



COLORADO

Division of Reclamation,
Mining and Safety

Department of Natural Resources

MINERALS PROGRAM INSPECTION REPORT

PHONE: (303) 866-3567

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

MINE NAME: Tucson South Resource	MINE/PROSPECTING ID#: M-2004-044	MINERAL: Sand and gravel	COUNTY: Adams
INSPECTION TYPE: Monitoring	INSPECTOR(S): Jared L. Ebert	INSP. DATE: February 8, 2018	INSP. TIME: 09:00
OPERATOR: Aggregate Industries - WCR, Inc.	OPERATOR REPRESENTATIVE: Connie Davis	TYPE OF OPERATION: 112c - Construction Regular Operation	

REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: Complete Bond	BOND AMOUNT: \$11,000.00
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None
WEATHER: Clear	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: March 6, 2018

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

INSPECTION TOPIC: Availability Of Records

PROBLEM: The Operator is not monitoring all of the water monitoring wells at the frequency required in the approved plan. The Operator has ceased monitoring well TSMW-2 and has only been monitoring TSMW-12/12a, 13, 14, 15 and 16 quarterly instead of monthly as required.

CORRECTIVE ACTIONS: By the corrective action date, please either:

a.) Submit a technical revision to revise the required water monitoring plan to reduce the frequency of water level monitoring for wells TSMW-12/12a, 13, 14, 15 and 16 and to eliminate monitoring TSMW-2. The Operator will have to provide justification for these changes.

Or,

b.) Submit a written commitment to re-initiate water level monitoring at the required wells in accordance with the approved plan.

CORRECTIVE ACTION DUE DATE: 5/07/18

OBSERVATIONS

This was a normal monitoring inspection of the Tucson South Resource site, DRMS permit no. M-2004-044 operated by Aggregate Industries - WCR, Inc. (AI). I, Jared Ebert with the Colorado Division of Reclamation, Mining and Safety (DRMS or Division) conducted the inspection. Mr. Connie Davis with AI accompanied me during the inspection. The Tucson South Resource site is a 291.5 acre 112c mining operation for sand and gravel. The approved post-mining land use for the site is developed water resources and general agriculture.

The site is split up into four distinct areas; Area 1 located south of State Highway 7, Area 2 and 2a are located east of Tucson Street and Area 3 located west of Tucson Street both north of State Highway 7. Mining has not begun in Areas 1, 2 and 3. However, Area 2a used to be part of the Tucson North Site (permit no. M-1991-040) and was mined under that permit. Area 2a was incorporated into the Tucson South Resource Site when this area was originally permitted and is no longer included in the M-1991-040 permit area. The site is not actively being mined at this time and Area 2a has been partially reclaimed, however reclamation has not been completed as AI intends to use this area to store processing fines when mining begins elsewhere in the site.

Availability Of Records:

Mining has not begun, however the Operator has been collecting baseline water level data. Based on a review of the permit, AI committed to conducted monthly water level monitoring. Based on a review of the baseline water level data that has been submitted with the annual reports for this site, it appears AI has ceased monitoring TSMW-2 and has only been monitoring TSMW-12/12a, 13, 14, 15 and 16 quarterly instead of monthly. AI will either need to revise their water level monitoring plan to account for the differences in frequency or re-institute monitoring these wells on a monthly basis. This issue is cited as a problem at the beginning of this report.

Backfilling and Grading:

The majority of Area 2a has is graded to a gentle slope. The remaining pit area includes an open water pond with slopes that appear to be graded to a 3H:1V angle or less. Based on recent Google Earth® images, there is about 3 acres of exposed groundwater at the site.

Financial Warranty:

With the approval of Technical Revision No. 1 (TR01), the Operator requested a reduction in the financial warranty to be required at the site since mining was not scheduled to commence in the near future. Given this, the Division reduced the required warranty to \$11,000.00. Unfortunately it appears that Area 2a was not taken into account when this decision was made and the Division currently does not hold sufficient bond to complete reclamation of this area. Based on the Divisions estimate, about three acres of exposed groundwater exists in Area 2a and a permanent plan for augmentation has not been obtained for this exposed water. Given this, the Division will have to increase the required surety to account for the exposed groundwater. Also, the remainder of Area 2a has not been revegetated in accordance with the approved plan.

The Division currently holds a financial warranty of \$11,000.00 for the site. The Division has evaluated the financial warranty amount to determine if it is adequate to fulfill the requirements of the reclamation plan for Area 2a. The Division has estimated the cost to fulfill the reclamation plan requirements to be \$326,040.00. This amount is \$315,040.00 more than the current financial warranty held for the site. The cost estimate is enclosed with this report for the Permittee's review. The Division requests that the Permittee review the cost estimate and provide any comments, questions or concerns to the Division by **March 23, 2018**. The Division

may issue a surety increase notice to the Permittee after **March 23, 2018**. If so, the Permittee shall have up to sixty (60) days to post the additionally required financial warranty from the date of the written notice from the Division.

Hydrologic Balance:

As indicated above, about 3 acres of exposed groundwater exists within Area 2a.

Gen. Compliance With Mine Plan:

Mining has not commenced at the site. The Operator has demolished the structures that existed in Area 3 that were part of the previous dairy operation at the site. The rubble from this demolition activity is stockpiled in Area 3 and two long rows of dirt material is piled on site from the dairy operation.

Revegetation:

The vegetation established around Area 2a is primarily annual vegetation.

Permit Stipulations:

The Mined Land Reclamation Board approved the permit for this site with five conditions. Prior to initiating mining at the site, the Division encourages AI to review these conditions and ensure they will comply with them.

PHOTOGRAPHS



Figure 1. From southwest corner of Area 2a looking northeast.



Figure 2. From west side of the Area 2a pit looking northeast.



Figure 3. From the north end of Area 2 looking south.



Figure 4. From the center of Area 3 looking north at the rubble pile from dairy demolition.



Figure 5. Old dirt piles from dairy operation.



Figure 6. From the north end of Area 1 looking south.

GENERAL INSPECTION TOPICS

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

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

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

Inspection Contact Address

Connie Davis
Aggregate Industries - WCR, Inc.
1687 Cole Blvd., Suite 300
Golden, CO 80401

Enclosure: March 1, 2018 Cost Estimate

CC: None

COST SUMMARY WORK

Task description: Cost Summary

Site: Tucson South Resource

Permit Action: SI01

Permit/Job#: M2004044

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 3/1/2018

County: Adams

Filename: M044-000

User: JLE

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Strip 1 foot of topsoil over 20.59 acres.	SCRAPER1	1	72.04	\$68,302.00
002	Excavate Material and Backfill Into Pit	TRUCK1	1	146.23	\$128,602.00
003	Spread 1 foot of topsoil over 20.59 acres.	SCRAPER1	1	50.43	\$47,810.00
004	Revegetation of Area 2a	REVEGE	1	20.59	\$9,371.00
005	Mobilization of Equipment	MOBILIZE	1	3.40	\$11,081.00
<u>SUBTOTALS:</u>				292.69	\$265,166

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$5,356.35

Performance bond: 1.05

Total = \$2,784.24

Job superintendent: 146.35

Total = \$10,690.50

Profit: 10.00

Total = \$26,516.60

TOTAL O & P = \$45,347.69

CONTRACT AMOUNT (direct + O & P) = \$310,513.69

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 0.00

Total = 0.00

Engineering work and/or contract/bid preparation: 0.00

Total = \$0.00

Reclamation management and/or administration: 5.00

\$15,525.68

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$60,873.37

TOTAL BOND AMOUNT (direct + indirect) = \$326,039.37

Total Required Surety= \$326,040.00

SCRAPER TEAM WORK

Task description: Strip 1 foot of topsoil over 20.59 acres.

Site: Tucson South Resource

Permit Action: SI01

Permit/Job#: M2004044

PROJECT IDENTIFICATION

Task #: 001

State: Colorado

Abbreviation: None

Date: 3/1/2018

County: Adams

Filename: M044-001

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 627G w/push-pull
-Dozer:	Cat D9T - 9SU
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	50	25
Ownership cost/hour:	\$99.75	\$100.59	NA	NA	\$54.68	\$24.01
Operating cost/hour:	\$118.23	\$87.23	NA	NA	\$23.50	\$8.53
%Utilization-ripper:	NA	25	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$10.94	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$1.71	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$41.46	\$40.52	NA	NA	\$38.16	\$39.38
Unit Subtotals:	\$259.44	\$240.99	NA	NA	\$116.33	\$71.93
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work:	\$759.87	Support:	\$0.00	Maint:	\$188.26

Total work team cost/hour: **\$948.13**

MATERIAL QUANTITIES

Initial volume: 33,219

CCY

Swell factor: 1.429

Loose volume: **47,456**

LCY

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

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>15.70</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>22.00</u>	LCY
Rated Payload:	<u>52,800 pounds</u>	Average Volume:	<u>18.85</u>	LCY
Payload Capacity:	<u>33.00 LCY</u>	Adjusted Capacity:	<u>18.85</u>	LCY

Cycle Time:

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

Job Condition Correction:

Site Altitude: 5000 feet

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

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	0.00	3.00	3.00	2824	0.71

Haul Time: 0.71 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	0.00	3.00	3.00	2874	0.64

Return Time: 0.64 minutes

Total Scraper team cycle time: 2.85 minutes
 Adjusted for job conditions: 658.76 LCY/Hour
 Selected Number of Scrapers: 2 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 658.76 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 658.76 LCY/Hour

Unadjusted unit production/hour: 793.68 LCY/Hour
 Optimal Number of Scrapers per push
 dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 72.04 HoursUnit cost: \$1.439 /LCY Total job cost: \$68,302

TRUCK/LOADER TEAM WORK

Task description: Excavate Material and Backfill Into Pit

Site: Tucson South Resource

Permit Action: SI01

Permit/Job#: M2004044

PROJECT IDENTIFICATION

Task #: 002

State: Colorado

Abbreviation: None

Date: 3/1/2018

County: Adams

Filename: M044-002

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	Cat 345D L 12'-10" Stick
Support Equipment -Load Area:	NA
-Dump Area:	Cat D9T - 9SU
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	50	25
Ownership cost/hour:	\$67.61	\$61.75	NA	\$100.59	\$54.68	\$24.01
Operating cost/hour:	\$53.30	\$71.04	NA	\$87.23	\$23.50	\$8.53
%Utilization-riper:	NA	0	NA	0	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$10.94	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$25.65	\$36.93	NA	\$40.52	\$38.16	\$39.38
Unit Subtotals:	\$146.56	\$169.72	NA	\$228.34	\$116.33	\$71.93
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work: \$462.84		Support: \$228.34		Maint: \$188.26	

Total work team cost/hour: \$879.44

MATERIAL QUANTITIES

Initial volume: 66,458

CCY

Swell factor: 1.230

Loose volume: 81,744

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 PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,100

Pounds/LCY

Description: Earth - Loam

Rated Payload: 87,000

Pounds

Payload Capacity: 41.43 LCY

Truck Bed (volume) Basis:

Struck Volume:	<u>24.20</u>	LCY
Heaped Volume:	<u>31.40</u>	LCY
Average Volume:	<u>27.80</u>	LCY
Adjusted Volume:	<u>31.40</u>	LCY

Final Truck Volume Based on Number of Loader Passes: 29.37 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	<u>4.450</u>	LCY (heaped)
Bucket Fill Factor:	<u>1.100</u>	Other - rock/dirt mixtures (100-120%) <u>1.100</u>
Adjusted Capacity:	<u>4.895</u>	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: 6 passes

Excavators and Front Shovels:

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

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		<u>NA</u>	minutes
Adjusted Loader Cycle Time:		<u>0.315</u>	minutes
Net Load Time per Truck:		<u>1.675</u>	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>0.600</u>	Minutes
Truck Load Time:	<u>1.675</u>	Minutes	Adjusted for site altitude:	<u>1.675</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes

Truck Travel (Haul & Return) Time:

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	0.00	3.00	3.00	3005	1.292

Haul Time: 1.292 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	0.00	3.00	3.00	3005	0.666

Return Time: 0.666 minutes

Total Truck Cycle Time: 5.233 minutes

Loading Tool unit
 Production 774.59 LCY/Hour Adjusted for job efficiency: 642.91 LCY/Hour
 Truck Unit Production
336.75 LCY/Hour Adjusted for job efficiency: 279.50 LCY/Hour
 Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)
 Adjusted hourly truck team production: 559.00 LCY/Hour
 Adjusted single truck/loader team production: 559.00 LCY/Hour
 Adjusted multiple truck/loader team production: 559.00 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 146.23 Hours

Unit cost: \$1.573 /LCY Total job cost: \$128,602

SCRAPER TEAM WORK

Task description: Spread 1 foot of topsoil over 20.59 acres.

Site: Tucson South Resource

Permit Action: SI01

Permit/Job#: M2004044

PROJECT IDENTIFICATION

Task #: 003

State: Colorado

Abbreviation: None

Date: 3/1/2018

County: Adams

Filename: M044-003

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

		Equipment Description
-Scraper:		Cat 627G w/push-pull
-Dozer:		Cat D9T - 9SU
Support Equipment -Load Area:		NA
-Dump Area:		NA
Road Maintenance -Motor Grader:		CAT 14M
-Water Truck:		Water Tanker, 5,000 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	50	25
Ownership cost/hour:	\$99.75	\$100.59	NA	NA	\$54.68	\$24.01
Operating cost/hour:	\$118.23	\$87.23	NA	NA	\$23.50	\$8.53
%Utilization-ripper:	NA	25	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$10.94	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$1.71	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$41.46	\$40.52	NA	NA	\$38.16	\$39.38
Unit Subtotals:	\$259.44	\$240.99	NA	NA	\$116.33	\$71.93
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work:	\$759.87	Support:	\$0.00	Maint:	\$188.26

Total work team cost/hour: \$948.13

MATERIAL QUANTITIES

Initial volume: 33,219

CCY

Swell factor: 1.000

Loose volume: 33,219

LCY

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

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>15.70</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>22.00</u>	LCY
Rated Payload:	<u>52,800 pounds</u>	Average Volume:	<u>18.85</u>	LCY
Payload Capacity:	<u>33.00 LCY</u>	Adjusted Capacity:	<u>18.85</u>	LCY

Cycle Time:

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

Job Condition Correction:

Site Altitude: 5000 feet

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

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0**Haul Route:**

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	0.00	3.00	3.00	2824	0.71

Haul Time: 0.71 minutes**Return Route:**

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	0.00	3.00	3.00	2874	0.64

Return Time: 0.64 minutes

Total Scraper team cycle time: 2.85 minutes
 Adjusted for job conditions: 658.76 LCY/Hour
 Selected Number of Scrapers: 2 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 658.76 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 658.76 LCY/Hour

Unadjusted unit production/hour: 793.68 LCY/Hour
 Optimal Number of Scrapers per push
 dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 50.43 HoursUnit cost: \$1.439 /LCY Total job cost: \$47,810

REVEGETATION WORK

Task description: Revegetation of Area 2a

Site: Tucson South Resource

Permit Action: SI01

Permit/Job#: M2004044

PROJECT IDENTIFICATION

Task #: 004

State: Colorado

Abbreviation: None

Date: 3/1/2018

County: Adams

Filename: M044-004

User: JLE

Agency or organization name: DRMS

FERTILIZING

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
Chisel plowing {DMG}	\$90.60
Total Tilling Cost/Acre	\$90.60

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Kaw	1.38	4.12	\$15.76
Switchgrass - Blackwell	0.50	4.47	\$4.79
Indiangrass - Holt	1.00	3.05	\$17.20
Little Bluestem - Pastura	0.53	3.16	\$8.92
Western Wheatgrass - Arriba	1.60	4.04	\$12.93
Totals Seed Mix	5.01	18.84	\$59.60

Application

Description	Cost /Acre
-------------	------------

Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS

Materials

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

Application

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

NURSERY STOCK PLANTING

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

JOB TIME AND COST

No. of Acres:	20.59	Cost /Acre:	\$382.20
Estimated Failure Rate:	25%	Cost /Acre*:	\$291.60
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$7,869.50
Reseeding Job Cost:	\$1,501.01
Total Job Cost:	\$9,371
Job Hours:	20.59

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: Mobilization of Equipment

Site: Tucson South Resource

Permit Action: SI01

Permit/Job#: M2004044

PROJECT IDENTIFICATION

Task #: 005

State: Colorado

Abbreviation: None

Date: 3/1/2018

County: Adams

Filename: M044-005

User: JLE

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 627G w/push-pull	43.48	\$99.75	\$117.55	2	\$434.60	\$235.10	\$500.00
Cat D9T - 9SU	60.01	\$100.59	\$125.45	2	\$452.08	\$250.90	\$500.00
CAT 14M	23.57	\$54.68	\$88.67	1	\$143.35	\$88.67	\$250.00
Cat 345D L 12'-10" Stick	54.31	\$61.75	\$125.45	1	\$187.20	\$125.45	\$250.00
Cat 740	36.49	\$67.61	\$117.55	2	\$370.32	\$235.10	\$500.00
Drill/Broadcast Seeder with Tractor	25.00	\$12.22	\$88.67	2	\$201.78	\$177.34	\$500.00

Subtotals: **\$1,789.33** **\$1,112.56** **\$2,500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 5,000 Gal.	\$97.52	1	\$97.52	\$97.52
Fuel Tanker, 6x4, 210 HP	\$74.87	2	\$149.74	\$149.74

Subtotals: **\$247.26** **\$247.26**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>BRIGHTON</u>	
Total one-way travel distance:	<u>1.00</u>	miles
Average Travel Speed:	<u>45.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$11,069.55</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$10.99</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.02</u>	<u>0.02</u>
Return Time (Hours):	<u>0.02</u>	<u>0.02</u>
Loading Time (Hours):	<u>0.83</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.83</u>	<u>NA</u>
Subtotals:	<u>1.70</u>	<u>0.04</u>

JOB TIME AND COST

Total job time:	<u>3.41</u>	Hours
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Total job cost:	<u>\$11,081</u>
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