



## COLORADO

Division of Reclamation,  
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215  
Denver, CO 80203

October 30, 2014

Michael D. Shumway  
Liberty Mining, LLC  
1300 South Highway 191  
P.O. Box 1032  
Moab, UT 84532

**Re: File No. M-2013-070, Liberty Mine, M-2013-070 Decision Letter - Financial and Performance Warranty Request - Hard Rock Mining Operation**

Mr. Shumway:

On October 30, 2014, the Division of Reclamation, Mining and Safety approved your 110d mining permit application.

The amount of financial warranty set by the Division for this operation is \$93,862.42. You must submit a financial warranty in this amount and a performance warranty in order for us to issue a permit. In the event you have requested a financial warranty form, we have enclosed it in this letter. If you have not, please select a type of financial warranty from Rule 4.3. Then contact us so that we can provide you with the appropriate warranty form. We have enclosed a performance warranty form with this letter for your use.

**PLEASE NOTE THAT MINING OPERATIONS MAY NOT COMMENCE UNTIL A PERMIT HAS BEEN ISSUED BY THE DIVISION AFTER RECEIPT OF YOUR FINANCIAL WARRANTY AND PERFORMANCE WARRANTY. A PERMIT WILL NOT BE ISSUED UNTIL WE VERIFY THE ADEQUACY OF BOTH YOUR FINANCIAL WARRANTY AND PERFORMANCE WARRANTY.**

If you have any questions, please contact me at (970) 241-2042.

Sincerely,

Travis Marshall  
Environmental Protection Specialist

Enclosure(s) - Reclamation Cost Estimate  
Performance Warranty



Mr. Michael D. Schumway  
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October 30, 2014

cc: Russ Means, DRMS  
Barbara Coria, DRMS

Cynthia A. Gray  
Soulder, Miller and Associates  
121 San Juan Blvd.  
Farmington, NM 87401

Scott Gerwe  
BLM-Grand Junction Field Office  
2815 H Road  
Grand Junction, CO 81506

# 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



John W. Hickenlooper  
Governor

Mike King  
Executive Director

Virginia Brannon  
Director

## PERFORMANCE WARRANTY

Permittee: Liberty Mining, LLC

Operation: Liberty Mine

Permit No: M-2013-070

*This form has been approved by the Mined Land Reclamation Board pursuant to sections 34-32-117, C.R.S., of the Mined Land Reclamation Act and 34-32.5-117, C.R.S., of the Colorado Land Reclamation Act for the Extraction of Construction Materials. Any alteration or modification of this form, without approval by the Board shall result in the financial warranty being invalid and result in the voiding of any permit issued in conjunction with such invalid financial warranty and subject the operator to cease and desist orders and civil penalties for operating without a permit pursuant to sections 34-32-123, C.R.S., of the Mined Land Reclamation Act and 34-32.5-123, C.R.S., of the Colorado Land Reclamation Act for the Extraction of Construction Materials.*

KNOW ALL MEN BY THESE PRESENTS, THAT:

WHEREAS, the Colorado Mined Land Reclamation Act, C.R.S. 34-32-101 et seq. (the "Act"), as amended, and the Colorado Land Reclamation Act for the Extraction of Construction Materials, C.R.S. 34-32.5-101 et seq. (the "Act"), as amended, provides that no permit may be issued under the Act until the Mined Land Reclamation Board (the "Board") receives a performance warranty (or warranties) that is a written promise to comply with all applicable requirements of the Act.

WHEREAS, Liberty Mining, LLC (the "Permittee"), has applied for a permit to conduct a mining operation known as Liberty Mine (the "Operation") on certain lands in Mesa County, Colorado. These lands are described in the permit application, as amended and supplemented, and are referred to herein as the "Affected Lands".

WHEREAS, in its application for the permit, the Permittee has agreed to be bound by all requirements of the Act and all applicable rules and regulations of the Board, as amended from time to time.

WHEREAS, the Board has determined, in accordance with the Act, that the estimated costs of reclamation with regard to those affected lands in Mesa County which are now or may become subject to the permit are those amounts for the stated periods of time as set forth in the financial warranty, which may be amended from time to time to reflect revised estimates of said costs of reclamation.

WHEREAS, the Permittee hereby gives the Board a performance warranty pursuant to Section 34-32-117(2) or Section 34-32.5-117(2) of the Act, and herein promises the Board that it will comply with all applicable requirements of the Act with regard to those Affected Lands.

NOW, THEREFORE, the Permittee hereby promises the Board that it will comply with all applicable requirements of the Act and rules and regulations of the Board with respect to the Affected Lands.

FURTHER, the Permittee hereby promises the Board that it will comply with all of the terms of the application for a permit, as amended and supplemented, as well as any conditions attached to the permit by the Board.

FURTHER, the Permittee promises the Board, pursuant to 34-32-112(2)(d) or 34-32.5-112(1)(c)(iv) of the Act, that it has the lawful authority to enter upon the Affected Lands to conduct mining operations, including, but not limited to, reclamation. The Permittee further recognizes the right of the Board to enter to reclaim lands affected by the operation.

The description of lands herein is for convenience of reference only, and no error in such description, nor any revision of the permitted mining area, nor the disturbance by the Warrantor of lands outside of the permitted mining area shall alter or diminish the Permittee's obligation hereunder, which shall extend to the reclamation of all such lands disturbed.

The obligation of the Permittee hereunder is such that, if the Permittee shall successfully comply with the requirements of the Act, applicable rules and regulations, and the permit, then the Board, upon a finding that the Permittee has so complied, shall release this performance warranty, and the Permittee from its obligation hereunder, to the extent that the Board determines that such compliance has been accomplished. The obligation of the Permittee hereunder shall continue until released in whole or in part by the Board in accordance with applicable law.

In further satisfaction of the requirements of the Act, the Permittee promises to be responsible for the cost of reclamation up to the amount established by the Board and has attached hereto its financial warranty, which may be amended from time to time. The Permittee agrees that it will maintain a financial warranty (or warranties) for the estimated costs of reclamation in good standing for the entire life of the permit. Please note that under the provisions of the Colorado Mined Land Reclamation Act and the Colorado Land Reclamation Act for the Extraction of Construction Materials, any Applicant or Permittee that submits proof, acceptable to the Board or Division of Reclamation, Mining and Safety, that an Applicant or Permittee is a unit of County or Municipal government, or is a department or division of State government, the Applicant or Permittee is not required to submit or post any other instrument of financial responsibility but hereby promises to be responsible for the cost of reclamation up to the amount specified by the Board.

If the Board determines that the Permittee is in default under this performance warranty and has failed to cure such default, although written notice of such default and ample time to cure such default have been given, the Permittee's financial warranty shall be subject to forfeiture.

This performance warranty may be executed in multiple copies, each of which shall be treated as an original, but together they constitute only one agreement, the validity and interpretation of which shall be governed by the laws of the State of Colorado.

The provisions hereof shall bind and inure to the benefit of the parties hereto and their successors and assigns.

SIGNED, SEALED AND DATED this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

Liberty Mining, LLC (SEAL)  
Permittee

By: \_\_\_\_\_

Title: \_\_\_\_\_

**NOTARIZATION OF PERMITTEE'S ACKNOWLEDGEMENT**

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_  
, \_\_\_\_\_, by \_\_\_\_\_ as \_\_\_\_\_ of \_\_\_\_\_  
\_\_\_\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

My Commission expires: \_\_\_\_\_

APPROVED:  
State of Colorado  
Mined Land Reclamation Board  
Division of Reclamation, Mining and Safety

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Division Director

## COST SUMMARY WORK

Task description: \_\_\_\_\_

Site: Liberty Mine Permit Action: Reclamation  
Cost Estimate \_\_\_\_\_ Permit/Job#: M2013070

### PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None  
Date: 10/29/2014 County: Mesa Filename: M070-001  
User: THM

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Remove Trash and Debris, Reclaim Ore Pad Area	DEMOLISH	1	28.00	\$3,848.88
02a	Backfill and Seal Liberty Mine Portals	MINESEAL	1	24.00	\$7,372.88
03a	Dismantle and Remove Mining Support Structures	DEMOLISH	1	16.00	\$2,674.00
04a	Remove / Grade Stormwater Diversions and Structures	DOZER	1	29.22	\$5,027.00
05a	Clean inlet structures and culverts	EXCAVATE	1	17.06	\$1,535.00
06a	Regrade waste rock/overburden pile	DOZER	1	46.98	\$8,080.00
07a	Establish Final Grade	DOZER	1	49.43	\$8,502.00
08a	Spread 6" topsoil over 9.9 acres	DOZER	1	40.03	\$6,886.00
09a	Revegetate 9.9 acres	REVEGE	1	16.00	\$15,527.00
10a	Mobilization	MOBILIZE	1	7.33	\$5,442.00
<b><u>SUBTOTALS:</u></b>				<b>274.05</b>	<b>\$64,895</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance:	2.02%	Total =	\$1,310.88
Performance bond:	1.05%	Total =	\$681.40
Job superintendent:	137.03 hrs	Total =	\$10,298.80
Profit:	10.00%	Total =	\$6,489.50
		TOTAL O & P =	\$18,780.58
		CONTRACT AMOUNT (direct + O & P) =	\$83,675.58

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	4.25%	Total =	\$3,556.21
Reclamation management and/or administration:	5.00%		\$4,183.78
CONTINGENCY:		3.00	Total = \$1,946.85

TOTAL INDIRECT COST = \$28,967.42

TOTAL BOND AMOUNT (direct + indirect) = \$93,862.42

## DEMOLITION WORK

Task description: Remove Trash and Debris, Reclaim Ore Pad Area

Site: Liberty Mine

Permit Action: Reclamation Cost  
Estimate

Permit/Job#: M2013070

### PROJECT IDENTIFICATION

Task #: 01A  
Date: 10/28/2014  
User: THM

State: Colorado  
County: Mesa

Abbreviation: None  
Filename: M070-01a

Agency or organization name: DRMS

### UNIT COSTS

Location adjustment: 100.00 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Remove Trash and Debris	NA	USER PROVIDED ITEM	10.00	hr	\$100.00	\$1,000.00
Decontaminate Ore Stockpile Pad and Sump Liner	NA	USER PROVIDED ITEM	8.00	hr	\$135.00	\$1,080.00
Remove Contaminants from Ore Sump	NA	USER PROVIDED ITEM	2.00	hr	\$85.00	\$170.00
Backfill Ore Sump and Drainage Channels	NA	USER PROVIDED ITEM	8.00	hr	\$199.86	\$1,598.88

Job Hours: 28.00

Subtotal  
(unadjusted): \$3,848.88

Total Cost  
(adjusted for location): \$3,848.88

## SAFEGUARDING UNDERGROUND OPENINGS

Task description: Backfill and Seal Liberty Mine Portals

Site: Liberty Mine

Permit Action: Reclamation Cost  
Estimate

Permit/Job#: M2013070

### PROJECT IDENTIFICATION

Task #: 02A

State: Colorado

Abbreviation: None

Date: 10/28/2014

County: Mesa

Filename: M070-02a

User: THM

Agency or organization name: DRMS

### UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Backfill Portals, Place ore pad contents in decline	NA	Adit closure - backfilling (per cu. yd.)	1,150.00	CY	\$3.00	\$3,450.00
Seal Portal Declines	10' x12'	Adit closure - bulkhead seal (per opening)	2.00	EA	\$1,961.44	\$3,922.88

Job Hours: 24.00

Total Cost: \$7,372.88



## DEMOLITION WORK

Task description: Dismantle and Remove Mining Support Structures

Site: Liberty Mine

Permit Action: Reclamation Cost  
Estimate

Permit/Job#: M2013070

### PROJECT IDENTIFICATION

Task #: 03A  
Date: 10/29/2014  
User: THM

State: Colorado  
County: Mesa

Abbreviation: None  
Filename: M070-03a

Agency or organization name: DRMS

### UNIT COSTS

Location adjustment: 95.50 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Remove Mining Support Structures	NA	USER PROVIDED ITEM	16.00	hr	\$175.00	\$2,800.00

Job Hours: 16.00

Subtotal  
(unadjusted): \$2,800.00

Total Cost  
(adjusted for location): \$2,674.00

**BULLDOZER WORK**Task description: **Remove / Grade Stormwater Diversions and Structures**Site: **Liberty Mine**Permit Action: **Reclamation Cost Estimate**Permit/Job#: **M2013070****PROJECT IDENTIFICATION**Task #: **04A**State: **Colorado**Abbreviation: **None**Date: **10/29/2014**County: **Mesa**Filename: **M070-04a**User: **THM**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D7R DS Series II LGP**Horsepower: **238**Blade Type: **Straight**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<b><u>Utilization %</u></b>
Ownership Cost/Hour:	<b><u>\$49.84</u></b>	<b><u>NA</u></b>
Operating Cost/Hour:	<b><u>\$83.32</u></b>	<b><u>100</u></b>
Ripper op. Cost/Hour:	<b><u>\$0.00</u></b>	<b><u>0</u></b>
Operator Cost/Hour:	<b><u>\$38.85</u></b>	<b><u>NA</u></b>

Total unit Cost/Hour: **\$172.01**Total Fleet Cost/Hour: **\$172.01****MATERIAL QUANTITIES**Initial Volume: **3,500**Swell factor: **1.330**Loose volume: **4,655 LCY**Source of estimated volume: **Division of Reclamation, Mining & Safety**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **100 feet**Unadjusted hourly production: **496.4 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **5 %**Average site altitude: **6,750 feet**Material weight: **2,900 lbs/LCY**Weight description: **Decomposed rock - 50% Rock, 50% Earth****Job Condition Correction Factor**

		<b><u>Source</u></b>
Operator Skill:	<b><u>0.750</u></b>	<b><u>(AVG.)</u></b>
Material consistency:	<b><u>0.900</u></b>	<b><u>(CAT HB))</u></b>
Dozing method:	<b><u>1.000</u></b>	<b><u>(GEN.)</u></b>
Visibility:	<b><u>1.000</u></b>	<b><u>(AVG.)</u></b>

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:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3209

Adjusted unit production: 159.29 LCY/hr

Adjusted fleet production: 159.29 LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$1.080/LCY

Total job time: 29.22 Hours

Total job cost: \$5,027

## HYDRAULIC EXCAVATOR WORK

Task description: Clean inlet structures and culverts

Site: Liberty Mine

Permit Action: Reclamation Cost Estimate

Permit/Job#: M2013070

### PROJECT IDENTIFICATION

Task #: 05A  
Date: 10/29/2014  
User: THM

State: Colorado  
County: Mesa

Abbreviation: None  
Filename: M070-05a

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat 312D L 9'-2" Stick  
Attachment 1: ROPS Cab

Horsepower: 90  
Weight (MT): 13.48  
Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$20.89	NA
Operating Cost/Hour:	\$30.23	100
Operator Cost/Hour:	\$38.83	NA
Total Unit Cost/Hour:	\$89.95	
Total Fleet Cost/Hour:	\$89.95	

### MATERIAL QUANTITIES

Initial volume: 1,000 CCY      Swell factor: 1.165  
Loose volume: 1,165 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: 0.256 minutes

#### Load Bucket Capacity

Rated Capacity: 0.39 LCY (heaped)      Bucket Size Class: Small  
Bucket Fill Factor: 0.900 Other - soil, boulders, roots (80 -100%) 0.900  
Adjusted Capacity: 0.35 LCY

#### Job Condition Correction Factors

Site Altitude: 6750 feet

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

Unadjusted Hourly Unit Production: 82.27 LCY/Hour  
Adjusted Hourly Unit Production: 68.28 LCY/Hour  
Adjusted Hourly Fleet Production: 68.28 LCY/Hour

### JOB TIME AND COST

Fleet size: 1 Excavator      Total job time: 17.06 Hours

Unit cost: \$1.317 /LCY      Total job cost: \$1,535

**BULLDOZER WORK**Task description: Re-grade waste rock/overburden pileSite: Liberty MinePermit Action: Reclamation Cost EstimatePermit/Job#: M2013070**PROJECT IDENTIFICATION**Task #: 06AState: ColoradoAbbreviation: NoneDate: 10/29/2014County: MesaFilename: M070-06aUser: THMAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D7R DS Series II LGPHorsepower: 238Blade Type: StraightAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$49.84	NA
Operating Cost/Hour:	\$83.32	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.85	NA

Total unit Cost/Hour: \$172.01Total Fleet Cost/Hour: \$172.01**MATERIAL QUANTITIES**Initial Volume: 4,600Swell factor: 1.430Loose volume: 6,578 LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 100 feetUnadjusted hourly production: 496.4 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 5 %Average site altitude: 6,750 feetMaterial weight: 3,300 lbs/LCYWeight description: Decomposed rock - 75% Rock, 25% Earth**Job 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:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2821

Adjusted unit production: 140.03 LCY/hr

Adjusted fleet production: 140.03 LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$1.228/LCY

Total job time: 46.98 Hours

Total job cost: \$8,080

**BULLDOZER WORK**Task description: Establish Final Grade

Site: Liberty Mine Permit Action: Reclamation Cost Estimate Permit/Job#: M2013070

**PROJECT IDENTIFICATION**

Task #: 07A State: Colorado Abbreviation: None  
 Date: 10/29/2014 County: Mesa Filename: M070-07a  
 User: THM

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D7R DS Series II LGP  
 Horsepower: 238  
 Blade Type: Straight  
 Attachment: NA  
 Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$49.84	NA
Operating Cost/Hour:	\$83.32	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.85	NA

Total unit Cost/Hour: \$172.01  
 Total Fleet Cost/Hour: \$172.01

**MATERIAL QUANTITIES**

Initial Volume: 4,840  
 Swell factor: 1.430  
 Loose volume: 6,921 LCY

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

**HOURLY PRODUCTION**

Average push distance: 100 feet  
 Unadjusted hourly production: 496.4 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %  
 Average site altitude: 6,750 feet

Material weight: 3,300 lbs/LCYWeight description: Decomposed rock - 75% Rock, 25% Earth**Job 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:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2821

Adjusted unit production: 140.03 LCY/hr

Adjusted fleet production: 140.03 LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$1.228/LCY

Total job time: 49.43 Hours

Total job cost: \$8,502



**BULLDOZER WORK**Task description: Spread 6" topsoil over 9.9 acres

Site: Liberty Mine Permit Action: Reclamation Cost Estimate Permit/Job#: M2013070

**PROJECT IDENTIFICATION**

Task #: 08A State: Colorado Abbreviation: None  
 Date: 10/29/2014 County: Mesa Filename: M070-08a  
 User: THM

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D7R DS Series II LGP  
 Horsepower: 238  
 Blade Type: Straight  
 Attachment: NA  
 Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$49.84</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$83.32</u>	<u>100</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$38.85</u>	<u>NA</u>

Total unit Cost/Hour: \$172.01  
 Total Fleet Cost/Hour: \$172.01

**MATERIAL QUANTITIES**

Initial Volume: 4,840  
 Swell factor: 1.430  
 Loose volume: 6,921 LCY

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

**HOURLY PRODUCTION**

Average push distance: 100 feet  
 Unadjusted hourly production: 496.4 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %  
 Average site altitude: 6,750 feet

Material weight: 3,300 lbs/LCYWeight description: Decomposed rock - 75% Rock, 25% Earth**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>0.900</u>	<u>(CAT HB))</u>
Dozing method:	<u>1.000</u>	<u>(GEN.)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3483

Adjusted unit production: 172.90 LCY/hr

Adjusted fleet production: 172.9 LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.995/LCY

Total job time: 40.03 Hours

Total job cost: \$6,886

**REVEGETATION WORK**Task description: Revegetate 9.9 acresSite: Liberty MinePermit Action: Reclamation Cost EstimatePermit/Job#: M2013070**PROJECT IDENTIFICATION**Task #: 09AState: ColoradoAbbreviation: NoneDate: 10/29/2014County: MesaFilename: M070-09aUser: THMAgency or organization name: DRMS**FERTILIZING****Materials**

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

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$98.01
<b>Total Tilling Cost/Acre</b>	<b>\$98.01</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.30	4.90	\$3.20
Indian Ricegrass - Paloma	1.40	4.53	\$12.19
Crested Wheatgrass - Nordan	1.00	4.59	\$2.33
Pubescent Wheatgrass - Luna	2.00	4.13	\$4.48
Slender Wheatgrass - Pryor	1.30	4.75	\$4.02
Milk Vetch, Cicer - Lutana	0.20	0.67	\$1.02
Western Wheatgrass - Arriba	1.80	4.55	\$6.62
Needle and Thread	1.60	4.22	\$75.18
Flax, Lewis Blue	0.50	3.32	\$8.26
Saltbush, Four Wing	2.00	2.75	\$21.46

Penstemon, Palmer	0.10	2.21	\$3.10
<b>Totals Seed Mix</b>	12.20	40.62	<b>\$141.86</b>

**Application**

Description	Cost /Acre
Drill seeding (DRMS Cost Data)	\$88.20
<b>Total Seed Application Cost/Acre</b>	<b>\$88.20</b>

**MULCHING and MISCELLANEOUS****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Curtail @ 4.0 pt/ac	1.00	ACRE	\$16.24	\$16.24
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$265.00	\$530.00
<b>Total Mulch Materials Cost/Acre</b>				<b>\$546.24</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$65.89
Power mulcher (MEANS 32 91 13.16 0250)	\$86.68
Weed spray, hand, aquatic area, nox. [DMG]	\$179.57
<b>Total Mulch Application Cost/Acre</b>	<b>\$332.14</b>

**NURSERY STOCK PLANTING**

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

**JOB TIME AND COST**

No. of Acres:	9.9	Cost /Acre:	\$1,206.45
Estimated Failure Rate:	30%	Cost /Acre*:	\$1,206.45
*Selected Replanting Work Items:	TILLING, SEEDING, MULCHING		
Initial Job Cost:	\$11,943.86		
Reseeding Job Cost:	\$3,583.16		
Total Job Cost:	\$15,527		
Job Hours:	16.00		