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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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November 8, 1989

TO: Richard V. Smith, Permit Supervisor

FROM: Pamela Grubaugh-Littig, Reclamation Engineer pgl

RE: **Updated Reclamation Cost Estimate, Sunnyside Reclamation and Salvage, Inc., Sunnyside Mines, ACT/007/007-89G, Folder #2, Carbon County, Utah**

Synopsis and Proposal

The applicant submitted an adequate updated reclamation cost estimate with the total dollars escalated to 1991 dollars - $2,813,562.00.

Recommendation

This amendment should be approved.

djh
AT45/85

3.5.7.2 Bond Estimate

Mine Portal Sealing

There are 33 portals (Table III-5) and 8 shafts (Table III-5) within the Sunnyside permit area that have not been reclaimed. Nine portals have been sealed but not covered and reclaimed. The portals and shafts are located on Plate III-1. The descriptive parameters are described in Plate III-18 (1 of 2) and Plate III-18 (2 of 2). Tables III-6 and III-8 give a summary and details of shaft sealing costs. Table III-5 gives detail and summary costs for portal sealing.

Portal Closure and Fill

Portal closure and fill costs (Table III-9) include the transport of enough fill material to cover portals to blend with topography where no highwall regrading was calculated. Costs are also included to blast shut portals on top of cliffs that cannot be accessed by equipment. There would be major surface disturbance to construct access roads to close the portals that the operator is proposing to blast shut.

Dismantling and Removing Facilities

A complete list of facilties is inclued in Table III-1 and shown on Plate III-1. The cost of facilities removal was derived from the Means Construction Handbook (1986). These costs include facility dismantling and removal from the site. Foundation breakage and burial sufficient for regrading and reclamation is included. Table III-1 gives the breakdown and cost estimate for facility removal. Unit costs for floor slab removal were converted from costs per square foot to costs per cubic foot for slabs and foundations to allow for ease of calculations when slab thickness varied. Footing removal unit costs were also converted from cost per linear foot to cubic foot. Some of the foundations are covered when the area is regraded and will not be removed.

Power line removal costs were an average of previous removal cost estimates and bids.

Culvert Removal

A total of 26 culverts (Table III-22) are to be removed inside the permit boundary during reclamation. Cost and source of information are shown on the table.

Drill Hole Plugging

AMENDMENT TO
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SUNNYSIDE RECLAMATION AND SALVAGE
SUNNYSIDE MINE - RECLAMATION BOND
BOND ESTIMATE
REVISED 10/18/89

TABLE III-11
REVEGETATION COST SUMMARY

AREA NUMBER	AREA DESCRIPTION	VEGETATION TYPE	TOTAL ACRES	% STEEP SLOPES	HYDROSEEDING ACRES	HYDROSEEDING COST /ACRE	HYDROSEEDING COST	DRILLING ACRES	DRILLING COST /ACRE	DRILLED COST	TOTAL REVEGETATION COST
1	Main complex, including offices, shop, warehouse, parking lot, unit train, preparation plant, No. 3 Mine fan, industrial water tanks, mine portals, & substations.	Sagebrush grass	55.83	0%	0.00	$642	$0	55.83	$403	$22,498	$22,498
2	No. 2 Mine fan, substations, portals, & road.	Sagebrush grass	2.95	0%	0.00	$642	$0	2.95	$403	$1,189	$1,189
3	No. 1 Mine Whitmore Canyon	Sagebrush grass	6.53	0%	0.00	$642	$0	6.53	$403	$2,631	$2,631
4	Storage yard, No. 2 Canyon fan & portal.	Sagebrush grass	7.82	0%	0.00	$642	$0	7.82	$403	$3,151	$3,151
5	No. 2 Mine Water Canyon portals & road.	Sagebrush grass	10.71	0%	0.00	$642	$0	10.71	$403	$4,316	$4,316
6	Test plot, camp, manshaft pond road, methane vent, sediment pond, and mine water discharge.	Sagebrush grass	5.72	0%	0.00	$642	$0	5.72	$403	$2,305	$2,305
7	Refuse disposal areas, industrial waste borrow area, and slurry pond. No revegetation at Columbia bleeders.	Pinyon-juniper & grass	175.42	20%	35.08	$701	$24,577	140.34	$441	$61,842	$86,419
8	No. 1 Mine outcrop fan, substations, portals, roads, and Outside Raise	Pinyon-juniper	8.35	36%	3.01	$696	$2,092	5.34	$436	$2,331	$4,423
9	Upper changehouse, twin shaft fan, manshaft, hoisthouse, Pole Canyon shaft, and B Canyon portal.	Mountain brush	13.88	100%	13.88	$744	$10,329	0.00	$494	$0	$10,329
TOTAL REVEGETATION			287.21		51.97		$36,998	235.24		$100,263	$137,261

Average Revegetation Cost/Acre $478

See equipment operating cost sheets for hourly and unit cost backup.

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SUNNYSIDE RECLAMATION AND SALVAGE
SUNNYSIDE MINE - RECLAMATION BOND
BOND ESTIMATE
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TABLE III-25
RECLAMATION & REVEGETATION COST SUMMARY

AREA NUMBER	AREA DESCRIPTION	TOTAL ACRES	MINE SEALING	REGRADING DISTURBED AREAS	REGRADING HIGHWALL AREAS	PORTAL CLOSURE & FILL	SOIL TEST FERTILIZE & PREPARE	REVEGETATE	POND RECLAIM	SUB-TOTAL RECLAMATION COST
1	Main complex, including offices, shop, warehouse, parking lot, unit train, preparation plant, No. 3 Mine fan, industrial water tanks, mine portals, & substations.	55.83	$10,590	$38,530	$82,472	$199	$11,404	$21,869	$5,237	$170,301
2	No. 2 Mine fan, substations, portals, & road.	2.95	$4,907	$1,137	$2,048	$1,372	$603	$1,189		$11,256
3	No. 1 Mine Whitmore Canyon shafts, road, & ponds	6.53	$5,200	$1,323	$476		$1,334	$2,631	$2,920	$13,884
4	Storage yard, No. 2 Canyon fan & portal.	7.82	$5,619	$4,958	$49,430	$1,700	$1,597	$3,151	$85	$66,541
5	No. 2 Mine Water Canyon portals & road.	10.71	$7,833	$15,244	$2,604		$2,188	$4,316		$32,184
6	Test plot, camp, manshaft pond road, methane vent, sediment pond, and mine water discharge.	5.72		$2,261			$1,168	$2,305		$5,734
7	Refuse disposal areas, industrial waste borrow area, & slurry ponds. Columbia bleeders have no regrade.	175.42		$580,915		$5,100	$35,831	$86,419	$19,438	$727,703
8	No. 1 Mine outcrop fan, substations, portals, roads, and Outside Raise	8.35	$12,713	$3,300		$4,594	$1,706	$4,423		$26,735
9	Upper changehouse, twin shaft fan, manshaft, hoisthouse, Pole Canyon shaft, and B Canyon portal.	13.88	$6,057	$6,264	$35,315	$870	$2,835	$10,329	$2,512	$64,181
TOTAL		287.21	$52,919	$653,932	$172,346	$13,835	$58,666	$136,632	$30,191	$1,118,520

Note: Soil Test, Fertilize, & Prepare cost based on acres x $204.26/acre
See backup cost calculation sheet.

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SUNNYSIDE RECLAMATION & SALVAGE
SUNNYSIDE MINE - RECLAMATION BOND
BOND ESTIMATE
REVISED 11/03/89

TABLE III-29
TOTAL PERFORMANCE BOND ESTIMATE

	SRS AREA	SFC AREA	TOTAL
Mine Sealing	$52,919		$52,919
Regrading Disturbed Areas	$71,331	$580,914	$652,245
Regrading Highwall Areas	$172,346		$172,346
Portal Closure & Fill	$13,835		$13,835
Soil Testing, Preparation & Fertilizing	$21,883	$35,831	$57,714
Revegatation	$50,842	$86,419	$137,261
Pond Reclamation	$10,112	$19,438	$29,550
Dismantling & Removing Facilities	$1,047,520		$1,047,520
Culvert Removal	$7,879	$1,605	$9,484
Plug Drill Holes	$1,956		$1,956
Contractor Mobilization & Demobilization	$10,000		$10,000
Monitoring During 10 Year Responsibility	$97,180	$69,840	$167,020
Revegetation @ 40% Failure Rate *	$29,090	$48,900	$77,990
On-Site Manager - (8 mo. x $4,000/mo.)	$32,000		$32,000
	$1,618,893	$842,947	$2,461,840
Contingency - 10%	$161,889	$84,295	$246,184
	$1,780,782	$927,242	$2,708,024

TOTAL PERFORMANCE BOND ESTIMATE	(YEAR)	(ESCALATED) (FACTOR)	(TOTAL) (BOND)
	1989		$2,708,024
	1990	1.93%	$2,760,289
	1991	1.93%	$2,813,562

* Calculation for Revegetation Failure Rate	Cost		
Soil Testing, Prep., & Fertilizing	$21,883	$35,831	$57,714
Revegetation	$50,842	$86,419	$137,261
Total Revegetation & Soil Testing	$72,725	$122,250	$194,975
Disturbed Acres	111.79	175.42	285.65
Cost/Disturbed Acre	$651	$697	$683
Cost at 40% Failure Rate	$29,090	$48,900	$77,990

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CHAPTER III

SUNNYSIDE RECLAMATION & SALVAGE
SUNNYSIDE MINE
BOND ESTIMATE
REVISED 10/18/89

TABLE III-19
REGRADE AREAS OUTSIDE HIGHWALL

AREA	DESCRIPTION	DISTURBED ACRES	CY REGRADE @ 1' DEPTH	CAT D8L WITH S BLADE DOZER C.Y.	PUSH DISTANCE	RATE /C.Y.	DOZING COST	CAT D8L TRIPLE SHANK RIPPER RIPPING C.Y.	RIP DISTANCE	RATE /C.Y.	RIPPING COST	CAT 769C TRUCK TRUCK C.Y.	HAUL MILES	RATE /C.Y.	TRUCK COST	CAT 988B LOADER LOADER C.Y.	RATE /C.Y.	LOADER COST	TOTAL COST	AVERAGE COST
1	General Area Grading	55.83	90,072	90,072	150	$0.300	$27,022	90,072	400	$0.091	$8,197	0			$0				$35,218	$0.391
2	General Area Grading	2.95	4,759	4,759	50	$0.140	$666	4,759	150	$0.099	$471					0		$0	$1,137	$0.239
3	General Area Grading	3.43 3.1	5,534 5,001	5,534 5,001	50 100	$0.140 $0.220	$775 $1,100	5,534 5,001	150 100	$0.099 $0.105	$548 $525					0		$0	$1,323 $1,625	$0.239 $0.325
4	General Area Grading	7.82	12,616	12,616	150	$0.300	$3,785	12,616	300	$0.093	$1,173							$0	$4,958	$0.393
5	Water Canyon Refuse Borrow Haul General Area Grading (Area not covered in H.W. regrade or refuse area)	3.73 5.91	6,018 9,535	6,018 9,535	50 50	$0.140 $0.140	$842 $1,335	6,018 9,535	300 100	$0.093 $0.105	$560 $1,001	6,018	2.0	$1.250	$7,522	6,018	$0.662	$3,984	$12,908 $2,336	$2.145 $0.245
6	General Area Grading	5.72	9,228	9,228	50	$0.140	$1,292	9,228	100	$0.105	$969								$2,261	$0.245
7	Slurry Area Coarse Refuse (4' Depth) Areas Not Covered by Borrow	71.49 47.04 56.89	115,337 303,565 91,783	115,337 303,565 91,783	50 50 50	$0.140 $0.140 $0.140	$16,147 $42,499 $12,850	115,337 303,565 91,783	400 400 400	$0.046 $0.046 $0.046	$5,306 $13,964 $4,222	115,337 303,565	0.5 0.5	$0.780 $0.780	$89,963 $236,781	115,337 303,565	$0.380 $0.380	$43,828 $115,355	$155,244 $408,598 $17,072	$1.346 $1.346 $0.186
8	General Area Grading	8.35	13,471	13,471	50	$0.140	$1,886	13,471	100	$0.105	$1,414								$3,300	$0.245
9	General Area Grading	9.88	15,940	15,940	150	$0.300	$4,782	15,940	300	$0.093	$1,482								$6,264	$0.393
SUB-TOTAL		282.14		682,859			$114,981	682,859			$39,832	424,920			$334,266	424,920		$163,166		
TOTAL			682,859																$652,245	$0.955

See equipment operating cost sheets for hourly and unit cost backup.

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SUNNYSIDE RECLAMATION & SALVAGE
SUNNYSIDE MINE - RECLAMATION BOND
BOND ESTIMATE
REVISED 10/23/89

TABLE III-1
ESTIMATED COST OF DISMANTLING AND REMOVING FACILITIES

AREA NUMBER	I.D. NUMBER	ITEM	APPROXIMATE YEAR OF COMPLETION	CONSTRUCTION & NOTES	STRUCTURE LENGTH	STRUCTURE WIDTH	STRUCTURE EAVE HEIGHT	STRUCTURE VOLUME	STRUCTURE COST /UNIT	STRUCTURE UNITS	STRUCTURE COST	FOUNDATION LENGTH	FOUNDATION WIDTH	FOUNDATION THICKNESS	FOUNDATION VOLUME	FOUNDATION COST /UNIT	FOUNDATION UNITS	FOUNDATION COST	TOTAL COST
		Power Lines		Costs on a per pole cost.	88.0			0	$100.00	POLE	$8,800				0			$0	$8,800
1		Parking Lot						11,400	$1.45	S.Y.	$1,837				0			$0	$1,837
1		Materials Track			13,055.0				$12.20	L.F.	$159,271				0			$0	$159,271
1	B 1.1	Main Office	1974	Foundation covered by regrade	51.0	50.0	14.2	36,210	$0.17	C.F.	$6,156				0			$0	$6,156
1	B 1.2	Warehouse	1953	Foundation covered by regrade	199.0	72.0	23.0	329,544	$0.17	C.F.	$56,022				0			$0	$56,022
1	B 2	Main Changehouse	1953	Foundation covered by regrade	175.0	71.0	23.0	285,775	$0.17	C.F.	$48,582				0			$0	$48,582
1	B 2.1	Training Building		Foundation covered by regrade	120.0	37.0	17.0	60,000	$0.17	C.F.	$10,200				0			$0	$10,200
1	B 3	Shop	1953	Foundation covered by regrade	202.0	102.0	37.0	762,348	$0.17	C.F.	$129,599				0			$0	$129,599
1	B 4	Warehouse Annex	1960's	Foundation covered by regrade	204.0	30.0	13.5	82,620	$0.17	C.F.	$14,045				0			$0	$14,045
1	B 5	Engineering Office	1975-76	Foundation covered by regrade	54.0	39.0	13.5	28,431	$0.17	C.F.	$4,833				0			$0	$4,833
1	B 6.1	Backfill Building		Metal Building	81.0	49.0	54.0	214,326	$0.17	C.F.	$36,435	81.0	49.0	1.5	5,954	$7.40	C.F.	$44,056	$80,491
1	B 6.2a	Preparation Plant	pre-1950		120.0	80.0	50.0	706,000	$0.22	C.F.	$155,320	120.0	80.0	3.0	28,800	$3.00	C.F.	$86,400	$241,720
1	B 6.2b	Crusher	pre-1950	Foundation covered by regrade	60.0	30.0	39.0	70,200	$0.17	C.F.	$11,934				0			$0	$11,934
1	B 6.2c	Blending Bins	pre-1950	Foundation covered by regrade	140.0	35.0	69.0	250,000	$0.22	C.F.	$55,000				0			$0	$55,000
1	B 6.3a	Stockpile Belt Concrete Pier Support	1968-69					0			$0	16.0	3.8	3.0	182	$3.00	C.F.	$547	$547
1	B 6.3a	Stockpile Belt Concrete Pier Support	1968-69					0			$0	10.5	6.4	3.0	202	$3.00	C.F.	$605	$605
1	B 6.3a	Stockpile Belt Concrete Pier Support - 2	1968-69					0			$0	16.0	4.0	3.0	384	$3.00	C.F.	$1,152	$1,152
1	B 6.3a	Stockpile Belt Concrete Pier @ Tower	1968-69	Foundation covered by regrade				0			$0				0			$0	$0
1	B 6.3a	Stockpile Belt Concrete Pier Supports - 14	1968-69					0			$0	3.0	6.0	3.0	54	$3.00	C.F.	$162	$162
1	B 6.3a	Loadout Conveyor	1968-69		1,230.0			0	$10.00	L.F.	$12,300				0			$0	$12,300
1	B 6.4	Rotary Car Dump	pre-1950	Foundation covered by regrade	70.0	30.0	7.2	15,120	$0.17	C.F.	$2,570				0			$0	$2,570
1	B 6.4	Prep Plant Office	pre-1950	Block Walls	20.0	16.0	8.9	2,848	$0.17	C.F.	$484	20.0	16.0	0.5	160	$7.40	C.F.	$1,184	$1,668
1	B 6.5	Prep Plant Belt MCC Building	pre-1950	Block Walls	18.8	20.7	9.4	3,658	$0.17	C.F.	$622	18.8	20.7	0.5	195	$7.40	C.F.	$1,440	$2,062
4	B 7	Materials Foreman's Office	pre-1950	Block Walls	16.0	20.0	8.1	2,592	$0.17	C.F.	$441	16.0	20.0	0.5	160	$7.40	C.F.	$1,184	$1,625
1	B 8	Hoist House, No. 3 Mine	pre-1950	Block Walls	64.0	33.0	18.0	38,016	$0.17	C.F.	$6,463	64.0	33.0	1.5	3,168	$3.00	C.F.	$9,504	$15,967
9	B 9	Manshaft Bathhouse	1973	Metal Frame	100.0	40.0	15.2	60,800	$0.17	C.F.	$10,336	100.0	40.0	0.5	2,000	$7.40	C.F.	$14,800	$25,136
9	B 10	Hoist House, Manshaft	1973	Block Walls. Foundation covered by regrad	24.0	27.0	11.4	7,387	$0.17	C.F.	$1,256				0			$0	$1,256
9	B 10.1	Headframe, Manshaft	1973		15.0	12.0	40.0	7,200	$0.17	C.F.	$1,224	15.0	12.0	1.0	180	$7.40	C.F.	$1,332	$2,556
1	B 12	Bulk Rock Dust Tank	1977		8.0		30.0	1,508	$0.17	C.F.	$256				0			$0	$256
5	B 13	Water Canyon Hoist House		Concrete (Still has cable drum in place)	24.0	21.5	12.0	6,192	$0.22	C.F.	$1,362	24.0	21.5	1.5	774	$7.40	C.F.	$5,728	$7,090
1	B 15	No. 3 Mine Milk Building		Block Walls	21.3	18.7	8.7	3,457	$0.17	C.F.	$588	21.3	18.7	0.5	199	$7.40	C.F.	$1,470	$2,058
1	B 16	Garage @ Mouth of No. 2 Canyon		Block Walls	24.0	28.0	9.0	6,048	$0.17	C.F.	$1,028	24.0	28.0	0.5	336	$7.40	C.F.	$2,486	$3,515
1	B 17	No. 2 Canyon Trestle Building		Block Walls	25.3	16.0	11.0	4,453	$0.22	C.F.	$980	25.3	16.0	0.5	202	$7.40	C.F.	$1,498	$2,477
4	B 18	Lunch Shed		Concrete	9.0	12.0	7.6	821	$0.17	C.F.	$140				0			$0	$140
4	B 19	No. 2 Canyon Storage Building		Wood Frame & Floor with Corrugated Siding	11.0	12.0	7.3	964	$0.17	C.F.	$164				0			$0	$164
4	B 20	No. 2 Canyon Repair Shop		Wood Frame & Floor with corrugated siding	12.0	16.5	8.9	1,762	$0.17	C.F.	$300				0			$0	$300
4	B 21	No. 2 Canyon Material Shed		Wood Frame & Floor with corrugated siding	130.0	19.4	9.0	22,698	$0.17	C.F.	$3,859	130.0	19.4	0.5	1,261	$7.40	C.F.	$9,331	$13,190
9	B 22	Manshaft Milk Building		Wood Frame with Corrugated Walls - 3 sides	18.0	14.0	9.5	2,394	$0.17	C.F.	$407				0			$0	$407
5	B 23	Water Canyon Bridge		Block Walls. Foundation covered by regrad				0			$0	48.0	26.0	1.5	1,872	$3.00	C.F.	$5,616	$5,616
2	E 1	Substation, No. 2 Mine Outcrop	pre-1950		50.0	50.0	20.0	50,000	$0.17	C.F.	$8,500				0			$0	$8,500
8	E 2	Substation, No. 1 Mine Outcrop	pre-1950		50.0	50.0	20.0	50,000	$0.17	C.F.	$8,500				0			$0	$8,500
1	E 3	Substation, above Rotary Dump	pre-1950		50.0	50.0	20.0	50,000	$0.17	C.F.	$8,500				0			$0	$8,500
1	E 4	Substation, Roadside	1979		50.0	50.0	20.0	50,000	$0.17	C.F.	$8,500				0			$0	$8,500
3	E 5	Substation, near Whitmore Canyon Fan	late-1950's		50.0	50.0	20.0	50,000	$0.17	C.F.	$8,500				0			$0	$8,500
6	E 6	Substation, at Methane Vent Hole			60.0	25.0	12.0	18,000	$0.17	C.F.	$3,060	60.0	25.0	0.5	750	$7.40	C.F.	$5,550	$8,610
2	F 1	Fan, No. 2 Mine	early 1950'		60.0	25.0	12.0	18,000	$0.17	C.F.	$3,060	60.0	25.0	0.5	750	$7.40	C.F.	$5,550	$8,610
1	F 2	Fan, No. 3 Mine	early 1950'		60.0	25.0	12.0	18,000	$0.17	C.F.	$3,060				0			$0	$3,060
4	F 3	Fan, No. 3 Mine in No. 2 Canyon (Shaft)	1977	Foundation covered by regrade	60.0	25.0	12.0	18,000	$0.17	C.F.	$3,060	60.0	25.0	0.5	750	$7.40	C.F.	$5,550	$8,610
8	F 4	Fan, No. 1 Mine Outcrop	early 1950'		60.0	25.0	12.0	18,000	$0.17	C.F.	$3,060	60.0	25.0	0.5	750	$7.40	C.F.	$5,550	$8,610
3	F 5	Fan, No. 1 Mine Whitmore Canyon	late-1950's		60.0	25.0	12.0	18,000	$0.17	C.F.	$3,060				0			$0	$3,060
9	F 6	Fan, No. 1 Mine Twin Shafts	1975	Foundation covered by regrade				0			$0				0			$0	$0
1	M 1	Powder Magazine		Concrete (Covered by highwall regrading)	10.0	12.0	8.0	960	$0.22	C.F.	$211	10.0	12.0	1.0	120	$7.40	C.F.	$888	$1,099
4	M 2	Detonator Caps Magazine	1955	Concrete	70.0		18.0	69,272	$0.17	C.F.	$11,776				0			$0	$11,776
1	W 1a	Mine Water Tank	1955	Foundation covered by regrade	70.0		18.0	69,272	$0.17	C.F.	$11,776				0			$0	$11,776
1	W 1b	Mine Water Tank	1953	Foundation covered by regrade				0			$0				0			$0	$0
9	W 2	Culinary Water Tank		Permanent							$835,937							$211,583	$1,047,520

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AP[illegible] Plan
Approv[illegible] Division of Oil, Gas & Mining

by [illegible] date 11/8/89