N/A	
100' Buffer Zone Variance	Not required at this time.	Statement of plans, construction within 100' of stream (Sedimentation ponds). Not required at this time.
SOUTHEASTERN UTAH ASSOCIATION P.O. Drawer AI Price, UT 84501		
Review	Nothing Required.	Recommendations to county, 208 plan compliance.

Figure ACR 5
Figure 1-7: Continued
(Revised)

Permit Name and Address	License #, Approval, or Submittal Date	Requirements, Contents, and Remarks
CARBON COUNTY Carbon County Courthouse Price, UT 84501		
Right-of-Way & Construction Use	Not required at this time.	Pipelines, railroads, power lines. Before right-of-way construction
Building Permit	Coal Handling - #1431 Bath House - #1428	Issued by building inspector
Sewage Disposal System	State Permit includes county input. Nothing more required at this time.	Input by County Sanitation as part of state approval.
Burning Permit	Not required at this time.	Obtain from Sheriff Dept. Prior to burning brush. Req. to burn excess debris. Will obtain if necessary.
County Road Overload Approval	None required at this time.	Req. for transporting excessive loads on county roads. Obtained prior to need.
Business License	January 1, 1982	Annual renewal from Carbon County.
State Engineer		
Belina Portal Water Well	Water Rights Exchange Application #1691	Application approved
Utah #1 Waterwell	Water Rights Exchange Application #777	Application approved
Alpine School District 50 North Center American Fork, Utah 84003	25 March 1976 - Lease for purchase of culinary water	

5. UMC 782.21 NEWSPAPER ADVERTISEMENT AND PROOF OF PUBLICATION

The applicant correct errors in the description contained in the advertisement, and will, therefore, need to re-advertise. The errors are shown corrected as underlined:

T 14 S, R 7 E
Section 7-NW1/4 and NW1/4 of NE1/4
T 13 S, R 7 E
Section 16-W1/2 of W1/2, NE1/4 of NW1/4 and NW1/4 of NE1/4
Section 8-E1/2 of SE1/4 and a portion of SW1/4 of SE1/4

The applicant should refrain from advertisement until the Division, with concurrence from the Office of Surface Mining, has deemed the application complete pursuant to UMC 786.11(b).

5. COMMENTS

Correction has been made as shown on page 5A.

Applicant will re-advertise as required.

Only that section of the proposed public notice which contained the above errors is included.

3. The land areas contained in the permit application are more fully described as follows:

T14S R7E
Section 7 NW 1/4, and NW 1/4 of NE 1/4
Section 6 W 1/2, and W 1/2 of E 1/2

T14S R6E
Section 1 E 1/2 NE 1/4, and NE 1/4 of SE 1/4

T13S R7E
Section 31 SW 1/4, and W 1/2 of NW 1/4
Section 30 W 1/2 of W 1/2, SE 1/4 of SW 1/4, and NE 1/4 of NW 1/4
Section 21 Portions of NW 1/4 of NW 1/4
Section 20 Portions of NE 1/4 of NE 1/4
Section 19 S 1/2 of SW 1/4, NE 1/4 of SW 1/4 and portions of W 1/2 of E 1/2, E 1/2 of NW 1/4, and NE 1/4 of NE 1/4
Section 18 S 1/2 of SE 1/4, and SE 1/4 of SW 1/4
Section 17 E 1/2 excluding portions of SE 1/4 of E 1/2, and portions of S 1/2 of SW 1/4
Section 16 W 1/2 of W 1/2, NE 1/4 of NW 1/4, NW 1/4 of NE 1/4
Section 9 W 1/2 of SW 1/4
Section 8 E 1/2 of SE 1/4, and a portion of SW 1/4 of SE 1/4

T13S R6E
Section 36 All
Section 35 Portions of E 1/2 of E 1/2, and SW 1/4 of SE 1/4
Section 25 E 1/2, and portions of W 1/2
Section 24 SE 1/4 and portions of S 1/2 of NE 1/4, NW 1/4 NE 1/4, and E 1/2 of SW 1/4

4. All lands associated with this application are shown on the Scofield, Utah, 7½ minute USGS quadrangle map.

5. A copy of the application will be available for public inspection at the Carbon and Emery Counties Recorders' Offices.

6. Written comments on the proposed application may be submitted to:

State of Utah
Natural Resources & Energy
Oil, Gas and Mining
4241 State Office Building
Salt Lake City, Utah 84114

Office of Surface Mining
U. S. Department of the Interior
Brooks Tower Second Floor
1020 15th Street
Denver, Colorado 80295

6. UMC 783.12 GENERAL ENVIRONMENTAL RESOURCES INFORMATION

Pursuant to 783.12(a), the applicant must provide the size, sequence, and timing of subareas of the mine plan area, in five year increments, of the subareas for the life of each mine. The U.S. Geological Survey also requires the mine layout and forecase of production in 5 year increments for the life of the mine (see attached USGS letter)

Pursuant to UMC 783.12(b) the Division of State History needs one major area of concern cleared up. The seven sites located were determined not to be eligible. However, the problem that the Division of State History sees is that seven cultural resource sites were located by this survey, and informal determinations of eligibility were made by the contractor. The seven sites located were determined not to be eligible. However, in the report there are mitigation plans outlined. The point of clarification here is that, if sites are not eligible, there is no need for mitigation. The cultural resource contractor appears to have not clarified this. The Division of State History has problems with the determinations of eligibility, effect, and mitigation programs as outlined by this report.

A detailed item-by-item analysis of the plan by the OSM cultural resources staff is attached. A summary of the additional requirements follows:

(1) Unable to determine exact boundaries of the areas surveyed. Do not know whether all areas of proposed surface disturbance were surveyed for cultural resources. Provide specific legal descriptions and acreage involved in areas surveyed.

(2) Maps included in cultural resource report are of poor quality and inappropriate scale. Recorded sites, survey area, and disturbance areas should be plotted on a life-of-mine map. Old mines in the area should also be plotted.

(3) Site descriptions for all sites encountered are needed within the report. Site forms and descriptions complement one another to give a detailed description of a cultural resource site.

(4) A sample cultural resource survey will be needed for areas potentially affected by subsidence. Since a large portion of the mine plan is situated within the Manti-LaSal National Forest, a survey permit will have to be obtained. Sampling strategy should be presented and should be reviewed by the regulatory authority.

(5) Site evaluation of eligibility and significance are confusing. Use of the CRS system seems to confuse, rather than help, the issue. Unless information to the contrary is presented, OSM considers the S2 and S3 sites to have potential to yield information important in history and pre-history, and are, therefore, eligible for nomination to the National Register. Information to clarify these inconsistencies needs to be supplied.

(6) A short discussion addressing the absence of prehistoric remains (including isolated finds) should be presented within the cultural resource section of the mine plan.

(7) A more detailed survey methodology action is needed. Ground visibility, slope steepness, problems, areas not surveyed (and why) are amont the things that should be included in the discussion.

(8) Several of the sites have been cleared (AERC 27OU/1 and 2) by OSM and the SHPO for another project (Skyline). This documentation should be added to this mine plan submission.

(9) What is the current status of 381N/4, 381N/1, 381N/3, 381N/2? Are they in the mine plan area? What will be the impacts of mining. (See 5).

6. COMMENTS

The size, sequence and timing of sub-areas of the mine plan area, in five year increments, of the sub-areas for the life of each mine are shown in Appendix C, Drawings E2-0006 and E1-0005.

The production forecasts are shown on 6C.

In response to the cultural resource completeness review, a new site and survey map has been prepared, and is shown in Appendix D.

The new map shows survey boundaries and indicates acreage. Site description and discussion of methods and results follow in the AERC report, pages 6D through 6N.

We feel, on the basis of the AERC report included, that a survey is not required in the area potentially affected by subsidence. If the regulatory agencies feel such a survey is required, then this can be discussed in terms of the recommendations of the AERC report.

The remainder of the comments have been addressed in the AERC report, and Division of State History correspondence which follows.

Figure ACR 6

Figure 3-1 (Revised)
Projected Tonnage by Year Per Seam for the Belina Mines During the Mine Permit Term

Belina No. 1 Mine (Upper O'Connor)	Belina No. 2 Mine (Lower O'Connor)
1981 - - - 1,008,000 TONS	1981 - - - - 98,000 TONS
1982 - - - 1,008,000 TONS	1982 - - - 406,000 TONS
1983 - - - 1,008,000 TONS	1983 - - - 672,000 TONS
1984 - - - 1,008,000 TONS	1984 - - - 840,000 TONS
1985 - - - 1,008,000 TONS	1985 - - - 840,000 TONS

Anticipated Tonnage by 5 Year Increments Per Seam for the Belina Mines for Life of Each Mine

Belina No. 1 Mine (Upper O'Connor)	Belina No. 2 Mine (Lower O'Connor)
1985-1990 - - - 1,200,000 TONS	1985-1990 - - - 1,200,000 TON
1990-1995 - - - 1,200,000 TONS	1990-1995 - - - 1,200,000 TON
1995-2000 - - - 1,200,000 TONS	1995-2000 - - - 1,200,000 TON
2000-2005 - - - 1,200,000 TONS	2000-2005 - - - 1,200,000 TON
2005-2010 - - - 1,200,000 TONS	2005-2010 - - - 1,200,000 TON

783.12

ARCHEOLOGICAL - ENVIRONMENTAL RESEARCH CORPORATION

588 West 800 South Bountiful, Utah 84010
Tel: (801) 292-7061 or 292-9668

December 31, 1981

RECEIVED
JAN 07 1982
GOLDER ASSOCIATES

Mr. Glenn Phillips
Golder Associates
12345 W. Alameda Parkway
Lakewood, Colorado 80228

Dear Mr. Phillips:

I have attached our statements on the nine items outlined in the DGOM response to the Valley Camp of Utah's mining permit application. The five statements that are included in your letter to this office of December 15, 1981, are all addressed within the nine items. I had primarily prepared this response prior to the receipt of your mine project map and letter. In November, Jim Dykman of SHPO, who reviews all reports submitted to DGOM, requested an item by item response from our office. Our experience with that office leads me to conclude that anything less than a nine item response will be considered inadequate.

Please review my response. If Valley Camp concurs with these conclusions and recommendations, please send a copy of this supplement down the line with the appropriate map attached. As AERC did not receive additional map blanks, we could not prepare finished copies of the map for the resubmittal. Copies of correspondence to DGOM or OSM which are generated from this response would be appreciated.

I will be conducting field research in Guatemala throughout the month of January and, therefore, am unavailable for comment until early February, 1982. Should you have any questions, please contact my secretary or Dennis Weder, our senior staff archeologist.

Sincerely,

F. R. Hauck

F. R. Hauck, Ph.D.
President

FRH:dp

enc

1) Survey Area Boundaries

The area intensively surveyed by AERC personnel on the Whiskey Creek Canyon-Pleasant Valley project is shown on Figure 2 of the report, and on the attached project map which has been furnished by the Valley Camp offices. Surface areas involved in the survey include a small area in the southeast quarter of Section 8 related to the conveyor corridor, the eastern half of Section 17, the southern half of the southwest quarter of Section 17, the southern half of the southern half of the southeast quarter of Section 18, a north-northeast to south-southwest corridor through the center of Section 19, and the northwest quarter of the northwest quarter of Section 30, all in Township 13 South, Range 7 East. Approximately 160 acres were evaluated during two separate survey programs.

As the project map demonstrates, no cultural resource survey was conducted on the surfaces over the proposed underground workings. Intensive survey covered only parts of the mine portal zone in Section 30 and the Valley Camp loadout facility in Pleasant Valley (SE quarter of Section 8). The proposed conveyor route was completely examined except for its southern extremity in Section 30.

2) See Appendix D for data requested in Item 2.

3) Site Descriptions:

Historic Site 27OU/1

This site is situated in the southeast quarter of Section 17, Township 13 South, Range 7 East, upon the top of the ridge on the north side of the mouth of Eccles Canyon. Site 27OU/1 consists of an historic cabin foundation made of unworked rock. The foundation measures 20 feet by 14 feet in size. Perishable materials, e.g., wood, have largely deteriorated. The site lacks any indication of extensive occupation, and was probably a short term campsite established in the late 19th century. Its occupation may have been related to the development and expansion of the coal mine industry in Pleasant Valley.

Historic Site 27OU/2

This site is situated in the southeast quarter of Section 17, Township 13 South, Range 7 East, near site 27OU/1. Located upon the top of the ridge on the north side of Eccles Canyon near the confluence of Eccles and Pleasant Valley creeks, site 27OU/2 consists of an historic cabin foundation made of unworked stone. The foundation measures 18 feet by 14 feet in size, and appears to have been partially excavated into the slope by the builders. The perishable artifacts are deteriorated and dispersed with the foundation, forming the only remnants of the original structure. This site appears to have been a short term occupation, possibly affiliated with the 19th century development of the coal mine industry in Pleasant Valley.

Historic Site 381N/1

This site consists of the Utah No. 1 Mine, which was formerly called the Mud Creek Mine. This is

the oldest mine in the district, and is situated in the northeast quarter of Section 17, Township 13 South, Range 7 East. The Utah No. 1 Mine was originally begun between 1875 and 1880, when it was known as the Mud Creek Mine. This mine "opened on the Castlegate 'A' coal bed. The south of the mine is at tipple height above the railroad, and in 1923, the coal, which was then being mined for railroad use, was dumped from the mine cars without screening into railroad cars. This mine was idle for many years after it was opened and the workings are less extensive than those of the other old mines of the district" (Spieker 1931:96). Extensive surface modification in the site area conducted during the past 100 years has altered much of the historic nature of the site. Some historic foundation rubble and depressions are presently discernable as are limited trash and rubble accumulations situated between the railroad track and the paved highway.

Historic Site 381N/2

The Green Canyon Sawmill site is situated in the northeast quarter of Section 17, Township 13 South, Range 7 East. This site includes a cement foundation and wooden rails for the log track. A corral and an abandoned roadbed are associated with this site, which lies behind the Valley Camp of Utah offices. The proximity of this abandoned sawmill to the Utah No. 1 Mine (381N/1) and the abandoned haul road, which links the two sites, indicates that this mill was probably used by the Mud Creek, or later Utah No. 1 Mine, for cutting mine timbers and preparation of the wood supplies needed in developing and operating the mine. No standing structures are presently remaining on the site. This site is situated outside the proposed conveyor corridor.

Historic Site 381N/3

This site consists of the abandoned Nicolitus Mine portals and campsite located in Pleasant Valley at the mouth of Eccles Creek, in the southeast quarter of Section 17, Township 13 South, Range 7 East. The Nicolitus Mine site (381N/3) includes two portals situated on both the east and west slopes of Pleasant Valley. This site is situated at the mouth of Eccles Canyon and is visible from the highway. The mine portals were opened in the early 1920s by John Nicolitus and were worked for about five years. Joe Williams obtained the lease from Nicolitus and worked the portals in 1931 and 1932 but without success. Williams subsequently sold the lease to John Stone for $1100, who unsuccessfully solicited John Staley and Joe Podbevsek to reopen the mine. The mine was never again worked because the veins were too thin to be profitable. No coal was ever sold from the mine (personal interviews conducted with Tom Biggs and John Staley in Scofield on August 29, 1980, by V. Garth Norman).

The Nicolitus site presently consists of two portals opening on opposite slopes of Pleasant Valley Creek, several tent platforms, a mine shack platform, several tables, an outhouse, and an abandoned trail which leads to the eastern portal. The trail was reinforced by a stone retaining wall constructed at a low point on the slope.

Historic Site 381N/4

This site is the abandoned Gibson Mine which is situated in the northeast quarter of Section 8, Township 13 South, Range 7 East. The mine, located on the east slope of Pleasant Valley, was in operation for a short period beginning in 1922. The site presently consists of a cement platform, a spoil dump of excavated soil and rock, the mine portal, and a few scattered artifacts.

4) Subsidence Zone Survey

The attached project map outlines the surface area over the proposed underground workings which could be subject to disturbance from subsidence after the completion of the mining program. The majority of this area is situated within the Manti-LaSal National Forest and is characterized by steep, wooded slopes flanking a narrow mountain ridge which lies between the 9600 and 10,000 foot elevations above sea level. This ridge is 1600 to 2000 feet higher than the floor of Pleasant Valley which is about 2.5 miles below and to the east.

Since 1975, AERC personnel have conducted numerous intensive surveys in the surfaces immediately west of the Valley Camp lease area. These surveys, initiated for the Coastal States Energy Company Skyline Project, have included intensive examinations of 18 sample units situated in the Skyline subsidence zone, and numerous drill location, access road, and seismic corridor evaluations. For a complete report on these studies, see Hauck and Weder, "Archeological Surface Evaluations In The Skyline Project," AERC Paper No. 23. To date, only one isolated projectile point has been found in the steep, wooded terrain which is adjacent and identical to the terrain covered in the Valley Camp subsidence zone. Our research demonstrates the paucity of cultural resource sites in this zone. We consider that a 10% random or non-random sample survey of the Valley Camp subsidence zone would be of little pertinence. AERC, therefore, proposes that instead of an intensive survey of 10% of the subsidence zone, archeologists conduct a reconnaissance survey along the ridgeline in the proposed Valley Camp project area. If historic or prehistoric sites of significance are situated within the subsidence zone, they will be upon the 9600 to 10,000 foot elevation ridgeline. A reconnaissance survey would most adequately locate and document such sites if they exist. We believe that further sample surveys in the region cannot be justified based upon the results of our past evaluations.

5) Site Significance

Of the seven sites, only four historic sites are situated in, or adjacent to, the development zone which was surveyed by AERC. The resource sites which could be affected by transportation corridor development include 270U/1 and 270U/2. Statements concerning the sites' quality and condition are given in Table 2 of AERC Paper No. 21. Sites 270N/1, 270U/1 and 270U/2 do not have the potential for providing information of value on the history of the region and, therefore, do not satisfy any of the National Register Criteria of Eligibility. Sites 381N/1, 2, and 3 could yield information of value concerning the historic mining industry of the Pleasant Valley locality although the Utah No. 1 Mine (381N/1) has the greatest potential for actual nomination to the National Register. All three sites have been subjected to disturbance and vandalism during the years and are not intact; hence, their value is on an informational-documentation level and not architectural or structural. Any information of value would only be obtained through historic records research and through archeological excavation and structural analysis.

6) Absence of Prehistoric Sites and Isolates

No prehistoric cultural resources were found during the cultural resource survey initiated in 1980. In fact, during all of AERC's evaluations in the general Skyline-Pleasant Valley locality, only one isolate has been recovered but no sites have been found. There are known prehistoric sites in the Scofield locality which is 2.5 miles north of the mouth of Eccles Canyon and, undoubtedly, prehistoric activity extended south from Scofield up Pleasant Valley beyond Clear Creek.

There are several reasons for the paucity of prehistoric materials in the surveyed zones on Eccles Creek, along Pleasant Valley, and in the upper elevations of Skyline Ridge which is drained by Eccles Creek. The extensive amount of historic and modern activity in the creek bottoms has probably resulted in the disturbance of the primary prehistoric site loci and, undoubtedly, resulted in the collection of the most apparent and common isolated artifacts. Surface conditions in the canyons have been quite stable since prehistoric times, hence a great degree of alluvial or colluvial deposition has not occurred. The pine and grassland communities do obscure the surface in some areas which can be a factor in the archeologists not identifying isolates or scattered detritus sites. The third reason for the lack of materials appears to be the relatively small amount of prehistoric activity in the general locality, especially on the mountain slopes above Eccles Creek and Pleasant Valley. Numerous man hours spent by AERC personnel on the Coastal States Energy Company Skyline Project have failed to produce sites, demonstrating that little or no travel, camping, and hunting activities occurred in these higher elevations (Hauck and Weder 1980). This local pattern is identical with the results of the Central Coal study conducted by AERC in 1976 (Hauck 1979b, Hauck et al 1977). AERC research

on East Mountain and south of Joe's Valley in the Wasatch Range, on the other hand, demonstrates that the degree of prehistoric activity in these higher elevations gradually increases to a high site density in those mountain valleys located about 30 miles to the south of Eccles Canyon. The increased amount of prehistoric activity to the south is directly attributable to the accessibility of those mountain valleys to the slopes and lowlands along the eastern flank of the Wasatch Range. Those lower elevations contained one of the most dense Fremont occupation zones in the state and those peoples actively utilized the most accessible upland resource zones. The Eccles Canyon locality lacks this accessibility and was, therefore, not extensively occupied during prehistoric times.

7) Survey Methodology

AERC personnel, conducting the survey of the Eccles Canyon and Pleasant Valley corridors, walked 10 to 15 meter wide transects to cover those surfaces requested by the client (see Figure 2, AERC Paper No. 21). V. G. Norman and A. McDonald surveyed the Eccles Canyon floor in 1977, and in 1980, V. G. Norman, M. Williams and Bunny Melendez evaluated the Whiskey Creek-Pleasant Valley corridors as shown in Figure 2 of AERC Paper No. 21.

Ground visibility varied from open to covered with those surfaces having least exposure being duff covered in the pine community situated on the canyon slopes. Grassland communities in the canyon floors partially obscured the surface. About 80% of the surveyed surfaces were partially exposed; thus, a prehistoric site of significance, had it been present on the surface, would have been observed. All subsurface exposures, erosion surfaces, rodent burrows, and stream banks were checked for the presence of buried cultural resources.

Slopes varied in steepness from shallow (5° to 15°) along the valley floors and ridge tops to moderately steep (15° to 45°) along the canyon slopes and in Whiskey Creek Canyon. Occasionally, steep slopes ($+45^{\circ}$) were walked, however, no vertical slopes were encountered on the survey.

No problems were encountered during the survey and all surfaces requested for observation by Valley Camp of Utah were evaluated by AERC personnel.

8) Site Clearance Documentation on AERC 270U/1 and 270U/2

See Attachments for copies of letters referencing the clearance of these sites during the evaluation of reports on the Coastal States Energy Company Skyline Mine Plan (UT-0003).

9) Current Status of Sites

Site 381N/1, the historic Utah No. 1 Mine, is situated outside the development zone. As is documented in the AERC Paper No. 21, this site has been primarily destroyed during years of mining and service area development.

Site 381N/2, the Green Canyon Sawmill Site, lies outside the proposed conveyor line and can be avoided during the construction of the transmission facility.

Site 381N/3, the Nicolitus Mine Site, is situated outside the Valley Camp development zone.

Site 381N/4, the Gibson Mine Site, is situated outside the Valley Camp development zone and lease area.

Sites 270N/1, 270U/1, and 270U/2 are all situated outside the Valley Camp development zone.

File Acknowledge
Copy to Mary Ann

SCOTT M. MATHESON
GOVERNOR

STATE OF UTAH
DEPARTMENT OF COMMUNITY AND
ECONOMIC DEVELOPMENT

Division of
State History
(UTAH STATE HISTORICAL SOCIETY)

MELVIN T. SMITH, DIRECTOR
307 WEST 2ND SOUTH
SALT LAKE CITY, UTAH 84101
TELEPHONE 801/533-5755

DIVISION OF
OIL, GAS & MINING

January 7, 1981

James W. Smith
Division of Oil, Gas and Mining
Department of Natural Resources
1588 West North Temple
Salt Lake City, Utah 84116

RE: Skyline Mine - Coastal State's Energy Company, Carbon County, Utah

Dear Mr. Smith:

The staff of the Utah State Historic Preservation Officer has received your letter of October 24, 1980. The staff, having reviewed the submitted report by Archeological Environmental Research Corporation, entitled "Archeological Surface Evaluations in the Skyline Project in Carbon and Emery Counties," has determined that the report is adequate to determine mitigation of impacts of the proposed operations on historic and cultural resources. Because of the limited number of resources and the described no adverse effect upon them in the Skyline Mine project, it is felt that this report could satisfactorily be submitted as part of a mining program as outlined by the Memorandum of Agreement between the Division of State History and the Division of Oil, Gas and Mining.

The Preservation Office is aware of the December 22, 1980 letter submitted to Coastal States Energy by the Office of Surface Mining concerning the adequacy of the report for submission. Our office agrees that there are many technical errors in the report. However, since the cultural resources are not eligible and there is no adverse effect, the mine plan should be approved.

The Office of Surface Mining has pointed out some serious problems with this report and others. The Preservation Office of Utah would like to suggest to Oil Gas & Mining and the Office of Surface Mining that a meeting be set up to determine some specific guidelines that can be dealt with on a systems basis rather than individual cases.

State History Board: Milton C. Abrams, Chairman • Thorion H. Luke • Ted J. Warner • Elizabeth Montague • Thomas G. Alexander
Dee G. Dayton • Walter K. Hinton • Helen Z. Papanikolas • David S. Monson • Elizabeth Griffith • William D. Owens

783.12

Should you need assistance or clarification, please call or write James L. Dykman, Cultural Resource Advisor, or Wilson G. Martin, Preservation Development Coordinator, Utah State Historical Society, Preservation Development, 300 Rio Grande, Salt Lake City, Utah 84101.

Sincerely,

Melvin T. Smith

Melvin T. Smith
Director and
State Historic Preservation Officer

JLD:jr:C942CB

cc: Office of Surface Mining, Attn: Bill Killiam, Brooks Towers, 1020 15th Street, Denver, Colorado 80202

783.12

United States Department of the Interior
OFFICE OF SURFACE MINING
Reclamation and Enforcement
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202

OFFICE OF THE REGIONAL DIRECTOR

13 JUN 1980

Melvin T. Smith
State Historic Preservation Officer
Utah State Historical Society
307 West 200 South, Suite 1000
Salt Lake City, Utah 84101

Attn: Jim Dykman

Dear Sir:

We have reviewed the archaeological survey reports submitted by Coastal States Energy Company for their Skyline Mine Plan (UT-0003). These surveys were performed by Archaeological - Environmental Research Corporation (AERC) between 1975 and 1980. Two historic sites, AERC 270U/1 and AERC 270U/2, were located in the SE 1/4 of the SE 1/4, Section 17, T13S, R7E, Carbon County. One historic site, as yet unnumbered, was located in the SE 1/4 of the SW 1/4, section 13, T13S, R6E, Carbon County. It was recorded on June 10, 1980 by OSM archaeologists. Site forms for this site, the Abandoned Eccles Canyon Mine, are attached. Photographs will be forwarded when available.

None of the historic sites appear to be eligible for nomination to the National Register of Historic Places, as they meet none of the criteria in 36CFR60.6. Additional information has been submitted by AERC for the applicant further documenting sites AERC 270U/1 and 270U/2, and should be on file at your office. Based on the above, OSM's approval of this mine plan will have no effect on known significant cultural resources, with the following stipulations:

1) The applicant will submit, within 60 days of acceptance of departmental approval of the mine plan, additional information to OSM and the Utah SHPO on the Abandoned Eccles Canyon Mine. (This information is available from Joe Harvey of Price, Utah, and the Utah State Industrial Commission.)

2) The applicant shall ensure that a sample survey for cultural resources is performed in areas of the mine plan that may be affected by subsidence. This survey should concentrate on locating sites that may be especially sensitive to the effects of subsidence. These site types include, but are not limited to: standing wall structures, both historic and prehistoric; rock art; and rock shelters. A minimum of 10% of the area that may be impacted by subsidence shall be surveyed. Areas that have previously been surveyed (excluding drill hole and corresponding access road surveys) may be used in this 10% survey. This additional survey may be random, or may concentrate on areas that, in the judgment of a professional archaeologist, would be more likely to contain sensitive cultural resources. Methods used to survey the additional areas will be justified in the survey report. This survey will commence within 60 days of acceptance of departmental approval of the mine

plan, and the report will be submitted to the OSM and the SHPO within 120 days of approval. The report shall be written using the standards outlined in OSM's draft "Proposed Guidance to Applicants". If cultural resources are located that are eligible for nomination to the National Register of Historic Places (36CFR60.6) and which may be adversely impacted by subsidence; a plan to mitigate these impacts shall be prepared and submitted to the regulatory authority for approval. Impacts will be mitigated prior to commencement of subsidence-causing activities.

3) If, during the course of mining operations, previously unidentified cultural resources are discovered, the applicant shall ensure that the site is not disturbed and shall notify the regulatory authority. The operator shall ensure that the resource(s) is properly evaluated in terms of the National Register of Historic Places eligibility criteria (36CFR60.6). Should a resource be determined eligible for listing, the operator shall consult with and obtain the approval of the regulatory authority and the Utah SHPO concerning the development and implementation of mitigation measures as appropriate.

4) All vehicular traffic, personnel movement, and construction be confined to the locations examined for the mine plan by the cultural resources survey and the access roads leading into these locations.

5) The company shall instruct their personnel that it is a violation of federal and state laws to collect individual artifacts or to otherwise disturb cultural resources. All personnel shall refrain from any such disturbance.

We request your concurrence in this Determination of No Effect pursuant to 36CFR800.4. We would appreciate your response at your earliest possible convenience. If you have any questions, please contact Judy Shafer or Bill Killam at (303) 837-5656.

Sincerely,

Don Crane

DONALD A. CRANE

Attachment

cc: Keith Welch
Coastal States Mining Company
Reed Christensen
Manti-LaSal National Forest
Jim Smith
DOGM

783.12

SCOTT M. MATHESON
GOVERNOR

STATE OF UTAH
DEPARTMENT OF COMMUNITY AND
ECONOMIC DEVELOPMENT

Division of
State History
(UTAH STATE HISTORICAL SOCIETY)

MELVIN T. SMITH, DIRECTOR
307 WEST 2ND SOUTH
SALT LAKE CITY, UTAH 84101
TELEPHONE 801/533-5755

March 20, 1980

Chairperson
Environmental Coordinating Committee
State Planning Office
118 State Capitol
Salt Lake City, Utah 84114

RE: Skyline Mine , Carbon Co.

Dear Chairperson:

In response to your request for review and in accordance with your responsibility as outlined in 36 CFR 800.4 we are happy to consult with you concerning your project.

The staff has determined, after review, that if the stated procedures, projects or regulations are followed as outlined, there will be no known effect upon any potential or listed National Register historic, archeological or cultural sites.

If you have any questions or concerns, please contact James L. Dykman, Compliance Administrator, or Wilson G. Martin, Preservation Development Coordinator, Utah State Historical Society, 307 West 200 South, Salt Lake City, Utah 84101, 533-6017.

Sincerely,

Melvin T. Smith

Melvin T. Smith
Director and
State Historic Preservation Officer

JLD:re: C942 Carbon

(3) Concur with findings/recommendations

cc: Keith W. Welch, Environmental Coordinator, 411 West 7200 South Suite 200, Midvale, Utah 84047

State History Board Milton C. Abrams, Chairman • Theron H. Luke • Ted J. Warner • Elizabeth Montague • Thomas G. Alexander
Delio G. Dayton • Wayne K. Hinton • Helen Z. Papanikolas • David S. Monson • Elizabeth Griffin • William D. Owens

7. UMC 783.14 GEOLOGY DESCRIPTION

The waiver is not appropriate with respect to the geology of the surface-disturbed areas, nor with regard to coal recovery and associated engineering analyses related to subsidence and groundwater analyses. The geologic information for surface-disturbed areas (portals, roads, load-out, conveyor, right-of-way, waste disposal, and sediment control areas) is considered necessary to support analyses of compliance with stability projections. It is also requested that all flowing springs be related to the stratigraphy and geologic structures (fractures and faults) of the area. A site specific geologic map would satisfy most of those considerations.

Drill logs for all holes used in construction of the cross sections shown on Maps F-1 and F-2 must be made available. Only two logs are provided (B-1a and B-1b). Location of these holes (75-30-3 and 76-7-1) on Map H indicate that "as more information becomes available, cross sections will be updated." Will the source of this additional information be mining, or drilling, or both? Does this statement relate to hydrology and geological information? What type of new information is expected.

In order for the mining plan submitted to be complete with regard to the USGS 211 Plan, it should contain all the information contained in earlier submittals and/or approvals.

The applicant must provide an updated estimate of recoverable reserves as references in the General Mining Order No. 1. Send confidential material to the USGS - Conservation Division, except for the actual tonnage, which is required pursuant to the permanent program regulations.

The applicant must provide a narrative or maps showing and explaining the specifics of maximum practicable recovery of the mineral resource. In addition, the applicant must provide coal thickness isopachs for each mineable seam, structural contours of beds to be mined, overburden (250 ft. max.) and interburden (10 ft. max.) isopachs and delineation of the areal extent of mining for each seam. The above information is required by the USGS (see attached letter) and the permanent program regulations.

The applicant relies on the Skyline Plan for information regarding sulfur and alkalinity of the roof (and floor)

strata (page 12). However, no information is provided to demonstrate that geologic conditions support extrapolation of the Skyline data. Nor are the specific data referred to in the Skyline Plan identified. Please include the information you wish to be used from the Skyline Plan, and justify the correlation of that data to the Valley Camp permit area. It is required that the physical and chemical nature of the underground development wastes be included.

7. COMMENTS

Gates Engineering Company was retained on April 7, 1982, to supply the geologic information necessary to address the above comments. Work will be completed by July 1, 1982, and a more detailed response to UMC 783.14 will be submitted.

The present and proposed approved mining plans have been designed to provide both maximum coal extraction and surface feature support. The existing mining plan employs comsideration of roof stability, intensity, frequency and location of fractures and faults, consistency of the strike and dip of the coal seams, integrity of the seams, and general application of consistent and accepted mining methods which minimizes possible adverse effects on the public and the environment.

The mining method is typical room and pillar, with development being in the upper portion of the seam. Panel development is normally a four entry system with crosscuts varying from 75 foot to 120 foot centers.

The upper portion of the coal is mined on advance, with pillar extraction on retreat. The lower portion of the seam is extracted during pillar recovery to the maximum extent possible. See typical pillar plan in the Appendix B as part of the response to UMC 782.19.

The underground waste structure was constructed of rock and earth material from the facility surface areas, and did not contain material from the coal seam or roof and floor.

The thick coal seam minimizes underground waste material. Such material as may be generated is stored in the mine. As a result, there is no toxic material stored in or added to the underground waste structure. See Golder Report, "Surface Facilities Grading Plan," found in the Appendix A.

The applicant will request approval from the USGS (MMS-BLM) prior to implementing changes in the approved mining plan, which may result in the minimization of the utilization and conservation of the resource. In addition, prior to abandoning underground operations or portals, the applicant will contact the USGS, i. e. DOGM, of this intent.

Pleasant Valley extends south from Scofield Reservoir to the Clear Creek townsite. Extending the length of Pleasant Valley is the Pleasant Valley fault zone. This fault zone acts as a structural separation between the east and west sides of the valley (Spieker 1931). The valley also coincides with the stratigraphical boundary of numerous Blackhawk Formation tongues and Star Point sand stone tongues (Blanchard 1981). The major coal seams in the Scofield area are associated with these Star Point tongues.

The Castle Gate A bed overlies the Aberdeen sand stone tongue, both of which pinch out west of National, and east of Pleasant Valley. The Hiawatha bed has been mapped by Blanchard (1981) to extend from the Price area to west of Pleasant Valley. The Hiawatha bed, overlying the Spring Canyon tongue, is locally known as the Upper O'Connor. The Lower O'Connor bed overlies the Storrs Tongue, and is of limited local extent. The eastern limit of this bed is the east side of Pleasant Valley.

Valley Camp, Inc.'s Belina Mines are located west of Pleasant Valley in the Upper O'Connor (Belina #1) and Lower O'Connor (Belina #2) seams. The Skyline mines are west of the Belina Mines, with the Connelville fault zone separating the two properties. The Skyline #1 mine is in the Upper O'Connor seam, and the #3 mine is in the Lower O'Connor seam. Both the Upper and Lower O'Connor seams have been correlated across the entire Belina and Skyline properties by Blanchard (1981), Clark (1928) and Spieker (1931). In addition to these correlations, a comparison of chemical analyses from the Belina #1 and the Skyline #1 show a close correlation (see table).

	(Ave. of 10) (Samples) Belina #1	(Ave. of 12) (Samples) Skyline #1	Doelling* Ave.	Doelling* Range
% Moisture	9.15	6.92	7.2	3.2 - 12.6
% Ash	5.21	5.99	6.5	2.9 - 11.5
% Sulfur	0.63	0.58	0.56	0.4 - 0.87
Btu/Lb.	11,955	12,316	12,114	10.550 - 13,078
%VM	42.50	42.22	41.3	37.3 - 44.4
% FC	42.69	44.87	44.6	39.7 - 49.1

*Average and range of 40 samples from the Hiawatha (Upper O'Connor) seam near Scofield, Utah (Doelling-1970).

The slight difference between the Belina #1 and Skyline #1 values are due to the lower percent moisture in the Skyline #1 sample. A better comparison would be for dry basis samples (see table). Even as received, the samples are well within the range of values given by Doelling (1970).

TABLE - DRY BASIS

	Belina #1	Skyline #1
% Ash	5.73	6.42
% Sulfur	0.69	0.62
% VM	46.78	45.36
% FC	46.99	48.21
Btu/Lb.	13,159	13,232

Therefore, we feel that the sulfur and alkalinity values given for the Skyline mines are representative of the Belina Mines, and will, hopefully, suffice until further drilling and analyses can be performed at the Belina Complex. The following table gives the values for the Skyline #1 and #3 mines.

*T A B L E

	Upper O'Connor Roof	Upper O'Connor Floor	Lower O'Connor A Roof	Lower O'Connor A Floor
Sulfur	0.14	0.15	0.33	0.06
Alkalinity	low	low	low	low
Btu/Lb.	2400	2400	2358	1996
Ash	85%	85%	95%	85%

*Ave. values from Skyline's #1 and #3 mines dry basis analyses.

For further definition of the sulfur content in the Belina seams, sulfur form analyses data for both the upper and lower seams are included. The following information is compiled from drill hole and face samples.

Additional information may be found in Section 784.19.

31 January 1983

CABLE ADDRESS COMTECO

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 · AREA CODE 312 726-8434

LEA DDRESS ALL CORRESPONDENCE TO:
0775 EAST 51st AVE., DENVER, COLO. 80239

OFFICE TEL. (303) 373-4772

SINCE 1908

SANDERS ASSOCIATES, INCORPORATED
10 West Center Street
Kaysville, Utah 84037

Nov. 5, 1975

Sample Identification by

Sanders Associates, Inc.

(ind of sample reported to us	Coal	Composite Sample
imple taken at	SE1/4, SW1/4, Sec. 25, T.13S., R.6E.	Core Hole No. 75-25-3 Group I
imple taken by	Sanders Associates, Inc.	Lower O'Connor Seam 1133.4' - 1155.7'
Date Sampled	xxxxx	
Date Received	10-17-75	

Analysis report no. 72-35486 Page 3

SULFUR FORMS

	As Received	Dry Basis
% Pyritic Sulfur	0.18	0.19
% Sulfate Sulfur	0.00	0.00
% Organic Sulfur (diff)	0.37	0.40
% Total Sulfur	0.55	0.59

LWT/vh

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

L. W. Taylor

L.W. TAYLOR, Western Division Manager

Charter Member

31 January 1983

CABLE ADDRESS COMTECO

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 · AREA CODE 312 726-8434

PLEASE ADDRESS ALL CORRESPONDENCE TO:
10775 EAST 51st AVE., DENVER, COLO. 80239

OFFICE TEL. (303) 373-4772

SANDERS ASSOCIATES, INCORPORATED
10 West Center Street
Kaysville, Utah 84037

Nov. 5, 1975

		Sample Identification by Sanders Associates, Inc.
Kind of sample reported to us	Coal	Composite Sample
Sample taken at	SW1/4, SW1/4, Sec.36, T.14S., R.7E.	Core Hole No. 75-36-1 Group I Upper O'Connor seam
Sample taken by	Sanders Associates, Inc.	1079.0' - 1090.8' (1081.0' - 1082.1' not received)
Date Sampled	xxxxx	
Date Received	10-17-75	

Analysis report no. 72-35492 Page 3

SULFUR FORMS

	As Received	Dry Basis
% Pyritic Sulfur	0.16	0.17
% Sulfate Sulfur	0.00	0.00
% Organic Sulfur (diff)	0.41	0.45
% Total Sulfur	0.57	0.62

LWT/vh

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

L. W. Taylor

L.W. TAYLOR, Western Division Manager

Charter Member

31 January 1983

CABLE ADDRESS COMTECO

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 · AREA CODE 312 726-8434

SE A ESS ALL CORRESPONDENCE TO:
EAST 51st AVE., DENVER, COLO. 80239

OFFICE TEL. (303) 373-4772

SANDERS ASSOCIATES, INCORPORATED
10 West Center Street
Kaysville, Utah 84037

Nov. 5, 1975

Sample Identification
by

Sanders Associates, Inc.

Compostie Sample
Core Hole No. 75-36-1
Group II
Lower O'Connor Seam
1108.0' - 1130.0'
1110.0' - 1114.0' not received

l of sample rted to us	Coal
e taken at	SW1/4, SW1/4, Sec.36, T.14S., R.7E.
e taken by	Sanders Associates, Inc.
te Sampled	xxxxx
e Received	10-17-75

Analysis report no.72-35502 Page 3

SULFUR FORMS

	As Received	Dry Basis
% Pyritic Sulfur	0.25	0.27
% Sulfate Sulfur	0.00	0.00
% Organic Sulfur (diff)	0.46	0.48
% Total Sulfur	0.71	0.75

LWT/vh

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

L. W. Taylor

L.W. TAYLOR, Western Division Manager

Charter Member

31 January 1983

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

SINCE 1908

May 3, 1976

VALLEY CAMP OF UTAH
Box 507
Clear Creek, Utah 84517

MAIL ADDRESS
16130 VAN DRUNEN ROAD
SOUTH HOLLAND, ILLINOIS
(CHICAGO) 60473
PHONE 312 264-1173

Kind of sample reported to us ----

Sample taken at ----

Sample taken by Valley Camp of Utah

Date sampled ----

Sample identification by Valley Camp of Utah

Belina #1
Outcrop Face Sample
B-1-1

Analysis report no. 71-450274

PROXIMATE ANALYSIS	As received	Dry basis
% Moisture	6.63	xxxxx
% Ash	3.03	3.25
% Volatile	42.23	45.23
% Fixed Carbon	48.11	51.52
	100.00	100.00
Btu	12949	13868
% Sulfur	0.43	0.46
% Alk. as Na_2O	xxxxx	0.02
SULFUR FORMS		
% Pyritic Sulfur	0.09	0.10
% Sulfate Sulfur	0.00	0.00
% Organic Sulfur	0.34	0.36
% Total Sulfur	0.43	0.46

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

I. O. Foster

I. O. FOSTER, Manager, Midwest Division

IOF:scc

CHICAGO, ILLINOIS • CHARLESTON, W. VA. • CLARKSBURG, W. VA. • CLEVELAND, OHIO • NORFOLK, VA. • TERRE HAUTE, IND. • TOLEDO, OHIO • DENVER, COLORADO • BIRMINGHAM, ALABAMA

31 January 1983

COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 · AREA CODE 312 726-8434

WESTERN DIVISION MANAGER
LLOYD W. TAYLOR, JR.

PLEASE ADDRESS ALL CORRESPONDENCE TO:
10775 EAST 51st AVE., DENVER, COLO. 80239
OFFICE TEL. (303) 373-4772

SINCE 1908

VALLEY CAMP OF UTAH, INC.
Scofield Route
Helper, Utah 84526

February 23, 1979

		Sample identification by
Kind of sample reported to us	Coal	Valley Camp of Utah, Inc.
Sample taken at	xxxxx	Sample No. CC-352 Belina No. 1 Mine Upper O'Conner Seam P. O. No. 8106
Sample taken by	Valley Camp of Utah, Inc.	
Date sampled	1-4-79	
Date received	2-14-79	

Analysis report no. 72-80767 Page 1

PROXIMATE ANALYSIS

	As Received	Dry Basis
% Moisture	10.62	xxxxx
% Ash	5.77	6.45
% Volatile	42.37	47.40
% Fixed Carbon	41.24	46.15
	100.00	100.00
Btu/lb.	11758	13155
% Sulfur	0.62	0.69

SULFUR FORMS

	As Received	Dry Basis
% Pyritic Sulfur	0.24	0.27
% Sulfate Sulfur	0.01	0.01
% Organic Sulfur (Diff)	0.37	0.41
% Total Sulfur	0.62	0.69

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

8. UMC 783.15 GROUNDWATER INFORMATION

Figure 2-9 provides water quality for wells and mines. Since no information is provided on the completion of the wells, it is not possible to determine whether the variations in water quality are correct. Please provide a better estimate of how wells are completed and sampled. Also, with the logs requested above, it will be easier to evaluate the groundwater system to determine if additional information is required. Are the four wells the only ones sampled? Are there periodic depth to water measurements available?

How were the water table surfaces constructed in Figures F-1 and F-2? What data was used and what assumptions were made? As noted above, information on the completion of these wells is required. The cross sections appear to have ingored the hydrologic effects of the faults. Do the relative flow rates and water quality for the springs identify the extent of the recharge?

How was the average annual groundwater discharge to Eccles Creek calculated (Figure 2-10)?

On page 24, selected water quality analyses for groundwater are reported for four wells. Only three of these wells appear to be located on Map F. Where is the other located? These wells do not appear to overlap the mine area. Please explain the basis for conclusions regarding the groundwater system overlaying the mine workings.

It is observed that the application presents only a very general description of the groundwater system over the mine area. Thus, it is nearly impossible to assess the effects of mining and the efficiency of monitoring. A hydrologic survey report was submitted to the Forest Service, but has not been provided with this plan. It is possible that incorporation of that report with this plan would provide a sound basis for the regulatory authority to evaluate the mining and reclamation proposal. The Applicant should include the hydrologic survey report in the mine plan.

Probably one of the most efficient ways of determining the effects of mining on the groundwater system is to document the existing mine discharges. This includes quantity and quality of total mine discharge, location in the mine where groundwater is encountered (i.e., from the floor, roof, faulted areas), variations in flows (i.e., water flow terminates 500 feet from face, water flow increased, or water flow remains constant over time,)

and quantity of water encountered. The applicant should document the existing effects of mining on groundwater system and provide this information to the regulatory authority.

Please note that Map B-3 incorrectly identifies Section 26 as Section 2 in the section corner with Section 25 and that this map has no legend.

The mine plan tends to indicate that water measurements were terminated in 1979. Informal information would indicate that the measurement has not been terminated and additional data exists. Please clarify and, if additional data is available, provide it, and indicate how this data affects the values reported.

8. COMMENTS

Map B-3 errors have been corrected on the original.

Response to other comments are as follows: logs, water data, etc., mentioned in the comments are included in Appendix E. The Upper and Lower Eccles wells were drilled by Coastal States Energy Company and logs are not available.

Water quality data from the four wells were previously presented in Figure 2-9. The samples collected from the Upper Eccles, Lower Eccles and Whiskey Canyon wells were obtained at the end of pumping tests, so the data are expected to be very indicative of groundwater quality. The Alpine well was sampled from a water tap in the Alpine School District building, and is located adjacent to the Valley Camp office building in Pleasant Valley Canyon. More information on these wells and the zones of completion are contained in the groundwater quality section of the Vaughn Hansen Associates Study (VHA, 1980), beginning on page 83. These four wells were the only four wells sampled; however, other groundwater quality data were obtained from within the Valley Camp Mine and from springs over the permit area. Periodic depth to water levels are not available in the four wells.

The water table surfaces constructed in Figures F-1 and F-2 are based on the groundwater contour map, Plate 6A, of the Vaughn Hansen Associates (VHA, 1980), report. The locations of the cross-sections as shown on Maps F-1 and F-2 are not shown on Plate 6A, but can readily be located for reference to Plate 6A by comparing it to the Hydrology Map, Map F, Volume IV, on which the locations are shown.

The ground water contours throughout the southern portion of the Valley Camp lease area were estimated based on relationships between topography and groundwater levels that have been noticed on the northern portion of the

lease area, as well as in adjoining areas in Eccles Canyon, over the Skyline Mine permit area and over other mines in the Blackhawk Formation. Extrapolation of the contours in these areas was also helpful in estimating the water levels in the adjoining southern areas. The geology, precipitation patterns, and topography of the southern portion of the lease area is very similar to the adjoining northern portion. Consequently, groundwater patterns are expected to be very similar. For example, the high relatively broad ridge running approximately north-south is approximately in the same location as the water contour divide. This trend is expected to continue through the southern portion of the lease. As the ridge gets higher east of Coal Canyon, it is strongly expected that the groundwater level also is higher at that location. Consequently, the estimated groundwater contours were drawn to show such a trend. In the Blackhawk Formation, data have also shown that the relatively narrow east-west ridges separating east-west canyons do not influence the groundwater levels as much as the major north-south divide discussed above. The "estimated" contour lines were drawn accordingly. That is, the generally north-south direction of the contour lines are modified somewhat, but not drastically, because of east-west ridges and canyons. Another consideration that was made in extrapolating the groundwater contours to the south was that the contours on the east side of the topographical divide are generally closer together (in the Blackhawk Formation) than the contours on the west side of the divide. This is probably an affect of the westerly direction of the dip of the geologic strata.

Additional discussion regarding groundwater contours and movement begins on page 76 of the VHA report. The report also contains information on the effect of faulting on the shape of the water table.

Relative flow rates are probably somewhat related to the extent of recharge. For example, a large spring cannot receive sufficient recharge from a very small area. Obviously, other factors are also important in influencing spring flow rates, such as geologic formation characteristics, etc. The relative flow rates of the springs are related to the size of the adjacent basin contributing the yield of water and to the amount of precipitation upon the adjacent basin. As discussed on page 57 in the Vaughn Hansen Report (VHA, 1980), the yield from the springs is percolating water intercepted and brought to the ground surface by less permeable layers, and is not directly related to recharge of the aquifer. However, indirectly, an area of heavier precipitation that would produce a larger than normal flow from a spring would also likely have a larger recharge to the groundwater. As far as water quality and extent

of recharge are concerned, several places in the VHA Hydrology Report (i.e. pages 57, 59, 60, 66 and 84) tend to indicate that a prolonged contact of the water with the underground strata decreases the quality of the water.

Computation of the average annual estimated discharge to Eccles Creek is outlined in pages 61 through 65 of the Vaughn Hansen Associates Report (VHA, 1980).

The Alpine Well is located next to the Alpine School District buildings adjacent to the Valley Camp offices in Pleasant Valley Canyon. The well log in Appendix E gives coordinates of the well.

Groundwater quality data overlaying the mine workings were obtained from springs (which generally drained perched water systems) and from water sampled within the mine. Pages 55-61 in the Vaughn Hansen Associates Report (1980) contain considerably more information on the groundwater quality in the area.

The hydrologic survey entitled, "Hydrologic Inventory and Baseline Study of the Valley Camp Lease Area, Carbon and Emery Counties, Utah" (Vaughn Hansen Associates, 1980), is submitted as part of the permit application.

A summary of the amount and quality of water issuing from the mine is documented in Appendix E in response to other related questions raised by D.O.G.M. Thus, the following discussion will discuss the occurrence and magnitude of leakers encountered in the mine.

At the mine face where vertical cuts have been made into the overlaying sandstone, small flows are occurring from the exposed east-facing sandstone sufficient to keep the face of the cut wet.

Inside the mine portal, for a distance of approximately 500 feet where the overburden is minimal, water drips from the ceiling in sufficient quantities to cause a serious ice problem in the winter. The overburden thickness in this area varies from 50 to 200 feet.

Northwest of the portal 1500 feet where the overburden is approximately 300 feet thick, the seam moisture yields collectively about 3 gpm. West-southwest of the portal 1500 feet, dripping from the roof accumulates to about 2 gpm where the coal seam rolls downward creating a tension fracture in the roof.

In the main west, 2600 feet west-northwest from the portal, a major fault was encountered in July, 1979. Mining has not proceeded past this fault. Initially, a flow of 400 gpm occurred which reduced to 50 gpm in one year. As of

December, 1981, the flow had reduced to 10 gpm. Along this same fault to the south approximately 2,000 feet, the flow is only 5 gpm. About 3,500 feet south of the zone of large initial flow, another crosscut intersected what is thought to be the same fault without encountering any water. Along this fault zone, the overburden thickness is approximately 200 feet at the north end, and 600 feet at the south end.

Approximately 2,500 feet south-southwest from the portal, a major roof fall occurred in August, 1980, from which an estimated 400 gpm flowed initially. Three months later, the flow had reduced to 50 gpm. As of December, 1981, 16 months later the flow had decreased to 10 gpm. In the roof area exposed by the fallen rock, a fault zone was clearly evident that had a downward roll of four feet, which produced open tension cracks in the rock of the roof. Water was flowing from these open fractures. Beyond this roof fall 800 feet easterly, and also 600 feet southerly, no water has been encountered. In these areas, the overburden is approximately 500 feet thick.

Faults have been encountered in other drifts and crosscuts, and other roof falls have occurred without yielding any water. Water in the mine is related either to a zone of shallow overburden or where a roll has occurred producing a tension crack which serves as a collection and conveyance system to drain the adjacent sandstone formation. Normal slippage and compressive type faults generally do not produce water.

Because of the low permeability of the overburden sandstone formation and the interbedded tight shales and clays, vertical movement of percolating water is very slow, as evidenced by the generally dry condition in the mine. Since the overlying springs are perched above the water table, the mining operation will have a minimal impact on the surface and groundwater resource. When large flows occur within the mine, they are associated with tension cracks caused by warping of the formation; and the resulting flows decrease markedly when the adjacent sandstone has been drained by this plumbing system.

A continuing water quality and flow monitoring program is being conducted. The monitoring plan is outlined in pages 49-52 and 89-91 of the Vaughn Hansen Associates Report (1980). Data collected subsequent to the submittal of the permit application are contained in Appendix E. These data follow a similar pattern to that described in considerable detail in the Vaughn Hansen Report. The information contained in Figure 2-8 of the permit application has been updated to reflect new data.

As mentioned above, this data still shows similar patterns to those reported in the Vaughn Hansen Associates Report. For example, alkalinity values remain much higher than acidity values. Another example is that well and mine samples still average slightly worse in quality than the overlying spring samples, thus substantiating the concept that water quality degrades as travel distance and contact time of ground water increases. The updated information of Figure 2-8 follows as Figure ACR-7.

The well for which information was provided on page 24 of Volume II, but not located on Map F, is apparently W-17-1. This well was drilled by Coastal States Energy Company as part of the Skyline Project. The applicant does not have access to coordinates which would provide a specific location. However, this hole is plotted on Plate 6 of the accompanying Vaughn Hansen Associates Hydrologic Monitoring Report (see also Plate 8 of same report).

A copy of the Well Drillers Report and Electric Log of the Whiskey Canyon Well is included in Appendix E.

Figure ACR-7

(Figure 2-8 Revised)

Maximum, Minimum, and Average Concentrations of Various Constituents in Springs

Parameter	Spring Samples Concentrations in mg/l Maximum	Minimum	Mean	Well and Mine Samples Concentrations in mg/l Maximum	Minimum	Mean
Acidity, as $CaCO_3$	24.7	<0.01	13.2	----	----	----
Alkalinity, as $CaCO_3$	302	92	188	----	----	----
Iron, Total	1.35	0.02	0.25	2.45	0.04	0.47
Iron, Dissolved	0.100	<0.001	0.021	----	----	----
Manganese, Total	0.03	<0.001	0.007	0.114	<.001	.024
pH	8.7	6.5	7.7	8.5	7.2	7.6
Phenol	0.256	<0.001	0.028	0.035	<.001	0.005
Total Diss. Solids	528	32	225	480	182	317

9. UMC 817.52 HYDROLOGIC BALANCE: SURFACE AND GROUNDWATER MONITORING

(a) Figure 3-13 states that composite samples will be obtained for surface and groundwater points. Define the composite method to be used. Has the water quality at each point been defined during baseline monitoring?

(b) The Belina mine water discharge treatment has not been adequately addressed in the plan. It is understood that this treatment system will be reviewed as a minor modification to the permit plan. Describe minimum and maximum flow characteristics specifically observed in the Belina Mines. The applicant is required to report excessive mine water discharges, effluent violations, and emergency flow situations to the Division, according to the UMC 817.52.

9. COMMENTS

(a) As mentioned on pages 50 and 90 of the Vaughn Hansen Associates Report (1980), the monitoring schedule that should be referred to for ground and surface water monitoring should be Figure 3-12 and not Figure 3-13. Figure 3-13 contains the monitoring schedule for the Valley Camp Mine Discharge only, and does not apply to all surface and groundwater stations as implied in the ACR comment listed above.

The composite samples from the Valley Camp Mine Discharge referred to in Figure 3-13 are collected by an automatic sampling device. The sampler has a timer which automatically pumps a water sample at a pre-determined time interval over about a six-hour period. These samples are mixed to provide a composite sample. The sampler is set up to pump from the discharge out of the Valley Camp Mine.

Water quality has been determined at most stations during the baseline monitoring period. These data are contained in Attachment B of the Vaughn Hansen Associates Report (1980), and seasonal variations of the major cations and ions are shown in Plate 2 of the same report. Monitoring has not begun at some of the stations shown on Hydrology Map F, Volume IV because of their remoteness from current mining activities. As stated in the mine permit application, data collection will begin at the surface water

stations in sufficient time to allow for the collections of one complete year of data before the area monitored by the station is impacted from below or on the ground.

(b) Monitored flows from the Belina mine discharge have varied from no flow on many occasions to a maximum of 0.6 cubic feet per second on December 24, 1980. The data obtained from the Belina mine discharge are contained in Appendix E. There have been no excessive mine discharges or emergency flow situations at the mine. All effluent violations have been reported as required to both the Utah State Health Department and U. S. Environmental Protection Agency, as well as to the Division of Oil, Gas and Mining.

The Belina mine water discharge facility consists of two (2) in-line retention basins situated near the fan portal of the Belina No. 1 Mine.

The first unit is approximately 5.5' x 30' x 50' and receives mine discharge directly from the underground sumps. The discharge is contained within this unit and allowed to flow through a coke breeze and gravel dike into the second unit. Flow is then filtered downward through beds of gravel, coke breeze and sand for some eight feet, where it is collected in perforated pipes and routed to a solid discharge pipe, which discharges into Whiskey Canyon. An emergency overflow pipe is installed in the second unit at a level approximately 2.5 feet below the top of the pond banks.

This discharge is permitted through the Environmental Protection Agency as No. UT-0022985, and approved August 24, 1977.

Additional information pertaining to this structure can be found in Sections UMC 784.14 and 784.16 of this submittal.

10. UMC 817.46 HYDROLOGIC BALANCE: SEDIMENTATION PONDS

(a) The applicant states that a temporary increase in suspended sediments will occur due to future construction and that temporary sedimentation ponds will be required to treat disturbed area runoff. Any future construction within the permit area will require a technical review by the Division, and will be considered a modification to the permit. At such time, the use of the sedimentation structures will be evaluated on a case-by-case basis, since sedimentation ponds are not necessarily required for all types of construction (III-page 35).

The applicant states that sediment pond removal will involve "dozing the dam material over the sediment." The applicant must justify that this settled sediment material is non-toxic and will not hinder reclamation of this area.

10. COMMENTS

Any proposed future construction within the permit area will be submitted to the Division for technical review.

Sediment pond removal will involve an evaluation of settled sediment material. If material is non-toxic, the dam material will be dozed over the sediment and the area re-vegetated. If the material is toxic, it will be reclaimed in accordance with Division regulations. It is not anticipated that the material will be toxic.

11. UMC 817.47 HYDROLOGIC BALANCE: DISCHARGE STRUCTURES

The applicant states that the emergency spillway for pond #4 will be left intact to receive drainage from the surface, thereby preventing downslope erosion of the dam, and providing for mine drainage. Is this considered a permanent structure? If so, post-mining maintenance and long-term stability must be discussed for the discharge structure, as well as the dam embankment (VIII-28).

11. COMMENTS

Long-term stability of the #4 structure is discussed in the Golder Report, "Surface Facilities Grading Plan," found in Appendix A.

Post-mining maintenance has been minimized by final reclamation design which provides for adequate erosion and drainage control.

The underground culvert will remain intact. To provide for possible culvert failure, a surface ditch will be provided (See Map D-1 and D-2, revised, in Appendix F), that will be rock lined and connect to existing riprapped drainage ditch. Existing settling pond #4 will be reclaimed and no water will be impounded at this point.

12. UMC 817.48 HYDROLOGIC BALANCE: ACID FORMING AND TOXIC FORMING MATERIALS

(a) Volume III, page 14; states that sediments removed during maintenance and cleaning of the ponds will be placed in a landfill. Where is the landfill? A written statement from the County or owner of the landfill properties verifying the acceptability of this material is necessary.

12. COMMENTS

Our planned landfill for sediment disposal is located in the left hand fork of Whiskey Canyon, south of the Belina portal site. The site location was approved by the USGS under the 211 mining and reclamation plan. A study is presently underway to consider another site.

This site is located in a side canyon of Whiskey Canyon in the NE¼ of NW¼ of Sec. 30, T13S R7E (see Volume IV, Map C-4, for approximate location).

The disposal area would be located on property leased by the applicant from Robert G. and Hilda M. Hammond, which provides such use (see Volume I, page 21). Under the terms of the lease, the applicant is granted the exclusive use, possession and occupancy of the property during the term of the lease. Specific or expressed written consent for any particular activity connected with, or incidental to, the general business purposes of the lessee (applicant) is not required.

Prior to burial of the removed sediment, samples of the material will be taken and analyzed to determine acid and toxic forming capabilities. In the event the material indicates such capabilities, final disposal will be conducted in a manner designed to prevent contamination of ground or surface waters.

Prior to beginning construction activities for a site, the applicant will submit complete design specifications and necessary soil analysis data to the Division of Oil, Gas and Mining, in sufficient time for adequate review to be made for approval.

13. UMC 783.16 SURFACE WATER INFORMATION

The lack of correlation between the topography, surface water hydrology, and the surface facilities map (c-series), makes it impossible to calculate runoff volumes and associated velocities for the disturbed area drainages. A topographic map which delineates the disturbed area watersheds for the sedimentation ponds, and the direction of all surface water flow should be provided. The direction of surface water should include the natural undisturbed drainage diversions, as well as runoff within the disturbed areas.

13. COMMENTS

The information requested has been previously submitted to the Division of Oil, Gas and Mining, and the Utah State Division of Water Rights. A copy of the cover letter for the submittal is attached.

VALLEY CAMP OF UTAH, INC.

Scofield Route

Helper, Utah 84526

11 September 1981

Mr. James W. Smith, Jr.
Coordinator of Mined Land Development
Division of Oil, Gas & Mining
1588 West North Temple
Salt Lake City, Utah 84116

RE: Valley Camp of Utah, Inc.
Sedimentation Ponds - Design
Stipulation 6-81-3

Dear Mr. Smith:

Pursuant to the compliance requirements of the Division's approval letter of June 10, 1981, whereby permission to commence underground development of the Belina No. 2 Mine was given, information pertaining to the design and construction of Valley Camp's sedimentation ponds is enclosed.

The submittal of said information is intended to fulfill the requirements of the Utah State Division of Water Rights as per their letter of February 24, 1981, and also comply with Stipulation 6-81-3 of the previously mentioned approval letter.

The information enclosed for the Number 4 pond is that prepared by Golder Associates, and was used during the construction of that pond. Golder Associates supervised all construction activities associated with this pond.

The information submitted for the 3 ponds at the Load-out area was prepared by Vaughn Hansen Associates, and used in the construction of ponds No. 1 and 2 by the contractor, H. E. Lowdermilk. This information was also used in the modification of Pond No. 3.

If additional information is needed, please feel free to call on me.

Sincerely,

T. G. Whiteside
Senior Mining Engineer

k

Copy to: Division of Water Rights

Enclosures

FILE

14. UMC 783.18 CLIMATOLOGICAL INFORMATION

Please identify location of the new precipitation gauge in Eccles Canyon, and provide all available monthly records. It is presumed that the value of 29.8 inches of rainfall reported for this station in 1980 is precipitation including snowfall. Please confirm (Yes). The reference to USGS, 1978, is expected to be USGS 1979 (page 37). Is that correct? Are any site data for wind speed and direction available? Please submit if available, or if not available, discuss basis for air quality analyses and any determinations of need for dust control.

14. COMMENTS

The Eccles Canyon station was utilized for the Coastal States permit application information, and is no longer in existence. Monthly information was not available to us, but should be contained in the Coastal States application. The 29.8 inches of rainfall is precipitation including snowfall.

The USGS reference is USGS 1979.

Wind speed and direction information is available in the Coastal States Application in the section on "Climate." The complete information provided is shown in the Appendices of the Coastal States Application. The area covered in the Skyline application is essentially the same as the Valley Camp permit area.

Reference is made to the State of Utah, Department of Health, correspondence, which is attached.

Further information is available in the Vaughn Hansen Associates Report, "Hydrologic Inventory and Baseline Study of the Valley Camp Lease Areas, Carbon and Emery Counties, Utah," which is submitted with the complete review documents.

Scott M. Matheson
Governor

STATE OF UTAH
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110

Alvin E. Rickers, Director
Room 426 801-533-6121

James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

DIVISIONS
Community Health Services
Environmental Health
Family Health Services
Health Care Financing and Standards

OFFICES
Administrative Services
Health Planning and Policy Development
Medical Examiner
State Health Laboratory

533-6108
August 17, 1981

RECEIVED
AUG 21 1981
By

Trevor G. Whiteside
Valley Camp of Utah, Inc.
Scofield Route
Helper, UT 84526

RE: Air Quality Approval Order for Increase of Coal Production

Dear Mr. Whiteside:

On April 30, 1981, the Executive Secretary published a notice of intent to approve your increase in coal production from 1.2×10^6 tons/year to 2.25×10^6 tons/year. The 30-day public comment period expired on May 30, 1981 and no comments were received.

This air quality approval order authorizes the increase in production as proposed in your notice of intent dated March 26, 1981 with the following conditions:

1. The conveyor hood sections shall be securely positioned when transporting coal and be maintained in good operating condition.

2. The conveyor head chutes, reclaim tunnel feeder chutes and vibrator feeder discharge chutes shall be totally enclosed and maintained in good operating condition.

3. The conveyor skirtboards shall be properly positioned when transporting coal and be replaced as needed.

4. Stacker tube dust flaps shall be replaced as needed.

5. The 2.2 miles of haul road shared with other companies shall be paved no later than September 1, 1982. In the interim, the road shall be chemically stabilized to minimize fugitive emissions. A record/log of all treatments including date, amount and location shall be kept and made available to the Executive Secretary upon request.

6. The unpaved sections of haul roads not covered in condition #5 shall be chemically stabilized as necessary with dust suppressive material. A record/log of all treatments including date, amount and location shall be kept and made available to the Executive Secretary upon request.

7. All conveyor transfer points shall be equipped with water sprays.

8. The opacity of the crushing plant baghouse shall not exceed 20%. The baghouse shall be maintained in good operating condition.

9. No visible emissions, except from internal combustion engines, shall exceed 20% opacity as per Section 4.1.2, Utah Air Conservation Regulations (UACR). Visible emissions from diesel engines shall not exceed 20% opacity except for starting motion no farther than 100 yards or for stationary operation not exceeding three minutes in any hour according to Section 4.1.4, UACR.

10. All surge bins for loading of trucks or railroad cars shall be equipped with a telescoping chute to minimize the fall distance of the coal.

11. Total annual production of coal from the two mines and crushing plant throughput shall not exceed 2.25×10^6 tons without prior approval from the Executive Secretary according to Section 3.1, UACR.

12. The Executive Secretary shall be notified when monthly production reaches full capacity as a compliance inspection is required.

You are considered a minor source for purposes of the PSD regulations and will not require a permit from EPA/Region VIII. However, for State purposes you are a major source.

According to Section 3.9, UACR, a fee for the cost associated with processing this permit is required to be paid to the State of Utah upon receipt of this approval order. The final costs are attached.

Sincerely,

Brent C. Bradford
Executive Secretary
Utah Air Conservation Committee

DR:jw
cc: Southeastern District Health Dept.
EPA Region VIII (D. Kircher)
enclosure

15. UMC 783.19 VEGETATION INFORMATION

The MRP must identify the acreages of each vegetation community that is to be (or has been) disturbed. The areas of disturbance must also be related to the vegetation communities.

The MRP must provide a vegetation map of the conveyor corridor with the specific areas of disturbance being delineated.

The MRP should provide an analysis of the selected reference areas with the corresponding "affected" area, or pre-mining conditions for each vegetation type in the area to be disturbed or previously disturbed area.

The applicant needs to provide a clearer description, accompanied by measurements, of pre-mining vegetation communities in areas to be disturbed and/or reference areas. The sampling methods must be clearly described, and the means and standard deviations for the individual measurements clearly stated, along with the deriviation procedures. Sampling adequacy needs to be met at the 90% confidence level with a 10% change using a two-tailed t value for cover and density (80%/10% for shrublands). The present condition of the areas to be disturbed should be described, as well as management procedures for the reference areas.

It is highly recommended that a meeting be held to discuss the sampling, sample adequacy, and reclamation plan.

There are several minor discrepancies between the text (page 39, et seq), Figure 2-14 and Appendices F and H. While differences are small, it is recommended that the applicant re-evaluate these figures and eliminate the discrepancies. A list of these discrepancies can be provided if the applicant wishes to correct them.

15. COMMENTS

Areas of disturbance as indicated on Vegetation Map G of the original MRP submittal represent areas that were disturbed at the time of the survey. These areas included the Eccles and Whiskey Canyon roads, the Belina and Utah mine sites, and all associated access roads, as well as portions of gas line disturbances.

A revised Map G, indicating the proposed conveyor route and mine portal areas, is included in Appendix G of this submittal. In an effort to define the areas either previously disturbed or that are to be disturbed, the

the revised Map G identifies each vegetation community as though undisturbed at present. The actual size of each area of disturbance for each vegetative community can be determined by simply measuring its boundaries in relation to the disturbed areas.

The only sizeable areas of disturbance associated with the conveyor line will be a short access road to transfer point No. 2, and a small pad and short access road for point No. 3. Both roads will be only wide enough for one vehicle passage, and will not be all weather installations. Neither of these disturbances, however, is expected to be in excess of 0.5 acres. The rest of the conveyor installation disturbance will be minimal, since the conveyor will be placed by helicopter on small, hand dug and installed supports.

Reference areas established by Endangered Plant Studies, Inc., and associated with the specific areas of disturbance are shown on the enclosed revised Map G. Enlargement or expansion of the material previously submitted in 783.19 of Volume II as related to "analysis of the selected reference areas with the corresponding "affected" area" is not provided in this submittal. This request appears to be questioning the integrity of the consultants, as well as being premature in need in view of the timing of final reclamation activities. Prior to the occurrence of such reclamation, meetings can be held in the field, with all parties involved, to determine the adequacy of selected transects and their corresponding "affected" areas.

Additional questions concerning this topic are answered in the pages following, taken from the Valley Camp of Utah, Inc. Study by Endangered Plant Studies, Inc., September, 1980. (Pages 15D through 15N).

Reference areas discussed in the study are shown on Map G (Revised).

A list of the minor discrepancies was requested from the D.O.G.M. and answers provided on pages 15B and 15C.

If further information is required, a meeting with the Endangered Plant Studies, Inc. group will be arranged.

The applicant's response to UMC 783.19 did not attempt to provide actual acreages of vegetation communities. Revised Vegetation Map, Map G, delineates vegetation type and location within and adjacent to all existing or proposed surface disturbed areas. Also, general vegetative information found in Volume II, Section 783.19, further locates each vegetative community. Actual acreages for each type of vegetation are not required by State Regulations UMC 783.19.

Revised Map G also delineates specific vegetation types that will be disturbed during construction of the proposed overland conveyor. During a meeting with Division and OSM representatives with the applicant at the Division's offices, it was agreed to allow the 0.5 acre statement in lieu of attempting to actually size each small area of possible disturbance.

Also, the approximate acreages for each type vegetation community, which was disturbed prior to SMCRA regulations, for both the Load-out area and Belina Mines area, are shown on Revised Vegetation Map, Map G, No. D5-0054.

Endangered Plant Studies, Inc.
129 North 1000 East
Orem, Utah 84057
(801) 225-7085

RECEIVED
APR 29 1982
VALLEY CAMP
OF UTAH

28 April 1982

T. G. Whiteside
Senior Mining Engineer
Valley Camp of Utah, Inc.
Scofield Route
Helper, Utah 84526

Dear Mr. Whiteside:

Discussed below are explanations and clarifications requested by DOGM in a letter to you dated 14 December 1981. I hope this response will be sufficient in answering the items.

Section 3

B. *Abies concolor* should be changed to *Abies lasiocarpa* in Tables 25, 27, and 29. *A. concolor* was not encountered during sampling of the spruce-fir community type. The other species, *Bromus anomolus*, *Gayophytum ramosissimum*, and *Pseudotsuga menziesii* should be added to the species found in the spruce-fir community type listed in Appendix F. This brings the total species for that type to 98.

A. Page 41 of the text should be changed to read: "Some 98 species are reported present in the spruce-fir type." This matches the number listed in Appendix F as corrected (see B above). Appendix H includes only those species encountered during sampling procedures in the community type. Not all species present in a community are expected to show up in the measuring of transects.

C. Page 41 of the report should be changed to read 21 percent total vegetation cover for the aspen community type and about 13 percent total vegetation cover for the grass-forb-elderberry type. The total for these two types is 34 percent instead of 39 percent.

D. The data summary on page 43 of the report is correct. The 130 percent total cover and 34 species present correspond with reference area data found in Tables 16 and 17 and should not be compared with the information in Table 2-14 (107 percent total cover and 26 species present) which reports data from the validation site.

E. The paragraph on page 45 of the report should be changed as follows:

> Where the conveyor route is parallel to the Skyline Project conveyor corridor the vegetation is mostly sagebrush with a mixture of grasses. Sagebrush and grasses contribute 72 percent cover, the palatable forbs contribute about 11 percent cover, and browse other than sagebrush conrtribute 46 percent cover. This sagebrush type is the most common of any type along the conveyor route and comprises 34 percent of the total. Transect data indicates a total cover of about 130 percent with 34 species contributing. Productivity value of the sagebrush type was greatest among the sites studied with 1375 pounds per acre (Table 18).

If there are any questions, please feel free to contact me.

Sincerely,

Stanley L. Welsh

Stanley L. Welsh

VEGETATION

General Description.--The Valley Camp properties and adjacent areas occur within an aspen-spruce-fir phase of the boreal forest biome, with representatives of cool desert shrub, riparian, and, to a lesser extent, mountain brush community types present as significant though minor components.

The spruce-fir community, a type mainly of north-facing slopes is dominated by Engelmann spruce and subalpine fir, with variants supporting admixtures of aspen and wet meadow subtypes characterized by species of sedges and grasses. Often broad transitional zones occur between the dense spruce-fir forest and adjacent aspen communities. Occasionally stands of the spruce-fir type are almost entirely single species dominants due to past logging or other successional influence. In greater abundance are stands containing all age classes of both spruce and fir species. The spruce-fir type, including areas transitional into aspen, constitutes some 40 percent of the lease and general conveyor corridor area (Table 1). The forest floor is frequently subjected to dense shade promoting a near-complete lack of understory foliage. Grasses and sedges are most commonly represented by *Agropyron caninum*, *Stipa* spp., *Bromus carinatus*, and *Carex hoodii*. Principal forbs in the spruce-fir community include *Arnica cordifolia*, *Lathyrus lanzwertii*, *Ozmorhiza depauperata*, and *Fragaria virginiana*. Common understory shrubs are *Rosa woosdii*, *Sheperdia canadensis*, and *Symphoricarpos oreophilus*. See Table 2 for a complete species list by community type. Some 98

species are reported present in the spruce-fir type.

The aspen community is a forest type with Populus tremuloides as the principal tree species. About 21 percent of the lease area is dominated by aspen alone; south-facing slopes and ridges are main localities of this community. Rather large open areas are interspersed among the aspen stands and are dominated by grasses, forbs, and elderberry. These grass-forb-elderberry communities occupy about 13 percent of the lease area. Species diversity in the aspen community is great, with 20 species reported present. The main ground layer species are much the same as those of the grass-forb-elderberry community, with which the aspen community is considered transitional. The combined aspen and grass-forb-elderberry community is very large, constituting about 34 percent of the general lease area and conveyor corridor.

The sagebrush and fringed sagebrush vegetative types occupy 15 percent of the lease area and occur mainly on shallow soils. Collectively they are remarkably diverse, with some 110 species of vascular plants reported. Snowberry is often a major component in the sagebrush community. Fringed sagebrush is a dominant only on rocky semibarrens of ridge crests at high elevations.

The riparian community type consists of continuous narrow strips of wetland vegetation along the major drainages, as in the valley bottoms of Eccles Canyon, and along minor tributaries. Total areal extent of the riparian type is very small. Dominant species on these wetlands are redtop grass, silver sagebrush, sedge species, grasses, and numerous forbs.

Disturbed areas are present in the proposed lease area some of which have been treated to reclamation procedures. Both introduced and native species were observed growing along pipeline corridors, roadways

and drill pads. The existing portal area shows no attempts at revegetation. Disturbed areas constitute six percent of the lands studied.

Maps.--Maps of vegetative types and soils, which are included with this report, were made for the lease area and Eccles Canyon east of the lease area. These areas were mapped by use of a mosaic of aerial photographs. Community types were outlined on the photographic mosaics; accuracy was assured by correlation of actual communities as inspected on the ground to those discernible on the photographs.

Species Lists by Vegetative Type.--As each plant community was being sampled for its vegetation, a list of all species of vascular plants was compiled. The list was enlarged by checking subtypes within each of the plant communities and by inclusion of species which occur on the same vegetative types of the adjacent and coincident Skyline Project lease and conveyor corridor areas.

Community Analysis (Methods).--Species lists and vegetative and soils data summaries are based in part on extensive adjacent Skyline Project lease area studies. The plant communities and soils occupy the same topographic positions and in all major respects are similar to the Valley Camp lease area. Reconnaissance along the conveyor line corridor indicates potential disturbance of aspen and spurce-fir communities. Sites representative of major vegetative types occurring in the portal area and along both the upper and lower conveyor route were selected for intensive analysis. In each vegetative type permanent transects each 100 meters in length were established at validation sites along the conveyor route and at vegetatively comparable reference sites. The transects in the reference areas are permanently marked with steel rebar stakes painted red; these will serve as points for contemporary and future

reference. Vegetative analysis of the disturbed portal area was not conducted, but reference areas adjacent to the mining activities already under way and representative of the original communities were selected and analyzed.

Stratified random sampling was employed, in which location of transect lines and plots within homogeneous portions of the vegetative types was randomly determined.* From twenty to forty 2 X 5 dm rectangular plots were placed along each transect. Randomness was insured by using a table of random numbers to select three plots within each ten-meter section of the transect. At each reference and validation site in the aspen, grass-forb-elderberry, and spruce-fir communities the sampling procedures followed those outlined by Daubenmire (1957) for the canopy coverage method. For each species of forb, grass, or shrub the canopy was projected as cover of the ground, and such cover was estimated in six cover classes. Total cover, frequency percent, and composiion percent were computed for the species along each transect. Spruce-fir and aspen sites were studied further by application of the quarter method of Curtis (1956), which gives relative cover and relative density values. Tree species dynamics were studied by selecting trees in each size class encountered in the quarter method for diameter, height, and age

*Theoretically, failure to place sampling units randomly violates certain assumptions of statistical theory. While subjective placement of sampling units may seriously misrepresent actual conditions on the ground, random placement of quadrats is not the only objective means of placing samples. The stratified random system used here where placement points in each stratum are located randomly is objective since the sampling point is determined before the sampler sees the spot. Such a method has several advantages. It is far more practical for physical, temporal, and financial reasons; further, it insures that all parts of the sample area are equally sampled. Application of statistical tests can be meaningfully applied.

measurements. Ages of trees were determined by counting core sample rings extracted from the tree with a Swedish increment borer. Average increments of growth in diameter per year were measured.

Productivity measurements of grass and forb species were made by using 0.96 square-feet plots with weight estimates made on each species as outlined in the Range Analysis Handbook (USDA 1970). The weight estimate of each species in 10 randomly selected plots allows for determination of the total pounds of productivity available for grazing in each forb community. These studies were omitted in the spruce-fir community due to a lack of meaningful ground cover.

In order to evaluate adequacy of sample size, the following formula (Harper 1980) was utilized:

$$N(\text{min.}) = \left(\frac{1.64S}{\bar{x}(0.1)} \right)^2$$

taking as x the total understory canopy cover per quadrat. With a sample size of N(min.) a 10% change in vegetative cover can be detected with a 90% confidence level. For details see Snedecor & Cochran 1967, p. 58.

Reference areas have been evaluated for similarity to validation sites using the following similarity index formula (Bonham et al, 1980; Krebs 1972; Harper 1967):

$$S = \frac{2W}{a + b}$$

where:

S = similarity between the potential reference area and the inventory unit

a = total number of species in the reference area

b = total number of species in the inventory unit

w = number of species in common between a and b

This method requires a subjective decision concerning level of similarity required to accept a reference area.

Vegetation Summary for the Proposed Conveyor Route Disturbance Area.--The lower mine and office areas are disturbed to the exent that little if any natural communites are fully represented. The immediate environs of the mine area had supported before disturbance a sagebrush-grass type similar to the sagebrush communities studied along the Eccles Canyon portion of the conveyor route, where 34 species contributed to a total cover of 130 percent. Shrub species, with *Artemisia tridentata* dominant, contributed a composition percentage of 61; *Agropyron spicatum* and other grasses conributed 31 percent. See Table 3 - 32 for transect data summaries. Table 33 summarizes tree growth data.

A total of 19 species occurred along the transect in the lower canyon spruce-fir understory with grasses and sedges providing the most cover at 46 percent. These species were low in frequency percentages and sparse enough to contribute little if any forage. Forb and grass productivity measurements were thus eliminated in this type. The overstory of spruce and fir provided a high (near 100%) canopy cover, and their average productivity (diameter increase) of 0.38 mm per year was approximately that of other spruce-fir types measured along the conveyor route and at the upper area. The composition of trees in this forest type was near equal with spruce having a relative frequency of 52 percent and 163 trees per acre while fir had a 48 percent frequency and 150 trees per acre. The stand was considered a dynamic stand as both species had representatives in all size classes studied (Table 4 and 6).

Aspen stands along the conveyor line comprised about 32 percent of

the total conveyor line area. In the aspen stands along the lower conveyor line toal cover of understory species was 97 percent, with 90 percent of the total attributable to grass species. Usually the well developed aspen stands are the most productive for forage but this stand only contributed approximately 390 pounds per acre. Aspen tree growth was sparse in having 496 trees per acre with a diameter growth increment of only 0.32 mm per year. Further evidence of the unproductive nature of this stand was observed in the size class distribution study; no trees were found in the small or large size classes, all trees being either 3-6 or 6-12 inches in diameter. Rotten centers were found in 67 percent of the trees sampled and thus the stand could be considered decadent and not likely to become a dynamic and productive stand of aspen.

Openings along the aspen stands at one time were dominated by palatable species of grass, forbs, and elderberry. Due to excessive grazing, palatable species have been largely replaced by undesirable species such as stinging nettle, sneezeweed, stickseed, and thistle. These areas constituted about three percent of the total conveyor line route.

E. The paragraph on page 45 of the report should be changed as follows:

> Where the conveyor route is parallel to the Skyline Project conveyor corridor the vegetation is mostly sagebrush with a mixture of grasses. Sagebrush and grasses contribute 72 percent cover, the palatable forbs contribute about 11 percent cover, and browse other than sagebrush conrtribute 46 percent cover. This sagebrush type is the most common of any type along the conveyor route and comprises 34 percent of the total. Transect data indicates a total cover of about 130 percent with 34 species contributing. Productivity value of the sagebrush type was greatest among the sites studied with 1375 pounds per acre (Table 18).

Along the Whiskey Canyon conveyor route both aspen and spruce-fir communities were encountered. The aspen community was among the most

diverse in species with a toal of 28 species contributing to the understory cover of 162 percent. The species contributing most to forage production were grasses. Forage production of grasses and forbs combined provided 595 pounds per acre (Table 20). Aspen trees here were more productive, with the stands containing some mature trees greater than 15 inches in diameter as well as numerous intermediate sizes down to 1 inch in diameter. All core samples appeared healthy and little evidence of diseased trees was found. The average increment of growth was 0.24 mm per year.

Sample data in the Whiskey Canyon spuce-fir community included four species of trees with spruce and aspen being most abundant. The stand could be considered successional with spruce being the potential climax. Intermediate size classes of aspen were most abundant, with few large trees and very few small replacement trees evident. Douglas fir was apparently giving way to the spruce climax as there were only a few large trees, with little evidence of seedling replacement. Tree density for all species was 434 trees per acre with the growth rate for spruce and fir at 0.34 mm per year and 0.27 mm per year respectively. The understory species, limited by dense shade, comprised a total of 28 percent.

The reference area for the spruce-fir type was established adjacent and above the portal area; construction activities preclude the establishment of validation sites. The community was dominated by fir trees which constituted a density of 173 trees per acre. These trees were abundant in all size classes indicating a permanent and near-climax community of spruce and fir. Spruce trees, although less abundant (115 trees per acre), were also represented in all size classes. Growth rates for these trees was 0.38 mm per year for spruce and 0.48 mm per year for

fir. The understory consists of 21 species, having a total cover percentage of only 38.

The portal aspen reference area studies were also taken adjacent to and above the disturbance areas, on the south-facing slope. Here there were 22 species with grasses contributing 86 percent of the total cover of 110 percent. Total forb productivity was 738 lbs per acre, which is somewhat more than that measured in the aspen stand along the Whiskey Canyon corridor. Trees averaged a diameter increase of 0.50 mm per year, which is greatest for all trees sampled.

A summary of data for the permanent reference sites for the conveyor line is as follows:

Transect Mapping No.	Location	Total Cover %	No. of Species	Prod lb/ Acre	Trees per Acre
1	Lower Canyon Spruce-Fir	53	19	-	313
2	Aspen opening (nettle)	163	18	-	-
3	Lower Canyon Aspen	97	18	389	633
4	Sagebrush	129	34	1375	-
5	Whiskey Canyon Aspen	165	25	595	357
6	Whiskey Canyon Spruce-Fir	57	2	-	433
7	Portal Spruce-Fir	38	21	-	288
8	Portal Aspen	110	22	738	63

Sample Adequacy.--In preliminary studies prior to actual sampling it was determined that approximately twenty 2 X 5 plots would be adequate; with this number of plots a 10 percent increase in the number of plots fails to yield to a 10 percent increase in number of species. Sample size is believed adequate to reveal diversity of species along the transect.

Results of adequacy of sample and site similarity calculations are summarized in Table 34. In stands where the understory cover was very spotty such as in the dense shade of spruce, quadrat cover data were extremely variable, resulting in a calculated requirement for a prohibitively large number of quadrats. It should be noted that overstory canopy data are not included in transect cover data; inclusion of such data would greatly diminish the variability of sample means as well as the projected required sample size.

THREATENED AND ENDANGERED PLANT SPECIES

Passage of the Endangered Species Act of 1973 (Public Law 23-205) provided the legal basis for establishment of lists of endangered and threatened plant species. Such lists were prepared under direction of the Smithsonian Institution, and were published subsequently in the Federal Register (40: 27824-27924, 1975; and 41: 24524-24572, 1976). Work on endangered and threatened plants of Utah has been reviewed by Welsh, Atwood, and Reveal (1975), and re-evaluated by Welsh (1978). More recently an illustrated manual of endangered and threatened plants of Utah was written by Welsh and Thorne (1979).

The region under investigation was included in a report on threatened and endangered species of the Central Coal lands of Utah (Welsh 1976).

A survey of the literature has failed to indicate the presence of any of the proposed endangered or threatened plant species in the area. This lack of critical or unique species is supported by the field surveys of the lease areas during this investigation, and during investigation of adjacent and coincident lands of the Skyline Project lease and corridor area. The region was searched by walking parallel transects on a quarter-section by quarter-section basis, with each community type within each quarter-section being traversed. None of the proposed threatened or endangered species were encountered in either the lease area or in the surrounding areas.

16. UMC 817.97 PROTECTION OF FISH, WILDLIFE AND RELATED ENVIRONMENTAL VALUES

The application lacks a drawing (map) showing the key wildlife areas which relate wildlife activities to the proposed and existing mining operations. Such a map should show locations of raptor nests, winter range for moose, and the general direction of ungulate migration in relation to the proposed conveyor route. The applicant should make firm commitments to mitigating measures for fish and wildlife values--simply listing DWR's recommendations will not suffice.

The riparian habitat should be indicated on the vegetation map, *UMC 783.19(a). Due to the extremely high value of riparian habitats, the applicant must discuss how much of this wildlife habitat will be disturbed. The applicant must also detail plans to restore this riparian habitat, wherever it is disturbed (UMC 817.97 (d) (4, 5 and 6).

The application should explain the methods used to survey passerines. The applicant is requested to provide references to support the claims on page 86 (Volume III) that "currently no roost trees are known and no bald eagles nest in Utah," and the claim on page 87 that goshawks and Cooper's hawks can withstand considerable human impact.

It is noted, with respect to raptors (page 72), that "prior to drawing of any final conclusions that autumn time period will be examined." We concur that this information is necessary prior to completing the analysis.

*This information is required pursuant to the Federal Land Management Policy Act, the National Environmental Policy Act, the Mineral Leasing Act, and the Fish and Wildlife coordination requirements.

16. COMMENTS

The DWR's recommended wildlife protection plan is enclosed in Volume III, Appendix D, of the original application. This plan will be used for reference only, in the application of an on site "Wildlife Protection Plan" committed to by the applicant (see Section 784.21 Volume III). Additional information can be found in Appendix I of this submittal.

Section 783.19 of the original permit application describes the riparian community type as "continuous

narrow strip of wetland vegetation along," etc. As such, it is too small an area to show in exhibit maps. The mining activities by Valley Camp of Utah, Inc. do not disturb the riparian habitats and Section 784.21 addresses a program to monitor and protect such areas. In the mining area, the only major riparian habitat is found along Eccles Creek, and this has been impacted by road construction for the Coastal States project, and is not in the area of disturbance for the Valley Camp of Utah, Inc. project.

Smaller areas of riparian habitat are found in Whiskey Canyon, South Fork of Eccles Canyon, and minor drainages associated with these Canyons, and they will not be disturbed by the applicant's operations. The portal site in Whiskey Canyon was developed under the 211 Program, and affected the riparian habitat in that area. Final reclamation of this area is shown on Map D-1 and D-2 in Appendix F.

Stream disturbance related to surface activities should not occur within the permit area and, as a result, impact on fish should be minimized. Mitigation measures will include a Surface Water Monitoring Program, as well as activities, proposed by the applicant and approved by the proper authority, directed to the enhancement of the streams and associated vegetative community.

The culverts located in Pleasant Valley Creek and Eccles Canyon Creek for access to the Utah Load-out Facility and Belina Mines Complex, respectively, will be left in place to provide land owner access to these areas.

The total area of the permit is considered summer range for elk, deer and moose. There is no winter range use with the exception of the riparian habitat areas used by moose, as well as for spring calfing. Comments concerning this matter can be found in the DWR report in Appendix I.

Migration routes have not been indicated as the conveyor system will not create interference to migration; see comments under UMC 784.11. The conveyor design will meet the DWR criteria of being a minimum of three meters clearance for 60% of the route, thus providing adequate clearance for animal passage.

The statement, "currently no roost trees are known and no bald eagles nest in Utah," is taken from the Division of Wildlife Resources, State of Utah, report; a portion of which can be found in Appendix I.

The statement concerning the Goshawks and Cooper's hawks ability to withstand considerable human impact is taken directly from the report by Clayton M. White, (see Appendix I) who cites Hennessy 1978.

The questions concerning Avifauna and Raptors are covered in the Clayton M. White report, as well as in the DWR report. The report by Mr. White can be found in Appendix I, along with the DWR comments.

Based on the DWR report and the Fish and Wildlife Consultation recommendations (DOGM letter of June 25, 1980) attached, we do not agree that it is necessary to examine the autumn time period.

NOTE: Response to ACR comments of February 7, 1983

A continued request for a map showing the key wildlife areas is not required under the regulations of UMC 817.97.

The locations of raptor nests have not been determined. As previously stated in Vol III, section 784.21 pages 86 and 87, two (2) nests were observed in Eccles Canyon. Also refer to Vol III, section 783.20, p-74.

Winter range for moose is discussed in Vol III, section 784.21 also. Such ranges are characterized as riparian habitats and thus in addition to the entire mine permit area being summer range for moose, all drainages within the mine permit area would also be classified as winter range and of critical value. Even if a map were to be prepared, it would not show any more than what is already described in previous verbiage.

Section 784.21, Vol III also states that "the entire area of the permit is considered summer range for elk, deer and moose." Winter range for deer and elk is also addressed there. Furthermore, as for a showing on a map or even stating the general direction of ungulate migration, in relation to the proposed conveyor route, this cannot be done. In discussions held with a representative of the DWR, such a determination for migration has not been formulated. The DWR does, however, believe that a "general direction" would be east southeast. This notwithstanding the fact that they also assume a certain amount of traffic to the north northwest.

SCOTT M. MATHESON
Governor

GORDON E. HARMSTON
Executive Director,
NATURAL RESOURCES

CLEON B. FEIGHT
Director

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
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June 25, 1980

Mr. Trevor G. Whiteside
Senior Mine Engineer
Valley Camp of Utah, Inc.
Scofield Route
Helper, Utah 84526

RE: Fish and Wildlife Consultation
Pursuant to UMC 783.20
Belina #1 & #2 and Utah #2
Mines ACT/007/001 and
ACT/007/014

Dear Mr. Whiteside,

Enclosed are the guidelines which were compiled by the Division of Oil, Gas, and Mining as a result of the consultation with the agencies having jurisdiction over fish and wildlife and habitats in the mine plan area. Please be reminded of the requirements of the UMC 771.23(c) when writing your permit application.

The consultation process has established that there is a need to designate an adjacent area at the Belina and Utah mines due to effects likely to occur to fish and wildlife resources (UMC 783.20). Accordingly, Valley Camp shall provide a plan for minimizing impacts and disturbances to fish and wildlife, utilizing impact control measures, managment techniques and monitoring methods for the protection of riparian areas (UMC 784.21). The operator is also obligated to locate and operate haul and access roads so as to avoid or minimize impacts to important fish and wildlife (UMC 817.97 (d)(1)). The Division therefore designates the geographic area, from South Fork in Eccles Canyon up to the ridgline on each side of the canyon and then downstream to the confluence of Mud and Eccles Creek and from that point downstream along Mud Creek for a width of 500 feet to the lowest water monitoring station (VC-1), as an adjacent area for purposes of fish and wildlife and habitat protection, (a map is enclosed of this area).

Valley Camp therefore must address, in the Fish and Wildlife Plan section of the permit application, plans to rectify any existing problems involving coal and earth being dozed into Eccles Creek and overloaded coal being lost into the road along Eccles and Mud Creek. Mitigating measures must address means to prevent overloading of haul trucks, stabilization of steep walls and the design of a year-round road maintenance program to eliminate a continual transfer of sediment materials into the creek bed.

Guidelines for monitoring the effectiveness of this fish and wildlife plan, as outlined above, are set forth in the attached guidelines document for the Valley Camp Mines. Also enclosed for your use in preparation of the Fish and Wildlife plan for UMC 784.21 and for compliance with performance standard UMC 816.97(c) are the guidelines for the design and construction of electric power lines.

Please be advised that the Division will not hesitate to take enforcement action on these matters.

The Forest Service has recommenced that Valley Camp may find the E.I.S. by James J. Travis dated 5-26-76, to be useful in that it contains a discussion of impacts to fish and wildlife as a result of mining.

Should any questions arise concerning these matters please call me.

Sincerely,

Mary Ann Wright

MARY ANN WRIGHT
RECLAMATION BIOLOGIST

MAW/lml
Enclosure: Wildlife and Vegetation Guidelines and Map
CC: U.S. Forest Service, Price - w/enc.
Division of Wildlife Resources - w/enc.
Fish and Wildlife Service - w/enc.
Mr. Bill Haynes - Valley Camp - w/enc.
OSM, Denver

Belina #1 & #2 and Utah #2 Mines
ACT/007/001 and ACT/007/014
Valley Camp of Utah Inc.

Guidelines for Fish and Wildlife and Habitat
Information Pursuant to UMC 783.20

Aquatic Studies

1. Stream Macroinvertebrate, Fish and Habitat Study

Area: Eccles Creek From South Fork downstream to the confluence with Mud Creek and Mud Creek from the confluence with Eccles Creek downstream to the lowest Valley Camp Monitoring station (VC-1).

Time: Assemble all prior data on this area collected by public and private studies and utilize this information as a data base.

Purpose: Document and describe the conditon of the creeks up to the time of permit application. Provide data on the macroinvertebrate and fish populations, noting species composition, diversity, size and age of fish, and other pertinent data. Describe the habitat quality in terms of temperature, gradient, water quantity, water quality (parameters measured under the present water monitoring program are acceptable), and stream bottom composition. Describe any past perturbations such as culverting, land slides, etc. and note the dates of these occurences.

Submit to the Division biologist the results of monthly water quality analysis, adding an additional station at the location of Coastal States Energy Company's water monitoring station CS-6. If measures described in the Valley Camp Fish and Wildlife Plan are found to be inadequate or are not being executed properly, then the Division may require Valley Camp to provide further monitoring data which would more fully demonstrate impacts to the streams by mining activities. Additionally, the Division may issue violations for impacts to riparian areas.

Terrestrial Studies

1. Raptor Survey

Area: Any areas of proposed new disturbance plus zone of 1 km radius surrounding these sites. The route of the conveyor belt must be surveyed in areas where it will pass through presently undisturbed areas. For any undisturbed areas for new roads or portals, surveys will have to be conducted.

Time: March through June, the breeding season.

Purpose: Assess occurence and location of any raptor breeding sites. Map all sitings and nests in the pertinent area.

2. Migratory Birds of High Federal Interest Survey

3,274/14

Area: Any areas of proposed new disturbance plus a zone of 1 km. radius surrounding these sites. The route of the conveyor belt must be surveyed in areas where it will pass through presently undisturbed areas. For any undisturbed areas for new roads or portals, surveys will have to be conducted.

Time: N.A. or Spring

Purpose: To assess the presence and degree of use by these species. There are studies which are ongoing or have been completed by the UDWR office in Price. Provide data as to the occurence, abundance and habitat, in the area described above, for the Pileated Woodpecker, Williamson's Sapsucker, Lewis' woodpecker, Western Bluebird, Golden Eagle, Prairie Falcon, Cooper's Hawk, and Osprey:

3. Upland Game Bird Survey

Area: Any areas of proposed new disturbance plus a zone of 1 km. radius surrounding these sites. The route of the conveyor belt must be surveyed in areas where it will pass through presently undisturbed areas. For any undisturbed areas for new roads or portals, surveys will have to be conducted.

Time: N.A.

Purpose: To assess the presence and degree of the use by these birds in any areas to be disturbed. There are studies which are ongoing or have been completed by the UDWR office in Price. Provide data as to the occurence, abundance and existence of special habitats in these areas for upland game birds.

4. Federally Listed Threatened or Endangered Species Survey

Area: The mine plan area

Time: N.A.

Purpose: To assess the occurence of the Bald Eagle and the Peregrine Falcon on the mine plan area. Provide a positive or negative determination as to the occurence of these species on the mine plan area. Some information from the UDWR office in Price should be available for these species.

5. Survey of All Other Vertebrates - Amphibians, Reptiles, Birds and Mammals

Area: The mine plan area

Time: N.A.

Purpose: To provide data on the presence, status, relative abundance, population trend, preferred habitat type for all species inhabiting the mine plan area. Present the habitat preference information to correlate with data collection from habitat (Vegetation) studies. A great deal of data has been collected by the Utah Division of Wildlife Resources Office in Price. Access to the UDWR data files in Price should be requested formally of Mr. Larry Wilson, Supervisor of the Southeastern Region.

Habitat Studies

Area: The company should assess wildlife habitat on the mine plan area with more detail for areas to be disturbed as set forth in the Division of Oil, Gas, and Mining Vegetation Guidelines of June 6, 1980

Time: This study should assess year-round habitats for wildlife. Vegetation studies should be conducted in the summer.

Purpose: The company is required to assess the condition, trend and types of habitat within the mine plan area. In the course of other field studies, areas of special use for wildlife, such as heavily used riparian areas, large mammal dens and snake dens, should be noted and mapped.

June 25, 1980

17. UMC 783.22 LAND-USE INFORMATION

The discussion of post-mining land-use appears to omit wildlife as planned for use. Was this intentional? It would appear that it was an unintentional omission.

17. COMMENTS

Most of the disturbed areas will be returned to pre-law land use. The Belina portal site will be upgraded to recreational use, which is compatible to either Carbon County's land use plan, or the land owners desire for a cattle holding facility. Both of these uses somewhat preclude a wildlife use, although they are not exclusive of such use.

18. UMC 783.27 PRIME FARMLAND INVESTIGATION

The applicant is requested to obtain confirmation from the Soil Conservation Service, that no prime farmland is present within the proposed permit areas.

18. COMMENTS

Although the permit area meets the qualifications for negative determination for Prime Farmland, a statement from the Soil Conservation Service is included on the following page.

783.27

United States
Department of
Agriculture

Soil
Conservation
Service

P. O. Box 11350
Salt Lake City, UT 84147

May 28, 1982

Valley Camp of Utah, Inc.
Scofield Route
Helper, UT 84526

Dear Sir:

In response to your request we have made an examination of the soil survey data available. On the basis of this information the soils in this area do not meet the requirements for prime farmland because no irrigation water is available and the growing season is too short.

Without irrigation water the moisture requirement for prime farmland cannot be met.

Sincerely,

Harold L Brown, acting

GEORGE D. MCMILLAN
State Conservationist

19. UMC 784.11 OPERATION PLAN: GENERAL REQUIREMENTS

Please identify the size of trucks currently used (and indicate for 784.26, the methods of covering or otherwise controlling spillage). The conveyor system is assumed to have no cuts or fills associated with it, and, therefore, no drainage modifications. The provisions considered for passage under the conveyor by wildlife should be discussed in specific terms.

19. COMMENTS

The transportation of coal from the Belina Complex to the load-out facility is presently being provided for the applicant through a contract agreement with a private coal hauling firm. Presently, the coal is being transported in 25 ton bottom dump trailers pulled in tandem, or 30 ton trailers pulled individually during inclement weather conditions. Because of the moisture content of the product, coal dust emitted from haulage activities has not been a problem. In the event coal dust does become a problem, the applicant will implement control measures such as covering the loads, spraying loads with a dust suppression agent, or other measures.

Spillage control is obtained by limiting the trucks to loads which will not spill over the top of the trailer while cornering, and by instructing drivers to keep the trailers' dump gates closed during return trips.

The specific design for the conveyor has not yet been finalized. However, as indicated on Map M - 1-7, Volume IV, the conveyor line will be placed on hand placed supports, and will be at least three meters above the ground surface on the flat, and as a result, will provide passage for the largest of wildlife and will, therefore, not require any drainage modifications. As previously mentioned, the support columns will be placed by helicopter or cranes on hand dug foundations, and will not require any cuts or fills for installation. The only disturbances will be for short access roads and transfer point pads, as discussed in UMC 783.19.

See DWR letter following for additional wildlife passage information.

Prior to initiating construction activities on this installation, complete design specifications for the conveyor will be submitted to the Division of Oil, Gas & Mining in sufficient time for adequate review to be made for approval.

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

784.11

November 30, 1981

Reply To SOUTHEASTERN REGIONAL OFFICE
455 West Railroad Avenue, Box 840, Price, Utah 84501
(801) 637-3310

Mr. Trevor Whiteside
Valley Camp of Utah
Scofield Route
Helper, Utah 84526

Dear Trevor:

Enclosed is a report prepared by the Division concerning coal conveyors and mule deer. Please circulate this material to the appropriate persons on your staff. It is believed that the recommendations concerning overpass structures would be adequate for all big game. The recommendation for minimum height (one meter) needed to pass mule deer beneath a conveyor would be adequate for all other big game except moose, elk and buffalo. To date there is no conclusive data in relation to conveyor like structures from which to base a recommendation for minimum heights needed to pass these larger ungulates. Therefore, the Division's assessment is that a minimum of three meters clearance beneath a conveyor like structure would be needed to allow uninhibited passage of moose, elk and buffalo.

As more information becomes known concerning this issue, the Division will keep your office appraised of developments.

Sincerely,

John Livesay, Supervisor
Southeastern Region

JL:LBD:gp

Enclosure

GOVERNOR

DEPT. OF NATURAL RESOURCES
Gordon E. Harmston

WILDLIFE BOARD
Roy L. Young — Chairman
Lewis C. Smith
L. S. Skaggs
Warren T. Hanward
Chris P. Jones

20. UMC 784.12 EXISTING STRUCTURES

As stated above in UMC 783.12, and as required by UMC 784.23(a), the applicant must include a mine layout and forecast five-year increments for the life of the mine. The forecast should include tonnage in increments for each five years and pursuant to USGS requirements, the plan must show the mining of all reserves in logical mining units in 40 years or less for leases issued or readjusted after August 4, 1976.

In order to ensure that existing structures, specifically roads (UMC 784.24), and associated culverts, drains and diversions, are in compliance with the relevent performance standards, their location and characteristics, along with monitoring data (observations) must be submitted. This will include location of all diversions, drainage controls, and drainage associated with roads on detailed maps showing "as built" conditions (per Belina #2 approval stipulations), profiles and dimensions of diversions, culverts, drains, trash racks, locations, types, and methods of installing any other erosion controls, and other features of the facilities that are pertinent to compliance with applicable performance standards, including stability of fills and embankments.

Please note that the specified plans, cross sections, and profiles of engineering facilities such as roads and sedimentation ponds must be certified by a registered professional engineer. Mr. Phillips, an RPE, has provided general certification of the application and the hydrologic and waste disposal, in particular (pages 41 and 41a). However, one cannot be assured all engineering structures are properly certified. If possible, Mr. Phillips could specifically list those drawings that he certified to satisfy the requirements.

20. COMMENTS

Mine layout and forecast are shown in the Appendix C and in the comments to UMC 783.12, page 6.

The answers to questions raised in paragraph 2 above are found in two documents previously sent to DOGM. The Vaughn Hansen Associates compliance survey of the Valley Camp mine area dealt with as built conditions, and was prepared in October, 1978, for both DOGM and the USFS for review. On November 30 1981, a stipulation response for Belina #2 approval was submitted to DOGM dealing with road drainage and discharge structure in the Belina Complex area.

A certification letter by Mr. Phillips, P.E., is attached. A certification letter by Mr. Edwin B. Foust is also attached.

11 May 1982

The maps and drawings listed below, and included in the Valley Camp of Utah, Inc. permit applications, were prepared under my supervision, and to the best of my knowledge, can be certified as correct.

Land Maps - Map A, A-1

Coal Maps - Map B, B-1a, B-1b

Operation Maps - Map C, Map C-1, Map C-2, Map C-3, Map C-4, Map C-5

Reclamation Maps - Map D

Drill Maps - Map H

Land Use Maps - Map I, Map I-1, Map J

Other maps and drawings requiring certification in the application and in the completeness review response have been certified by others.

Glenn J Phillips

Glenn Phillips, P.E.
Utah Registration #05776-0958-2
7 May 1982

11 May 1982

The maps and drawings listed below and included in the Valley Camp of Utah, Inc. mining permit applications were prepared under my supervision, and to the best of my knowledge, can be certified as correct.

Coal Maps	Map B-2, Map B-3, Map E1-0005, Map E2-0006
Operation Maps	Map C-6
Archeologic Maps	Map D5-0063
Reclamation Maps	Map D-1, Map D-2, Map D-3, Map D-4, Map D-5, Map D-1 Revised, Map D-2 Revised
Vegetation Maps	Map G Revised
Subsidence Maps	Map K

Other maps and drawings requiring certification in the application and the completeness review response have been certified by others.

Edwin B. Foust, P.E.
Utah Registration #05323-0916-0
11 May 1982

21. UMC 784.13 RECLAMATION PLAN: GENERAL REQUIREMENTS

(784.13 (a) (2)) The total bond has been estimated to be $77,572. Appendix A shows that a "salvage value" has been subtracted from the costs of reclamation. Salvage value cannot be subtracted, since the regulatory authority, who must be able to perform the reclamation using a third party, cannot assume it will have first lien on the material to be salvaged. The bond amount must, therefore, be re-estimated to include the total costs of removal with no credits for salvage. In the re-calculation, the source of the units and unit costs contained in Appendix A do not relate the volumes of material to be moved, areas to be seeded, amounts of materials to be used, or the unit costs for these activities, to any drawings which, in turn, identify the assumptions that went into the calculations. Please provide more information on the nature of the calculations. The unit volumes or amounts should be related to maps and cross sections used to calculate the numbers.

Since salvage cannot be taken into account, the cost of hauling and complete disposal of buildings, concrete and other debris must be taken into account.

Pursuant to the USGS (211 Plan) and UMC 784.13(b) (6), the applicant must include a narrative with maps describing the specifics of recovery to show conservation of the coal resource as required in UMC 817.59. In any situations for not recovering any coal that may be precluded from future recovery, the applicant must provide in the plan, a rationale which will justify such non-recovery. In addition, prior to abandoning any underground operations or portals, the applicant must notify the USGS.

21. COMMENTS

Appendix A of Volume III has been completely revised to include estimated costs of removal for all structures, (tanks, conveyors and buildings) within the permit area. The total bond amount will be re-estimated to preclude salvage credits.

New reclamation maps for the Utah No. 2 Load-out area (Nos. D3-0045 and D3-0047) have been prepared and are submitted as replacements for Map Nos. D-3, D-4 and D-5 in Envelope 14 of Volume IV. Please refer to these new and revised maps, along with additional new vegetation maps D3-0074, Temporary Reclamation-Load-out Area, and D3-0076, Final Reclamation-Load-out Area in reviewing reclamation costs. See Appendix J. Volume V.

Estimated reclamation costs for the Belina Mines Complex (portal area), have also been revised in Appendix A. New topographic maps of this area have been made, and were used to make ACR Map Nos. D-1 and D-2, Revision No. 2. (See Appendix F, Volume V).

New maps for Temporary (No. D5-0075) and Final (No. D5-0077) Reclamation at the Belina portal area, have been constructed from 1981 aerial photos, and are included in Appendix K, Volume V.

Vegetation Map, Mag G, Revised, shows the total disturbed acres for both the Belina and Load-out areas, and, also, the acres of each type vegetative community disturbed.

Refer to Temporary and Final Reclamation Maps of each area for areas already re-seeded and areas to be reseeded upon completion of mining.

The Belina No. 1 and 2 Mines are located in the Upper and Lower O'Connor Seams, respectively. Each seam varies in thickness from five (5) feet to twenty-five (25) feet, with the average of each being approximately sixteen (16) feet.

The approved mining plan calls for entry into the uppermost twelve (12) feet of the seam, mining ten (10) feet, and leaving the top two (2) feet of coal to aid in roof support. This procedure is the accepted method of development mining. The remaining lower portion of the seams is then extracted during retreat from each section of the mines.

Development mining techniques include a main entry system, a sub-main entry system developed off the mains, and longwall panels or room and pillar entries, then developed off the sub-mains. Components of each are described as follows:

a. Main Entry System - South - Composed of five (5) entries (4 intake air and 1 neutral air belt), with three (3) return air entries on each side, some 180 feet removed.

b. Main Entry System - West - Consists of five (5) entries, two (2) of which are return, two (2) are intake, and one (1) is neutral.

c. Sub-main systems are developed the same as the West Mains above.

d. Room and pillar entries consist of four (4) entries, two (2) of which are intake, one (1) which is neutral, and one (1) which is return air.

e. Longwall panels will be two (2) entries, one (1) is intake, and the other is a return and neutral combined.

Room and pillar mining has been the only production system employed thus far, with longwall mining being a part of long range planning. Once a pillar section is developed, the pillars and bottom coal are mined as shown in the Roof Control Plans found in Appendix B, Volume V.

The recovery percentage for a room and pillar panel (2nd South) mined during 1979, 1980 and 1981, has been calculated. From this panel, 335,285 tons were mined during a 23 month period from an area containing a calculated 647,068 tons, based upon a 17 foot seam height. The production included both development and retreat mining. Based upon these figures, a recovery percentage of 51.82 percent is derived. This figure is above both the national average and the applicant's projected average for a seam of such thickness.

Other mining methods which would improve utilization of the resource by increasing recovery are presently being investigated, but due to geologic features such as dikes and faults, the only alternate method employed to date has been full seam extraction of rooms and entries, and splitting the pillars only. This is opposed to full extraction of the pillars. This particular deviation results from efforts to support the overlying natural gas lines which overlay much of the applicant's coal leases.

At present, support for these gas lines is provided by limiting extraction under these lines. The size of the restricted area of mining is determined by a 35° draw angle from the gas lines down to the seams. It is hoped that negotiations with the gas company and Federal and State agencies will result in a steeper angle of draw, thus increasing the percent of extraction, and yet providing support for the gas lines.

Non-recovery areas within the mine plan area are only those areas left between mined out sections used for ventilation barriers, property line barriers, areas where the seams are so small that mining is economically impossible with the equipment presently employed, and areas extending at least 150 feet in all directions from all oil and gas wells.

See also Section 783.14 - Geology Description.

22. UMC 784.13 SOILS

Pursuant to UMC 817.21, the applicant must provide data on sodium absorption ratio and percent moisture saturation for the soil map units "r", "t" and "u" (Volume II, Appendix D). Is there any reason for omitting this data?

The applicant must evaluate those materials which have been removed and stockpiled for growth medium attributes. The applicant must delineate the disturbed areas within the permit area where soils were removed or were not removed. Provide the volumes of materials which have been segregated or stockpiled (Volume III, page 24) and discuss those areas from which soil will be removed.

The soil survey description and discussion in Volume III, p3a, indicates soil removal would occur in all areas where disturbance would occur; however, with respect to the conveyor belt corridor, soil removal should be implemented only in cases where disturbance would impact on soil characteristics such as structure, fertility, potential productivity, contamination, etc. Therefore, the applicant should provide a description of the construction of the conveyor with an assessment of disturbance incurred on soils and vegetation.

Pursuant to UMC 817.23: Topsoil Storage, the applicant should describe soil stockpile protection measures such as (1) diversion of overland flow away from the stockpile; (2) methods and configurations used for final grading, such as terracing to prevent erosion; (3) species used for temporary re-vegetation.

Pursuant to 817.24: Topsoil Redistribution, the applicant must provide a plan for redistribution of topsoil consistent with the volumes and types of soils stockpiled. The plan should include site preparation and redistribution depths.

In the discussion of soils, three soils with unstable (soil creep) characteristics are described (page 87). The applicant should describe any landslide features in the mine plan area. Please describe the method used to determine whether there are, and how these, taken into account, will be incorporated in the designs for new facilities of unstable conditions in the future.

22. COMMENTS

The sodium absorption ratio and percent moisture saturation for the soil map units "r", "t" and "u" were inadvertently omitted. Revised tables, including these values, are included in this section.

The Utah #2 load-out facility was established prior to the topsoiling requirement, and no topsoil has been removed since the original disturbance.

The Belina site disturbance was partially pre-law and the topsoil salvaged and stored, as mentioned on Page 27, UMC 784.13, Volume III, has since been used for reclamation around the Belina site. At present, there is no topsoil stored within the boundaries of the permit area.

At present, the only known source of available topsoil is Coastal States Energy Company. Arangements have been made and Division approval given for the purchase of 6,000 cubic yards of topsoil from Coastal States for interim reclamation. Final topsoil reclamation requirements will be addressed upon completion of mining activities and as required for the release of the performance bond.

No further disturbance is planned at this time in the Belina area. No additional disturbance is planned at the Utah #2 load-out area during the life of the present permit. The conveyor route disturbance is discussed in the comments under UMC 783.19. With the exception of minor conveyor construction, all facilities have been completed. Slope stability was considered in facility design and only minor areas of soil creep have been noted. When soil creep is observed in the existing facility areas, steps are taken to stabilize the slopes by revegetation or minor regrading.

Figure ACR 8

REVISED
Table 45. Soil Analysis Data, Profile Description, Sample Site 15

Mapping Unit: r
Vegetative Type: Stinging nettle
Location: Lower Conveyor Route

Horizon	Depth	Color		Texture			Class	Structure	% Rock Fgts.	% Org. Mat.
		Dry	Moist	Sand	Silt	Clay				
A_1	0 - 4	10YR 3/2	10YR 2.5/1	33	47	20	Loam	2 f gr	10 gr	7.04
B_{2+}	4 - 12	10YR 5/3	7.5YR 3/2	31	44	25	Loam	2 m pr	15 gr	1.40
C_1	12 - 23	10YR 7/3	10YR 4/4	36	44	20	Loam	massive	30 gr 15 cob	T
C_2	23 - 34	10YR 6/4	10YR 4/4	37	41	41	Loam	massive	25 gr 15 cob 5 stone	T
R	33									

Horizon	pH	Effervescence	EC x 10^3	Solubility ppm			SAR	% Moist. Satur.
				Ca	Mg	Na		
A_1	7.28	eo	0.43	146.0	28.50	17.90	0.18	66
B_{2+}	7.46	eo	0.27	36.2	5.86	6.88	0.14	34
C_1	7.61	eo	0.20	20.2	4.42	9.44	0.25	28
C_2	7.48	eo	0.26	22.9	4.53	13.90	0.35	26

Taxonomic Classification: Typic argiborolls, coarse-loamy, mixed, frigid

Figure ACR 8 (cont)

Revised

Table 46. Soil Analysis Data, Profile Description, Sample Site 17

Mapping Unit: t
Vegetative Type: Spruce/Fir
Location: Lower Conveyor Route

Horizon	Depth	Color		Texture			Class	Structure	% Rock Fgts.	% Org. Mat.
		Dry	Moist	Sand	Silt	Clay				
A_1	0 - 2	10YR 3/2	10YR 2/2	35	44	21	Loam	3 f gr	0	7.82
B_{21}	2 - 11	10YR 4/2	10YR 3/3	35	41	24	Loam	2 f sbk	5 gr	3.09
$B_{22}+$	11 - 20	10YR 5/2	7.5YR 3/3	32	44	24	Loam	1 f sbk	3 gr	1.35
C	20 - 33	10YR 6/3.5	10YR 4/4	35	40	25	Loam	massive	20 gr 5 cob	0.27
R	33									

Horizon	pH	Effervescence	EC x 10^3	Solubility ppm			SAR	% Moist. Satur.
				Ca	Mg	Na		
A_1	7.20	eo	0.68	104.0	17.70	4.96	0.06	75
B_{21}	7.36	eo	0.32	50.7	8.54	5.60	0.10	41
$B_{22}+$	7.48	eo	0.21	31.4	4.43	6.24	0.14	36
C	7.31	eo	0.19	29.3	4.78	7.68	0.17	30

Taxonomic Classification: Mollic eutroboralfs coarse-loamy, mixed, frigid with 15% u and 5% q

Figure ACR 8 (cont)

Revised
Table 47. Soil Analysis Data, Profile Description, Sample Site 18

Mapping Unit: u
Vegetative Type: Aspen
Location: Lower Conveyor Route

Horizon	Depth	Color		Texture			Class	Structure	% Rock Fgts.	% Org. Mat.
		Dry	Moist	Sand	Silt	Clay				
A_{11}	0 - 3	10YR 3/2	10YR 2.5/1	33	41	26	Loam	3 m gr	3 gr	7.15
A_{12}	3 - 9	10YR 4/2	10YR 2.5/1	37	37	26	Loam	3 m sbk	0	2.76
B_{21}	9 - 15	10YR 5/3	7.5YR 3/2	35	41	24	Loam	2 c sbk	0	0.61
B_{22}	15 - 23	10YR 6/3	10YR 3/3	35	40	25	Loam	2 m pr	5 gr 10 cob	T
C_1	23 - 32	10YR 6/4	10YR 4/4	35	37	28	Clay loam	1 f sbk	15 gr	T
C_2	32 - 37	10YR 6/4	10YR 4/4	31	36	33	Clay loam	massive	15 gr	T
R	37									

Horizon	pH	Effervescence	EC x 10^3	Solubility ppm			SAR	% Moist. Satur.
				Ca	Mg	Na		
A_{11}	7.23	eo	0.80	134.0	19.30	4.96	0.05	57
A_{12}	7.33	eo	0.41	61.9	9.14	6.72	0.11	39
B_{21}	7.41	eo	0.28	36.5	5.49	7.52	0.15	32
B_{22}	7.45	eo	0.21	27.7	4.46	6.88	0.16	27
C_1	7.26	eo	0.23	32.5	6.03	10.20	0.21	27
C_2	7.16	eo	0.30	21.3	3.98	16.80	0.44	33

Taxonomic Classification: Typic haploborolls

23. UMC 784.13 REVEGETATION

UMC 784.13(b) (5). A detailed plan of revegetation is required (UMC 817.111-.116) for both temporary and permanent re-vegetation. This plan should include:

A. A schedule of when each step will be completed including topsoil replacement, seedbed preparation, seeding, planting, mulching, etc.

B. Species (by common and scientific name) and amount/acre of seeds in terms of Pure Live Seed and seedlings.

C. A description of methods to be used in planting and seeding.

D. Mulching techniques including a type of mulch, rate of application and how applied (hydromulch seeding, described on page 26, Volume 4, is usually inappropriate in semi-arid climates, and should not be used unless demonstrated to be appropriate for the specific area).

E. A discussion of whether or not irrigation and well and pest control measures will be used.

F. Standards and procedures which will be used to to determine success of revegetation.

G. All areas to be temporarily revegetated as indicated on a map.

Seeding mixtures for permanent revegetation fall short of approximating the diverse communities present prior to mining, and must be upgraded (UMC 817.117(c)(3)(ii).

It is presumed that topsoil replacement will occur as soon after disturbance is complete as the topsoil can be safely removed. We presume this would usually be within days of grading overburden, and the only delays would be (1) weather, including freezing of soil; and (2) inability to seed or plant or otherwise stabilize immediately after replacement. Please confirm.

Those areas which have been, or will be, disturbed during operations, as well as those areas in which all disturbance is completed require either temporary or permanent seeding or planting. In the discussion,

of earlier revegetation efforts (pages 42-42b), it would appear that the revegetation procedures employed were either incompletely described (e.g., tree and shrub plantings, "basin" plantings on steep slopes, erosion pin use, criteria for mulching, monitoring of vegetated areas) or were incomplete in themselves (weed control, standards and procedures for evaluating revegetation success). Since no data are provided to indicate progress toward successful revegetation of either a temporary or permanent nature, we solicit more information on: (1) the suitability of seed mixes used for both short-term stabilization (temporary) and long-term stability (permanent); (2) the methods used to ensure covering of seed; (3) the methods used to mulch or otherwise stabilize and retain soil moisture during the germination and early growth stages; (4) the nature of the chemical binder used (page 42a). The plan should clearly identify all areas that will be temporarily stabilized with vegetation and the nature of the seed mix.

Broadcast seeding, ranking and hydromulch may suffice. However, steep slopes will likely need additional stabilization procedures. The applicant is requested to revise the plan to eliminate hydromulch seeding unless demonstrated to be appropriate for the specific area.

The permanent vegetation mixes identified for the various communities do not appear to have been analyzed in terms of their suitability in terms of approximating the natural vegetation (Appendix B). The mix proposed for the north-facing slopes consists of two grasses and two forbs. The diversity of species indicated by the baseline data is much higher than that represented by the seed mix. The proposed riparian mix does not include forbs. The thought that went into the development of the change in species, or rather rates, for the different aspects is appreciated, but these mixes appear to fall short of approximating the diverse communities presented prior to mining.

23. COMMENTS

Reclamation of disturbed areas will take place during the first appropriate season following the time when each area becomes available for such activities. Certain affected areas, such as cut and fill slopes on roads, operation pads, and outside slopes of sediment ponds, which require disturbance early on in the operational life of the mines, will be stabilized, topsoiled and revegetated at the first seasonal opportunity. Other affected areas occupied by support facilities will not be reclaimed until the conclusion of mining activities.

Once an area has been prepared for topsoil redistribution (leveling, disking, harrowing or scarifying), the topsoil will be uniformly spread over the area. If the material has been stored for an extended period of time, or has become lumped for some other reason, the material will be disked or broken up before being spread. Spreading of topsoil will not occur unless planting and mulching, etc., can follow immediately.

Topsoil redistribution would begin as soon as ground conditions allow in the spring (May-July), followed immediately by fertilization (if required), seedbed preparation (watering, erosion control, settling, etc.), planting and mulching.

Given a choice, and based upon past experiences, regularly scheduled reclamation activities should not begin until the proper sequence of events would allow for seeding to occur sometime between September and December. This would disallow loss of success caused by freezing-heaving action on the vegetative cover's spring rooting. Also, this would remove the possibility of success reduction on the seeding effort caused by extended periods of dry, hot and windy summer weather conditions.

Past practice revegetative efforts around the mine site have included mixing the seed with an aspen fiber mulch and starch resin tackifier. This mixture was then applied with a hydromulch unit over the prepared area.

A revised "Recommended Reseeding Mixture" is enclosed. This listing should replace the one found in Volume III, Appendix B.

A description of methods used and suggested for future use, may be found in Volume II, UMC 783.19 and Volume III, UMC 784.13. These methods appear to be appropriate based upon observations of the areas reclaimed to date. Although hydromulch seeding may not be the desired method of revegetating, the applicant feels that this method will prove to be very acceptable, given time to perform field studies for the determination of success. If a successful revegetation effort cannot be obtained through the use of the proposed methods, the applicant will secure approval to use alternate procedures from the Division.

Mulching techniques in the past have been limited to two methods (Volume II, Section 783.19). On all but

steep slopes (i.e. 2h:1v and 1h:2v), a weed-free chopped straw mulch was blown on the re-seeded areas. The rate of application being approximately 25-35 bales per acre.

Steeper and north-facing slopes were mulched by blowing an aspen fiber mulch (Conwed 2000) with a starch resin tackifier. The rate of application being 1,500 to 2,000 pounds per acre.

In the event it becomes necessary to incorporate additional stabilization measures on steep slopes in order to obtain a greater percent of success, treated hemp matting may also be used. See Volume III, Section 784. 13.

As previously mentioned, observations of past revegetative efforts appear to be very acceptable to this particular elevation and climate. The concern should be for the end product or result of such efforts, and not with methods of attaining such results.

Revegetative efforts in the past have been performed in the fall of the year, primarily to ensure a good moisture content of the soil during seed germination. Ground-soil moisture content would not generally present a problem, regardless of the time of seeding, since the mean annual precipitation of this area is approximately 30 inches. However, should lower than average precipitation or irregularities in distribution of precipitation occur following a season of planting, revegetated areas will be artificially irrigated on a short-term basis.

Irrigation may also be used to enhance revegetation success, in general.

Pest control has not been a problem in the past, due to the late planting practices. If spring planting occurs, and pest control becomes apparent, the Division will be consulted for assistance in their control.

The applicant will inspect all seeded areas at the end of each growing season to determine the success of each area. This procedure will occur for at least five (5) years after re-seeding takes place. Where success is apparent (80% of original cover during first 5 years), future monitoring will occur once every five (5) years. If failure of success is noted in any area(s), investigation to determine the cause(s) will begin immediately. Once the cause(s) of failure is determined, positive steps to overcome them will be initiated, and re-seeding will occur at the next seasonal opportunity.

In addition, reclaimed areas will be periodically compared to reference areas, for each reclaimed area, to determine revegetation and naturalization success.

All such inspection results, recommendations and corrective actions will be periodically recorded and maintained on file at the general office building.

Areas which have been reclaimed and revegetated are shown on Vegetation Map Nos. D3-0074 and D5-0075, Appendices J and K respectively. The type of seed and percent of mixture for these areas, reclaimed in 1980, are shown on page 23E. The application rate for the areas was 20-25 pounds of pure live seed per acre.

Areas which will be reclaimed at the end of operations are shown on Vegetation Map Nos. D3-0076 and D5-0077, Appendices J and K respectively. The types and acres of vegetative communities which will be re-established during final reclamation on the disturbed areas of the Belina and Load-out facilities may be found on the revised Vegetation Map, No. D5-0054.

Much of the disturbed areas within the permit area was disturbed prior to enactment of the SMCRA 1977. As a result, a majority of the topsoil from these areas was not preserved, and will not be available for final reclamation of the disturbed areas.

Notwithstanding such a condition, the applicant will provide adequate topsoil or a satisfactory substitute for final reclamation purposes.

The applicant will attempt to purchase the required topsoil quantities from sources within the valley, thus the reclamation would be utilizing native soils. Acquisition of the required quantities may be arranged with private sources or even possibly with the U. S. Forest Service or Bureau of Land Management.

In the event the applicant chooses to utilize a substitute for topsoil, the selected materials will be subjected to the requirements found in Section 817.22 (e) of the Utah State Regulations. Such substitute material will not be applied until the Division has determined that said material is equal to or more suitable for sustaining the approved revegetation than is available topsoil.

An actual cost per yard for topsoil or an acceptable substitute has not been determined at this time. However, an estimate of $2,100.00 per acre, based on an average depth of six (6) inches, has been used for bonding purposes. See Appendix A, Volume III.

1 February 1983

TEMPORARY REVEGETATION

SEED MISTURE LIST

Grasses	% of Mixture
Thickspike Wheatgrass - Agropyron Dasystachyum	8
Western Wheatgrass - Agropyron Smithii	19
Streambank Wheatgrass - Agropyron	15
Mountain Brome - Bromus Marginatus	5
Slender Wheatgrass - Agropyron Trachycaulum	14
Orchard Grass - Dactylis Glomerata	6
Russian Wildrye - Elymus Glaucus	7
Kentucky Bluegrass - Poa Pratensis	13
Forbs and Shrubs	
Ladak Alfalfa - Medicago Sativa	5
Yellow Sweetclover - Melilotus Officinalis	3
Vasey Big Sagebrush - Artemisia Tridentata	3
Rubber Rabbitbrush - Chrysothamnus Nauseosus	1
Douglas Rabbitbrush - Chrysothamnus Viscidiflorus	1
	100%

24. UMC 784.13 (3) BACKFILLING AND GRADING

On page 22, it is stated that "the graded slopes in the portal area have been designed within the guidelines of geotechnical engineering practices (Golder, 1980)." The reference is to a "Surface Facilities Grading Plan for Belina Mine Area." Please provide the report if it covers the geotechnical analysis as implied. Apparently, there is no grading of roads proposed (pages 24 and 30). This appears to be based on the proposal to change to a post-mining land-use which differs from the pre-mining land-use (see 784.15). A thorough description of the regrading proposal is necessary. It is our understanding that two roads to the Utah #2 site, and the road to the Belina portals are to be kept in place after operations (pages 28 and 30) to "support" the proposed post-mining land-use. If the post-mining land-use is not approved (see 784.15), these roads will have to be removed and factored into the reclamation procedures and the bond.

Pursuant to UMC 784.23(b)(11), the applicant is requested to provide a post-mining contour map in order to enable a perspective of how much grading is proposed, and what will happen to natural drainage systems that have been disturbed.

24. COMMENTS

The report requested (Golder, 1980) is found in Appendix A.

The post-mining contour map for the Belina area, ACR Map No. D-1, is included in Appendix F.

The post-mining contour map for the load-out area, Map D-3 Revised,No. D3-0045, may be found in Volume IV, envelope 14.

25. UMC 784.14 RECLAMATION PLAN: PROTECTION OF HYDROLOGIC BALANCE

Pursuant to UMC 784.14(b), please advise if it is expected that the Utah #2 mine will have gravity drainage.

According to Figure 3-5, the pond #4 embankment is 20 feet high and, therefore, meets the criterion of 30 CFR 77.216(a)(2). Thus, the information required for rock structures must be submitted, including the appropriate geotechnical information. A copy of the MSHA approval per the appropriate MSHA regulations must be properly addressed before sedimentation pond #4 can be approved by the Division.

Pursuant to UMC 784.14(b)(1), the "inlet configuration for culvert" shown in Figure 3-31 shows the inlet "flush with fill line" and no erosion controls are shown. What measures will be taken to stabilize the fill when, as indicated on page 79, the head water elevation exceeds the culvert diameter?

Pursuant to UMC 784.14(c), the application contends that since mines act as interceptors of ground water, TDS concentrations are decreased and thus slightly more beneficial impacts may result. The applicant must verify this contention by providing water quality analysis of the ground water and mine discharges to support that shallow groundwater quality is better than mine discharge. Thus, no data presented in the plan supports the hypothesis tendered in the plan. Further, on page 40, it is essentially concluded that there will be no impact on beneficial use of water because there will be no discharge. If there is no discharge, the question of the applicability of the hypothesis is moot.

The mine discharge has not been adequately addressed in terms of monitoring and treatment. It is understood that this treatment system approval will fall under a minor modification.

On page 39 (paragraph 1), it is indicated that the bentonite shale layers tend to swell and become impervious, thereby creating springs. On page 36, (paragraph 1), it is implied that the water moves through the shale layer, as it does through the sandstones, picking up dissolved solids. Please clarify this apparent contradiction for the site-specific case of the Belina Mines.

25. COMMENTS

The Utah #2 mine does not have gravity drainage.

The #4 sediment pond is built on a fill structure and does not meet the criteria of 30 CFR 77.216(a)(1) or (2). This installation has been inspected several times by M.S.H.A. inspectors, and has never been considered an impoundment. Figure 3-5 in Volume III of the original submittal does not indicate actual storage depths, but rather, a relationship of components incorporated into the design. Notwithstanding such, the depth of storage indicated on Figure 3-5 is only 18 feet--not 20 feet.

For additional clarification relating to this concern, see Golder report in Appendix A and 30 CFR 77.216(a)(2).

The inlet structure mentioned has been modified with riprap to stabilize the fill. This structure is shown on the revised Map D-1 in Appendix F.

As shown by the data in Appendix E, groundwater quality samples from the springs monitored by the Valley Camp monitoring program have had an average total dissolved solids (TDS) concentration of 225 milligrams per liter (mg/l). Groundwater quality samples collected within the mine have had an average TDS concentration of 336 mg/l, and the average TDS concentration of the Belina Mine discharge water samples has been quite similar at 316 mg/l. This information adds some substantiation to the fact that as contact time of groundwater with the Blackhawk Formation increases, the water quality deteriorates. Had the water not been intercepted by the mine, then the water quality would have continued to deteriorate as the water slowly moved towards natural discharge areas further down the canyon. More discussion of this concept is contained in the Vaughn Hansen Associates report on page 117.

The Vaughn Hansen Associates study also showed that water is seeping into the lower portion of Eccles Creek that is of a poorer quality than the spring water high in the Valley Camp property. This poorer quality low in the system is likely due to the same phenomena explained above.

The mine discharge is monitored according to an NPDES permit. A six-hour composite sample is collected every two weeks, and analyzed for pH, TSS, TDS, specific conductivity, total alkalinity, acidity, and total iron.

Flow and water temperature are also measured. Data are contained in Appendix E for these parameters.

Proposals for structure revision of the mine discharge filtering pond were submitted to the Division of Oil, Gas and Mining, and Utah State Department of Health on July 24, 1981, and November 17, 1981. See also Section UMC 784.16 for additional data.

Bentonitic shale layers do impede the downward flow of groundwater, in some cases causing the groundwater to issue as a spring. The fact that water movement may be impeded does not mean that the bentonite shales are totally impervious and stop all downward flow. The discontinuous nature of the layers also allows some water to percolate downward in some places easier than in others. The water that does move through shale layers (not all shales are bentonitic) does pick up dissolved solids. As stated on page 53 of the Vaughn Hansen Associates (1980) report, "...relatively impermeable interbedded shale layers,... prevent the downward movement of a significant amount of water."

26. UMC 784.15 RECLAMATION PLAN: POST-MINING LAND-USES

The proposal for post-mining land-use is generally for a return to forest, shrub, brush, rangeland (page 48). In both the pre-mining land-use discussion, and the post-mining land-use discussion, use of the land for wildlife is neglected. This neglect is also addressed in 784.21 and should be corrected by addressing wildlife habitat locations, vegetation needs of wildlife, and any effects on migration routes of the facilities proposed to be left after mining.

The application proposes to leave the road to the Belina portals and two roads to the rail load-out facilities. The buildings, parking lot, and flat area around the portals are proposed to be retained. On page 31, it is suggested that the general office-warehouse area has potential value as a camp site, while on page 48, it is stated that the owner will want to use the portal area for a cattle-holding facility. (There is some minor degree of conflict with the statement, also on page 48, to the effect that VCI proposed to return the load-out area and general office areas to original pre-mining uses).

The application does not support these changes in land use. The provisions of UMC 817.133 must be satisfied. Otherwise, the areas shall be regraded and revegetated. The re-submission must both show the need and support for the change and must address continued maintenance of the features of the drainage system necessary to maintain the land use. "Specific and feasible" plans must be submitted.

Map I-1 (pre-mining land use map) shows the land uses in the Belina Portal Area, and the Load-out Area to be industrial. It is not clear that these are pre-mining uses, and therefore, the application should more clearly relate those pre-mining uses to the proposed post-mining uses. If the area of the load-out was industrial use prior to any mining, then no land use change would be involved to encompass the proposed activities, and only the Belina portal road and "recreational land" to be established would involve a land use change. Please provide additional information.

26. COMMENTS

The comments of 817.97 and 783.22 contain information related to questions raised here.

In the second paragraph, there is a misunderstanding on the part of the reviewer. There are three different locations involved:

A. Belina portal sites reclaimed as shown on revised Map D-1, Appendix F, for recreational or cattle-holding.

B. General office area located five miles from the portal site and reclaimed to pre-mining land use.

C. Utah #2 load-out area located ¼ mile from the General Office area and reclaimed to pre-mining land use.

The third paragraph, in light of the misunderstanding above, is no longer applicable with the exception of the details of the portal area reclamation which is discussed in the comments to UMC 817.47, and shown on revised map D-1 in Appendix F.

The fourth paragraph is also not applicable, due to the misunderstanding above. The applicant did not classify the Belina portal area as industrial. The applicant is planning on a land use change for the Belina portal area, while the other areas would be reclaimed to pre-mining land use.

27. UMC 784.16 RECLAMATION PLAN: PONDS, IMPOUNDMENTS, BANKS, DAMS, AND EMBANKMENTS

On page 28, the reclamation plan for the sedimentation pond is not clear. The text appears to say that the #4 dam will be cut to drain, but that the emergency spillway will remain intact "to receive drainage from the surface." Please clarify exact steps and show results on longitudinal profile requested earlier (#26).

The following information is required for sedimentation ponds 1, 2, 3 and 4.

(1) Supporting calculations and design consideration for:

a. Runoff volumes
b. Flow velocities
c. Sediment delivery
d. Detention times
e. Any material testing data collected during construction (i.e., soil mechanics)
f. Construction specifications with as-constructed plans or drawings

The design data for pond #4 given on Figure 3-5 is calculated from a 25-year, 24-hour hydrograph with a precipitation value of 2.92 inches. The design given calls for an 11.2 acre-feet capacity which includes .1 acre-foot per acre sediment storage volume. Apparently, there is an error in this calculation as the Division finds 12.4 acre-feet to be required for the 36 acres drained, which includes a 3.6 acre feet sediment storage volume. This should be re-evaluated for the existing structure (pond #4). From where does the "constant outflow" originate? Where is the design data that supports a .94 cfs constant rate of outflow?

The Bureau of Water Pollution Control, Division of Health, requires the following information regarding the mine drainage pond:

> There is insufficient information presented to guarantee continuous operation of the system. The April 22, 1981 TSS grab sample of 154 mg/l and the second quarter BOD values of 16-40 mg/l indicate additional design improvements may be needed. Therefore, improved drawings and information must be supplied which indicate the following:

1. Source of BOD
2. Three feet minimum settling depth
3. Two feet minimum freeboard
4. Oil skimming other than rock filter
5. Provisions for meeting effluent standards during cleaning

The proposed system cannot be accepted as a filter unless test data is supplied to show influent quality, satisfactory filter construction, filter rates, cleaning provisions, and effluent quality. Please note that impervious dikes and increased detention times are the typical methods for providing treatment of mine drainage.

27. COMMENTS

The No. 4 sedimentation pond area at the Belina site will be reclaimed when the entire portal area has been stabilized as described on Page 28, Section 784.13, Volume III. (See also ACR Map D-2, Appendix F). The emergency spillway for this pond, located to the northwest of the pond along the toe of an easterly facing slope will, however, remain intact. This spillway (see ACR Map D-1, Appendix F) will be incorporated into an overland overflow diversion ditch for the post-mining period. This overland ditch will provide for emergency flow for upland drainage in the event the culvert under the lower pad becomes plugged. (See also ACR Section UMC 817.47).

The No. 4 pond spillway design is discussed in Section 4.3 of the Golder Report in Appendix A. See also Figures 4-5 and 4-13 of same report.

The longitudinal profile can be found on ACR Map D-2, Appendix F.

Information relating to supporting calculations and design consideration for sediment Ponds Nos. 1, 2 and 3 can be found in the "Compliance Survey" by Vaughn Hansen Associates, which has been previously submitted to the Division.

Similar information for Pond No. 4 can be found in the Golder Report in Appendix A.

Portions of both reports were also submitted to the Division on September 11, 1981, pursuant to Stipulation 6-81-3 of the Belina No. 2 approval to mine. See Section UMC 783.16.

The design data for Pond No. 4, shown on Figure 3-5 of Volume III, was in error. The storm design was for 10-year, 24 hour event with a precipitation value of 2.45

inches. Clarification of this and the "constant rate of outflow" can be found in the Golder Report in Appendix A.

Proposals of revision for the mine drainage pond (settling ponds) structure at the Belina Complex were submitted to the Division and the Utah State Department of Health on July 24, 1981, and November 17, 1981. Additional supporting information has also been sent to these agencies as recently as May 17, 1982.

These letters should be on file with the D.O.G.M. and will provide the answers to the five parts mentioned under the mine drainage portion of this section. See, also, Section UMC 784.14 for additional comments.

28. UMC 784.19 UNDERGROUND DEVELOPMENT WASTE

On page 56, the discussion on underground development wastes references a Golder Associates Report completed in 1979. The description of the analysis gives the impression that the analyses may have been conducted correctly, but the discussion gives no specific evidence of the method used to obtain foundations characteristics utilized in the analysis. Please provide copies of the referenced report. Please also ensure that proper certification of the engineering drawings is provided.

The potential toxicity of the fill material has not been discussed. At a minimum, please provide analysis of material as a plant growth medium.

28. COMMENTS

The Golder Report is included in this overall response under Appendix A. A certification letter by Mr. A. Allan Gass, covering the Golder Report drawings, is included as Page 28B, and specific List of Figures as Page 28C.

During the re-construction of the No. 4 sedimentation pond and placement of the underlying fill material, as addressed in Volume III, Section 784.19, it was thought that no toxic material was incorporated into the fill.

Since the fill was in place, a drilling program (for sampling) would be extremely expensive and certainly inadequate, considering location limitations. Such activities on the fill area might also prove to be detrimental to the integrity of the structure itself if, perchance, a drill hole were to intercept a portion of the elaborate subsurface drain system crisscrossing the entire pad.

As an alternate to drilling the pad (fill area), the applicant proposed to the Division that soil samples, to determine potential toxicity, be obtained from the "borrow pit area" from which a considerable amount of the fill was taken. This approach was approved, and a surface drilling program, consisting of two (2) holes has now been completed. The original intent was to drill three (3) or four (4) holes, but inclement weather conditions precluded drilling more than two (2).

The results of the soil analysis of the two (2) holes, BP-1 and BP-2, are included as pages 28D through 28T. Also, a drill hole location map, "Surface Soil Samples, Drill Sites", Drawing No. A5-0054, is included for reference as page 28U.

Upon completion of the pond and placement of associated rock toe buttress, graded filter and general embankment fill, the north facing embankment slope was covered with topsoil and seeded by hydromulching.

At this point in time, a survey of reclaimed areas has not been performed which would indicate a percent success ratio.

Additional comments may be found in Section UMC 783.14.

8 March 1983

Golder Associates
CONSULTING GEOTECHNICAL AND MINING ENGINEERS

OCT 7 1982
VALLEY CAMP
OF UTAH

G/82/298
September 30, 1982

Valley Camp Coal Company
Scofield Route
Helper, Utah 84526

Attention: Mr. Trevor Whiteside

Subject: Belina Mine Area
Surface Facilities Grading Plan

Gentlemen:

With reference to our engineering report entitled, "Surface Facilities Grading Plan, Belina Mine Area" dated June 1980, this letter will confirm that the engineering analyses and recommendations presented in the report were made under my supervision, and that the drawings presented in the report (list attached) are correct as shown.

Sincerely,

GOLDER ASSOCIATES

A. Allen Gass, Principal, P.E.
State of Utah # 4890

AAG/CWL:hd
Attachment
793-1156

REGISTERED PROFESSIONAL ENGINEER
No. 4890
A. ALLEN GASS
STATE OF UTAH

GOLDER ASSOCIATES, INC. • 2950 NORTHUP WAY, BELLEVUE (SEATTLE), WASHINGTON 98004-1486, U.S.A. • TELEPHONE (206) 827-0777 • TELEX 32-1014

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8 March 1983

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	47009
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, 0'-5'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	8.7
Specific Conductivity	145 umhos/cm
Alkalinity	5,600 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	27	0.0027
Calcium	11,500	1.15
Copper	18	0.0018
Sodium	250	0.025

David W. Gayer
Environmental Lab Director

ph

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	47001
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, 5'-6.6'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	7.9
Specific Conductivity	155 umhos/cm
Alkalinity	4,400 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	23	0.0023
Calcium	5,600	0.56
Copper	16	0.0016
Sodium	360	0.036

David W. Gayer
Environmental Lab Director

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	47005
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, 6.6'-10'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	8.8
Specific Conductivity	135 umhos/cm
Alkalinity	2,600 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	41	0.0041
Calcium	37,300	3.73
Copper	16	0.0016
Sodium	150	0.015

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	46995
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, 10'-15'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	8.1
Specific Conductivity	130 umhos/cm
Alkalinity	2,400 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	34	0.0034
Calcium	21,700	2.17
Copper	8	0.0008
Sodium	100	0.010

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	46999
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, 15'-20'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	7.8
Specific Conductivity	130 umhos/cm
Alkalinity	2,800 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	24	0.0024
Calcium	8,900	0.89
Copper	6	0.0006
Sodium	90	0.009

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	47002
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, ROOFLOC 25'-26'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	7.2
Specific Conductivity	110 umhos/cm
Alkalinity	2,800 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	20	0.0020
Calcium	700	0.07
Copper	10	0.0010
Sodium	90	0.009

David W. Gayer
Environmental Lab Director

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	47008
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, LOCROOF 26'-27'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	8.4
Specific Conductivity	78 umhos/cm
Alkalinity	1,600 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	43	0.0043
Calcium	1,800	0.18
Copper	20	0.0020
Sodium	110	0.011

David W. Gayer
Environmental Lab Director

ph

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8 March 1983

MIDECO

420 CHIPETA WAY - SUITE 280
UNIVERSITY OF UTAH RESEARCH PARK
SALT LAKE CITY, UTAH 84108
TELEPHONE: (801) 582-3136
TWX 910-925-5258

ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	47000
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, LOCROOF 27'-28'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	8.1
Specific Conductivity	62 umhos/cm
Alkalinity	2,200 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	18	0.0018
Calcium	1,000	0.10
Copper	14	0.0014
Sodium	35	0.0035

David W. Gayer
Environmental Lab Director

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	46997
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, LOCROOF 28'-29'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	7.5
Specific Conductivity	82 umhos/cm
Alkalinity	2,400 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	24	0.0024
Calcium	4,400	0.44
Copper	21	0.0021
Sodium	110	0.011

David W. Gayer
Environmental Lab Director

ph

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	46998
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, LOCROOF 29'-30'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	8.0
Specific Conductivity	50 umhos/cm
Alkalinity	2,800 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	18	0.0018
Calcium	1,900	0.19
Copper	22	0.0022
Sodium	140	0.014

David W. Gayer
Environmental Lab Director

ph

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8 March 1983

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	47003
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-1, LOCFLOOR 40'-41.5'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	7.9
Specific Conductivity	170 umhos/cm
Alkalinity	2,400 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	39	0.0039
Calcium	33,700	3.37
Copper	12	0.0012
Sodium	120	0.012

David W. Gayer
Environmental Lab Director

ph

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MIDECO

ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	46996
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-2, 0'-3'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS	
pH	7.9	
Specific Conductivity	69 umhos/cm	
Alkalinity	2,570 mg/kg as $CaCO_3$	
	mg/kg	Approx. %
Boron	20	0.0020
Calcium	1,500	0.15
Copper	14	0.0014
Sodium	30	0.0030

David W. Gayer
Environmental Lab Director

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	46994
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-2, 5'-8'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS	
pH	7.7	
Specific Conductivity	65 umhos/cm	
Alkalinity	2,800 mg/kg as $CaCO_3$	
	mg/kg	Approx. %
Boron	21	0.0021
Calcium	1,300	0.13
Copper	14	0.0014
Sodium	60	0.006

David W. Gayer
Environmental Lab Director

ph

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SALT LAKE CITY, UTAH 84108
TELEPHONE: (801) 582-3136
TWX 910-925-5258

ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	47006
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-2, 8'-13'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	8.2
Specific Conductivity	65 umhos/cm
Alkalinity	2,800 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	16	0.0016
Calcium	500	0.05
Copper	17	0.0017
Sodium	86	0.0086

David W. Gayer
Environmental Lab Director

ph

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ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	47004
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-2, 13'-18'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	8.5
Specific Conductivity	69 umhos/cm
Alkalinity	2,400 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	15	0.0015
Calcium	700	0.07
Copper	7	0.0007
Sodium	37	0.0037

David W. Gayer
Environmental Lab Director

ph

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TWX 910-925-5258

ENVIRONMENTAL LAB ANALYSIS

LAB NUMBER	47007
SPONSOR	Valley Camp of Utah
SAMPLE IDENTIFICATION	BP-2, 18'-23'
STARTING DATE	25 Feb 83
COMPLETION DATE	01 Mar 83

****

TEST REQUESTED	RESULTS
pH	8.1
Specific Conductivity	71 umhos/cm
Alkalinity	2,290 mg/kg as $CaCO_3$

	mg/kg	Approx. %
Boron	30	0.0030
Calcium	800	0.08
Copper	6	0.0006
Sodium	110	0.011

David W. Gayer
Environmental Lab Director

ph

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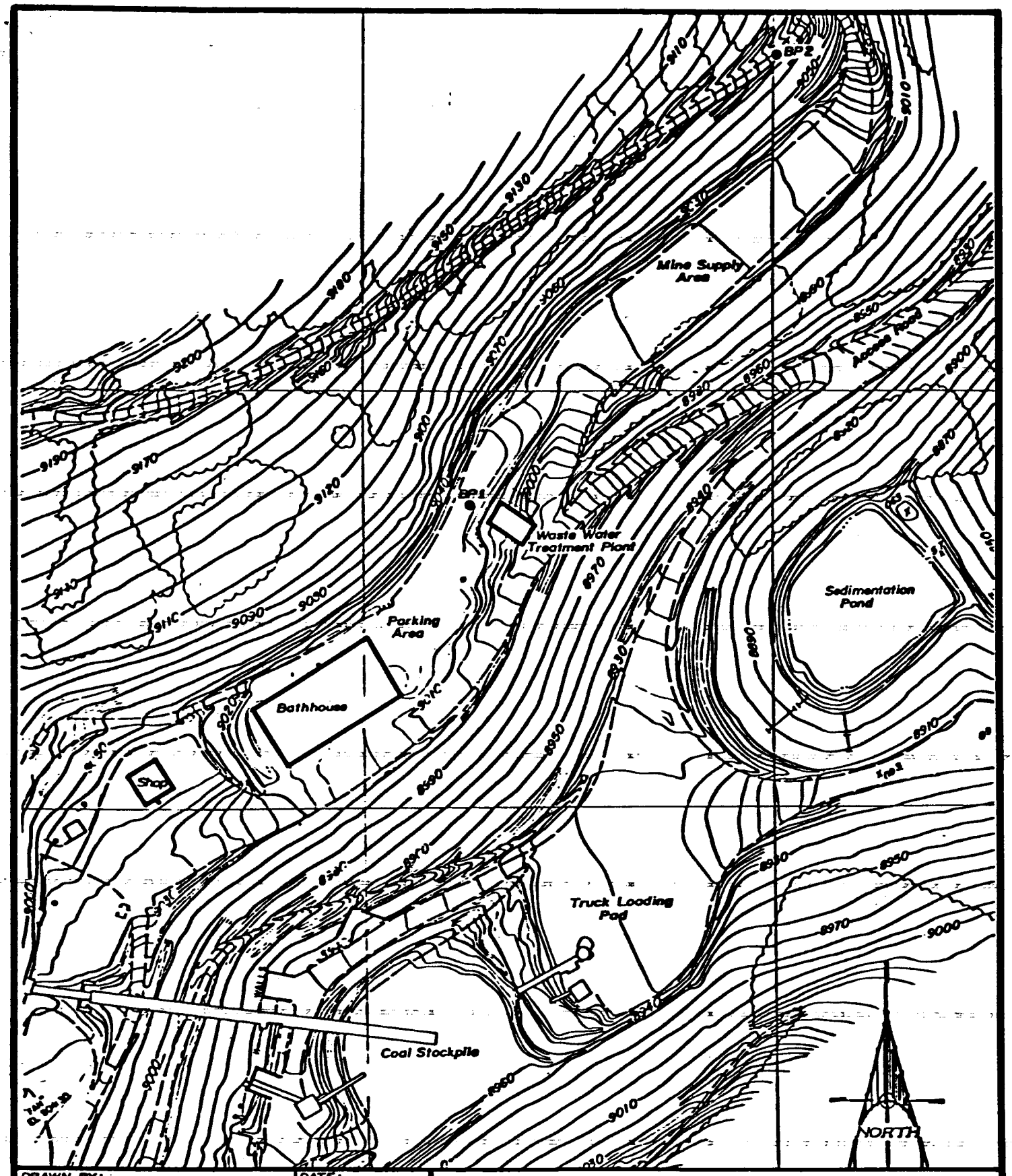

DRAWN BY: Ed Sanderson	DATE: March 7, 83	VALLEY CAMP of UTAH SCOFIELD ROUTE HELPER, UTAH 84526
CHECKED BY:	DATE:	
REVISED BY:	SCALE: NONE	
APPROVAL ENG.:		
APPROVAL SAFETY:	TITLE: SURFACE SOIL SAMPLES, Drill Sites	DRAWING NO. A5-0054 / REV. NO. 0
APPROVAL MINE:		

29. UMC 784.20 SUBSIDENCE CONTROL PLAN

Pursuant to UMC 784.20, the applicant states that no renewable resource land exists within the proposed permit area where subsidence, if it did occur, would reasonably cause material damage or diminution of reasonably foreseeable use in the event of such subsidence.

The applicant must have a letter from surface managing authorities and owners to verify this claim. Due to the presence of rangeland and springs, the regulatory authority doubts this to be the case.

Structures do exist which, if subsidence occurred, could damage pipelines and powerlines. Map B-3 does not show pillar recovery or partial extraction based on angles-of-draw to meet the requirements of UMC 784.20(a) and (b).

The applicant must provide the regulatory authority with a subsidence control plan which justifies partial extraction where no subsidence is planned, i.e., underneath the pipeline. The angle-of-draw should be chosen based on what data is available from surrounding areas or from past monitoring. The angle-of-draw should be conservative for protection of the pipeline, but not excessive to the detriment of coal recovery. The U.S. Geologic Survey points out that 20° appears to be typical in this coal field.

The applicant should provide the basis of the self-sealing characteristics of the strata referenced to (Hansen, 1980) on page 82 of the plan.

The applicant must provide a detailed description pursuant to UMC 784.20(c) and UMC 817.124 for measures to be taken to mitigate material damage to pipelines and powerlines or springs. The applicant must then provide a letter from the structure owner or surface owner that this plan is sufficient to protect this interest.

The monitoring plan negotiated with the U. S. Forest Service must be included in the mining and reclamation plan and meet the requirements of UMC 784.20(v). The monitoring must be aimed at varifying the angle-of-draw, and that the applicant's projection of subsidence protection measures is adequate through the life of the mine.

A representative area for more detailed monitoring is an option the applicant can choose to verify, early in operations, if the strata is behaving as predicted. This can be used to demonstrate that monitoring of the entire property is or is not needed.

29. COMMENTS

The basis for the "non-renewable resource land" label was the vegetative work found cited elsewhere, when the quality of the rangeland was evaluated. Such a "label" actually applied to the agricultural portion of the definition of a "Renewable Resource", and not to aquifers and areas for the recharge of aquifers or silvicultural production. Material damage or diminution of value of aquifers is discussed in the Vaughn Hansen Associates Report submitted with this response.

The forest land is classed as a renewable resource, and as such, will be afforded maximum subsidence protection in order to ensure future productivity. A letter from the U. S. Forest Service concerning surface disturbance resulting from subsidence is included in this section.

Should material damage be incurred by the Mountain States Fuel natural gas pipelines, despite the approved subsidence damage prevention measures, the applicant will repair the damage to the pipelines caused by subsidence from the applicant's mining activities or compensate the owner of the pipeline for such damage.

Any area roads which are materially damaged by subsidence will be repaired and re-graded to restore them to their pre-subsidence usefulness.

Natural gas wells in the permit area will be afforded a buffer zone of at least 50 feet from the well in all directions. Subsidence should not cause material damage to the wells.

Map E2-0006 and Map E1-0005, included in Appendix C, indicate mining plan consideration of subsidence protection for surface structures. Our plans call for an angle-of-draw of 35°. If the monitoring study indicates a different angle-of-draw, our plans will be modified. The basis of the self-sealing characteristics can be found in the Vaughn Hansen Associates Report mentioned above, page 7.

The monitoring plan agreement with the U. S. Forest Service is included in Appendix H. The presence of

such an agreement indicates the applicant's program for determining the extent of subsidence and its effect upon mine design.

Also included as part of the Subsidence Plan is approval from the MMS for utilizing a 35° angle-of-draw for limited extraction. It is anticipated the true angle-of-draw will be determined when actual subsidence data becomes available. Approval for a lesser angle-of-draw will then be requested.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Manti-LaSal National Forest
599 West Price River Drive
Price, Utah 84501

2820

November 5, 1982

Mr. Floyd L. Johnson
OSM - Reclamation and Enforcement
Brooks Towerst - 1020 15th Street
Denver, Colorado 80202

Dear Mr. Johnson:

Inasmuch as the underground portion of Valley Camp of Utah's mining operation is situated within the boundaries of the Manti Division of the Manti-LaSal National Forest and upon the request of the Valley Camp representative, the following comments are offered for consideration in review of Section UMC 784.20, Subsidence Control Plan, pursuant to Valley Camp's Mining Permit Application.

In consideration of several issues and concerns relating to the extraction of the mineral resource in the Valley Camp mining area, and the impact of such mineral extraction upon renewable resources such as wildlife habitat, aquifers, water rights and uses, recreation, timber resources, agriculture and rangeland use, and other employment of lands within Forest Service management responsibilities a Subsidence and Hydrologic Monitoring Plan has been required by the Forest Service to be included in the mine plan.

The Subsidence and Hydrologic Monitoring Plan has been in effect for four years to determine and quantify the effects of subsidence to the various resources. Renewable resource land and structures do exist within the permit area. There is no evidence from the monitoring survey that subsidence has occurred or will necessarily occur to that extent of causing material damage or diminution of use of such structures or renewable resource lands. This does not preclude the possibility that subsidence of that magnitude could occur. It is the responsibility of the Minerals Management Service to approve the technical mining aspects of the mine plan to insure the protection of the resources to the extent practical.

6200-11 (1/69)

If you have any questions concerning this issue, contact the Supervisor's Office of the Manti-LaSal National Forest, 599 West Price River Drive, Price, Utah.

Sincerely,

W. H. Bailey

for
REED C. CHRISTENSEN
Forest Supervisor

30. UMC 784.21 FISH AND WILDLIFE PLAN

The applicant has submitted an excellent fish and wildlife protection plan developed by the Utah Division of Wildlife Resources. The plan contains several outstanding suggestions applicable to Belina operations. However, there are no indications in the plan that the applicant intends to adopt any of this plan. The applicant is requested to develop a thorough analysis of the feasibility of implementing the suggestions of the Division, and adopting the appropriate mitigating measures. Undoubtedly, further consultation with the Division would result in identification of appropriate mitigation measures. Without this further analysis, the plan does not provide for the necessary mitigation of wildlife impacts.

The applicant is requested to provide a reference to support the claim on page 87 that goshawks and Cooper's hawks can withstand considerable human impact.

Due to the extreme high value of the riparian habitat, the applicant must discuss how much of this wildlife habitat will be disturbed. The applicant must also detail plans to restore this riparian habitat, wherever it is disturbed.

30. COMMENTS

The questions raised here are answered in the comments to UMC 817.97.

31. UMC 784.22 DIVERSIONS

As noted previously, Whiskey Springs Creek is diverted. A post-mining and pre-mining longitudinal profile must be provided in accordance with UMC 784.23(11). Also required are flow (and flood) sizing calculations indicating the post-mining channel is adequate to maintain or improve upon the pre-mining erosional equilibrium. We presume the culvert is to be removed. Please confirm and include as part of the reclamation cost for the bond.

31. COMMENTS

Whiskey Canyon drainage has not been diverted, per se; it has, however, been contained for a distance by placement of a 42" CMP in the drainage. This culvert will not be removed upon completion of mining, and therefore, should not be included as part of the reclamation cost for the bond. In an effort to prevent children and/or animals from entering this culvert during either the pre-mining or post-mining periods, and at the same time preclude, somewhat, the clogging of the inlet end of this culvert, a trash rack has been installed on this culvert. The trash rack will be left in place upon completion of mining. As mentioned in Section UMC 817.47, a rocklined surface ditch (See ACR Maps D-1 and D-2, revised, in Appendix F) will be provided for possible culvert failure during the post-mining period. There are no maintenance provisions planned for the bypass ditch or 42" culvert during post-mining. Such a responsibility is removed upon conveyance of the area back to the land owner.

As previously mentioned, this culvert will not be removed, and because of the nature of installment, restoration of a "natural riparian-vegetation community" along the streams banks, as required in UMC 817.44(d)(1), will not be attempted.

Also, the bypass, rocklined, surface ditch, provided for possible culvert failure, will not be a target for establishing a riparian community, since such would require the presence of a "wetlands" environment. The surface ditch will not convey water, except during runoff periods or culvert failure. If, over the years, the culvert did fail and the surface ditch became the avenue of canyon drainage, it is felt that vegetation would appear along the banks of the ditch through invasion processes.

The 42" culvert has been examined by Vaughn Hansen Associates for proper sizing as related to possible runoff (see accompanying letter), and has been determined to be more than adequate with the capability of passing 50 cfs. The bypass ditch, as previously mentioned, will provide passage of at least double that capacity. See also Table 3-2, page 7, and Figure 3-2 Map of the Golder Report in Appendix A.

Since the 42" culvert was installed prior to SCMRA regulations, a longitudinal profile is not available. Such a view of the culvert could only be constructed from memory, at this point. Approximate inlet and outlet elevations may be obtained by referring to ACR Map D-1, revised, Appendix F.

See also ACR Map D-2, revised, for additional information.

CONSULTANTS / ENGINEERS
VAUGHN HANSEN ASSOCIATES
WATERBURY PLAZA - SUITE A
5620 SOUTH 1475 EAST
SALT LAKE CITY, UTAH 84121
(801) 272-5263

July 23, 1979

Mr. Trevor Whiteside
Valley Camp of Utah, Inc.
Scofield Route
Helper, Utah 84526

Dear Trevor:

In response to your recent request, the 42-inch corrugated metal culvert which runs the length of your lower pad has been assessed for its adequacy to pass the 100-year, 6-hour and 100-year, 24-hour storms. Using the dimensionless hydrograph technique outlined in section 4 of the SCS National Engineering Handbook, it was found that the design storms would result in peak flows of 19.2 cfs (6-hour storm) and 17.1 cfs (24-hour storm). Without any excess head at the inlet, the 42-inch culvert has the capability of passing 50 cfs, making it more than adequate regardless of the design storm duration. Details of these computations are in our files if additional clarification is ever needed.

I met with Mike Thompson the other day and asked him about the sedimentation ponds. He indicated that they could give preliminary approval of pond locations, volumes, design, etc. which would allow you to start construction while the final report was being prepared and reviewed by the agencies involved. He emphasized that changes in the ponds may be required following agency review. If this is acceptable to Valley Camp (and I assume it is), we will follow this procedure.

Mike also indicated that the Division is not considering our compliance survey as a final plan. They want to see the suggestions or acceptable alternatives implemented before it will be considered final. Let us know if you need any help in this respect other than the pond work.

We have searched our files and could not find a letter of transmittal which went to the Division when the compliance survey reports were delivered. I assume that they were hand carried and the letter was overlooked.

Sincerely,

Rich

Richard B. White
Hydrologist

RBW/das

32. UMC 784.24 TRANSPORTATION FACILITIES

The applicant must submit information as required above under 784.12 for roads and conveyors.

32. COMMENTS

The only road the applicant need be concerned with is the access road up Whiskey Canyon, which services the Belina Complex. This road is a gravel surface at present, approximately 1.6 miles long, with an average width of 30 feet. The overall grade is 8.3 percent. Drainage and culvert sizing and spacing were addressed by Vaughn Hansen Associates in the Compliance Survey of 1978, and previously submitted to the Division. The applicant anticipates paving this road by 1983.

Construction scheduling of this road is shown in the original submittal, Volume III, Section 784.12. See Volume IV, Map C - Operations Map, for road location, and Map C-1 for profile.

The overland conveyor is a proposed structure, and is not scheduled for construction until sometime in 1984. The proposed system, along with proposed access roads to the transfer points, is shown on the Operations Map, Map C of Volume IV. The conveyor system, as proposed, is shown in plan and profile on Maps M-1 through M-7, Volume IV.

33. UMC 784.26 AIR POLLUTION CONTROL PLAN

The applicant has approval from the Utah State Bureau of Air Quality for the Belina #1 and #2 mines. The applicant must provide the plans for dust control practices, air quality monitoring, and fugitive dust control, as specified in plans and correspondence from this agency.

With respect to the waivers obtained for air quality monitoring, please provide the letters of May 7, 1980, and May 23, 1975, noted on page 93. These are not included in Appendix G of Volume II.

The applicant is requested to provide specific descriptions of the fugitive dust control measures employed on coal stockpiles. The schedule for paving the Eccles Canyon Road should also be incorporated in the plan.

33. COMMENTS

The comments for 783.18 - Climatological Information (page 14) include a letter from the State of Utah, Department of Health, dated August 17, 1981. Refer to that letter for answers to these questions.

Also attached are copies of the May 7, 1980, and May 23, 1975, letters, as requested.

There are no fugitive dust control measures being employed on coal stockpile.

The paving schedule of Eccles Canyon will be determined by the Utah State Department of Transportation. Such activity is beyond the control of the applicant.

Scott M. Matheson
Governor

STATE OF UT
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110

James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

DIVISIONS
Community Health Services
Environmental Health
Family Health Services
Health Care Financing and Standards

OFFICES
Administrative Services
Health Planning and Policy Development
Medical Examiner
State Health Laboratory

533-6108
May 7, 1980

Alvin E. Rickers, Acting Director
Room 426 801-533-6121

RECEIVED
MAY 16 1980
By

Mr. Trevor G. Whitesides
Valley Camp of Utah
Scofield Route
Helper, UT 84526

Re: Air Quality Approval Order for the Belina Coal Mine and Surface Coal Handling Facilities in Carbon County (Your Letter Dated January 11, 1980)

Dear Mr. Whitesides:

On March 31, 1980 the Executive Secretary published a legal notice of intent to approve the proposed development and expansion of your coal properties and coal handling facilities. The 30 day public comment period expired April 30, 1980 and no comments were received.

This air quality approval order authorizes the construction/installation and operation of the Belina mine coal handling facility as proposed in your notice of intent dated January 11, 1980 with the following conditions:

1. Conveyor hood sections shall be securely positioned when transporting coal and be maintained in good condition.

2. Conveyor head chutes, reclaim tunnel feeder chutes, and vibrator feeder discharge chutes shall be totally enclosed and be maintained in good condition.

3. Conveyor skirtboards shall be properly positioned when transporting coal and be replaced as needed.

4. Stacker tube dust flaps shall be replaced as needed.

5. 2.2 miles of haul roads shared with other companies shall be paved no later than September 1, 1981.

6. Unpaved sections of haul roads shall be surface treated and retreated as necessary with an effective dust suppressive material. A record of treating done (days and amounts) shall be maintained and be available to the Bureau of Air Quality.

An Equal Opportunity Employer

7. Monthly production at Belina Mine No. 1 shall not exceed 100,000 tons without a modified approval order issued by the Executive Secretary.

8. Monthly crushing of Belina Mine No. 1 coal shall not exceed 100,000 ton/month without a modified approval order issued by the Executive Secretary.

An initial compliance inspection will be required. Please notify us when your installation/construction is completed (ph. 533-6108) so an inspection can be performed.

Sincerely,

Brent C. Bradford
Executive Secretary
Utah Air Conservation Committee

LCB:js

cc: Southeastern District Health Dept.

Item 8 of April 2nd letter is:

8. Increase in crushing shall not exceed 60,000 ton/mo. without an approved order to be issued by the Executive Secretary.

STATE OF U[illegible]—DEPARTMENT OF SOCIAL SERVICES

Governor

PAUL S. ROSE
Executive Director

DIVISION OF HEALTH
44 MEDICAL DRIVE
SALT LAKE CITY, UTAH 84113
AREA CODE 801
328-6108

LYMAN J. OLSEN, M.D., M.P.H.
Director of Health

Board of Health
Air Conservation Committee
Health Facilities Council
Medical Examiner Committee
Nursing Home Advisory Coun
Water Pollution Committee

OFFICE OF THE DIRECTOR

May 23, 1975

Mr. Roger A. Markle
President, Western Division
The Valley Camp Coal Company
Clear Creek, Utah 84517

Dear Mr. Markle:

The Executive Secretary, Utah Air Conservation Committee published his notice of intent to approve the coal handling facility proposed for construction by the Valley Camp Coal Company near Clear Creek, Utah.

The required 30 day public comment period has lapsed and no comments were received.

Approval to proceed with the construction is hereby given with the stipulation that construction must proceed in accordance with plans and specifications as submitted and that once installed the equipment must be maintained in the best of operating condition.

Sincerely,

Grant S. Winn

Grant S. Winn, Ph.D.
Executive Secretary
Utah Air Conservation Committee

BCB:kr

cc: Southwestern Utah Health District

34. UMC 785.19 UNDERGROUND COAL MINING ACTIVITIES ON AREAS OR ADJACENT TO AREAS INCLUDING ALLUVIAL VALLEY FLOORS IN THE ARID OR SEMI-ARID AREAS OF UTAH

The stream channel of Pleasant Valley Creek appears to be composed of unconsolidated, streamland material and appears to have water available for agricultural irrigation activities. However, the plan does not address alluvial valley floors. We are aware that Eccles Creek, within Eccles Canyon, has been determined not to be an alluvial valley floor (AVF). Therefore, this and tributary drainages, are not expected to be AVF. We would suggest that the stream and associated lands should be minimal. In other words, if the applicant wishes to agree that for the purpose of the permit, the Pleasant Valley Creek is an AVF, the only further analysis likely required will be one of consumptive use of waste and effects on downstream agricultural activities (if any). We would be pleased to meet to discuss this issue further.

34. COMMENTS

Doelling (1972) shows that alluvium is found along Pleasant Valley Creek. Adjacent to the Valley Camp permit area, the alluvial band is quite narrow, but widens further down the canyon as the canyon broadens near the town of Scofield.

Flood irrigation in Pleasant Valley is currently (and has, historically been) confined to the lower alluvial areas of Pleasant Valley Creek below the Valley Camp permit area. Water is diverted at several points downstream from the permit area along the creek to irrigate fields on the alluvium.

Flood irrigation has historically not been practiced on the narrow alluvium land of upper Pleasant Valley Creek adjacent to the permit area. A reconnaissance survey of the surrounding region indicates that flood irrigation is also absent in other areas of similar hydrologic, geologic, and biotic characteristics. The historic lack of flood irrigation in these steep, narrow canyons suggests that such activities are not feasible in the region.

Water quality of Pleasant Valley Creek is very good (see Appendix E).

Some sub-irrigation of vegetation does occur on the Pleasant Valley Canyon floor. The sub-irrigated species (mainly willows) are found along the Pleasant Valley Creek channel, which suggests that sub-irrigation is primarily confined to the channel areas where the water table is near the surface.

The valley floor of lower Pleasant Valley Canyon can be classified as an alluvial valley floor, due to the presence of both flood irrigation and limited sub-irrigation on the alluvium. It should be noted that the potential for an agriculturally useful crop is very limited.

Little potential exists for the Valley Camp mine operation to impact the alluvial valley floor in Pleasant Valley Canyon. As discussed in the original permit application, the effect of the Valley Camp operation on flows in Pleasant Valley Creek will be very minor. Stream flows may be slightly increased due to discharges from the mine, but the mine is intercepting water that would eventually get into Pleasant Valley Creek. Consequently, the effect of the Valley Camp mining activities on the flows in Pleasant Valley Creek will be essentially negligible. The average flow measured from the Belina Mine discharge is 0.08 cfs, whereas the average flow on Pleasant Valley Creek for water year 1979 and 1980 is much higher, at 13.6 cfs. Surface disturbances in the portal and load-out areas are protected by sediment control facilities. Consequently, the mining impacts on water quality in Pleasant Valley Creek will be very minor and will not change the agricultural value of the alluvial valley floor in Pleasant Valley Canyon in any significant manner.

In summary, it is felt that the Belina Mine and associated activities within the Valley Camp permit area will have no significant hydrologic impacts on the alluvial valley in Pleasant Valley Canyon.

35. SOCIO-ECONOMICS

If the applicant has any reports which identify past, present or future assistance provided communities or counties surrounding the mine in order to plan for the effects of employment, this information would be most helpful to complete responsibilities of the Federal Government under the National Environmental Policy Act.

Review of the EIS for Central Utah (e.g., page BO-III-S) indicates that the information regarding employment is not clearly correlated with the Belina #1 and #2 Mines. We would also be interested in the applicant's identification of mitigating measures listed in the EIS that have been considered in the mining and reclamation plan.

35. COMMENTS

The communities surrounding the permit area are the Town of Scofield, and the community of Clear Creek; this area is called Pleasant Valley. Valley Camp of Utah, Inc. presently employs 24 people from Pleasant Valley, and does not anticipate employing any more people from the area.

The total work force anticipated for the Belina Complex at Valley Camp of Utah is 592 people, of which Utah County, i.e. Provo and the surrounding areas, will furnish 39%; Sanpete County will furnish 17%; Carbon County, i.e. Price, Helper, Wellington, will furnish 40%; and Pleasant Valley will furnish 4%.

The Operational Plan calls for 3 buses to run each shift from Sanpete, Carbon and Utah Counties for this work force.

In addition to the Belina Complex, 70 office and supervisory personnel are required. Their transportation will be mainly furnished by those company personnel which own company vehicles; a total of 12 vehicles is furnished by the company.

Due to the size of Carbon, Utah and Sanpete Counties, it is felt that this mining operation will have no adverse Socio-economic impact on the area.

APPENDIX A

SURFACE FACILITIES GRADING PLAN

BELINA MINE AREA

BY

GOLDER ASSOCIATES

Reference: UMC 784.13
UMC 784.14
UMC 817.47
UMC 784.19
UMC 782.19
UMC 784.16
UMC 784.22
UMC 817.52

Golder Associates
CONSULTING MINING AND GEOTECHNICAL ENGINEERS

SURFACE FACILITIES GRADING PLAN
BELINA MINE AREA

PREPARED FOR

VALLEY CAMP OF UTAH
HELPER, UTAH

Distribution:

4 Copies - Valley Camp of Utah
2 Copies - Golder Associates, Evansville, Indiana
2 Copy - Golder Associates, Kirkland, Washington

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JUNE 1980

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1.0 INTRODUCTION

This report presents the results of continuing geotechnical studies carried out by Golder Associates to date at the Belina Mine Site, operated by Valley Camp of Utah, Helper, Utah. The work was initiated based on a proposal to Valley Camp dated July 19, 1979 and accepted per letter from Valley Camp dated August 2, 1979. Subsequent to the proposal, the work has been extended through verbal agreements.

The work has involved the development of the Belina Mine Area surface facilities in regard to the operational requirements of Valley Camp and the regulatory requirements of the State of Utah Division of Oil, Gas and Mining (DOGM), and the Office of Surface Mining (OSM) of the U.S. Department of the Interior.

At the start of the work (August 1979), the Belina No. 1 Mine was in operation under an approved 30CFR211 and Utah Division of Oil Gas and Mining Mine Plan and Permit. Valley Camp's operational plan called for the continued development of the Belina No. 1 Mine, including the development of surface facilities for the No. 1 Mine and the construction of a coal carrying conveyor system and load storage facility for the No. 1 Mine, as set out in general in the originally approved plans. Golder Associates has provided engineering services relative to the geotechnical engineering and hydrologic control structures relative to the proposed development and the current OSM Regulations. This work has included the design of cut and fill slopes and pads, drainage measures, and a sedimentation pond. In addition, construction control and periodic inspection of the work have been carried out at appropriate intervals when required.

2.0 GENERAL SITE CONDITIONS

The Belina Mine Area is located in the upper reaches of Whisky Gulch, a tributary to Eccles Canyon and eventually Pleasant Valley Creek located in the Scofield Drainage of western Carbon County, Utah. Whisky Gulch in the vicinity of the Belina Mine area is an intermittent stream under the definitions provided by the OSM in that it obtains its flow from both surface runoff and ground water discharge at least some part of the year.

The surface facilities area for the Belina mines ranges from an elevation of about 8800 to 9200 feet above sea level. The terrain is steep, and heavily forested with stands of aspen and conifers. Soil cover is thin, in the range of 2 to 10 feet maximum depth, and is in general colluvial material derived from the parent sandstones and siltstones which comprise the rock exposed in the area.

Average annual precipitation at the mine site is about 25-30 inches. Of this, approximately 8 inches occurs as rainfall, generally from May through September.

The general vicinity of the Belina Mine is shown on Figure 2-1. As can be seen, the mining area is on what is known as the Connelville Block, located between the Connelville fault and the O'Connor Fault. The rock units which comprise the Whisky Gulch Area are members of the Blackhawk Formation.

As shown in Figure 2-1, the Belina No. 1 facilities are located on the western flank of Whisky Gulch. The coal handling facilities, first phase, as approved will occupy the gulch itself and portions of the eastern flank. Existing natural slopes in the area are in the range of 20° to 25°.

At the time Golder Associates became involved with the Belina Mine Area (August 1979), a large earthfill had been placed in Whisky Gulch to provide access and work area for the coal storage area. The fill pad was at approximate elevation 8940 at its upper end, sloping down to an existing sedimentation pond constructed at the downstream crest of the fill. At this time, the sediment pond area was exhibiting some local signs of instability in the form of tension cracks, and water was observed seeping out along the toe of the fill. Also, the slopes extending from the Belina No. 1 mine area to the fill pad were steep and exhibiting signs of sloughing.

In order to stabilize the sediment pond area, as well as the Belina slopes, and to provide areas for the surface facilities, Golder Associates recommended that the downstream portion of the existing valley fill be removed and replaced in an engineered manner with a rock toe buttress and a graded filter. The sediment pond was then located at the top of the fill. Additionally, recommendations were made concerning stabilizing the existing slopes from the No. 1 mine area down to the coal storage area. This work resulted in a surface facilities grading plan as presented in Figure 2-2.

To the extent possible, all grading was carried out in conjunction with the requirements of the OSM regulations. In the few areas where this was not possible, engineering analyses of variation were carried out to insure the overall stability and satisfactory performance of the structures.

3.0 DRAINAGE CONTROL

3.1 INTRODUCTION

Control of drainage, both surface water and groundwater, is critical to the overall development of the surface facilities. This includes surface precipitation water, snowmelt, ground water intercepted in cuts seeps or springs, and ground water intercepted and collected in the mine workings and pumped to the surface for ultimate discharge. This section presents the methodologies used to predict the flows expected for the various watersheds encountered in the Belina Mine Area.

3.2 DRAINAGE QUANTITIES

Peak flow on the small watersheds in this study area were estimated using the Rational Method (Grey, 1973). This method is based on the criteria that for storms of uniform intensity, evenly distributed over the watershed, the maximum rate of runoff occurs when the entire watershed is contributing at the outlet and that this rate of runoff, or flow, is proportional to the rainfall intensity. The equation is:

$$Q = ciA$$

where:

- c = Runoff coefficient, determined empirically
- i = Maximum rainfall intensity, in/hr, whose duration is equal to the time of concentration of the watershed
- A = Area of watershed, acres
- Q = Peak flow, cfs.

TABLE 3-1

ESTIMATED PRECIPITATION DEPTHS FOR VARIOUS RETURN PERIODS AND DURATIONS AT CLEAR CREEK, SUMMIT, UTAH (FROM RICHARDSON, 1971)

	DURATION									
	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr
1	.10	.16	.20	.28	.35	.46	.57	.84	1.08	1.33
2	.12	.19	.25	.34	.43	.57	.70	1.04	1.34	1.65
5	.16	.24	.31	.43	.54	.72	.90	1.34	1.73	2.14
10	.19	.29	.37	.51	.65	.86	1.06	1.55	1.99	2.45
25	.24	.38	.48	.66	.84	1.08	1.31	1.88	2.39	2.92
50	.25	.38	.48	.67	.85	1.13	1.40	2.07	2.67	3.29
100	.27	.42	.53	.73	.93	1.24	1.54	2.29	2.96	3.65

Maximum rainfall intensities for specified return periods were calculated using precipitation data from a gauging station at Clear Creek, Summit, Utah, as reported by Richardson (1971), (Table 3-1). The duration time used when choosing the rainfall intensity was equal to the time of concentration of the particular section of the drainage basin. A 10 year return period was used when choosing the rainfall intensity, as specified by the OSM regulation for permanent diversions.

The time of concentration was determined using the Upland Flow Method (Kent, 1972). Types of flow considered in the Upland Method are: overland, through grassed waterways, over paved areas, and through small upland gullies. Upland flow employed in this method can be a combination of these various surface runoff conditions. The velocity of flow is determined using Figure 3-1. The time of concentration of the drainage basin then is equal to the sum of the times required for water falling on the farthest point of the watershed, flowing over various types of terrain, to reach the outlet.

The runoff coefficient in the Rational Method is dependent on the topography, soil type and vegetation of the watershed. Values of the runoff coefficient can be found in Grey (1973). An estimate of the coefficient was made from these charts assuming:

Topography - Hilly Land
Soil - Open Sandy Loam $c = 0.03$
Cover - Woodlands

The drainage area of concern at the Belina Mine site was divided into six sections (see Figure 3-2). The drainage characteristics and outflow were calculated for each section. Table 3-2 lists the values used and outflow for each section. Outflow from section I and VI is to be diverted outside the area of

concern while the outflow from sectins II-V is to be carried via a culvert under the mine site and out of the drainage area. Water falling within the mine area is to be treated in a settling pond and then discharged.

TABLE 3-2
CALCULATION OF FLOW RATES BY SECTION

SECTION NUMBER	I	II	III	IV	V	VI
AREA (acres)	23.6	28.3	29.8	36.5	36.1	8.3
tc (min)	8.6	14.7	15.3	24.3	24.2	17.4
i (in/hr)	1.74	1.48	1.48	1.25	1.25	1.48
c RUNOFF COEFFICIENT	0.3	0.3	0.3	0.3	0.3	0.3
Q =ciA (cfs)	12.3	12.6	13.2	13.7	13.5	3.7

4.0 SEDIMENT POND

4.1 HYDROLOGIC DATA

Hydrologic analyses were made to calculate the runoff volume, from the disturbed area, that would be treated in the sediment pond (see Figure 3-2). The calculated storage volume was based on the 10-year 24-hour storm as required by OSM Regulations. Previous experience has indicated that a 48-hour detention time is required to insure adequate settling.

Hydrographs for the Belina Mine Area were obtained from a report to Valley Camp from Vaughn Hansen Associates. The Hydrograph presented in the report was for a 25-year 24-hour storm. The Hydrograph for the 10-year 24-hour storm is assumed to be of similar shape. The peak inflow into the pond was calculated assuming the hydrograph could be represented by a triangle. The peak runoff for the 10-year 24-hour hydrograph, shown in Figure 4-1, is determined according to the equation:

$$q_p = \frac{484\ AQ}{T_p}$$

where,

q_p = Peak Runoff, cfs
A = Area, sq. miles
Q = Net storm rain, inches
Tp = Time to peak runoff, hours.

The volume of runoff is then defined as the area under the hydrograph.

4.2 SEDIMENT POND DESIGN

The outflow hydrograph of the sediment pond for the design storm was constructed based on a constant outflow from the principal spillway (spillway design will be discussed in Section 4.3). Since the outflow from the sediment pond will be constant and the detention time has been specified as 48 hours, a direct determination of the outflow hydrograph for this design storm is possible, the constant outflow can be determined from the equations:

$$Vi = Vo$$
$$Vi = q_o \times tb$$

where,

Vi = Volume Inflow
Vo = Volume Outflow
q_o = Constant Outflow Rate, cfs
tb = Duration of hydrograph, hours.

The calculated outflow hydrograph is shown with the inflow hydrograph in Figure 4-1. The constant outflow required for the design storm and a 48 hour detention time is 0.94 cfs.

The storage required for the 10-year 24-hour storm can be determined from the inflow and outflow hydrographs. The difference between the area under the inflow hydrograph and that under the outflow hydrograph during the time of inflow is the storage volume; this is shown as the shaded area in Figure 4-1. The pond storage volume necessary to hold the runoff for 48 hours from the design storm is 6.7 acre-feet. The pond must be of sufficient volume to hold both the accumulated sediment and the design storm runoff.

Estimates of the volume of sediment were made from the 0.1 acre-feet per acre of disturbed land value recommended by the OSM Regulations. This results in a total sediment volume of 3.6 acre-feet. The total volume required for the storage pond would be the water volume plus the sediment volume which is 10.3 acre-feet.

The stage-storage curve for the existing pond is shown in Figure 4-2. The volume required for both the sediment and the water storage are marked on the curve as well as the spillway elevation. The existing pond with a storage volume of 11.2 acre-feet is sufficient to hold both the design sediment load and design runoff for a 48 hour detention time. It is understood that the existing decant is at elevation 8856. This is satisfactory for retention of 60% of the maximum allowable sediment level in addition to retaining the design storm for 48 hours. In accordance with the regulations, the accumulated sediment must be removed when it reaches 60% of maximum. It should be noted that, with the fixed decant system, it will be necessary to dewater the pond by pumping after precipitation events in order to provide storm surcharge capacity.

It is understood that the sediment pond may be used to collect and discharge mine water, as well as surface runoff. If this should be required, we recommend that the fixed elevation decant be replaced by a floating orifice type decant (see Figure

4-3). This design provides a constant discharge at an easily controlled rate and also skims water from the top of the pond, which tends to increase the effectiveness of settling pond performance (Skelly and Loy, 1979). Further, this type of decant will dewater the pond, thereby eliminating the need for pumping, and constantly providing storm surcharge capacity.

The collapsible pipe, shown in Figure 4-3, must extend from maximum pool level to permanent pool level (i.e., from elevation 8849.5 feet to 8856.6 feet). The inlet of the floating orifice is attached to floats so that it is submerged to give a desired outflow rate. The required outflow rate of 0.94 cfs can be accomplished using a variety of combinations of pipe diameter and head (see Figure 4-4). Any pipe diameter that is available could be used for the inlet so long as the decant is constructed with the appropriate head. The top of the pipe must be protected from logging by a trash rack or other suitable device.

4.3 SPILLWAY DESIGN

The emergency spillway was designed to handle the OSM Regulation's design storm of 25-years 24-hours. The emergency spillway elevation is at 8856.0 feet and the crest of the embankment if at 8860.0 feet. OSM regulations require at least 1.0 feet of clearance between the maximum elevation of water in the emergency spillway and the crest of the embankment. This limits the maximum depth of flow in the emergency spillway to 1.0 feet. At this flow depth the flow rate in the emergency spillway calculated by the Manning equation would be 85.0 cfs (see Figure 4-5). The flow rate required to handle the 25-year 24-hour storm was calculated to be 15.9 cfs, from equation 4-1. In conclusion, the emergency spillway can handle flow rates in excess of the 25-year 24-hour storm while still satisfying the OSM Regulations concerning freeboard.

4.4 CONSTRUCTION

Construction of the valley fill and sediment pond structure was commenced in September 1979 and essentially completed in December 1979. The construction of the valley fill was carried out under the full-time inspection of a geotechnical field engineer, who was responsible for insuring that the construction was carried out in conjunction with standard engineering practices and the requirements of the Division of Oil, Gas, and Mining. This consisted of material inspection, stripping and removal of topsoil and organic debris, and placement of the fill materials, including the rock buttress. The granular filter and underdrains, and the general embankment fill.

4.4.1 Construction Materials

An as-built schematic longitudinal section of the valley fill and sediment pond is shown in Figure 4-6. There are essentially five different earth materials involved in the structure.

These materials are as follows:

I. Rock Toe Buttress, consisting of boulders and cobbles ranging from approximately 4 to 1 in mean dimension.

II. Graded Filter, consisting of sand and gravel blended to provide protection against piping of the general embankment fill.

III. Rockfill Drain, consisting of small boulders and cobbles ranging from approximately 2 feet to 6 inches in mean dimension.

IV. General Embankment Fill

V. Foundation Material, consisting of the undisturbed material soil and rock materials comprising the valley floor and walls.

The location and geotechnical strength characteristics of the various materials are presented on Figure 4-6. Particle size gradations of the general embankment fill and the graded filter are shown on Figure 4-7.

4.4.2 Construction Control

The construction of the earthfill and sediment pond was inspected in the field by a qualified geotechnical field engineer. The inspections consisted of determination of material suitability, material placement techniques, and in-place density testing to determine the degree of compaction obtained in the materials. Observation of the sequential phases of the construction are discussed individually below:

1. Rock Toe Buttress

Prior to placement of the rock toe buttress, all areas to receive fill were stripped of topsoil and loose or surficial materials. The rock toe buttress was then placed by end dumping or moving with dozers in order to insure interlocking and proper resting of the individual boulders.

2. Graded Filter

Upon completion of the rock toe buttress, the graded filter material was placed. Placement was carried out

in 6 inch to 12 inch lifts, with the material spread by dozers and compacted in place. No compaction tests were carried out in the filter materials due to their granular nature, but careful observations were made throughout the filter placement to insure continuity of material and adequacy of the placement techniques.

3. General Embankment Fill

After the graded filter material was placed, general embankment fill was compacted in lifts to form the valley fill and sediment pond embankment. Compaction testing was carried out as the fill was placed to insure that the material was compacted to at least 95% of Modified Proctor Density, per ASTM D-1557. Results of the compaction testing are presented in summary form on Figure 4-8.

4.4.3 Stability Analyses

Stability analyses of the as-built section have been carried out to insure that the fill has an adequate static factor of safety against failure. The analyses were carried out using the Bishop Method, which essentially assumes a circular failure arc through the mass and computes the stability of forces along that arc. This is then carried out on a variety of failure arcs until the minimum factor of safety is determined. The analysis was carried out using the impact parameters and fill geometry shown on Figure 4-6, and various water seepage paths through the embankment and fill. The results of the analyses are presented in Figures 4-9 through 4-12. Critical surfaces are shown on the figure, with the computed Factor of Safety. As can be seen, the minimum computed static factor of safety for the composite embankment is 1.8; the critical failure arc is located in the lower portion of the embankment. This is within the requirements set forth by OSM.

A cross-section of the valley fill (Figure 4-13) shows the valley walls, the embankment fill, and the emergency spillway for the sediment pond.

4.5 POND MAINTENANCE

Sediment ponds must be periodically maintained to remove deposited sediments so that trap efficiency can be preserved. The Federal Regulation require that this occur when the design sediment storage volume has been 60 percent displaced (see Figure 4-2).

Since the required volume is 3 years of sediment or 0.1 acre-feet per acre of disturbed land, the maintenance schedule should require cleaning the pond at least every 21 months (60 percent of 3 years). It is advisable, however, to reduce this to a maximum of every 12 to 18 months because the sediment will not be deposited evenly over the 3 year period (Skelly and Loy, 1979).

A thorough inspection of the sediment pond and embankment should be undertaken at least once per year. When examining for stability and general inspection the inspector should be looking for any of the following conditions:

- Seepage from anywhere on the down-stream side of the embankment but especially around the discharge pipe
- Erosion of embankment slopes
- Continuity of emergency spillway
- Erosion around entrance or exit of discharge pipe
- Clogged principal or emergency spillway
- Check slope stakes for obvious slope movement

- Level of sediment
- Placement of wave erosion protection
- Erosion at spillway discharges
- Clogging of dewatering device.

Monitoring for embankment movement (Skelly and Loy, 1979) will also be a part of this inspection. This can be performed by setting stakes in the embankment, along the toe and several rows proceeding up from the toe. The original position and elevation should be recorded with reference to a permanent landmark. These positions should be checked during inspection. If unstable or potentialy unstable conditions exist, corrective measures should be taken immediately.

5.0 DIVERSION DITCHES AND CULVERTS

5.1 LOCATION

Figure 3-2 shows the drainage area of concern. In an effort to minimize further land disturbance, it is recommended that existing roads be incorporated into the diversion ditch scheme. This will result in the construction of only one additional ditch that must be constructed on undisturbed land. This ditch is labeled on the plan as I-J.

5.2 ANALYSIS AND DESIGN

Diversion channels were conceptually designed using the Chezy-Manning equation:

$$Q = \frac{1.486\ AR^{2/3}S^{1/2}}{n}$$

where:

Q = flow, cfs
n = Mannings Roughness Coefficient
A = Cross sectional area
R_h = Hydraulic radius
S = Slope

Typical values of the rougness coefficient ranges between 0.022 and 0.030 for excavated or dredged earth channels, straight and uniform with short grass and few weeds (Grey, 1973). An average value of 0.027 was used for the calculations.

Channels were designed, where possible, for ease of construction and maintanence. A trapezoidal cross section with sides sloping at 45 degrees and a base width of 1.0 feet was

used. A typical cross section of ditch along side of the existing road and an enlarged cross section through a ditch are shown on Figures 5-1 and 5-2, respectively.

Table 5-1 shows the quantity of flow that will be carried by each ditch and the particular drainage sections that contribute to the flow. Table 5-2 summarizes the calculated depths of flow in each channel. OSM regulation requires a minimum free board of 0.3 feet for diversion ditch design. This criteria would be satisfied if all ditches were constructed to a depth of 1.0 feet.

It is recommended that the channels be seeded to aid in the prevention of erosion during peak flows.

Velocities, calculated from Mannings equation, indicate that they would be in the range of 10-12 feet per second at peak flow. Measures needed to reduce the velocities (cutting new ditches in undisturbed areas with reduced slopes) or to prevent erosion (lining the channels with rocks sufficient to resist erosion) are felt to be too destructive to justify the gains.

OSM regulation require energy dissipators at ditch stream interfaces if velocities of entering ditches are greater than that of the receiving stream. A situation of this nature occurs at only one place in the study area. This is where the outflow of Ditch A-B enters an existing stream. Here we would recommend that a rock check-dam be placed at the interface to be used as an energy dissipater.

5.3 CULVERT DESIGN

Existing culverts were checked to see if they could carry the required 10-year storm. The 24-inch culvert at a road/stream

TABLE 5-1
FLOW RATES TO BE CARRIED BY PROPOSED DITCHES

Ditch	CD	EF	GH	FH	AB	IJ
Drainage Section	I	I	I	I	II	VI
Q (cfs)	12.3	12.3	12.3	12.3	12.6	3.7

TABLE 5-2
SUMMARY OF CALCULATED FLOW DEPTHS
IN PROPOSED DITCHES

Ditch	Cross Section	Depth of Flow (ft.)
CD	Trapezoidal*	0.64
EF		0.64
GF		0.64
FH		0.64
AB		0.70
IJ		0.67

* Base = 1.0 ft, sides slope 45°

intersection southwest of the mine area will receive outflow from sections II and III resulting in a total flow of 25.8 cfs. The 24-inch culvert will carry this flow if the head water elevation is equal to 2.0 times the culvert diameter. Culvert flow quantities were determined using monographs for inlet controlled culverts in the Handbook of Steel Drainages and Highway Construction Products, 1971. The maximum flow through this culvert will depend on the type of entrance inlet of the culvert. Our design was based on an end section conforming to the fill. A cross section of this inlet is shown in Figure 5-3.

The other culvert which carries flow underneath the mine area is 42 inches in diameter. Outflow from sections II, III, IV and V would be carried by this culvert. Computations by others indicate that the culvert has a total capacity of approximately 52 cfs, and that the maximum flow as a result of a 100-year, 24-hour storm and 100 year, 6-hour storm are approximately 17 cfs and 19 cfs, respectively.

Respectfully submitted,

GOLDER ASSOCIATES

Charles W. Lockhart

REFERENCES

1. Gray, D.M., 1973. Handbook on the Principals of Hydrology. Water Information Center, Port Washington, NY, p. 8.5.

2. Handbook of Steel Drainage and Highway Construction Products, 1971. American Iron and Steel Institute, New York, NY, p. 152-175.

3. Kent, K.M., 1972. National Engineering Handbook, Section 4: Hydrology. Soil Conservation Service. U.S. Government Printing Office, Washington, D.C., p. 15-8.

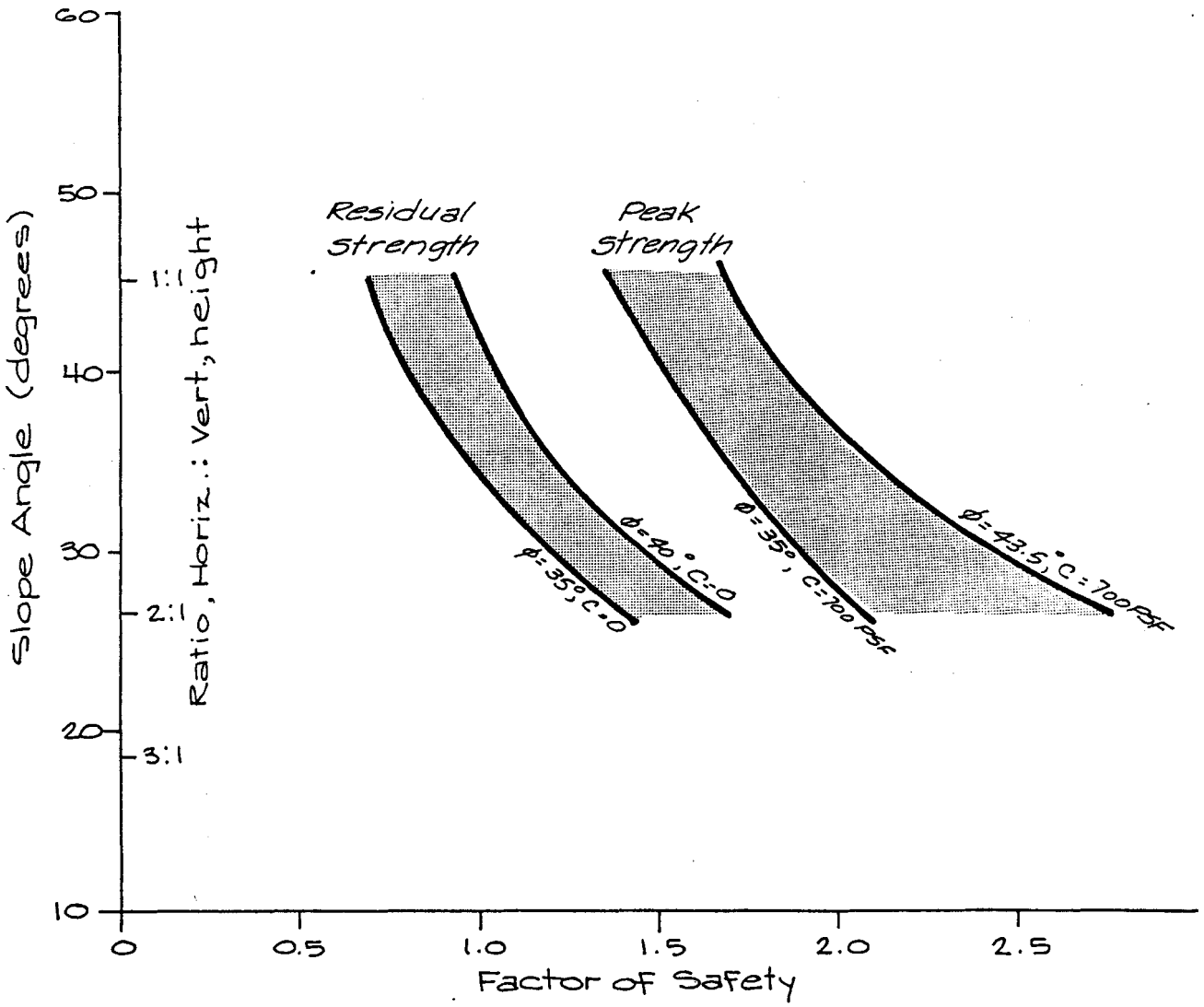
4. Richardson, E.A., 1971. Estimated Return Periods for Short-Duration Precipitation in Utah. Department of Soils and Biometeorology Bulletin No. 1. Utah State University, Logan, Utah.

5. Skelly and Loy, 1979. A Compliance Manual: Methods for Meeting OSM Requirements. McGraw Hill, Inc., New York, NY, p. 47-63.

6. Vaughn Hansen Associates, 1978. Office of Surface Mining Reclamation and Enforcement Compliance Survey in the Clear Creek, Utah Area. Report prepared for Valley Camp of Utah, Inc., Helper, Utah.

INFLUENCES OF SLOPE ANGLE AND STRENGTH PARAMETERS ON THE FACTOR OF SAFETY

Figure 1



Reviewed Date

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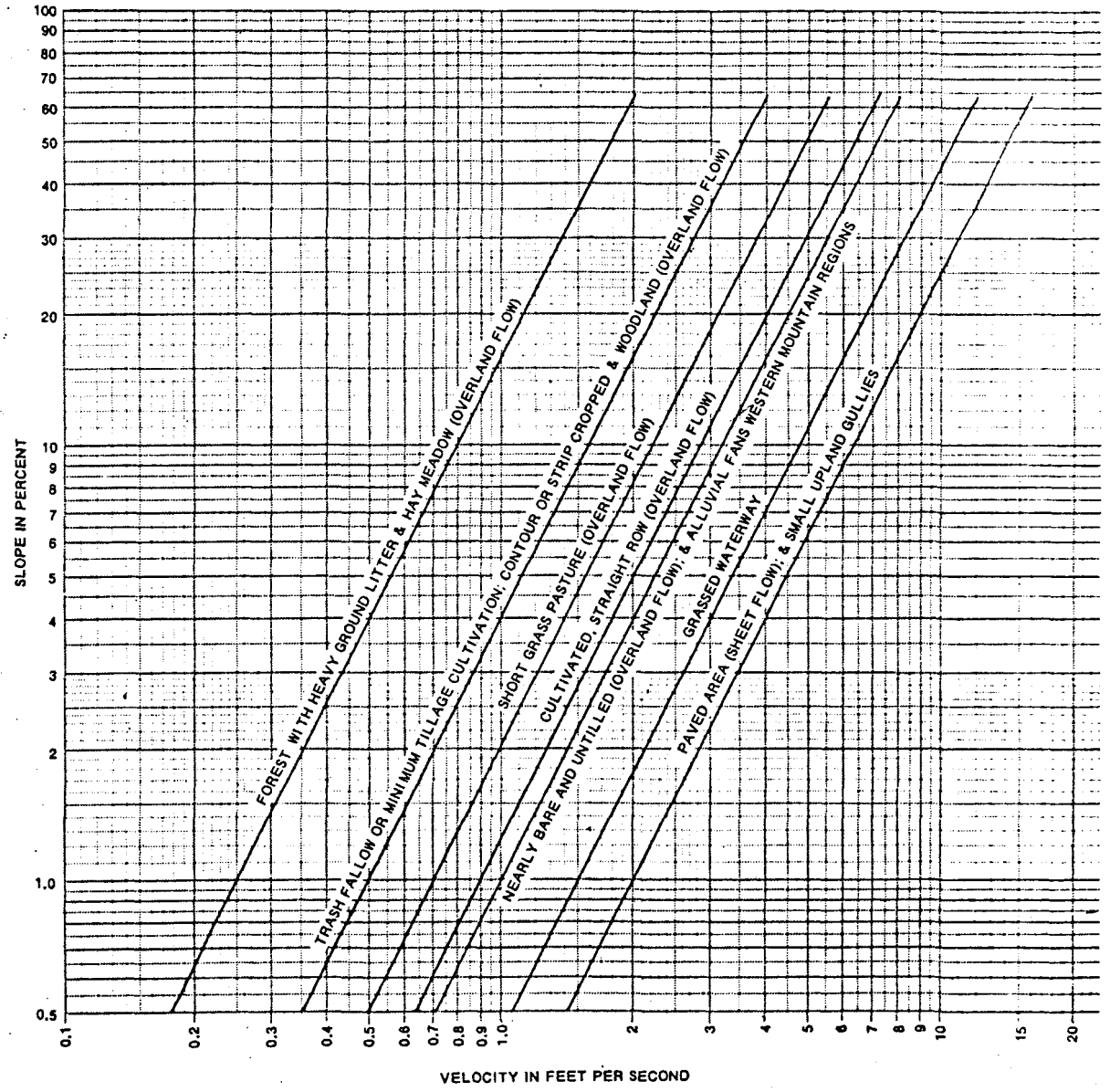
VELOCITIES FOR UPLAND METHOD OF ESTIMATING T_c

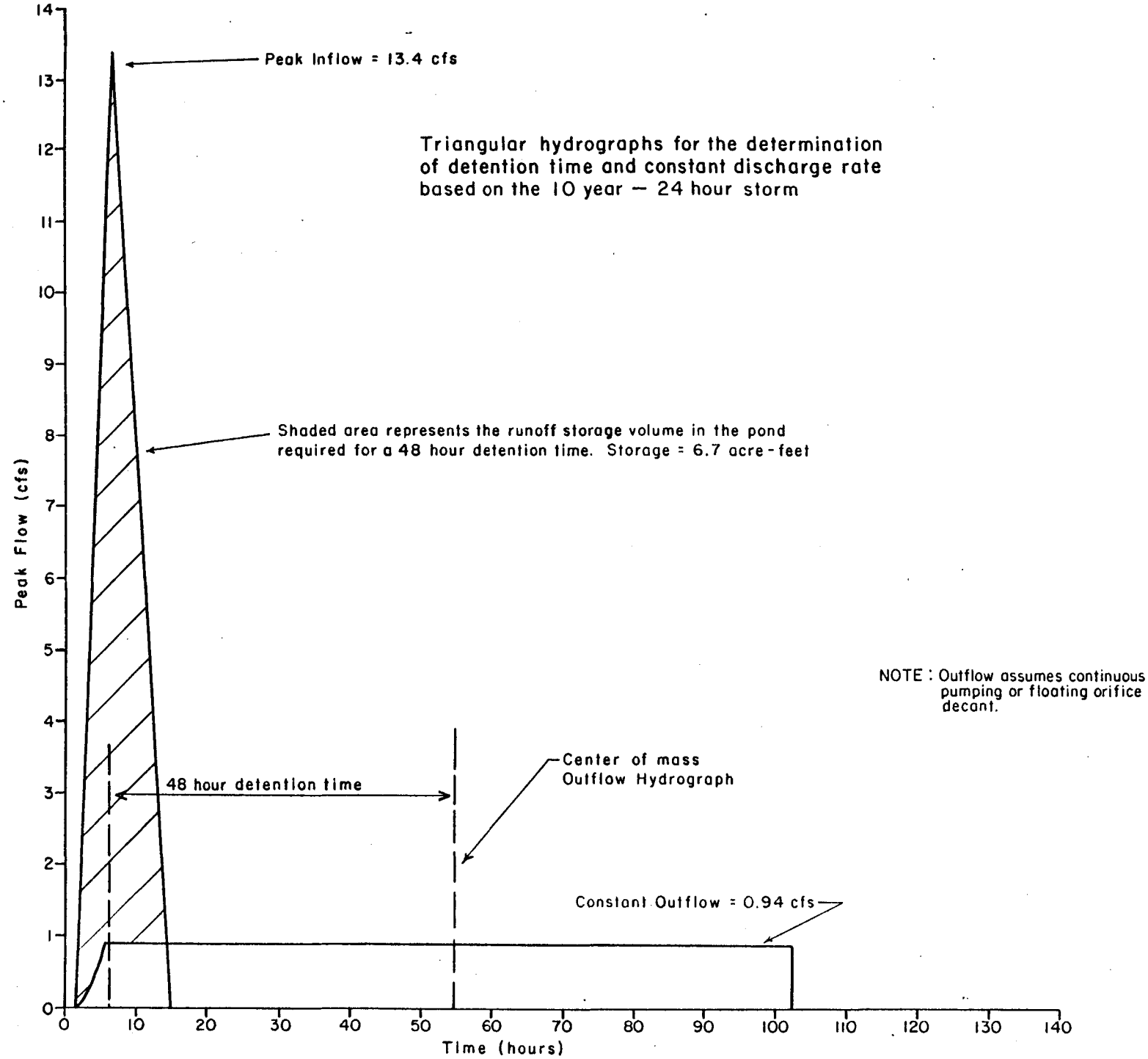
Figure 3-1



after Kent, 1972

Project No. 783-1138-1 Reviewed CWL Date 4-80

Project No. 783-1156A Reviewed PS Date 5/80



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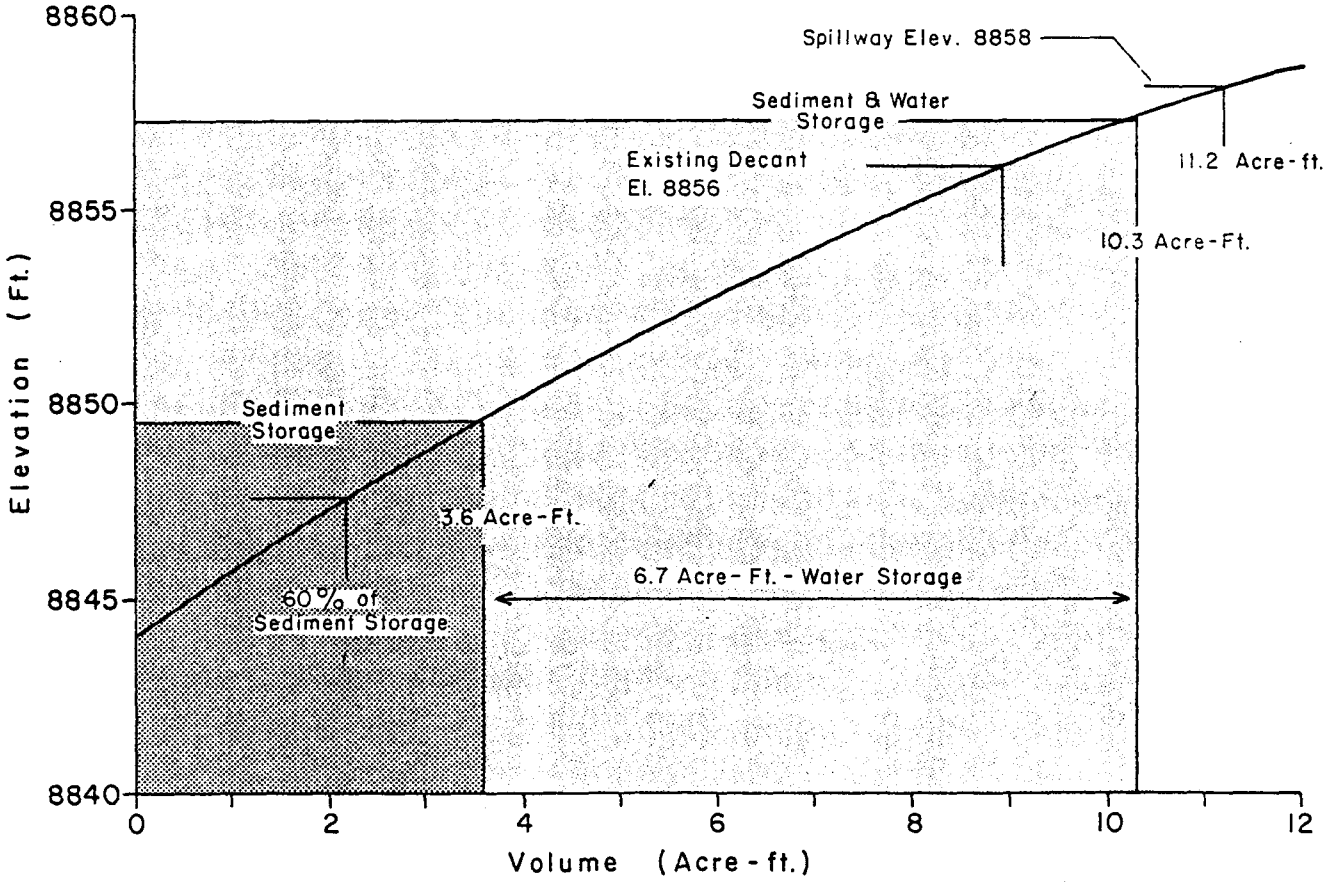
INFLOW AND OUTFLOW HYDROGRAPHS OF SEDIMENT POND

Figure 4-1

STAGE-STORAGE CURVE FOR SEDIMENT POND

Figure 4-2



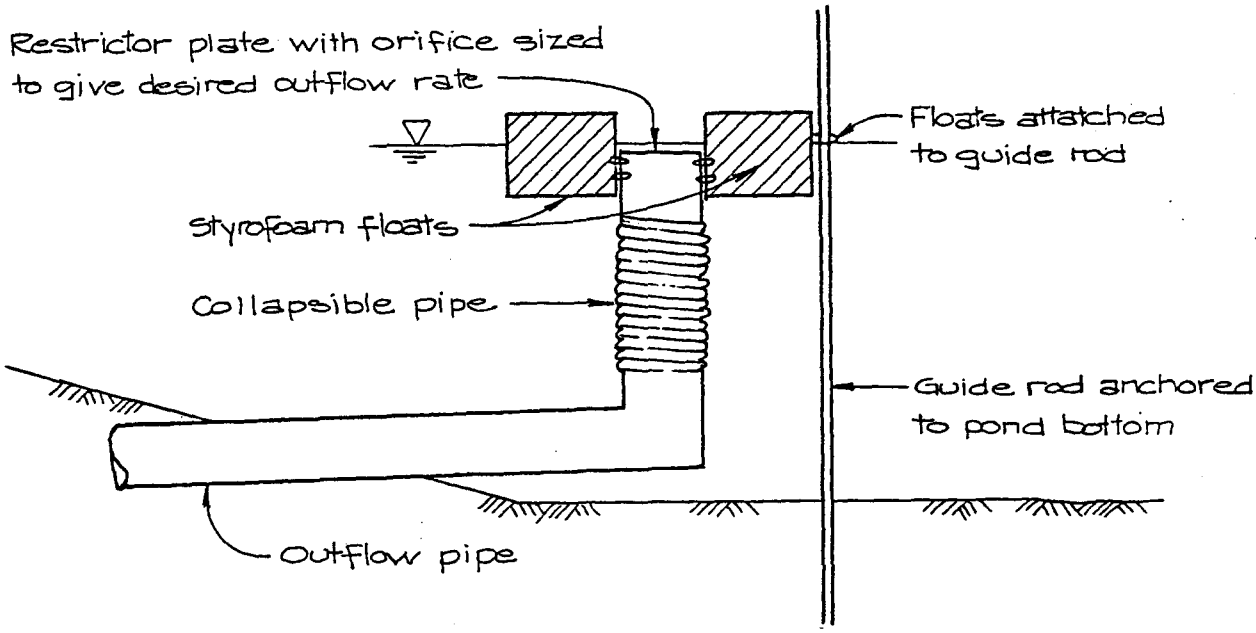
NOTE : Decant is fixed. Collected water must be removed by pumping.

Project No. 792-1554-A Reviewed [illegible] Date [illegible]

Golder Associates

FLOATING ORIFICE TYPE DECANT

Figure 4-3

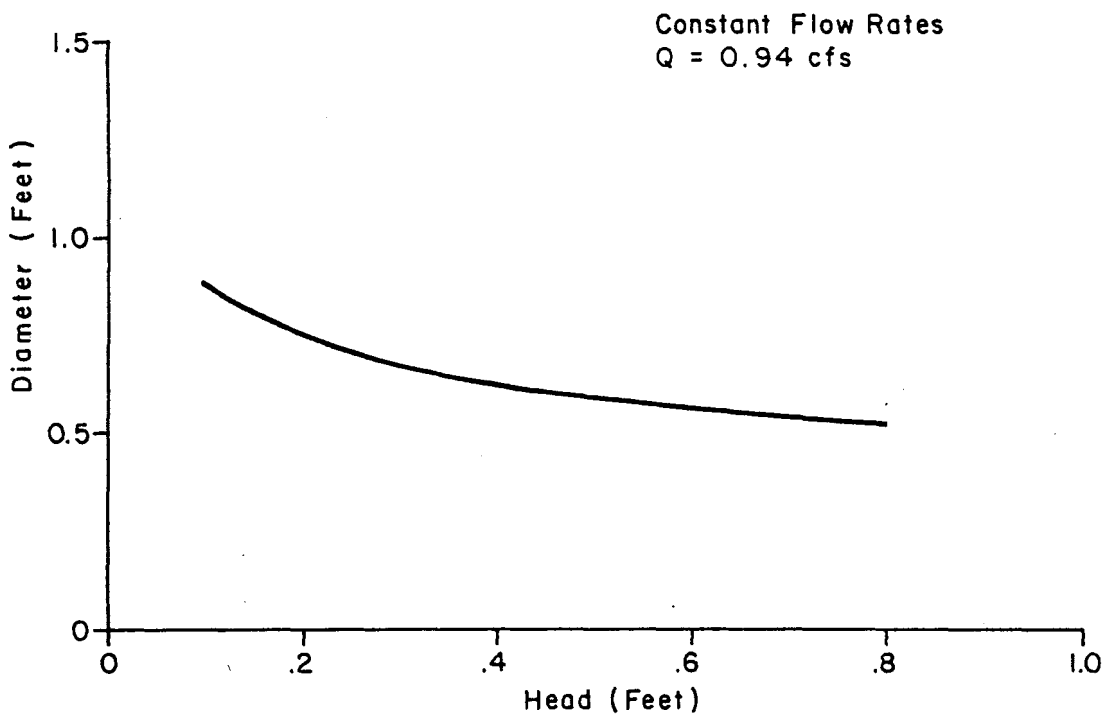


NOTES

1. Collapsible pipe must extend from maximum pool level to permanent pool level.
2. Inlet is attatched to floats so that it is submerged to give desired outflow rate.

Project No. 79 Reviewed LC Date 5/82

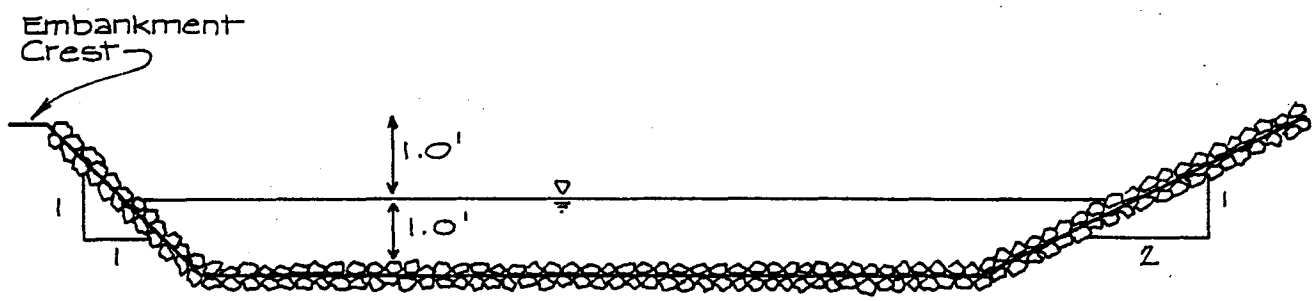
PIPE DIAMETER Vs. HEAD FOR CONSTANT FLOW RATE Figure 4-4



Project No. 783-1122-11 Reviewed: Date: 5/22

CROSS SECTION EMERGENCY SPILLWAY

Figure 4-5



$n = 0.040$
$S = 0.05$
$R = 0.84$ Ft.
$A = 11.50$ Ft.^{2}
$P = 13.65$ Ft.

$$Q_{max.} = \frac{1.486}{n} R^{0.67} S^{0.5} A$$

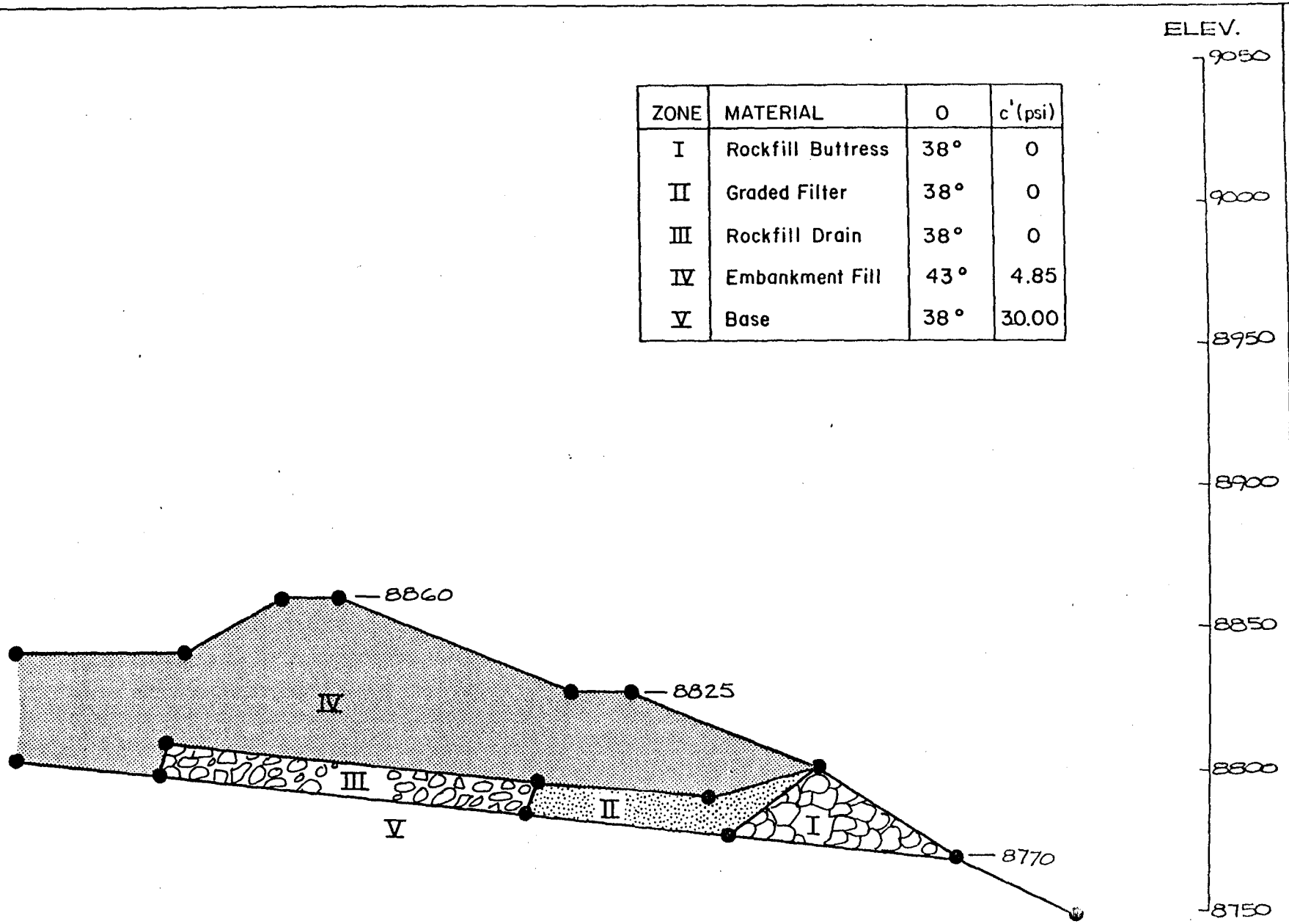
$Q_{max} = 85.0$ cfs

Scale: 1" = 2.5'

Project No. 27 Reviewed RC Date 5/83

Project No. 793-1 A Reviewed CWL Date 2-80

ZONE	MATERIAL	O	c'(psi)
I	Rockfill Buttress	38°	0
II	Graded Filter	38°	0
III	Rockfill Drain	38°	0
IV	Embankment Fill	43°	4.85
V	Base	38°	30.00



LONGITUDINAL GEOMETRY FOR VALLEY FILL

Figure 4-6

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Project No. 783-1156A
Project Valley Camp
Golder Associates
Date 6-1980
By HK

GRAIN SIZE DISTRIBUTION

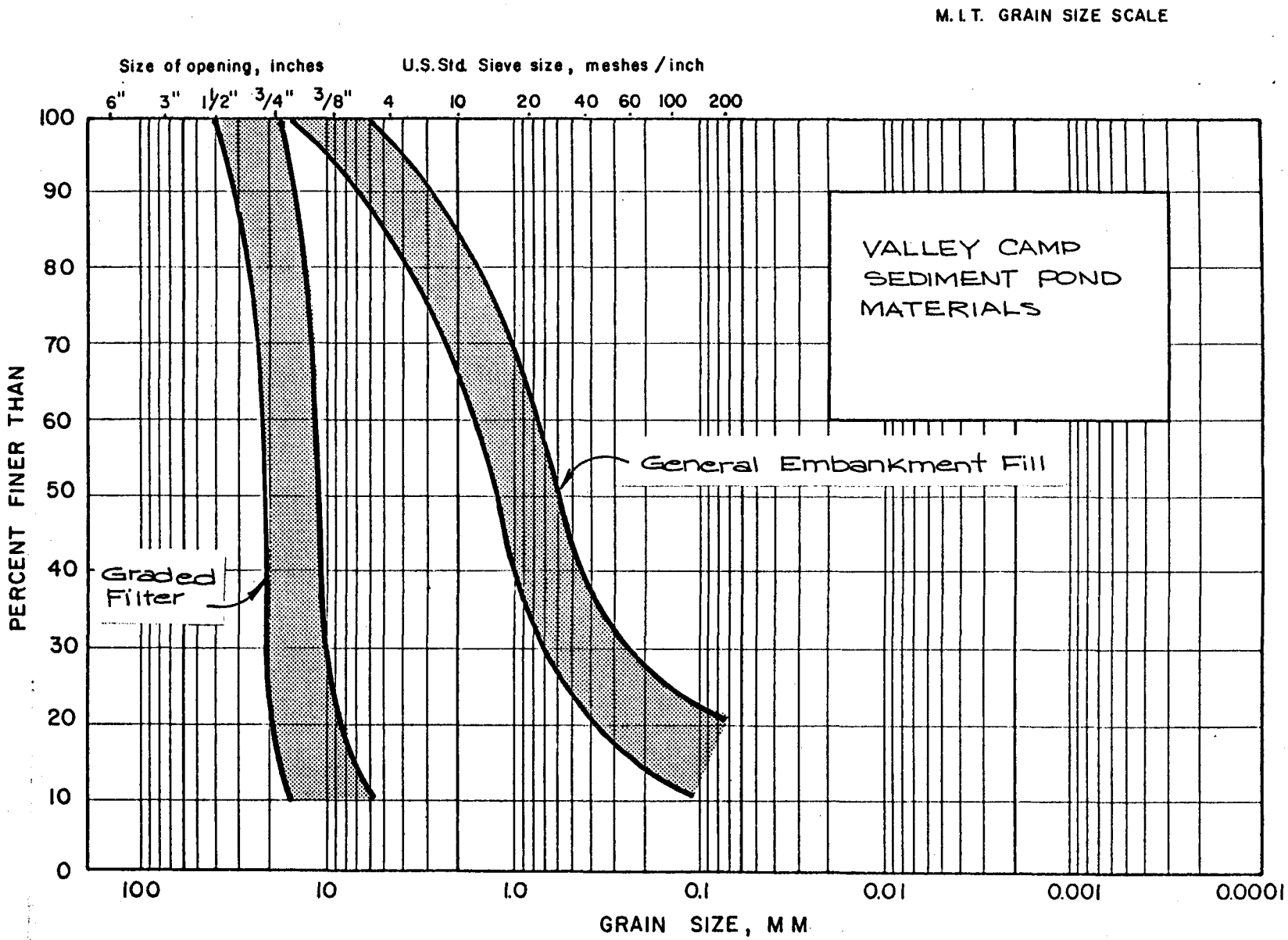
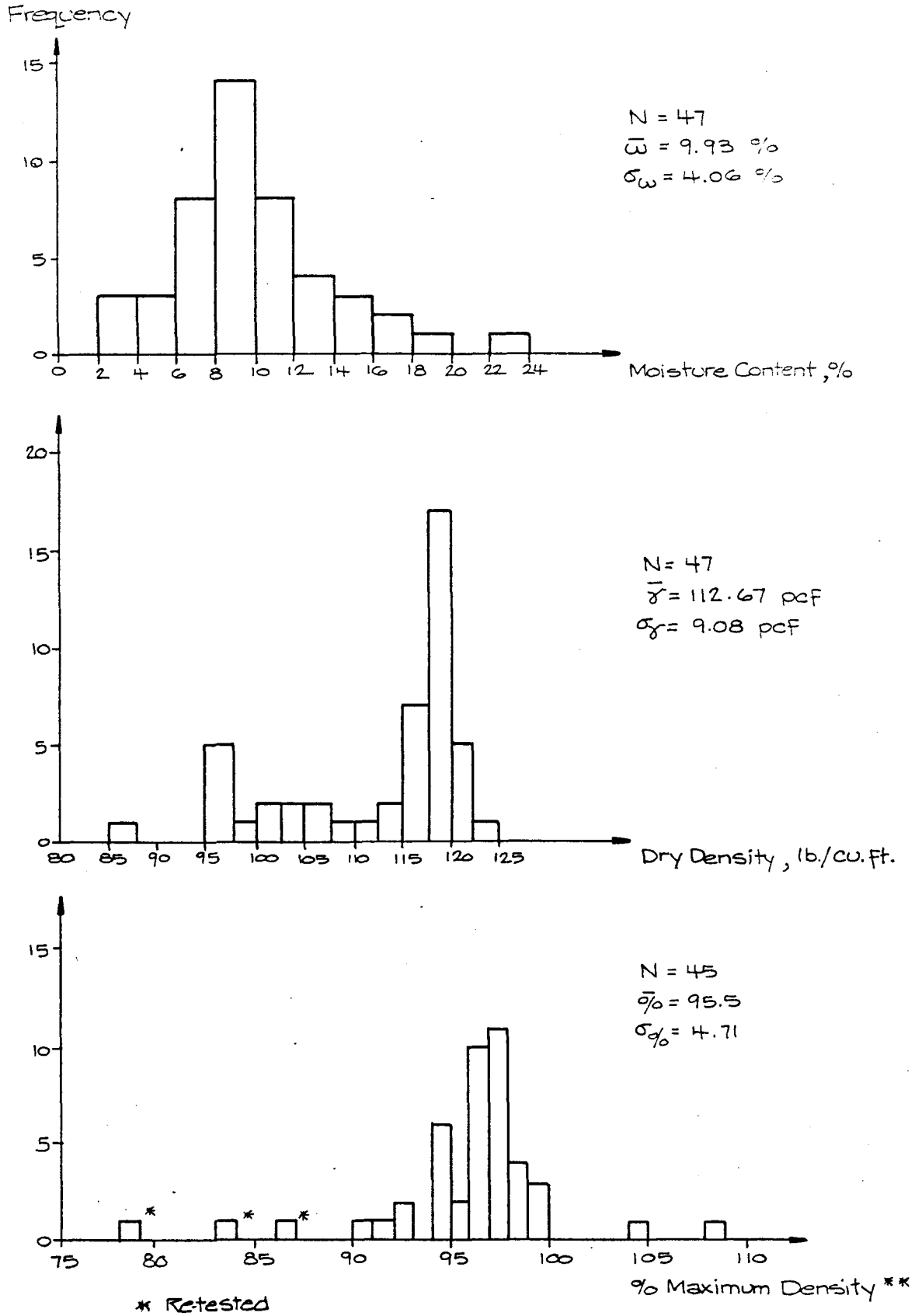


FIGURE 4-7

COMPACTION TEST RESULTS

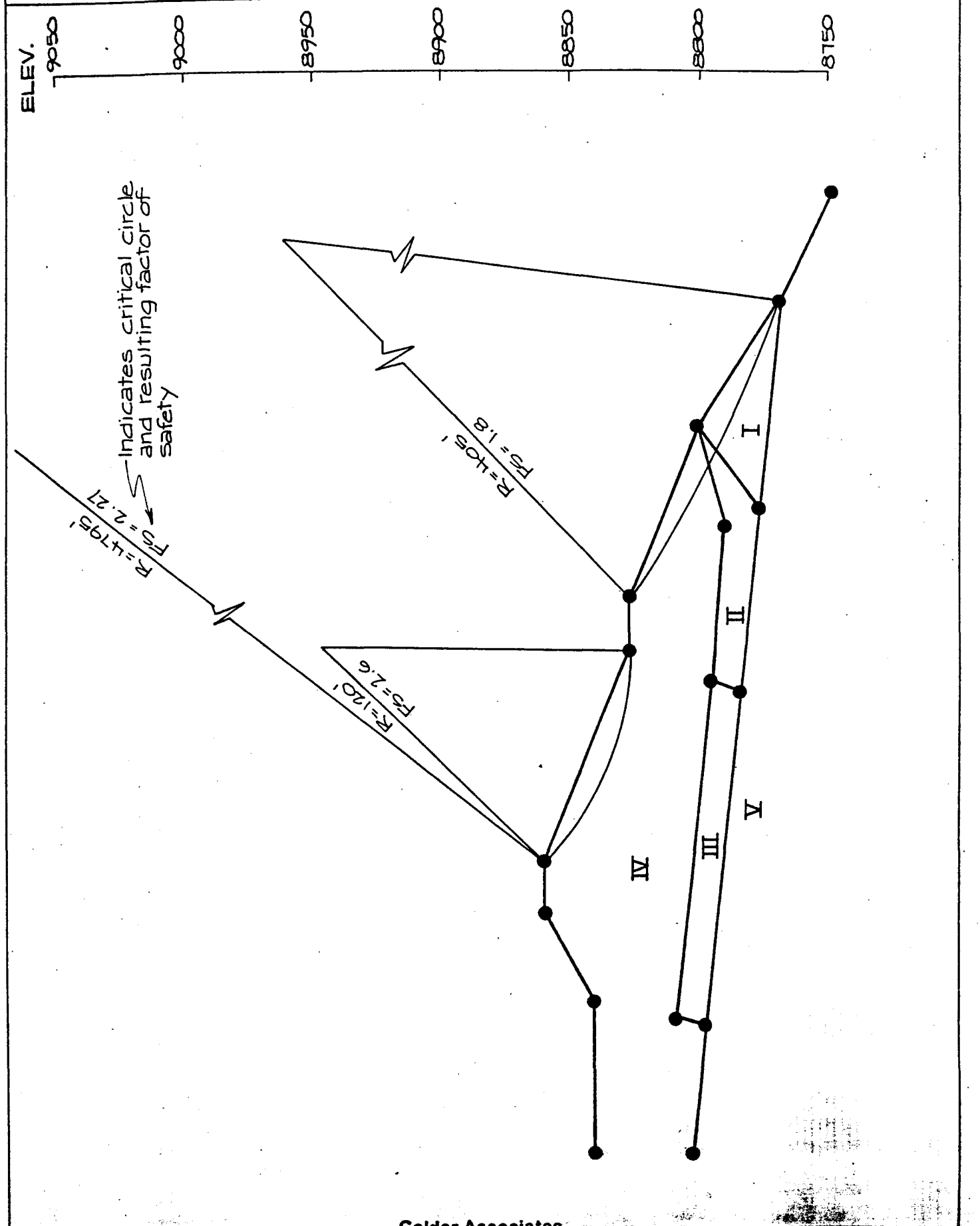
Figure 4-8



Project No. 793-1,564 Reviewed CHL Date 2-80

EMBANKMENT STABILITY ANALYSES
DRAINED

Figure 4-9



Project No. 792 364 Reviewed CWL Date 2-80

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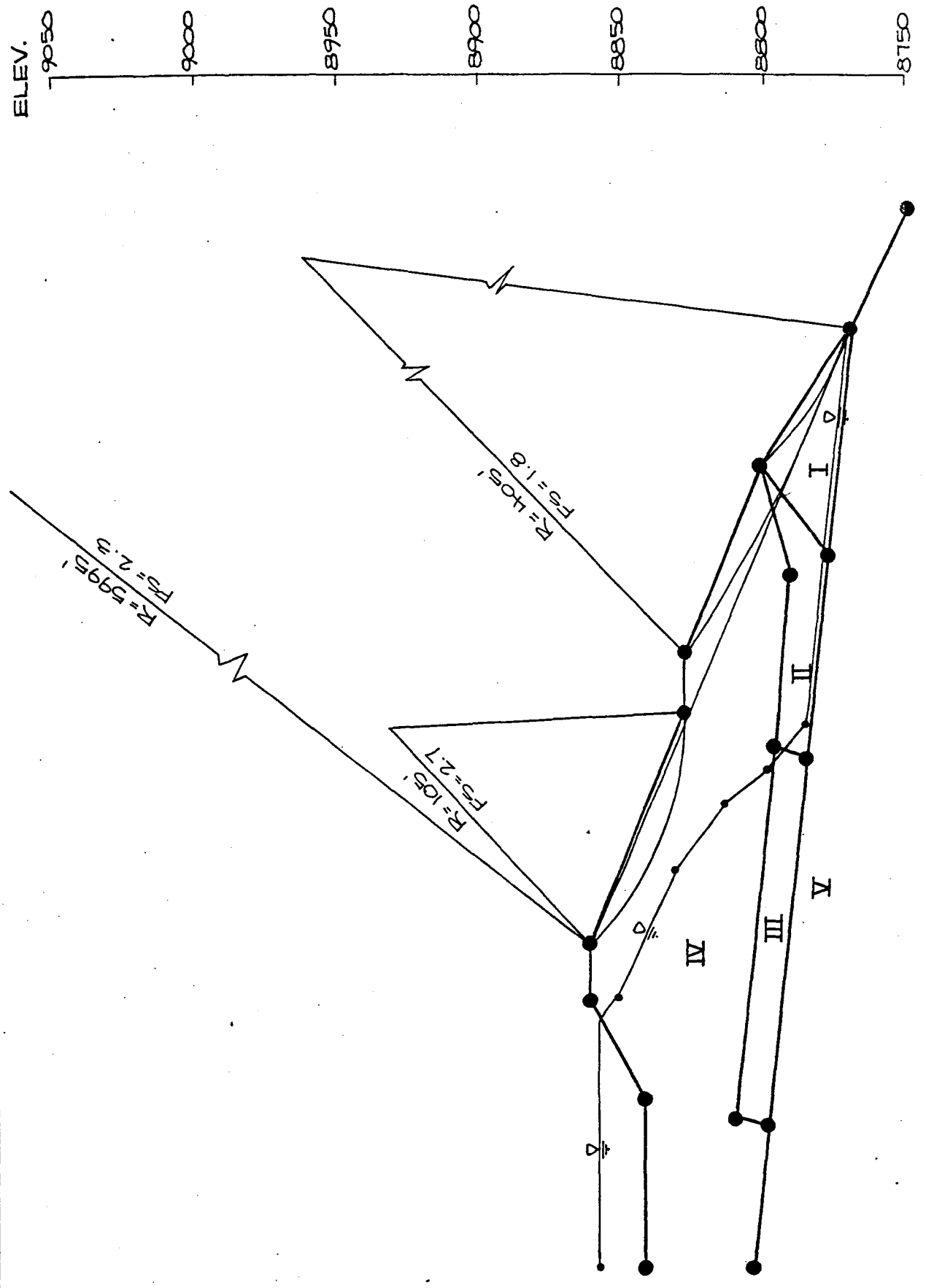
EMBANKMENT STABILITY ANALYSES
STEADY STATE — FULL DRAINAGE INTO II

Figure 4-10

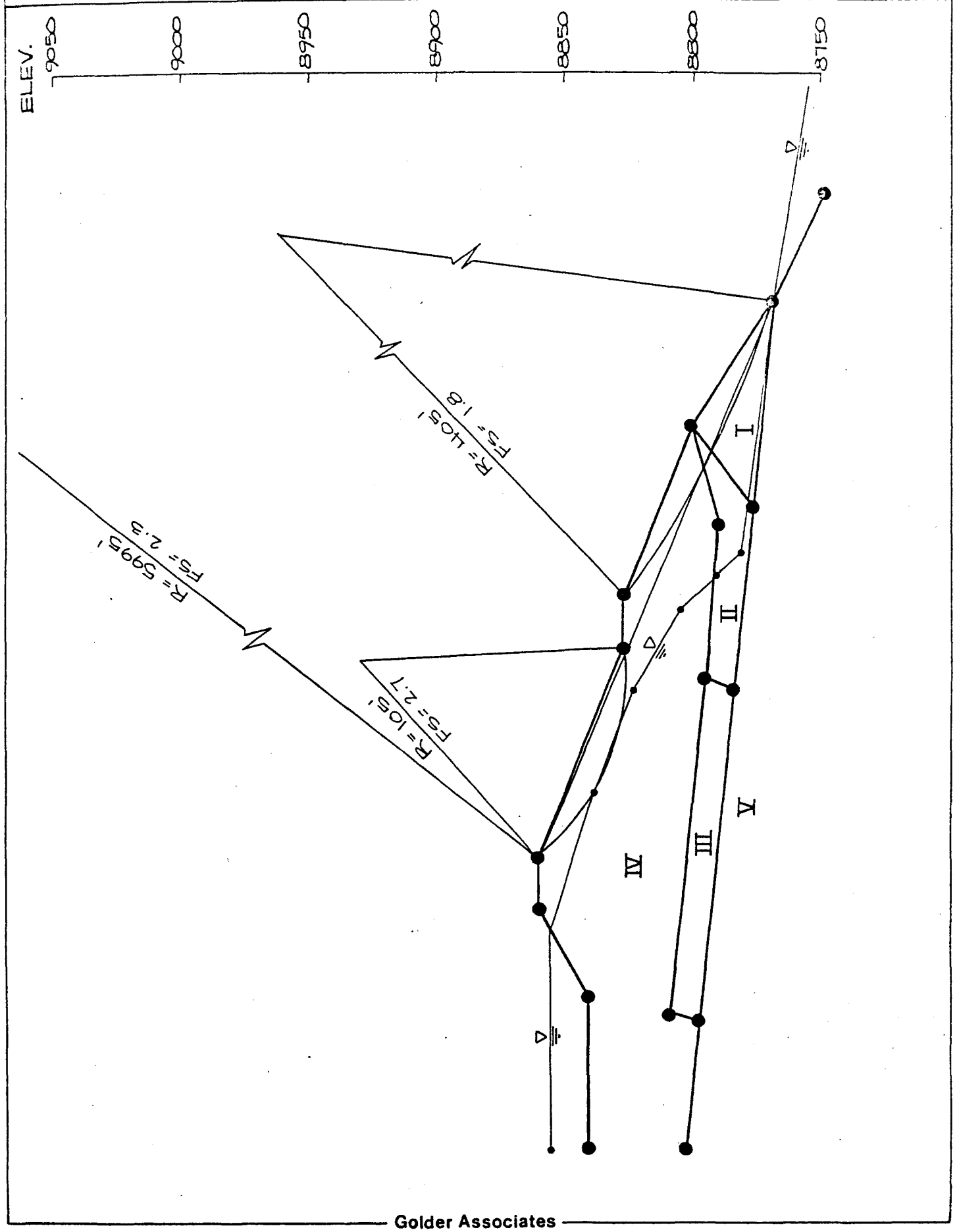


Project No. 793-1...6A Reviewed CWL Date 2-80

Golder Associates

EMBANKMENT STABILITY ANALYSES
STEADY STATE — II PARTIALLY CLOGGED

Figure 4-11



Project No. 783-1156A Reviewed CWL Date 2-80

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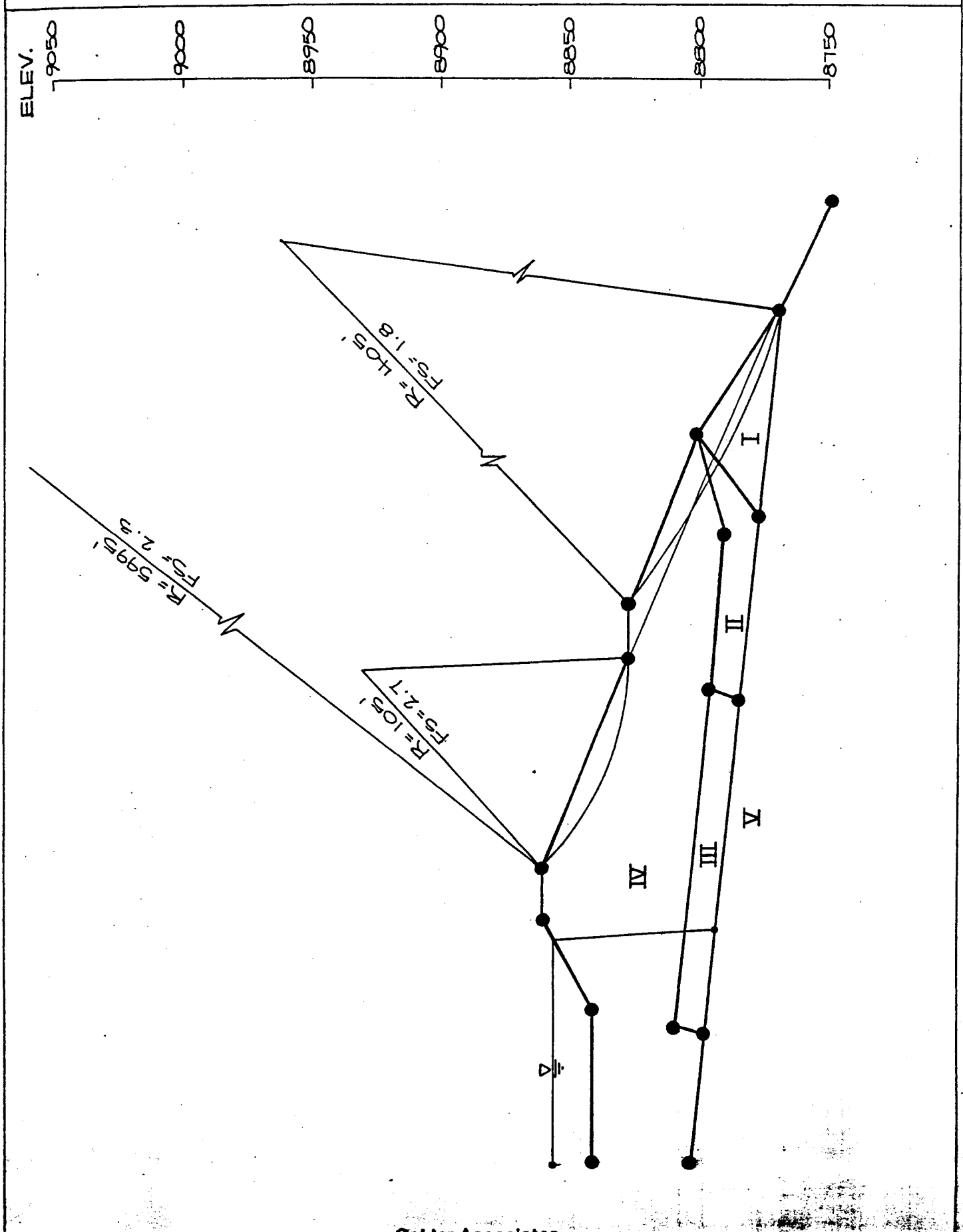
EMBANKMENT STABILITY ANALYSES
STEADY STATE — FULL DRAINAGE INTO III

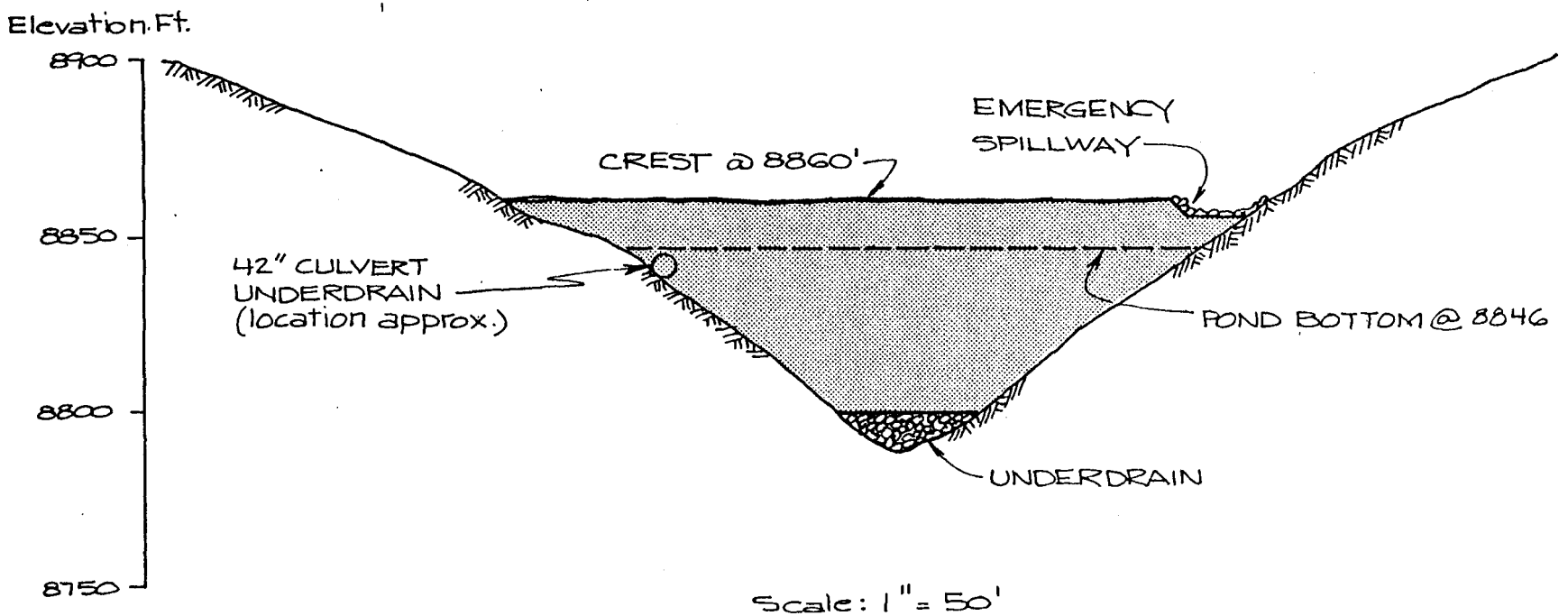
Figure 4-12



Project No. 78-564 Reviewed CWL Date 2-80

Golder Associates

Project No. 73-1156A Reviewed CWX Date 6-80



NOTE: Data from field survey undertaken by Valley Camp

VALLEY FILL CROSS-SECTION

Figure 4-13

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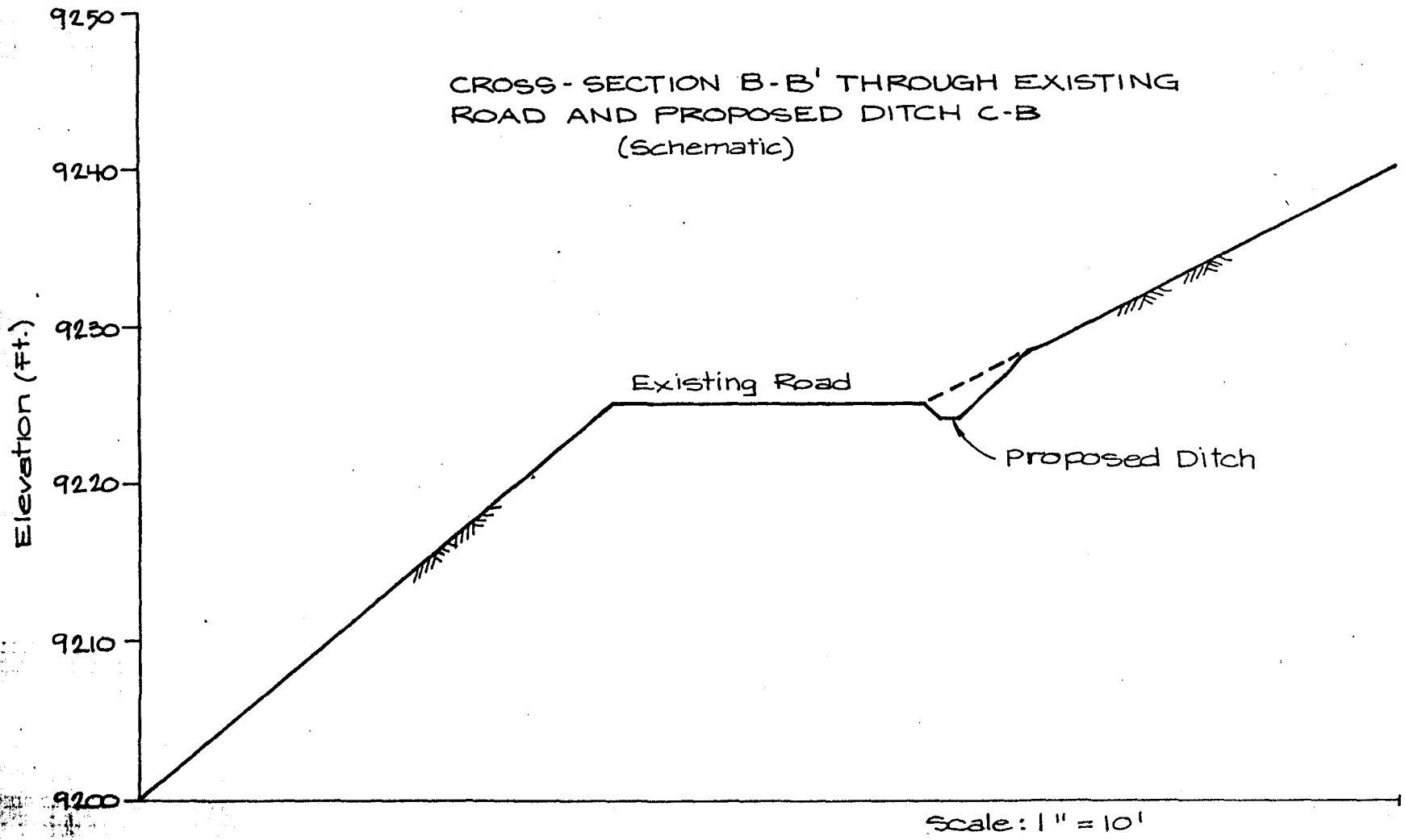
Project No. 783-1561 Reviewed CWL Date 4-80



TYPICAL CROSS-SECTION THROUGH
EXISTING ROAD AND PROPOSED DITCH C-B

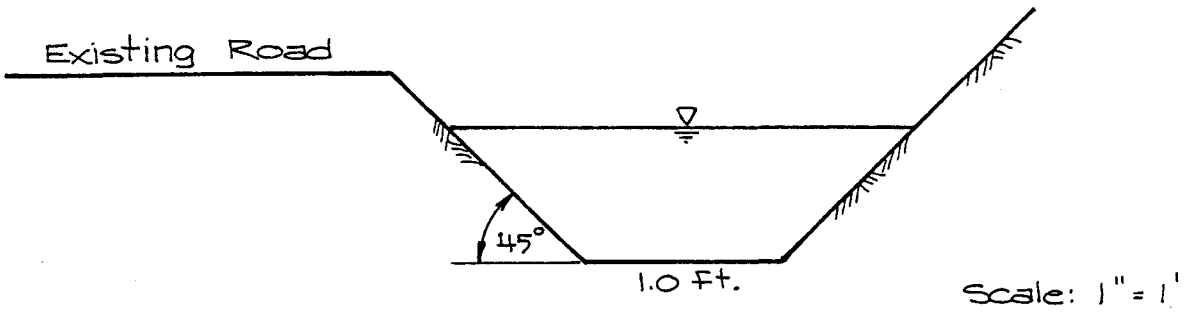
Figure 5-1

Golder Associates

CROSS-SECTION THROUGH DITCH
AND TYPICAL DESIGN CONFIGURATIONS

Figure 5-2

DITCH A-B
(Schematic)



$$Q = \frac{1.49}{n} R_h^{2/3} S^{1/2}$$

$n = 0.027$
$S = 0.089$
$Q = 12.6$ cfs

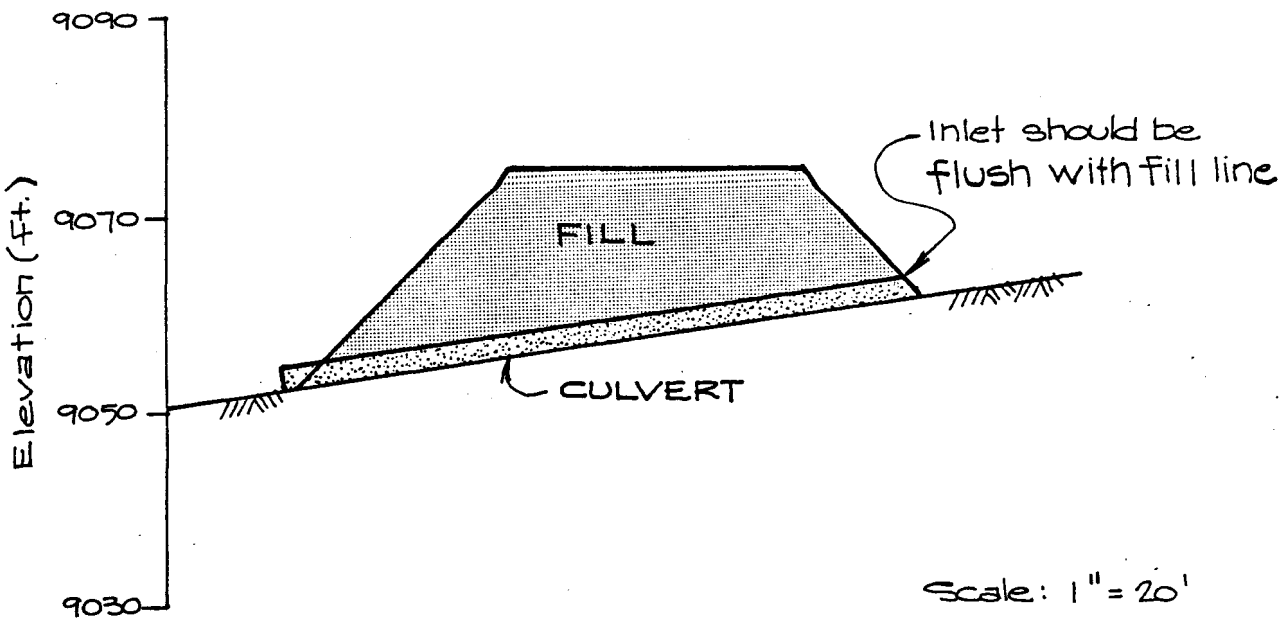
Depth of flow y was solved for by trial and error.

$\therefore y = 0.70$ ft.

Project No. 783-11269 Reviewed OAL Date 7-80

INLET CONFIGURATION FOR CULVERT

Figure 5-3



Project No. 783-1284 Reviewed OH Date 4-86

APPENDIX B

BELINA NO. 1 MINE - ROOF CONTROL PLAN

BELINA NO. 1 MINE - VENTILATION, METHANE AND DUST CONTROL PLAN

BELINA NO. 2 MINE - ROOF CONTROL PLAN

BELINA NO. 2 MINE - VENTILATION, METHANE AND DUST CONTROL PLAN

Reference: UMC 782.19

U. S. Department of Labor

Mine Safety and Health Administration
P O Box 25367
Denver, Colorado 80225

Coal Mine Safety and Health
District 9

August 13, 1981

W. H. Haynes, Jr.
President - Western Division
Valley Camp of Utah
Scofield Route
Helper, Utah 84526

Re: Belina No. 1 Mine
I. D. No. 42-01279
Roof Control Plan

Dear Mr. Haynes:

The roof control plan for the subject mine, submitted today and dated August 16, 1981, is tentatively approved. This tentative approval is granted to allow time for evaluation of the effectiveness of this plan with the exception of statement No. 4, Page 30. This exception is that should any change in sizes be made, prior approval will be required.

Sincerely,

John W. Barton
District Manager

BELINA NO. 1 MINE

ROOF CONTROL PLAN

August 23, 1976
Revised May 2, 1977
Revised September 1, 1978
Revised August 28, 1979
Revised March 18, 1981

General Information

Date August 16, 19~~80~~ 81 Mine I.D. NO. 42-01279

A. Company Valley Camp of Utah, Inc.

Address Scofield Route, Helper (City) Utah (State)

B. Mine Belina No. 1

Mine Location:

Scofield (City) Carbon (County) Utah (State)

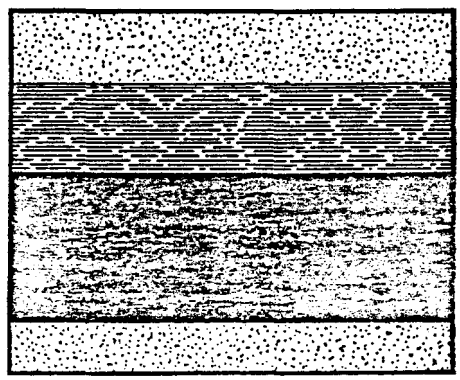
C. Location (Reference to nearest highway route, direction and distance)

3.2 Miles Southwest Off Route No. Utah 96

D. Type(s) of plan Full

E. Area(s) of mine covered by the plan Entries, rooms, crosscuts and pillars

F. Maximum cover 1081 Feet



G. W. H. Haynes Jr. President - Western Division
Company or mine official validating plan Title

Roof Control Investigator Theodore L. Coughlin William D. Stevens

This Roof Control Plan approved this date hereby supersedes all previously approved plans.

Approved by John W. Baxter 8-13-81 Date

Title District Manager (MSHA)

H. ROOF-SUPPORT MATERIALS - Roof Bolts

Manufacturer CF&I Steel Corp. Manufacturer's Designation 5772-1238-141.2

Mikco Industries None

OR Equivalent

Minimum length ~~48"~~ 60" Diameter 3/4 ~~High Strength~~ 5/8 Extra High Strength

Type steel Hot Rolled Type thread Rolled

Length of thread 6" to 8" Type head Standard (Standard, Self Centering, Cone Ne

Dimensions of bolt head: Nut 1-1/8" Flange 1-1/2"

I. BEARING PLATES

Manufacture Mikco Industries Manufacturer's Designation None

Pattin-West None

OR Equivalent

Dimensions ¼" x 6" x 6"

3/16" x 6" x 6" High Tensil

Shape Square and Embossed Center Hole Size 13/16"

J. WASHERS

Manufacturer N/A Manufacturer's Designation N/A

Type steel N/A Size N/A

Shape N/A Hole Size N/A
(Donut embossed, Bell embossed, Flat)

K. ANCHORAGE UNIT

Manufacturer Ohio Brass Manufacturer's Designation OB22378

Pattin-West 5792-0125-9

OR Equivalent

Type Standard Expansion Shell Size of Finished Hole 1-3/8"

Method of Drilling Rotary, Percussion or Combination Dust Control Vacuum and/or water

Installed torque 150 to 200 Foot-Pounds, Conventional

L. MATERIALS USED IN CONJUCTION WITH ROOF BOLTS

Cottonwood Blocks 2" x 8" x 12" (Min.) with one hole

Roof Bolt Mats as required --- See Drawing

M. FACE EQUIPMENT AND SECTION HAULAGE EQUIPMENT ASSOCIATED WITH EACH

1. Joy Continous Miner 12CM1-10BX; 950 AC Volt
2. 2 -- 10SC-22 Joy Shuttle Cars; 250 DC Volt
3. 1 -- Lee Norse Model TD-2-43-5-4E Roof Bolter
4. 1 -- Galis Model 320A Roof Bolter; 440 AC Volt
5. Kersey Scoop Tractor; Model PAST-24-S
6. MSA Trickle Duster
7. Galis Auxillary Fans; Model 1520 480 Volts
8. Wagner Scooptram
9. Jeffery Diesel Ramcar Model 37688
10. Joy RCS 220 Air Compressor

N. SEQUENCE OF MINING AND INSTALLATION OF SUPPORTS INCLUDING TEMPORARY SUPPORTS

Plan drawing showing sequence of mining including pillar mining where applicable, sequence of installation and spacing of supports including temporary supports and maximum width of entries, rooms intersections, crosscuts and pillar lifts are attached.

Entry Width 20 Feet

Entry Centers 70' - 100' Main Entries

Crosscut Width 20 Feet

Crosscut Centers 75 Feet - 120 Feet

Room Width 20 Feet

Room Centers 40 Feet - 80 Feet

Room Crosscut Width 19 Feet

Room Crosscut Centers 60 Feet Minimum

Slope Width (Anthracite) N/A

Gangway Width (Anthracite) N/A

O. ROOF SUPPORT MATERIAL-Conventional or Temporary and Supplemental

Length of Post As Required

Diameter of Post One (1) inch for each 15 inches in length up to 8 feet, but in no case will the diameter be less than 4 inches. For heights over 8 feet, the minimum allowable diameter will be 8 inches. Split posts shall have a cross-section area equal to that required for round posts of equivalent lengths. Smaller posts may be used provided they are set in clusters to provide equivalent support.

Type of Post Round or split of solid straight grain wood with the ends sawed square and free from defects which would affect their strength.

Cap blocks, size and shape (2"x4") x 6" x 30" Minimum

Wedges, size and shape (O"x1") x 6" x 10" Minimum

Crossbars, type Straight grain solid wood or metal - When required

Crossbars, size A minimum of 3 inches by 8 inches of varying length - when required

Planks, size A minimum of 1 inch by 8 inches of varying length - when required

Cribbing blocks, size A mimimum of 30 inches in length of varying cross section - when required

Mats 1/16 Ga. metal steel 2"-11" wide, 3'-9' long; 4-15 holes (2" dia.) per 9 sheet; corrugation spacing 5-7 1/2"; corrugation depth 6 13/16"; corrugation width 7' 2 3/4".

Wire mesh American Fence or equivalent

P. ARCH SUPPORT MATERIAL

Manufacturer Commercial Shearing OR Equivalent

Manufacturer's Designation

Maximum width 20' 0"

Minimum width 14' 0"

Maximum height 14' 0"

Minimum height 9' 0"

Size W8 x 24#/Ft.

Minimum load

Material A572 Grade 50

Lagging 3" x 12" x 3' 11 1/2" Minimum

Rods 3/4" x 51" with 3" thread at each end. (Min.)

Nuts 3/4" (2 per rod)

Pipe spacers Schedule 40 Minimum

Minimum length 3' 11 1/2"

ROOF SUPPORT MATERIALS FOR RESIN GROUTED RODS

A. RODS

Manufacturer Pattin-West — Manufacturer's Designation

Safeloc Systems

CF&I

OR Equivalent

Minimum length 60 inches — Diameter 3/4 inch Min.

Type Steel Grade 40 ASTM A-615 — Type Head Square

Minimum Yield

Dimensions of bolt head : Nut 1-1/8 inch — Flange 2 inch

B. BEARING PLATES

Manufacturer Mikco Ind. — Manufacturer's Designation

OR Equivalent

Dimensions 6" x 6" x 3/16" Pressed with bent corner and 1" or 1-1/8" Center Hole

Shape Square — Center Hole Size 1" and 1-1/8"

C. RESIN

Manufacturer Dupont — Manufacturer's Designation

Carboloy

OR Equivalent

Type Tube — Method of Drilling Rotary, percussion or combination

Size of Finished Hole 1" - 1 1/32" — Dust Control Water and/or Vacuum

SAFETY PRECAUTIONS FOR FULL BOLTING AND COMBINATION PLANS

1. This is the minimum roof control plan and was formulated for normal roof conditions while using the mining system(s) described. In areas where subnormal roof conditions are encountered, indicated, or anticipated, the operator shall provide additional support where necessary. If changes are to be made in the mining system that necessitates any change in the roof control plan, the plan shall be revised and approved prior to implementing the new mining system.

2. (a) All personnel required to install roof supports shall be trained by a qualified supervisor designated by mine management before being assigned to perform such work. This training shall insure that such persons are familiar with the functions of the support being used, proper installation procedures, and the approved roof control plan.

   (b) Supervisors in charge, and miners who install supports, shall be informed of an approved roof control plan and any changes in a previously approved roof control plan not later than their first working shift following receipt of the approved plan. As soon as possible, but no later than three weeks after receipt of this approved plan, all provisions contained herein shall be fully explained to all miners whose duties require them to be on a "working section." All new miners shall have the hazards of mine roof and ribs and the content of this plan explained to them before they start to work.

3. (a) Upon completion of the loading cycle, a reflectorized warning device, such as a "Stop" sign, shall be conspicuously placed to warn persons approaching any area that it is not permanently supported. It is to be emphasized that the warning device has been placed to cause the person to stop, examine, and evaluate the roof and rib conditions prior to entering the area.

   (b) Where required, the installation of temporary supports shall begin prior to moving the roof bolting machine into the place, unless roof bolting machines are equipped with acceptable automated temporary supports.

4. Only those persons engaged in installing temporary supports shall be allowed to proceed beyond the last row of permanent supports until temporary supports are installed. Before any person proceeds inby permanently supported roof, a

thorough visual examination of the unsupported roof and ribs shall be made. If the visual examination does not disclose any hazardous condition, persons proceeding inby permanent supports for the purpose of testing the roof by sound and vibration method and installing supports shall do so with caution and shall be within 5 feet (less if indicated on sketches) of a temporary or permanent support. If hazardous conditions are detected, corrective action shall be taken to give adequate protection to the workmen in the area involved.

5. When wooden material such as planks, header blocks, or crossbars are used between the plate and the roof for additional bearing surfaces, the use shall be limited to short-life openings (not to exceed 3 years) unless treated. Bearing plates used in conjunction with wooden materials shall be not less than 4 inches square or of equivalent area.

6. When installing permanent supports, temporary supports may be re-positioned in the sequence indicated on the attached sketches (pgs. 18 & 26). However, if it is necessary to remove temporary supports (other than those specified above) before permanent supports are installed, such temporary supports shall be removed by some remote means, or another temporary support shall be installed in such a manner that the workman removing the support remains in a supported area. Means of removal of such supports shall be approved by the District Manager.

7. Where it is necessary to perform any work such as extend line curtains or other ventilation devices inby the roof bolts, or to make methane tests inby the roof bolts, a minimum of two temporary supports shall be installed. This minimum is applicable only if they are within 5 feet of the face or rib and the work is done between such supports and the nearest face or rib. Other methods of providing temporary supports for this work will be used if equivalent protection is provided.

8. Where rehabilitation work is being done, the following temporary support pattern shall apply:

   (a) Where bolts are being replaced in isolated instances (such as where equipment has knocked bolts loose), one temporary support shall be installed within a radius of 2 feet from each bolt to be replaced. Does not apply when roof bolting machine is equipped with an ATRS system.

   (b) Where crossbars or roof bolts are being installed in an area where roof failure is indicated, a minimum

of two rows of temporary supports shall be installed on not more than 5 feet centers across the place so that the work in progress is done between the installed temporary supports and adequate permanent supports in sound roof.

9. (a) Where loose material is being taken down, a minimum of two temporary supports on not more than 5 foot centers shall be installed between the miner and the material being taken down, unless such work can be done from an area supported adequately by permanent roof supports.

   (b) To enable miners to perform their duties from a safe position without exposure to falling material, a bar of suitable length and design shall be provided on all mobile face equipment, except haulage equipment, and such bar shall be used when prying down loose material. (The length of the bar shall be suitable for the area involved in its use; i.e. construction area, roof-fall areas, and other mining areas require a bar of suitable length).

10. All metal jacks shall be installed with a cap block between the jack and the roof, unless an oversize bearing plate is provided (not less than 36 square inches).

11. Roof bolts shall be installed in the sequence shown in the drawings.

12. In each active working place where roof bolts are installed, at least one roof bolt hole shall be drilled to a depth of at least 12 inches above the anchorage horizon of the bolts being used to determine the nature of the strata. Such test holes shall be drilled at intervals not to exceed 22 feet. The test hole shall be either left open for examination or a roof bolt of a length equal to (or greater than) the required test hole depth may be installed and tightened provided adequate anchorage is obtained.

13. *An approved, calibrated torque wrench that will indicate the actual torque on the roof bolts by a direct reading shall be provided in each working section.

14. *Immediately after the first bolt is installed in each place, the torque shall be tested and, thereafter, at least one roof bolt out of every four shall be tested by a qualified person. If any of the bolts tested do not fall within the required torque range, the remaining previously installed bolts on this cycle shall be tested.

15. *On a daily basis, a spot check of torques will be performed on at least one out of each ten of the roof bolts from the outby corner of the last open crosscut to the face and a record kept of the results. The torque range is 150-200 ft. lb. This record is to show the number of roof bolts tested, number of roof bolts below the recommended range, and the number of the roof bolts above the recommended range. If the results show that a majority of the roof bolts are not maintaining at least seventy percent of the minimum torque required (fifty percent if plates bear against wood), or have exceeded the maximum required torque by fifty percent, supplementary support such as additional roof bolts, longer roof bolts with adequate anchorage, posts, cribs, or crossbars to be installed until a review of the adequacy of the roof control plan is made by an authorized representative of the Secretary of the Interior.

16. (a) Sidecuts will be started only in areas that are supported with permanent roof supports. Where the installation of additional supports is required prior to starting the sidecut, such supports shall be set on 5 foot centers. Once the sidecut has been completed, the sidecut shall be supported by either temporary or permanent supports prior to working in the intersection.

    (b) During development, except where old workings are involved, mine openings shall not be holed through into unsupported areas. When a mine opening holes through into a permanently supported entry, room, or crosscut, the intersection so created shall be considered unsupported, and no work shall be done in or inby such intersections until either:

        (i) The newly created opening is permanently supported as indicated in the approved roof control plan, or;

        (ii) The newly created opening is timbered off with at least one row of posts installed on not more than 5 foot centers across the opening.

17. Posts installed for the purpose of roof support, shall have a wooden cap block, plank or crossbar between the post and roof. Where crossbars or planks are installed, they shall be blocked to equally distribute the load across their length.

18. Posts shall be installed tight and on solid footing. Not more than two wooden wedges shall be used to install a post.

19. A supply of suitable roof support material including temporary supports sufficient to support the roof during one complete cycle of mining shall be provided within 5 crosscuts outby each section dumping point.

20. An additional supply of supplementary roof support material consisting of roof bolts, at least 12 inches longer than the bolt length being used, and posts of proper length with sufficient cap pieces and wedges, shall be provided at the mine site or a dumping point inside which would allow for delivery to any section of the mine within 30 minutes. (The roof bolts, 12 inches longer, do not apply to resin installations).

21. A suitable roof sounding device shall be provided with all mobile face equipment except haulage equipment. If face workmen who are not operators or helpers on such equipment do not carry a roof sounding device, such device shall be available within 250 feet of their working area.

22. (a) Where roof falls have occurred and at all overcast, boom holes, and other construction sites that require removal of mine roof material, (e.g. by blasting, by ripping with a continuous mining machine, by cutting with a cutting machine, or any other means), the roof shall be considered unsupported. If miners are required to enter such areas either to travel over the fallen material, to clean it up, or perform other duties, the roof shall be supported adequately. Mine Management shall devise and have posted in writing at the scene of such unsupported roof, a plan describing the procedures to be followed for Working Roof Falls.

    (b) All roof falls and other areas in the active workings where the mine roof material has been removed from its natural location by any means, and is not being cleaned up, shall be posted off at each entrance to the area by at least one row of post (or the equivalent) installed on not more than 5-foot centers across the opening.

23. On all active haulageways, all crossbars or beams shall be installed with some means of support that will prevent the beam or crossbar from falling, in the event the supporting legs are accidentally dislodged.

24. Devices such as spherical washers, angle washers, or slotted wood wedges, should be used to compensate for the angle when roof bolts are installed at angles greater than 5° from the perpendicular to the roof line.

25. All roof bolt materials shall be stored and handled in such a manner that will minimize damage to the materials.

26. All unintentional roof falls defined in Title 30, CFR Part 50, shall be investigated and the results of the investigation recorded in a book provided for that purpose. Such falls shall be shown on a map of the mine.

27. In areas where steel arch supports (Dwg. No. A5-0016) or crossbars (Dwg. No. A5-0014) are being installed, roof bolting, as normally done, will not be required. Roof bolting may however, be used to supplement the installation of either crossbars or steel arches.

* NOTE: Does not apply to Resin Bolting Procedures

28. All roof bolts will be installed at least to a depth of 24" above the Coal seam. GPA

SAFETY PRECAUTIONS

AUTOMATED TEMPORARY ROOF SUPPORT

1.

Roof Bolter Manufacturer	Model Number	Serial Number	Minimum Load Carrying Capacity
1. Lee-Norse	TD2-43	21271	17,318 lbs.
2. Lee-Norse	TD2-43	21343	17,318 lbs.
3. Lee-Norse	TD2-43	21374	17,318 lbs.
4. Lee-Norse	TD2-43	21447	17,318 lbs.
5. Lee-Norse	TD2-43	21449	17,318 lbs.

2. Automated temporary roof support systems shall be used in lieu of conventional temporary supports in all faces where they will reach the roof. (See also Item No. 14).

3. Upon completion of the loading cycle, a reflectorized warning sign, such as "STOP" or "CAUTION - UNSUPPORTED ROOF", etc., shall be provided to warn persons approaching the area that it is not permanently supported, and such signs, etc., shall remain in place until installation of permanent supports is started.

4. The controls necessary to position and set the automated support shall be located in such a manner that they can be operated from under permanent support.

5. This automated support system may be used in all working sections and falls, or construction areas where it can be used safety and correctly.

6. A check valve or equivalent protection shall be incorporated in the automated temporary support system to eliminate the danger of collapse through sudden loss of oil due to a broken hose.

7. No one shall proceed inby the automated support system unless a minimum of two temporary supports are installed not more than five feet apart and within five feet of permanent support, face or ribs, and the work is done between such supports and/or the nearest face or rib.

8. The roof bolter operator shall not proceed inby the last complete row of bolts until the safety arm support is placed firmly against the roof at the point where the work is to be performed.

9. While drilling, the center of the safety arm support shall be against the roof, and shall be no more than 5 feet from the last complete row of bolts and either the coal rib or an installed bolt. (See also Item No. 14).

10. At least two safety jacks shall be available in the section to be used when unusual or adverse roof conditions are encountered, and the automated temporary support does not provide adequate protection for the operator. Timber may be used in place of safety jacks, if height requires.

11. Where crossbars are being installed, they may be moved into place and secured against the roof with the automated support system before persons proceed inby permanent supports to install legs under the bars.

12. The temporary roof support requirements stated elsewhere in the plan do not apply where the roof bolting machine is equipped with an acceptable A.T.S. system. This does not preclude the use of temporary supports for additional safety precautions during periods of inactivity such as strikes and mine shutdowns. Temporary supports may also be used to make necessary face tests and to assist in ventilation.

13. In areas that have been mined, or have fallen above the height limit of the automated temporary support system, a maximum of one (1) crib block may be used to allow the support to be pressured against the mine roof.

14. The manner in which the A.T.S. system is otherwise employed shall be consistent with the approved roof control plan.

SAFETY PRECAUTIONS FOR RESIN GROUTED RODS

1. All safety precautions required in the regular roof control plan will be followed, except the torque test required for conventional-type roof bolts will not apply. If failure occurs, the bolting operation will discontinue until the reason for failure has been determined. If the reason for failure cannot be determined, changes in the roof bolting procedure will be made to adequately support the roof, or supplemental supports will be used.

2. Persons responsible for the installation of resin rods will be taught the installation procedures recommended by the manufacturer, including the safe handling precautions of the resin material.

3. Drill steels will be equivalent in length to the rods used or adequately marked to assure proper hole depth. Each drill hole will be filled the entire length with resin.

4. All resin grouted rods will be used with bearing plates approved for use. The bearing plate or the wood material between the bearing plate and the roof will be tight against the mine roof.

5. Resin packages will be stored in an area where the temperature is within the range recommended by the manufacturer.

6. Broken cartridges or cartridges which show signs of deterioration will not be used.

7. Resin grouted rods and conventional roof bolts will not be intermixed during systematic bolting cycles, except that intermixing may occur in areas where supplementary supports are required.

8. Resin cartridges will not be used if the recommended shelf-life has been exceeded, unless written autorization for use is permitted by the manufacturer or an authorized representative of the manufacturer.