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

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October 23, 1995

James Fulton, Chief
Denver Field Division
Office of Surface Mining
Reclamation and Enforcement
1999 Broadway, Suite 3320
Denver, CO 80202-3320

Re: Completion of Midterm Review, Soldier Creek Coal Company, Soldier Canyon Mine, ACT/007/018, Folder #2, Carbon County, Utah

Dear Mr. Fulton:

I am enclosing approved midterm information for the Soldier Canyon Mine, effective October 20, 1995. If you have any questions, please call me.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

Enclosure
cc: Mark Bailey, BLM, Price
Dave Ariotti, DEQ, Price
Bill Bates, DWR, Price
Mark Page, Water Rights, Price
Price Field Office
Soldier Creek Coal Company

TABLE 7.24-2 (Continued)

WATER RIGHTS OWNERSHIP

Water Right	Location (Section)	Owner	Use	Quantity of Use (acre-ft)	Period of Use	Source of Water
Township 13 South Range 12 East (continued)						
501	10	Sunoco Energy	Stockwater	--	--	ST
502	10	Sunoco Energy	Stockwater	--	--	ST
547	10	Sunoco Energy	Stockwater	0.25	1/01 - 12/31	ST
4806	10	Sunoco Energy	Stockwater	11.48	1/01 - 12/31	ST
501	10	Sunoco Energy	Stockwater	--	--	ST
505	10	Sunoco Energy	Stockwater	0.25	1/01 - 12/31	SP
504	10	Sunoco Energy	Stockwater	0.25	1/01 - 12/31	ST
499	10	Sunoco Energy	Stockwater	0.25	1/01 - 12/31	ST
503	10	Sunoco Energy	Stockwater	--	--	SP
506	15	Sunoco Energy	Stockwater	0.25	1/01 - 12/31	ST
508	15	Sunoco Energy	Stockwater	--	--	SP
507	15	Sunoco Energy	Stockwater	0.25	1/01 - 12/31	SP
509	15	Sunoco Energy	Stockwater	0.1	1/01 - 12/31	ST
529	16	Sunoco Energy	Irrigation	0.25	1/01 - 12/31	SP
528	16	Sunoco Energy	Stockwater	0.25	1/01 - 12/31	SP
527	16	Sunoco Energy	Stockwater	0.25	1/01 - 12/31	SP
533	17	Sunoco Energy	Stockwater	0.25	1/01 - 12/31	SP
552	18	Sam Sampinos	Stockwater	--	--	ST
203	18	Sage Point Coal	Industrial	0.25	1/01 - 12/31	GW
377	18	Bernard Iriart	Stockwater	--	--	ST
2574	18	U.S.B.L.M.	Stockwater	10.64	1/01 - 12/31	ST
519	19	Sunoco Energy	Irrigation	0.15	4/01 - 12/31	ST
36	19	Sunoco Energy	Irrigation	229.0	1/01 - 12/31	ST
497	19	Sunoco Energy	Irrigation	65.64	1/01 - 12/31	ST
725	19	Sunoco Energy	Irrigation	189.46	1/01 - 12/31	ST

ST = Stream, SP = Spring, GW = Groundwater

FIGURE 7.24–7
Water Level Vs. Time Plot

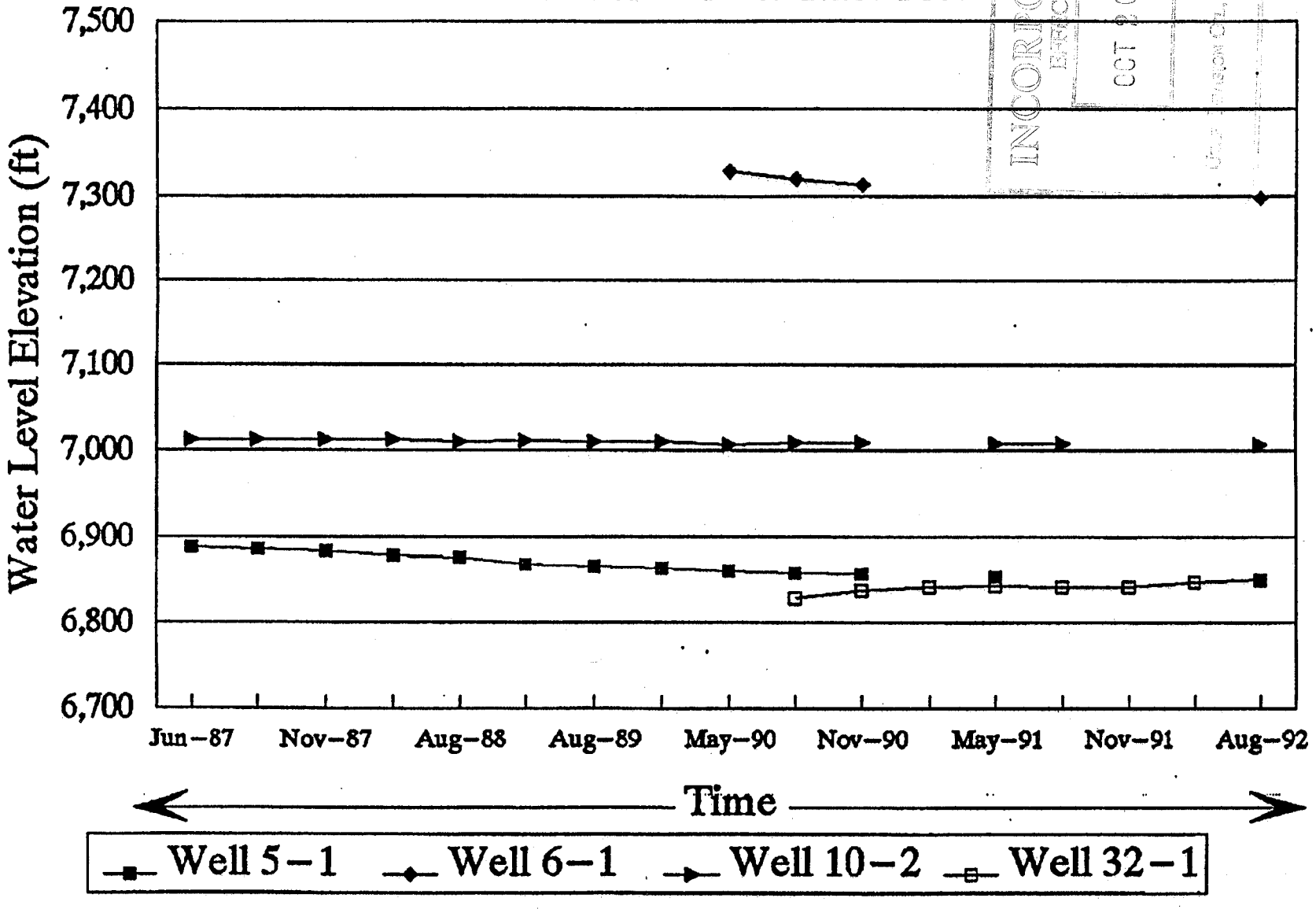
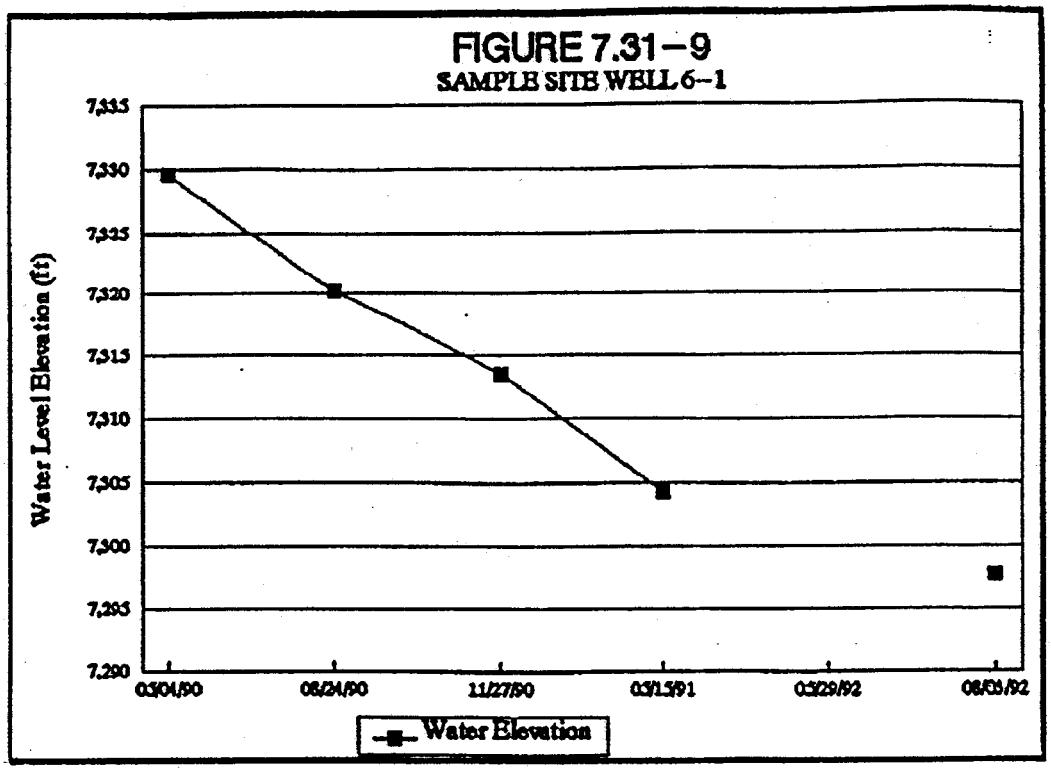


FIGURE 7.31–9
SAMPLE SITE WELL 6–1



Date	Depth to Water (ft)	Water Elevation (ft)
05/04/90	395.0	7,329.7
08/24/90	404.5	7,320.2
11/27/90	411.2	7,313.5
05/15/91	420.4	7,304.3
05/29/92		
08/03/92	426.9	7,297.8

is in excess of 15 ft, the culvert has a capacity well beyond the design volume. Therefore, the potential for this by-pass culvert to contribute to sediment loading, during a storm greater than design, appears to be minimal.

If a larger than design event where to occur, the impact on downstream resources and land use would be minimal. This is due in large part to the lack of downstream development and the wide section of the Soldier Creek drainage. Except for one agricultural area approximately 4 miles downstream of the mine, there is little no development between the mine and about one mile upstream of the confluence with the Price River. Also, there are no utilities within this drainage except for the power lines to the mine.

Following reclamation, stream channels will be returned to a stable state (see Section 7.61). The reclamation channel for Soldier Creek has been designed to safely pass the peak flow resulting from the 100-year, 6-hour storm, while the side drainages conveying runoff through the reclaimed site have been designed to safely pass the peak flow from 10-year, 6-hour storm. Thus, flooding in the reclaimed areas will be precluded. Additionally, interim sediment-control measures and maintenance of the reclaimed areas during the post-mining period will preclude deposition of significant amounts of sediment in downstream channels following reclamation. Thus, maintaining the hydraulic capacity of the channel and precluding adverse flooding impacts.

7.29 Cumulative Hydrologic Impact Assessment (CHIA)

The Division has already prepared a CHIA for the Soldier Canyon Mine permit area Additional data is presented within this application to assist the Division in preparing a CHIA, for the refuse disposal site and adjacent areas.

7.30 Operation Plan

7.31 General Requirements

This section describes the groundwater and surface water protection plan and water quality monitoring program implemented within the existing permit area and to be implemented for the refuse disposal site. The purpose of the groundwater and surface water protection plan is to minimize the potential for water pollution and changes in water quality and flow for surface and groundwater within and adjacent to disturbed areas. The purpose of the water quality monitoring program is to identify the potential impacts of coal mining operations on the hydrologic balance. **Should mining operations have an impact on a water established water right, this information will be coordinated with the Utah Division of Water Rights.** **R03/07/95**

A permit amendment, authorizing the exploration activities, was approved by DOGM on October 16, 1992 (ACT/007/018-91E). The purpose of the exploration work was to evaluate the suitability of the site for a proposed fan/shaft facility. Applied Geotechnical Engineering Consultants, Inc. (AGEC) were contracted to perform a complete geotechnical investigation. Their work included drilling four exploratory borings to bedrock, laboratory testing of selected soil samples and performing a seismic refraction survey. Based on the field exploration and laboratory testing, AGEC was able to conclude that the site was favorable for the proposed facilities. Their final report has detailed the subsurface conditions of the site and made recommendations for the design and construction of said facilities.

SCCC notified DOGM of its intent to proceed with the construction of the #3 fan facility in a letter dated December 3, 1991. However, following that notification letter, unforeseen circumstances have indefinitely delayed this project. Subsequently, SCCC has opted to proceed with an interim revegetation and stabilization plan for the site. This interim reclamation ~~shall~~ **was** be initiated and completed during the fall of 1992. The proposed reclamation work ~~shall be~~ **was** implemented in accordance with Section 3.31 ~~or~~ **and** in accordance with the modified revegetation plan as described below. ~~(The actual plan implemented shall be dependent on the capabilities of available contractors.)~~ The modified revegetation plan is as follows:

1. A trackhoe shall "pock mark" the entire road surface and road outslope where practicable. This "pock marking" is intended to facilitate the retention of any precipitation on site, thus, enhancing sediment control and revegetation success.

2. An appropriate fertilizer (16-16-8) shall be hand broadcast and raked into the seedbed. (Alternatively, the fertilizer may be hand broadcast prior to the "pock marking" operations. This would allow for the fertilizer to be more efficiently incorporated into the soil.)

3. The seed shall be either hand broadcast or hydroseeded over the site, followed by a light hand raking to cover the seed. If hydroseeding is selected, the seed shall be applied with only a tackifier or no additives at all.

4. All seeded areas will be oversprayed with a wood fiber mulch at a rate of 2,000 lbs/acre. A tackifier will also be applied at a rate of 60 lbs/acre.

5. **Additional interim seeding will be done on a "as needed" basis until adequate vegetative cover is established.**

In addition to the revegetation treatments and "pock marking" described above, other sediment control measures include the following (See Exhibit 7.42-1 and 7.42-2).

R03/07/95

1. The road has been constructed sloping towards the toe of the in-slope. This provides a flow path for runoff which is treated with a series of straw bales and/or silt fences.

2. A small earthen berm has been placed along the outer edge of the road to prevent any road drainage from contributing to the drainage of the steeper out-slope areas. This berm is approximately 6-12 inches in height. Also, as shown on Exhibit 7.42-1, both the road and road out-slope drain away from the berm. Placement of the berm was an additional precautionary measure only and no specific design for the berm was performed.

3. A small sediment basin was constructed at the base of the road as a final treatment structure for road runoff.

4. Straw bales and/or silt fences have been placed at strategic locations in and around the disturbed area.

Watershed characteristics were evaluated utilizing the SCS curve number methodology and the computer program Sedimot II. Open channel flows were also evaluated using a computer program, FlowMaster I (Copyright 1991 Haestad Methods, Inc.). The summarized results are on Table 7.42-1.

Generally, the maximum allowable flow velocity for an unlined ditch is 5 feet per second. Therefore, since the design velocity for the road drainage ditch is substantially less than 5 feet per second, no riprap lining is required.

As final treatment for the exploration road runoff, a small sediment basin was constructed. This basin is located at the base of the exploration road, adjacent to the county road. Its size is approximately 30'L x 15'W x 2'D. Also the design inflow to the basin has been calculated to be 1.86 cfs for a 10yr-24hr storm event. Sediment basin design methodology, as detailed by Edward A. Hansen, (Hydrologist, North Central Forest Experiment Station, Region 9), indicates that this basin will remove nearly 100% of the sediment particles measuring 0.125 mm or larger. The outlet of this basin is also controlled and treated with a notched silt fence.

The completed exploration activities have concluded that the site is favorable for the proposed 3rd fan facility. ~~However, Sun Coal Company's unexpected announcement to sale the Soldier Canyon Mine has indefinitely delayed the continuation of this project.~~ The described interim revegetation and stabilization plan is designed to provide effective sediment control for the site ~~until a new owner can assess the viability of this project. In any case, Soldier Creek Coal Company shall submit a complete permit amendment for the fan site or~~ **Although this site will not be developed in the immediate future, access needs to be maintained to the site so that it can be fully developed when mine planning dictates it is needed.** **R03/07/95**

TABLE 7.42-1

No. 3 Fan Exploration Project
Watershed Design Summary
(See Exhibit 7.42-2)

	No. 3 Fan Watershed		
	A	B	Road & Road Up-Slope
Area (acres)	4.91	6.01	0.42
Average Basin Slope (%)	67.5	78.4	44.1
Curve Number	75	75	78
Hydraulic Length (ft)	810	1,500	675
Time of Concentration (hrs)	0.063	0.096	0.042
Design Storm	10yr-6hr	10yr-6hr	10yr-6hr
Precipitation depth (Ins)	1.52	1.52	1.52
Storm type	SCS Type "B"	SCS Type"B"	SCS Type "B"
Peak Flow (cfs)	0.57	0.70	0.08
Runoff (Ins)	0.17	0.17	0.24
Runoff Volume (acre-ft)	0.0712	0.0841	0.0085
Design storm	10yr-24hr	10yr-24hr	10yr-24hr
Precipitation Depth (ins)	1.85	1.85	1.85
Storm Type	Type II	Type II	Type II
Peak Flow (cfs)	1.67	2.04	0.19
Runoff (ins)	0.31	0.31	0.40
Runoff Volume (acre-ft)	0.0712	0.0841	0.0085

No. 3 Fan Exploration Project
Road Drainage Ditch Design Summary

Channel	-	Triangular
Left Side Slope	-	1 h : 1 v
Right Side Slope	-	20 h : 1 v
Channel Slope	-	10.5 %
Flow 10yr-6hr	-	0.65 cfs
Manning's n	-	0.030
Flow Velocity	-	1.35 ft/sec
Flow Depth	-	0.21 ft
Flow Width	-	4.50 ft
Flow Area	-	0.48 ft^2

~~proceed with final reclamation of the fan site by the fall of 1994. The final reclamation activities shall be implemented in accordance with the approved MRP (Section 3.41.22-24). These reclamation activities will include the proper closure of the soil test hole B-1 in accordance with the State of Utah, Administrative Rules for Water Well Drillers.~~

~~Monitoring~~

~~ASCA's discharge will be monitored, if practical, for parameters applicable to State and Federal limitations, and data submitted to DOGM on a quarterly basis.~~

7.42.2.2 Sedimentation Pond

Located just North of R.E.I. storage area. The central facilities sedimentation pond was initially designed by Vaughn Hansen Associates, Salt Lake City, Utah; approved by the regulatory agencies; and constructed during October-November 1979. A portion of the sedimentation pond was subsequently reconstructed during August, 1986. During November 1990, EarthFax Engineering, Inc. was contracted to evaluate the runoff control and treatment facilities for the Central Mine Facilities Expansion. EarthFax's runoff control plan, as well as the sediment pond modifications and final construction report, are presented in Appendix 7-A. Sediment pond modifications according to Appendix 7-A, were completed on November 22, 1991 and are shown on the "as-built" Drawing B-127.

As indicated in Appendix 7-A, the facilities area will contribute 1.62 acre-feet of runoff to the sedimentation pond during the 10 year-24 hour storm. Based on the current configuration, the pond is slightly oversized and will handle an additional 0.27 acre-feet of water.

The total disturbed area contributing to the pond totals 14.7 acres. The sediment storage required to be provided in the pond for this area of disturbance is 1.47 acre-feet. This will result in the maximum sediment storage being at an elevation of 6649.6 feet. The sediment collected in the pond will be removed when 60 percent of the maximum storage volume (0.88 acre-feet) has been deposited. This cleanout level corresponds to an elevation of 6647.6 feet. With the decant elevation at 6649.6 feet, the clean out level will be at least 2.0 feet below the decant level, thus meeting previous requirements of the Utah Bureau of Water Pollution Control placed on operation of the pond.

When sediment reaches the cleanout level it will be analyzed for potential acid-forming, toxic-forming or alkalinity producing materials prior to removal. Tests will be conducted in accordance to "Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining." Division approval on the suitability of the material will be obtained prior to disposal.

R03/07/95

OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT
BOND AMOUNT COMPUTATION

Applicant: Soldier Creek Coal Company

Permit Number: ACT/007/018

Date: 6 March 1995

Number of Acres: 21.82

Type of Operation: Underground Coal

Location: Soldier Canyon; Carbon County, Utah

Prepared by: Gary E. Taylor

Without Surface Expansion

Project SC^3

Date 6 March 1995

WORKSHEET NO. 2

STRUCTURE DEMOLITION AND DISPOSAL COST SUMMARY

Listing of Buildings to be Demolished:

Item	Type of Construction Material	Volume (cubic feet)	Unit Cost Basis	Demolition Cost
1)	See Attached Sheet			
2)				
3)				
4)				
5)				

Total Cost = $

Other Items to be Demolished:

Debris Handling and Disposal Costs:

TOTAL DEMOLITION AND DISPOSAL COST = $929,758

Data Sources: Means Construction Cost Data, 1995, Edition 53

TABLE 5.42–3

DESCRIPTION	MATERIAL	SIZE	UNIT	COST/UNIT	AMOUNT
OFFICE	Mixture	132,000	cu. ft.	$0.23	30,360
FOUNDATIONS	Included in Warehouse				
DISPOSAL					
WAREHOUSE	Mixture	15,950	cu. ft.	$0.23	3,669
FOOTINGS		993	sq. ft.	$14.91	14,806
WALLS		1,852	sq. ft.	$7.41	13,723
FLOORS		8,059	sq. ft.	$2.78	22,404
DISPOSAL		251	cu. yd.	$6.40	1,606
OLD SHOP	Mixture	192,000	cu. ft.	$0.23	44,160
FOOTINGS	Concrete	766	sq. ft.	$14.91	11,421
WALLS	Concrete	1,828	sq. ft.	$7.41	13,545
FLOORS	Concrete	6,033	sq. ft.	$2.78	16,772
DISPOSAL		195	cu. yd.	$6.40	1,248
NEW SHOP	Mixture	45,936	cu. ft.	$0.23	10,565
FOOTINGS	Concrete	256	sq. ft.	$14.91	3,817
WALLS	Concrete	674	sq. ft.	$7.41	4,994
FLOORS	Concrete	4,110	sq. ft.	$2.78	11,426
DISPOSAL		105	cu. yd.	$6.40	672
TRAINING RM.	Mixture	17,748	cu. ft.	$0.23	4,082
FOUNDATIONS	Included in New Shop				
DISPOSAL					
AMB. GARAGE	Mixture	11,600	cu. ft.	$0.23	2,668
FOUNDATIONS	Included in New Shop				
DISPOSAL					
BATH HOUSE	Mixture	96,000	cu. ft.	$0.23	22,080
FOOTINGS	Concrete	715	sq. ft.	$14.91	10,661
WALLS	Concrete	1,590	sq. ft.	$7.41	11,782
FLOORS	Concrete	4,197	sq. ft.	$2.78	11,668
DISPOSAL		153	cu. yd.	$6.40	979
STORAGE SHED	Mixture	32,400	cu. ft.	$0.23	7,452
FOOTINGS	Concrete	431	sq. ft.	$14.91	6,426
WALLS	Concrete	4,906	sq. ft.	$7.41	36,353
FLOORS	Concrete	4,080	sq. ft.	$2.78	11,342
DISPOSAL		261	cu. yd.	$6.40	1,670
SECURITY SHACK	Mixture	512	cu. ft.	$0.23	118
STACKING TUBE	Steel	2,500	cu. ft.	$0.21	525
FOUNDATIONS	Concrete	34	cu. yd.	$95.00	3,230
DISPOSAL		34	cu.yd.	$6.40	218
CONTROL BLDG.	Mixture	1,430	cu. ft.	$0.23	329
8,000 GAL. TANK	Steel	1,070	cu. ft.	$0.21	225
FOOTINGS	Concrete	60	sq. ft.	$14.91	895
WALLS	Concrete	300	sq. ft.	$7.41	2,223
FLOORS	Concrete	200	sq. ft.	$2.78	556
DISPOSAL		17	cu. yd.	$6.40	109
4,000 GAL. TANK	Steel	535	cu. ft.	$0.21	112
FOOTINGS	Concrete	60	sq. ft.	$14.91	895

WALLS	Concrete	300	sq. ft.	$7.41	2,223
FLOORS	Concrete	200	sq. ft.	$2.78	556
DISPOSAL		17	cu. yd.	$6.40	109
1,000 GAL. TANK	Steel	134	cu. ft.	$0.21	28
FOUNDATIONS	Concrete	0	cu. yd.	$95.00	0
DISPOSAL		0	cu.yd.	$6.40	0
1,500 GAL. TANK	Steel	201	cu. ft.	$0.21	42
FOUNDATIONS	Concrete	0	cu. yd.	$95.00	0
DISPOSAL		0	cu.yd.	$6.40	0
60,000 GAL. TANK	Steel	8,022	cu. ft.	$0.21	1,685
FOUNDATIONS	Concrete	52	cu. yd.	$95.00	4,940
DISPOSAL		52	cu.yd.	$6.40	333
LOADOUT BIN	Mixture	15,000	cu. ft.	$0.23	3,450
FOOTINGS	Concrete	810	sq. ft.	$14.91	12,077
DISPOSAL		53	cu. yd.	$6.40	339
SEPTIC TANK	Steel	9,000	cu. ft.	$0.21	1,890
FAN NO. 1	Mixture	15,400	cu. ft.	$0.23	3,542
FAN NO. 2	Mixture	15,300	cu. ft.	$0.23	3,519
CRIB WALL	Concrete	120	cu. yd.	$212.00	25,440
SEWAGE PIPE	4" Steel	10,600	cu. ft.	$6.35	67,310
SUBSTATION 1	Concrete	18	cu. yd.	$212.00	3,816
DISPOSAL		18	cu. yd.	$6.40	115
SUBSTATION 2	Concrete	30	cu. yd.	$212.00	6,360
DISPOSAL		30	cu. yd.	$6.40	192
BELT CONVEYOR	Mixture	57,000	cu. ft.	$0.23	13,110
FOOTINGS	Concrete	352	sq. ft.	$14.91	5,248
DISPOSAL		37	cu. yd.	$6.40	237
PORTALS (3)	Concrete	228	cu. yd.	$212.00	48,336
PORTALS (5)	Concrete	370	cu. yd.	$212.00	78,440
CULVERT ENDS	Concrete	74	cu. yd.	$212.00	15,688
CULVERT	Steel	53,580	cu. ft.	$0.21	11,252
DITCH	Concrete	43	cu. yd.	$212.00	9,116
SMALL CULVERTS	Steel	4,700	cu. ft.	$0.21	987
PARKING LOT	Asphalt	1,865	sq. yd.	$6.60	12,309
OFFICE PARK	Asphalt	716	sq. yd.	$6.60	4,726
OLD YARD ROAD	Asphalt	2,881	sq. yd.	$6.60	19,015
NEW YARD ROAD	Asphalt	2,055	sq. yd.	$6.60	13,563
RELOCATED ROAD AND NEW PORTAL ROAD	Asphalt	4,453	sq. yd.	$6.60	29,390
FENCING	Chain Link	2,000	ft.	$2.29	4,580
POWERLINE	Wire	2,500	ft.	$4.81	12,025
ON-SITE DISPOSAL		30,563	cu. yd.	$6.40	195,603
Subtotal Demolition Cost					$953,376

Project Soldier Creek Coal

Date 25 April 1995

WORKSHEET NO. 5

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Rough Grade

Characterization of Dozer Used (type, size, etc.):

D9N Dozer with "U" Blade - 650 Cy/Hr.

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

300 LF + 5% Effective Grade, Material is fill and well blasted.

Productivity Calculations:

Operating Adjustment Factor = .75 (operator factor) × .80 (material factor) × .83 (work hour factor) × .9 (grade factor) × .94 (weight correction factor) × 1.0 (production method/blade factor) ×

.80 (visibility) × .96 (elevation) × .80 (direct drive transmission) = .26

Net Hourly Production = 650 (normal hourly production) yd^3/hr × .26 (operating adjustment factor) = 168.25 yd^3/hr

Hours Required = 90,820 (volume to be moved) yd^3 ÷ 168.25 (net hourly production) yd^3/hr = 532.82 hrs

Assume three dozers are required for 179.93 Hr./Ea.

Data Sources:

Caterpillar Perfromance Handbook; Edition 24

Project Soldier Creek Coal

Date 25 April 1995

WORKSHEET NO. 6

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE--GRADING

Earthmoving Activity:

Spread Topsoil

Characterization of Dozer Used (type, size, etc.):

Caterpillar - D4C

Description of Dozer Use (push distance, % grade, blade effective length, operating speed, etc.):

300 L.F. + 5% Effective Grade

Productivity Calculations:

Operating Adjustment Factor = .75 (operator factor) x 1.20 (material factor) x .83 (work hour factor) x .9 (grade factor) x .94 (weight correction factor) x 1.0 (production method/blade factor) x

.80 (visibility) x .88 (elevation) x .80 (direct drive transmission) = .36

Hourly Production = 2.2 mi/hr (speed) x 15.42 ft (eff. blade width) x 5280 ft/mi x 1 ac/43,560 ft^2 = 4.11 ac/hr

Net Hourly Production = 4.11 ac/hr (hourly prod.) x .36 (op. adj. factor) = 1.46 ac/hr

Hours Required = 21.82 ac ÷ 1.46 ac/hr = 14.92 hrs

Data Sources:

Caterpillar Perfromance Handbook, Edition 21

Project SC^3

Date 6 March 1995

WORKSHEET NO. 8

PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Loading Topsoil and Riprap

Characterization of Loader Used (type, size, etc.):

Caterpillar 966 E

Description of Loader Use (origin, destination, grade, haul distance, etc.):

50 LF + 2% Effective Grade

Productivity Calculations:

Cycle time = .08 (haul time (loaded)) + .06 (return time (empty)) + .55 (basic cycle time) = .69 min

Net Bucket Capacity = 5.0 yd^3 (heaped bucket capacity) x .95 (bucket fill factor) = 4.75 yd^3

Net Hourly Production = 4.75 yd^3 (net bucket capacity) ÷ .69 min (cycle time) x 50 min/hr (work hour factor) = 344.20 yd^3/hr

Hours Required = 12,241 yd^3 (volume to be moved) ÷ 344.20 yd^3/hr (net hourly production) = 35.56 hrs

Data Sources:

Caterpillar Performance Handbook, Edition 21

Project Soldier Creek Coal

Date 25 April 1995

WORKSHEET NO. 8

PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Backfill Portals

Characterization of Loader Used (type, size, etc.):

915 Eimco LHD

Description of Loader Use (origin, destination, grade, haul distance, etc.):

250 L.F. 0% Grade

Productivity Calculations:

Cycle time = 1.14 (haul time (loaded)) + 1.14 (return time (empty)) + .41 (basic cycle time) = 2.71 min

Net Bucket Capacity = 6 (heaped bucket capacity) yd^3 x .8 (bucket fill factor) = 4.80 yd^3

Net Hourly Production = 4.80 yd^3 (net bucket capacity) ÷ 2.71 min (cycle time) x 50 min/hr (work hour factor) = 88.56 yd^3/hr

Hours Required = 32,778 yd^3 (volume to be moved) ÷ 88.56 yd^3/hr (net hourly production) = 370.12 hrs

Data Sources:

Project SC^3

Date 6 March 1995

WORKSHEET NO. 9

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Topsoil and Riprap Hauling

Characterization of Truck Used (type, size, etc.):

12 Yd. Dump Truck

Description of Truck Use (origin, destination, grade, haul distance, truck capacity, etc.):

4 Mile haul one way

Productivity Calculations:

Cycle time = 6.86 (haul time) + 6.00 (return time) + 2.53 (total loading time) + 2.2 (dump and maneuver time) = 17.59 min

Number of Trucks Required = 17.59 (truck cycle time) ÷ 2.53 (total loading time) = 6

Production Rate = 12 (truck capacity) yd^3 × 6 (# of trucks) ÷ 17.59 (cycle time) min = 4.09 yd^3/min

Hourly Production = 4.09 (production rate) yd^3/min × 50 min/hr (work hour factor) = 204.66 yd^3/hr

Hours Required = 18,474 (yd^3) (volume to be moved) ÷ 204.66 yd^3/hr (hourly production) = 90.27 hrs

21,120 ft./ 3,520 FPM = 6.00 Minutes

21,120 ft/ 3,080 FPM = 6.86 Minutes

Data Sources:

Project SC^3

Date 6 March 1995

WORKSHEET NO. 9A

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Haul Sub-Base

Characterization of Truck Used (type, size, etc.):

20 Ton Bottom Dumps

Description of Truck Use (origin, destination, grade, haul distance, truck capacity, etc.):

Haul Distance - 25 Miles one way

Productivity Calculations:

Cycle time = 33.33 (haul time) + 30.00 (return time) + 8 (total loading time) + .5 (dump and maneuver time) = 71.83 min

Number of Trucks Required = 71.83 (truck cycle time) ÷ 8 (total loading time) = 9

Production Rate = 15.59 (truck capacity) yd^3 x 9 (# of trucks) ÷ 71.83 (cycle time) min = 1.95 yd^3/min

Hourly Production = 1.95 (production rate) yd^3/min x 50 min/hr (work hour factor) = 97.67 yd^3/hr

Hours Required = 396 (volume to be moved) yd^3 ÷ 97.67 (hourly production) yd^3/hr = 4.05 hrs

Haul 132,000 ft./3,960 ft/mn = 33.33

Return 132,000 ft./ 4,400 ft/mn = 30.00

Data Sources:

Project SC^3

Date 6 March 1995

WORKSHEET NO. 10

PRODUCTIVITY FOR HYDRAULIC EXCAVATOR USE (BACKHOE OR POWER SHOVEL)

Earthmoving Activities:

Excavate Culvert

Characterization of the Excavator Used (type, size, etc.):

Caterpillar 215 D LC Excavator

Description of Excavator Used (loading geometry, materials, etc.):

Productivity Calculations:

Net bucket capacity = 1.36 (yd^3) heaped bucket capacity × .70 fill factor = .95 yd^3

Net Hourly Production = .95 (yd^3) net bucket capacity × 55 min/hr work hour factor ÷ .33 min cycle time = 158.33 yd^3/hr

Hours Required = 42.827 (yd^3) volume to be handled ÷ 158.33 yd^3/hr net hourly production = 270.49 hrs

Data Sources:

Caterpillar Perfromance Handbood, Edition 21

Project SC^3

Date 6 March 1995

WORKSHEET NO. 10 A

PRODUCTIVITY FOR HYDRAULIC EXCAVATOR USE (BACKHOE OR POWER SHOVEL)

Earthmoving Activities:

Excavate Cut Areas

Characterization of the Excavator Used (type, size, etc.):

Caterpillar 215 D LC Excavator

Description of Excavator Used (loading geometry, materials, etc.):

Productivity Calculations:

Net bucket capacity = 1.36 (yd^3) (heaped bucket capacity) × .70 (fill factor) = .95 yd^3

Net Hourly Production = .95 yd^3 (net bucket capacity) × 55 min/hr (work hour factor) ÷ .33 min (cycle time) = 158.33 yd^3/hr

Hours Required = 25,683 yd^3 (volume to be handled) ÷ 158.33 yd^3/hr (net hourly production) = 162.21 hrs

Data Sources:

Caterpillar Performance Handbood, Edition 21

Project SC^3

Date 6 March 1995

WORKSHEET NO. 10 B

PRODUCTIVITY FOR HYDRAULIC EXCAVATOR USE (BACKHOE OR POWER SHOVEL)

Earthmoving Activities:

Place Riprap and Filter Blanket

Characterization of the Excavator Used (type, size, etc.):

Caterpillar 215 D LC Excavator

Description of Excavator Used (loading geometry, materials, etc.):

Pick up material and place

Productivity Calculations:

Net bucket capacity = 1.36 (yd^3) (heaped bucket capacity) × .70 (fill factor) = .95 yd^3

Net Hourly Production = .95 yd^3 (net bucket capacity) × 45 min/hr (work hour factor) ÷ .33 min (cycle time) = 129.55 yd^3/hr

Hours Required = 9,910 yd^3 (volume to be handled) ÷ 129,55 yd^3/hr (net hourly production) = 76.50 hrs

Data Sources:

Caterpillar Performance Handbook, Edition 21

Project SC^3

Date 6 March 1995

WORKSHEET NO. 12

PRODUCTIVITY AND HOURS REQUIRED FOR MOTORGRADER USE--GRADING

Earthmoving Activity:

Grade Sub-Base

Characterization of Grader Used (type, size capacity, etc.):

Caterpillar 14 G

Description of Grader Route (push distance, % grade, blade effective length, operating speed, etc.):

Effective Blade Wdith - 8 ft.

Speed - 2.4 MPH

Productivity Calculations:

Contour Grading:

Hourly Production = $\frac{2.4}{\text{speed}}$ mi/hr x $\frac{8}{\text{eff. blade width}}$ ft x 5280 ft/mi x 1 ac/43,560 ft^2 x

$\frac{.3}{\text{work hour factor}}$ = 0.70 ac/hr

Scarification:

Hourly Production = $\frac{\quad}{\text{work speed}}$ mi/hr x $\frac{\quad}{\text{scarifier width}}$ ft x 5280 ft/mi x 1 ac/43,560 ft^2 x

$\frac{\quad}{\text{work hour factor}}$ = _____ ac/hr

Hours Required = 1.49 ac ÷ 0.70 ac/hr = 2.13 hrs

Data Sources:

Catepillar Performance Handbook, Edition 21

Project Soldier Creek Coal

Date 25 April 1995

WORKSHEET NO. 13

SUMMARY CALCULATION OF EARTHMOVING COSTS

Equipment Type	Owning and Operating Cost ($/hr) Equipment + Accessories		Labor Cost ($/hr)		Total Hrs Req'd		Total Cost ($)
DN9 Dozer (3)	[(54,010 $17,610/Machine/Mo.^{3})	+	32.50	] x	179.93 (3)	=	71,553
D4C Dozer	[(70.00)	+	32.50	] x	14.96	=	1,529
966 E Loader	[(46)	+	32.50	] x	35.56	=	2,791
915 LHD	[(40)	+	32.50	] x	370.12	=	26,834
12 Yd Truck 6	[(32.50)	+	22.15	] x	90.27	=	29,600
20 Ton Truck	[(32.00)	+	22.40	] x	4.05	=	2,711
215 D Excavator	[(14,813 $5,120 Mo. x 2.89 Mo.)	+	32.50	] x	509.20	=	31,362
14G Motorgrader	[(4,200)	+	32.50	] x	2.13	=	169
	[( )	+		] x		=	
	[( )	+		] x		=	
	[( )	+		] x		=	
	[( )	+		] x		=	

Total Cost = 166,549

Equipment and Accessory Identification:

Data Sources:

Wheeler Machinery Rental Rates
W.W. Clyde, Equipment and Labor Rental Sheet

Project SC[3]

Date 6 March 1995

WORKSHEET NO. 14

REVEGETATION COSTS

Name and Description of Area to be Revegetated:

Description of Revegetation Activities:

Reseeding:

21.82 acres x ($ _____ per acre + $ 1,692 per acre) = $ 36,919

(# of acres to be reseeded) ($/acre for seedbed preparation) ($/acre for seeding, fertilizing, and mulching) (costs for reseeding)

Planting Trees and Shrubs:

21.82 acres x $ 300 per acre = $ 6,546

(# of acres for planting) ($/acre for planting trees and shrubs) (costs for planting)

Other Revegetation Activity for this Area (e.g., Soil Sampling):

(Describe and provide cost estimate with documentation; use additional sheets if necessary.)

15 Trees/AC X $20/Tree = $300/AC

TOTAL REVEGETATION COST FOR THIS AREA = $ 43,465

Data Sources:

Means Building Construction Cost Data, Edition 53

Project SC^3

Date March 6, 1995

WORKSHEET NO. 15

OTHER RECLAMATION ACTIVITY COSTS

Descriptions of Reclamation Activity:

Seal Portals
Seal Shaft - 6" Slab on Grade
Silt Fence Installation - 63,700 ft.
Remove Pavement - 4"
Remove Signs/Delineators - 6 Signs, 44 Posts

Assumptions:

Seal Portal - Cost per Block = $.91 3 Men to complete work in 3 days, 8 Hours/Day
Seal Shaft - Pump Truck = $17.10/Cu.Yd., Concrete $75.00/Cu.Yd. = $92.10
Silt Fence Installed - $.34/ft., 2 Laborers @ $17.80/Ea. 800 ft./ Hr. Installation
Remove pavement - $6.60/sq. yd.
Remove signs/delineators - $15.65/sign, $8.95/Delineators

Cost Estimate Calculations:

Remove Signs/Delineators - $15.65 x 6 + $8.95 x 44 = $488
Seal Portals - 2,510 sq./ft. x $9.08/50 ft. = $22,800
Seal Shafts - 3.8 cu.yd. x $92.10/cu.yd = 350
Silt Fence Installation - 63,700 ft. x $.34/ft. + $\frac{63,700}{800 \text{ pr.hr.}}$ x $17.80 x 2 = $24,493
Remove Pavement - 1,560 sq. yd. x $6.60 = $10,296

TOTAL = $_____

Other Documentation or Notes:
(Include additional sheets, maps, calculations, etc., as necessary to document estimate.)

Data Sources:

Means Construction Cost Data 1995, Edition 53

Project SC^3

Date 6 March 1995

WORKSHEET NO. 15

OTHER RECLAMATION ACTIVITY COSTS

Descriptions of Reclamation Activity:

Asphalt Reconstructed County Road

Assumptions:

10,692 Cu. Ft. x 145 lb./cu.ft. = 1,550,340 lbs. ÷ 2000 lb/ton = 775.17 Ton

Cost Estimate Calculations:

775.17 Tons x $34.50/Ton = $26,743

TOTAL = $ 85,170

Other Documentation or Notes:
(include additional sheets, maps, calculations, etc., as necessary to document estimate.)

Data Sources:

Means Building Construction Cost Data, Edition 53

Project Soldier Creek Coal

Date 25 April 1995

WORKSHEET NO. 16

RECLAMATION BOND SUMMARY SHEET

1.	Total Facility and Structure Removal Costs	$ 953,376
2.	Total Earthmoving Costs	166,549
3.	Total Revegetation Costs	43,465
4.	Total Other Reclamation Activities Costs	85,170
5.	Subtotal: Total Direct Costs	1,249,560
6.	Mobilization and Demobilization (at 5 % of Item 5) (1% to 5% of Item 5)	62,478
7.	Contingencies (at 7 % of Item 5) (see Table 4)	87,469
8.	Engineering Redesign Fee (at 6 % of Item 5) (see Graph 1)	74,973
9.	Contractor Profit and Overhead (at 8.8 % of Item 5) (see Graph 2)	109,961
10.	Reclamation Management Fee (at 4.4 % of Item 5) (see Graph 3)	54,981
11.	GRAND TOTAL BOND AMOUNT (Sum of Items 5 through 10)	$ 1,639,422
12.	Excalation @ 2.01/Yr. for 2 years	65,905
		1,705,327

Engineering News Record Cost Index: _____ Date: _____

INCORPORATED
EFFECTIVE:
OCT 20 1995
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UTAH DIVISION OIL, GAS AND MINING

Also, the mine plan is designed so that mining will not result in material damage to perennial streams or impoundments having a storage volume of 20 ac-ft or, which could result in environmental degradation or safety hazards to streams, water bodies and associated structures. Furthermore, the proposed mine plan is compatible with conservation of existing aquifers within the permit area.

5.25.30 Public Notice of Proposed Mining

Each owner of property or resident within the area above an underground mining block and adjacent area that could be theoretically affected by subsidence, even though it may not actually occur, will be notified by mail at least six months prior to mining or within that period if approved by the Division. The notification shall contain:

a. Identification of specific areas in which mining will take place.
b. Dates of underground operations that could cause subsidence and specific structures; and
c. Measure to be taken to prevent or control adverse surface effect.

5.25 Refuse Disposal Site

Since no underground mining activity has occurred or will occur beneath or in the immediate area of the site, no subsidence is anticipated at the site. Due to settlement of the refuse and elastic compression of the underlying bedrock, it expected that settlements on the order of 0.5 to 1.0 inches will occur following completion of the disposal area. Some differential settlement of the fill and redistributed topsoil and cover materials will also occur. This minimal settlement is not expected to result in any significant impacts to the site or reclaimed surface.

5.26 Mine Facilities

Central Mine Facilities

Soldier Creek Coal Company's (SC3) new surface facilities expansion and road relocation will provide the needed facilities and space to accommodate an increase in coal production and preparation for up to 3.5 million tons/year.

Surface buildings and structures that presently exist (Table 5.26-1) and those described, immediately following Table 5.26-1, will be used in connection with or to facilitate the underground coal mining activities at the Soldier Canyon Mine (SCM), located 12 miles north of Wellington, Utah. The existing and proposed facilities are shown on Exhibit 5.21-1. Construction on all proposed facilities shown in this section (5.26) will begin by September 15, 1996, and will be completed within a two year construction time frame. Any facilities not

started by this date will either be deleted from the permit or the permit will be changed to show a new construction starting date.

As depicted on Exhibit 5.21-1, the surface facilities do encroach upon the county