STATE OF COLORADO

Zuber - DNR, Rob <rob.zuber@state.co.us>

RN5 letter with updated RCE

1 message

Zuber - DNR, Rob <rob.zuber@state.co.us> Fri, Apr 1, 2022 at 9:24 AM
To: Basil Bear <basilbear@wolverinefuels.com>, Tamme Bishop <tamme.jestover@bresnan.net>

Basil and Tamme -

Please see attached letter. Tamme, in my email yesterday I said that it would be next week that I send this, but I got it done sooner. So, do not expect a different letter next week.

Rob

Rob Zuber, P.E.
Environmental Protection Specialist
Active Mines Regulatory Program

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

I am working remotely and can be reached by cell at 720.601.2276.
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Bowie2_RN5__Division_Adequacy_with_RCE.pdf
1258K

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

April 1, 2022

Basil Bear
Bowie Resources, LLC
P.O. Box 1488
Paonia, CO 81428

RE: Bowie No. 2 Mine, DRMS File No. C-1996-083, Second Adequacy Letter for RN-05, Questions related to the Reclamation Cost Estimate (RCE)

Dear Mr. Bear:

As part of the March 21st response to my adequacy review for RN-05, Tamme Bishop (Stover & Associates) asked many questions about the Division's RCE. The following are Division responses to these questions.

The Division stands by the unit costs in our RCE. The Division's reclamation cost estimating software (CIRCES) does take account of local costs. Cost indices for Grand Junction and Montrose are used in the software.

1. The Division stands by our position that stockpiled soil becomes compacted over time, so the use of soil in a stockpile should have a swell factor applied to it. This factor is smaller than the factor that would be used for bank material. If BRL can point to particular tasks in which the use of a swell factor is inappropriate, we will certainly consider making the appropriate changes for those tasks.

2. **The Division has removed the use of a chisel plow from Tasks 150 and 154.**

3. The Division stands by the way we performed the RCE. Based on the information provided by Caterpillar for the Cat D10T-SU, the ripper hydraulics do come standard with this model. However, the D10T-SU is designed for interchangeable attachments such as the single and multi-shanks. Since attachments are interchangeable and have different associated ownership costs (per EquipmentWatch), the costs for attachments are separated out from the dozer itself. If the task requires a specific ripper attachment, those costs are then applied and included with the dozer costs.

4. The Division does not believe that using a standard push distance of 100 feet is appropriate. Before adjusting any push distances, BRL should provide specific details. Ideally, this will include sections of maps (or perhaps screenshots from Google Earth) showing the length anticipated for a given task.

5. No changes to the RCE have been made. The Division choices for operator skill and job efficiency are standard.

6. The Division has not changed the RCE based on this item and provides the following general comments on truck tasks. If BRL provides particular suggestions, we will consider those.
    1. The payload capacities for Tasks 27, 40, and 75 appear appropriate for the respective trucks.
    2. The bed volumes and loading tool capacities appear appropriate as different loaders are used for different tasks.
    3. Regarding bucket fill factors, values less than 1.0 are appropriate for some material.
    4. It appears that appropriate altitude values have been used in the RCE tasks.

7. Before adjusting any push distances, BRL should provide details for each task on maps or aerial photographs.

8. As noted above, the Division's reclamation cost estimating software takes account of local costs.

9. Please see answer to number 8.

10. The Division has not changed Tasks 39 and 41. In the PAP the reference to 24-inch lifts refers to the maximum thickness of the material prior to compaction. In the CIRCES software, the maximum allowable compaction thickness is 10 inches.

11. The Division has updated Task 261, backfilling the Terror Creek Vent Shaft, and it now utilizes a bulldozer.

12. The Division has updated Task 140 to remove the bulkhead seals.

13. The division has not changed Task 157. The large number of acres accounts for multiple years of weed control.

14. The Division has updated Task 047. We agree that the visibility factor should be changed to 1.0.

15. The division has not changed Task 045. The altitude value appears correct.

16. The Division has updated Task 093 with the area value of 78.6 acres, per the BRL request.

17. The Division stands by the requirement of removing sludge from tanks and filling the tanks with CO_2. We believe this prudent practice for protecting the environment and insuring the safety of workers and the public. Also, if tanks are filled with gasoline or diesel fuel, there will be a cost for disposing of this fluid as hazardous material.

Attached to this letter is a portion of the current RCE for the Bowie No. 2 Mine. I have included the tasks that were revised based on the adequacy response from Stover & Associates. The updated liability is

$11,448,977, approximately $350,000 less than the RCE update from November. As a reminder, the active corporate surety for this site is $10,971,057.58, and it appears that additional surety will be needed, per our estimate.

If you have any questions or comments, please do not hesitate to contact me at Rob.Zuber@state.co.us or 720.601.2276. If you wish to discuss this letter in detail, we can plan a conference call with your consultant, Division management, and possibly one of the Division's experts with the CIRCES software.

Sincerely,

Robert D. Zuber, P.E.
Environmental Protection Specialist

Enclosure: CIRCES cost summary and updated tasks

COST SUMMARY WORK

Task description: **Cost Summary for RN-05**

Site: **Bowie No. 2 Mine** Permit Action: RN5 Permit/Job#: C1996083

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 3/31/2022 County: Delta Filename: C083-000
User: RDZ

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Pull back and Haul Portal Bench Fill Material to Cut Slope	TRUCK1	1	609.56	$520,741
002	Regrade D-Portal Bench	DOZER	4	158.03	$238,849
005	Rip and Regrade Material Storage Area at Gob Pile	DOZER	4	1.73	$2,616
006	Pull Back Material @ Old Truck Loadout Material Storage Area	EXCAVATE	2	21.27	$15,283
007	Regrade Old Truck Loadout Material Storage Area	DOZER	4	8.21	$12,407
008	Pull Back Material at Truck Loadout/Coal Stockpile	EXCAVATE	2	147.57	$106,027
009	Regrade New Truck Loadout and Coal Stockpile	DOZER	4	32.38	$48,940
010	Pull Material Back onto Train L/O Facil. and Railbed Benches	EXCAVATE	2	431.74	$310,194
011	Regrade Train Loadout Facilities and Railbed Benches	DOZER	4	171.56	$259,289
012	Backfill and Regrade Train L/O Overland Conveyor Corridor	DOZER	4	5.62	$8,486
013	Haul Fill from Upper Mat'l Strge Area to B-Seam Portal Bench	SCRAPER1	1	60.63	$47,237
014	Haul Fill fr Adj. Mat'l Storage Area to B-Seam Portal Bench	TRUCK1	1	89.33	$65,814
015	Backfill and Regrade B-Seam Portal Bench	DOZER	4	38.70	$64,521
019	Regrade Drill Pads from MRs and TRs	DOZER	4	8.01	$12,108
020	Regrade Material Storage Area from TR-29	DOZER	4	0.48	$725
021	Backfill and Regrade New Prep Plant Bench	DOZER	4	36.99	$55,910
022	Replace Fill from Material Storage Area to Water Tank Bench	SCRAPER1	1	1.51	$1,177
023	Regrade Borrow Area	DOZER	4	19.14	$28,933
025	Regrade Upper Parking Lot Expansion Area	EXCAVATE	1	3.65	$1,314
027	Haul Rock to Vent Shafts for Disposal	TRUCK1	1	18.81	$7,233
036	Spread Uncompacted Refuse on Gob Pile #2	DOZER	4	89.54	$135,325
037	Spread Uncompacted Refuse at Gob Pile #3	DOZER	4	100.73	$152,241
038	Compact Material Hauled to Gob Pile #1	COMPACT	1	11.85	$3,911
039	Compact Refuse on Gob Pile #2	COMPACT	1	135.94	$44,861
040	Haul refuse out of Gob Pile #2/#3 drying areas for placement	TRUCK1	1	909.13	$344,705
041	Compact Refuse at Gob Pile #3	COMPACT	1	147.84	$48,787
042	Haul Topsoil from Stockpile Area to Gob Pile #1	SCRAPER1	1	2.18	$1,702
043	Place 3.5' of Coverfill on Gob Pile #1	SCRAPER1	1	15.80	$12,312
044	Place Coverfill from Stockpiles on Gob Pile #2	SCRAPER1	1	173.74	$135,358

045	Haul Cover Material from Gob Pile #3 to Gob Pile #2	TRUCK1	1	235.64	$90,596
045A	Distribute Gob Pile #2 cover hauled by T/L	DOZER	1	375.26	$141,791
045B	Haul Cover Material from Borrow Area #1 to Gob Pile #2	TRUCK1	1	50.03	$9,156
045C	Haul Cover Material from Borrow Area #2 to Gob Pile #2	TRUCK1	1	228.88	$41,887
045D	Haul Cover Material from Borrow Area #3 to Gob Pile #2	TRUCK1	1	41.55	$7,604
045E	Haul Cover Material from B Portal Storage to Gob Pile #2	TRUCK1	1	108.83	$41,841
046	Place 2.5' of Coverfill on Gob Pile #3, from stockpile	SCRAPER1	1	196.56	$153,130
047	Push temp coverfill mat. to face of Gob pile #3	DOZER	1	13.42	$4,143
050	Compact Backfilled D-Portal Bench,Roads, & Utility Corridor	COMPACT	1	511.43	$168,767
051	Compact Backfilled Material at Truck Loadout/Coal Stockpile	COMPACT	1	56.10	$18,515
052	Compact Backfilled Train Loadout	COMPACT	1	191.23	$63,104
053	Compact B-Seam Portal Bench	COMPACT	1	113.99	$37,618
060	Rip Utility Bench	RIPPER	4	0.30	$516
061	Rip D-Portal Bench	RIPPER	4	3.71	$6,192
062	Rip Truck Loadout/Coal Stockpile Area	RIPPER	4	2.06	$3,440
063	Rip Regraded Mine Area Prior to Topsoil Replacement	RIPPER	4	59.09	$98,515
064	Rip Train Loadout Facilities and Railbed Benches	RIPPER	4	7.69	$12,824
065	Rip B-Seam Portal Bench	RIPPER	4	3.71	$6,192
066	Rip Rock Laydown Pad Topsoil	RIPPER	1	0.43	$180
070	Rip Haul Roads (Portion Being Reclaimed) & Old Truck Loadout	RIPPER	4	116.47	$195,928
071	Remove Haul Road Subbase and Place on Gob Pile #1	SCRAPER1	1	30.02	$23,385
072	Rip Truck Loadout Road	RIPPER	4	2.14	$3,610
073	Haul Truck Loadout Subbase to Gob Pile #1	SCRAPER1	1	12.75	$9,930
074	Rip Upper Haul Road Asphalt Prior to Road Narrowing	RIPPER	4	2.95	$4,964
075	Pull Back/Haul Fill Mat'l from Upper Haul Rd Narrowing	TRUCK1	1	141.47	$120,858
076	Regrade Narrowed Section of Haul Road	DOZER	4	26.11	$39,461
077	Rip Gob Pile #1 Road	RIPPER	4	2.35	$3,969
078	Regrade Gob Pile #1 Road	DOZER	4	5.17	$8,612
079	Rip Access Road	RIPPER	4	0.73	$1,240
080	Haul Access Road Surface to Gob Pile #1	SCRAPER1	1	4.86	$3,785
081	Regrade Access Road	DOZER	4	1.79	$2,711
083	Backfill and Regrade Haul Road to Gob Pile #2	DOZER	4	0.44	$730
084	Rip Lower Haul Road	RIPPER	4	0.95	$1,591
085	Regrade Lower Haul Road	DOZER	4	36.46	$60,775
086	Regrade Light Use Roads from MRs and TRs	DOZER	4	60.96	$101,631
090	Finish Grade Disturbed Mine Area	GRADER	1	129.92	$23,423
091	Finish Grade Train Loadout	GRADER	1	16.91	$3,049
092	Finish Grade B-Seam Portal Bench	GRADER	1	6.91	$1,247
093	Finish Grade Gob Piles #1, #2, #3, and #4	GRADER	1	60.42	$10,894
095	Backfill and Regrade Pond B	DOZER	1	7.63	$3,178
096	Backfill and Regrade Pond C	DOZER	1	11.61	$4,680
097	Backfill and Regrade Gob Pile Pond D	DOZER	1	8.18	$3,298

098	Backfill and Regrade Pond F	DOZER	1	10.87	$4,381
099	Backfill and Regrade Pond J	DOZER	1	24.64	$9,933
100	Backfill and Regrade Pond K	DOZER	1	1.52	$614
101	Excavate for Post-mining Channel at B-Seam Portals	EXCAVATE	2	0.63	$453
102	Install Riprap, Gravel, and Geotextile in B-Seam Channel	POSTMINING	1	43.66	$7,361
106ag	Plug and seal AW-15	BOREHOLE	1	6.00	$1,452
106ah	Plug and seal AW16	BOREHOLE	1	6.00	$1,443
106ai	Plug and seal AW-17	BOREHOLE	1	6.00	$1,432
106aj	Plug and seal BD-101	BOREHOLE	1	4.00	$939
106ak	Plug and seal BD-103	BOREHOLE	1	6.00	$1,401
106al	Plug and seal BD-105	BOREHOLE	1	7.00	$1,644
106am	Plug and seal BD-105A	BOREHOLE	1	6.00	$1,395
106an	Plug and seal BD-102	BOREHOLE	1	6.00	$1,392
106ao	Plug and seal BL-101A	BOREHOLE	1	6.00	$1,392
106ap	Plug and seal BL-102	BOREHOLE	1	6.00	$1,394
106aq	Plug and seal BL-102A	BOREHOLE	1	6.00	$1,392
106bb	Plug and seal GVB-6A	BOREHOLE	1	11.00	$6,342
106cn	Plug and seal MR133 Utility Hole #1	BOREHOLE	1	10.00	$7,193
106co	Plug and seal MR133 Utility Hole #2	BOREHOLE	1	10.00	$7,193
106cp	Plug and seal MR133 Utility Hole #3	BOREHOLE	1	10.00	$7,193
106cq	Plug and seal MR133 Utility Hole #4	BOREHOLE	1	10.00	$7,193
106cy	Plug and seal GVB-D-3A (aka GVB-D3-A)	BOREHOLE	1	12.00	$5,477
106db	Plug and seal GVB-D-7A (aka GVB-D7-A)	BOREHOLE	1	10.00	$3,638
106dd	Plug and seal GVB-D-5A	BOREHOLE	1	9.00	$3,043
106do	Plug and seal GVB-D-6A (aka GVB-D6-A)	BOREHOLE	1	10.00	$3,627
106dp	Plug and seal GVB-D-6B (aka GVB-D6-B)	BOREHOLE	1	6.00	$5,299
106dq	Plug and seal GVB-D-7B (aka GVB-D7-B)	BOREHOLE	1	11.00	$4,573
106du	Plug and seal GVB-D-8C (aka GVB-D8-C)	BOREHOLE	1	12.00	$5,578
106ed	Plug and seal P-TC-03-01 (aka TC-03-01)	BOREHOLE	1	10.00	$4,266
106ee	Plug and seal P-TC-03-02 (aka TC-03-02)	BOREHOLE	1	10.00	$4,266
106gb	Plug and seal GVB-17C (aka GVB-B17C)	BOREHOLE	1	12.00	$11,631
106gc	Plug and seal GVB-17D (aka GVB-B17D)	BOREHOLE	1	12.00	$13,381
106gd	Plug and seal GVB-17E (aka GVB-B17E)	BOREHOLE	1	12.00	$15,975
106gi	Plug and seal GVB-17F (aka GVB-B17F)	BOREHOLE	1	12.00	$16,299
106gn	Plug and seal AW-1	BOREHOLE	1	7.00	$1,784
106go	Plug and seal AW-2	BOREHOLE	1	6.00	$1,471
106gp	Plug and seal AW-3	BOREHOLE	1	7.00	$1,828
106gq	Plug and seal AW-4	BOREHOLE	1	6.00	$1,471
106gr	Plug and seal AW-5	BOREHOLE	1	6.00	$1,531
106gs	Plug and seal AW-6	BOREHOLE	1	7.00	$1,772
106gt	Plug and seal AW-7	BOREHOLE	1	8.00	$1,940
106gu	Plug and seal AW-8	BOREHOLE	1	6.00	$1,416
106gv	Plug and seal AW-9	BOREHOLE	1	6.00	$1,427
106gw	Plug and seal AW-11	BOREHOLE	1	6.00	$1,411
106gx	Plug and seal AW-12	BOREHOLE	1	6.00	$1,403
106gy	Plug and seal AW-13	BOREHOLE	1	6.00	$1,411
106gz	Plug and seal AW-14	BOREHOLE	1	6.00	$1,392
106hd	Plug and seal DH-13	BOREHOLE	1	12.00	$4,234
106he	Plug and seal DH-15	BOREHOLE	1	8.00	$2,149
106hf	Plug and seal DH-15	BOREHOLE	1	9.00	$2,671

106hg	Plug and seal DH-25	BOREHOLE	1	9.00	$2,579
106hq	Plug and seal DH-34C	BOREHOLE	1	7.00	$1,824
106hr	Plug and seal DH-38	BOREHOLE	1	10.00	$2,948
106hs	Plug and seal DH-39	BOREHOLE	1	8.00	$2,096
106hv	Plug and seal CWI-DH-47	BOREHOLE	1	12.00	$5,381
106hw	Plug and seal CWI-DH-48	BOREHOLE	1	12.00	$5,971
106hx	Plug and seal DH-49	BOREHOLE	1	9.00	$2,531
106if	Plug and seal DH-57B (aka 98-57B)	BOREHOLE	1	12.00	$4,012
106ii	Plug and seal DH-58B (aka DH-58A)	BOREHOLE	1	12.00	$4,113
106ij	Plug and seal CWI-DH-60 (aka Mon Well)	BOREHOLE	1	12.00	$3,119
106ip	Plug and seal DH-67B	BOREHOLE	1	10.00	$2,690
106iq	Plug and seal DH-67-D	BOREHOLE	1	9.00	$2,279
106ir	Plug and seal DH-67-Abv	BOREHOLE	1	8.00	$1,963
106is	Plug and seal DH-67-Blw	BOREHOLE	1	9.00	$2,260
106it	Plug and seal CWI-DH-69 (aka B-1 Mon Well)	BOREHOLE	1	12.00	$3,443
106iu	Plug and seal CWI-DH-70 (aka B-1 Mon Well)	BOREHOLE	1	11.00	$3,527
106iy	Plug and seal 2010-1B	BOREHOLE	1	12.00	$4,525
106iz	Plug and seal 2010-1SS	BOREHOLE	1	12.00	$4,407
110	Replace Topsoil from Stockpile A to Portal/Utility Bench	SCRAPER1	1	652.39	$508,253
111	Replace Topsoil from Stockpile A to Truck Loadout/Coal Stkpl	SCRAPER1	1	45.95	$35,795
112	Replace Topsoil from Stockpile F to Train Loadout	SCRAPER1	1	39.98	$31,146
113	Replace Topsoil from Stockpile A to B-Seam Portal Bench	SCRAPER1	1	87.66	$68,292
115	Replace Topsoil fm Stockpiles C/D to Pond C and Gob Pond D	SCRAPER1	1	13.12	$10,218
116	Replace topsoil from Stockpile to Pond F	DOZER	1	3.95	$1,648
117	Replace topsoil from Stockpile F to Pond J	SCRAPER1	1	2.85	$2,222
118	Replace topsoil from Stockpile F to Pond K	SCRAPER1	1	1.92	$1,494
119	Replace topsoil fm stockpile to MR/TR Light-Use Roads	DOZER	4	25.96	$43,274
120	Replace topsoil from stockpiles to MR/TR drill pads	DOZER	4	27.04	$43,599
121	Replace topsoil from Stockpile A to Prep Plant Bench	SCRAPER1	1	22.41	$17,459
122	Replace topsoil from stockpile to Material Storage Area	DOZER	4	0.18	$305
123	Replace topsoil from Stockpile E to Gob Pile #2	SCRAPER1	1	83.69	$65,203
124	Replace Topsoil from Stockpile D to Gob Pile #4	SCRAPER1	1	7.01	$5,463
125	Replace topsoil from stockpile to Gob Pile #3	SCRAPER1	1	85.33	$66,479
126	Replace topsoil from stockpile to Haul Road	DOZER	4	0.17	$279
127	Replace topsoil from stockpile to Water Tank Bench	SCRAPER1	1	1.71	$1,333
128	Replace topsoil from Stockpile G to TR35 road/pad	SCRAPER1	1	5.01	$3,906
129	Replace topsoil from stockpile to Borrow Area	DOZER	4	5.44	$9,072
130	Replace topsoil fm stockpile to Upper Parking Lot Expansion	DOZER	1	0.46	$175
140	Seal Portals and Shafts - Bulkhead Removed from Costs	MINESEAL	1	0.00	$27,966
150	Drill Seed Mix 3 on Disturbed Area	REVEGE	1	225.02	$574,253
151	Drill Seed Drill Pads	REVEGE	1	82.97	$145,953

152	Drill Seed Lt-Use Roads to Drill Pads and Terror Creek	REVEGE	1	62.01	$109,082
154	Broadcast Seed Mix 3 on Gob Pile #3	REVEGE	1	60.63	$110,911
155	Drill seed Hubbard Creek Vent Shaft Pad	REVEGE	1	1.20	$2,111
156	Drill Seed Rock Laydown Area	REVEGE	1	0.50	$352
157	Weed Control Over 10-Year Liability Period	REVEGE	1	400.00	$52,559
165	Demolish and Remove all Structures	DEMOLISH	1	160.00	$1,666,392
170	Proctor Testing of Backfill (5 tests)	SITEMAINTENANCE	1	0.00	$702
171	Nuclear Density Testing of Backfill	SITEMAINTENANCE	1	0.00	$133,901
172	Water Truck for Moisture Augmentation of Backfill Material	MISCTRUK	1	1,437.02	$138,716
173	Site Maintenance - Ten Years	SITEMAINTENANCE	1	292.00	$255,198
174	Support Equipment for Scraper Hauling	SITEMAINTENANCE	1	449.16	$124,405
180	Mobilize/Demobilize Equipment for First Construction Season	MOBILIZE	1	12.00	$57,969
181	Mobilize/Demobilize Equipment for Second Construction Season	MOBILIZE	1	12.00	$57,969
182	Mobilize/Demoblize Equipment for Pond Removal	MOBILIZE	1	6.50	$5,312
183	Mobilize/Demobilize Equipment for Yearly Site Maintenance	MOBILIZE	1	14.00	$30,637
241	Regrade Terror Creek Light-Use Road	DOZER	1	29.73	$9,178
242	Replace Topsoil from Stockpile to Terror Creek Lt-Use Road	DOZER	1	22.45	$6,931
261	Concrete Plug and Backfill Terror Creek Vent Shaft	MINESEAL	1	40.00	$142,543
301	Reseed Add'l Disturbance from Utility Boreholes at Fan Bench	REVEGE	1	1.00	$686
302	Regrade Fan Bench - Utility Borehole Mudpit Add'l Dist.	DOZER	1	4.06	$1,252
352	Re-topsoil Pitkin Mesa Pipeline corridor	DOZER	1	10.60	$3,273
353	Reseed Pitkin Mesa Pipeline Corridor	REVEGE	1	2.00	$3,518
369	Seal Well DH-67blw	BOREHOLE	1	12.00	$6,782
374	Seal CWI-DH-58A	BOREHOLE	1	12.00	$7,949
379	Regrade Section 5 Road	DOZER	1	12.88	$3,975
380	Re-topsoil Section 5 Road	DOZER	1	5.46	$1,687
381	Reseed Section 5 road	REVEGE	1	2.00	$2,146
390	Remove Culvert C27 (from TR-119)	DEMOLISH	1	0.25	$302
		SUBTOTALS:		**11453.77**	**$9,085,355**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$183,524
Performance bond:	1.05	Total =	$95,396
Job superintendent:	5,743.67	Total =	$413,717
Profit:	10.00	Total =	$908,536
		TOTAL O & P =	$1,601,172
		CONTRACT AMOUNT (direct + O & P) =	$10,686,527

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.00	Total =	$427,461
Reclamation management and/or administration:	3.13		$334,488
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$2,363,622
		TOTAL BOND AMOUNT (direct + indirect) =	**$11,448,977**

BULLDOZER WORK

Task description: **Push temp coverfill mat. to face of Gob pile #3**

Site: **Bowie No. 2 Mine** Permit Action: RN5 Permit/Job#: C1996083

PROJECT IDENTIFICATION

Task #:	047	State:	Colorado	Abbreviation:	None
Date:	3/31/2022	County:	Delta	Filename:	C083-047
User:	RDZ				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $308.72
Total Fleet Cost/Hour: **$308.72**

MATERIAL QUANTITIES

Initial Volume:	5,500
Swell factor:	1.000
Loose volume:	**5,500** LCY

Source of estimated volume: MR199 app.
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 5 %
Average site altitude: 5,900 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5855

Adjusted unit production: 409.85 LCY/hr
Adjusted fleet production: **409.85** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.753/LCY

Total job time: **13.42** Hours
Total job cost: **$4,143**

MOTOR GRADER WORK

Task description: **Finish Grade Gob Piles #1, #2, #3, and #4**

Site: **Bowie No. 2 Mine** Permit Action: RN5 Permit/Job#: C1996083

PROJECT IDENTIFICATION

Task #: 093 State: Colorado Abbreviation: None
Date: 3/31/2022 County: Delta Filename: C083-093
User: RDZ

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:	$85.80	NA
Operating Cost/Hour:	$60.40	100
Ripper Ownership Cost/Hour:	$5.52	NA
Ripper Operating Cost/Hour:	$0.00	0
Operator Cost/Hour:	$28.56	NA
Total Unit Cost/Hour:	$180.28	

Total Fleet Cost/Hour: **$180.28**

MATERIAL QUANTITIES

Total Area to be graded or ripped: 78.60 acres

Source of estimated acreage: Permit Volume IX

HOURLY PRODUCTION

Average Grader Speed:	1.25	mph
Selected Application:	Production Deration - 1.25	
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:	1.5303	acres/hour

Job Condition Correction Factors Site Altitude: 6100 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.85	(1sh/d, mod.)
Net Correction:	0.8500	multiplier

Adjusted Hourly Unit Production: 1.3008 acres/Hour
Adjusted Hourly Fleet Production: **1.3008** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **60.43** Hours

Unit cost: $138.60 per acre Total job cost: **$10,894**

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Seal Portals and Shafts - Bulkhead Removed from Costs**

Site: **Bowie No. 2 Mine** Permit Action: RN5 Permit/Job#: C1996083

PROJECT IDENTIFICATION

Task #: 140 State: Colorado Abbreviation: None
Date: 3/31/2022 County: Delta Filename: C083-140
User: RDZ

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
D Portals - Backfill (intake, beltline, and return)	185 CY x 3	Adit closure - backfilling (per opening)	3.00	EA	$2,723.90	$8,171.70
- drainpipe	165 LF x 3	PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor)	495.00	LF	$11.74	$5,811.30
B Portals - Backfill (intake, beltline, and return)	185 CY x 3	Adit closure - backfilling (per opening)	3.00	EA	$2,723.90	$8,171.70
- drainpipe	165 LF x 3	PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor)	495.00	LF	$11.74	$5,811.30

Job Hours: **0.00** **Total Cost**: **$27,966.00**

REVEGETATION WORK

Task description: **Drill Seed Mix 3 on Disturbed Area**

Site: **Bowie No. 2 Mine** Permit Action: RN5 Permit/Job#: C1996083

PROJECT IDENTIFICATION

Task #: 150 State: Colorado Abbreviation: None
Date: 3/31/2022 County: Delta Filename: C083-150
User: RDZ

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Beardless Wheatgrass - Whitmar	1.30	4.24	$15.24
Bitterbrush, Antelope	8.30	2.55	$161.85
Aster, Smooth	0.30	5.22	$43.95
Great Basin Wildrye - Magnar	1.20	4.88	$13.86
Kentucky Bluegrass - Ginger	0.10	4.94	$0.32
Ryegrass, Perennial - Belramo	0.70	3.97	$1.26
Intermediate Wheatgrass - Oahe	1.80	3.84	$5.04
Smooth Brome - Manchar	1.20	3.99	$3.99
Alfalfa - Ranger (inoculated)	0.70	3.37	$1.79

Burnett, Small (or Little) - Delar	2.80	3.54	$7.00
Sheep Fescue - Covar	0.20	3.12	$1.22
Milk Vetch, Cicer - Lutana	1.10	3.66	$9.02
Tall Wheatgrass - Jose	2.00	3.63	$6.75
Western Wheatgrass - Arriba	1.40	3.54	$9.10
Rose, Wood's	2.70	0.00	$55.35
Flax, Lewis Blue	0.50	3.32	$8.25
Sagebrush, Silver	0.10	1.94	$3.10
Saltbush, Four Wing	2.40	3.31	$30.00
Serviceberry	4.80	8.82	$295.20
Siberian Wheatgrass	0.90	2.27	$5.15
Totals Seed Mix	34.50	74.14	**$677.44**

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**
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$307.02	$614.04
Total Mulch Materials Cost/Acre				**$614.04**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Total Mulch Application Cost/Acre	**$177.86**

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: 225.02
Estimated Failure Rate: 50%
*Selected Replanting Work Items: SEEDING,MULCHING

Cost /Acre: $1,701.34
Cost /Acre*: $1,701.34

Initial Job Cost: **$382,835.53**
Reseeding Job Cost: **$191,417.76**
Total Job Cost: **$574,253**

Job Hours: **225.02**

REVEGETATION WORK

Task description: **Broadcast Seed Mix 3 on Gob Pile #3**

Site: **Bowie No. 2 Mine** Permit Action: RN5 Permit/Job#: C1996083

PROJECT IDENTIFICATION

Task #: 154 State: Colorado Abbreviation: None
Date: 3/31/2022 County: Delta Filename: C083-154
User: RDZ

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Beardless Wheatgrass - Whitmar	2.60	8.48	$30.49
Bitterbrush, Antelope	16.60	5.11	$323.70
Aster, Smooth	0.60	10.44	$87.90
Great Basin Wildrye - Magnar	2.40	9.75	$27.72
Kentucky Bluegrass - Ginger	0.20	9.87	$0.64
Ryegrass, Perennial - Belramo	1.40	7.94	$2.52
Intermediate Wheatgrass - Oahe	3.60	7.69	$10.08
Smooth Brome - Manchar	2.40	7.99	$7.98
Alfalfa - Ranger (inoculated)	1.40	6.75	$3.57

Burnett, Small (or Little) - Delar	5.60	7.07	$14.00
Sheep Fescue - Covar	0.40	6.24	$2.44
Milk Vetch, Cicer - Lutana	2.20	7.32	$18.04
Tall Wheatgrass - Jose	4.00	7.25	$13.50
Western Wheatgrass - Arriba	2.80	7.07	$18.20
Rose, Wood's	5.40	0.00	$110.70
Flax, Lewis Blue	1.00	6.63	$16.50
Sagebrush, Silver	0.20	3.88	$6.20
Saltbush, Four Wing	4.80	6.61	$60.00
Serviceberry	9.60	17.63	$590.40
Siberian Wheatgrass	1.80	4.55	$10.31
Totals Seed Mix	69.00	148.28	**$1,354.88**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$307.02	$614.04
Total Mulch Materials Cost/Acre				**$614.04**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Total Mulch Application Cost/Acre	**$177.86**

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: 30.63 Cost /Acre: $2,414.00

Estimated Failure Rate: 50% Cost /Acre*: $2,414.00

*Selected Replanting Work Items: SEEDING,MULCHING

Initial Job Cost: **$73,940.82**

Reseeding Job Cost: **$36,970.41**

Total Job Cost: **$110,911**

Job Hours: **60.63**

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Concrete Plug and Backfill Terror Creek Vent Shaft**

Site: **Bowie No. 2 Mine** Permit Action: RN5 Permit/Job#: C1996083

PROJECT IDENTIFICATION

Task #: 261 State: Colorado Abbreviation: None
Date: 3/31/2022 County: Delta Filename: C083-261
User: RDZ

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Concrete Cap	269.00 cf	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	269.00	CF	$13.89	$3,736.41
Backfill Shaft	6900 cy	Shaft closure - backfilling, Machine Backfill	6,900.00	CY	$20.00	$138,000.00
- Equipment to Backfill	1717 hr/cy	Cat D7R DS XR Series II	4.00	EA	$201.65	$806.60

Job Hours: **40.00** **Total Cost**: **$142,543.01**