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

1313 Sherman Street, Room 215
Denver, CO 80203

July 11, 2019

Mr. Mike Schaffner
Cripple Creek & Victor Gold Mining Company
P.O. Box 191
Victor, CO 80860

Re: Project, Permit No. M-1980-244;
Technical Revision (TR-113) DRMS Cost Estimate Transmittal

Dear Mr. Schaffner:

The Division of Reclamation, Mining and Safety (DRMS) received your responses to our July 2, 2019 Second Adequacy Review (2AR) letter for Technical Revision (TR-113) addressing the following:

Leach Cell Study

The responses were determined to be adequate. However, based on the responses to the preliminary and second adequacy reviews, the DRMS cost estimate was significantly higher than the $13,811 estimate provided by CC&V in the initial TR-113 request, received April 11, 2019. The purpose of this letter is to provide CC&V with our cost estimate (see **Attachment A**) for your review and comment prior to our approval of TR-113**. The decision date for TR-113 is currently July 12, 2019**. Please be advised that if you wish to propose changes to our cost estimate, **it will be your responsibility to request an extension of the review period**. If the DRMS has not received an extension request by the end of the review period, we will approve TR-113 with the $74,866 reclamation cost as presented in Attachment A.

If you have any questions or need further information, please contact me at (303)866-3567 x8169.

Sincerely,

Timothy A. Cazier, P.E.
Environmental Protection Specialist

ec: Michael Cunningham, DRMS
Elliott Russell, DRMS
Patick Lennberg, DRMS
Amy Eschberger, DRMS
DRMS file
Justin Raglin, CC&V
Katie Blake, CC&V

COST SUMMARY WORK

Task description: **Cost Summary, Assume Equip. already mob'd** *{see Attachment A for quantities}*

Site: **Cresson Project** Permit Action: TR113 Permit/Job#: M1980244

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 7/11/2019 1:17:05 PM County: Teller Filename: M244-000
User: TC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
00A	Remove Stacked Ore & DCF	TRUCK1	1	15.15	$31,954
00B	Haul Away Liner	DEMOLISH	1	0.00	$23,647
00C	Rip surface	RIPPER	1	1.87	$650
00D	Grade Perimeter Berm	DOZER	1	1.00	$319
0BB	Remove Liner	TRUCK1	1	6.65	$3,754
	SUBTOTALS:			**24.67**	**$60,324**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$1,219
Performance bond:	1.05	Total =	$633
Job superintendent:	4.60	Total =	$319
Profit:	10.00	Total =	$6,032
		TOTAL O & P =	$8,204
		CONTRACT AMOUNT (direct + O & P) =	$68,528

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$0	Total =	$0
Engineering work and/or contract/bid preparation:	4.25	Total =	$2,912
Reclamation management and/or administration:	5.00		$3,426
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$14,542
		TOTAL BOND AMOUNT (direct + indirect) =	**$74,866**

TRUCK/LOADER TEAM WORK

Task description: **Remove Stacked Ore & DCF**

Site: **Cresson Project** Permit Action: TR113 Permit/Job#: M1980244

PROJECT IDENTIFICATION

Task #: 00A State: Colorado Abbreviation: None
Date: 7/11/2019 County: Teller Filename: M244-00A
User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	KOMATSU 830E
-Loader:	LETOURNEAU L2350
Support Equipment -Load Area:	NA
-Dump Area:	Cat D10T - 10SU
Road Maintenance –Motor Grader:	CAT 14M
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	50	25	NA
Ownership cost/hour:	$193.78	$407.68	NA	$140.61	$64.10	NA
Operating cost/hour:	$213.02	$421.97	NA	$67.67	$14.04	NA
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	NA
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	NA
Operator cost/hour:	$34.38	$40.65	NA	$41.24	$28.52	NA
Unit Subtotals:	$441.17	$870.30	NA	$249.52	$106.66	NA
Number of Units:	2	1	0	1	1	0
Group Subtotals:	Work:	$1,752.64	Support:	$249.52	Maint:	$106.66

Total work team cost/hour: **$2,108.82**

MATERIAL QUANTITIES

Initial volume: 41,481 CCY Swell factor: 1.000
Loose volume: **41,481** LCY

Source of estimated volume: Ref. 6/17/19 Adeq. Response, Item #3
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: 2,800 Pounds/LCY
Description: Granite - Broken
Rated Payload: 492,200 Pounds

Payload Capacity: 175.79 LCY

Truck Bed (volume) Basis:

Struck Volume:	153.00	LCY
Heaped Volume:	192.00	LCY
Average Volume:	172.50	LCY
Adjusted Volume:	175.79	LCY

Final Truck Volume Based on Number of Loader Passes: **174.90** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	53.000	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	**43.725**	LCY

Job Condition Corrections: Site Altitude (ft.): 10150 feet

	Truck	Loader	Source
Altitude Adj:	1.000	0.930	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.830**	**0.772**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 4 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): 0.725 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material 3/4" to 6" diameter 0.00	0.000	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(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:	-0.020	minutes
	Adjusted Loader Cycle Time:	**0.705**	minutes
	Net Load Time per Truck:	**2.215**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.215	Minutes	Adjusted for site altitude:	2.382	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	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	1126.00	2.00	3.00	5.00	1550	0.996

Haul Time: **0.996** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1126.00	-2.00	3.00	1.00	3503	0.562

Return Time: **0.562** minutes
Total Truck Cycle Time: **5.940** minutes

Loading Tool unit Production 3,298.22 LCY/Hour Adjusted for job efficiency: 2,737.52 LCY/Hour

Truck Unit Production 1,766.75 LCY/Hour Adjusted for job efficiency: 1,466.40 LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 2,932.80 LCY/Hour
Adjusted single truck/loader team production: 2,737.52 LCY/Hour
Adjusted multiple truck/loader team production: **2,737.52** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **15.15** Hours

Unit cost: $0.770 /LCY Total job cost: **$31,954**

DEMOLITION WORK

Task description: **Haul Away Liner**

Site: **Cresson Project** Permit Action: TR113 Permit/Job#: M1980244

PROJECT IDENTIFICATION

Task #: 00B State: Colorado Abbreviation: None
Date: 7/11/2019 County: Teller Filename: M244-00B
User: TC1

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 88.40 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
80 Mil Geomembrane Transport	69 30-mile 18CY Truck trips	Hauling only, per mile, 12-18 CY truck - 30 mph average speed	2,070.00	MI	$7.25	$15,013.50
80 Mil Geomembrane Disposal	1	Dump fees - Rubbish only	1,242.00	CY	$9.45	$11,736.90

Job Hours: 0.00 **Subtotal (unadjusted): $26,750.40** **Total Cost (adjusted for location): $23,647.35**

BULLDOZER RIPPING WORK

Task description: **Rip surface**

Site: **Cresson Project** Permit Action: TR113 Permit/Job#: M1980244

PROJECT IDENTIFICATION

Task #: 00C State: Colorado Abbreviation: None
Date: 7/11/2019 County: Teller Filename: M244-00C
User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU Horsepower: 574
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$140.61	NA
Operating Cost/Hour:	$135.35	100
Ripper Ownership Cost/Hour:	$18.34	NA
Ripper Operating Cost/Hour:	$10.80	100
Operator Cost/Hour:	$41.24	NA
Total Unit Cost/Hour:	$346.33	
Total Fleet Cost/Hour:	**$346.33**	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 1.54 acres Rip Depth (ft): 1.00 Volume: 2,485 BCY or CCY

Source of estimated quantity: Ref. 6/17/19 Adeq. Response, Item #8

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.87	feet/pass
Average Ripping Width:	8.67	feet/pass
Average Ripping Length:	348.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.988	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	0.988	Acres/hr
Site Altitude:	10,000	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier
Adjusted Hourly Unit Production:	0.82	Acres/hr
Adjusted Hourly Fleet Production:	**0.82**	Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **1.88** Hours

Unit cost: $422.152 Per acre Total job cost: **$650**

BULLDOZER WORK

Task description: **Grade Perimeter Berm**

Site: **Cresson Project** Permit Action: TR113 Permit/Job#: M1980244

PROJECT IDENTIFICATION

Task #: 00D State: Colorado Abbreviation: None
Date: 7/11/2019 County: Teller Filename: M244-00D
User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU
Horsepower: 574
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$140.61	NA
Operating Cost/Hour:	$135.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.24	NA

Total unit Cost/Hour: $317.20
Total Fleet Cost/Hour: **$317.20**

MATERIAL QUANTITIES

Initial Volume: 1,481
Swell factor: 1.000
Loose volume: **1,481** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 55 feet
Unadjusted hourly production: 2,670.0 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 10,000 feet

Material weight: 2,800 lbs/LCY

Weight description: Granite - Broken

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:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.821	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5520

Adjusted unit production: 1,473.84 LCY/hr

Adjusted fleet production: **1473.84** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.215/LCY

Total job time: **1.00** Hours
Total job cost: **$319**

TRUCK/LOADER TEAM WORK

Task description: **Remove Liner**

Site: **Cresson Project** Permit Action: TR113 Permit/Job#: M1980244

PROJECT IDENTIFICATION

Task #: 0BB State: Colorado Abbreviation: None
Date: 7/11/2019 County: Teller Filename: M244-0BB
User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 12-18 cy, 6x4
-Loader:	CAT 972H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	NA	NA
Ownership cost/hour:	$23.64	$46.54	NA	NA	NA	NA
Operating cost/hour:	$49.15	$55.81	NA	NA	NA	NA
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	NA	NA	NA
Ripper op. cost/hour:	NA	$0.00	NA	NA	NA	NA
Operator cost/hour:	$32.50	$40.65	NA	NA	NA	NA
Unit Subtotals:	$105.28	$143.00	NA	NA	NA	NA
Number of Units:	4	1	0	0	0	0
Group Subtotals:	Work:	$564.12	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$564.12**

MATERIAL QUANTITIES

Initial volume: 1,242 CCY Swell factor: 1.000
Loose volume: **1,242** LCY

Source of estimated volume: Ref. 6/17/19 Adeq. Response, Item #8
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: 21 Pounds/LCY
Description: User Provided
Rated Payload: 50,300 Pounds

Payload Capacity: 2,395.24 LCY

Truck Bed (volume) Basis:

Struck Volume:	12.00	LCY
Heaped Volume:	18.00	LCY
Average Volume:	15.00	LCY
Adjusted Volume:	18.00	LCY

Final Truck Volume Based on Number of Loader Passes: **14.70** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.600	LCY (heaped)
Bucket Fill Factor:	0.875	Loose material - 1" and over (85 - 90%) 0.875
Adjusted Capacity:	**4.900**	LCY

Job Condition Corrections: Site Altitude (ft.): 10000 feet

	Truck	Loader	Source
Altitude Adj:	0.970	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.805**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 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): 0.525 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:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Operation:	Inconsistent 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 Loader Cycle Time:	**0.585**	minutes
	Net Load Time per Truck:	**1.270**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.515	Minutes
Truck Load Time:	1.270	Minutes	Adjusted for site altitude:	1.270	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.928	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	13200.00	-8.00	3.00	-5.00	2938	4.632

Haul Time: **4.632** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	13200.00	8.00	3.00	11.00	1584	8.344

Return Time: **8.344** minutes
Total Truck Cycle Time: **15.689** minutes

Loading Tool unit Production 493.99 LCY/Hour Adjusted for job efficiency: 410.01 LCY/Hour

Truck Unit Production 56.22 LCY/Hour Adjusted for job efficiency: 46.66 LCY/Hour

Optimal No. of Trucks: 9 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 186.64 LCY/Hour
Adjusted single truck/loader team production: 186.64 LCY/Hour
Adjusted multiple truck/loader team production: **186.64** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **6.65** Hours

Unit cost: $3.023 /LCY Total job cost: **$3,754**

ATTACHMENT A

M-1980-244 Cresson Project
TR-113 Leach Cell Study
Quantity Estimates

Assumed ore density	100	lbs/ft3

Berm Volume (Ref. 7/10/19 Adeq. Response, Item #8)

Weight	2,000	tons, or	4,000,000	lbs
Volume	40,000	FT3 or	1,481	**CY**

Ore Volume (Ref. 6/17/19 Adeq. Response, Item #3)

Weight	56,000	tons, or	1.12E+08	lbs
Volume	1,120,000	FT3 or	41,481	**CY**

Liner Volume (Ref. 6/17/19 Adeq. Response, Item #8)

Area	67049	ft2					
"Swell" Thickness	6	inches or	0.5	ft = >	33524.5	FT3 or	1,242 **CY**
					On Road Truck Volume:	18	**CY**
					No. of Truck Trips:	69	

Liner Weight

Density	0.933	g/cc OR	58.24532	lbs/ft3
Thickness	0.08	inches or	0.006667	ft
Area	67049	ft2		
Liner Volume (no swell)	447.0	FT3 or		
Weight	26,035	Lbs		
"Swell Density	21	**lbs/CY**		

(Ref. Oct. 2016 typical Agru 80 mil LLDPE Microspike quality certificate from SGVLF Phase 1 Record of Construction Report)

Tasks	Description	Haul/Push Distance	Reference
A	Remove stacked ore	1126 ft	(Ref. 6/17/19 Adeq. Response, Item #7)
B	Remove/Haul away liner	Not provided, assume 2.5 miles to Hwy 67 + 30 miles round trip to landfill	
C	Rip surface	1.54 Acres	(Ref. 6/17/19 Adeq. Response, Item #8)
D	Grade perimeter berm	55 ft	(Ref. 6/17/19 Adeq. Response, Fig. 2)