STATE OF COLORADO

Wein - DNR, Clayton <clayton.wein@state.co.us>

Roadside Mine, C-1981-041, June 2024 Bond Compliance Inspection Report

1 message

Wein - DNR, Clayton <clayton.wein@state.co.us> Wed, Jul 10, 2024 at 4:38 PM
To: Tonya Hammond <tonya.snowcap@gmail.com>
Cc: DNR DRMS_CoalAdmin - DNR <dnr_drms_coal_admin@state.co.us>

Good afternoon Tonya,

Attached is the Division's inspection report from the June 19, 2024 Bond Compliance Inspection of the Roadside Mine. I have also attached the Reclamation Cost Estimate that was calculated following the inspection. Please note that the new reclamation estimate is higher than the current bond held by the Division. The Division will be issuing a Surety Increase in the near future to ensure that the bond held by the Division is up to date. Please feel free to contact me if you have any questions or concerns.

Sincerely,
Clayton Wein
Environmental Protection Specialist

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

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2 attachments

Roadside Mine, C-1981-041, 2024 Bond Compiance Inspection Report_CCW.pdf
1238K

2024 Bond Compliance Inspection Reclamation Cost Estimate_CCW.pdf
705K

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

PERMIT INFORMATION

Permit Number: C-1981-041 **Mine Name:** Roadside Portals **Operator:** Snowcap Coal Company, Inc. **Operator Address:** Ms. Tonya Hammond 743 Horizon Court, Suite 334 Grand Junction, CO 81506	**County:** Mesa **Operation Type:** Underground **Permit Status:** Active **Ownership:** Private
	Operator Representative Present: Tonya Hammond
Operator Representative Signature: (Field Issuance Only)	

INSPECTION INFORMATION

Inspection Start Date: June 19, 2024 **Inspection Start Time:** 08:00 **Inspection End Date:** June 19, 2024 **Inspection End Time:** 10:30	**Inspection Type:** Coal Partial Inspection **Inspection Reason:** Surety Related **Weather:** Clear
Joint Inspection Agency: None	**Joint Inspection Contacts:** None
Post Inspection Agency: None	**Post Inspection Contacts:** None

Inspector(s): Clayton Wein	**Inspector's Signature:** Clayton Wein	**Signature Date:** 7/10/2024

1313 Sherman St. Room 215
Denver, CO 80203
(303) 866-3567

Inspection Topic Summary
NOTE: **Y**=Inspected **N**=Not Inspected **R**=Comments Noted **V**=Violation Issued **NA**=Not Applicable

N - Air Resource Protection
R - Availability of Records
N - Backfill & Grading
N - Excess Spoil and Dev. Waste
N - Explosives
N - Fish & Wildlife
R - Hydrologic Balance
R - Gen. Compliance With Mine Plan
N - Other
N - Processing Waste
N - Roads
R - Reclamation Success
N - Revegetation
N - Subsidence
N - Slides and Other Damage
N - Support Facilities On-site
R - Signs and Markers
N - Support Facilities Not On-site
N - Special Categories Of Mining
N - Topsoil

COMMENTS

This report documents the Division's observations taken during a Bond Compliance Inspection of the Roadside Mine. The inspection was conducted on June 19, 2024 by Clayton Wein of the Division. Snowcap Coal Company, Inc. (SCC) was represented during the inspection by Tonya Hammond. The weather was clear with a temperature of 84° F. The ground conditions were dry.

The purpose of this inspection was to compare what the Division currently has bonded for the Roadside Mine with what is approved in the Permit Application Package and what is currently on the ground at the mine site. Following the inspection, the Division recalculated the bond for the Roadside Mine to reflect current on the ground conditions.

AVAILABILITY OF RECORDS – Rule 5.02.4(1):

The Permit Application Package for the Roadside Mine was utilized to inventory all structures, disturbances and hydrologic control features for the mine site. Specifically the operations plan and reclamation plan were reviewed. The Division also reviewed the previous site-wide cost estimate from Permit Renewal No. 8. The cost estimate for RN-8 was approved in October of 2022. No revisions to the permit since RN-8 have approved the addition of any new structures, disturbances or hydrologic control features.

HYDROLOGIC BALANCE - Rule 4.05
Drainage Control 4.05.1, 4.05.2, 4.05.3; Siltation Structures 4.05.5, 4.05.6; Discharge Structures 4.05.7, 4.05.10; Diversions 4.05.4; Effluent Limits 4.05.2; Ground Water Monitoring 4.05.13; Surface Water Monitoring 4.05.13; Drainage – Acid and Toxic Materials 4.05.8; Impoundments 4.05.6, 4.05.9; Stream Buffer Zones 4.05.18:

Two remaining discharge points, 002 and 016, remain within the permit. Discharge point 002 is located northwest of the cameo exit off of Interstate 70. The discharge pipe opens into the Colorado River (Photo 1). No discharge was occurring during the inspection. The pipe appeared to be unobstructed. Discharge point 002 serves as a backup to discharge point 016 if 016 became obstructed or the water level in the mine increased. Discharge point 016 is located in the northeastern portion of the permit area. The discharged water from 016 enters a CDOT culvert that transports runoff underneath I-70 to the Colorado River. Discharge was occurring from 016 during the

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inspection. The meter indicated the flow rate was averaging 75 gpm. Both discharge points are to remain as permanent post mining features.

One well, N-1, is located in the northeastern portion of the permit area. The well measures the amount of water within the downgradient portion of the mine workings. During the inspection the depth to the water in the mine was 75.28 feet (Photo 2). This value is within the historical range for this site at this time of the year. The well casing was in good condition with a padlock locking the lid covering the top of the casing.

Three groundwater monitoring locations GWMW#1 (Photo 3), GWMW#2 (Photo 4) and GWMW#3 (Photo 5) were located to the south of the permit area and measured groundwater levels on Cottonwood Creek and Rapid Creek. The wells and pads for the wells were reclaimed in August of 2016. The foot print for the pads was released under Bond Release SL-10. Each location consisted of an upper well and a lower well. The well casings were sealed and abandoned. The locations of the wells were marked with wooden stakes. During the inspection GWMW#1 was found by the wooden markers. The monitoring wells were located on Rapid Creek on the south side of Rapid Creek Road below the confluence of Rapid Creek and Cottonwood Creek. There was no evidence of either the upper or lower monitoring wells other than the wooden stakes marking the location of the reclaimed wells. GWMW#2 was located on Cottonwood Creek. The upper and lower wells were reclaimed. The location of the wells was found by the wooden stakes. There were no well casings remaining at the location. GWMW#3 was located on Rapid Creek. The two wells were found by the wooden markers. No well casings remained as the wells have been reclaimed. The Division's Reclamation Task 121 contains the cost of abandoning the 6 groundwater monitoring wells. During the inspection, the 6 wells were found to be abandoned as required by the C-041 permit and the Rules and Regulations of the Colorado Mined Land Reclamation Board for Coal Mining.

One piezometer located on the reclaimed coal refuse disposal area on the northwest side of the Colorado River. The piezometer was missed during the previous bond release that included the coal waster pile. The CRDA#1 Piezometer was reclaimed and abandoned in May of 2016. The piezometer was also reclaimed and abandoned. During the inspection the location of the piezometer was visited. There was no evidence of the piezometer other than a wooden stake marking the location. The Division's task 121 also contains the cost for reclaiming the piezometer.

All items in Task 121 have been completed as of the date of this inspection; however Task 121 has not yet been applied for bond release.

GENERAL MINE PLAN COMPLIANCE:

The remaining permitted disturbance at the Roadside Mine is associated with the 0.4 acres permitted under TR-69. TR-69 was approved and issued in July of 2017 to seal a mine air shaft that was identified to have connection to the surface. Reclamation work approved under TR-69 was completed in the fall of 2019. The surface was excavated to find the air shaft and then concrete was used to seal the shaft. The air shaft was then buried and the topsoil was replaced. The site was then seeded. Tasks 205, 207, 208, 209, 213, 214, 215, 217 and 218 of the reclamation cost estimate are associated with the repair and reclamation work approved under TR-69. The work associated with these tasks was completed in 2019; however, bond release for the 0.4 acres has not yet been applied for. For more details on the TR-69 Repair Area, please see the Reclamation Success section of this

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report. The above referenced 9 reclamation tasks have been updated and included in the updated reclamation cost estimate calculated following this inspection.

Task 121 of the reclamation cost estimate was also updated and included in the new estimate created following this inspection as the work for the task has been completed but not yet applied for bond release.

The Division currently holds a bond for $65.702.24 for the Roadside Mine. The Reclamation liability was updated following this inspection. The new reclamation liability was calculated to be $69,842.00. This is an increase of $4,139.76.00. The Division will be issuing a Surety Increase following this inspection report to ensure the bond held by the Division reflects the current conditions at the Roadside Mine. For details and specific task costs calculated in the updated reclamation estimate, please see the attached Reclamation Cost Estimate.

RECLAMATION SUCCESS - Rule 4.15, Rule 3:

The TR-69 Repair Area was stable with vegetative cover (Photos 6 and 7). The reseeded vegetation from the fall of 2023 was growing well. There were no new weeds identified during the inspection. Weeds that had been sprayed in the spring of this year were withered. There were no erosional features identified. The straw waddles located at the southern and western portions of the disturbed area boundary were in good condition. There was no off site impact observed. The disturbed area is marked by a fence with a mine identification sign posted on one of the southern posts. The sign was easily located and legible.

SIGNS AND MARKERS – Rule 4.02:

Mine identification signs were posted on the entrances to the permit boundary. The signs had recently been updated with the operator's current address. The signs were posted on easily identifiable locations and they were legible.

DOCUMENTS RECEIVED: None

OTHER (SPECIFY): None

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ENFORCEMENT ACTIONS/COMPLIANCE

No enforcement actions were initiated as a result of this inspection, nor are any pending.

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PHOTOGRAPHS

Photo1: the 002 discharge point outlined in the blue circle.

Photo 2: The N-1 Well.

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Photo 3: The GWMW#1 Marker.

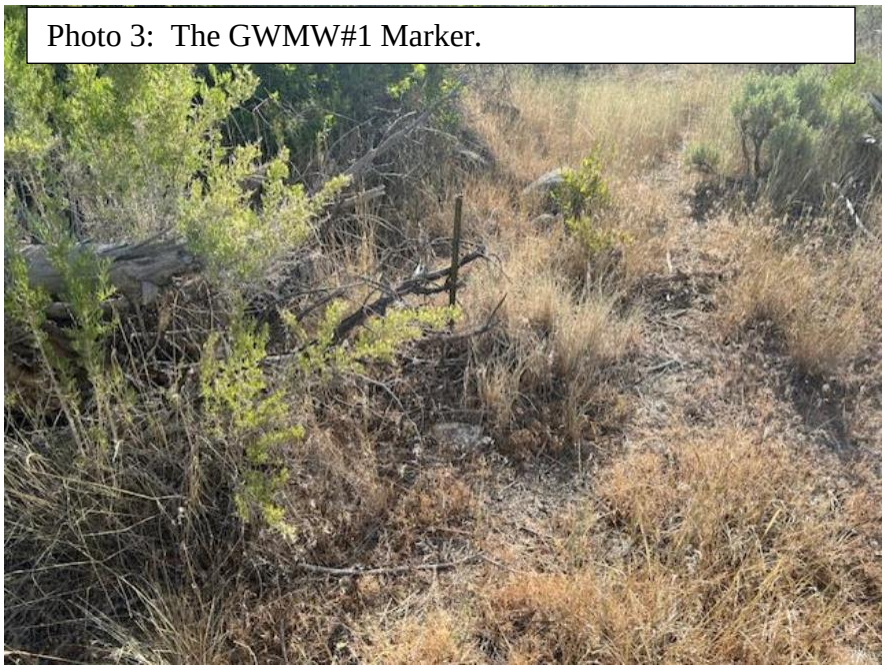

Photo 4: The GWMW#2 Marker.

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Photo5: The GWMW#3 Marker.

Photo 6: The southern half of the TR-69 Repair Area.

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Photo 7: The northern half of the TR-69 Repair Area.

Number of Partial Inspection this Fiscal Year: 8
Number of Complete Inspections this Fiscal Year: 4

COST SUMMARY WORK

Task description:

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 7/8/2024 County: Mesa Filename: C041-000
User: CCW

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
121	Plug and Seal Boreholes	BOREHOLE	1	0.00	$3,951
205	Mobilize Equipment for Remaining Reclamation	MOBILIZE	1	3.85	$8,979
207	Topsoil salvage from TR69	LOADER	1	2.83	$270
208	TR69 Topsoil salvage	GRADER	1	0.24	$69
209	excavate and backfill TR69 air shaft repair	SITEMAINTENANCE	1	48.00	$30,523
213	TR69 Compacting fill in excavated hole	COMPACT	1	6.46	$2,308
214	TR69 replace topsoil	LOADER	1	1.74	$166
215	TR69 Topsoil replacement	GRADER	1	0.24	$67
217	Seed TR69 0.4 acre disturbance	REVEGE	1	3.40	$883
218	water truck for TR69 activity	MISCTRUK	1	22.00	$3,098
		SUBTOTALS:		**88.76**	**$50,314**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$1,016
Performance bond:	1.05	Total =	$528
Job superintendent:	44.38	Total =	$3,518
Profit:	10.00	Total =	$5,031
		TOTAL O & P =	$10,094
		CONTRACT AMOUNT (direct + O & P) =	$60,408

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	8.59	Total =	$5,189
Reclamation management and/or administration:	6.20		$3,745
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$19,528
		TOTAL BOND AMOUNT (direct + indirect) =	**$69,842**

BOREHOLE SEALING WORK

Task description: **Plug and Seal Boreholes**

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #: 121 State: Colorado Abbreviation: None
Date: 7/8/2024 County: Mesa Filename: C041-121
User: CCW

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
GVMS-01A	Portland cement grout - 8 in. (labor, equip, materials)	8	33	33.00	LF	$10.60	$349.89
GVMS-01B	Portland cement grout - 8 in. (labor, equip, materials)	8	33	33.00	LF	$10.60	$349.89
GVMS-02A	Portland cement grout - 8 in. (labor, equip, materials)	8	33	33.00	LF	$10.60	$349.89
GVMS-02B	Portland cement grout - 8 in. (labor, equip, materials)	8	33	33.00	LF	$10.60	$349.89
GVMS-03A	Portland cement grout - 8 in. (labor, equip, materials)	8	33	33.00	LF	$10.60	$349.89
GVMS-03B	Portland cement grout - 8 in. (labor, equip, materials)	8	33	33.00	LF	$10.60	$349.89
CRDA No. 1	Portland cement grout - 4 in. (labor, equip, materials)	6	90	90.00	LF	$8.71	$784.19
8" Bottom Plugs	PVC plug - 8 in. diameter borehole	6	NA	6.00	EA	$89.31	$535.84
Casing Removal	Exposed casing removal - Calculate Circumference in Linear Feet	7	33	33.00	LF	$3.23	$106.59
Hole Markers	Borehole location/identification marker (EA, material cost only)	NA	NA	7.00	EA	$46.00	$322.00
4" Bottom Plug	PVC plug - 4 in. diameter borehole	4	NA	1.00	EA	$36.06	$36.06
Outfall 002, Plug pipe	PVC plug - 6 in. diameter borehole	6	NA	1.00	EA	$65.19	$65.19
Cut Outfall 002 Pipe	Exposed casing removal - Calculate Circumference in Linear Feet	6"	NA	0.50	LF	$3.23	$1.62

Job Hours: **0.00** **Total Cost**: **$3,951.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilize Equipment for Remaining Reclamation**

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #: 205 State: Colorado Abbreviation: None
Date: 7/8/2024 County: Mesa Filename: C041-205
User: CCW

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:	$10.44	$22.18	$23.94
Operating Cost/Hour:	$26.48	$54.55	$55.65
Operator Cost/Hour:	$22.52	$22.52	$22.52
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$59.44	$122.78	$125.64

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
ATLAS COPCO ROC D7-11,4.0 in.	11.00	$191.64	$59.44	1	$251.08	$59.44	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$41.02	$59.44	1	$100.46	$59.44	$250.00
Cat D9T - 9SU	60.01	$253.16	$125.64	1	$378.80	$125.64	$250.00
CAT 14M	23.57	$129.81	$59.44	1	$189.25	$59.44	$250.00
Cat 324D L 9'-8" Stick	27.33	$281.20	$122.78	1	$403.98	$122.78	$250.00
CAT 914G	8.15	$18.75	$59.44	1	$78.19	$59.44	$250.00
CAT 825H	36.08	$164.53	$122.78	1	$287.31	$122.78	$250.00
Subtotals:			**$1,689.07**		**$608.96**		**$1,750.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Fuel Tanker, 6x4, 210 HP	$53.90	1	$53.90	$53.90
Lube Truck, 6x4, 250 HP	$53.90	1	$53.90	$53.90
Flatbed Truck, 6x4, 45K GVW	$81.77	1	$81.77	$81.77

Light Duty Pickup, 4x4, 1 T. Crew	$24.60	1	$24.60	$24.60
Water Tanker, 5,000 Gal.	$140.83	1	$140.83	$140.83
Subtotals:			**$355.00**	**$355.00**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GRAND JUNCTION	
Total one-way travel distance:	25.00	miles
Average Travel Speed:	35.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$8,471.97
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$507.14

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.71	0.71
Return Time (Hours):	0.71	0.71
Loading Time (Hours):	0.25	NA
Unloading Time (Hours):	0.25	NA
Subtotals:	1.93	1.43

JOB TIME AND COST

Total job time:	**3.86**	Hours
Total job cost:	**$8,979**	

WHEEL LOADER – LOAD AND CARRY WORK

Task description: **Topsoil salvage from TR69**

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #: 207 State: Colorado Abbreviation: None
Date: 7/8/2024 County: Mesa Filename: C041-207
User: CCW

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 914G Horsepower: 95
Attachment 1: ROPS Cab Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$18.75	NA
Operating Cost/Hour:	$19.99	100
Operator Cost/Hour:	$56.64	NA
Total Unit Cost/Hour:	$95.38	
Total Fleet Cost/Hour:	$95.38	

MATERIAL QUANTITIES

Initial volume: 325 CCY Swell factor: 1.250
Loose volume: **406** LCY

Source of estimated volume: TR69
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Loader Cycle Time:

Unadjusted Basic Cycle Time (load, dump, maneuver): 0.450 minutes

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

Net Cycle Time Adjustment: -0.040 minutes
Adjusted Basic Cycle Time: 0.410 minutes

Rolling Resistance – Road Conditions

Haul: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0
Return: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source

Haul Route:	150	3.00	3.00	6.00	0.1164	(Cat HB)
Return Route:	150	-3.00	3.00	0.00	0.0527	(Cat HB)

Total Travel Time: 0.1692 minutes
Total Cycle Time: **0.5792** minutes

Load Bucket Capacity

Rated Capacity: 1.80 LCY (heaped)
Bucket Fill Factor: 0.975 Loose material - mixed moist aggregates (95-100%) 0.975
Adjusted Capacity: **1.76** LCY

Job Condition Correction Factors
Site Altitude: 5100 feet

		Source
Altitude Adj:	0.95	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.79	multiplier

Unadjusted Hourly Unit Production: 181.82 LCY/Hour
Adjusted Hourly Unit Production: 143.36 LCY/Hour
Adjusted Hourly Fleet Production: **143.36** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: **2.83** Hours

Unit cost: $0.665 /LCY Total job cost: **$270**

MOTOR GRADER WORK

Task description: **TR69 Topsoil salvage**

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #: 208 State: Colorado Abbreviation: None
Date: 7/8/2024 County: Mesa Filename: C041-208
User: CCW

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 14M Horsepower: 259
Ripper Attachment: Multi-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$129.81	NA
Operating Cost/Hour:	$89.13	100
Ripper Ownership Cost/Hour:	$5.75	NA
Ripper Operating Cost/Hour:	$4.18	100
Operator Cost/Hour:	$57.29	NA
Total Unit Cost/Hour:	$286.16	
Total Fleet Cost/Hour:	**$286.16**	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 0.40 acres

Source of estimated acreage: TR69

HOURLY PRODUCTION

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

Job Condition Correction Factors Site Altitude: 5100 feet

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

Adjusted Hourly Unit Production: 1.6527 acres/Hour
Adjusted Hourly Fleet Production: **1.6527** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **0.24** Hours

Unit cost: $173.14 per acre Total job cost: **$69**

SITE MAINTENANCE

Task description: **Excavate and backfill TR69 air shaft repair**

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #: 209 State: Colorado Abbreviation: None
Date: 7/8/2024 County: Mesa Filename: C041-209
User: CCW

Agency or organization name: DRMS

UNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Excavate old air shaft for repair	16.00	Cat 324D L 9'-8" Stick	16.00	EA	$540.52	$8,648.32
backfill and compact plugged air shaft	32.00	Cat 324D L 9'-8" Stick	32.00	EA	$540.52	$17,296.64
Excavation fron end loader support	16.00	CAT 914G	16.00	EA	$95.38	$1,526.08
backfill air shaft fron end loader support	32.00	CAT 914G	32.00	EA	$95.38	$3,052.16

Job Hours: 48.00 **Total Cost: $30,523.20**

COMPACTION WORK

Task description: **TR69 Compacting fill in excavated hole**

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #: 213 State: Colorado Abbreviation: None
Date: 7/8/2024 County: Mesa Filename: C041-213
User: CCW

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 825H Horsepower: 354
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$164.53	NA
Operating Cost/Hour:	$161.21	100
Operator Cost/Hour:	$31.50	NA
Total Unit Cost/Hour:	$357.24	
Total Fleet Cost/Hour:	**$357.24**	

MATERIAL QUANTITIES

Loose volume: 1,100 LCY Shrinkage factor: 0.875
Compacted volume: **963** CCY

Source of estimated volume: TR69 SCC estimate
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	1.00	mph
Compacted thickness of each lift (L):	3.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	2	passes
Unadjusted Hourly Unit Production:	179.46	CCY/hour

Job Condition Correction Factors Site Altitude: 5,100 feet

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

Adjusted Hourly Unit Production: 148.95 CCY/Hour
Adjusted Hourly Fleet Production: **148.95** CCY/Hour

JOB TIME AND COST

Fleet size: 1 Compactor(s) Total job time: **6.46** Hours

Unit cost: $2.398 per CCY Total job cost: **$2,308**

WHEEL LOADER – LOAD AND CARRY WORK

Task description: **TR69 replace topsoil**

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #: 214 State: Colorado Abbreviation: None
Date: 7/8/2024 County: Mesa Filename: C041-214
User: CCW

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 914G Horsepower: 95
Attachment 1: ROPS Cab Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$18.75	NA
Operating Cost/Hour:	$19.99	100
Operator Cost/Hour:	$56.64	NA
Total Unit Cost/Hour:	$95.38	

Total Fleet Cost/Hour: $95.38

MATERIAL QUANTITIES

Initial volume: 325 CCY Swell factor: 1.000
Loose volume: **325** LCY

Source of estimated volume: TR69 SCC estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Loader Cycle Time:

Unadjusted Basic Cycle Time (load, dump, maneuver): 0.450 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.060	minutes
	Adjusted Basic Cycle Time:	0.390	minutes

Rolling Resistance – Road Conditions

Haul: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0
Return: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source

Haul Route:	100	0.00	3.00	3.00	0.0564	(Cat HB)
Return Route:	100	0.00	3.00	3.00	0.0564	(Cat HB)

Total Travel Time: 0.1128 minutes
Total Cycle Time: **0.5028** minutes

Load Bucket Capacity

Rated Capacity: 1.80 LCY (heaped)
Bucket Fill Factor: 1.100 Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity: **1.98** LCY

Job Condition Correction Factors
Site Altitude: 5100 feet

		Source
Altitude Adj:	0.95	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.79	multiplier

Unadjusted Hourly Unit Production: 236.28 LCY/Hour
Adjusted Hourly Unit Production: 186.30 LCY/Hour
Adjusted Hourly Fleet Production: **186.30** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: **1.74** Hours

Unit cost: $0.512 /LCY Total job cost: **$166**

MOTOR GRADER WORK

Task description: **TR69 Topsoil replacement**

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #: 215 State: Colorado Abbreviation: None
Date: 7/8/2024 County: Mesa Filename: C041-215
User: CCW

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 14M Horsepower: 259
Ripper Attachment: Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$129.81	NA
Operating Cost/Hour:	$89.13	100
Ripper Ownership Cost/Hour:	$0.00	NA
Ripper Operating Cost/Hour:	$0.00	
Operator Cost/Hour:	$56.70	NA
Total Unit Cost/Hour:	$275.64	

Total Fleet Cost/Hour: **$275.64**

MATERIAL QUANTITIES

Total Area to be graded or ripped: 0.40 acres

Source of estimated acreage: TR69

HOURLY PRODUCTION

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

Job Condition Correction Factors Site Altitude: 5100 feet

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

Adjusted Hourly Unit Production: 1.6527 acres/Hour
Adjusted Hourly Fleet Production: **1.6527** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **0.24** Hours

Unit cost: $166.78 per acre Total job cost: **$67**

REVEGETATION WORK

Task description: **Seed TR69 0.4 acre disturbance**

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #: 217 State: Colorado Abbreviation: None
Date: 7/8/2024 County: Mesa Filename: C041-217
User: CCW

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
8-32-16, 16-20-0	50.00	pound	$0.92	$46.18
			Total Fertilizer Materials Cost/Acre	**$46.18**

Application

Description	Cost /Acre
Truck whirlwind spreader (MEANS 32 01 90.13 0140)	$17.86
Total Fertilizer Application Cost/Acre	**$17.86**

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	$102.41
Total Tilling Cost/Acre	**$102.41**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.20	7.81	$5.82
Indian Ricegrass - Paloma	2.00	6.47	$41.06
Bluebunch Wheatgrass - Secar	2.00	6.43	$21.03
Russian Wildrye - Bozoisky	1.00	4.02	$11.07
Bottlebrush Squirreltail	0.50	2.20	$12.70
Galleta	2.00	7.30	$110.88
Slender Wheatgrass - San Luis	1.00	3.65	$6.04
Thickspike Wheatgrass - Critana	2.00	7.07	$16.30
Western Wheatgrass - Arriba	1.00	2.53	$9.03
Needle and Thread	1.00	2.64	$81.43
Saltbush, Four Wing	0.50	0.69	$9.94

Saltbush, Shadscale	3.00	4.48	$54.26
Winter Fat	2.00	5.10	$93.45
Penstemon, Palmer	0.25	5.53	$19.48
Primrose, Missouri Evening	0.50	2.03	$32.78
Greasewood, Black	1.00	140.45	$39.07
Kochia, Forage (Prostrate)	0.25	35.11	$5.20
Totals Seed Mix	20.20	243.50	**$569.54**

Application

Description	**Cost /Acre**
Drill Seeding (DRMS Survey Cost)	$236.64
Total Seed Application Cost/Acre	**$236.64**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Hay, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$492.78	$985.56
Total Mulch Materials Cost/Acre				**$985.56**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$85.37
Power mulcher (MEANS 32 91 13.16 0350)	$157.25
Total Mulch Application Cost/Acre	**$242.63**

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: 0.4 Cost /Acre: $2,200.82
Estimated Failure Rate: 0.3% Cost /Acre*: $2,200.82
*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MULCHING

Initial Job Cost: **$880.33**
Reseeding Job Cost: **$2.64**
Total Job Cost: **$883**
Job Hours: **3.40**

MISCELLANEOUS TRUCK WORK

Task description: **Water truck for TR69 activity**

Site: **Roadside Portals** Permit Action: 2024 BCI Permit/Job#: C1981041

PROJECT IDENTIFICATION

Task #:	218	State:	Colorado	Abbreviation:	None
Date:	7/8/2024	County:	Mesa	Filename:	C041-218
User:	CCW				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Make and Model:	Water Tanker, 5,000 Gal.	Horsepower:	175
Attachment 1:		Shift Basis:	1 per day
Attachment 2:		Weight:	15.00
Labor Unit 1:	Tanker Driver - 1 rear axle		(US Tons)
Labor Unit 2:			

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$51.70	NA
Operating Cost/Hour:	$50.22	100
Operator Cost/Hour:	$38.91	NA
Total Unit Cost/Hour:	$140.83	
Total Fleet Cost/Hour:	$140.83	

JOB TIME AND COST

Fleet size:	1	Truck(s)	Total job time:	**22.00**	Hours
Unit cost:	$140.83	/Hour	Total job cost:	**$3,098**	