

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
FAX: (303) 832-8106



February 11, 2014

Glen Williams
Cotter Corporation
P.O. Box 700
Nucla, CO 81424

John W. Hickenlooper
Governor

Mike King
Executive Director

Loretta Piñeda
Director

Re: JD-9 Mine, Amendment Approval, Permit No. M-1977-306, Revision No. AM-1

Dear Mr. Williams:

On February 11, 2014 the Division of Reclamation, Mining and Safety (Division) approved the Amendment application submitted to the Division on February 11, 2014, addressing the following:

- *Submittal of Environmental Protection Plan*
- *Increase the permit acreage from 11.10 acres to 26.77 acres*

The terms of the Amendment No. 1 approved by the Division are hereby incorporated into Permit No. M-1977-306.

The conditions of the Division approval are noted below. Please note that all other provisions of Permit No. M-1977-306 remain in full force and effect.

Stipulation No.1 : The approval of the final configurations of the engineered Drainage Design Plan submitted with the Environmental Protection Plan must be completed no later than March 3, 2014. If the Division is not able to approve the final configurations by March 3, 2014 the operator shall submit the final designs for consideration as a Technical Revision with the appropriate fee of \$1,006.00 within 30 days.

Please see the enclosed Drainage Design Plan Implementation Construction Schedule. The plan has been accepted by all interested parties of the amendment application and is considered a condition of approval of the amendment.

The revised estimated reclamation liability amount of \$183,294.65 exceeds the currently held performance bond in the amount of \$72,100.00. Per Rule 4.2.1(6), when mining on federal land and the federal land management agency requires that a Financial Warranty be posted with their agency, the amount of Financial Warranty posted with the state shall be the difference between the amount required to be posted by the federal land management agency, and the amount required by the Mined Land Reclamation Board. The Department of Energy (DOE) currently holds \$72,000.00 and the Division holds \$100.00. Cotter may submit additional bond in the amount of \$111,194.65 to the Division or DOE. The revision will not be final until proof of the bond increase from DOE or an increase is approved through the Division. For questions regarding bond placement please contact Barbara Coria at phone no. (303) 866-3567, extension 8148.

If you have any questions, please contact me at the Division Grand Junction Field Office located at 101 South 3rd, Suite 301, Grand Junction, Colorado, 81501 or at telephone no. (970) 241-2042.

Sincerely,

A handwritten signature in black ink, appearing to read 'Travis Marshall', with a stylized, flowing script.

Travis Marshall
Environmental Protection Specialist

Enclosure(s) – Final Reclamation Cost Update for AM-1
Drainage Design Implementation Construction Schedule

cc: Russ Means, DRMS

James Blair
BLM – Tres Rios Field Office
29211 Highway 184
Dolores, CO 81323

Ed Cotter
Department of Energy
2597 Legacy Way
Grand Junction, CO 81503

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MEMORANDUM

John W. Hickenlooper
Governor

Mike King
Executive Director

Loretta Piñeda
Director

To: Interested Parties

From: Travis Marshall

Date: February 3, 2014

RE: *Clarification of JD-9 Mine, M-1977-306, Drainage Design Plan Implementation Construction Schedule, Pursuant to submittals within the Environmental Protection Plan under consideration*

Cotter Corporation (N.S.L.)'s ("Cotter") JD-9 Mine ("JD-9") is currently in temporary cessation. Cotter cannot presently resume active mining operations at JD-9 due to an injunction ordered by the United States District Court for the District of Colorado in *Colorado Environmental Coalition vs. Office of Legacy Management*, 819 F. Supp. 2d 1193, 1224-225 (D. Colo. 2011). The injunction generally does not allow mining operations to occur at the JD-9; although, as amended, the injunction allows certain maintenance and reclamation activities to occur. Until lifted or further modified, the injunction prevents construction of any Division-approved structures, including construction of stormwater control structures approved as part of the Drainage Design Plan in the JD-9 Environmental Protection Plan ("AM-1 EPP").

Under these circumstances, the Division submits the following clarifying language regarding the construction schedule for constructing stormwater control structures required by the AM-1 EPP: So long as consistent with the injunction, the existing stormwater management controls are to be inspected and maintained, as necessary, to provide control of stormwater run-off. When the injunction is lifted or modified to allow implementation of AM-1 EPP, Cotter shall commence implementation of those stormwater control structures in the Drainage Design Plan that address JD-9's existing mining disturbances within 90 days following any other approvals required to do the work. AM-1 EPP's stormwater control structures that are designed to address future mining operations must be constructed as per the mining plans as the structures become essential and necessary based on future mining disturbances. In no case, however, shall Cotter be allowed to resume mining operations prior to implementing the portion of the Drainage Design Plan, as reviewed and approved by the Division, for those operations, nor prior to the implementation of the EPP's requirements for those operations.

Cotter has informed us that, within 60 days of the Mined Land Reclamation Board's Order or the Division's decision approving the implementation of AM-1 EPP, Cotter will seek any necessary

Addressee Name

Date

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approvals from the Department of Energy to implement those stormwater control structures in the Drainage Design Plan that address JD-9's existing mining disturbances.

COST SUMMARY WORK

Task description: Final Reclamation Cost Estimate AM-1

Site: JD-9 Mine Permit Action: AM-1 Permit/Job#: M1977306

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 1/28/2014 County: Montrose Filename: M306-001
User: THM

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Remove culvert from drainage east of the portal	EXCAVATE	1	4.20	\$654.00
02a	Re-Contour Waste Area	DOZER	1	66.19	\$10,797.61
03a	Pocking Waste Area	EXCAVATE	1	21.06	\$3,279.00
04a	Removal of facilities from upper and lower mine areas	DEMOLISH	1	40.00	\$68,513.44
05a	Removal of liners and precipitate from treatment ponds	DEMOLISH	1	16.00	\$6,045.65
06a	Excavation of subgrade material from below treatment ponds	EXCAVATE	1	0.28	\$44.00
06b	Haul sbgrade treatment pond material to lower mine area	TRUCK1	1	4.41	\$1,099.93
07a	Scrape top 18" off ore pad and push into mine	DOZER	1	3.45	\$562.04
08a	Lower Mine Area Portal Seal	MINESEAL	1	8.00	\$144.90
09a	Re-countour water treatment ponds	DOZER	1	18.29	\$2,983.83
10a	Sealing of 4 ventilation shafts	MINESEAL	1	32.00	\$14,063.20
11a	Rip 1.2 acres of lower mine area prior to placing topsoil	RIPPER	1	3.95	\$681.00
12a	Replace topsoil over 1.2 acres of Lower Mine Area	DOZER	1	3.03	\$493.61
13a	Revegetation of 1.3 acres of the waste enbankment	REVEGE	1	4.00	\$3,925.70
14a	Revegetation of 6.9 acres disturbance	REVEGE	1	8.00	\$21,783.20
15a	Mobilization	MOBILIZE	1	11.00	\$8,108.37
<u>SUBTOTALS:</u>				243.86	\$143,179.48

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02%	Total =	\$2,892.23
Performance bond:	1.05%	Total =	\$1,503.38
Job superintendent:	123.93 hrs	Total =	\$8,106.26
Profit:	10.00%	Total =	\$14,317.95
		TOTAL O & P =	\$26,819.82
		CONTRACT AMOUNT (direct + O & P) =	\$169,999.30

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	0.00%	Total =	\$0.00

Reclamation management and/or administration:	<u>5.00%</u>		<u>\$8,499.97</u>
CONTINGENCY:	3.00	Total =	<u>\$4,295.38</u>
		TOTAL INDIRECT COST =	<u>\$40,115.17</u>
		TOTAL BOND AMOUNT (direct + indirect) =	<u>\$183,294.65</u>

HYDRAULIC EXCAVATOR WORK

Task description: Remove culvert from drainage east of the portal

Site: JD-9 Mine Permit Action: AM-1 Permit/Job#: M1977306

PROJECT IDENTIFICATION

Task #: 01A State: Colorado Abbreviation: None
Date: 1/27/2014 County: Montrose Filename: M306-01a
User: THM

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick Horsepower: 268
Attachment 1: ROPS Cab Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$42.57</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$79.15</u>	<u>100</u>
Operator Cost/Hour:	<u>\$33.94</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$155.66</u>	
Total Fleet Cost/Hour:	<u>\$155.66</u>	

MATERIAL QUANTITIES

Initial volume: 1,300 CCY Swell factor: 1.090
Loose volume: 1,417 LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE
Secondary Job Condition within Basic Description: AVERAGE
Cycle Time Value: 0.367 minutes

Load Bucket Capacity

Rated Capacity: 2.26 LCY (heaped) Bucket Size Class: Medium
Bucket Fill Factor: 1.100 Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity: 2.49 LCY

Job Condition Correction Factors

Site Altitude: 6500 feet

		Source
Altitude Adj:	<u>1.00</u>	<u>(CAT HB)</u>
Job Efficiency:	<u>0.83</u>	<u>(1 shift/day)</u>
Net Correction:	<u>0.83</u>	<u>multiplier</u>

Unadjusted Hourly Unit Production: 406.43 LCY/Hour
Adjusted Hourly Unit Production: 337.34 LCY/Hour
Adjusted Hourly Fleet Production: 337.34 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: 4.20 Hours
Unit cost: \$0.461 /LCY Total job cost: \$654.00

BULLDOZER WORKTask description: Re-Contour Waste AreaSite: JD-9 MinePermit Action: AM-1Permit/Job#: M1977306PROJECT IDENTIFICATIONTask #: 02A
Date: 1/27/2014
User: THMState: Colorado
County: MontroseAbbreviation: None
Filename: M306-02aAgency or organization name: DRMSHOURLY EQUIPMENT COSTBasic Machine: Cat D7R DS Series II LGP
Horsepower: 240
Blade Type: Straight
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$44.66	NA
Operating Cost/Hour:	\$81.07	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$37.41	NA

Total unit Cost/Hour: \$163.14
Total Fleet Cost/Hour: \$163.14MATERIAL QUANTITIESInitial Volume: 14,000
Swell factor: 1.135
Loose volume: 15,890 LCYSource of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat HandbookHOURLY PRODUCTIONAverage push distance: 50 feet
Unadjusted hourly production: 800.0 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 10 %
Average site altitude: 6,500 feetMaterial weight: 2,700 lbs/LCYWeight description: Sand and clay - LooseJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(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:	0.852	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3001

Adjusted unit production: 240.08 LCY/hr

Adjusted fleet production: **240.08** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
 Unit cost: \$0.680/LCY

Total job time: **66.19** Hours
 Total job cost: **\$10,797.61**

HYDRAULIC EXCAVATOR WORK

Task description: Pocking Waste Area

Site: JD-9 Mine Permit Action: AM-1 Permit/Job#: M1977306

PROJECT IDENTIFICATION

Task #: 03A State: Colorado Abbreviation: None
Date: 1/27/2014 County: Montrose Filename: M306-03a
User: THM

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 268
Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$42.57</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$79.15</u>	<u>100</u>
Operator Cost/Hour:	<u>\$33.94</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$155.66</u>	
Total Fleet Cost/Hour:	<u>\$155.66</u>	

MATERIAL QUANTITIES

Initial volume: 6,261 CCY Swell factor: 1.135
Loose volume: 7,106 LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE
Secondary Job Condition within Basic Description: AVERAGE
Cycle Time Value: 0.367 minutes

Load Bucket Capacity

Rated Capacity: 2.26 LCY (heaped) Bucket Size Class: Medium
Bucket Fill Factor: 1.100 Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity: 2.49 LCY

Job Condition Correction Factors

Site Altitude: 6500 feet

Altitude Adj:	<u>1.00</u>	Source
Job Efficiency:	<u>0.83</u>	(CAT HB)
Net Correction:	<u>0.83</u>	(1 shift/day)
		multiplier

Unadjusted Hourly Unit Production: 406.43 LCY/Hour
Adjusted Hourly Unit Production: 337.34 LCY/Hour
Adjusted Hourly Fleet Production: 337.34 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: 21.07 Hours
Unit cost: \$0.461 /LCY Total job cost: \$3,279.00

DEMOLITION WORK

Task description: Removal of facilities from upper and lower mine areas

Site: JD-9 Mine Permit Action: AM-I Permit/Job#: M1977306

PROJECT IDENTIFICATION

Task #: 04A State: Colorado Abbreviation: None
Date: 1/27/2014 County: Montrose Filename: M306-04a
User: THM

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 94.70 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Shop, warehouse, office, dry bld. removal	40' x 73' x 15'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 30 mile haul	43,800.00	CF	\$1.14	\$50,107.20
Concrete Foundation Demolition	36CY	Floor, concrete, demolition only, average reinforcing - 4 in. thick	2,920.00	SF	\$1.05	\$3,071.84
Removal of 36 CY conc. slab to dump	36CY	USER PROVIDED ITEM	36.00	CY	\$254.69	\$9,168.84
Removal of water treatment building and foundation	NA	USER PROVIDED ITEM	1.00	BLD	\$4,000.00	\$4,000.00
Removal of Pond Fences	8' height	USER PROVIDED ITEM	1.00	FENC	\$1,000.00	\$1,000.00
Removal of power box and poles	NA	USER PROVIDED ITEM	1.00	PB&P	\$3,000.00	\$3,000.00
Removal of water treatment piping	NA	USER PROVIDED ITEM	1.00	PIPE	\$2,000.00	\$2,000.00

Job Hours: 40.00

Subtotal
(unadjusted): \$72,347.88

Total Cost
(adjusted for location): \$68,513.44

DEMOLITION WORK

Task description: Removal of liners and precipitate from treatment ponds

Site: JD-9 Mine Permit Action: AM-1 Permit/Job#: M1977306

PROJECT IDENTIFICATION

Task #: 05A State: Colorado Abbreviation: None
Date: 1/27/2014 County: Montrose Filename: M306-05a
User: THM

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 94.70 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Removal of precipitates and liners	24 tons	USER PROVIDED ITEM	24.00	tons	\$266.00	\$6,384.00

Job Hours: 16.00 Subtotal (unadjusted): \$6,384.00 Total Cost (adjusted for location): \$6,045.65

HYDRAULIC EXCAVATOR WORK

Task description: Excavation of subgrade material from below treatment ponds

Site: JD-9 Mine Permit Action: AM-1 Permit/Job#: M1977306

PROJECT IDENTIFICATION

Task #: 06A State: Colorado Abbreviation: None
Date: 1/27/2014 County: Montrose Filename: M306-06a
User: THM

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick Horsepower: 268
Attachment 1: ROPS Cab Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$42.57</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$79.15</u>	<u>100</u>
Operator Cost/Hour:	<u>\$33.94</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$155.66</u>	
Total Fleet Cost/Hour:	<u>\$155.66</u>	

MATERIAL QUANTITIES

Initial volume: 100 CCY Swell factor: 1.099
Loose volume: 110 LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: AVERAGE
Secondary Job Condition within Basic Description: AVERAGE
Cycle Time Value: 0.321 minutes

Load Bucket Capacity

Rated Capacity: 2.26 LCY (heaped) Bucket Size Class: Medium
Bucket Fill Factor: 1.100 Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity: 2.49 LCY

Job Condition Correction Factors

Site Altitude: 6500 feet

		Source
Altitude Adj:	<u>1.00</u>	<u>(CAT HB)</u>
Job Efficiency:	<u>0.83</u>	<u>(1 shift/day)</u>
Net Correction:	<u>0.83</u>	<u>multiplier</u>

Unadjusted Hourly Unit Production: 464.67 LCY/Hour
Adjusted Hourly Unit Production: 385.68 LCY/Hour
Adjusted Hourly Fleet Production: 385.68 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: 0.28 Hours
Unit cost: \$0.404 /LCY Total job cost: \$44.00

BULLDOZER WORKTask description: Scrape top 18" off ore pad and push into mineSite: JD-9 MinePermit Action: AM-1Permit/Job#: M1977306PROJECT IDENTIFICATIONTask #: 07AState: ColoradoAbbreviation: NoneDate: 1/27/2014County: MontroseFilename: M306-07aUser: THMAgency or organization name: DRMSHOURLY EQUIPMENT COSTBasic Machine: Cat D7R DS Series II LGPHorsepower: 240Blade Type: StraightAttachment: NAShift Basis: 1 per dayData Source: (CRG)Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$44.66	NA
Operating Cost/Hour:	\$81.07	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$37.41	NA

Total unit Cost/Hour: \$163.14Total Fleet Cost/Hour: \$163.14MATERIAL QUANTITIESInitial Volume: 200Swell factor: 1.135Loose volume: 227 LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat HandbookHOURLY PRODUCTIONAverage push distance: 300 feetUnadjusted hourly production: 191.1 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 5 %Average site altitude: 6,500 feetMaterial weight: 2,700 lbs/LCYWeight description: Sand and clay - LooseJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(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:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.852	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3448

Adjusted unit production: 65.89 LCY/hr

Adjusted fleet production: 65.89 LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$2.476/LCY

Total job time: 3.45 Hours

Total job cost: \$562.04

TRUCK/LOADER TEAM WORKTask description: Haul sbgrade treatment pond material to lower mine areaSite: JD-9 Mine Permit Action: AM-1 Permit/Job#: M1977306PROJECT IDENTIFICATION

Task #: 06B State: Colorado Abbreviation: None
 Date: 1/27/2014 County: Montrose Filename: M306-06b
 User: THM

Agency or organization name: DRMSHOURLY EQUIPMENT COSTShift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Generic 8-10 cy, 6x4
-Loader:	CAT 938H
Support Equipment -Load Area:	NA
-Dump Area:	CAT 938H
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

<u>Cost Breakdown:</u>	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	NA	NA
Ownership cost/hour:	\$8.92	\$21.45	NA	\$21.45	NA	NA
Operating cost/hour:	\$50.32	\$37.75	NA	\$37.75	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	NA	NA
Operator cost/hour:	\$0.00	\$35.82	NA	\$35.82	NA	NA
Unit Subtotals:	\$59.24	\$95.01	NA	\$95.01	NA	NA
Number of Units:	1	1	0	1	0	0
Group Subtotals:	Work:	\$154.25	Support:	\$95.01	Maint:	\$0.00

Total work team cost/hour: \$249.26MATERIAL QUANTITIES

Initial volume: 100 CCY Swell factor: 1.000
 Loose volume: 100 LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTIONTruck Capacity:Truck Payload (weight) Basis:

Material weight: 2,700 Pounds/LCY
 Description: Sand and clay - Loose
 Rated Payload: 27,280 Pounds
 Payload Capacity: 10.10 LCY

Truck Bed (volume) Basis:

Struck Volume:	8.00	LCY
Heaped Volume:	10.00	LCY
Average Volume:	9.00	LCY
Adjusted Volume:	10.00	LCY

Final Truck Volume Based on Number of Loader Passes: 7.61 LCYLoading Tool CapacityBucket Size Class: NA

Rated Capacity:	3.900	LCY (heaped)
Bucket Fill Factor:	0.975	Loose material - mixed moist aggregates (95-100%) 0.975
Adjusted Capacity:	3.803	LCY

Job Condition Corrections:Site Altitude (ft.): 6500 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)

Net Correction: 0.830 0.830Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 2 passesExcavators and Front Shovels:Machine Cycle Time vs. Job Condition Rating: NASelected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.483 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(Cat HB)
Stockpile:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders -0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.443	minutes
Net Load Time per Truck:		0.543	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.543	Minutes	Adjusted for site altitude:	0.543	Minutes
Truck Maneuver and Dump Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes

Truck Travel (Haul & Return) Time:
maintained 2.0Road Condition: Hard, smooth, stabilized, surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	20000.00	-5.00	2.00	-3.00	2938	7.018

Haul Time: 7.018 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	20000.00	5.00	2.00	7.00	2555	7.852

Return Time: 7.852 minutesTotal Truck Cycle Time: 16.713 minutes

Loading Tool unit Production 437.70 LCY/Hour
 Truck Unit Production 27.30 LCY/Hour
 Optimal No. of Trucks: 16 Truck(s)

Adjusted for job efficiency: 363.29 LCY/Hour
 Adjusted for job efficiency: 22.66 LCY/Hour
 Selected Number of Trucks: 1 Truck(s)

Adjusted hourly truck team production: 22.66 LCY/Hour
 Adjusted single truck/loader team production: 22.66 LCY/Hour
 Adjusted multiple truck/loader team production: 22.66 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 4.41 Hours
 Unit cost: \$10.999 /LCY Total job cost: \$1,099.93

BULLDOZER WORKTask description: Scrape top 18" off ore pad and push into mineSite: JD-9 MinePermit Action: AM-1Permit/Job#: M1977306PROJECT IDENTIFICATIONTask #: 07AState: ColoradoAbbreviation: NoneDate: 1/27/2014County: MontroseFilename: M306-07aUser: THMAgency or organization name: DRMSHOURLY EQUIPMENT COSTBasic Machine: Cat D7R DS Series II LGPHorsepower: 240Blade Type: StraightAttachment: NAShift Basis: 1 per dayData Source: (CRG)Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$44.66	NA
Operating Cost/Hour:	\$81.07	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$37.41	NA

Total unit Cost/Hour: \$163.14Total Fleet Cost/Hour: \$163.14MATERIAL QUANTITIESInitial Volume: 200Swell factor: 1.135Loose volume: 227 LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat HandbookHOURLY PRODUCTIONAverage push distance: 300 feetUnadjusted hourly production: 191.1 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 5 %Average site altitude: 6,500 feetMaterial weight: 2,700 lbs/LCYWeight description: Sand and clay - LooseJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(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:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.852	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3448

Adjusted unit production: 65.89 LCY/hr

Adjusted fleet production: 65.89 LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$2.476/LCY

Total job time: 3.45 Hours

Total job cost: \$562.04

SAFEGUARDING UNDERGROUND OPENINGS

Task description: Lower Mine Area Portal Seal

Site: JD-9 Mine Permit Action: AM-1 Permit/Job#: M1977306

PROJECT IDENTIFICATION

Task #: 08A State: Colorado Abbreviation: None
Date: 1/27/2014 County: Montrose Filename: M306-08a
User: THM

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Lower Mine Area Portal Seal	10' x 10'	Adit closure - backfilling (per cu. yd.)	90.00	CY	\$1.61	\$144.90

Job Hours: 8.00

Total Cost: \$144.90

BULLDOZER WORKTask description: Re-countour water treatment pondsSite: JD-9 MinePermit Action: AM-IPermit/Job#: M1977306PROJECT IDENTIFICATIONTask #: 09AState: ColoradoAbbreviation: NoneDate: 1/27/2014County: MontroseFilename: M306-09aUser: THMAgency or organization name: DRMSHOURLY EQUIPMENT COSTBasic Machine: Cat D7R DS Series II LGPHorsepower: 240Blade Type: StraightAttachment: NAShift Basis: 1 per dayData Source: (CRG)Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$44.66	NA
Operating Cost/Hour:	\$81.07	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$37.41	NA

Total unit Cost/Hour: \$163.14Total Fleet Cost/Hour: \$163.14MATERIAL QUANTITIESInitial Volume: 3,055Swell factor: 1.135Loose volume: 3,467 LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat HandbookHOURLY PRODUCTIONAverage push distance: 100 feetUnadjusted hourly production: 496.4 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 0 %Average site altitude: 6,500 feetMaterial weight: 2,700 lbs/LCYWeight description: Sand and clay - LooseJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(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:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.852	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3819

Adjusted unit production: 189.58 LCY/hr

Adjusted fleet production: 189.58 LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
 Unit cost: \$0.861/LCY

Total job time: 18.29 Hours
 Total job cost: \$2,983.83

SAFEGUARDING UNDERGROUND OPENINGS

Task description: Sealing of 4 ventilation shafts

Site: JD-9 Mine Permit Action: AM-I Permit/Job#: M1977306

PROJECT IDENTIFICATION

Task #: 10A State: Colorado Abbreviation: None
Date: 1/27/2014 County: Montrose Filename: M306-10a
User: THM

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Sealing of 4 ventilation shafts	4' x 50'	Shaft closure - polyurethane foam plug (per cu. yd.)	80.00	CY	\$175.79	\$14,063.20

Job Hours: 32.00

Total Cost: \$14,063.20

BULLDOZER RIPPING WORK

Task description: Rip 1.2 acres of lower mine area prior to placing topsoil

Site: JD-9 Mine Permit Action: AM-I Permit/Job#: M1977306

PROJECT IDENTIFICATION

Task #: 11A State: Colorado Abbreviation: None
Date: 1/27/2014 County: Montrose Filename: M306-11a
User: THM

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II Horsepower: 240
Ripper Attachment: 1-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$49.63</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$76.81</u>	<u>100</u>
Ripper Operating Cost/Hour:	<u>\$8.34</u>	<u>100</u>
Operator Cost/Hour:	<u>\$37.41</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$172.19</u>	
Total Fleet Cost/Hour:	<u>\$172.19</u>	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 1.20 acres Rip Depth (ft): 1.00 Volume: 1,936 BCY or CCY

Source of estimated quantity: Reclamation Plan

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.45 mph
Average Ripping Width: 3.68 degrees
Average Ripping Length: 100.00 feet
Average Dozer Speed: 88.00 feet
Average Maneuver Time: 0.25 feet
Production per unit area: 0.366 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.366 Acres/hr
Site Altitude: 6,500 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier
Adjusted Hourly Unit Production: 0.30 Acres/hr
Adjusted Hourly Fleet Production: 0.30 Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 3.95 Hours

Unit cost: \$567.408 Per acre Total job cost: \$681.00

BULLDOZER WORKTask description: Replace topsoil over 1.2 acres of Lower Mine AreaSite: JD-9 MinePermit Action: AM-IPermit/Job#: M1977306PROJECT IDENTIFICATIONTask #: 12AState: ColoradoAbbreviation: NoneDate: 1/27/2014County: MontroseFilename: M306-12aUser: THMAgency or organization name: DRMSHOURLY EQUIPMENT COSTBasic Machine: Cat D7R DS Series II LGPHorsepower: 240Blade Type: StraightAttachment: NAShift Basis: 1 per dayData Source: (CRG)Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$44.66	NA
Operating Cost/Hour:	\$81.07	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$37.41	NA

Total unit Cost/Hour: \$163.14Total Fleet Cost/Hour: \$163.14MATERIAL QUANTITIESInitial Volume: 968Swell factor: 1.000Loose volume: 968 LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat HandbookHOURLY PRODUCTIONAverage push distance: 100 feetUnadjusted hourly production: 496.4 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 0 %Average site altitude: 6,500 feetMaterial weight: 1,600 lbs/LCYWeight description: Top SoilJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(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:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6445

Adjusted unit production: 319.93 LCY/hr

Adjusted fleet production: 319.93 LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.510/LCY

Total job time: 3.03 Hours

Total job cost: \$493.61

REVEGETATION WORKTask description: Revegetation of 1.3 acres of the waste embankmentSite: JD-9 Mine Permit Action: AM-1 Permit/Job#: M1977306PROJECT IDENTIFICATION

Task #: 13A State: Colorado Abbreviation: None
 Date: 1/27/2014 County: Montrose Filename: M306-13a
 User: THM

Agency or organization name: DRMSFERTILIZING**Materials**

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

Application

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

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	2.00	32.64	\$21.30
Indian Ricegrass - Paloma	4.00	12.95	\$34.84
Galleta	2.00	7.30	\$50.40
Slender Wheatgrass - San Luis	2.00	7.30	\$7.42
Western Wheatgrass - Arriba	4.00	10.10	\$14.72
Needle and Thread	1.00	2.64	\$46.99
Needlegrass, Green - Lodorm	2.00	8.31	\$10.78
Saltbush, Four Wing	3.00	4.13	\$32.19
Globemallow, Scarlet (or copper)	0.30	3.40	\$42.14
Winter Fat	1.00	2.55	\$32.69

Penstemon, Palmer	0.50	11.06	\$15.50
Totals Seed Mix	21.80	102.38	\$308.97

Application

Description	Cost /Acre
Hydro seeding (MEANS 32 92 19.14 0200)	\$847.24
Total Seed Application Cost/Acre	\$847.24

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hydromulch, 1 ton/ac. rate {Materials Only}	1.00	ACRE	\$153.53	\$153.53
Total Mulch Materials Cost/Acre				\$153.53

Application

Description	Cost /Acre
Hydromulching (MEANS 32 92 19.14 0200)	\$847.24
Total Mulch Application Cost/Acre	\$847.24

NURSERY STOCK PLANTING

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

JOB TIME AND COST

No. of Acres: 1.3 Cost /Acre: \$2,156.98
 Estimated Failure Rate: 40% Cost /Acre*: \$2,156.98
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: \$2,804.07
 Reseeding Job Cost: \$1,121.63
 Total Job Cost: \$3,925.70
 Job Hours: 4.00

REVEGETATION WORKTask description: Revegetation of 6.9 acres disturbanceSite: JD-9 MinePermit Action: AM-1Permit/Job#: M1977306PROJECT IDENTIFICATIONTask #: 14AState: ColoradoAbbreviation: NoneDate: 1/28/2014County: MontroseFilename: M306-13aUser: THMAgency or organization name: DRMSFERTILIZINGMaterials

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

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)	\$98.01
Total Tilling Cost/Acre	\$98.01

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost / Acre
Blue Grama - Hachita	2.00	32.64	\$21.30
Indian Ricegrass - Paloma	4.00	12.95	\$34.84
Galleta	2.00	7.30	\$50.40
Slender Wheatgrass - San Luis	2.00	7.30	\$7.42
Western Wheatgrass - Arriba	4.00	10.10	\$14.72
Needle and Thread	1.00	2.64	\$46.99
Needlegrass, Green - Lodorm	2.00	8.31	\$10.78
Saltbush, Four Wing	3.00	4.13	\$32.19
Globemallow, Scarlet (or copper)	0.30	3.40	\$42.14
Winter Fat	1.00	2.55	\$32.69
Penstemon, Palmer	0.50	11.06	\$15.50

Totals Seed Mix	21.80	102.38	\$308.97
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Application

Description	Cost /Acre
Hydro seeding (MEANS 32 92 19.14 0200)	\$847.24
Total Seed Application Cost/Acre	\$847.24

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hydromulch, 1 ton/ac. rate {Materials Only}	1.00	ACRE	\$153.53	\$153.53
Total Mulch Materials Cost/Acre				\$153.53

Application

Description	Cost /Acre
Hydromulching (MEANS 32 92 19.14 0200)	\$847.24
Total Mulch Application Cost/Acre	\$847.24

NURSERY STOCK PLANTING

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

JOB TIME AND COST

No. of Acres: 6.9 Cost /Acre: \$2,254.99
 Estimated Failure Rate: 40% Cost /Acre*: \$2,254.99
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: \$15,559.43
 Reseeding Job Cost: \$6,223.77
 Total Job Cost: \$21,783.20
 Job Hours: 8.00

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilization**Site: **JD-9 Mine** Permit Action: **AM-1** Permit/Job#: **M1977306****PROJECT IDENTIFICATION**

Task #: **15A** State: **Colorado** Abbreviation: **None**
 Date: **1/28/2014** County: **Montrose** Filename: **M306-15a**
 User: **THM**

Agency or organization name: **DRMS****EQUIPMENT TRANSPORT RIG COST**

Shift basis: **1 per day**
 Cost Data Source: **CRG Data**

Truck Tractor Description: **GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED, 400 HP (2ND HALF, 2006)**Truck Trailer Description: **GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT TRAILER (25T, 50T, AND 100T)****Cost Breakdown:**

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D7R DS XR Series II	32.01	\$41.75	\$117.55	1	\$159.30	\$117.55	\$250.00
Cat 336D L 10'-6" Stick	32.23	\$42.57	\$117.55	1	\$160.12	\$117.55	\$250.00
CAT 938H	16.34	\$21.45	\$88.67	1	\$110.12	\$88.67	\$250.00
Hydroseeder with Tractor	28.00	\$65.89	\$117.55	1	\$183.44	\$117.55	\$250.00

Subtotals: **\$612.98** **\$441.32** **\$1,000.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 3/4 T.	\$15.34	2	\$30.68	\$30.68

Subtotals: **\$30.68** **\$30.68**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GRAND JUNCTION	
Total one-way travel distance:	90.00	miles
Average Travel Speed:	40.00	mph

Total Non-Roadable Mob/Demob Cost *	\$7,970.31
* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$138.06
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	2.25	2.25
Return Time (Hours):	2.25	2.25
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	5.50	4.50

JOB TIME AND COST

Total job time:	11.00	Hours
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Total job cost:	\$8,108.37
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