

COST SUMMARY WORK

Task description: Cost Estimate for cover material RDA

Site: New Elk Mine

Permit Action: RDA Calculation

Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 2/21/2020

County: Las Animas

Filename: C012-000

User: DC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
795	Import Cover Material for RDA	TRUCK1	1	844.91	\$4,330,245
796	Spread Cover Material RDA	DOZER	2	67.38	\$38,072
<u>SUBTOTALS:</u>				912.29	\$4,368,317

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$88,240

Performance bond: 1.05

Total = \$45,867

Job superintendent: 195.94

Total = \$13,596

Profit: 10.00

Total = \$436,832

TOTAL O & P = \$584,535

CONTRACT AMOUNT (direct + O & P) = \$4,952,852

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$0

Total = \$0

Engineering work and/or contract/bid preparation: 4.25

Total = \$210,496

Reclamation management and/or administration: 3.13

\$155,024

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$950,056

TOTAL BOND AMOUNT (direct + indirect) = \$5,318,373

TRUCK/LOADER TEAM WORK

Task description: Import Cover Material for RDA

Site: New Elk Mine

Permit Action: RDA Calculation

Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 795

State: Colorado

Abbreviation: None

Date: 2/21/2020

County: Las Animas

Filename: C012-795

User: DC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

		Equipment Description
Truck Loader Team -Truck:		Generic 15-18 cy, 6x4
-Loader:		CAT 928Hz
Support Equipment -Load Area:		Cat D8T - 8SU
-Dump Area:		NA
Road Maintenance -Motor Grader:		CAT 12M
-Water Truck:		Water Tanker, 7,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	45	15	NA	15	15
Ownership cost/hour:	\$28.38	\$20.93	\$103.86	NA	\$33.62	\$44.05
Operating cost/hour:	\$55.36	\$11.84	\$12.34	NA	\$5.13	\$10.77
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$32.50	\$40.65	\$41.24	NA	\$28.52	\$21.09
Unit Subtotals:	\$116.23	\$73.42	\$157.44	NA	\$67.26	\$75.92
Number of Units:	20	1	1	0	1	1
Group Subtotals:	Work:	\$2,398.02	Support:	\$157.44	Maint:	\$143.18

Total work team cost/hour: **\$2,698.64**

MATERIAL QUANTITIES

Initial volume: 120,597

CCY

Swell factor: 1.000

Loose volume: **120,597**

LCY

Source of estimated volume: Division of Reclamation, Mining & Safety

Source of estimated swell factor: Cat Handbook

Material Purchase Cost: \$17.00

Total Cost: \$2,050,149.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	2,100	Pounds/LCY
Description:	Earth - Loam	
Rated Payload:	63,980	Pounds
Payload Capacity:	30.47	LCY

Truck Bed (volume) Basis:

Struck Volume:	15.00	LCY
Heaped Volume:	18.00	LCY
Average Volume:	16.50	LCY
Adjusted Volume:	18.00	LCY

Final Truck Volume Based on Number of Loader Passes: **16.50** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	3.000	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	3.300	LCY

Job Condition Corrections:

Site Altitude (ft.): 5000 feet

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

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill
Truck: 5 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.475 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high or less 0.01	0.010	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)

Net Cycle Time Adjustment: -0.010 minutes
Adjusted Loader Cycle Time: **0.465** minutes
Net Load Time per Truck: **1.960** minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	1.960	Minutes	Adjusted for site altitude:	1.960	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Very hard, smooth, asphalt or concrete, no tire penetration 1.2

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	158400.00	0.00	1.20	1.20	2952	53.810
2	2300.00	13.00	1.20	14.20	657	2.996

Haul Time: **56.806** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2300.00	-13.00	1.20	-11.80	1628	1.500
2	158400.00	0.00	1.20	1.20	2963	53.471

Return Time: **54.971** minutes

Total Truck Cycle Time: **115.137** minutes

Loading Tool unit Production	402.44	LCY/Hour	Adjusted for job efficiency:	334.02	LCY/Hour
Truck Unit Production	8.60	LCY/Hour	Adjusted for job efficiency:	7.14	LCY/Hour
Optimal No. of Trucks:	47	Truck(s)	Selected Number of Trucks:	20	Truck(s)
		Adjusted hourly truck team production:	142.73	LCY/Hour	
		Adjusted single truck/loader team production:	142.73	LCY/Hour	
		Adjusted multiple truck/loader team production:	142.73	LCY/Hour	

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	844.91	Hours
Unit cost:	\$18.907	/LCY	Total job cost:	\$4,330,245	

BULLDOZER WORKTask description: Spread Cover Material RDASite: New Elk MinePermit Action: RDA CalculationPermit/Job#: C1981012**PROJECT IDENTIFICATION**Task #: 796State: ColoradoAbbreviation: NoneDate: 3/6/2020County: Las AnimasFilename: C012-796User: JLEAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$121.49	NA
Operating Cost/Hour:	\$105.84	100
Ripper own. Cost/Hour:	\$13.94	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.24	NA

Total unit Cost/Hour: \$282.50Total Fleet Cost/Hour: **\$565.00****MATERIAL QUANTITIES**Initial Volume: 120,597Swell factor: 1.000Loose volume: **120,597** LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 100 feetUnadjusted hourly
production: 1,243.2 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %Average site altitude: 7,700 feetMaterial weight: 2,100 lbs/LCY

Weight description: Earth - LoamJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7198

Adjusted unit
production: 894.86 LCY/hr

Adjusted fleet
production: **1789.72** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.316/LCY

Total job time: **67.38** Hours

Total job cost: **\$38,072**