



STATE OF
COLORADO

Simmons - DNR, Leigh <leigh.simmons@state.co.us>

C1983059, Terror Creek Loadout, RN7, Adequacy Review

1 message

Simmons - DNR, Leigh <leigh.simmons@state.co.us>

Thu, Feb 14, 2019 at 3:25 PM

To: Doug Smith <Doug.Smith@oxbow.com>

Attached

Leigh Simmons
Environmental Protection Specialist



COLORADO
Division of Reclamation,
Mining and Safety

Department of Natural Resources

P 303.866.3567 x 8121 | C 720.220.1180 | F 303.832.8106

1313 Sherman Street, Room 215, Denver, CO 80203

leigh.simmons@state.co.us | <http://mining.state.co.us/>



Adequacy letter, Terror Creek, RN-07, 1.pdf

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COLORADO

Division of Reclamation,
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

February 14, 2019

Doug Smith
Oxbow Mining, LLC.
PO Box 535
Somerset, CO 81434

**Re: Terror Creek Loadout (Permit No. C-1983-059)
Permit Renewal No. 7, (RN-07)
Adequacy Review**

Dear Mr. Smith,

The Colorado Division of Reclamation, Mining and Safety (Division) has completed the review of materials submitted by Oxbow Mining, LLC. (Oxbow) in support of the RN-07 application, and has the following questions:

Rule 2.03.4 – Identification of Interests

1. Section 2.03 of the permit application path (PAP) gives details of legal, financial and compliance related information.

Please revise Section 2.03 with up to date information.

Rule 2.04.11 – Fish and Wildlife Resources Information

2. **Please review section 2.04.11 of the PAP, and update as necessary (in particular please ensure that the Threatened and Endangered species list is up to date).**

Rule 3.02.2

3. The Division currently holds a bond of \$290,000, in the form of a corporate surety issued by Lexon Insurance Company. The Reclamation Cost Estimate has been recalculated and is attached for your review.

The updated Reclamation Cost Estimate totals \$301,494.93 – please submit additional bond to cover the \$11,494.93 deficit.



Doug Smith
Page 2
February 14, 2019

The proposed decision due date for RN-07 is February 28, 2019.
Please feel free to contact me with any questions or comments.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Leigh Simmons', with a stylized flourish at the end.

Leigh Simmons
Environmental Protection Specialist

Enclosures:

- A. Terror Creek Loadout Permit Renewal 07 Reclamation Cost Estimate

Enclosure A: Terror Creek Loadout Permit Renewal 07 Reclamation Cost Estimate

COST SUMMARY WORK

Task description: Terror Creek Loadout Permit Renewal 07 Cost Summary

Site: Terror Creek Loadout

Permit Action: RN7

Permit/Job#: C1983059

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 2/13/2019

County: Delta

Filename: C059-000

User: LDS

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01A	Remove Coal Material from Disturbed Area	DOZER	1	15.45	\$3,828.00
02A	Backfill Coal Pad	DOZER	1	208.01	\$51,520.00
03A	Move Sediment Storage Pile for On-Site Disposal	DOZER	1	3.98	\$985.00
05A	Compact Coal Material in On-Site Disposal Area	COMPACT	1	9.45	\$1,400.00
06A	Rip Light-Use Road, Water Tank, RR Track and Haul Road	RIPPER	1	1.12	\$302.00
09A	Finish Grade Entire Site	GRADER	1	2.72	\$380.00
10A	Backfill Sediment and Dugout Ponds	DOZER	1	2.94	\$729.00
11A	Replace Topsoil from Stockpile to Site	SCRAPER1	1	14.39	\$3,192.00
12A	Plug and Seal 3 Alluvial Monitoring Wells	BOREHOLE	1	8.00	\$877.20
15A	Demolish and Remove All Structures	DEMOLISH	1	200.00	\$134,094.36
16A	Reseed Disturbed Area	REVEGE	1	15.20	\$6,998.00
17A	Site Maintenance Over 10-Year Liability Period	SITEMAINT ENANCE	1	80.00	\$6,908.00
18A	Mobilize/Demobilize Equipment for Reclamation	MOBILIZE	1	6.00	\$7,045.00
<u>SUBTOTALS:</u>				567.26	\$218,258

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02
Performance bond: 1.05
Job superintendent: 283.63
Profit: 10.00

Total = \$4,408.81
Total = \$2,291.71
Total = \$20,719.17
Total = \$21,825.80

TOTAL O & P = \$49,245.49

CONTRACT AMOUNT (direct + O & P) = \$267,503.49

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 500.00
Engineering work and/or contract/bid preparation: 7.22
Reclamation management and/or administration: 5.30

Total = 500.00
Total = \$19,313.75
Total = \$14,177.68

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$83,236.93

TOTAL BOND AMOUNT (direct + indirect) = \$301,494.93

BULLDOZER WORKTask description: Remove Coal Material from Disturbed AreaSite: Terror Creek LoadoutPermit Action: RN7Permit/Job#: C1983059PROJECT IDENTIFICATIONTask #: 01AState: ColoradoAbbreviation: NoneDate: 2/13/2019County: DeltaFilename: XUser: LDSAgency or organization name: DRMSHOURLY EQUIPMENT COSTBasic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$247.68	
Total Fleet Cost/Hour:	\$247.68	

MATERIAL QUANTITIESInitial Volume: 8,067Swell factor: 1.185Loose volume: **9,559** LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell
factor: Cat HandbookHOURLY PRODUCTIONAverage push distance: 200 feetUnadjusted hourly
production: 700.0 LCY/hrMaterials consistency
description: Compacted fill or embankment 0.9Average push
gradient: 0 %Average site altitude: 5,800 feetMaterial weight: 1,400 lbs/LCY

Weight description: Coal - Bituminous, Washed

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.900	(AB.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:	1.643	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8837

Adjusted unit
production: 618.59 LCY/hr

Adjusted fleet
production: **618.59** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.400/LCY

Total job time: **15.45** Hours
Total job cost: **\$3,828**

BULLDOZER WORKTask description: Backfill Coal PadSite: Terror Creek LoadoutPermit Action: RN7Permit/Job#: C1983059PROJECT IDENTIFICATIONTask #: 02AState: ColoradoAbbreviation: NoneDate: 2/13/2019County: DeltaFilename: XUser: LDSAgency or organization name: DRMSHOURLY EQUIPMENT COSTBasic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$247.68	
Total Fleet Cost/Hour:	\$247.68	

MATERIAL QUANTITIESInitial Volume: 38,000Swell factor: 1.125Loose volume: **42,750** LCYSource of estimated volume: Maps 5, 12 and 13Source of estimated swell
factor: Cat HandbookHOURLY PRODUCTIONAverage push distance: 200 feetUnadjusted hourly
production: 700.0 LCY/hrMaterials consistency
description: Compacted fill or embankment 0.9Average push
gradient: 10 %Average site altitude: 5,800 feetMaterial weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	0.800	(POOR)
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:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2936

Adjusted unit
production: 205.52 LCY/hr
Adjusted fleet
production: **205.52 LCY/hr**

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$1.205/LCY

Total job time: **208.01 Hours**
Total job cost: **\$51,520**

BULLDOZER WORKTask description: Move Sediment Storage Pile for On-Site DisposalSite: Terror Creek LoadoutPermit Action: RN7Permit/Job#: C1983059PROJECT IDENTIFICATIONTask #: 03AState: ColoradoAbbreviation: NoneDate: 2/13/2019County: DeltaFilename: XUser: LDSAgency or organization name: DRMSHOURLY EQUIPMENT COSTBasic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$247.68	
Total Fleet Cost/Hour:	\$247.68	

MATERIAL QUANTITIESInitial Volume: 1,500Swell factor: 1.125Loose volume: **1,688** LCYSource of estimated volume: Map 5; Page 2.05-3Source of estimated swell
factor: Cat HandbookHOURLY PRODUCTIONAverage push distance: 200 feetUnadjusted hourly
production: 700.0 LCY/hrMaterials consistency
description: Consolidated stockpile 1.0Average push
gradient: 0 %Average site altitude: 5,800 feetMaterial weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6064

Adjusted unit
production: 424.48 LCY/hr
Adjusted fleet
production: **424.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.583/LCY

Total job time: **3.98** Hours
Total job cost: **\$985**

COMPACTION WORKTask description: Compact Coal Material in On-Site Disposal AreaSite: Terror Creek LoadoutPermit Action: RN7Permit/Job#: C1983059PROJECT IDENTIFICATION

Task #: 05A State: Colorado Abbreviation: None
 Date: 2/13/2019 County: Delta Filename: X
 User: LDS

Agency or organization name: DRMSHOURLY EQUIPMENT COST

Basic Machine: CAT 815F Horsepower: 240
 Compactor Type: Soil - tamping foot Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$56.28	NA
Operating Cost/Hour:	\$65.66	100
Operator Cost/Hour:	\$26.14	NA
Total Unit Cost/Hour:	\$148.08	
Total Fleet Cost/Hour:	\$148.08	

MATERIAL QUANTITIES

Loose volume: 9,559 LCY Shrinkage factor: 0.870
 Compacted volume: 8,316 CCY

Source of estimated volume: Map 5 - Assume 1' Over 5 AcresSource of estimated shrinkage factor: Cat HandbookHOURLY PRODUCTIONUnadjusted hourly production = $(W \times S \times L \times C) / P$

Compacted width per pass (W): 6.50 feet
 Average Compactor Speed (S): 5.00 mph
 Compacted thickness of each lift (L): 10.00 inches
 Conversion Constant (C): 16.3 (5,280ft./12in./27cu.ft.)
 Required number of machine passes (P): 5 passes
 Unadjusted Hourly Unit Production: 1,059.50 CCY/hour

Job Condition Correction FactorsSite Altitude: 5,800 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.8300</u>	multiplier

Adjusted Hourly Unit Production: 879.39 CCY/HourAdjusted Hourly Fleet Production: 879.39 CCY/HourJOB TIME AND COSTFleet size: 1 Compactor(s) Total job time: 9.46 HoursUnit cost: \$0.168 per CCY Total job cost: \$1,400

BULLDOZER RIPPING WORKTask description: Rip Light-Use Road, Water Tank, RR Track and Haul RoadSite: Terror Creek LoadoutPermit Action: RN7Permit/Job#: C1983059**PROJECT IDENTIFICATION**Task #: 06AState: ColoradoAbbreviation: NoneDate: 2/13/2019County: DeltaFilename: XUser: LDSAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9SUHorsepower: 405Ripper Attachment: 3-Shank RipperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper Ownership Cost/Hour:	\$12.36	NA
Ripper Operating Cost/Hour:	\$7.88	100
Operator Cost/Hour:	\$41.52	NA
Total Unit Cost/Hour:	\$267.92	
Total Fleet Cost/Hour:	\$267.92	

MATERIAL QUANTITIESSelected estimating method: Area**Alternate Methods:**

Seismic: NA Bank Volume: NA BCY NA
 Area: 0.80 acres Rip Depth (ft): 2.00 Volume: 2,581 BCY or CCY

Source of estimated quantity: Map 5**HOURLY PRODUCTION****Seismic:**Seismic Velocity: NA feet/second**Area:**

Average Ripping Depth: 2.63 mph
 Average Ripping Width: 7.67 degrees
 Average Ripping Length: 250.00 feet
 Average Dozer Speed: 88.00 feet
 Average Maneuver Time: 0.25 feet
 Production per unit area: 0.855 acres/hour

Job Condition Correction FactorsUnadjusted Hourly Unit Production: 0.855 Acres/hrSite Altitude: 5,800 feetAltitude Adj: 1.00 (CAT HB)Job Efficiency: 0.83 (1 shift/day)Net Correction: 0.83 multiplierAdjusted Hourly Unit Production: 0.71 Acres/hrAdjusted Hourly Fleet Production: 0.71 Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s)

Total job time: 1.13 Hours

Unit cost: \$377.759 Per acre

Total job cost: \$302

MOTOR GRADER WORKTask description: **Finish Grade Entire Site**Site: **Terror Creek Loadout**Permit Action: RN7Permit/Job#: C1983059**PROJECT IDENTIFICATION**Task #: 09AState: ColoradoAbbreviation: NoneDate: 2/13/2019County: DeltaFilename: XUser: LDSAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: CAT 14MHorsepower: 259

Ripper Attachment: _____

Shift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	\$60.13	NA
Operating Cost/Hour:	\$50.87	100
Ripper Ownership Cost/Hour:	\$0.00	NA
Ripper Operating Cost/Hour:	\$0.00	
Operator Cost/Hour:	\$28.69	NA
Total Unit Cost/Hour:	\$139.69	
Total Fleet Cost/Hour:	\$139.69	

MATERIAL QUANTITIESTotal Area to be graded or ripped: 4.50 acresSource of estimated acreage: Map 5**HOURLY PRODUCTION**

Average Grader Speed:	<u>1.50</u>	mph
Selected Application:	<u>Finish grading (0-2.5 mph) - 1.5</u>	
Selected Blade Angle:	<u>30</u>	degrees
Effective Blade Length:	<u>12.10</u>	feet
Width of blade overlap per pass:	<u>2.00</u>	feet
Net grading or ripping width per pass:	<u>10.10</u>	feet
Unadjusted Hourly Unit Production:	<u>1.8364</u>	acres/hour

Job Condition Correction FactorsSite Altitude: 5800 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.90</u>	(1sh/d, fav.)
Net Correction:	<u>0.9000</u>	multiplier

Adjusted Hourly Unit Production: 1.6527 acres/HourAdjusted Hourly Fleet Production: **1.6527** acres/Hour**JOB TIME AND COST**Fleet size: 1 Grader(s)Total job time: **2.72** Hours

Unit cost: \$84.52 per acre

Total job cost: \$380

BULLDOZER WORKTask description: Backfill Sediment and Dugout PondsSite: Terror Creek LoadoutPermit Action: RN7Permit/Job#: C1983059PROJECT IDENTIFICATIONTask #: 10AState: ColoradoAbbreviation: NoneDate: 2/13/2019County: DeltaFilename: XUser: LDSAgency or organization name: DRMSHOURLY EQUIPMENT COSTBasic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$247.68	
Total Fleet Cost/Hour:	\$247.68	

MATERIAL QUANTITIESInitial Volume: 2,175Swell factor: 1.125Loose volume: **2,447** LCYSource of estimated volume: Map 7Source of estimated swell
factor: Cat HandbookHOURLY PRODUCTIONAverage push distance: 65 feetUnadjusted hourly
production: 1,752.8 LCY/hrMaterials consistency
description: Compacted fill or embankment 0.9Average push
gradient: 5 %Average site altitude: 5,800 feetMaterial weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.900	(AB.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:	0.900	(SSD-FC)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4743

Adjusted unit
production: 831.35 LCY/hr

Adjusted fleet
production: **831.35 LCY/hr**

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.298/LCY

Total job time: **2.94 Hours**
Total job cost: **\$729**

SCRAPER TEAM WORKTask description: **Replace Topsoil from Stockpile to Site**Site: **Terror Creek Loadout**Permit Action: RN7Permit/Job#: C1983059**PROJECT IDENTIFICATION**Task #: 11AState: ColoradoAbbreviation: NoneDate: 2/13/2019County: DeltaFilename: XUser: LDSAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	NA	NA	NA
Ownership cost/hour:	\$95.05	NA	NA	NA	NA	NA
Operating cost/hour:	\$95.78	NA	NA	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	NA	NA
Ripper op. cost/hour:	NA	NA	NA	NA	NA	NA
Operator cost/hour:	\$31.05	NA	NA	NA	NA	NA
Unit Subtotals:	\$221.88	NA	NA	NA	NA	NA
Number of Units:	1	0	0	0	0	0
Group Subtotals:	Work: \$221.88		Support:	\$0.00	Maint:	\$0.00

Total work team cost/hour: **\$221.88****MATERIAL QUANTITIES**Initial volume: 5,243

CCY

Swell factor: 1.125Loose volume: **5,898**

LCY

Source of estimated volume: Map 5; Page 2.05-5RSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,550 lbs/LCY</u>	Struck Volume:	<u>18.00</u>	LCY
Material description:	<u>Earth - Dry packed</u>	Heaped Volume:	<u>23.00</u>	LCY
Rated Payload:	<u>55,200 pounds</u>	Average Volume:	<u>20.50</u>	LCY
Payload Capacity:	<u>21.65 LCY</u>	Adjusted Capacity:	<u>20.50</u>	LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
 Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction:

Site Altitude: 5800 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, 1" tire penetration 4.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	2.00	4.00	6.00	1098	0.53

Haul Time: 0.53 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	-2.00	4.00	2.00	2688	0.36

Return Time: 0.36 minutes

Total Scraper team cycle time: 2.49 minutes
 Adjusted for job conditions: 410.00 LCY/Hour
 Selected Number of Scrapers: 1 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 410.00 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 410.00 LCY/Hour

Unadjusted unit production/hour: 493.98 LCY/Hour
 Optimal Number of Scrapers per push
 dozer: _____

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 14.39 Hours
 Unit cost: \$0.541 /LCY Total job cost: \$3,192

BOREHOLE SEALING WORKTask description: **Plug and Seal 3 Alluvial Monitoring Wells**Site: **Terror Creek Loadout**Permit Action: **RN7**Permit/Job#: **C1983059****PROJECT IDENTIFICATION**Task #:
12AState: **Colorado**Abbreviation: **None**Date: **2/13/2019**County: **Delta**Filename: **X**User: **LDS**Agency or organization name: **DRMS****UNIT COSTS**

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 4 in. diameter borehole	4"	100'	3.00	EA	\$31.98	\$95.94
- Fill Holes with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	4"	100'	13.00	bag	\$13.80	\$179.40
- Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	4"	100'	3.00	LF	\$1.83	\$5.49
- Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	3.00	EA	\$3.67	\$11.01
- Truck and Laborer	Flatbed Truck, 6x4, 45K GVW	NA	NA	8.00	EA	\$73.17	\$585.36

Job Hours: 8.00**Total Cost: \$877.00**

DEMOLITION WORKTask description: Demolish and Remove All StructuresSite: Terror Creek LoadoutPermit Action: RN7Permit/Job#: C1983059PROJECT IDENTIFICATIONTask 15A
#:

State: Colorado

Abbreviation: None

Date: 2/13/2019County: DeltaFilename: XUser: LDSAgency or organization name: DRMSUNIT COSTSLocation adjustment:98.20 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Control Tower	16'x14'x26'	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 200 ft. push	5,824.00	CF	\$0.22	\$1,257.98
- Pad	16'x14'x6"	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	288.00	SF	\$0.85	\$245.66
Substation	16'x24'x20'	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 200 ft. push	7,680.00	CF	\$0.22	\$1,658.88
- Pad	12'x10'x8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	120.00	SF	\$1.14	\$136.56
- Footing	1'x2'x44 LF	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	44.00	LF	\$3.58	\$157.52
Secondary Substation	9'x4'x6'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	216.00	CF	\$0.20	\$42.55
- Pad	16'x6'x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 200 ft. push	96.00	SF	\$1.08	\$104.06
Storage Building	52'x12'x8'	Bldg. (SN) demo./on-site disposal in	4,992.00	CF	\$0.20	\$983.42

		excavated pit - Max. 200 ft. push				
- Pad	52'x12'x6"	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	624.00	SF	\$0.85	\$532.27
Scale House	9'x8'x8'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	576.00	CF	\$0.20	\$113.47
- Pad	9'x8'x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 200 ft. push	72.00	SF	\$1.08	\$78.05
Trailer Near Garage	57'x10'x11x	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	6,270.00	CF	\$0.20	\$1,235.19
Stoker Oil Shed	28'x10'x9'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	2,460.00	CF	\$0.20	\$484.62
- Floor	28'x10'x6"	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	280.00	SF	\$0.85	\$238.84
- Footing	3'x1.5'x76 LF	Demo. and on-site disposal in excavated pit, 1.5 ft. x 3 ft. - Max. 200 ft. push	76.00	LF	\$7.70	\$585.20
Bath House	60'x10'x8'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	4,800.00	CF	\$0.20	\$945.60
Over-the-Track Coal Bin	14'x12'x34'	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 200 ft. push	5,712.00	CF	\$0.22	\$1,233.79
- Footing	2'x2'x16 LF	Demo. and on-site disposal in excavated pit, 1.5 ft. x 3 ft. - Max. 200 ft. push	16.00	LF	\$7.70	\$123.20
Walkway and Stairway	240'x3.3'x3.5'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	2,772.00	CF	\$0.20	\$546.08

- Pads	5@4'x4'x6"	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	80.00	SF	\$0.85	\$68.24
Rail Car Puller	8'x8'x4'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	256.00	CF	\$0.20	\$50.43
- Pad	10'x10'x12"	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	100.00	SF	\$1.71	\$170.60
Primary Screener	36'x14'x14'	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 200 ft. push	7,056.00	CF	\$0.22	\$1,524.10
- Pad	40'x18'x8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	720.00	SF	\$1.14	\$819.36
Crusher	8'x8'x8'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	512.00	CF	\$0.20	\$100.86
- Pad	12'x10'x8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	120.00	SF	\$1.14	\$136.56
Secondary Screener	36'x9'x14'	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 200 ft. push	4,536.00	CF	\$0.22	\$979.78
- Pad	40'x14'x8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	560.00	SF	\$1.14	\$637.28
Secondary Stacker to Reclaim	110'x3'x30'	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 200 ft. push	9,900.00	CF	\$0.22	\$2,138.40
- Footing	1.5'x3'x50 LF	Demo. and on-site disposal in excavated pit, 1.5 ft. x 3 ft. - Max. 200 ft. push	50.00	LF	\$7.70	\$385.00
Secondary Stacker to Pile	100'x3'x10'	Bldg. (MN) demo./on-site disposal in	3,000.00	CF	\$0.22	\$648.00

		excavated pit - Max. 200 ft. push				
- Footing	1.5'x3'x50 LF	Demo. and on-site disposal in excavated pit, 1.5 ft. x 3 ft. - Max. 200 ft. push	50.00	LF	\$7.70	\$385.00
Primary Stacker to Lump Pile	100'x3'x10'	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 200 ft. push	3,000.00	CF	\$0.22	\$648.00
- Footing	1.5'x3'x50 LF	Demo. and on-site disposal in excavated pit, 1.5 ft. x 3 ft. - Max. 200 ft. push	50.00	LF	\$7.70	\$385.00
Truck Dump	24'x18'x14'	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 200 ft. push	6,048.00	CF	\$0.22	\$1,306.37
CMP #2	12"x25 LF	Pipe, corrugated metal (CMP) - 12 in. diameter pipe	25.00	LF	\$2.81	\$70.25
CMP #3 and CMP #4	18"x95 LF	Pipe, corrugated metal (CMP) - 18 in. diameter pipe	95.00	LF	\$3.78	\$359.20
Principle Spillway at Sediment Pond	12"x80 LF	Pipe, corrugated metal (CMP) - 12 in. diameter pipe	80.00	LF	\$2.81	\$224.80
Truck Dump to Primary Conveyor	180 LF	Conveyor, Horizontal Belt 24" Belt, 61.5' Length	3.00	EA	\$2,825.00	\$8,475.00
Primary to Secondary Conveyor	80 LF	Conveyor, Horizontal Belt 24" Belt, 41.5' Length	2.00	EA	\$2,100.00	\$4,200.00
Primary to Transfer Conveyor	100 LF	Conveyor, Horizontal Belt 24" Belt, 61.5' Length	2.00	EA	\$2,825.00	\$5,650.00
Crusher to Secondary Conveyor	80 LF	Conveyor, Horizontal Belt 24" Belt, 41.5' Length	2.00	EA	\$2,100.00	\$4,200.00
Secondary to Transfer Conveyor	46 LF	Conveyor, Horizontal Belt 24" Belt, 61.5' Length	1.00	EA	\$2,825.00	\$2,825.00
Reclaim Conveyor	60 LF	Conveyor, Horizontal Belt 24" Belt, 61.5' Length	1.00	EA	\$2,825.00	\$2,825.00
Reclaim to Transfer Conveyor	100 LF	Conveyor, Horizontal Belt	2.00	EA	\$2,825.00	\$5,650.00

		24" Belt, 61.5' Length				
Transfer to Loadout Conveyor	100 LF	Conveyor, Horizontal Belt 24" Belt, 61.5' Length	2.00	EA	\$2,825.00	\$5,650.00
- Conveyor Footings	2'x1'x14 LF	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	14.00	LF	\$3.58	\$50.12
Railroad Track	1,650 LF	Railroad track - Ties and track	1,650.00	LF	\$9.19	\$15,163.50
- Ballast	1,100 CY	Railroad track - Ballast	1,100.00	CY	\$4.67	\$5,137.00
Substation Fencing	164 LF	Fencing, chain link, including posts and fabric - 8 ft. to 10 ft. high	164.00	LF	\$3.06	\$501.84
Retaining Wall	272'x7.5'x12"	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	2,040.00	SF	\$1.81	\$3,692.40
- Footing	1'x2'x128 LF	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	128.00	LF	\$3.58	\$458.24
Concrete Sump	36.5'x36.5'x6"	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	1,332.00	SF	\$0.85	\$1,136.20
Powerlines and Poles	1,115 LF	Utility Poles, Wood 35' - 45' high (each pole)	6.00	EA	\$258.00	\$1,548.00
Coal Loadout Bin	10'x6'x12'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	720.00	CF	\$0.20	\$141.84
Road Pavement	300'x24'x6"	Pavement, bituminous, demolition only - 4 in. to 6 in. thick	800.00	SY	\$7.00	\$5,600.00
- Guard Rails	1,140 LF	Railing, roadside guiderail and posts (posts on 20 ft. centers)	1,140.00	LF	\$3.61	\$4,115.40
Stoker Oil Building Expansion	10'x10'x110'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	1,000.00	CF	\$0.20	\$197.00
- Pad	10'x10'x4"	Demo. and on-site disposal in excavated pit, 4	100.00	SF	\$0.57	\$56.90

		in. thick - Max. 200 ft. push				
- Walls	10'x12'x4"	Demo. and on-site disposal in excavated pit, 4 in. thick - Max. 200 ft. push	120.00	SF	\$0.60	\$72.00
Reclaim Tunnel	60'x8'x8'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	3,840.00	CF	\$0.20	\$756.48
- Pad	60'x5'x6"	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	300.00	SF	\$0.85	\$255.90
- Escapeway	36"x180 LF	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	180.00	LF	\$7.53	\$1,355.76
Remove 5 Barrels of Hazardous Waste	5@55 Gallons	Hazardous waste removal - Drum solids/liquids, per drum, (1-6 drum job)	5.00	DRUM	\$627.17	\$3,135.85
6,000 Gallon Diesel Tank	6,000 Gallons	Comprehensive storage tank removal, non-leaking - 6,000 to 8,000 gal. tank	1.00	EA	\$5,286.80	\$5,286.80
4,000 Gallon Water Tank	4,000 Gallons	Haul tank to certified salvage dump - 3,000 to 5,000 gal. tank	1.00	EA	\$760.00	\$760.00
1,500 Gallon Anti-Freeze Tank	1,500 Gallons	Comprehensive storage tank removal, non-leaking - 3,000 to 5,000 gal. tank	1.00	EA	\$3,409.60	\$3,409.60
5,000 Gallon Stoker Oil Tank	5,000 Gallons	Comprehensive storage tank removal, non-leaking - 3,000 to 5,000 gal. tank	1.00	EA	\$3,409.60	\$3,409.60
350 Gallon Fuel Tanks (2)	2@350 Gallons	Comprehensive storage tank removal, non-leaking - 3,000 to 5,000 gal. tank	2.00	EA	\$3,409.60	\$6,819.20
7,000 Gallon Anti-Freeze Tank	7,000 Gallons	Comprehensive storage tank removal, non-leaking - 6,000 to 8,000 gal. tank	1.00	EA	\$5,286.80	\$5,286.80
500 Gallon Diesel Tanks (2)	2@500 Gallons	Comprehensive storage tank removal, non-	2.00	EA	\$3,409.60	\$6,819.20

		leaking - 3,000 to 5,000 gal. tank				
Dispose of powerline material	1,115 LF	Disposal of utility pole and hardware surplus material	1,115.00	LF	\$0.02	\$22.30
Dispose of conveyor material	746 LF	Conveyor, demolition, on-site disposal, existing pit, 200 ft. push	746.00	CF	\$0.20	\$149.20

Job Hours: 200.00
Subtotal (unadjusted): \$136,552.30
Total Cost (adjusted for location): \$134,094.36

REVEGETATION WORKTask description: Reseed Disturbed AreaSite: Terror Creek LoadoutPermit Action: RN7Permit/Job#: C1983059PROJECT IDENTIFICATIONTask #: 16AState: ColoradoAbbreviation: NoneDate: 2/13/2019County: DeltaFilename: XUser: LDSAgency or organization name: DRMSFERTILIZINGMaterials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Calcium nitrate, 16-0-0 with 21% Ca	50.00	pound	\$0.34	\$17.00
			Total Fertilizer Materials Cost/Acre	\$17.00

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$34.72
Total Fertilizer Application Cost/Acre	\$34.72

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$92.77
Total Tilling Cost/Acre	\$92.77

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alfalfa - Common	0.88	4.24	\$2.30
Orchardgrass - Paiute	1.21	15.00	\$4.49
Intermediate Wheatgrass - Oahe	5.54	11.83	\$21.77
Smooth Brome - Manchar	1.75	5.83	\$7.63
Slender Wheatgrass - San Luis	1.00	3.65	\$3.31
Timothy - Climax	0.50	14.35	\$0.80
Totals Seed Mix	10.88	54.89	\$40.30

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
Hay, delivered {MEANS 31 25 14.16 1200}	1.00	TON	\$288.00	\$288.00
Total Mulch Materials Cost/Acre				\$288.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Power mulcher (MEANS 32 91 13.16 0350)	\$92.78
Total Mulch Application Cost/Acre	\$161.56

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:	7.6	Cost /Acre:	\$866.35
Estimated Failure Rate:	20%	Cost /Acre*:	\$272.30
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$6,584.26
Reseeding Job Cost:	\$413.90
Total Job Cost:	\$6,998
Job Hours:	15.20

SITE MAINTENANCETask description: Site Maintenance Over 10-Year Liability PeriodSite: Terror Creek Loadout Permit Action: RN7 Permit/Job#: C1983059PROJECT IDENTIFICATION

Task 17A State: Colorado Abbreviation: None
 #: _____
 Date: 2/13/2019 County: Delta Filename: C059-17A
 User: LDS

Agency or organization name: DRMSUNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Dozer for Minor Site Maintenance	8.00	Cat D3K LGP - 3P	80.00	EA	\$86.35	\$6,908.00

Job Hours: 80.00Total Cost: \$6,908.00

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilize/Demobilize Equipment for Reclamation**Site: **Terror Creek Loadout**Permit Action: **RN7**Permit/Job#: **C1983059****PROJECT IDENTIFICATION**Task #: **18A**State: **Colorado**Abbreviation: **None**Date: **2/13/2019**County: **Delta**Filename: **X**User: **LDS**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 D9T - 9SU	60.01	\$110.70	\$125.45	1	\$236.15	\$125.45	\$250.00
CAT 815F	22.88	\$56.28	\$88.67	1	\$144.95	\$88.67	\$250.00
Cat 623G	41.35	\$95.05	\$117.55	1	\$212.60	\$117.55	\$250.00
CAT 14M	23.57	\$60.13	\$88.67	1	\$148.80	\$88.67	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00

Subtotals: **\$846.71** **\$509.01** **\$1,250.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Flatbed Truck, 6x4, 45K GVW	\$45.37	1	\$45.37	\$45.37
Fuel Tanker, 4x2, 170 HP	\$24.48	1	\$24.48	\$24.48

Subtotals: **\$69.85** **\$69.85**

EQUIPMENT HAUL DISTANCE and Time

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

Total Non-Roadable Mob/Demob Cost *	\$6,904.86
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$139.70
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.00	1.00
Return Time (Hours):	1.00	1.00
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	3.00	2.00

JOB TIME AND COST

Total job time:	6.00	Hours
Total job cost:	\$7,045	