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

September 22, 2023

Jason Eckman
Caerus Cross Timbers, LLC
143 Diamond Ave
Parachute, CO 81635

RE: Colony Shale Oil Project, Permit No. M-1980-047, Financial Warranty Figures Received

Dear Mr. Eckman:

On September 20, 2023, the Division of Reclamation, Mining and Safety (Division) received the updated reclamation task/ cost estimating information requested in the Division's June 20, 2023, letter. Based on a preliminary review of the information received the Division will require additional information in order to perform its own independent reclamation cost estimate. After the Division has completed a thorough review of the provided information, a detailed adequacy review letter will be sent under a separate cover.

In the meantime, the Division has attached sample tasks with the input factors highlighted necessary for calculating a reclamation cost estimate. This level of detail will be necessary in order to accurately calculate the required financial warranty of the site. Additionally, potential revisions to the Reclamation Plan which would impact the bond were referenced. The Division must calculate the bond based on the approved Reclamation Plan and the worst-case site conditions. If Caerus wishes to complete reclamation in a way other than what is approved in the Reclamation Plan, it must first update the Reclamation Plan in either the form of a Technical Revision or Amendment depending on the magnitude of changes being requested.

If you have any questions, please contact me at 303-866-3567 Ext 8183 or amy.yeldell@state.co.us.

Sincerely,

Amy Yeldell

Amy Yeldell
Environmental Protection Specialist

EC: Travis Marshall, DRMS

STATE OF COLORADO
NIL SINE NUMINE
1876

COST SUMMARY WORK

Task description: **Post inspection 03-2017-Does not include well pad slope**

Site: **XXXX** Permit Action: 03-2017 Permit/Job#: XXXX

PROJECT IDENTIFICATION

Task #: ACY State: Colorado Abbreviation: None
Date: 3/2/2017 County: Garfield Filename: M279-ACY
User: ACY

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Highwall reduction	DOZER	1	22.66	$4,346.00
02a	Rip compacted pit floor	RIPPER	1	5.13	$1,062.00
03a	Distribute topsoil over disturbed area	DOZER	1	5.36	$1,029.00
04a	Revegetate affected area	REVEGE	1	16.00	$6,162.00
05a	Mobilize reclamation crew and equipment	MOBILIZE	1	2.57	$2,600.00
05b	Secondary seeding	MOBILIZE	1	2.57	$1,569.00
			SUBTOTALS:	**54.29**	**$16,768**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$338.71
Performance bond:	1.05	Total =	$176.06
Job superintendent:	25	Total =	$3000
Profit:	10.00	Total =	$1,676.80
		TOTAL O & P =	$2,191.57
		CONTRACT AMOUNT (direct + O & P) =	$18,959.57

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	4.25	Total =	$0.00
Reclamation management and/or administration:	5.00		$947.98
CONTINGENCY:	3	Total =	$0.00
		TOTAL INDIRECT COST =	$3,639.55
		TOTAL BOND AMOUNT (direct + indirect) =	**$20,407.55**

Job Supr is an Hrly rate, generally 50% of total hours. FW processing is $500 for cooperate surety, all other indirect costs are a percentage of the total Direct Cost.

DEMOLITION WORK

Task description: Site: **Demo of Plant, pipelines, powerlines and parking lot**

Permit Action: TR-50 Permit/Job#:

PROJECT IDENTIFICATION

Task #: 01A
Date: 2/9/2023
User: ACY

State: Colorado
County: Rio Blanco

Abbreviation: None
Filename: M194-01a

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 95.50 %**

Structure or Item Description	**Dimensions**	**Demolition Menu Selection**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Plant	200'L x 227'W x 42.5'H	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	1,929,500.00	CF	$0.84	$1,618,850.50
Product Storage Dome	95'L x 95'W x 50'H	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	451,250.00	CF	$0.84	$378,598.75
Removal of NSI Plant Slab	200'L x 227'W x 8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	45,400.00	SF	$1.61	$73,184.80
Removal of Storage Dome Slab	95'L x 95'W x8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	9,025.00	SF	$1.61	$14,548.30
Scale Building	108'W x 18'L x 10'H	Plant (1S) demo./off-site disposal in approved landfill - Max. 30 mile haul	19,440.00	CF	$0.80	$15,493.68
Removal of Scale Building Slab	108'W x 18'L x 8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	1,944.00	SF	$1.61	$3,133.73
Tank Farm	30'W x 50'H	Haul tank to certified salvage dump - 3,000 to 5,000 gal. tank	5.00	EA	$760.00	$3,800.00
Removal of Flagpole/Monument	70 SqFt	USER PROVIDED ITEM	70.00	Ft^2	$5.00	$350.00
Demolition of Screening and Magnet System	6'W x 18'L x 10'H	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	1,080.00	CF	$0.84	$906.12
Pipelines averaged to 10" diam	36,688 LF	Pipe, steel, welded connections - 10 in. diameter pipe	36,688.00	LF	$11.04	$405,035.52

Job Hours: **82.00** **Subtotal (unadjusted):** **$2,513,901.40** **Total Cost (adjusted for location):** **$2,400,775.84**

Provide Job Hrs by building/feature to be removed

BOREHOLE SEALING WORK

Task description: **Plug and Abandon Water Monitoring wells**

Permit Action:

Site: _ SI-01 Permit/Job#:

PROJECT IDENTIFICATION

Task #: 01A
Date: 8/1/2013
User: THM

State: Colorado
County: Rio Blanco

Abbreviation: None
Filename: 01a

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
MWD-1	Portland cement grout - 6 in. (labor, equip, materials)	6"	1731	1,731.00	LF	$10.92	$18,903.73
MWU-2	Portland cement grout - 6 in. (labor, equip, materials)	6"	687	687.00	LF	$10.92	$7,502.52
MWD-2	Portland cement grout - 6 in. (labor, equip, materials)	6"	1703	1,703.00	LF	$10.92	$18,597.95
MWA-2	Portland cement grout - 8 in. (labor, equip, materials)	8"	1200	1,200.00	LF	$11.88	$14,252.64
MWB-2	Portland cement grout - 6 in. (labor, equip, materials)	6"	1398	1,398.00	LF	$10.92	$15,267.14
AM-2	Portland cement grout - 4 in. (labor, equip, materials)	4"	88	88.00	LF	$7.82	$687.93

Job Hours: **40.00** **Total Cost:** **$75,211.91**

Provide Job hrs by well

Can also add in Bridge plugs, note additional cost for excavation, cutting of casing and backfill.

BULLDOZER WORK

Task description: **Regrade Process Ponds**

Site: **XXXXX** Permit Action: TR-50 Permit/Job#: MXXXXX

PROJECT IDENTIFICATION

Task #:	03A	State:	Colorado	Abbreviation:	None
Date:	2/10/2023	County:	Rio Blanco	Filename:	M194-03a
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$124.85	NA
Operating Cost/Hour:	$97.63	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: $263.78
Total Fleet Cost/Hour: **$527.56**

MATERIAL QUANTITIES

For volume: can also provide L x W x H, slope of grade and Cut/fill or Backfill and Division will calculate

Initial Volume: 66,147
Swell factor: 1.115
Loose volume: **73,754** LCY

Source of estimated volume: TR-50
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 175 feet
Unadjusted hourly production: 562.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,600 feet

Material weight: 2,100 lbs/LCY

Weight description: Earth - Loam

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.600	(FND-SF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3681

Adjusted unit production: 206.95 LCY/hr
Adjusted fleet production: **413.9** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $1.275/LCY

Total job time: **178.19** Hours
Total job cost: **$94,008**

BULLDOZER RIPPING WORK

Task description: **Decompact Process Pond**

Site: **XXXXX** Permit Action: TR-50 Permit/Job#: XXXXXXX

PROJECT IDENTIFICATION

Task #:	03B	State:	Colorado	Abbreviation:	None
Date:	2/10/2023	County:	Rio Blanco	Filename:	M194-03b
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU	Horsepower:	310
Ripper Attachment:	3-Shank Ripper	Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$124.85	NA
Operating Cost/Hour:	$97.63	100
Ripper Ownership Cost/Hour:	$13.10	NA
Ripper Operating Cost/Hour:	$7.30	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$284.18	

Total Fleet Cost/Hour: **$568.36**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic:	NA		Bank Volume:	NA	BCY	NA	
Area:	8.00	acres	Rip Depth (ft):	2.00	Volume:	25,813	BCY or CCY

Source of estimated quantity: TR-42

HOURLY PRODUCTION

Seismic:

Seismic Velocity:	NA	feet/second

Area:

Average Ripping Depth:	2.56	feet/pass
Average Ripping Width:	7.08	feet/pass
Average Ripping Length:	100.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.703	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	0.703	Acres/hr
Site Altitude:	6,600	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier
Adjusted Hourly Unit Production:	0.58	Acres/hr
Adjusted Hourly Fleet Production:	**1.17**	Acres/hr

JOB TIME AND COST

Fleet size:	2	Grader(s)	Total job time:	**6.85**	Hours
Unit cost:	$486.739	Per acre	Total job cost:	**$3,894**	

REVEGETATION WORK

Task description: **Reveg Process Pond**

Site: **CCCCCC** Permit Action: TR-50 Permit/Job#: XXXXX

PROJECT IDENTIFICATION

Task #: 03D State: Colorado Abbreviation: None
Date: 2/10/2023 County: Rio Blanco Filename: XXXXX
User: ACY

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
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$117.18
Weed control spraying (MEANS 31 31 16.13 3100)	$290.40
Total Tilling Cost/Acre	**$407.58**

SEEDING

Seed Mix Include species and variety	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	$2.85
Crested Wheatgrass - Ephraim	4.00	18.37	$17.30
Blue Wildrye - Arlington or Elkton	1.50	5.17	$9.99
Russian Wildrye - Bozoisky	1.50	6.03	$9.72
Hard Fescue - Discovery	1.00	12.97	$2.93
Pubescent Wheatgrass - Luna	1.50	3.10	$5.10
Yellow Sweet Clover - Madrid	0.50	2.98	$1.41
Tall Wheatgrass - Jose	1.80	3.26	$6.08
Thickspike Wheatgrass - Critana	4.30	15.20	$29.56

Sweetvetch, Utah or Northern	0.10	0.05	$7.50
Western Wheatgrass - Barton	1.50	3.79	$10.50
Yarrow, Western	0.20	12.16	$8.36
Totals Seed Mix	18.00	86.97	**$111.29**

Application

Description Rate will be double for all except Drill seed	**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**
Herbicide - 2,4D @ 1.0 pt/ac	2.00	ACRE	$3.04	$6.08
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$421.36	$842.72
Total Mulch Materials Cost/Acre				**$848.80**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$73.00
Power mulcher (MEANS 32 91 13.16 0350)	$141.57
Weed spray, truck, non-aquatic area, nox. [DMG]	$62.72
Total Mulch Application Cost/Acre	**$277.29**

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: 19
Estimated Failure Rate: 30%
*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Cost /Acre: $1,876.96
Cost /Acre*: $1,876.96

Initial Job Cost: **$35,662.24**
Reseeding Job Cost: **$10,698.67**
Total Job Cost: **$46,361**
Job Hours: **28.50**

TRUCK/LOADER TEAM WORK

Task description: **Phase 1 - Backfill w Overburden**

Site: **XXXXX** Permit Action: New App Permit/Job#: XXXXX

PROJECT IDENTIFICATION

Task #:	2001B	State:	Colorado	Abbreviation:	None
Date:	7/19/2023	County:	Garfield	Filename:	M052-2001B
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 980H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	30	30	50	50
Ownership cost/hour:	$108.06	$61.69	$241.38	$241.38	$212.21	$16.65
Operating cost/hour:	$71.88	$58.92	$43.18	$43.18	$62.44	$18.80
%Utilization-riper:	NA	0	100	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$14.11	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$7.45	$0.00	$0.00	$0.00
Operator cost/hour:	$32.54	$40.71	$41.30	$41.30	$28.56	$21.12
Unit Subtotals:	$212.48	$161.32	$333.31	$325.86	$303.21	$56.57
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work:	$798.76	Support:	$659.17	Maint:	$359.78

Total work team cost/hour: **$1,817.71**

MATERIAL QUANTITIES

Initial volume: 14,802 CCY Swell factor: 1.115

Loose volume: **16,504** LCY

Must provide a quote that is good for Caerus and the Division if importing material.

Source of estimated volume:	Exhibit L & Rec Plan
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:	62,000	Pounds
Payload Capacity:	29.52	LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **15.75** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.050	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	**7.875**	LCY

Job Condition Corrections: Site Altitude (ft.): 5380 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: 2 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA

Selected Value within this Basic Rating: NA

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): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(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 Loader Cycle Time:	**0.510**	minutes
	Net Load Time per Truck:	**0.610**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	0.610	Minutes	Adjusted for site altitude:	0.610	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	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	1150.00	0.00	3.00	3.00	2183	0.790

If haul route varies can do multiple segments for total haul.

Haul Time: **0.790** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1150.00	0.00	3.00	3.00	2936	0.546

Return Time: **0.546** minutes
Total Truck Cycle Time: **3.546** minutes

Loading Tool unit Production: 780.99 LCY/Hour — Adjusted for job efficiency: 648.22 LCY/Hour
Truck Unit Production: 266.50 LCY/Hour — Adjusted for job efficiency: 221.19 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) — Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 663.58 LCY/Hour
Adjusted single truck/loader team production: 648.22 LCY/Hour
Adjusted multiple truck/loader team production: **648.22** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) — Total job time: **25.46** Hours

Unit cost: $2.804 /LCY — Total job cost: **$46,280**