

COLORADO

Division of Reclamation, Mining and Safety Department of Natural Resources

1313 Sherman St. Room 215 Denver, CO 80203

April 10, 2018

Mr. George Glasier Pinon Ridge Mining LLC P O Box 825 31161 Highway 90 Nucla, CO 08142-4000

Re: Topaz Mine, Permit No. M-1980-055-HR, Financial Warranty Increase, Revision No. SI-3

Dear Mr. Glasier:

In an effort to ensure the Financial Warranty for the above referenced site adequately reflects the actual current costs of fulfilling the requirements of the approved reclamation plan, the Colorado Division of Reclamation, Mining and Safety (Division) has updated the reclamation cost estimate (copy enclosed). *Therefore, pursuant to Section 34–32–117(4) of the Colorado Land Reclamation Act, adequate Financial Warranty must be submitted to the Division within 60 days of the mailing date of this letter.* The additional amount needs to be accepted prior to Friday, June 08, 2018. Please review the enclosed figures as soon as possible and contact our office if any calculation errors are noted.

Staff calculations estimate the cost to reclaim the above referenced site to be <u>\$99,893.00</u>. This is an increase of <u>\$5,102.00</u> over the <u>\$94,7918.00</u> currently held by the Division. This estimate is based on conditions observed during the March 28, 2018 inspection.

Please make arrangements with Barbara Coria at the Division of Reclamation, Mining and Safety Denver Office, phone no. 303.866.3567, ext. 8148 for submittal of the financial warranty. Any questions regarding completion, execution and/or submittal of financial warranty forms should also be directed to Barbara Coria. If you require additional information, have questions or concerns, please contact me at the DRMS Grand Junction Field Office, by phone at (970)-243-6368 or by email at lucas.west@state.co.us.

Sincerely,

Lucas J. West Environmental Protection Specialist Division of Reclamation, Mining and Safety 1313 Sherman Street, Room 215 Denver, CO 80203 Phone: (970)-243-6368



Enclosure:Reclamation Cost Estimate UpdateCc:Barbara J. Coria, DRMS Financial Assurance Specialist
Russ Means, Senior Environmental Protection Specialist

Ec: James Blair, Bureau of Land Management

COST SUMMARY WORK

Task description: Cost Su Site: Topaz Mine		Cost Summary		· - <u>·</u>	
		Pe	mit Action: 2018 Update	Permit/Job	#: M1980055HR
PROJECT	<u>IDENTIFI</u>	CATION			
Task #:	000	State:	Colorado	Abbreviation:	None
Date:	4/9/2018	County:	San Miguel	Filename:	M055-000
User:	LJW				

TASK LIST (DIRECT COSTS)

Task		Form	Fleet	Task	
	Description	Used	Size	Hours	Cost
001	Demolition of vent collars, removal of fans, onsite disposal	DEMOLISH	1	48.00	\$3,009.33
002	Demolition of structures at portal and pad, onsite disposal	DEMOLISH	1	16.00	\$3,034.81
002b	Backfill ore pad liner and gravel	LOADER	1	4.19	\$334.00
003	Excavate at vent collars for capping	EXCAVATE	1	2.80	\$284.00
004	Install atmospheric bulkhead underground	MINESEAL	1	16.00	\$1,500.00
005	Portal closure	MINESEAL	1	40.00	\$5,804.00
006	Recontour vent access roads	EXCAVATE	1	6.25	\$634.00
007	Rip compaction on vent pad areas	RIPPER	1	2.99	\$747.00
008	Grade vent pad areas	DOZER	1	6.14	\$1,477.00
009	Revegetate vent pad areas	REVEGE	1	8.00	\$948.00
010	Rip compaction on vent roads	RIPPER	1	3.72	\$921.00
011	Grade vent access roads	DOZER	1	4.04	\$972.00
012	Revegetate vent access roads	REVEGE] 1	8.00	\$2,850.00
013	Grade dump slopes, push up to 2:1	DOZER] 1	34.24	\$8,239.00
014	Grade dump pad, push against cut face	DOZER] 1	29.19	\$7,023.00
015	Rip compaction on waste dump pad and access road	RIPPER	1	11.26	\$2,811.00
016	Contour portal and cut face, shape pad	DOZER	1	7.67	\$1,846.00
017	Haul topsoil from stockpile to waste dump	TRUCK1	1	14.18	\$2,780.00
018	Spread topsoil on contoured waste dump pad	DOZER	1	2.81	\$676.00
019	Close and seal water quality monitoring wells	BOREHOLE	1	30.00	\$430.83
020	Grade and contour access roads	DOZER] 1	2.68	\$645.00
021	Recontour upland diversions and runoff catchments	EXCAVATE	1	1.31	\$133.00
022	Revegetate waste dump, access road, and SWMPs	REVEGE	1	20.00	\$15,634.00
023	Haul reclamation equipment to and from site	MOBILIZE	1	7.00	\$4,904.00
		326.47	\$67,637		

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02
Performance bond:	1.05
Job superintendent:	163.23

Total =	\$1,366.27	
Total =	\$710.19	
Total =	\$11,923.95	

Profit: 10.00		Total =	\$6,763.70	
		TOTAL O & P =	\$20,764.11	
CONT	FRACT AMO	OUNT (direct + O & P) =	\$88,401.11	
	_			
LEGAL - ENGINEERING - PROJECT MANAGEMENT	Г:			
Financial warranty processing (legal/related costs):	0.00	Total =	0.00	
Engineering work and/or contract/bid preparation:	8.00	Total =	\$7,072.09	
Reclamation management and/or administration:	5.00		\$4,420.06	
CONTINGENCY:	0.00	Total =	\$0.00	
	тот	AL INDIRECT COST =	\$32,256.25	

TOTAL BOND AMOUNT (direct + indirect) = ______\$99,893.25

DEMOLITION WORK

	Permit Action: 2018	Update		Permit/Job#:	M1980055HR	
St	ate: Colorado					
	ate: Colorado					
Task #: 001 State: Colorado Abbreviation: None Date: 4/10/2018 County: San Miguel Filename: M055-001 User: LJW Agency or organization name: DRMS DRMS						
			Locatio	on adjustmen	t: 96.90 %	
mensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost	
s/diffusers Diam haul, r		24.00	CY	\$17.70	\$424.80	
ft Diam x 1 hick	Floor, concrete, demolition only, average reinforcing - 12 in. thick	510.00	SF	\$1.18	\$601.80	
t Diam x 3 ft	USER PROVIDED 1.00		EA	\$945.00	\$945.00	
x 6' x 0.5"	USER PROVIDED 1.00		EA	\$315.00	\$315.00	
x 6' x 6"	USER PROVIDED ITEM	1.00	EA	\$819.00	\$819.00	
	mensions t H x 6 ft am ft Diam x 1 hick t Diam x 3 ft x 6' x 0.5"	mensionsDemolition Menu Selectiont H x 6 ftLoading and 2 mile haul, no salvage - Machine loadingft Diam x 1Floor, concrete, demolition only, average reinforcing - 12 in. thickt Diam x 3 ftUSER PROVIDED ITEM x 6' x 0.5"x 6' x 6"USER PROVIDED	mensionsDemolition Menu SelectionQuantityt H x 6 ftLoading and 2 mile haul, no salvage - Machine loading24.00ft Diam x 1Floor, concrete, demolition only, average reinforcing - 12 in. thick510.00t Diam x 3 ftUSER PROVIDED ITEM1.00x 6' x 0.5"USER PROVIDED ITEM1.00	LocationmensionsDemolition Menu SelectionQuantityUnitt H x 6 ftLoading and 2 mile haul, no salvage - Machine loading24.00CYft Diam x 1 hickFloor, concrete, demolition only, average reinforcing - 12 in. thick510.00SFt Diam x 3 ftUSER PROVIDED ITEM1.00EAK 6' x 0.5''USER PROVIDED ITEM1.00EA	Demolition Menu SelectionQuantityUnitUnit Costt H x 6 ftLoading and 2 mile haul, no salvage - Machine loading24.00CY\$17.70ft Diam x 1 hickFloor, concrete, demolition only, average reinforcing - 12 in. thick510.00SF\$1.18t Diam x 3 ftUSER PROVIDED ITEM1.00EA\$945.00x 6' x 0.5"USER PROVIDED ITEM1.00EA\$315.00	

				Total Cost	
		Subtotal		(adjusted for	
Job Hours:	48.00	(unadjusted):	\$3,105.60	location):	\$3,009.33

DEMOLITION WORK

Task description	: Demoli	tion of structures at portal	and pad, onsi	te disposa	1		
Site: Topaz Mine Permit Action: 2018 Update Permit/Job#: M1980055H							
PROJECT IDENTIF	ICATION						
Task #:002Date:4/9/2018User:LJWAgency of	Cou			Abbreviat Filena		e 55-002	
<u>UNIT COSTS</u>				Location	n adjustme	nt: 89.00 %	
Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost	
Shop building	35x20x20	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 200 ft. push	14,000.00	CF	\$0.18	\$2,506.00	
Shop bldg concrete 35x20 slab		Demo. and on-site disposal in existing pit, 4 in. thick - Max. 200 ft. push	700.00	SF	\$0.41	\$284.90	
Water tanks with cribbing	10x10x10 ft mass	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 200 ft. push	1,000.00	CF	\$0.18	\$179.00	
Hydrocarbon storage 10x5x5 ft		Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 200 ft. push		CF	\$0.18	\$44.75	
Electric switch gear 10x5x5 ft		Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 200 ft. push	250.00	CF	\$0.18	\$44.75	
Receiver tank and piping	10x10x5 ft	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 200 ft. push	500.00	CF	\$0.18	\$89.50	
Portal shed, steel sets, timbers	10x10x15 ft	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 50 ft.	1,500.00	CF	\$0.17	\$261.00	

				Total Cost	
		Subtotal		(adjusted for	
Job Hours:	16.00	(unadjusted):	\$3,409.90	location):	\$3,034.81

push

WHEEL LOADER - LOAD AND CARRY WORK

Task description:	<u>Backfill</u>	ore pad line	er and gi	ravel				
te: <u>Topaz Mine</u>		Permit	Action:	2018 U	odate	Permit	/Job#	: <u>M1980055H</u>
PROJECT IDENTIF	[CATION							
Task #: 002B Date: 4/9/2018 User: LJW	(olorado an Migue	·1		Abbreviatio Filenam	-	None M055-002b
Agency or orga	nization nam	ne: DRMS	5					
HOURLY EQUIPME	NT COST	•						
Basic Machine: Attachment 1:	CAT 924F ROPS Cab				Shi	sepower: ift Basis: i Source:	1 pe	28 r day RG)
Cost Breakdown:			ł					
Ownership Cost/		\$18.14		Utilizatio NA	on %			
Operating Cost/ Operator Cost/		\$20.22 \$41.20		100 NA				
Total Unit Cost/		\$79.56		INA	,			
Total Fleet Cost	/Hour:	\$79.56						
MATERIAL QUANT	ITIFS							
		,				1.0.00		
Initial volume: Loose volume:	<u>605</u> 641		CCY LCY	Swe	Il factor:	1.060		
Source of es			Division o Cat Handl		ation, Mini	ing & Safety		
HOURLY PRODUCT	<u>'ION</u>							
Loader Cycle Time:		Unadjuste	d Basic C	Cycle Time	e (load, dur maneuvo		5	minutes
Cycle Time Fact						Factor (min.)		Source
Materi		ial 1/8" to 3/4 justment - fa			0.00	-0.020		(Cat HB) (Cat HB)
Truck Ownersh		ion ownershi				-0.040		(Cat HB)
Operatio		ant operation	-0.04			-0.040		(Cat HB)
Dump Targ	et: Nomir	hal target 0.0				0.000		(Cat HB)
				e Time Ad		-0.100		minutes
			Adjusted	l Basic Cy	cle Time:	0.375		minutes
Rolling Resistance - Roa	d Conditions	L						
Haul	Hard, sn	nooth, stabili	zed, surfa	aced, wate	red, mainta	ained 2.0		
Return		100th, stabili						
<u>Haul and Return Time</u>								
	Length	Grade Res		olling	Total Re			Source
	(feet)	(%)	Re	es. (%)	(%)	(minutes)		

Haul Route:	400	0.00	2.00	2.00	0.1972	(Cat HB)					
Return Route:	400	0.00	2.00	2.00	0.1972	(Cat HB)					
				Fravel Time: Cycle Time:	0.3945 0.7695	minutes minutes					
Load Bucket Capacity											
Bucket Fill Fac	Rated Capacity:2.70LCY (heaped)Bucket Fill Factor:0.875Loose material - 1/2" to 3/4" (85 - 90%) 0.875Adjusted Capacity:2.36LCY										
Job Condition Correction Site Altitude: <u>5800</u> feet											
		S	ource								
Altitude Adj:	1.00	(CA	AT HB)								
Job Efficiency:	0.83	(1 sl	hift/day)								
Net Correction:	0.83	mul	tiplier								
Unadjusted Hourly Unit Production: 184.22 LCY/Hour Adjusted Hourly Unit Production: 152.90 LCY/Hour Adjusted Hourly Fleet Production: 152.90 LCY/Hour											
JOB TIME AND CO	<u>DST</u>										
Fleet size:	<u>l</u> Lo	ader(s)	Total job	time:	4.19	Hours					

Unit cost: \$0.520 /LCY Total job cost: \$334

HYDRAULIC EXCAVATOR WORK

Task description:	Excavat	e at vent	collars for	capping			
Site: <u>Topaz Mine</u>		Per	mit Action:	2018 Update		Permit/Jo	b#: <u>M1980055HR</u>
PROJECT IDENTI	FICATION						
Task #: 003 Date: 4/9/2018 User: LJW	8 (State: County:	Colorado San Migu	el	A	Abbreviation: Filename:	None M055-003
Agency or org	ganization nam	ne: DR	MS				
HOURLY EQUIPM	ENT COST						
Basic Machine: Attachment 1:			tick		Horsepowe Weight (MT Shift Basi Data Sourc	T): is:	148 21.55 per day CRG)
Cost Breakdown:			1				
Ownership Cos Operating Cos Operator Cos Total Unit Cos	st/Hour: st/Hour: st/Hour:	\$31.0 \$32.5 \$37.7 \$101.3	0 9 1	Utilization % NA 100 NA			
Total Fleet Co.	st/Hour:	\$101.	31				
	450 599 e of estimated		CCY LCY Division	Swell fac			
Source of a	estimated swel	l factor:	Cat Hand	book			
HOURLY PRODUC	CTION						
Excavator Cycle Time (load bucket, s	wing load	<u>ed, dump b</u>	<u>ucket, swing en</u>	npty):		
				ndition Descrip		.OW AVERA	GE
	Secondary	Job Cond	dition withi	n Basic Descrip Cycle Time V		ERAGE	minutes
Load Bucket Capacity				Cycle Thile V	ande. <u>0.52</u>		
Datad Canaa	:	51	LOV		Bucket Siz	ze Class: <u>M</u>	ledium
Rated Capac Bucket Fill Fact	tor: 1.0	54 000		vell Blasted (95	%-105%) 1.0	000	
Adjusted Capac		54	LCY	<i>a</i> .	1 1		
Job Condition Correctio	<u>m ractors</u>		0	51	te Altitude: 7	7 <u>000</u> reet	
Altitude Adj: Job Efficiency: Net Correction:			Source (CAT HE (1 shift/da multiplier	y)			
	adjusted Hour Adjusted Hour Adjusted Hour	rly Unit P	roduction: roduction:	286.07 213.69 213.69	LCY/H LCY/H LCY/H	our	
JOB TIME AND CO	<u>DST</u>						
Fleet size:	1	Excavato	r To	tal job time:		2.80	Hours
Unit cost:\$	0.474 /I	LCY		Total job cost:		5284	_

SAFEGUARDING UNDERGROUND OPENINGS

Permit Action:	2018 Update	Permit/J	lob#: <u>M1980055HR</u>
ION			
ION			
State: Colorado County: San Miguel			None
nization name: DRMS			
	County: San Miguel	County: San Miguel	County: San Miguel Filename:

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Underground workings	12x15	PUF wall, non backed	1.00	EA	\$1,500.00	\$1,500.00

Job Hours: <u>16.00</u>

Total Cost: \$1,500.00

SAFEGUARDING UNDERGROUND OPENINGS

1	Task description:	Portal closu	re				
Site:	Topaz Mine		Permit Action:	2018 Update	Permit	/Job#:	
<u>PROJEC</u>	CT IDENTIFICATION	<u>N</u>					
Task # Date User	: 4/9/2018	State: County:	Colorado San Miguel		Abbreviation: Filename:	None M055-005	
	Agency or organiza	tion name:	DRMS				
UNIT CO	<u>OSTS</u>						

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Place debris in adit	10x10	Adit closure - backfilling	150.00	CY	\$27.00	\$4,050.00
		(per cu. yd.)				
Earthen backfill, 30 ft.	10x10	Adit closure - backfilling	1.00	EA	\$1,754.00	\$1,754.00
		(per opening)				0.5%

Job Hours: _____ 40.00

Total Cost: \$5,804.00

HYDRAULIC EXCAVATOR WORK

Task description:	Recontour vent access roa	ds		
Site: Topaz Mine	Permit Action	n: 2018 Update	Permit/	Job#: M1980055HR
PROJECT IDENTIFI	CATION			
Task #: 006 Date: 4/9/2018 User: LJW	State: Colorado County: San Mig		Abbreviation Filename	
Agency or organ	ization name: DRMS			
HOURLY EQUIPMEN	NT COST			
Basic Machine: Attachment 1:	Cat 320D L 9'-6" Stick ROPS Cab	W	lorsepower: eight (MT): Shift Basis: vata Source:	148 21.55 1 per day (CRG)
Cost Breakdown:				
Ownership Cost/H Operating Cost/H Operator Cost/H Total Unit Cost/H	Iour: \$32.50 Iour: \$37.79 Iour: \$101.31	Utilization % NA 100 NA		
Total Fleet Cost/H	<u>_</u>	-		
	TIES 110 CCY 293 LCY	Swell factor	: 1.165	
	Festimated volume: Division mated swell factor: Cat Har	n of Reclamation, M ndbook	lining & Safety	
HOURLY PRODUCT	ION			
Excavator Cycle Time (loa	d bucket, swing loaded, dump	bucket, swing empt	<u>y):</u>	
	Basic Job C Secondary Job Condition with	Condition Descriptio nin Basic Descriptio Cycle Time Valu	n: AVERAGE	minutes
Load Bucket Capacity		т	Bucket Size Class:	Medium
Rated Capacity: Bucket Fill Factor: Adjusted Capacity:	0.850 Hard, to		_	
Job Condition Correction F	actors	Site A	Altitude: <u>7000</u> feet	
Ad	Sourc 0.90 (CAT H 0.83 (1 shift/c 0.75 multiplic justed Hourly Unit Production justed Hourly Unit Production usted Hourly Fleet Production	IB) lay) er :276.55 :206.58	LCY/Hour LCY/Hour LCY/Hour	
JOB TIME AND COST				
Fleet size: 1	_	Total job time: _	6.26	Hours
Unit cost:\$0.4	90 /LCY	Total job cost: _	\$634	

HYDRAULIC EXCAVATOR WORK

Task description:	Recontour ver	nt access road	5		
Site: Topaz Mine]	Permit Action:	2018 Update	Pen	mit/Job#: <u>M1980055HR</u>
PROJECT IDENTII	FICATION				
Task #: 006 Date: 4/9/2018 User: LJW	State		el	Abbrevia Filen	
Agency or org	anization name:	DRMS			
HOURLY EQUIPM	ENT COST				
Basic Machine: Attachment 1:	Cat 320D L 9'-6 ROPS Cab	" Stick		Horsepower: Weight (MT): Shift Basis: Data Source:	148 21.55 1 per day (CRG)
Cost Breakdown:		1			
Ownership Cos Operating Cos Operator Cos Total Unit Cos	t/Hour: \$3 t/Hour: \$3 t/Hour: \$10	1.02 2.50 7.79 01.31	Utilization % NA 100 NA		
Total Fleet Cos	st/Hour: \$1	01.31			
MATERIAL OUAN' Initial volume: Loose volume: Source	TITIES 1,110 1,293 of estimated volum	CCY LCY e: Division	Swell fact	or: <u>1.165</u> Mining & Safety	_
	estimated swell facto				
HOURLY PRODUC	TION				
Excavator Cycle Time (load bucket, swing l	oaded, dump b	ucket, swing em	pty):	
			ndition Descript		
	Secondary Job C	ondition within	n Basic Descript Cycle Time Va		minutes
Load Bucket Capacity					minutes
			•	Bucket Size Class:	Medium
Rated Capaci Bucket Fill Fact		LCY (hea Hard, tou	aped) gh clay (80% - 9	90%) 0.850	
Adjusted Capaci		LCY			
Job Condition Correction	n Factors		Sit	e Altitude: <u>7000</u> fee	t
Altitude Adj: Job Efficiency: Net Correction:	0.90 0.83 0.75	Source (CAT HE (1 shift/da multiplier			
Un	adjusted Hourly Un Adjusted Hourly Un Adjusted Hourly Flee	it Production: it Production:	276.55 206.58 206.58	LCY/Hour LCY/Hour LCY/Hour	
JOB TIME AND CO	<u>DST</u>				
Fleet size:	1 Excav	ator To	tal job time:	6.26	Hours
Unit cost:\$(0.490 /LCY		Total job cost:	\$634	

BULLDOZER RIPPING WORK

Task description:	Rip compaction of	on vent pad	areas				
Site: Topaz Mine	Perr	mit Action:	2018 Update	<u>.</u>	Permit/Jo	b#: <u>M19800</u>	55HR
PROJECT IDENTIF	<u>TICATION</u>						
Task #: 007	State:	Colorado		Abb	reviation:	None	
Date: 4/9/2018	County:	San Migue	1		Filename:	M055-007	
User: LJW							
Agency or orga	anization name:	MS					
HOURLY EQUIPM	ENT COST						
Basic Machin	ne: Cat D9T - 9SU			Horsepower:		405	
Ripper Attachme	nt: 1-Shank Ripper		_	Shift Basis:		per day	
				Data Source:	(CRG)	
Cost Breakdown:							
				Utilization %			
	ership Cost/Hour:		\$100.59	NA	_		
	erating Cost/Hour:		\$87.23	100	_		
	ership Cost/Hour:		\$12.57 \$7.32	NA	-		
	erator Cost/Hour:		\$7.32	100 NA	_		
	al Unit Cost/Hour:		\$249.56		-		
Tota	l Fleet Cost/Hour:	\$249	.56				
		k Volume: Depth (ft): : Permit (NA 1.00 maps	BCY Volume:	2,420	NA	BCY or CCY
HOURLY PRODUC	TION						
Seismic:							
	Seismic Veloci	ity:	NA	feet/sec	cond		
Area:							
	Average Ripping Dep		4.05	mph			
	Average Ripping Wid		6.08	degrees	5		
	Average Ripping Leng Average Dozer Spe		100.00	feet			
	Average Maneuver Tin		<u>88.00</u> 0.25	feet feet			
	Production per unit ar	-	0.604	acres/h	our		
Job Condition Correction	-						
Unadjusted	d Hourly Unit Production	on:	0.604	Acres/ł	r		
5	Site Altitud		7,000	feet			
	Altitude A		1.00	(CAT I	HB)		
	Job Efficien		0.83	(1 shift			
	Net Correction	on:	0.83	multipl			
	Adjusted Hourly Unit Pr djusted Hourly Fleet Pr		0.50 0.50	Acres/hr Acres/hr			
JOB TIME AND CO	<u>ST</u>						
Fleet size:	1 Grader(s)		Total job time	e:	2.99	Hours	
Unit cost: \$49	7.745 Per acre		Total job cos	it:	\$747		

CIRCES Cost Estimating Software

BULLDOZER WORK

Task description:	Grade vent pad areas			
Site: <u>Topaz Mine</u>	Permit Action:	2018 Update	Permit/Job	p#:M1980055HR
PROJECT IDENTIF	ICATION			
Task #: 008 Date: 4/9/2018 User: LJW	State: Colorado County: San Migue	1	Abbreviation: Filename:	None M055-008
Agency or organ	nization name: DRMS			
HOURLY EQUIPME	NT COST			
Horsepower: 40 Blade Type: Se Attachment: 3-s Shift Basis: 1 p	t D9T - 9SU 5 mi-Universal shank ripper per day RG)	-		
Cost Breakdown:				
Ownership Cost/Hour:	\$100.59	<u>Utilization %</u> NA		
Operating Cost/Hour:	\$87.23	100		
Ripper own. Cost/Hour:	\$10.94	NA		
Ripper op. Cost/Hour:	\$0.00	0		
Operator Cost/Hour:	\$41.85	NA		
Total Fleet Cost/Hour: <u>MATERIAL QUANT</u> Initial Volume: 4,35 Swell factor: 1.12 Loose volume: 4,90	56			
Source of estimated volu Source of estimated swe factor:		on, Mining & Safety		
HOURLY PRODUCT	TON			
Average push distance: Unadjusted hourly production:	50 feet 2,110.5 LCY/hr			
Materials consistency de	escription: Consolidated stockp	ile 1.0		
Average push gradient: Average site altitude:	0 %			
Material weight:	2,650 lbs/LCY			
Weight description:	Decomposed rock - 25% Rock,	75% Earth	_	
Job Condition Correction		Source		

Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3782

Adjusted unit production:	798.19 LCY/hr
Adjusted fleet production:	798.19 LCY/hr

Fleet size:	_1 Dozer(s)	
Unit cost:	\$0.301/LCY	

Total job time:	6.14 Hours	
Total job cost:	\$1,477	

Page 1 of 2

REVEGETATION WORK

e:	Topaz M	ine	Pe	ermit Action:	2018 Update	Permit/Jol	o#: <u>M1980055HF</u>
PRO	OJECT	IDENTIFI	<u>CATION</u>				
	Task #:	009	State:	Colorado		Abbreviation:	None
	Date:	4/9/2018	County:	San Migue	1	Filename:	M055-009
		LJW	·				

FERTILIZING

Materials Units / Acre Unit Cost / Unit Cost / Acre Image: Image:

Application

Description		Cost /Acre
		\$
	Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description		Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)		\$106.29
	Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	0.96	15.67	\$13.92
Indian Ricegrass - Native	7.42	24.02	\$51.94
Sand Dropseed	0.14	16.71	\$1.52
Bottlebrush Squirreltail	4.08	17.98	\$95.88
Galleta	4.94	18.03	\$122.02
Muttongrass	0.20	4.13	\$6.91
Sagebrush, Mountain or Big	0.20	10.56	\$3.95
Saltbush, Four Wing	0.50	0.69	\$6.25
Winter Fat	0.50	1.27	\$10.25

Application

Description		Cost /Acre
Broadcast seeding [DMG]		\$267.22
	Total Seed Application Cost/Acre	\$267.22

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	1.50	ACRE	\$2.74	\$4.11
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$261.00	\$522.00
Total Mulch Materials Cost/Acre				\$526.11

Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$66.02
Weed spray, hand, non-aquatic area, nox. [DMG]		\$180.00
	Total Mulch Application Cost/Acre	\$246.02

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
		Tota	ls Nursery Stoc	k Cost / Acre	\$0.00

	No. of Acres:	0.5	Cost /Acre:	\$1,458.27	
Estimat	ed Failure Rate:	30%	Cost /Acre*:	\$1,458.27	_
*Selected Replanti	ng Work Items:	TILLING, SEEDING, MULCH	IING		
Initial Job Cost:	\$729.14				
Reseeding Job Cost:	\$218.74				
Total Job Cost:	\$948				
Job Hours:	8.00				

BULLDOZER RIPPING WORK

Task description:	Rip compaction on vent ro	ads			
Site: <u>Topaz Mine</u>	Permit Action	: _2018 Update	P	ermit/Job#:	M1980055HR
PROJECT IDENTIFI	<u>CATION</u>				
Task #: 010	State: Colorado		Abbre	viation: Noi	ne
Date: 4/9/2018	County: San Migu				55-010
User: LJW					
Agency or organ	nization name: DRMS				
HOURLY EQUIPME	NT COST				
Basic Machine			Horsepower:	405	
Ripper Attachmen			Shift Basis:	1 per da	V
			Data Source:	(CRG)	
Cost Breakdown:				()	
<u>cost Breakdown.</u>			Utilization %		
Owner	ship Cost/Hour:	\$100.59	NA		
	ating Cost/Hour:	\$87.23	100		
	ship Cost/Hour:	\$10.94	NA		
	ating Cost/Hour:	\$6.82	100		
	rator Cost/Hour:	\$41.85	NA		
Total	Unit Cost/Hour:	\$247.43			
Total	Fleet Cost/Hour: \$24	7.43			
MATERIAL OUANT		-	method: <u>Area</u>		
Seismic: <u>NA</u> Area: 2.75 a	Bank Volume:		BCY _	N.	
Alta. <u>2.75</u> a	cres Rip Depth (ft):	1.00	Volume:	4,437	BCY or CC
Source	of estimated quantity: Permi	t maps			
HOURLY PRODUCT	ION				
Seismic:	Seismic Velocity:	NA	feet/seco	ad	
	Seisine velocity.	INA	leet/secol	lu	
Area:					
	Average Ripping Depth:	2.63	mph		
	Average Ripping Width:	7.67	degrees		
ľ	Average Ripping Length: Average Dozer Speed:	<u> </u>	feet feet		
٨	verage Maneuver Time:	0.25	feet		
	Production per unit area:	0.891	acres/hou	r	÷2
Job Condition Correction	•			-	
	Hourly Unit Production:	0.891	Acres/hr		
onaujustou	-				
	Site Altitude: Altitude Adj:	7,000	feet))	
	Job Efficiency:	0.83	(CAT HE (1 shift/d	,	
	Net Correction:	0.83	multiplier	• •	
	ijusted Hourly Unit Production: justed Hourly Fleet Production:		Acres/hr Acres/hr		
JOB TIME AND COS	<u>T</u>				
Fleet size:1	Grader(s)	Total job time	e:3.	72	Hours
Unit cost: \$334	.760 Per acre	Total job cos	.t: \$9	21	

CIDCES Cost Estimating Software

Task # 011

BULLDOZER WORK

Task description:	Grade vent acce	ss roads			
Site: Topaz Mine	Per	mit Action:	2018 Update	Permit/Jo	b#: <u>M1980055HR</u>
PROJECT IDENTIFI	<u>CATION</u>				
Task #: 011	State:	Colorado		Abbreviation:	None
Date: 4/9/2018	County:	San Miguel		Filename:	M055-011
User: LJW					· · · · · · · · · · · · · · · · · · ·
Agency or organ	nization name: DR	MS			
HOURLY EQUIPME	NT COST				
Basic Machine:Cat	t D9T - 9SU		_		
Horsepower: 405					
	ni-Universal		-		
	hank ripper		<u>~</u>		
	er day		2		
Data Source: (CF	RG)				
Cost Breakdown:					
		1	Utilization %		
Ownership Cost/Hour:		\$100.59	NA		
Operating Cost/Hour:		\$87.23	100		
Ripper own.		\$10.94	NA		
Cost/Hour:					
Ripper op. Cost/Hour:		\$0.00	0		
Operator Cost/Hour:		\$41.85	NA		
Total unit Cost/Hour:	\$240.61				
Total Fleet Cost/Hour:	\$240.61				
MATERIAL QUANTI	TIES				
Initial Volume: 2,21					
Swell factor: 1.12		_			
Loose volume: 2,49	5 LCY				
Source of estimated volu	me: Division	of Reclamatio	on, Mining & Safety		
Source of estimated swel				· · · · · · · · · · · · · · · · · · ·	
factor:					
HOURLY PRODUCT	ION				
Average push distance:	70 feet				
Unadjusted hourly	1,633.5 LC	Y/hr			
production:					
Materials consistency de	scription: Consoli	dated stockp	ile 1 0		
Average push	0 %				
gradient:			e.		
Average site altitude:	7,000 feet				
-					
Material weight:	2,650 lbs/LCY			_	
					
Weight description:	Decomposed rock	- 25% Rock,	75% Earth		
Job Condition Correction I	Factor		Source		

Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3782

Adjusted unit production:	617.79 LCY/hr	
Adjusted fleet production:	617.79 LCY/hr	

Fleet size:	1 Dozer(s)	
Unit cost:	\$0.389/LCY	

Total job time:	4.04 Hours
Total job cost:	\$972

REVEGETATION WORK

Task descri	ption:	Revegetate vent	access roads		
Site: <u>Topaz M</u>	line	Per	mit Action: 2018 Update	Permit/Joł	o#: M1980055HR
PROJECT	IDENTIFI	<u>CATION</u>			
Task #: Date: User:	012 4/9/2018 LJW	State: County:	Colorado San Miguel	Abbreviation: Filename:	None M055-012
Ag		ization name:	MS		

FERTILIZING

Materials Units / Acre Unit Cost / Unit Cost /Acre Description Image: Signal state state

Application

Description		Cost /Acre
		\$
	Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description		Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)		\$106.29
	10 A	
	Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	0.96	15.67	\$13.92
Indian Ricegrass - Native	7.42	24.02	\$51.94
Sand Dropseed	0.14	16.71	\$1.52
Bottlebrush Squirreltail	4.08	17.98	\$95.88
Galleta	4.94	18.03	\$122.02
Muttongrass	0.20	4.13	\$6.91
Sagebrush, Mountain or Big	0.20	10.56	\$3.95
Saltbush, Four Wing	0.50	0.69	\$6.25
Winter Fat	0.50	1.27	\$10.25

Task # 012

Application

Description		Cost /Acre
Broadcast seeding [DMG]		\$267.22
	Total Seed Application Cost/Acre	\$267.22

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	2.75	ACRE	\$2.74	\$7.54
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$261.00	\$522.00
Total Mulch Materials Cost/Acre				\$529.54

Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$66.02
Weed spray, hand, non-aquatic area, nox. [DMG]		\$180.00
	Total Mulch Application Cost/Acre	\$246.02

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
		Total	s Nursery Stoc	k Cost / Acre	\$0.00

No. of Acres:	1.5	Cost /Acre:	\$1,461.70	
Estimated Failure Rate:	30%	Cost /Acre*:	\$1,461.70	
*Selected Replanting Work Items:	TILLING,SEEDING	,MULCHING		

Initial Job Cost:	\$2,192.55
Reseeding Job Cost:	\$657.77
Total Job Cost:	\$2,850
Job Hours:	8.00

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BULLDOZER WORK

Task description:	Grade dump slo	pes, push up	to 2:1		
e: <u>Topaz Mine</u>	Pe	rmit Action:	2018 Update	Permit/Jo	o#: <u>M1980055HF</u>
PROJECT IDENTIF	ICATION				
Task #: 013 Date: 4/9/2018 User: LJW	State: County:	Colorado San Miguel		Abbreviation: Filename:	None M055-013
Agency or orga	nization name:D	RMS			
HOURLY EQUIPME	NT COST				
	nt D9T - 9SU				
Horsepower: 40			-		
•••	mi-Universal		23		
	shank ripper				
	per day RG)		_		
	KU)	T			
Cost Breakdown:		6			
		0100 50	Utilization %		
Ownership Cost/Hour:		\$100.59	NA		
Operating Cost/Hour: Ripper own.	·	\$87.23	100		
Cost/Hour:		\$10.94	NA		
Ripper op. Cost/Hour:		\$0.00	0		
Operator Cost/Hour:		\$41.85	NA		
-		φ			
Total unit Cost/Hour:	\$240.61				
Total Fleet Cost/Hour:	\$240.61				
MATERIAL QUANT	ITIES				
Initial Volume: 7,00					
Swell factor: 1.21					
Loose volume: 8,50	05 LCY				
Source of estimated volu	ume: Division	of Reclamatio	on, Mining & Safety		
Source of estimated swe					
factor:		,			
HOURLY PRODUCT	TION				
Average push distance:	150 feet				
Unadjusted hourly	910.5 LCY	/hr			
production:					
Materials consistency de	escription: Consol	idated stockni	le 1.0		
			······		
Average push	10 %				
gradient: Average site altitude:	5 800 feat				
Average site attitude:	5,800 feet				
Material weight:	3,300 lbs/LCY				
Material weight.					
Weight description:	Decomposed rock	- 75% Rock,	25% Earth		
-		- 75% Rock,	25% Earth Source		

Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2728

Adjusted unit production:	248.38 LCY/hr		
Adjusted fleet production:	248.38 LCY/hr		

Fleet size:	1 Dozer(s)	
Unit cost:	\$0.969/LCY	

Total job time:	34.24 Hours
Total job cost:	\$8,239

BULLDOZER WORK

te: Topaz Mine		st cut face		
	Permit Action:	2018 Update	Permit/Jo	b#: <u>M1980055HR</u>
PROJECT IDENTIFI	<u>CATION</u>			
Task #: 014 Date: 4/9/2018 User: LJW	State: Colorado County: San Miguel		Abbreviation: Filename:	None M055-014
Agency or organ	nization name:DRMS		100	<u>5</u> 5
HOURLY EQUIPME	<u>NT COST</u>			
Horsepower: 405 Blade Type: Ser Attachment: 3-s Shift Basis: 1 p	t D9T - 9SU 5 mi-Universal hank ripper er day RG)	-		
Cost Breakdown:	1			
Ownership Cost/Hour:	\$100.59	<u>Utilization %</u> NA		
Operating Cost/Hour:	\$100.55	100		
Ripper own. Cost/Hour:	\$10.94	NA		
Ripper op. Cost/Hour:	\$0.00	0		
Operator Cost/Hour:	\$41.85	NA		
MATERIAL QUANTI Initial Volume: 6,00				
Swell factor: 1.21	0 LCY Ime:	n, Mining & Safety		
Swell factor: 1.21 Loose volume: 7,29 Source of estimated volu Source of estimated swe factor:	0 LCY Ime: Division of Reclamatio II Cat Handbook	n, Mining & Safety		
Swell factor: 1.21 Loose volume: 7,29 Source of estimated volu Source of estimated swe factor: HOURLY PRODUCT	0 LCY Ime: <u>Division of Reclamatio</u> Il Cat Handbook <u>TION</u>	on, Mining & Safety		
Swell factor: 1.21 Loose volume: 7,29 Source of estimated volu Source of estimated swe factor:	0 LCY Ime: Division of Reclamatio II Cat Handbook	n, Mining & Safety 		
Swell factor: 1.21 Loose volume: 7,29 Source of estimated volu Source of estimated swe factor: HOURLY PRODUCT Average push distance: Unadjusted hourly	Division of Reclamatio II Cat Handbook TION 150 feet 910.5 LCY/hr			
Swell factor: 1.21 Loose volume: 7,29 Source of estimated volu Source of estimated swe Source of estimated swe factor: HOURLY PRODUCT Average push distance: Unadjusted hourly production: Materials consistency de Average push gradient:	0 LCY Ime: Division of Reclamatio II Cat Handbook 'ION 150 feet 910.5 LCY/hr escription: Consolidated stockpi 5 %			
Swell factor: 1.21 Loose volume: 7,29 Source of estimated volu Source of estimated swe Source of estimated swe factor: HOURLY PRODUCT Average push distance: Unadjusted hourly production: Materials consistency de Average push	00 LCY Ime: Division of Reclamatio II Cat Handbook 'ION			
Swell factor: 1.21 Loose volume: 7,29 Source of estimated volu Source of estimated swe Source of estimated swe factor: HOURLY PRODUCT Average push distance: Unadjusted hourly production: Materials consistency de Average push gradient:	0 LCY Ime: Division of Reclamatio II Cat Handbook 'ION 150 feet 910.5 LCY/hr escription: Consolidated stockpi 5 %			
Swell factor:1.21Loose volume:7,29Source of estimated volu Source of estimated swe factor:HOURLY PRODUCTAverage push distance: Unadjusted hourly production:Materials consistency de Average push gradient: Average site altitude:	0 LCY Ime: Division of Reclamatio II Cat Handbook TON			

Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2743

Adjusted unit production:	249.75 LCY/hr
Adjusted fleet production:	249.75 LCY/hr

Fleet size:	1 Dozer(s)
Unit cost:	\$0.963/LCY

Total job time:	29.19 Hours
Total job cost:	\$7,023

	BULLDOZER	<u>RIPPING WO</u>	<u>DRK</u>			
Task description:	Rip compaction on waste	dump pad and a	access road			
Site: Topaz Mine	Permit Actio	on: 2018 Update	e	Permit/Job	o#: <u>M1980</u> 0	55HR
PROJECT IDENTI	FICATION					
Task #: 015	State: Colorad	lo	Abb	reviation:	None	
Date: 4/9/201				Filename:	M055-015	<u> </u>
User: LJW		0				
Agency or or	ganization name: DRMS					
HOURLY EQUIPM						•
Basic Mach Ripper Attachm			Horsepower: Shift Basis:		405 er day	
			Data Source:		CRG)	
Cost Proskdown			Dutu Source.	(0		
<u>Cost Breakdown:</u>		1	Utilization %			
Ow	nership Cost/Hour:	\$100.59	NA			
	erating Cost/Hour:	\$87.23	100			
	nership Cost/Hour:	\$12.57	NA	-		
Ripper Op	erating Cost/Hour:	\$7.32	100	•		
	perator Cost/Hour:	\$41.85	NA	•		
To	al Unit Cost/Hour:	\$249.56				
Tot	al Fleet Cost/Hour: \$2	249.56				
STATEDIAL OILAN	TATA TA C					
MATERIAL QUAN	IIIIES Se	lected estimating	method: Area			0
Alternate Methods:						
Seismic: NA	Bank Volum	e: NA	BCY		NA	
Area: 6.60	acres Rip Depth (ft		Volume:	10,648		BCY or CCY
Sour	ce of estimated quantity: Perm	nit mans			·	
		ini maps				
HOURLY PRODUC	TION					
<u>Seismic:</u>						
	Seismic Velocity:	NA	feet/sec	ond		
Area:						
<u>•••</u>	Average Ripping Depth:	4.05	mph			
	Average Ripping Width:	6.08	degrees			
	Average Ripping Length:	500.00	feet			
	Average Dozer Speed:	88.00	feet			
	Average Maneuver Time:	0.25	feet			
	Production per unit area:	0.706	acres/ho	our		
Job Condition Correction	n Factors					
Unadjust	ed Hourly Unit Production:	0.706	Acres/h	r		
	Site Altitude:	7,000	feet			
	Altitude Adj:	1.00	(CAT H	(B)		
	Job Efficiency:	0.83	(1 shift/			
	Net Correction:	0.83	multipli	• •		
	Adjusted Hourly Unit Production	n: 0.59	Acres/hr			
	Adjusted Hourly Fleet Production		Acres/hr			
JOB TIME AND CO						
Fleet size:	1 Grader(s)	Total job time	e:1	1.26	Hours	
Unit cost:\$42	25.939 Per acre	Total job cos	st: \$2	2,811		

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BULLDOZER WORK

Task description:	Contour po	rtal and cut face	, shape pad		
Site: Topaz Mine		Permit Action:	2018 Update	Permit/Jo	b#: M1980055HR
PROJECT IDENT	IFICATION				
Task #:016Date:4/9/201User:LJWAgency or or		ate: <u>Colorado</u> aty: <u>San Migue</u> DRMS	1	Abbreviation: Filename:	None M055-016
HOURLY EQUIPM	<u>IENT COST</u>				
Horsepower: Blade Type: Attachment: Shift Basis:	Cat D9T - 9SU 405 Semi-Universal 3-shank ripper 1 per day (CRG)				
Cost Breakdown:		- Ĩ	Utilization %		
Ownership Cost/Hou	ır:	\$100.59	NA		
Operating Cost/Hou		\$87.23	100		
Ripper ow Cost/Hou		\$10.94	NA		
Ripper op. Cost/Hou		\$0.00	0		
Operator Cost/Hou		\$41.85	NA		
Swell factor: 1	r: \$240.61				
Source of estimated v Source of estimated s factor:		sion of Reclamation Handbook	on, Mining & Safety		
HOURLY PRODU	CTION				
Average push distanc Unadjusted hourly production:		LCY/hr			
Materials consistency	description: Co	nsolidated stockp	oile 1.0		
Average push gradient:	5 %				
Average site altitude:	5,800 feet				
Material weight:	2,900 lbs/LC	Y			
Weight description:	Decomposed	rock - 50% Rock,	, 50% Earth		
Job Condition Correcti	on Factor		Source		

Task # 016

Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3120

Adjusted unit production:	455.55 LCY/hr	
Adjusted fleet production:	455.55 LCY/hr	

Fleet size:	1 Dozer(s)	
Unit cost:	\$0.528/LCY	

Total job time:	7.67 Hours
Total job cost:	\$1,846

Page 1 of 4

TRUCK/LOADER TEAM WORK

Task description:	Haul to	psoil from	stock	pile to waste du	mp		
Site: Topaz Mine		Perm	it Act	tion: 2018 Upd	ate	Permit/Job#:	M1980055HR
PROJECT IDEN Task #: 017 Date: 4/9/2		State:	Color San M	ado liguel	Ab		one 055-017
User:LJW							
Agency or	organization nar	ne: DRM	IS				
HOURLY EQUI	PMENT COST	[Shift ba	sis: <u>1 per day</u>	
				Equipment Descr			
Т	ruck Loader Tea	m -Truck: -Loader:		neric 10-12 cy, 6x T 924H	:4		
Supp	ort Equipment -L		NA	19.2.1			
Supp		imp Area:	NA				
Road M	aintenance – Mote		NA				
	-Wa	ter Truck:	NA	· <u>· · · · · · · · · · · · · · · · · · </u>		.	
Cost Breakdown:	Truck/Loa	dar Taam		Summ ant	Farrisment	Maintan	F
Cost Breakuowii.	Truck	Loader		Load Area	Equipment Dump Area	Motor Grader	ance Equipment Water Truck
%Utilization-machine:	100		100	NA	NA	NA	NA
Ownership cost/hour:	\$18.29	\$18	3.14	NA	NA	NA	NA
Operating cost/hour:	\$39.97	\$20).22	NA	NA	NA	NA
%Utilization-riper:	NA		0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$(0.00	NA	NA	NA	NA
Ripper op. cost/hour:	NA	\$0	0.00	NA	NA	NA	NA
Operator cost/hour:	\$0.00	\$41	.20	NA	NA	NA	NA
Unit Subtotals:	\$58.26	\$79	9.56	NA	NA	NA	NA
Number of Units:	2		1	0	0	0	0
Group Subtotals:	Work:	\$196.08		Support:	\$0.00	Maint:	\$0.00
Total work team cos	t/hour: <u>\$196.08</u>						
MATERIAL QUA							
Initial volume Loose volume		4	CCY LCY		factor: <u>1.215</u>		
Sou	urce of estimated	volume:	Divis	sion of Reclamati	on, Mining & Sa	fety	
Source	of estimated swe	_	Cat H	landbook	· •	*	
	Material Purcha		\$0.00				
	10	tal Cost:	\$0.00)			
HOURLY PRO	DUCTION						
Truck Capacity:							
Truck Payload (weig							
Material v		•1		Pounds/LCY	r		
Descr Rated Pa	ription: <u>Top So</u> ayload: 35,400			Pounds		<u> </u>	
Italeu I a		r		i ounus			

Truck/Loader Worksheet Con	ıt'd	Task # 017			Page 2 of	4
Payload Capacity: _	22.13	LCY				
Truck Bed (volume) Basis: Struck Volume: Heaped Volume: Average Volume: Adjusted Volume:	12.00 L 11.00 L	CY CY CY CY				
Final T	ruck Volume Ba	sed on Number of I	Loader Passes:	11.34	LCY	
Loading Tool Capacity						
			Buch	ket Size Class: <u>N</u>	JA	_
Rated Capacity:	2.700	LCY (heaped)		-7/		_
Bucket Fill Factor:	1.050		indy clay (100	% - 110%) 1.050		-
Adjusted Capacity: _	2.835					
Job Condition Corrections:		Site	e Altitude (ft.):	<u>5800</u> feet		
	Truck	Loader	Source	•		
Altitude Adj:	1.000	1.000	(CAT HI			
Job Efficiency:	0.830	0.830	(CAT HI	B)		
Net Correction:	0.830	0.830				
Loading Tool Cycle Time:	Νι	mber of Loading To	ool Passes Req		4	passes
Excavators and Front Shovels	<u>s:</u>			Truck:	T	
Machine Cycle Time vs Selected Value w						
Track Loaders – I	Material Descrip	tion:				
Cycle Time Elements (min.):	1					
Load: NA	Mai	neuver: NA		Dump:0.10	0	
Wheel and Track	Loaders - Unad	usted Basic Loader	•	oad, dump, naneuver):	0.475 minu	ites
Cycle Time Factors				Factor (min.)	Source	
Material:	Mixed materia	1 0.02		0.020	(Cat HB)	_
Stockpile:	Dumped by tru	ick 0.02		0.020	(Cat HB)	_
Truck Ownership:		- factor not applicat	ble 0.00	0.000	(Cat HB)	_
Operation:	Constant opera			-0.040	(Cat HB)	_
Dump Target:	Nominal target	Net Cycle Time	Adjustment	0.000	(Cat HB) minutes	
		Adjusted Loader	•	0.475	_ minutes	
		Net Load Tin	•	1.525	minutes	
Truck Cycle Time:						
Truck Exchange Time:	0.50	Minutes	Adjusted	for site altitude:	0.500	Minutes
Truck Load Time:		Minutes	U U	_		
			U U	for site altitude:	1.525	Minutes
Truck Maneuver and Dump Time:		Minutes	Adjusted	for site altitude:	0.900	Minutes
<u>Truck Travel (Haul & Return)</u> penetration 4.0	Time:	Road Condition: R	utted dirt, little	maintenance, no v	vater, <u>1" tire</u>	

	Thun Route	· •							
	Seg #	Haul	Distance	Grade (%)	Roll. Res	Total Res	Velocity	Travel	7
		(Ft)			(%)	(%)	(fpm)	Time	
					(70)	(70)	(ipili)	(min)	
	1	500.0	0	3.00	4.00	7.00	1568	0.351	
						Haul Time:	0.351	min	
	Return Rou	ite:				Haui Hille.	0.351	11110	1162
	Seg #	Haull	Distance	Grade (%)	Roll. Res	Total Res	Velocity	Travel	_
		(Ft)			(%)	(%)	(fpm)	Time (min)	
	1	500.0	0	-3.00	4.00	1.00	2913	0.197	
						Return Time:	0.197	mir	nutes
					Total True	ck Cycle Time:			nutes
_									lutes
L	oading Too								
	Produ		336.00	LCY/Hour		Adjusted for jo	b efficiency:	278.88	LCY/Hour
Truck	Unit Produ	ction							
		_	195.91	LCY/Hour		Adjusted for jo	b efficiency:	162.61	LCY/Hour
Optima	al No. of Tr	ucks:	2	Truck(s)		Selected Numb	er of Trucks:	2	Truck(s)
				Adjusted	l hourly truck	team production	on: 325.	21 L(CY/Hour
				Adjusted single	e truck/loader	team productio			CY/Hour
			А	djusted multiple					CY/Hour
	JOB TIM	<u>E ANI</u>) COST						
	Fleet s	size:	1	Team(s)	Te	otal job time: _	14.18	3	Hours
	Unit c	cost:	\$0.703	/LCY	Т	otal job cost: _	\$2,78	0	

BULLDOZER WORK

Task description:	Spread tops	oil on contoured	waste dump pad		
Site: Topaz Mine		Permit Action:	2018 Update	Permit/Jo	b#: <u>M1980055HR</u>
PROJECT IDENTI	FICATION				
Task #: 018 Date: 4/9/201 User: LJW		ate: Colorado aty: San Miguel DRMS		Abbreviation: Filename:	None M055-018
HOURLY EQUIPM	-	Didito			
Basic Machine: Horsepower: Blade Type: Attachment: Shift Basis:	Cat D9T - 9SU 405 Semi-Universal 3-shank ripper 1 per day (CRG)				
<u>Cost Breakdown</u> : Ownership Cost/Hou		\$100.59	Utilization % NA		
Operating Cost/Hou Ripper ow Cost/Hou	n	\$87.23 \$10.94	100 NA		
Ripper op. Cost/Hou Operator Cost/Hou	ir:	\$0.00 \$41.85	0 NA		
Total unit Cost/Hour: Total Fleet Cost/Hour					
Swell factor: 1	,954 .000 ,954 LCY olume: Divi	sion of Reclamatic	on, Mining & Safety		
HOURLY PRODUC	CTION	V.			
Average push distance Unadjusted hourly production:	e:60 feet) LCY/hr			
Materials consistency	description: Lo	ose stockpile 1.2	- a - star start baker te		
Average push gradient: Average site altitude:	0 %				
Material weight:	1,600 lbs/LC	Y			
Weight description:	Top Soil				
Job Condition Correction	on Factor		Source		

Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7519

: 0.7519

Adjusted unit production:	1,407.56 LCY/hr	
Adjusted fleet production:	1407.56 LCY/hr	

Fleet size:	1 Dozer(s)	
Unit cost:	\$0.171/LCY	

Total job time:	2.81 Hours
Total job cost:	\$676

BOREHOLE SEALING WORK

1	Task description:	Close and se	eal water qualit	y monitoring wells		
Site: _	Topaz Mine		Permit Action:	2018 Update	Permit	/Job#:
PROJE	CT IDENTIFICATION	<u>v</u>				
Task # Date User	4/9/2018	State: County:	Colorado San Miguel		Abbreviation: Filename:	None M055-019
	Agency or organiza	tion name:	DRMS			

UNIT COSTS

Borehole	Sealing/Item Method						
Description		Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Shallow GW well, cut off casing	Exposed casing removal - Calculate Circumference in Linear Feet	2	24	4.00	LF	\$1.77	\$7.08
Shallow GW well, remove metal cover	Exposed casing removal - Calculate Circumference in Linear Feet	6	4	4.00	LF	\$1.77	\$7.08
Shallow GW well, backfill bentonite	Bentonite seal - 2 in. (labor, equip, materials)	2	22	1.00	LF	\$4.19	\$4.19
Shallow GW well, cement seal top	Portland cement grout - 2 in. (labor, equip, materials)	2	2	2.00	LF	\$7.44	\$14.88
Ambient well, remove metal cover	Exposed casing removal - Calculate Circumference in Linear Feet	6	4	4.00	LF	\$1.77	\$7.08
Ambient well, cut off casing	Exposed casing removal - Calculate Circumference in Linear Feet	4.5	700	4.00	LF	\$1.77	\$7.08
Ambient well, bentonite thru aquifer	Bentonite seal - 4 in. (lanor, equip, materials)	4	100	1.00	LF	\$4.65	\$4.65
Ambient well, mech plug	PVC plug - 4 in. diameter borehole	4	1	1.00	EA	\$29.95	\$29.95
Ambient well, cement seal top	Portland cement grout - 4 in. (labor, equip, materials)	4	4	4.00	LF	\$7.69	\$30.76
Monitoring well (west), remove metal cover	Exposed casing removal - Calculate Circumference in Linear Feet	6	4	4.00	LF	\$1.77	\$7.08
Monitoring well (west), cut off casing	Exposed casing removal - Calculate Circumference in Linear Feet	4.5	700			\$	\$
						\$	\$

Job Hours: CTJT

Tota

Total Cost: CTotalCost

BULLDOZER WORK

Task description:	Grade and c	ontour access roa	ds		
Site: <u>Topaz Mine</u>	- 10-11 (B - 1718	Permit Action:	2018 Update	Permit/Job#	: M1980055HR
PROJECT IDEN	TIFICATION				
Task #: 020 Date: 4/9/2 User: LJW					None M055-020
Agency or	organization name:	DRMS			
HOURLY EQUI	PMENT COST				
Basic Machine: Horsepower: Blade Type: Attachment: Shift Basis: Data Source:	Cat D9T - 9SU 405 Semi-Universal 3-shank ripper 1 per day (CRG)				
<u>Cost Breakdown</u> : Ownership Cost/F	lour:	\$100.59	<u>Utilization %</u> NA		
Operating Cost/H	lour:	\$87.23	100		
Ripper Cost/H		\$10.94	NA		
Ripper op. Cost/H		\$0.00	0		
Operator Cost/H		\$41.85	NA		
Total Fleet Cost/H MATERIAL OU. Initial Volume: Swell factor: Loose volume:	ANTITIES 1,500 1.090 1,635 LCY				
Source of estimate Source of estimate factor:		ion of Reclamation Iandbook	n, Mining & Safety		
HOURLY PROD	UCTION				
Average push dista Unadjusted hourly production:		LCY/hr			
Materials consister	ncy description: <u>Co</u>	nsolidated stockpi	e 1.0		
Average push gradient: Average site altitue	0 % de: 5,800 feet				
Material weight:	2,400 lbs/LCY	[_	
Weight description	n: Clay and grav	el - Dry			
Job Condition Corre	ction Factor		Source		

Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.958	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4174

Adjusted unit production:	609.45 LCY/hr	
Adjusted fleet production:	609.45 LCY/hr	

Fleet size:	1 Dozer(s)
Unit cost:	\$0.395/LCY

Total job time:	2.68 Hours
Total job cost:	\$645

HYDRAULIC EXCAVATOR WORK

Task description:		and diversion	s and runoff cate	chments	
te: <u>Topaz Mine</u>	F	Permit Action:	2018 Update	F	Permit/Job#: M1980055HR
PROJECT IDENTIFI	CATION				
Task #: 021 Date: 4/9/2018 User: LJW	State: County:		1		viation: <u>None</u> ename: <u>M055-021</u>
Agency or organ	nization name:	DRMS			
HOURLY EQUIPME	NT COST				
Basic Machine: Attachment 1:	Cat 320D L 9'-6' ROPS Cab	" Stick	W	Horsepower: /eight (MT): Shift Basis: Data Source:	148 21.55 1 per day (CRG)
Cost Breakdown:					
Ownership Cost/ Operating Cost/ Operator Cost/ Total Unit Cost/	Hour: \$32 Hour: \$37	1.02 2.50 7.79 1.31	Utilization % NA 100 NA	-	
Total Fleet Cost/	'Hour:\$10)1.31			
Loose volume: 2 Source o	50 81 of estimated volume		Swell factor		·
Source of est	timated swell factor	r: Cat Hand	book		
HOURLY PRODUCT	TION				
Excavator Cycle Time (lo	ad bucket, swing lo	aded, dump bi	ucket, swing emp	<u>ty):</u>	
		Basic Job Cor	ndition Descriptic	on: BELOW	AVERAGE
	Secondary Job Co	ondition withir	·	the second se	
Load Bucket Capacity			Cycle Time Valu	ie: 0.323	minutes
			1	Bucket Size Cla	ss: Medium
Rated Capacity Bucket Fill Factor Adjusted Capacity	r: 1.000	LCY (hea Rock - W LCY			
Job Condition Correction	Factors		Site	Altitude: <u>5800</u> :	feet
		Source			
Altitude Adj: Job Efficiency: Net Correction:	0.90 0.83 0.75	(CAT HB (1 shift/da multiplier	<u></u>		
	djusted Hourly Uni	-	286.07	LCY/Hour	
Ad	djusted Hourly Uni	t Production:	213.69	LCY/Hour	
Ad	justed Hourly Flee	t Production:	213.69	LCY/Hour	
JOB TIME AND COS	<u>T</u>				
Fleet size:	Excava	tor To	tal job time:	1.32	Hours
Unit cost: \$0.4	474 /LCY		Total job cost:	\$133	

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REVEGETATION WORK

Task descrip	otion:	Revegetate waste dump, acc	cess road, and SWM	Ps	
te: <u>Topaz M</u>	ine	Permit Action:	2018 Update	Permit/Jo	b#: <u>M1980055HR</u>
<u>PROJECT</u>	<u>IDENTIFI</u>	CATION			
Task #: Date:	022 4/9/2018 LJW	State: <u>Colorado</u> County: <u>San Migu</u>		Abbreviation: Filename:	None M055-022

FERTILIZING

Materials Units / Acre Unit Cost / Unit Cost /Acre \$ \$ \$ \$ \$ \$ \$ Total Fertilizer Materials Cost/Acre \$0.00

Application

Description				Cost /Acre
				\$
	T	otal Fertilizer App	lication Cost/Acre	\$0.00

TILLING

Description		Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)		\$106.29
	Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	0.96	15.67	\$13.92
Indian Ricegrass - Native	7.42	24.02	\$51.94
Sand Dropseed	0.14	16.71	\$1.52
Bottlebrush Squirreltail	4.08	17.98	\$95.88
Galleta	4.94	18.03	\$122.02
Muttongrass	0.20	4.13	\$6.91
Sagebrush, Mountain or Big	0.20	10.56	\$3.95
Saltbush, Four Wing	0.50	0.69	\$6.25
Winter Fat	0.50	1.27	\$10.25

Task # 022

Totals Seed Mix	18.94	109.07	\$312.63

Application

Description	_	Cost /Acre
Broadcast seeding [DMG]	· · · · · · · · · · · · · · · · · · ·	\$267.22
		-
	Total Seed Application Cost/Acre	\$267.22

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	8.50	ACRE	\$2.74	\$23.29
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$261.00	\$522.00
Total Mulch Materials Cost/Acre				\$545.29

Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$66.02
Weed spray, hand, non-aquatic area, nox. [DMG]		\$180.00
	Total Mulch Application Cost/Acre	\$246.02

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
			-		
		Tota	als Nursery Stoc	ek Cost / Acre	\$0.00

No. of Acres:	8.14	Cost /Acre:	\$1,477.45	
Estimated Failure Rate:	30%	Cost /Acre*:	\$1,477.45	
*Selected Replanting Work Items:	TILLING, SEEDIN	G,MULCHING		
Initial Job Cost: \$12.026.44				

Initial Job Cost:	\$12,026.44	
Reseeding Job Cost:	\$3,607.93	
Total Job Cost:	\$15,634	
Job Hours:	20.00	

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EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description:	Ha	ul reclamation ec	uipm	ent to an	d from sit	e		
Site: <u>Topaz Mine</u>		Permit	Action	n: _2018	Update	F	ermit/Job#: <u>M</u>	1980055HR
PROJECT IDE	NTIFICATI	ON						
Task #: 023 Date: 4/9/ User: LJW	/2018		olorado an Mig				viation: <u>None</u> ename: <u>M055</u>	-023
Agency of	or organizatior	n name: DRMS	5			arthu		
EQUIPMENT T	<u>RANSPOR</u>	<u>T RIG COST</u>						
						Shift bas Cost Data Sour		
Truck	Tractor Desc	ription: GENE	RIC O	N-HIGH		JCK TRACTO (2ND HALF, 2	R, 6X4, DIESEL	POWERED,
Truck	c Trailer Desc	ription: G	ENER		ING GOC	<u> </u>	OP DECK EQUI	PMENT
Cost Breakdown:								
Available Rig Ca	apacities	0-25 Tons	26-	50 Tons	51-	+ Tons		
	Cost/Hour:	\$16.63	\$	518.37		22.33		
Operating	Cost/Hour:	\$44.38	\$	546.13	\$:	50.07		
Operator	Cost/Hour:	\$27.66	\$	527.66	\$2	27.66		
Helper	Cost/Hour:	\$0.00	\$	525.39	\$2	25.39		
Total Unit	Cost/Hour:	\$88.67	\$	117.55	\$1	25.45		
NON ROADAB	LE EQUIPN	<u> 1ENT:</u>						
Machine	Weight/	Owner ship	Hau	ll Rig	Fleet	Haul Trip	Return Trip	DOT Permit
Description	Unit	Cost/hr/ unit		t/hr/uni	Size	Cost/hr/	Cost/hr/ fleet	Cost/ fleet
Description	(TONS)		t	un an	5120	fleet		
Cat D9T - 9SU	66.13	\$111.53	\$125	5.45	1	\$236.98	\$125.45	\$250.00
Cat 320D L 9'-6" Stick	23.70	\$31.02	\$88.	67	1	\$119.69	\$88.67	\$250.00
CAT 924H	12.69	\$18.14	\$88.	67	1	\$106.81	\$88.67	\$250.00
					Subtotals:	\$463.48	\$302.79	\$750.00
ROADABLE EQ	UIPMENT	<u>:</u>						
Machine Descript	tion	Total Cost/hr/ unit		Fleet Siz	e	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	

Machine Description	Total Cost/hr/	Fleet Size	Haul Trip	Return Trip
	unit		Cost/hr/ fleet	Cost/hr/ fleet
Generic 10-12 cy, 6x4	\$87.99	2	\$175.98	\$175.98
Drill/Broadcast Seeder with	\$30.89	1	\$30.89	\$30.89
Tractor				
Power Mulcher (Bowie LD-90)	\$21.31	1	\$21.31	\$21.31
Light Duty Pickup, 4x4, 3/4 T.	\$12.26	1	\$12.26	\$12.26
		Subtatal		DODTOR

Subtotals: ROHTCF RORTCF

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	NCTWPAR	
Total one-way travel distance:	TOWTD	miles
Average Travel Speed:	ATS	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig: Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	TNRMDC TRMDC	

Transportation Cycle Time:

	Non-	1
	Roadable	Roadable
	Equipment	Equipment
Haul Time (Hours):	NRHTH	ROHTH
Return Time (Hours):	NRRTH	RORTH
Loading Time (Hours):	NRLTH	NA
Unloading Time (Hours):	NRULTH	NA
Subtotals:	NRTST	ROTST

JOB TIME AND COST

Total job time: _____ Hours

Total job cost: _____CTJC_____