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United States Department of the Interior

FISH AND WILDLIFE SERVICE

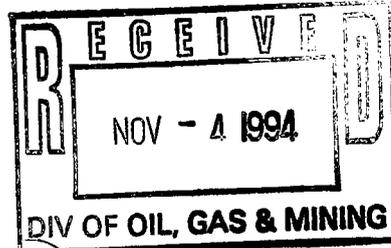
UTAH FIELD OFFICE
LINCOLN PLAZA
145 EAST 1300 SOUTH, SUITE 404
SALT LAKE CITY, UTAH 84115

In Reply Refer To

(ES)

October 27, 1994

Pamela Grubaugh-Littig
Division of Oil, Gas, and Mining
Utah Department of Natural Resources
3 Triad Center, Suite 350
355 West North Temple
Salt Lake City, Utah 84180-1203



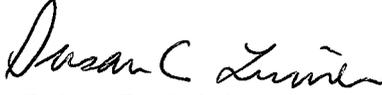
Re: **Updated Plan Information, Sediment Retention Box, PacifiCorp, Deer Creek Mine, ACT/015/018-94G, Folder #2, Emery County, Utah**

Dear Ms. Grubaugh-Littig:

This is in response to your letter of September 26, 1994 concerning the above update. It is an update of the Sediment Retention Box plan, approved September 1, 1994. The Fish and Wildlife Service has reviewed the material provided and believes no significant impacts to wildlife resources would be expected. We are returning the review material as we no longer retain the mining plan for this project.

We appreciate the opportunity to comment on this project.

Sincerely,


for Robert D. Williams
Assistant Field Supervisor

Enclosure

DEER CREEK MAPS AND DRAWINGS

Volume 4

Legal, Financial, Compliance Information

1-1	Coal Ownership	CM-10522-DR
1-2	Surface Ownership	CM-10521-DR
1-3	Permit Area with Mine Development as of 8/3/77	CM-10367-DR
2-1	Thru 2-12 Have Been Deleted. These Geologic and Hydrologic Data Maps are found in Volume 8 & 9.	

Environmental Resources, Vegetation and Soils

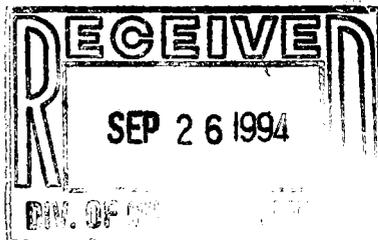
2-13	Cross Section of Roans Canyon Fault System (sheet 1 of 2)	CE-10517-EM
2-14	Vegetation Map	CE-10488-DR
2-15	Mine Plan Area Vegetation Map	CM-10485-DR
2-16	General Soils Map	CE-10498-DR
2-17	Mine Plan Area Soils Map	CM-10344-DR
2-18A	Land Use Map	CM-10595-DR
2-18B	Raptor Nesting Map	CM-10588-DR
2-19	Mule Deer Habitat Elk Habitat (8 1/2 x 11)	CM-10543-DR

Operation Plan

3-1	Mine Plan-Blind Canyon Seam (sheet 1)	CM-10856-DR
3-2	Mine Plan-Blind Canyon Seam (sheet 2)	CM-10856-DR
3-3	Mine Plan-Blind Canyon Seam (sheet 3)	CM-10856-DR
3-4	Deleted 10/9/90	
3-5	Deleted 10/9/90	

Volume 5

3-6	Life of Mine Plan 5 Year Increments- Blind Canyon Seam	CM-10857-DR
3-7	Life of Mine Plan 5 Year Increments- Hiawatha Seam	CM-10858-DR
3-8	Deleted 10/9/90	
3-9	Surface Yard Map Sediment Trap	DS-202E DS1159C



3-10	Sanitation System/Sewer Lines (R&S)	7750-C1
3-11	Sanitation System Seepage Pit Design	DS-667-C
	Sewer Pipeline Plan View	DS-668-C
3-12	Deleted 10/9/90	
3-13	Deleted 10/9/90	
3-14	Sediment Retention Box	DS1491D
3-15	Sedimentation Pond	CM-10867-DR
	Sedimentation Pond Cross Section	CM-10593-DR
3-16	Sedimentation Pond	MK-00-52-1-010

slopes. Fill slopes are 2.5h:1V. The rip-rapped upstream dam slope is constructed at 2.5H:1V. The downstream dam slope is 2H:1V.

The outlet works for the sediment pond are constructed of 24" CSP, screened to prevent clogging and capped with a skimmer ring.

Slopes constructed on fill have been revegetated to minimize erosion. (Fall 1988)

Maintenance of the sediment pond includes quarterly inspections and monthly discharge monitoring. A copy of the inspection reports is submitted annually to the Division by a registered professional engineer. A copy of the discharge report is submitted monthly to the Division. The pond will be dredged of sediment when sediment volume is 60% of design capacity.

The cleaning of the sediment pond is very time consuming, costly and difficult. To prolong the times between cleaning the sediment from the pond, a "Sediment Retention Box" has been installed on the west bank of the pond. The Sediment Retention Box will reduce the cleaning of the pond to an estimated once every 5 to 8 years. The Sediment Retention Box will be cleaned 2 to 3 times a year or as needed.

The inside dimensions of the box are 35 ft. long, 15 ft. wide and 8 ft. high. The volume is 155 cubic yards (.1 acre ft.) and will be cleaned at 80% capacity. The walls are reinforced concrete, 1 ft. thick. A diversion dam is constructed downstream of the culvert outlet near the Weigh Bin Building. The diversion dam is of reinforced concrete, one slide gate and is anchored by dowelling to the bottom of the existing pond inlet channel. When the gate is open flow will enter into the 12 inch PVC pipe leading to the Sediment Retention Box. In the event that the 12 inch culvert cannot handle the storm event flow, the water will flow over the diversion and enter the sediment pond. The overflow channel is the same design and dimensions as the existing channel. The Sediment Retention Box will be removed from operation if ice build-up problems occur, due to winter conditions. Winter runoff will go directly to the sediment pond if this occurs.

Access to the Sediment Retention Box is provided for removal of the accumulated sediment.

Under normal operation, the disturbed water will enter the diversion dam and flow through the 12 inch by-pass into the box. A series of removeable baffles are installed in the box to

increase the effective settling distance. The water then exits the box into the existing sediment pond via four 1' half-round pipes. A 24" half-round discharge culvert carries the flow from the retention box to the pond. Minor erosion at this discharge point will be controlled by extending the half-round into the pond below the normal water level. When the box fills to 80% capacity, the gate at the diversion dam will be closed, directing the flow directly to the pond. The box will be decanted into the pond and the sediment will be removed and hauled to the Deer Creek Waste Rock Facility for disposal. Once the box is cleaned the gate at the diversion dam will be opened again returning to normal operation.

The Sediment Retention Box will be removed in conjunction with reclamation of the sediment pond.

Reclamation of the pond will complete the proposed Deer Creek reclamation process. The pond will be allowed to dry followed by backfilling and grading. Graded contours will be compatible with the natural surroundings. Revegetation will be performed as outlined in Reclamation Plan.

Mine Facilities Pad - An earthen fill structure is utilized for material storage and personnel facilities. The fill

occupies approximately 8 1/2 acres. Construction material for the fill was obtained from the south slope of the Deer Creek drainage and from the sediment pond excavation.

Approximately 50% of the fill structure is asphalt or concrete surfaced providing access to mine facilities and

The equipment used is listed below:

	<u>Hourly Rate</u>
988B Loader, 375 HP, 7 yd. bucket	\$106.88
769C Off-highway Truck, 35-Ton	74.62
825C Compactor, 300 HP	88.85
621B Scrapers, 330 HP, 14 cy	84.59
D8G Dozer w/straight blade	63.00
235 Excavator, 195 HP, std. bucket	107.84
D6D Dozer w/angle blade	46.69
John Deere 500 Backhoe	22.30
Flat-Bed Truck, diesel, mediu, 250 HP	16.24
Dump Truck, 50 Ton, 773	84.39
Crane 50T, diesel, hydraulic, Trk MTD	71.90
Air Drill, Track, IR DM25	90.09
Dump Truck, 10 yard	30.00

The labor rates used are as follows:

Supervisor	\$36.70 per hour
Operator	\$34.20 per hour
Laborer	\$26.05 per hour
Truck Driver	\$27.05 per hour
Laborer (Wrecking)	\$28.85 per hour

Stability:

Backfilled slopes will be constructed not to exceed 2:1. material used will be 3 foot diameter and less. The material will be placed in 18 inch lifts and compacted with a 825C Compactor with a dozer blade.

No ground water is located in any of the backfill

regraded, or otherwise stabilized; topsoil will be replaced; and the areas will be reseeded or replanted. Based on our present maintenance program for fill slopes, we estimate 32 hours per year of work will be needed.

PLAN FOR GRADING ALONG THE CONTOUR

All final grading, preparation of overburden before replacement of topsoil, and placement of topsoil, shall be done along the contour to minimize subsequent erosion and instability. If such grading, preparation, or placement along the contour is hazardous to equipment operators, then grading, preparation, or placement in a direction other than generally parallel to the contour may be used. In all cases, grading, preparation, or placement shall be conducted in a manner which minimizes erosion and provides a surface for replacement of topsoil which will minimize slippage.

All roads servicing disturbed areas will be scarified prior to topsoil placement.

RECLAMATION COST R645-301-334

Estimated costs for reclamation are based on 1990 values and include all lands having been disturbed for the purpose of handling, crushing, storing and transporting coal extracted through the Deer Creek Mine.

The following are the estimated costs for reclamation:

Total Reclamation Costs	\$1,473,173
Mobilization and Demobilization*	10,000
10% Contingency	147,317
4.3% Reclamation Management	<u>63,346</u>
1990 Total Reclamation Cost	\$1,693,836

*It is customary for contractors, who must move men and equipment from job site to job site, to charge additional monies to competitively bid for such purpose. This charge is usually in the form of mobilization and demobilization. On very large projects these charges are usually built into the unit costs of work. Applicant states no costs are built into the reclamation work and will provide a lump sum of \$10,000 for such purpose. It is felt this sum is sufficient to transport the needed equipment from any of the three major cities along the Wasatch Front.

(The average cost increase, during the preceding three years, as provided by the Means Historical Cost/Index (Salt Lake Index) is 1.84%.)

Using the 1990 reclamation costs of \$1,693,836 this compounds to \$1,889,651 for 1996 reclamation costs.

The performance bond will be conditional upon the faithful performance of the requirements of the act, the regulatory program and the reclamation plan.

ITEM#	DESCRIPTION	MANPOWER	QUANTITIES	COST	DAYS	COMMENTS
1-AI	Stand-By Fan	Crane Backhoe Loader Dump Truck Breaker Compressor	1 Job	\$ 10,310	7 Days	\$1,473/day
1-AJ	Removal of Sediment Retention Box, 12" pipe, Diversion Dam	235 Backhoe 500 Backhoe D. Truck (10 yd) Flatbed Truck 2 Operators 2 Laborers	1 Job	\$ 9,781	5 Days	\$1,956/day
TOTALS.....				\$408,416	206.5 Days	

ITEM #	DESCRIPTION	EQUIPMENT MANPOWER	QUANTITIES	TOTAL COST	CONSTR. DAYS	COMMENTS
14-B	Sediment Traps @ Tipple	500 Backhoe Dump Truck 2 Man Crew	1 Job	\$ 1,355	1 Day	\$1,355/day
	Add Material: Riprap 11.00 x 920 Gravel Liner 9.00 x 157			\$ 11,533		
	Total.....			\$ 27,851		
15-A	Overland Conveyor Belt Revegetation (includes material)			\$ 19,877	5 Days	
16-A	Waste Rock Disposal Site (Reclamation Costs From Volume 10)			\$ 413,664	201 Days	
	SUBTOTAL.....			\$1,473,173		
	MOBILIZATION.....			\$ 10,000		
	10% CONTINGENCY.....			\$ 147,317		
	4.3% RECLAMATION MANAGEMENT.....			\$ 63,346		
	TOTAL CONTRUCTION COST*.....			\$1,693,836		

*Total reclamation and bonding costs will be adjusted, during major permitting actions, to include PAP amendments for which the individual reclamation costs are less than 5% of the current bond.

File: SEDPOND - SEDIMENT CONTAINMENT BOX, DEER CREEK MINE
 SINGLE CENTER ANALYSIS
 Approximately 20 slices selected
 Circle center at X= 65.8, Y= 295.8
 FS= 7.060 at R= 81.5

= 65.8 Y= 295.8 R= 81.5

SLICE	X-LEFT	DX	TAN THETA	TAN PHI	COHESION	VERTICAL FORCE	PORE WATER FORCE	RESISTING TERM	DRIVING TERM
The following slice has a normal force= -384									
1	2.4	4.6	1.136	0.577	1872	1108	640	12302	832
2	7.0	4.6	0.964	0.577	1872	3128	1807	12071	2170
3	11.6	4.6	0.827	0.577	1872	4794	2770	11891	3055
4	16.2	4.6	0.713	0.577	1872	6175	3568	11746	3586
5	20.8	4.6	0.616	0.577	1872	7313	4225	11625	3834
6	25.4	4.6	0.529	0.577	1872	8241	4762	11521	3855
7	30.0	5.0	0.448	0.577	1872	8794	5081	12160	3595
8	35.0	5.0	0.371	0.577	1872	7469	4316	11573	2595
9	40.0	5.0	0.299	0.577	1872	7158	4136	11313	2047
10	45.0	5.0	0.231	0.577	1872	7872	4548	11361	1768
11	50.0	0.1	0.197	0.577	1872	190	95	243	37
12	50.1	1.9	0.184	0.577	1872	4137	1820	4903	749
13	52.0	0.1	0.171	0.577	1872	181	97	236	-1688
14	52.1	4.6	0.142	0.577	1872	6633	4520	9753	930
15	56.7	4.6	0.084	0.577	1872	6887	4667	9798	579
16	61.2	4.6	0.028	0.577	1872	7014	4741	9843	197
17	65.8	4.1	-0.025	0.577	1872	6303	4259	8876	-159
18	69.9	1.2	-0.058	0.577	1872	2302	1240	2878	1586
19	71.1	0.9	-0.071	0.577	1872	2071	926	2365	-146
20	72.0	0.1	-0.077	0.577	1872	161	78	237	-12
21	72.1	5.3	-0.111	0.577	1872	4164	2406	11167	-458
22	77.4	5.3	-0.178	0.577	1872	2647	1529	10957	-465
23	82.8	5.3	-0.248	0.577	1872	918	531	10736	-221

GEOSYSTEM SLOPE STABILITY PROGRAM
 SB-SLOPE

PROJECT DATA:

Project: SEDIMENT CONTAINMENT BOX
 Location: DEER CREEK MINE
 Filename: SEDPOND Description: SEDIMENT CONTAINMENT BOX, DEER CREEK MINE

ANALYSIS DATA:

Point No.	X	Y	Line No.	Left Point	Right Point	Soil No.	Phreatic Line	Soil Density pcf	Cohesion psf	Ph De
1	0.0	245.0	1	1	2	1	Y	108.0	1872	30
2	30.0	240.0	2	2	3	1	Y	160.0	9000	45
3	40.0	231.0	3	3	4	1	Y			
4	50.0	231.0	4	4	5	2	Y			
5	52.0	231.0	5	5	8	2	Y			
6	71.1	231.0	6	8	9	2	Y			
7	72.0	231.0	7	9	6	2	Y			
8	52.1	223.0	8	6	7	2	Y			
9	69.9	223.0	9	7	10	2	Y			
10	72.1	223.0	10	10	13	1	Y			
11	50.1	221.0	11	4	11	1	Y			
12	72.0	221.0	12	11	12	1	Y			
13	95.0	215.0	13	12	10	1	Y			

APPENDIX III
 6.1
 Added 8/16/94

Free water surface, left point = 5
 right point = 6

SB-SLOPE

Simplified Bishop Slope Stability Analysis

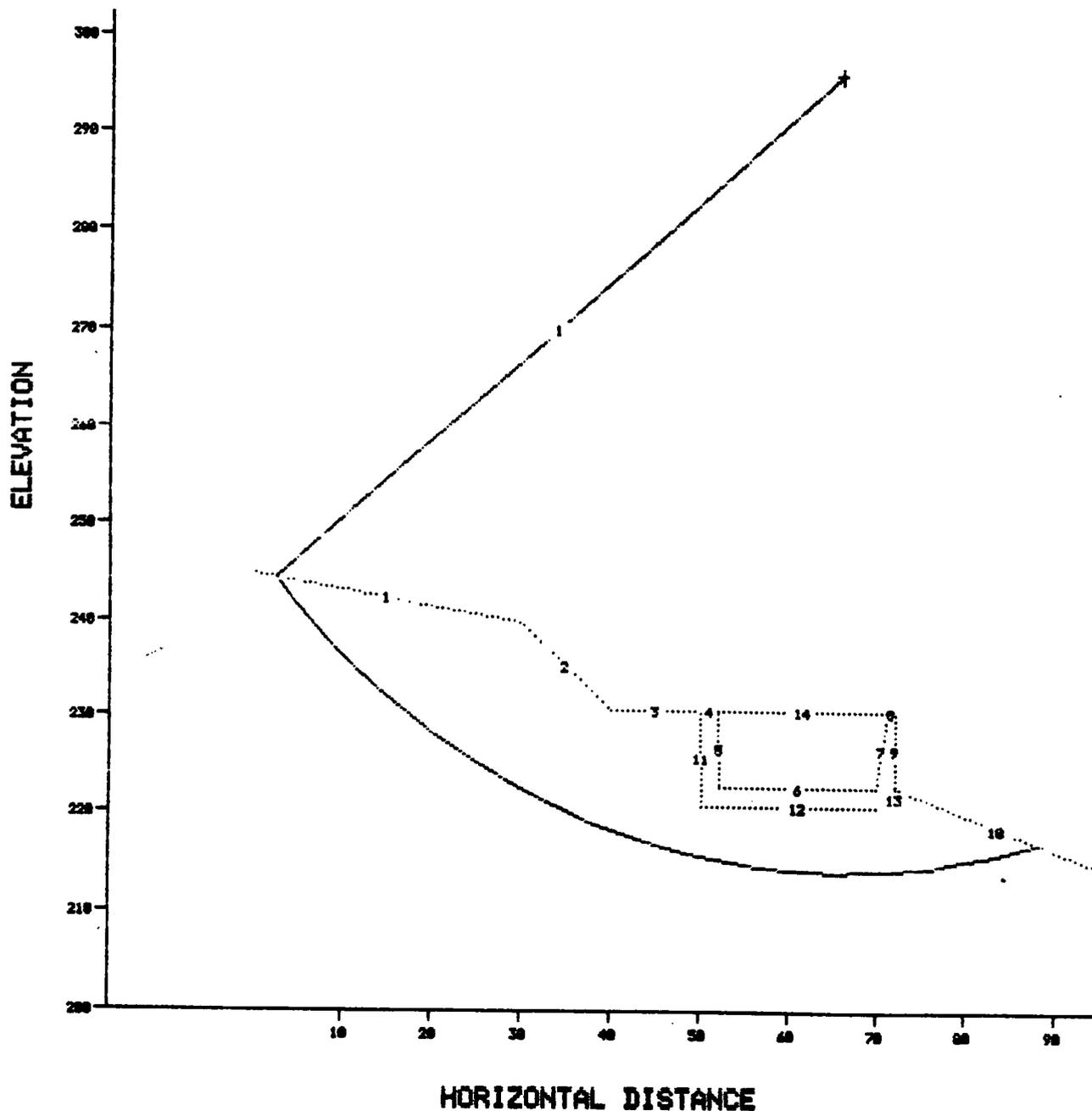
PROJECT: SEDIMENT CONTAINMENT BOX

LOCATION: DEER CREEK MINE

FILE: SEDPOND

COMPLETE SLOPE CROSS SECTION

CIRCLE	X	Y	RADIUS	FS
1	65.8	295.8	81.5	7.04



OSMRE - TIPS

APPENDIX III

6.2

Added 8/16/94

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: DC SEDIMENT BOX

Comment: 12" MINE PIPE DISCHARGE

Solve For Actual Depth

Given Input Data:

Diameter.....	1.00 ft
Slope.....	0.1600 ft/ft
Manning's n.....	0.011
Discharge.....	16.48 cfs

Computed Results:

Depth.....	0.80 ft
Velocity.....	24.44 fps
Flow Area.....	0.67 sf
Critical Depth....	1.00 ft
Critical Slope....	0.1495 ft/ft
Percent Full.....	80.09 %
Full Capacity.....	16.84 cfs
QMAX @.94D.....	18.12 cfs
Froude Number.....	4.69 (flow is Supercritical)

Open Channel Flow Module, Version 3.21 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: DC SEDIMENT BOX

Comment: (4) 1' HALF-ROUND DISCHARGE

Solve For Actual Depth

Given Input Data:

Diameter.....	1.00 ft
Slope.....	0.0500 ft/ft
Manning's n.....	0.011
Discharge.....	4.12 cfs

Computed Results:

Depth.....	0.46 ft
Velocity.....	11.59 fps
Flow Area.....	0.36 sf
Critical Depth....	0.86 ft
Critical Slope....	0.0089 ft/ft
Percent Full.....	46.28 %
Full Capacity.....	9.42 cfs
QMAX @.94D.....	10.13 cfs
Froude Number.....	3.42 (flow is Supercritical)

Open Channel Flow Module, Version 3.21 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

**Circular Channel Analysis & Design
Solved with Manning's Equation**

Open Channel - Uniform flow

Worksheet Name: DC SEDIMENT BOX

Comment: 2' HALF-ROUND DISCHARGE

Solve For Actual Depth

Given Input Data:

Diameter.....	2.00 ft
Slope.....	0.1000 ft/ft
Manning's n.....	0.015
Discharge.....	16.48 cfs

Computed Results:

Depth.....	0.70 ft
Velocity.....	16.69 fps
Flow Area.....	0.99 sf
Critical Depth....	1.46 ft
Critical Slope....	0.0090 ft/ft
Percent Full.....	35.20 %
Full Capacity.....	62.00 cfs
QMAX @.94D.....	66.69 cfs
Froude Number.....	4.09 (flow is Supercritical)

Open Channel Flow Module, Version 3.21 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708