TRACKING FORM

I. KEY FEATURES OF PERMITTEE'S AMENDMENT APPLICATION

Permittee	Mine Name	Amendment #	Date Received / By
Co-Op Mining	Bear Canyon Mine	ACT/015/025-96C	8-6-96 hand delivered Pete

Proposal: Ditch D-8D Concrete Crossing Structure

Description: Instal a concrete structure for the Ditch D-8D Water Bar in order to minimize erosion + prevent phupical damage to trucks which cross the Water Bar. Will also reduce drainage control maintenance

II. AMENDMENT CLASSIFICATION

☐ Major Amendment	Public Notice Required	☐ Yes	☒ No
☒ Minor Amendment	Outside of Permit Area	☐ Yes	☒ No
	Outside of Disturbed Area	☐ Yes	☒ No

III. SUMMARY OF DOGM PROCESSING DATES

		FOLLOWUP REQUIREMENTS		
Reviews Completed	9/4/96			
Approved Effective	9/4/96	MRP "After Const" Documents	☐ Yes	☒ No
Disapproved		TA	☐ Yes	☐ No
Mailed		CHIA	☐ Yes	☐ No
Filed MRP - SLO		Responds Within 15 days of Receipt? ☒ Yes ☐ No If no, explain below. Deficiency Letter Sent 8/9/96 Resubmitted 9/3/96 Approved 9/4/96		

IV. COORDINATED REVIEWS

EXTERNAL AGENCIES (Mine Specific) (Adverse Comments, If Any, Include in Item V)	COPY SENT	CONTACTED	DOGM REVIEWS/DISCIPLINES		
OSM	☐ Y ☐ N	☐ C ☒ N/A	Generalists ____	☐ Yes	☐ N/A
BLM	☐ Y ☐ N	☐ C ☒ N/A	____ INTERDISCIPLINARY APPROACH		
US Forest Service	☐ Y ☐ N	☐ C ☒ N/A	- Administrative ____	☐ Yes	☐ N/A
US Fish & Wildlife	☐ Y ☐ N	☐ C ☒ N/A	- Biology ____	☐ Yes	☐ N/A
US National Parks	☐ Y ☐ N	☐ C ☒ N/A	- Engineering PHH	☒ Yes	☐ N/A
UT Environmental Quality	☐ Y ☐ N	☐ C ☒ N/A	- Geology ____	☐ Yes	☐ N/A
UT Wildlife Resources	☐ Y ☐ N	☐ C ☒ N/A	- Hydrology ____	☐ Yes	☐ N/A
UT State History	☐ Y ☐ N	☐ C ☒ N/A	- Soils ____	☐ Yes	☐ N/A
UT Water Rights	☐ Y ☐ N	☐ C ☒ N/A	- Permitting ____	☐ Yes	☐ N/A
UT SITLA	☐ Y ☐ N	☐ C ☒ N/A	- Other ____	☐ Yes	☐ N/A
Other ____	☐ Y ☐ N	☐ C ☒ N/A			

V. FOOTNOTES/ADDITIONAL EXPLANATION AS NECESSARY

8/9/96 - No Design Submitted - Map, Bonding, Text OK
Deficiency Letter Sent 8/9/96 /PHH
9/3/96 - Design submitted/P.E. certified
Approved 9/4/96 Peter Hess

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

August 9, 1996

Charles Reynolds, Environmental Coordinator
Co-Op Mining Company
P. O. Box 1245
Huntington, Utah 84528

RE: Letter of Deficiency, Ditch D-8D Concrete Crossing Structure, Co-Op Mining Company, Bear Canyon Mine, ACT/015/025-96C, Folder #2, Emery County, Utah

Mr. Reynolds:

I have reviewed your submittal for the aforementioned. This amendment has been designated as **96C** by this office.

Your submittal is deficient in that a design has not been submitted. Please refer to the requirements listed under R645-301-742.423, Page 87. Although the water bar crossing has been designed to safely pass the 10 year 6 hour precipitation event, a new design must be submitted for the concrete crossing structure.

Thank you for your attention in this matter.

Sincerely,

Peter Hess
Reclamation Specialist III

sd
cc: Joe Helfrich, DOGM, SLC

CO-OP MINING COMPANY

P.O. Box 1245
Huntington, Utah 84528

Office (801) 687-2450
FAX (801) 687-5238
Coal Sales (801) 687-5777

August 5, 1996

Peter Hess
Utah Division of Oil, Gas & Mining
C.E.U. Box 169, 451 East 400 North
Price, Utah 84501-2699

RECEIVED
AUG - 6 1996
DIVISION OF OIL
GAS & MINING PRICE UTAH

Mr. Hess,

96C

Re: Ditch D-8D Concrete Crossing Structure, Bear Canyon Mine, ACT/015/025, Emery County, Utah

Enclosed is an amendment to the Bear Canyon MRP. The amendment involves installing a concrete structure for the Ditch D-8D Water Bar in order to minimize erosion and prevent physical damage to trucks which cross the water bar. The amendment will also reduce drainage control maintenance.

The proposed changes have been marked using a redline/strikeout format to distinguish the changes from the previously approved pages. Upon approval, finalized copies will be sent to the Division. If you have any questions, please call Charles Reynolds at (801) 687-2450.

Replaced by 9/3/96 Submittal

Enclosure(s) _____

Thank You,

Wendell Owen

Wendell Owen,
Resident Agent

Area AD-8 Drainage, 1993

In 1993, the inlet to culvert C-7D failed, resulting in NOV 93-35-6-1. In order to eliminate the maintenance problems with culvert C-7D, the south end of drainage area AD-8, the coal storage pad, will be regraded to allow the drainage to flow into ditch D-7D below the water tank shown on Plate 2-4C. At this point, the storage pad is level with D-7D, allowing drainage to easily flow into the ditch. The berm around the coal storage pad will prevent drainage over the edge of the pad and direct the flow toward ditch D-7D. The point at which the storage pad intersects D-7D is outside of the angle of repose of the coal pile, and the ditch will not be plugged by coal spillage. A catch basin exists just below this point which will trap any coal fines which may be washed into the drainage, protecting ditch D-7D below this point.

Ditch D-8D Water Bar

In 1996, Co-Op observed that the erosion problems existed associated with the water bar which conveys runoff from Ditch D-8D to the inlet of Sediment Pond "B" as a result of water associated with the Water Truck. In order to eliminate these problems, the water bar and associated channel will be grouted using an 8" concrete slab. This will prevent the channel from eroding.

7.2.7.4 Additional Sediment Control

In order to reduce potential impacts from sediment, silt fences shall be installed as shown in Figure 7.2-15. Silt fence locations are noted on Plates 7-1.

DRAFT

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: DITCH D-8D

Comment: WATER BAR

Solve For Depth

Given Input Data:

Bottom Width.....	0.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.030
Channel Slope....	0.0300 ft/ft
Discharge.....	1.23 cfs

Computed Results:

Depth.....	0.46 ft
Velocity.....	2.97 fps
Flow Area.....	0.41 sf
Flow Top Width...	1.82 ft
Wetted Perimeter.	2.04 ft
Critical Depth...	0.47 ft
Critical Slope...	0.0246 ft/ft
Froude Number....	1.10 (flow is Supercritical)

OCT 17 1996

Use Min. Depth = 0.67 ft	=>	Min Freeboard = 0.21 ft
Velocity < 5 fps	=>	No rip-rap required

AMENDMENT TO
APPROVED Mining & Reclamation Plan
Approved, Division of Oil, Gas & Mining
HK 92G date 11-3-92

Open Channel Flow Module, Version 3.3 (c) 1991
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Area AD-8 Drainage, 1993

In 1993, the inlet to culvert C-7D failed, resulting in NOV 93-35-6-1. In order to eliminate the maintenance problems with culvert C-7D, the south end of drainage area AD-8, the coal storage pad, will be regraded to allow the drainage to flow into ditch D-7D below the water tank shown on Plate 2-4C. At this point, the storage pad is level with D-7D, allowing drainage to easily flow into the ditch. The berm around the coal storage pad will prevent drainage over the edge of the pad and direct the flow toward ditch D-7D. The point at which the storage pad intersects D-7D is outside of the angle of repose of the coal pile, and the ditch will not be plugged by coal spillage. A catch basin exists just below this point which will trap any coal fines which may be washed into the drainage, protecting ditch D-7D below this point.

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In order to reduce potential impacts from sediment, silt fences shall be installed as shown in Figure 7.2-15. Silt fence locations are noted on Plates 7-1.

OCT 17 1995

INCORPORATED
EFFECTIVE:
NOV 18 1993
UTAH DIVISION OIL, GAS AND MINING

LIST OF FIGURES

7.1-1	Flow Characteristics of Representative Star Point-Blackhawk Aquifer and Bear Springs	8
7.1-2	Stratigraphic Section A-A'	9
7.1-3	Stratigraphic Section B-B'	10
7.1-4	General Stratigraphic Relationships	11
7.1-5	Stratigraphic Section of Castlegate, and Star Point-Blackhawk Formations	12
7.2-1	Curve Number Graphs	60
7.2-2	Curvilinear and Triangular Unit Hydrographs	62
7.2-3	Head Relationship for Selected Broad-crest Weirs	69
7.2-4	Headwater Depths for C.M. Pipe Culverts with Inlet Control	76
7.2-5	Velocity Against Stone on Channel Bottom	78
7.2-6	Size of Stone that will Resist Displacement for Various Velocities and Side Slopes	79
7.2-7	Culvert C-1U - Downslope Profile	92
7.2-8	Downspout Structure	94
7.2-9	Collection Box	95
7.2-10	Ditch D-10D Cross-Section	96
7.2-11	Buried Flexible Culvert	97
7.2-12	Exposed Culvert Anchor	98
7.2-13	Catch Basin	99
7.2-15	Typical Silt Fence	105

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OCT 17 1995

INCORPORATED
EFFECTIVE:
SEP 12 1995
UTAH DIVISION OF OIL, GAS AND MINING
PRICE FIELD OFFICE

Summary of Reclamation Cost Estimate

a.	Seal Portals and Backfill	$ 45,500.00
b.	Removal of Structures	$ 63,730.91
c.	Soil Placement and Ripping	$ 72,343.93
d.	Channel Restoration	$ 51,045.00
e.	Revegetation	$ 50,276.53
f.	Monitor Well Plugging	$ 114.32
g.	Maintenance and Monitoring of Subsidence, Vegetation and Erosion (10 yr bond liability Period)	$ 39,143.20
h.	Hydrology Monitoring (10 yr bond liability period)	$ 29,630.00
i.	Supervision (21.0 weeks)	$ 14,851.20
j.	Mobilization and Demobilization	$ 2,500.00
		$ 369,135.09
	5.1% Reclamation Management Cost	$ 18,825.89
	10 pct contingency (1990 dollars)	$ 36,913.51
		$ 424,874.49

Escalated Values		Escalation Factor
1991	- 430,270	1.27% (actual)
1992	- 439,779	2.21% (actual)
1993	- 450,950	2.54% (actual)
1994	- 460,014	2.01% (est)
1995	- 469,260	2.01% (est)
1996	- 478,692	2.01% (est)
1997	- 488,314	2.01% (est)
1998	- 498,129	2.01% (est)
1999	- 508,141	2.01% (est)
2000	- 518,355	2.01% (est)

A bond in the amount of $525,000 was posted on July 31, 1995.

SUPERSEDED
EFFECTIVE:
OCT 17 1996
UTAH DIVISION OIL, GAS AND MINING

INCORPORATED
EFFECTIVE:
JUL -5 1996
96A
UTAH DIVISION OIL, GAS AND MINING
PRICE FIELD OFFICE

Slack Bin

Approx. 12 ft x 12 ft high bin (½ in plate with stiffeners, tapers down at bottom) with (4) 8 in I-beams X 30 ft legs and angle cross bracing.
Cut legs off at bottom and load on truck.
Assume average thickness of elgs, etc. equal to ⅜ in plate.
Approx cut length = (4 legs)(24 in) = 8 ft.

020-730-0010 (Torch Cutting, 1 in Plate)
Equivalent length (for 1 in plate) = (⅜)(8 ft) = 3 ft
Cutting Cost = (0.923)(2.65/ft)(3 ft) = $7.34
Cutting Time = 3 ft/(95 ft/day) = 0.03 days

Assume it takes 1 hr to load the bin on truck with crane after cutting legs.

Labor = (2 men)(1 hrs)($15.83/hr) =	$ 31.66
Crane + operator = (1 hr)($78.25/hr) =	$ 78.25
	$ 109.91

Time = 0.13 days

020-554-5200 (Reinforced Concrete)
Footing Volume = 4(2.5ft)(2.5ft)(1ft) = (25 cu ft/27 = 0.93 cu yd
Cost = (0.923)(86.00/cu yd)(0.93 cu yd) = $73.82
Time = (0.93 cu yd)(25 cu yd/day) = 0.04 days

020-554-5000 (Plain Concrete)
Slab Volume = (12ft)(16ft)(4/12) = 64 cu ft/27 = 2.37 cu yd
Cost = (0.923)(47.80/cu yd)(2.37 cu yd) = $104.56
Time = 2.37 cu yd/(45 cu yd/day) = 0.05 days

020-554-5550 (Concrete Disposal on Site)
Volume = 0.93 + 2.37 = 3.3 cu yd
Cost = (0.923)(4.64/cu yd)(3.3 cu yd) = $14.13
Time = 3.3 cu yd/(232 cu yd/day) = 0.01 days

Cost Subtotal	$309.76
Time Subtotal	0.26 days

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EFFECTIVE:
95N DEC 18 1995
UTAH DIVISION OIL, GAS AND MINING
PRICE FIELD OFFICE

Cost Subtotal	$7,406.55
Time Subtotal	7.53 days

Building Enclosure for Tank Seam Belt Portal

020-604-0500 (Steel Building, includes disposal)

Volume = (12 ft)(12 ft) (8 ft) = 1,152 cu ft

Cost = (0.923) (0.16/cu ft) (1,152 cu ft) = $170.13

Time = 1,152 cu ft/(14,800 cu ft/day) = 0.08 days

Cost Subtotal	$170.13
Time Subtotal	0.08 days

Remove Structures Cost Total =	$63,730.91
Remove Structures Time Total =	38.3 days

INCORPORATED
EFFECTIVE:
OCT 17 1995
UTAH DIVISION OIL, GAS AND MINING

INCORPORATED
EFFECTIVE:
JUL -5 1996
UTAH DIVISION OIL, GAS AND MINING
PRICE FIELD OFFICE

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

September 4, 1996

Charles Reynolds, Environmental Coordinator
Co-Op Mining Company
Bear Canyon Mine
P. O. Box 1245
Huntington, Utah 84528

RE: Ditch D-8D Concrete Crossing Structure, Co-Op Mining Company, Bear Canyon Mine, ACT/015/025-96C, Folder #3, Emery County, Utah

Dear Mr. Reynolds:

Your most recent submittal, which was received by this office on September 3, 1996, adequately addresses the deficiencies addressed in my August 9, 1996 letter concerning this amendment. Amendment # ACT/015/025-96C is approved, effective September 4, 1996.

Please submit three finalized copies to be stamped for incorporation into the various MRP's as soon as possible. Thank you.

Sincerely,

Peter Hess

Peter Hess
Reclamation Specialist III

sd
cc: Mark Page, State Engineer, Price, w/o enc
Dave Ariotti, DEQ, Price, w/o enc
Bill Bates, DWR, Price, w/o enc
Joe Helfrich, DOGM, SLC
Pam Grubaugh-Littig, DOGM, SLC, w/o enc

INCORPORATED
EFFECTIVE:
SEP - 4 1996
96C
UTAH DIVISION OIL, GAS AND MINING
PRICE FIELD OFFICE

CO-OP MINING COMPANY

P.O. Box 1245
Huntington, Utah 84528

Office (801) 687-2450
FAX (801) 687-5238
Coal Sales (801) 687-5777

September 17, 1996

Peter Hess
Utah Division of Oil, Gas & Mining
C.E.U. Box 169, 451 East 400 North
Price, Utah 84501-2699

RECEIVED
SEP 24
DIVISION OF OIL
GAS & MINING PRICE UTAH

#2

Mr. Hess,

Re: Ditch D-8D Concrete Crossing Structure, Co-Op Mining Company, Bear Canyon Mine, ACT/015/025-96C, Emery County, Utah

Enclosed are three finalized copies of the above-referenced amendment, which was approved per Division letter dated September 4, 1996.

If you have any questions, please call me at (801) 687-2450.

Thank You,

Charles Reynolds

Charles Reynolds,
Environmental Coordinator

Enclosure(s)

CO-OP MINING COMPANY

P.O. Box 1245
Huntington, Utah 84528

Office (801) 687-2450
FAX (801) 687-5238
Coal Sales (801) 687-5777

August 29, 1996

Peter Hess
Utah Division of Oil, Gas & Mining
C.E.U. Box 169, 451 East 400 North
Price, Utah 84501-2699

RECEIVED
SEP - 3 1996
DIVISION OF OIL
GAS & MINING PRICE UTAH

Mr. Hess,

Re: Ditch D-8D Concrete Crossing Structure, Co-Op Mining Company, Bear Canyon Mine, ACT/015/025-96C, Emery County, Utah

This submittal is in response to your deficiency letter dated August 9, 1996 for the above-referenced amendment. Please replace the previously submitted page 7-106 with the enclosed page, and incorporate pages 7-106A and 7G-67 into the amendment. These pages include the referenced designs to account for the concrete crossing structure.

If you have any questions, please call me at (801) 687-2450.

Thank You,

Charles Reynolds,
Environmental Coordinator

Enclosure(s)

Form DOGM - C1 (Last Revised 6/93) File Folder # 3

APPLICATION FOR PERMIT CHANGE

Title of Change:	Permit Number: ACT/015/025
Ditch D-8D Concrete Crossing Structure	Mine: Bear Canyon
	Permittee: Co-Op Mining Co

Description, include reason for change and timing required to implement:

To reduce erosion maintenance and prevent physical damage to motor vehicles Crossing D-8D water bar.

☐ Yes	☒ No	1. Change in the size of the Permit Area? _____ acres ☐ increase ☐ decrease.
☐ Yes	☒ No	2. Change in the size of the Disturbed Area? _____ acres ☐ increase ☐ decrease.
☐ Yes	☒ No	3. Will permit change include operations outside the Cumulative Hydrologic Impact Area?
☐ Yes	☒ No	4. Will permit change include operations in hydrologic basins other than currently approved?
☐ Yes	☒ No	5. Does permit change result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes	☒ No	6. Does permit change require or include public notice publication?
☐ Yes	☒ No	7. Permit change as a result of a Violation? Violation #
☐ Yes	☒ No	8. Permit change as a result of a Division Order? D.O.#
☐ Yes	☒ No	9. Permit change as a result of other laws or regulations? Explain:
☐ Yes	☒ No	10. Does permit change require or include ownership, control, right-of-entry, or compliance information?
☐ Yes	☒ No	11. Does the permit change affect the surface landowner or change the post mining land use?
☐ Yes	☒ No	12. Does permit change require or include collection and reporting of any baseline information?
☐ Yes	☒ No	13. Could the permit change have any effect on wildlife or vegetation outside the current disturbed area?
☐ Yes	☒ No	14. Does permit change require or include soil removal, storage or placement?
☐ Yes	☒ No	15. Does permit change require or include vegetation monitoring, removal or revegetation activities?
☒ Yes	☐ No	16. Does permit change require or include construction, modification, or removal of surface facilities?
☒ Yes	☐ No	17. Does permit change require or include water monitoring, sediment or drainage control measures?
☒ Yes	☒ No	18. Does permit change require or include certified designs, maps, or calculations?
☐ Yes	☒ No	19. Does permit change require or include underground design or mine sequence and timing?
☐ Yes	☒ No	20. Does permit change require or include subsidence control or monitoring?
☒ Yes	☐ No	21. Have reclamation costs for bonding been provided or revised for any change in the reclamation plan?
☐ Yes	☒ No	22. Is permit change within 100 feet of a public road or perennial stream or 500 feet of an occupied dwelling?
☐ Yes	☒ No	23. Is this permit change coal exploration activity ☐ inside ☐ outside of the permit area?

☐ **Attach 3 complete copies of proposed permit change as it would be incorporated into the Mining and Reclamation Plan.**

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

Wendell Owen - Res. Agent 8/5/96

Signed - Name - Position - Date

Subscribed and sworn to before me this 5th day of August

Leanne Stone

Notary Public

My Commission Expires:

Attest: STATE OF

COUNTY OF

Notary Public
LEANNE STONE
[illegible] 4528
[illegible] Expires
June 18, 1997
State of Utah

Received by Oil, Gas & Mining

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AUG - 6 1996
DIVISION OF OIL
GAS & MINING PRICE UTAH

ASSIGNED PERMIT CHANGE NUMBER

96C

Form DOGM - C2 (Last Revised 6/93)

File Folder # 3

Application for Permit Change
Detailed Schedule of Changes to the Permit

Title of Change: Ditch D-8D Concrete Crossing Structure

Permit Number: ACT 0151025

Mine: Bear Canyon

Permittee: Co-Op

Provide a detailed listing of all changes to the mining and reclamation plan which will be required as a result of this proposed permit change. Individually list all maps and drawings which are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise the exiting mining and reclamation plan. Include page, section and drawing numbers as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
☐ ADD	☒ REPLACE	☐ REMOVE	Pg. 3-86, 3-86, 3-97; Bond Calculations Updated
☐ ADD	☒ REPLACE	☐ REMOVE	Pg. 7-106; Description of proposed changes
☐ ADD	☒ REPLACE	☐ REMOVE	Plate 2-4B; Surface Facilities Map Updated
☐ ADD	☒ REPLACE	☐ REMOVE	7-1B, 8-5B, 3-2B, 7-5 (Will be included in finalized copies);
☐ ADD	☐ REPLACE	☐ REMOVE	Same as Plate 2-4B.
☐ ADD	☐ REPLACE	☐ REMOVE	
☐ ADD	☐ REPLACE	☐ REMOVE	
☐ ADD	☐ REPLACE	☐ REMOVE	
☐ ADD	☐ REPLACE	☐ REMOVE	
☐ ADD	☐ REPLACE	☐ REMOVE	
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☐ ADD	☐ REPLACE	☐ REMOVE	
☐ ADD	☐ REPLACE	☐ REMOVE	
☐ ADD	☐ REPLACE	☐ REMOVE	

Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

Summary of Reclamation Cost Estimate

a.	Seal Portals and Backfill		$ 45,500.00
b.	Removal of Structures	$503.38 to remove ~~$ 63,730.91~~	$ 64,234.29
c.	Soil Placement and Ripping		$ 72,343.93
d.	Channel Restoration		$ 51,045.00
e.	Revegetation		$ 50,276.53
f.	Monitor Well Plugging		$ 114.32
g.	Maintenance and Monitoring of Subsidence, Vegetation and Erosion (10 yr bond liability Period)		$ 39,143.20
h.	Hydrology Monitoring (10 yr bond liability period)		$ 29,630.00
i.	Supervision (21.0 weeks)		$ 14,851.20
j.	Mobilization and Demobilization		$ 2,500.00
		~~$ 369,135.09~~	$ 369,638.38
	5.1% Reclamation Management Cost	~~$ 18,825.89~~	$ 18,851.56
	10 pct contingency	~~$ 36,913.51~~	$ 36,964.84
	(1990 dollars)	~~$ 424,874.49~~	$ 425,454.78

Escalated Values			Escalation Factor
1991	- ~~430,270~~	430,858	1.27% (actual)
1992	- ~~439,779~~	440,380	2.21% (actual)
1993	- ~~450,950~~	451,566	2.54% (actual)
1994	- ~~460,014~~	460,642	2.01% (est)
1995	- ~~469,260~~	469,901	2.01% (est)
1996	- ~~478,692~~	479,346	2.01% (est)
1997	- ~~488,314~~	488,981	2.01% (est)
1998	- ~~498,129~~	498,809	2.01% (est)
1999	- ~~508,141~~	508,836	2.01% (est)
2000	- ~~518,355~~	519,063	2.01% (est)

DRAFT

A bond in the amount of $525,000 was posted on July 31, 1995.

Slack Bin

Approx. 12 ft x 12 ft high bin (½ in plate with stiffeners, tapers down at bottom) with (4) 8 in I-beams X 30 ft legs and angle cross bracing. Cut legs off at bottom and load on truck. Assume average thickness of legs, etc. equal to ⅜ in plate.
Approx cut length = (4 legs)(24 in) = 8 ft.

020-730-0010 (Torch Cutting, 1 in Plate)
Equivalent length (for 1 in plate) = (⅜)(8 ft) = 3 ft
Cutting Cost = (0.923)(2.65/ft)(3 ft) = $7.34
Cutting Time = 3 ft/(95 ft/day) = 0.03 days

Assume it takes 1 hr to load the bin on truck with crane after cutting legs.

Labor = (2 men)(1 hrs)($15.83/hr) =	$ 31.66
Crane + operator = (1 hr)($78.25/hr) =	$ 78.25
	$ 109.91

Time = 0.13 days

020-554-5200 (Reinforced Concrete)
Footing Volume = 4(2.5ft)(2.5ft)(1ft) = (25 cu ft/27) = 0.93 cu yd
Cost = (0.923)(86.00/cu yd)(0.93 cu yd) = $73.82
Time = (0.93 cu yd)(25 cu yd/day) = 0.04 days

020-554-5000 (Plain Concrete)
Slab Volume = (12ft)(16ft)(4/12) = (64 cu ft/27) = 2.37 cu yd
Cost = (0.923)(47.80/cu yd)(2.37 cu yd) = $104.56
Time = 2.37 cu yd/(45 cu yd/day) = 0.05 days

020-554-5550 (Concrete Disposal on Site)
Volume = 0.93 + 2.37 = 3.3 cu yd
Cost = (0.923)(4.64/cu yd)(3.3 cu yd) = $14.13
Time = 3.3 cu yd/(232 cu yd/day) = 0.01 days

Cost Subtotal	$309.76
Time Subtotal	0.26 days

Ditch D-8D Concrete Crossing Structure

020-554-5000 (Plain Concrete)
Volume = (35 ft) (12 ft) (0.67 ft) = (281.4 cu ft/27) = 10.4 cu yd
Cost = (0.923) (47.80/cu yd) (10.4 cu yd) = $458.84
Time = (10.4 cu yd) / (45 cu yd/day) = 0.23 days
020-554-5550 (Concrete Disposal on Site)
Cost = (0.923) (4.64/cu yd) (10.4 cu yd) = $44.54
Time = (10.4 cu yd) / (232 cu yd/day) = 0.04 days

DRAFT

Cost Subtotal	$503.38
Time Subtotal	0.27 days

Cost Subtotal	$7,406.55
Time Subtotal	7.53 days

Building Enclosure for Tank Seam Belt Portal

020-604-0500 (Steel Building, includes disposal)

Volume = (12 ft)(12 ft) (8 ft) = 1,152 cu ft

Cost = (0.923) (0.16/cu ft) (1,152 cu ft) = $170.13

Time = 1,152 cu ft/(14,800 cu ft/day) = 0.08 days

Cost Subtotal	$170.13
Time Subtotal	0.08 days

Remove Structures Cost Total =	~~$63,730.91~~ $64,234.29
Remove Structures Time Total =	~~38.3~~ 38.6 days

DRAFT

Area AD-8 Drainage, 1993

In 1993, the inlet to culvert C-7D failed, resulting in NOV 93-35-6-1. In order to eliminate the maintenance problems with culvert C-7D, the south end of drainage area AD-8, the coal storage pad, will be regraded to allow the drainage to flow into ditch D-7D below the water tank shown on Plate 2-4C. At this point, the storage pad is level with D-7D, allowing drainage to easily flow into the ditch. The berm around the coal storage pad will prevent drainage over the edge of the pad and direct the flow toward ditch D-7D. The point at which the storage pad intersects D-7D is outside of the angle of repose of the coal pile, and the ditch will not be plugged by coal spillage. A catch basin exists just below this point which will trap any coal fines which may be washed into the drainage, protecting ditch D-7D below this point.

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Ditch D-8D Water Bar

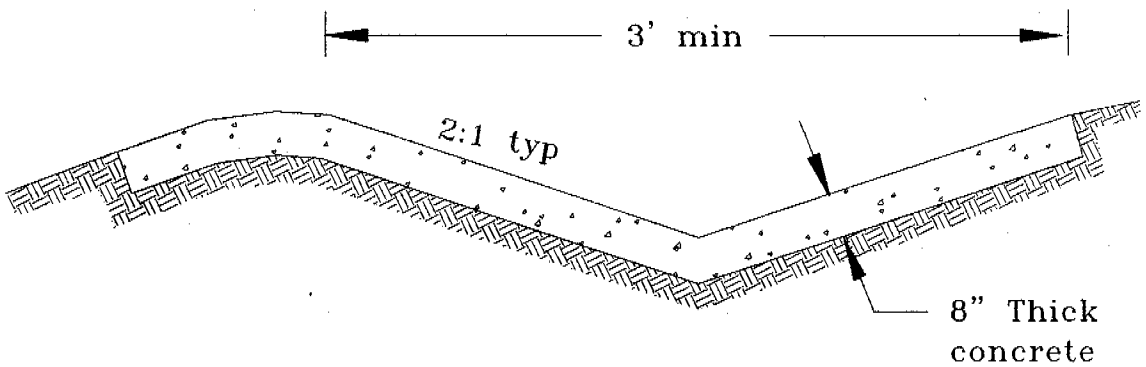
In 1996, Co-Op observed that the erosion problems existed associated with the water bar which conveys runoff from Ditch D-8D to the inlet of Sediment Pond "B" as a result of water associated with the Water Truck. In order to eliminate these problems, the water bar and associated channel will be grouted using an 8" concrete slab. This will prevent the channel from eroding. Figure 7.2-16 shows a typical cross-section of the concrete crossing.

7.2.7.4 Additional Sediment Control

In order to reduce potential impacts from sediment, silt fences shall be installed as shown in Figure 7.2-15. Silt fence locations are noted on Plates 7-1.

Figure 7.2-16 Ditch D-8D Water Bar Concrete Structure

Typical Cross-Section



Minimum Channel Depth = 0.67'

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LICENSED PROFESSIONAL ENGINEER
No. 136686
KIMLY C.
MANGUM
STATE OF UTAH

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: Ditch D-8D

Comment: WATER BAR

Solve For Depth

Given Input Data:

Bottom Width.....	0.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.013
Channel Slope....	0.0300 ft/ft
Discharge.....	1.23 cfs

Computed Results:

Depth.....	0.33 ft
Velocity.....	5.56 fps
Flow Area.....	0.22 sf
Flow Top Width...	1.33 ft
Wetted Perimeter.	1.49 ft
Critical Depth...	0.47 ft
Critical Slope...	0.0046 ft/ft
Froude Number....	2.40 (flow is Supercritical)

Use Minimum Depth = 0.67 ft	⇒	Minimum Freeboard = ~~0.21~~ 0.34 ft
Velocity > 5 fps	⇒	~~No rip-rap required~~ concrete lined

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Open Channel Flow Module, Version 3.3 (c) 1991
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Note: Manning's n for concrete assumed to be 0.013 (Table 7.1, *Hydrology and Floodplain Analysis*, Philip B. Bedient, Wayne C. Huber, 1988).