

COLORADO Division of Reclamation, Mining and Safety Department of Natural Resources

MINERALS PROGRAM INSPECTION REPORT PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME:	MINE/PROSPECTING ID#:	MINERAL:	COUNTY:
Bonser Pit	M-2000-156	Gravel	Larimer
INSPECTION TYPE:	INSPECTOR(S):	INSP. DATE:	INSP. TIME:
Monitoring	Jared L. Ebert	March 13, 2017	10:00
OPERATOR:	OPERATOR REPRESENTATIVE:	TYPE OF OPERAT	TION:
Coulson Excavating Company, Inc.	Ken Coulson	112c - Construction I	Regular Operation

REASON FOR INSPECTION:		BOND CALCULATION TYPE:	BOND AMOUNT:
Normal I&E Program		Complete Bond	\$218,003.00
DATE OF COMPLAINT:		POST INSP. CONTACTS:	JOINT INSP. AGENCY:
NA		None	None
WEATHER:	INSPE	CTOR'S SIGNATURE:	SIGNATURE DATE:
Clear	Ja	NO EDEX	March 15, 2017

The following inspection topics were identified as having Problems or Possible Violations. OPERATORS SHOULD READ THE FOLLOWING PAGES CAREFULLY IN ORDER TO ASSURE COMPLIANCE WITH THE TERMS OF THE PERMIT AND APPLICABLE RULES AND REGULATIONS. If a Possible Violation is indicated, you will be notified under separate cover as to when the Mined Land Reclamation Board will consider possible enforcement action.

INSPECTION TOPIC: Gen. Compliance With Mine Plan

PROBLEM/POSSIBLE VIOLATION: Problem: Coulson Excavating Company, Inc. is not following the approved mine plan sequence. The current mine plan needs to be updated and clarified pursuant to C.R.S. 34-32.5-112 (1)(c)(VI). The operator must provide sufficient information to describe or identify how the operator intends to conduct the operation.

CORRECTIVE ACTIONS: The operator shall submit a Technical Revision, with the required \$216 revision fee, to update and clarify the current approved mine plan to reflect existing and proposed activities by the corrective action date.

CORRECTIVE ACTION DUE DATE: 4/26/17

OBSERVATIONS

This was a monitoring inspection of the Bonser Pit, DRMS Permit No. M-2000-156, operated by Coulson Excavating Company, Inc. (CEC). I, Jared Ebert of the Colorado Division of Reclamation, Mining and Safety (Division) conducted the inspection. Mr. Ken Coulson with CEC accompanied me during the inspection. The weather was partly cloudy at the time of the inspection.

This is a 112c mining operation with 146 permitted acres. The operation is mining sand and gravel for construction materials. The commodity is crushed and processed on site. The approved post mine land use for the site is developed water resources.

Backfilling and Grading:

The mining plan calls for mining the site in two phases. Phase 1 consists of two cells and Phase II consists of five cells. It appears the operator has partially mined the majority of the Phase I area with the exception of the southern end of the Phase I/Cell 2 area. The operator is currently mining in the Phase II/Cells 1 and 2 area. They have created a pit that appears to be advancing from east to west. The operator strips the overburden from on top of the sand and gravel and concurrently backfills the eastern end of the pit with this material. At this time it appears the majority of the Phase I/Cells 1 and 2 areas have been backfilled with overburden with the exception of a 1-acre pond area in the northeast corner of Phase I/Cell 1 area, a .2-acre sediment pond in the Phase I/Cell 2 area and a dewatering trench that leads to this sediment pond.

At this time, it appears the operator has backfilled a portion of the Phase I area that was originally proposed to be part of the 55 acre clay lined reservoir. Given this, it is likely the final configuration of the clay line lake may be different than originally proposed. This issue was discussed with Mr. Coulson, and he indicated that the company is currently in communications with several entities that may wish to use the area for water storage. Depending on the outcome of these negotiations the final lake configuration may change from what is currently approved. Once this has been determined, the operator will need to file and receive approval for a Technical Revision with our office to update the final configuration of the lake.

Hydrologic Balance:

The operator has created a 1-acre pond on the northeast corner of the Phase I/Cell 1 area. This pond is used as a source of water to irrigate the vegetation established on the visual berm that separates the mining operation from the landowner to the north.

Gen. Compliance With Mine Plan:

As indicated above, the current approved mine plan calls for mining the site in two phases and each phase was to be bonded for separately. Prior to initiating mining in the Phase II area, the operator was to provide the Division notice and an increase in financial warranty to cover the mining of this phase. This mining plan was approved with Amendment No. 1 (AM01). Given this, AM01 was approved with the following stipulation:

"Coulson Excavating Co., Inc. shall request in writing to the DRMS that the financial warranty be increased prior to opening an additional phase(s). An increase of the financial warranty shall be requested, and provided with the letter to DRMS, by Coulson Excavating Co., Inc. to its bonding/surety provider prior to opening and mining additional phase(s). The increased financial warranty and updated bond forms shall also be provided to the DRMS from Coulson Excavating Co., Inc. bonding/surety provider." This stipulation was included in the approval letter sent to CEC dated April 23, 2010 and is enclosed with this report.

As indicated in the backfilling and grading section of this report, the operator has mined the majority of the Phase I area. The operator is currently mining in the Phase II areas in Cells 1 and 2 and they are quickly advancing west. The operator failed to provide the notification to the Division and failed to provide the additional financial warranty for the Phase II area prior to initiating mining in the Phase II area as required with the approval of AM01. The operator will be required to submit additional financial warranty as described in the Financial Warranty section of this report.

Also, the current mine plan requires the operator to mine the site in a specific sequence. As indicated above, the operator is currently mining in both Phase II/Cells 1 and 2 as opposed to completing mining in Cells 1 prior to advancing to Cells 2. This issue is cited as a problem at the beginning of this report. The operator will be required to submit and receive approval of a technical revision to update the mine plan sequencing.

Financial Warranty:

As discussed in the Gen. Compliance With the Mine Plan section of this report, CEC failed to provide the Division the additional financial warranty and notification prior to excavating in the Phase II area as was required with the approval of AM01. Given this, the operator must submit additional financial warranty to cover the Phase II area as approved in the permit. The cost estimate conducted for both the Phase I and Phase II area was done in 2010 during the review of AM01. Included with this report are two updated cost estimates for the Phase I area and the Phase II area. The Phase I cost estimate was modified since the operator has backfilled the majority of the mining cells in this Phase.

The Division estimates the reclamation cost of the Phase I area and Phase II area to be \$119,195.82 and \$540,039.12 respectively. Given this, the total estimated reclamation cost for the site is \$659,234.94. The Division currently holds a financial warranty in the amount of \$218,003.00 for the site. Given this, the operator will need to increase their financial warranty to cover the total cost to reclaim the site. By March 22, 2017, the Division will issue a Surety Increase (SI) revision; please contact the Division prior to March 22, 2017 to discuss any questions regarding the cost estimate. When the SI is issued, the Operator will then have 60 days to submit the additional financial warranty.

Off-site Damage:

Off-site damage was not observed.

Topsoil:

Topsoil is stored on the northeast corner of the site in a large pile that also acts as a visual berm. The pile is well vegetated and is irrigated by the permittee. According to Mr. Coulson, this material will be used for reclamation.

PERMIT #: M-2000-156 INSPECTOR'S INITIALS: JLE INSPECTION DATE: March 13, 2017

PHOTOGRAPHS



Figure 1. HMA Plant from the scalehouse looking south



Figure 2. The south central pit area looking north.



Figure 3. From the south end of the pit looking northwest.



Figure 4. CEC stripping OB in advance of the pit.

GENERAL INSPECTION TOPICS

The following list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each

(AR) RECORDS <u>NA</u>	(FN) FINANCIAL WARRANTY Y	(RD) ROADS <u>Y</u>
(HB) HYDROLOGIC BALANCE <u>Y</u>	(BG) BACKFILL & GRADING <u>Y</u>	(EX) EXPLOSIVES <u>NA</u>
(PW) PROCESSING WASTE/TAILING <u>NA</u>	(SF) PROCESSING FACILITIES Y	(TS) TOPSOIL <u>Y</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>PB</u>	(FW) FISH & WILDLIFE <u>Y</u>	(RV) REVEGETATION <u>NA</u>
(SM) SIGNS AND MARKERS <u>Y</u>	(SP) STORM WATER MGT PLAN <u>NA</u>	(CI) COMPLETE INSP <u>NA</u>
(ES) OVERBURDEN/DEV. WASTE <u>NA</u>	(SC) EROSION/SEDIMENTATION Y	(RS) RECL PLAN/COMP NA
(AT) ACID OR TOXIC MATERIALS <u>NA</u>	(OD) OFF-SITE DAMAGE <u>Y</u>	(ST) STIPULATIONS <u>N</u>

Y = Inspected and found in compliance / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

Inspection Contact Address

Ken Coulson Coulson Excavating Company, Inc. 3609 North County Road 13 Loveland, CO 80538

Enclosure: 1.) Phase I and Phase II Cost Estimates 2.) AM01 Approval Letter, April 23, 2010

CC: None

STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY Department of Natural Resources

1313 Sherman St., Room 215 Denver, Colorado 80203 Phone: (303) 866-3567

April 23, 2010

FAX: (303) 832-8106

Mr. Ken Coulson Coulson Excavating Company, Inc. 3609 North County Road 13 Loveland, CO 80538

RECLAMATI MINING —&— SAFETY

Bill Ritter, Jr. Governor

James B. Martin Executive Director

Loretta E. Piñeda Director

Re: Bonser Pit, Permit No. M-2000-156, Amendment Approval, Revision No. AM-1

Dear Mr. Coulson:

On April 22, 2010 the Division of Reclamation, Mining and Safety approved the Amendment application submitted to the Division on December 7, 2009, addressing the following:

Increasing the affected area from 90 acres to 146 acres and revising the Mining Plan to include two (2) separate phases.

The terms of the Amendment No. 1 approved by the Division are hereby incorporated into Permit No. M-2000-156. The conditions to the approval are noted below:

Stipulation No. Description

1.

Coulson Excavating Co., Inc. shall request in writing to the DRMS that the financial warranty be increased prior to opening an additional phase(s). An increase of the financial warranty shall be requested, and provided with the letter to DRMS, by Coulson Excavating Co., Inc. to its bonding/surety prior to opening and mining additional phase(s). The increased financial warranty and updated bond forms shall also be provided to the DRMS from Coulson Excavating Co., Inc. bonding/surety provider.

All other conditions and requirements of Permit No. M-2000-156 remain in full force and effect.

The estimated liability amount of \$218,003.00 exceeds the \$186,000.00 performance bond currently held. If you have not already done so, please submit additional bond in the amount of \$32,003.00. The revision will not be final until the bond is approved by the Division.

If you have any questions, please contact me at (303)866-3567 x8116.

Sincerely.

Michael A. Cunningham Environmental Protection Specialist

CC: Tony Waldron, DRMS Elizabeth Merry, DRMS Peter Wayland, Weiland, Inc. (via email)

COST SUMMARY WORK

Та	sk description:					
Site:	Bonser Pit	Permit Action:	Phase I		Permit/Job	#: <u>M2000156</u>
<u>PR</u>	OJECT IDENTIFICATION					
<u>TA</u>	Task #:000StateDate:3/14/2017CourUser:JLEAgency or organization name:SK LIST (DIRECT COSTS)	ate: <u>Colorado</u> nty: <u>Larimer</u> DRMS		A	bbreviation: Filename:	None M156-000
Task	Description		Form Used	Fleet Size	Task Hours	Cost
001	Backfill/Grade Phase I area		TRUCK1	1	61.04	\$64,460.00
002	Replacing topsoil along reservoir sh I	horeline - Phase	SCRAPER1	1	24.34	\$17,209.00
003	Revegetation of disturbed areas - Pl	hase I	REVEGE	1	9.00	\$18,397.00
			SUBTC)TALS:	94.38	\$100,066

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	0.00	Total =	\$0.00
Performance bond:	0.00	Total =	\$0.00
Job superintendent:	47.19	Total =	\$3,447.23
Profit:	10.00	Total =	\$10,006.60
		TOTAL O & P =	\$13,453.83
		CONTRACT AMOUNT (direct + O & P) = $($	\$113,519.83

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

TOTAL BO	ND AMOUNT (d	irect + indirect) =	\$119,195.82
	TOTAL IN	DIRECT COST =	\$19,129.82
CONTINGENCY:	0.00	Total =	\$0.00
Engineering work and/or contract/bid preparation: Reclamation management and/or administration:	0.00 5.00	Total =	\$0.00 \$5,675.99
Financial warranty processing (legal/related costs):	0.00	Total =	0.00

TRUCK/LOADER TEAM WORK

Site: Bonser Pit		Permit Act	tion: Phase I		Permit/Job#:	M2000156
PROJECT IDENT	IFICATION					
Task #: 001		State: Color	ado	Abl	breviation: No	ne
Date: 3/14/2	017 0	County: Larin	ner		Filename: M1	56-001
User: JLE						
Agency or o	organization nam	ne: DRMS				
HOURLY EQUIP	MENT COST			Shift ba	sis: <u>1 per day</u>	
			Equipment Descr	iption		
Tr	uck Loader Tea	n -Truck: Cat	: 740			
	t E min mand I	-Loader: CA	Т 990Н			
Suppor	t Equipment -L	mp Area: Cat	- D9T - 9SU			
Road Mai	ntenance – Moto	or Grader: CA	T 12M			
	-Wat	er Truck: Wa	ter Tanker, 5,000) Gal.		
<u>Cost Breakdown</u> :	Truck/Loa	der Team	Support	Equipment	Maintena	ance Equipment
	Iruck	Loader	Load Area	Dump Area	Grader	water Truck
%Utilization-machine:	100	100	NA	50	25	25
Ownership cost/hour:	\$67.61	\$126.84	NA	\$100.59	\$28.02	\$24.01
Operating cost/hour:	\$53.30	\$118.18	NA	\$43.62	\$7.07	\$8.53
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$25.65	\$41.46	NA	\$40.52	\$38.16	\$39.38
Unit Subtotals:	\$146.56	\$286.48	NA	\$184.73	\$73.25	\$71.93
Number of Units:	3	1	0	1	1	1
Group Subtotals:	Work:	\$726.16	Support:	\$184.73	Maint:	\$145.18
Group Subtotals: Total work team cost/ MATERIAL QUA	Work: hour: <u>\$1,056.0</u> NTITIES	\$726.16 7	Support:	\$184.73	Maint:	\$145.18
Initial volume:	51,400	CCY	Swell	factor: 1.000		
Loose volume:	51,40	0 LCY	7			
Sour	ce of estimated	volume: Exhi	bit L - Reclamati	on Costs - Phase	П	
Source o	f estimated swel	ll factor: Cat	Handbook			
	Material Purcha	se Cost: \$0.0	0			
	То	tal Cost: $\$0.0$	0			

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basi	<u>s:</u>		
Material weight:	1	Pounds/LCY	
Description:	User Provided		
Rated Payload:	87,000	Pounds	

Payload Capacity:	87,000.00		7			
Truck Bed (volume) Basis:	24.20	LOV				
Struck Volume:	24.20	LCY				
Heaped Volume:	31.40	LCY				
Average Volume:	27.80	LCY				
Adjusted Volume:	31.40	LCY				
Final Tr	ruck Volume E	Based on Number of	of Loader Passes:	24.75	LCY	
Loading Tool Capacity			Buck	tet Size Class:	NA	
Rated Capacity:	11.250	LCY (heaped)			
Bucket Fill Factor:	1.100	Other - rock/d	, lirt mixtures (10	0-120%) 1.100		_
Adjusted Capacity:	12.375	LCY	X	,		_
Job Condition Corrections:		:	Site Altitude (ft.):	<u>4850</u> feet		
	Truck	Loader	Source			
Altitude Adi:	1 000	1 000	(CAT HE	3)		
Iob Efficiency:	0.830	0.830	(CAT HE	3)		
	0.020	0.000	(0.111	- /		
Net Correction:	0.830	0.830				
Loading Tool Cycle Time:	٢	Number of Loading	Tool Passes Req	uired to Fill	2	passes
Excavators and Front Shovels	<u>:</u>			11uck.		
Machine Cycle Time vs. Selected Value w	Job Condition ithin this Basic	n Rating: <u>NA</u> c Rating: NA				
Track Loaders – N	Aaterial Descri	ption:				
Cycle Time Elements (min.):						
Load: NA	Μ	aneuver: NA		Dump: 0.10	00	
Wheel and Track	Loaders - Una	djusted Basic Load	ler Cycle Time (lo r	oad, dump, naneuver):	0.600 mir	nutes
Cycle Time Factors				Factor (min)	Source	
Material:	Material 1/8'	' to 3/4" diameter -	0.02	-0.020	(Cat HB)	
Stockpile:	Dumped by t	ruck 0.02	0.02	0.020	(Cat HB)	_
Truck Ownership:	No adjustme	nt - factor not appl	icable 0.00	0.000	(Cat HB)	
Operation:	No adjustme	ent - factor not app	icable 0.00	0.000	(Cat HB)	
Dump Target:	Nominal targ	et 0.00		0.000	(Cat HB)	
	110111111111111	Net Cycle Ti	me Adjustment:	0.000	minutes	_
		Adjusted Load	ler Cycle Time:	0.600	minutes	
		Net Load	Fime per Truck:	0.700	minutes	
			1			
Truck Cycle Time:						
Truck Exchange Time:	0.60	Minutes	Adjusted	for site altitude:	0.600	Minutes
Truck Load Time:	0.700	Minutes	Adjusted	for site altitude:	0.700	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted	for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0 Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Seg #	Haul	Distance	Grade (%)	Roll. Res	Total Res	Velocity	Travel	
_	(Ft)			(%)	(%)	(fpm)	Time	
1	1700.	.00	0.00	3.00	3.00	3005	(min) 1.358	
L			1 1		Haul Time:	1.358	minutes	L
Return Ro	oute:				Thus This.	1.000		
Seg #	Haul	Distance	Grade (%)	Roll. Res	Total Res	Velocity	Travel	
	(Ft)			(%)	(%)	(fpm)	Time (min)	
1	1700.	.00	0.00	3.00	3.00	3005	0.733	
					Return Time:	0.733	minute	s
				Total Tru	ck Cycle Time:	4.391	minute	es s
Loading To	ol unit							
Proc	luction	1,142.31	LCY/Hour		Adjusted for jo	b efficiency:	948.12	LCY/Hour
ruck Unit Proc	luction	220.10				1 000 1		
	-	338.19	LCY/Hour		Adjusted for jo	b efficiency:	280.70	LCY/Hour
otimal No. of T	Frucks:	3	Truck(s)		Selected Numb	er of Trucks:	3	Truck(s)
			Adjusted	l hourly truck	team production	on: 842	.10 LCY	/Hour
			Adjusted single	e truck/loader	team production	on: 842	.10 LCY	/Hour
		А	djusted multiple	e truck/loader	team production	on: 842.	.10 LCY	Hour
JOB TH	ME AN	D COST						
<u>500 II</u>								
Flee	t size:	1	Team(s)	Т	otal job time:	61.04	4 Ho	urs

Fleet size:	1	Team(s)	Total job time:	61.04	Ho
Unit cost:	\$1.254	/LCY	Total job cost:	\$64,460	

SCRAPER TEAM WORK

Site: Bonser Pit		Perm	it Action:	Phase I	F	Permit/Job#: <u>M2</u>	2000156
PROJECT IDENT	IFICATION						
Task #· 002	St	ate (California		Abbrey	viation: None	
Date: $3/14/2017$ County:		ntv: I	Larimer		Fil	ename: M156-	002
User: JLE							
Agency or or	ganization name:	DRM	IS				
HOURLY EQUIPM	<u>MENT</u>			COSTS	Shift basis: <u>1 per</u>	<u>day</u>	
			Equipme	nt Description			
	-Sc	craper:	Cat 627	G w/push-pull			
Support		Dozer:	NA				
Support	-Dump-Dump	Area:	NA				
Road Mair	ntenance – Motor G	rader:	CAT 14	М			
	-Water	Fruck:	Water T	anker, 5,000 Ga	1.		
Cost Bussledown	Sama an Ward	- T		Course and France		Maintanan	
<u>Cost Breakdown</u> :	Scraper worl	<u>Cream</u> Doz	zer	Load Area	Dump Area	Motor Grader	Water Truc
0/ Litilization machine	100		NIA	NA		50	
% Utilization-machine:	\$00.75		NA	NA NA	NA	\$54.68	\$24.0
Ownership cost/hour:	\$118.23		NA	NA NA	NA NA	\$23.50	\$24.0
%Utilization_ripper:	۹118.25 NA		NA	NA	NA	\$23.30 NA	φ0 Ν
Ripper own_cost/hour:	NA		NA	NA	NA	\$0.00	\$0.0
Ripper own. cost/hour:	NA		NA	NA	NA	\$0.00	\$0.0
Operator cost/hour:	\$41.46		NA	NA	NA	\$38.16	\$39.3
Unit Subtotals:	\$259.44		NA	NA	NA	\$116.33	\$71.9
Number of Units:	2		0	0	0	1	4.20
Group Subtotals:	Work:	\$518	3.88	Support:	\$0.00	Maint:	\$188.26
Total work team cost/h	nour: \$707.14						
MATERIAL OUA	NTITIES						
Initial volume: Loose volume:	19,360 19,360		CCY LCY	Swell fac	tor: <u>1.000</u>		
Source	ce of estimated vol	ume:	DRMS E	stimate			
Source of	estimated swell fa	actor:	Cat Hand	lbook			
HOURLY PRODU	<u>CTION</u>						
				Scraper H	Bowl (volume) Ba	usis:	
Material weight:	1 lbs/LCY			Struck	Volume: 15.70	I	.CY
Material description:	User Provided		Heaped Volume: 22.00 LCY				
r · · ·				-			

Cycle Time:

Scraper Loading Time: Maneuver and Spread Time:

Job Condition Correction:

Site Altitude: 4850 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	900.00	0.00	3.00	3.00	2824	0.43

<u>0.90</u> Minutes

<u>0.60</u> Minutes

Haul Time: **0.43** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	900.00	0.00	3.00	3.00	2874	0.43
				Return Time:	0.43	minutes
			Total Scraper	team cycle time:	2.36	minutes
			Adjusted for	or job conditions:	795.53	LCY/Hour
			Selected Nur	nber of Scrapers:	2	Scraper(s)
	Adjusted s	ingle scrape	r team (unit) ho	ourly production:	795.53	LCY/Hour
	Adjusted mul	tiple scraper	team (fleet) he	ourly production:	795.53	LCY/Hour
0	Unadjusted unit prod ptimal Number of Scrap	uction/hour: ers per push dozer:	958.47	LCY/Hour		
JOB TIN Fleet	IE AND COST size: 1	Team(s)	То	otal job time:	24.34	Hours

Unit cost: \$0.889 /LCY

Total job cost:	\$17 200
Total job cost.	\$17,209

REVEGETATION WORK

Task descrip	otion:	Revegetation of disturbed a	reas - Phase I		
te: Bonser P	it	Permit Action	Phase I	Permit/Jo	b#: <u>M2000156</u>
PROJECT	<u>IDENTIFI(</u>	CATION			
Task #:	003	State: Colorado		Abbreviation:	None
Date:	3/14/2017	County: Larimer		Filename:	M156-003
	IJЕ				

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Potassium nitrate, 13-46-0	250.00	pound	\$1.23	\$307.50
			Total Fertilizer Materials Cost/Acre	\$307.50

Application

Description		Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)		\$144.62
	Total Fertilizer Application Cost/Acre	\$144.62

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
Switchgrass - Nebraska 28	4.00	35.72	\$43.00
Sideoats Grama - Vaughn	5.00	16.41	\$50.00
Thickspike Wheatgrass - Critana	8.00	28.28	\$45.92
Totals Seed Mix	17.00	80.42	\$138.92

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00

Total Seed Application Cost/Acre \$232.00

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

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

NURSERY STOCK PLANTING

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

JOB TIME AND COST

No. of Acre	s: 18	Cost /Acre:	\$929.33
Estimated Failure Rate	e: 25%	Cost /Acre*:	\$370.92
*Selected Replanting Work Item	s: SEEDING		· · · · · · · · · · · · · · · · · · ·
Initial Job Cost: \$16,727.94			
Reseeding Job Cost: \$1,669.14			
Total Job Cost: \$18,397		_	
Job Hours: 9.00			

COST SUMMARY WORK

te: <u>1</u>	Bonser Pi	t	Permit Act	ion: Phase II	Permit/.	Job#: <u>M2000156</u>
<u>PR</u>	OJECT I	DENTIFIC	CATION			
	Task #:	000	State: Colora	ıdo	Abbreviation	None
	Data	3/14/2017	County: Larim	er	Filename	M156-000
	Date:	5/11/2017	eounty: Burn			

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet	Task Hours	Cost
001	Dewatering Phase II	PUMPING	1	76.00	\$55.146.00
002	Backfill/Grade Phase II area	TRUCK1	1	158.21	\$167,079.00
003	Rip shale from pit floor to construct reservoir liner - PII	RIPPER	1	63.24	\$15,564.00
004	Place and Compact Liner - Phase II	SCRAPER1	1	84.04	\$81,155.00
005	Replacing topsoil along reservoir shoreline - Phase II	SCRAPER1	1	50.70	\$35,851.00
006	Revegetation of disturbed areas - Phase II	REVEGE] 1	18.50	\$37,816.00
007	Backfill/Grade Sediment Pond	TRUCK1] 1	3.63	\$3,832.00
008	Place slope protection on East Shore	LOADER] 1	8.43	\$2,415.00
009	QA/QC; \$723.88/day @ 15 Days	NA	1	120.00	\$10,858.20
010	Mobilization and Demobilization of Equipment	MOBILIZE	1	3.08	\$8,536.00
		<u>SUBTO</u>	TALS:	585.83	\$418,252

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$8,448.69
Performance bond:	1.05	Total =	\$4,391.65
Job superintendent:	292.92	Total =	\$21,397.44
Profit:	10.00	Total =	\$41,825.20
		TOTAL O & P =	\$76,062.98
		CONTRACT AMOUNT (direct + O & P) = $($	\$494,314.98

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

TOTAL BO	ND AMOUNT (d	irect + indirect) =	\$540,039.12
	TOTAL IN	NDIRECT COST =	\$121,787.12
CONTINGENCY:	0.00	Total =	\$0.00
Reclamation management and/or administration:	5.00	_	\$24,715.75
Engineering work and/or contract/bid preparation:	4.25	Total =	\$21,008.39
Financial warranty processing (legal/related costs):	0.00	Total =	0.00

PUMPING WORK

Task description:	Dewatering Phase II			
Site: Bonser Pit	Permit Actio	on: Phase II	Permit/Job	#: <u>M2000156</u>
PROJECT IDENTIF	ICATION			
Task #: 001 Date: 3/14/2017 User: JLE	State: Colorad County: Larimer	lo	Abbreviation: Filename:	None M156-001
Agency or orga	nization name: DRMS			
HOURLY EQUIPME	CNT COST			
Make and Model: Attachment 1: Attachment 2: Labor Unit 1:	Description Centrifugal pump - 200M, 1 Suction hose - 6 in. diam., 2 Discharge hose - 6 in. D., 2 Pump operator	10 in. 25 ft. 5 ft.	Quantity 2 4 0	
Horsepower: Shift Basis: 1 Weight: (U	70 per day 1.95 (S Tons)			
Cost Breakdown:				
Ownership Cost/ Operating Cost/ Operator Cost/ Total Unit Cost/	Hour: \$18.10 Hour: \$33.72 Hour: \$0.00 Hour: \$51.82	Utilization % NA 100 NA	-	
Total Fleet Cost	/Hour: \$51.82	_		
PUMPING OUANTI	rifs			
Initial Pond Vol Final Pond Vol Total Pond Inflow Su	lume: 595.00 lume: 193,881,095.10 urface Area: 1	gallons	Conversion factor: Unit inflow rate in	0.1758
Total Pond Inflow Vo		54.10	Spin of the	
per J	Hour: 0.18	gallons		
Source	of estimated volume: DRMS	5 Estimate		
<u>PUMPING TIME</u> Maz E Estin	timum Pump Capacity:	200,000 25 25 50 81,000 4,850	gph/pump feet feet feet gph/pump feet	
Adjus Initial Una Inflow o Net Una Altitu P Total Ad	ted Pumping Capacity: djusted Pumping Time: during Initial Pumping: djusted Pumping Time: ide Adjustment Factor: ump Efficiency Factor: djusted Pumping Time:	162,000 1,196.80 210 1,196.80 0.9700 0.9167 1,064.19	gph hours gallons Hours (3% rule) (55 min./hr.) hours	

JOB TIME AND COST

			Total job time:	1,064.19	Hours
Unit cost:	\$0.000284	/Gallon	Total job cost:	\$55,146	

TRUCK/LOADER TEAM WORK

Task description:	Backfil	l/Grade Phas	se II	area				
Site: Bonser Pit		Permit	Act	ion: <u>Phase II</u>		Permit/Jo	b#: _	M2000156
PROJECT IDE	NTIFICATION							
Task #: 002		State: Co	: Colorado			previation:	Nor	ne
Date: 3/14	4/2017	County: La	arim	er		Filename:	M1	56-002
User: JLE								
Agency of	or organization nar	ne: DRMS	5					
HOURLY EQU	IPMENT COST	<u>[</u>			Shift ba	sis: <u>1 per da</u>	<u>y</u>	
]	Equipment Descr	iption			
	Truck Loader Tea	m -Truck:	Cat	740	•			
		-Loader:	CA	Г 990Н				
Sup	port Equipment -L	oad Area:	NA					
Deedl	-Du	imp Area:	Cat	<u>D9T - 9SU</u>				
Koad N	Vanitenance – Moto	ter Truck:	Wat	I IZM ter Tanker 5 000	Gal			
	- vv a	ICI IIUCK.	vv ai	er ranker, 5,000	Oai.			
Cost Breakdown:	Truck/Loa	der Team		Support	Equipment	Mai	ntena	nce Equipment
<u>cost preaktown</u> ,	Truck	Loader		Load Area	Dump Area	Motor	interne	Water Truck
%Utilization-machine:	100	1	00	NA	50	Grader	25	25
Ownership cost/hour:	\$67.61	\$126.	.84	NA	\$100.59	\$28	3.02	\$24.01
Operating cost/hour:	\$53.30	\$118.	.18	NA	\$43.62	\$7	.07	\$8.53
%Utilization-riper:	NA		0	NA	NA		NA	NA
Ripper own. cost/hour:	NA	\$0.	.00	NA	\$0.00	\$C	0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.	.00	NA	\$0.00	\$0	0.00	\$0.00
Operator cost/hour:	\$25.65	\$41.	.46	NA	\$40.52	\$38	8.16	\$39.38
Unit Subtotals:	\$146.56	\$286.	.48	NA	\$184.73	\$73	3.25	\$71.93
Number of Units:	3		1	0	1		1	1
Group Subtotals:	Work:	\$726.16		Support:	\$184.73	Ма	int:	\$145.18

Total work team cost/hour: **<u>\$1,056.07</u>**

MATERIAL QUANTITIES

Initial volume:	150,000	CCY	Swell factor:	1.000	
Loose volume:	150,000	LCY			
Sourc	e of estimated volume:	Exhibit L ·	- Reclamation Costs	s - Phase II	
Source of	estimated swell factor:	Cat Handb	ook		
Ν	Aaterial Purchase Cost:	\$0.00			
	Total Cost:	\$0.00			

HOURLY PRODUCTION

Truck Capacity:	c.						
Material weight:	<u>1</u>		Pounds/I	CY			
Description:	User Provided		i ounds/ i				
Rated Pavload:	87.000		Pounds				
Payload Capacity:	87.000.00		LCY				
i aj iona capacity i			201				
Truck Bed (volume) Basis:							
Struck Volume:	24.20	LCY					
Heaped Volume:	31.40	LCY					
Average Volume:	27.80	LCY					
Adjusted Volume:	31.40	LCY					
Final	Truck Volume	Based on Nur	mber of Lo	ader Passes:	24.75	LCY	
Loading Tool Capacity							
				Bucke	et Size Class:	NA	
Rated Capacity:	11.250	LCY (h	eaped)				
Bucket Fill Factor:	1.100	Other -	rock/dirt m	ixtures (100)-120%) 1.100		
Adjusted Capacity:	12.375	LCY					
Job Condition Corrections	<u>:</u>	1	Site .	Altitude (ft.): 4	4850 feet		
	Truck	Load	er	Source			
Altitude Adj:	1.000	1.000	0	(CAT HB)		
Job Efficiency:	0.830	0.830	0	(CAT HB)		
Net Correction:	0.830	0.83	0				
Loading Tool Cycle Time:	1	Number of Lo	ading Too	l Passes Requi	ired to Fill	2	passes
Excavators and Front Shove	ls:				Truck:	_	
Machine Cycle Time v	s. Job Condition	n Rating: <u>N</u>	NA				
Selected Value	within this Basi	c Rating: <u>N</u>	NA				
Track Loaders –	Material Descr	iption:					
Cycle Time Elements (min.)	:						
Load: NA	M	laneuver: 1	NA		Dump: 0	.100	
Wheel and Trac	k Loaders - Una	adjusted Basi	c Loader C	ycle Time (lo m	ad, dump, aneuver):	0.600	minutes
Cycle Time Factors					Factor (min	.) Source	e
Material:	Material 1/8	" to 3/4" dian	neter -0.02		-0.020	(Cat H	B)
Stockpile:	Dumped by	truck 0.02			0.020	(Cat H	B)
Truck Ownership:	No adjustme	ent - factor no	t applicabl	e 0.00	0.000	(Cat H	B)
Operation:	No adjustme	ent - factor no	ot applicab	le 0.00	0.000	(Cat H	B)
Dump Target:	Nominal targ	get 0.00			0.000	(Cat H	<u>B)</u>
		Net Cy	cle Time A	djustment:	0.000	minut	es
		Adjuste	d Loader C	ycle Time:	0.600	minut	es
		Net	Load Time	per Truck:	0.700	minut	es

Truck Cycle Time:

	Truck Exchange Time:			0.60	Minutes	Adju	sted for site al	titude: 0).600 Minute
		Truck	Load Time:	0.700	Minutes	Adjusted for site altitude:			0.700 Minute
	Truck M	aneuve	r and Dump Time:	1.00	Minutes	Adjusted for site altitude:		titude: 1	.000 Minute
<u>Tr</u> ma	ruck Trav aintained	el (Hau <u>3.0</u>	ıl & Return) T	<u>'ime:</u>	Road Conditi	ion: <u>Firm, smoot</u>	th, rolling, dirt	/lt. surfaced, w	atered,
Ha	aul Route	:		I		1			
	Seg #	Haul (Ft)	Distance	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)	
	1	500.0	0	0.00	3.00	3.00	3005	0.959	
D	oturn Dou	uto:				Haul Time:	0.959	minutes	\$
	Seg #	Haul (Ft)	Distance	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)	
	1	500.0	0	0.00	3.00	3.00	3005	0.334	
					Total Tru	Return Time: ack Cycle Time:	0.334 3.593	minute	28 28
Loa Email: U	ding Too Produ	l unit oction	1,142.31	LCY/Hour	ſ	Adjusted for jo	ob efficiency:	948.12	LCY/Hour
	int Flouu	ction	413.30	LCY/Hour	r	Adjusted for jo	ob efficiency:	343.04	LCY/Hour
ptimal 1	No. of Tr	ucks:	3	Truck(s)		Selected Numb	er of Trucks:	3	Truck(s)
				Adjusted Adjusted singl	d hourly truck e truck/loader	team productio r team productio	n: <u>1,029</u> n: <u>948</u> .	.13 LCY/ 12 LCY/	'Hour 'Hour
			Ad	djusted multipl	e truck/loader	r team productio	n: 948.	12 LCY/	Hour
<u>J(</u>	OB TIM	E AN	D COST						
	Fleet s	size:	1	Team(s)	Г	Total job time:	158.2	1 Ho	urs
	Unit c	cost:	\$1.114	/LCY	r	Fotal job cost:	\$167,0	79	

BULLDOZER RIPPING WORK

Task description:	Rip shale from pit floor	to construct reser	voir liner - PII		
Site: Bonser Pit	Permit Acti	on: Phase II	I	Permit/Job#: <u>N</u>	12000156
PROJECT IDE	NTIFICATION				
Task #: 003	State: Colorad	do	Abbre	viation: None	
Date: 3/14	4/2017 County: Larime	r	Fil	ename: M156	5-003
User: JLE					
Agency	or organization name: DRMS				
HOURLY EQU	IPMENT COST				
Basic N	Iachine: Cat D9T - 9SU		Horsepower:	405	
Ripper Atta	chment: 3-Shank Ripper		Shift Basis:	1 per day	
			Data Source:	(CRG)	
Cost Breakdown:					
			Utilization %		
	Ownership Cost/Hour:	\$100.59	NA		
D.	Operating Cost/Hour:	\$87.23	100		
Ripper	Ownership Cost/Hour:	\$10.94	<u>NA</u>		
Rippe	Operator Cost/Hour:	\$0.82	100 NA		
	Total Unit Cost/Hour:	\$246.10	INA		
		\$240.10			
	Total Fleet Cost/Hour: \$	246.10			
MATERIAL OU	J ANTITIES S	elected estimating	method Area		
Alternate Methods					
Alternate Methods.	<u>-</u>				
mic: NA	Bank Volun	ne: <u>NA</u>	BCY	NA	
Area: 40.00	acres Rip Depth (1	t): <u>1.25</u>	Volume:	80,667	BCY or C
	Source of estimated quantity:	ibit L - Reclamati	on Cost - Phase II		
HOURLY PRO	DUCTION				
Seismic:					
<u>beibline.</u>	Seismic Velocity:	NA	feet/seco	nd	
A. #200	·				
<u>Area:</u>	Average Ripping Depth:	2.63	mph		
	Average Ripping Width:	2.03	Inpli degrees		
	Average Rinning Length:	100.00	tegrees		
	Average Dozer Speed:	88.00	feet		
	Average Maneuver Time:	0.25	feet		
	Production per unit area:	0.762	acres/hou	ır	
Job Condition Corr	rection Factors				
Unac	ljusted Hourly Unit Production:	0.762	Acres/hr		
	Site Altitude:	4 850	feet		
	Altitude Adi:	1.00	(CAT HI	3)	
	Job Efficiency:	0.83	(1 shift/d	ay)	
	Net Correction:	0.83	multiplie	r	
	Adjusted Hourly Unit Production	on: 0.63	Acres/hr		
	Adjusted Hourly Fleet Productio	on: 0.63	Acres/hr		
IOR TIME ANI) COST				
		T . 1 . 1 .		24	TT
Fleet size:	I Grader(s)	Total job tim	le: 63	.24	Hours

Unit cost:\$	3389.092 Per a	icre	Total job cost	: \$15	,564	
		SCRAPER 1	FEAM WORK	:		
Task description:	Place and (Compact Liner	- Phase II			
Site: Bonser Pit		Permit Action	n: Phase II	F	Permit/Job#: M2	2000156
PROJECT IDENI	TIFICATION					
Task #: 004 Date: 3/14/2 User: JLE	017 St Cou	tate: <u>Colorado</u> nty: <u>Larimer</u>)	Abbrev Fil	viation: <u>None</u> ename: <u>M156-</u>	004
Agency or c	rganization name:	DRMS				
HOURLY EQUIP	MENT		COSTS	Shift basis: <u>1 per</u>	<u>day</u>	
		Equipm	ent Description			
	-Sc _1	craper: Cat 62	7G w/push-pull			
Suppor	t Equipment -Load	Area: NA				
DeadMa	-Dump	Area: CAT 8	325H			
Road Mai	-Water	Truck: Water	Tanker, 5,000 Ga	1.		
<u>Cost Breakdown</u> :	Scraper Worl Scraper	x Team Dozer	Support Equ Load Area	ipment Dump Area	Maintenanc Motor Grader	e Equipment Water Truck
%Utilization-machine:	100	NA	NA	100	100	100
Ownership cost/hour:	\$99.75	NA	NA	\$103.01	\$54.68	\$24.01
Operating cost/hour:	\$118.23	NA	NA	\$74.57	\$46.99	\$34.13
% Utilization-ripper:	NA	NA	NA	NA	NA ¢0.00	NA ¢0.00
Ripper own. cost/hour:	NA	NA	NA	\$0.00	\$0.00	\$0.0
Operator cost/hour:	\$41.46	NA	NA	\$31.87	\$38.16	\$39.39
Unit Subtotals:	\$259.44	NA	NA	\$209.45	\$139.83	\$97.5
Number of Units:	2	0	0	1	1	¢27102
Group Subtotals:	Work:	\$518.88	Support:	\$209.45	Maint:	\$237.35
Total work team cost/	hour: \$965.68					
<u>MATERIAL QUA</u>	<u>NTITIES</u>					
Initial volume: Loose volume:	80,500 80,500	CCY LCY	Swell fac	tor: <u>1.000</u>		
Sour Source o	ce of estimated vol f estimated swell fa	ume: Exhibit actor: Cat Har	L - Reclamation	Cost - Phase II		
HOURLY PRODU	JCTION					
			Scraper E	Bowl (volume) Ba	asis:	
Material weight:	1 lbs/LCY		Struck	Volume: 15.70	L	.CY
Material description:	User Provided		Heaped	Volume: 22.00		.CY
Rated Payload:	52,800 pounds		Average	Volume: 18.85	L	.CY

Cycle Time:

Scraper Loading Time: Maneuver and Spread Time:

Job Condition Correction:

Site Altitude: 4850 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:

Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	300.00	0.00	5.00	5.00	2218	0.21

<u>0.90</u> Minutes

<u>0.60</u> Minutes

Haul Time: 0.21 minutes

Total job cost: **\$81,155**

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	300.00	0.00	5.00	5.00	2814	0.25

	Return Time:	0.25	minutes
Adjusted single scraper Adjusted multiple scraper	Total Scraper team cycle time: Adjusted for job conditions: Selected Number of Scrapers: team (unit) hourly production: team (fleet) hourly production:	1.96 957.89 2 957.89 957.89	 minutes LCY/Hour Scraper(s) LCY/Hour LCY/Hour
Unadjusted unit production/hour: Optimal Number of Scrapers per push dozer:	1,154.08 LCY/Hour		
JOB TIME AND COST Fleet size: 1 Team(s)	Total job time:	84.04	Hours

Unit cost: \$1.008 /LCY

SCRAPER TEAM WORK

Site: Bonser Pit	Permit Action: Phase II			I	Permit/Job#: <u>M</u>	2000156
PROJECT IDENT	IFICATION					
Task #: 005 Date: $3/14/20$) <u>17</u> Co	State: <u>Colora</u> unty: Larim	ndo er	Abbrev	viation: <u>None</u> ename: <u>M156</u> -	-005
User: <u>JLE</u>	• .•					
Agency or of	rganization name:	DRMS				
HOURLY EQUIP	MENT		COST	Shift basis: <u>1 per</u>	day	
		Equi	oment Description			
	-S	Scraper: Cat	627G w/push-pull			
<u> </u>	Equipment Los	-Dozer: NA				
Suppor	Lequipment -Loa -Dum	n Area: NA				
Road Main	ntenance – Motor	Grader: CA	Г 14М			
	-Water	Truck: Wat	er Tanker, 5,000 Ga	al.		
Cost Breakdown•	Scraper Wo	rk Team	Support Fau	inment	Maintenan	ce Equipment
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	NA	50	25
Ownership cost/hour:	\$99.75	NA	NA NA	NA	\$54.68	\$24.01
Operating cost/hour:	\$118.23	NA	NA NA	NA	\$23.50	\$8.53
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	NA NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$41.46	NA	NA NA	NA	\$38.16	\$39.38
Unit Subtotals:	\$259.44	NA	NA NA	NA	\$116.33	\$71.93
Number of Units:	2	() 0	0	1	1
Group Subtotals:	Work:	\$518.88	Support:	\$0.00	Maint:	\$188.26

Total work team cost/hour: <u>\$707.14</u>

MATERIAL QUANTITIES

Initial volume: Loose volume:	40,333 40,333	CCY LCY	Swell factor:	1.000	
Source of estimated volume:		Exhibit L ·	- Reclamation Costs	- Phase II	
Source of estimated swell factor:		Cat Handb	ook		

HOURLY PRODUCTION

		Scraper Bowl (volu		
Material weight:	1 lbs/LCY	Struck Volume:	15.70	LCY
Material description:	User Provided	Heaped Volume:	22.00	LCY
Rated Payload:	52,800 pounds	Average Volume:	18.85	LCY
Payload Capacity:	52,800.00 LCY	Adjusted Capacity:	18.85	LCY

Cycle Time:

Scraper Loading Time:	0.90 Minutes
Maneuver and Spread Time:	0.60 Minutes

Job Condition Correction:

Site Altitude: 4850 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	900.00	0.00	3.00	3.00	2824	0.43

Haul Time: **0.43** minutes

Return Ro	oute:					
Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	900.00	0.00	3.00	3.00	2874	0.43
				Return Time:	0.43	minutes
			Total Scrape	r team cycle time:	2.36	minutes
			Adjusted f	for job conditions:	795.53	LCY/Hour
			Selected Nu	mber of Scrapers:	2	Scraper(s)
	Adjusted s	single scrape	r team (unit) h	ourly production:	795.53	LCY/Hour
	Adjusted mul	tiple scraper	team (fleet) h	ourly production:	795.53	LCY/Hour
O	Unadjusted unit prod ptimal Number of Scrap	uction/hour: ers per push dozer:	958.47	LCY/Hour		
JOB TIN	ME AND COST					
Fleet	size: 1	Team(s)	Т	otal job time:	50.70	Hours
Unit	cost: \$0.889	/LCY	1	Total job cost:	\$35,851	

REVEGETATION WORK

Task description: R		Revegetation of	Revegetation of disturbed areas - Phase II			
Site: Bonser Pit		Pe	Permit Action: Phase II		Permit/Jo	b#: <u>M2000156</u>
PROJECT	IDENTIFIC	ATION	~			
Task #:	006	State:	Colorado		Abbreviation:	None
Date:	3/14/2017	County:	Larimer		Filename:	M156-006
User:	JLE					
Age	ency or organiz	zation name: DF	RMS			

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Potassium nitrate, 13-46-0	250.00	pound	\$1.23	\$307.50
			Total Fertilizer Materials Cost/Acre	\$307.50

Application:

Description		Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)		\$144.62
	Total Fertilizer Application Cost/Acre	\$144.62

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
Switchgrass - Nebraska 28	4.00	35.72	\$43.00
Sideoats Grama - Vaughn	5.00	16.41	\$50.00
Thickspike Wheatgrass - Critana	8.00	28.28	\$45.92
Totals Seed Mix	17.00	80.42	\$138.92

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Applic	ation Cost/Acre \$232.00

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

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

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
	\$0.00				

JOB TIME AND COST

	No. of Acres:	37	Cost /Acre:	\$929.33	
Estimate	ed Failure Rate:	25%	Cost /Acre*:	\$370.92	
*Selected Replanti	ng Work Items:	SEEDING			
Initial Job Cost:	\$34,385.21				
Reseeding Job Cost:	\$3,431.01				
Total Job Cost:	\$37,816				
Job Hours:	18.50				

TRUCK/LOADER TEAM WORK

Task description	Backfil	l/Grade Sedime	nt Pond			
Site: Bonser Pit		Permit Ac	tion: Phase II		Permit/Job#:	M2000156
PROJECT IDI	ENTIFICATION					
Task #: 00	07	State: Color	ado	Abb	previation: No	one
Date: 3/	Date: 3/14/2017 County:				Filename: M1	156-007
User: <u>JI</u>	E					
Agency	or organization nar	ne: DRMS				
HOURLY EQ	UIPMENT COST	<u>r</u>		Shift ba	sis: <u>1 per day</u>	
			Equipment Descr	iption		
	Truck Loader Tea	m -Truck: Cat	: 740			
		-Loader: CA	Т 990Н			
Su	pport Equipment -L	oad Area: NA				
D1	-Di	imp Area: Cat	: D9T - 9SU			
Road	Maintenance – Mote	or Grader: CA	1 12M ter Terler 5 000	Cal		
	- vv a	iel lluck. wa	uel Talikel, 5,000	Uai.		
Cost Breakdown	• Truck/Log	der Team	Support	Fauinment	Mainten	ance Equipment
<u>Cost Dicardown</u>	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine	2: 100	100	NA	50	25	25
Ownership cost/hou	r: \$67.61	\$126.84	NA	\$100.59	\$28.02	\$24.01
Operating cost/hour	r: \$53.30	\$118.18	NA	\$43.62	\$7.07	\$8.53
%Utilization-ripe	r: NA	0	NA	NA	NA	NA
Ripper own cost/hour	n. r: NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Ripper op. cost/hou	r: NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hou	r: \$25.65	\$41.46	NA	\$40.52	\$38.16	\$39.38
Unit Subtotal	s: \$146.56	\$286.48	NA	\$184.73	\$73.25	\$71.93
Number of Units	s: 3	1	0	1	1	1
Group Subtotals	s: Work:	\$726.16	Support:	\$184.73	Maint:	\$145.18

Total work team cost/hour: <u>\$1,056.07</u>

MATERIAL QUANTITIES

Initial volume:	3,227	CCY	Swell factor:	1.000		
Loose volume:	3,227	LCY			-	
Sourc	e of estimated volume:	Exhibit L	- Reclamation Costs	s - Phase II		
Source of	Source of estimated swell factor:		ook			
Material Purchase Cost:		\$0.00				
	Total Cost:	\$0.00				

HOURLY PRODUCTION

Truck Capacity:	ie.							
Material weight:	<u>13.</u> 1		Pounds/L	CY				
Description:	User Provide	1	I Guildo, E	01				
Rated Payload:	87,000		Pounds					
Payload Capacity:	87,000.00		LCY					
	`							
Truck Bed (volume) Basis:								
Struck Volume:	24.20	LCY						
Heaped Volume:	31.40	LCY						
Average Volume:	27.80	LCY						
Adjusted Volume:	31.40	LCY						
Final	Truck Volume	Based on Nun	nber of Loa	der Passes:	24.7	5	LCY	
Loading Tool Canacity								
<u>Louding root cupucity</u>				Buck	et Size Class	: N/	4	
Rated Capacity:	11.250	LCY (he	eaped)	Duck			-	
Bucket Fill Factor:	1.100	Other - 1	rock/dirt m	ixtures (10	0-120%) 1.10	00		
Adjusted Capacity:	12.375	LCY			, ,			
Job Condition Corrections	<u>S:</u>		Site A	Altitude (ft.):	<u>4850</u> feet			
	Truck	Loade	er	Source				
Altitude Adj:	1.000	1.000)	(CAT HB	5)			
Job Efficiency:	0.830	0.830)	(CAT HB	5)			
Net Correction:	0.830	0.830)					
Loading Tool Cycle Time	<u>.</u> 1	Number of Lo	ading Tool	Passes Requ	ired to Fill		2	passes
Excavators and Front Shove	els:		-	_	Truck:		2	
Machine Cycle Time	vs. Job Condition	n Rating: <u>N</u>	NA JA					
Track Loaders	- Material Descr	intion:						
Cycle Time Elements (min.)):	iption:						
Load: NA	Ν	aneuver: N	NA		Dump:	0.100		
				1 57 (1	-			
Wheel and Trac	ck Loaders - Una	djusted Basic	c Loader C	ycle Time (lo n	ad, dump, naneuver):	0.0	500	minutes
Cycle Time Factors	;				Factor (m	in.)	Sour	ce
Material	Material 1/8	" to 3/4" diam	neter -0.02		-0.020		(Cat H	IB)
Stockpile:	Dumped by	truck 0.02			0.020		(Cat H	fB)
Truck Ownership:	No adjustme	nt - factor no	t applicable	e 0.00	0.000		(Cat H	IB)
Operation	No adjustme	ent - factor no	ot applicabl	e 0.00	0.000		(Cat H	IB)
Dump Target:	Nominal targ	$\frac{1}{2} \frac{1}{2} \frac{1}$	1. T' *	1° star t	0.000		(Cat H	IB)
		Net Cyc	d Log der C	ujustment:	0.000		minu	tes
		Adjusted	Load Time	per Truck	0.000		minu	tes
		Inet I		per riuck:	0.700		mmu	100

Truck Cycle Time:

Tru	ick Exchange Ti	ime:	0.60	Minutes	Adju	sted for site al	titude:	0.600 M
	Truck Load T	ime:	0.700	Minutes	Adju	sted for site al	titude:	0.700 M
Truck M	Ianeuver and Di Ti	ump ime:	1.00	Minutes	Adju	sted for site al	titude:	1.000 M
Truck Trav maintained Haul Route	vel (Haul & Ret 1 3.0	urn) Ti	ime:	Road Condit	ion: <u>Firm, smoo</u>	th, rolling, dirt	/lt. surfaced, v	vatered,
Seg #	Haul Distanc (Ft)	e	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)	
1	1350.00		0.00	3.00	3.00	3005	1.242	
Peturn Po	nte				Haul Time:	1.242	minute	es
Seg #	Haul Distanc (Ft)	e	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)	
1	1350.00		0.00	3.00	3.00	3005	0.616	
X II T				Total Tru	Return Time: ack Cycle Time:	0.616 4.158	minut	ies ies
Loading Too Produ ck Unit Produ	uction $1,14$	2.31	LCY/Hour		Adjusted for jo	ob efficiency:	948.12	LCY/Hour
ek elin i fodd	<u>357</u>	7.14	LCY/Hour		Adjusted for jo	ob efficiency:	296.43	LCY/Hour
mal No. of T	rucks:	3	Truck(s)		Selected Numb	er of Trucks:	3	Truck(s)
		Ad	Adjusted Adjusted single ljusted multiple	l hourly truck e truck/loader e truck/loader	t team productio r team productio r team productio	n: 889. n: 889. n: 889 .	29 LCY 29 LCY 29 LCY	7/Hour 7/Hour 7/Hour
JOB TIM	IE AND COS	T						
Fleet	size:1		Team(s)	1	Total job time:	3.63	Но	ours
Unit	cost: \$1.1	188	/LCY	r	Fotal job cost:	\$3,83	2	

WHEEL LOADER - LOAD AND CARRY WORK

Task description:	Pla	ace slope protection on I	East Shore			
e: Bonser Pit		Permit Action	n: Phase II		Permit/Jo	b#: <u>M2000156</u>
PROJECT IDENT	IFICAT	ION				
Task #: 008		State: Colorado)	Abb	previation:	None
Date: 3/14/2	017	County: Larimer			Filename:	M156-008
User: JLE						
Agency or o	rganizatio	n name: DRMS				
HOURLY EQUIP	<u>VIENI C</u>	<u>081</u>				
Basic Machine	e: CAT	990H		Horsepower:	1	621
Attachment	I: ROP	S Cab		Shift Basis:	l r	ber day
				Data Source:	((CRG)
Cost Breakdown:						
			Utilization %			
Ownership Co	ost/Hour:	\$126.84	NA			
Operating Co	ost/Hour:	\$118.18	100			
Operator Co	ost/Hour:	\$41.46	NA			
Total Unit Co	ost/Hour:	\$286.48				
Total Fleet C	Cost/Hour:	\$286.48				
MATERIAL QUA	NTITIE	<u>S</u>				
Initial volume:	1.608	CCY	Swell fac	ctor: 1.000		
Loose volume:		1.608 LCY			<u>.</u>	
a	c	<u> </u>		G		
Sour	ce of estin	nated volume: Exhibit	L - Reclamation	Costs		
Source of	r estimated	a swell factor: <u>Cat Har</u>	Idbook			
	CETON					
HOURLY PRODU	CTION					
Loader Cycle Time:		Unadiusted Basic	Cycle Time (loa	id. dump.		minutes
		j	-)	···, ·····F,	0.600	
			ma	aneuver):		
Cycle Time F	actors		III	aneuver): Fact	or (min.)	Source
Cycle Time F	actors	Material 3/4" to 6" diame	ter 0.00	aneuver): Fact	or (min.)).000	Source (Cat HB)
Cycle Time F	actors iterial:	Material 3/4" to 6" diame Dumped by truck 0.02	ter 0.00	aneuver): Fact	or (min.) 0.000 0.020	Source (Cat HB) (Cat HB)
Cycle Time F Ma Stoc Truck Owne	actors iterial: kpile: rship:	Material 3/4" to 6" diame Dumped by truck 0.02 No adjustment - factor no	ter 0.00 t applicable 0.00	aneuver): Fact (() (or (min.)).000).020).000	Source (Cat HB) (Cat HB) (Cat HB)
Cycle Time F Ma Stor Truck Owne Oper	Factors tterial: xpile: xship: ration:	Material 3/4" to 6" diame Dumped by truck 0.02 No adjustment - factor no Constant operation -0.04	ter 0.00 t applicable 0.00	aneuver): Fact (() () (or (min.) 0.000 0.020 0.000 0.040	Source(Cat HB)(Cat HB)(Cat HB)(Cat HB)(Cat HB)
Cycle Time F Ma Stoc Truck Owne Oper Dump T	Vactors uterial: >kpile: >rship: ration: `arget:	Material 3/4" to 6" diame Dumped by truck 0.02 No adjustment - factor no Constant operation -0.04 Nominal target 0.00	ter 0.00 t applicable 0.00	aneuver): Fact () () () () () () () () () ()	or (min.) 0.000 0.020 0.000 0.040 0.000	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB)
Cycle Time F Ma Stoc Truck Owne Oper Dump T	Vactors iterial: xkpile: yrship: ration: 'arget:	Material 3/4" to 6" diame Dumped by truck 0.02 No adjustment - factor no Constant operation -0.04 Nominal target 0.00 Net Cy	ter 0.00 t applicable 0.00 cle Time Adjust:	aneuver): Fact ((() () ((() (() (() (() (() (() (()) () () () () () () () () () () () () () ()) () () ()) ()) ())) ()) ()) ()) ()) ()) ()) ())) ())) ())) ())) ())) ())) ())) ())))) ()))))))) ()))) ()))))))))))))	or (min.) 0.000 0.020 0.000 0.040 0.000 0.020	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes

Rolling Resistance – Road Conditions

Haul:	Rutted dirt, little maintenance, no water, 2" tire penetration 5.0
Return:	Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul and Return Time

I	Length	Grade Res.	Rolling	Total Res.	Travel Time	C
	(feet)	(%)	Res. (%)	(%)	(minutes)	Source
Haul Route:	1200	0.00	5.00	5.00	0.9974	(Cat HB
Return Route:	1200	0.00	5.00	5.00	0.9931	(Cat HB
			Total T	ravel Time:	1.9905	minutes
			Total C	Cycle Time:	2.5705	minutes
oad Bucket Capacity						
Nad Ducket Capacity						
Rated Capac	city: 11	.25 LCY	(heaped)			
Bucket Fill Fac	ctor: 0.8	Constant Representation Representatio Representatio Representation Representation Representatio	se material - 1"	and over (85 -	- 90%) 0.875	
Adjusted Capac	city: 9.	84 LCY	ľ			
ob Condition Correcti	on Factors					
Site Altitude: 4850 feet						
		a				
A1 1 A 1.	1.00	Sc	ource			
Altitude Adj	$\frac{1.00}{0.82}$	(CA	(I HB)			
Job Efficiency	: 0.83	(1 Sh	iit/day)			
Net Correction	. 0.85	mult	ipher			
U	nadjusted Hour	ly Unit Product	ion: 229.	77 LCY.	/Hour	
	Adjusted Hour	ly Unit Product	ion: 190.	71 LCY	/Hour	
	Adjusted Hour	y Fleet Product	tion: 190.	71 LCY	/Hour	
OB TIME AND CO	<u>OST</u>					
Fleet size:	1 L	oader(s)	Total job	time:	8.43	Hours
TT 1	сı 502 Л	CV	Total job	cost'	\$2 115	

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description	n: Mo	bilization and De	mobilization o	f Equipm	ent			
e: Bonser Pit		Permit	Action: Phase	e II	·	Permit/Job	o#: <u>M</u> 2	2000156
PROJECT ID	ENTIFICATI	ON						
Task #: 0	10	State: Co	lorado		Abbre	viation:	None	
Date: 3/	/14/2017	County: La	rimer		Fi	lename:	M156-	010
User: JI	LE							
Agency	or organization	n name: DRMS						
<u>EQUIPMENT</u>	TRANSPOR	<u>T RIG COST</u>						
					Shift ba	sis: 1	per day	τ
				(Cost Data Sour	ce: C	RG Dat	a
Tru Cost Breakdown	ck Trailer Desc	ription: Gl	ENERIC FOLD	ING GOO TRAILER	(2ND HALF, DSENECK, DR (25T, 50T, AN	2008) ROP DECH ND 100T)	K EQUI	PMENT
Available Rig	Capacities	0-25 Tons	26-50 Tons	51-	+ Tons			
Ownersh	ip Cost/Hour:	\$16.63	\$18.37	\$1	22.33			
Operatin	ng Cost/Hour:	\$44.38	\$46.13	\$	50.07			
Operat	or Cost/Hour:	\$27.66	\$27.66	\$	27.66			
Help	er Cost/Hour:	\$0.00	\$25.39	\$	25.39			
Total Ur	it Cost/Hour:	\$88.67	\$117.55	\$1	25.45			
NON ROADA	BLE EQUIPN	MENT:						
Machine	Weight/	Owner ship	Haul Rig	Fleet	Haul Trip	Return	Ггір	DOT Permit
Description	Unit (TONS)	Cost/hr/ unit	Cost/hr/unit	Size	Cost/hr/ fleet	Cost/hr/	fleet	Cost/ fleet
Centrifugal pump - 200M, 10 in.	0 1.95	\$0.00	\$88.67	1	\$88.67	\$88.67		\$250.00
CAT 990H	83.34	\$126.84	\$125.45	1	\$252.29	\$125.45		\$250.00
CAT 14M	23.57	\$54.68	\$88.67	1	\$143.35	\$88.67		\$250.00

0111 77011	05.54	$\phi_{120.04}$	ψ_{12}	1	$\varphi_{232.2}$	ψ_{12}	$\psi 250.00$
CAT 14M	23.57	\$54.68	\$88.67	1	\$143.35	\$88.67	\$250.00
Cat D9T - 9SU	66.13	\$111.53	\$125.45	1	\$236.98	\$125.45	\$250.00
Cat 627G w/push-	43.48	\$99.75	\$117.55	2	\$434.60	\$235.10	\$500.00
pull							
CAT 825H	36.08	\$103.01	\$117.55	1	\$220.56	\$117.55	\$250.00
Drill/Broadcast	25.00	\$12.22	\$88.67	1	\$100.89	\$88.67	\$250.00
Seeder with							
Tractor							

Subtotals: \$1,477.34 \$869.56 \$2,000.00

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Cat 740	\$146.56	3	\$439.68	\$439.68
Water Tanker, 5,000 Gal.	\$97.52	1	\$97.52	\$97.52
		Subtotals:	\$537.20	\$537.20

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	LOVELAND	
Total one-way travel distance:	5.00	miles
Average Travel Speed:	50.00	mph
Total Non-Roadable Mob/Demob Cost *	400 400 45	
'* two round trips with haul rig:	\$8,428.65	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	\$107.44	

Transportation Cycle Time:

	Non-	
	Roadable	Roadable
	Equipment	Equipment
Haul Time (Hours):	0.10	0.10
Return Time (Hours):	0.10	0.10
Loading Time (Hours):	0.67	NA
Unloading Time (Hours):	0.67	NA
Subtotals:	1.54	0.20

JOB TIME AND COST

Total job time: 3.08 Hours

Total job cost: \$8,536