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

1313 Sherman Street, Room 215
Denver, CO 80203

March 31, 2017

Bruce Humphries
Regulatory Permits Management, Inc.
22151 E. Euclid Pl.
Aurora, CO 80016

RE: Westhoff Pit, M-1977-094, Amendment No. 1 (AM01), Adequacy Review No. 1

Dear Mr. Humphries:

The Colorado Division of Reclamation, Mining, and Safety (Division), deemed the above referenced application complete on February 3, 2017. The Division has conducted a review of the application and have identified several items that will need to be addressed prior to the approval of the application. These items are listed below. The Division is required to issue a decision on the application by May 4, 2017. If you need additional time to address these items, you must request additional time in writing. If the decision date arrives and there are outstanding adequacy items, the Division may deny the application.

Rule 6.4.3, Exhibit C – Pre-mining and Mining Plan Map(s) of Affected Land

1. The proposed permit boundary is unclear. The Exhibit C map shows a "Boundary" and a "Modified Boundary" polygon. The proposed permit boundary needs to be clearly labeled and all other superfluous boundary lines need to be removed. Please revise the Exhibit C map accordingly.

2. Please list the owner's name of the fence that is depicted on the northeast portion of the site.

Rule 6.4.5, Exhibit E – Reclamation Plan

Rule 6.4.5(2)(c),

3. On page 33 of the application, the applicant indicated that the final slopes will be mined at a 3:1 horizontal to vertical ratio where possible and that some rock highwalls may remain for raptors. Also the retention of highwalls is discussed on page 34 and 37. The designated post mine land used proposed for the site is rangeland. In accordance with Rule 3.1.10(3), if the operator's choice of reclamation is for range, the land shall be restored to slopes commensurate with the proposed land use and shall not be too steep to be traversed by livestock. Given this, the proposal to leave highwalls in place is not acceptable given the proposed post mine land use. Please revise the reclamation plan to backfill and grade all the mine slopes to a 3:1 horizontal to vertical ratio. Or the applicant may revise the reclamation plan to reclaim the site to both a

rangeland and wildlife habitat post mine land use. If the latter option is chosen the applicant must address the next adequacy review item.

4. Rule 3.1.5(3) states that if not eliminated, highwalls will be stabilized. If hallwalls will remain on site, the Division will require that a Geotechnical Stability Exhibit be submitted to demonstrate that the highwalls will be stable. The applicant may either revise the reclamation plan text to indicate that all mine slopes will be graded and/or backfilled to a 3:1 horizontal to vertical ratio or provide an appropriate Geotechnical Stability Exhibit per Rule 6.5(2).

5. In section 3.1.9, the operator provides a brief description of how the growth media will remain in place for the mine areas that fall within the Sa soils unit. Portions of the Phase 1, 2, 3, 4 and 6 mining areas fall within the CbC (Colby Loam) and ShD (Stoneham loam) series that have soil horizons that are appropriate to salvage. No description of the depth of topsoil to be salvaged is provided for these areas. Please describe the depth of topsoil to be removed and salvaged for reclamation for the mining areas that fall within the CbC and ShD soil unit.

Rule 6.4.6; Exhibit F – Reclamation Plan Map

6. The reclamation plan map depicts the physical appearance of the area of the affected land and the proposed topography of the area with contour lines of sufficient detail to portray the direction and rate of slope of the reclaimed land for the AM01 area. The post mine slopes depicted on the map for the north end and east ends of mining Phases 1, 2, 4 and 5 show the post mine slopes to range from a 2.2 to 2.5:1 horizontal to vertical ratio slopes. The reclamation plan narrative indicates that most of the mine slopes should be graded to a 3:1 horizontal to vertical ratio. Please revise the reclamation contours on the map to reflect that the post mine slopes will be graded to a 3:1 horizontal to vertical ratio.

7. In accordance with Rule 6.4.6(b) the reclamation plan map must portray the proposed final land use for each portion of the affected area. Since the applicant proposes to reclaim the site to rangeland, please add a notation that the entire affected area will be reclaimed to rangeland.

8. The proposed permit boundary of the area is not clear. Similar to item #1 above, please revise the map to clearly show what the amended permit boundary will be.

Rule 6.4.12, Reclamation Costs

The applicant submitted a reclamation cost for the Phase 1 mining area. The Division conducted a pre-operation inspection of the site on March 30, 2017 and will be conducting a cost estimate for the current disturbance at the site and will be initiating a surety increase revision. Given this and the current proposed phased mining plan, the Division conducted a reclamation cost estimate for AM01 only to reclaim the Phase 1 mining area. This estimate is enclosed for your review. The Division's AM01 estimate does not include equipment mobilization costs as these costs will be included in the estimate the

Division conducts for the forthcoming surety increase revision. On approval of AM01, the operator will need to submit and receive approval of the additional bond for the Phase 1 mine area prior to initiating mining and reclamation operations within the Phase 1 area. To be clear the bond required for the Phase 1 mine area will need to be added to the financial warranty finalized with the forth coming surety increase revision.

Other Issues:

The Division received a comment letter from History Colorado (State Historic Preservation Officer) on February 28, 2017. This letter was forwarded to you via e-mail. The letter indicated a site is located partially within the proposed permit area that has been determined to be eligible for the National Register of Historic Places. Based on a conversation with Robert Cronk with History Colorado, the site in question is not listed on the State Register of Historic Places, thus State Historic Preservation Officer clearance is not necessary.

The Division received a memorandum from the Colorado Division of Water Resources on February 13, 2017. This memorandum was forwarded to you via e-mail.

This concludes the Division's preliminary review of the AM01 application. As indicated above, the Division is required to issue a decision on the application by May 4, 2017. If you need additional time to address the issues above, please request an extension of the decision date.

If you have any questions feel free to contact me at (303) 866-3567, extension 8120.

Sincerely,

Jared Ebert
Environmental Protection Specialist III

Enclosures: *1.) March 31, 2017 CIRCES Reclamation Cost Estimate*

CC: Greg Westhoff, Morgan Sand and Gravel, Inc. *via-email*

COST SUMMARY WORK

Task description: **Westhoff Pit, AM01 - Phase 1 Area Reclamation**

Site: **Westhoff Pit** Permit Action: AM01 Permit/Job#: M1977094

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 3/31/2017 County: Morgan Filename: M094-000
User: JLE

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Backfill and Grade Phase I area - AM01	DOZER	1	10.75	$2,622.00
002	Replace Topsoil over Phase 1 area, 4 acres. - AM01	SCRAPER1	1	4.14	$3,324.00
003	Revegetation of Phase 1 area - AM01	REVEGE	1	2.00	$5,277.00
		SUBTOTALS:		**16.89**	**$11,223**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$226.70
Performance bond:	1.05	Total =	$117.84
Job superintendent:	8.45	Total =	$616.91
Profit:	10.00	Total =	$1,122.30
		TOTAL O & P =	$2,083.75
		CONTRACT AMOUNT (direct + O & P) =	$13,306.75

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	0.00	Total =	0.00
Engineering work and/or contract/bid preparation:	0.00	Total =	$0.00
Reclamation management and/or administration:	5.00		$665.34
CONTINGENCY:	0.00	Total =	$0.00
		TOTAL INDIRECT COST =	$2,749.09
		TOTAL BOND AMOUNT (direct + indirect) =	**$13,972.09**

BULLDOZER WORK

Task description: **Backfill and Grade Phase I area - AM01**

Site: **Westhoff Pit** Permit Action: AM01 Permit/Job#: M1977094

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 3/31/2017 County: Morgan Filename: M094-001
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$100.59	NA
Operating Cost/Hour:	$87.23	100
Ripper own. Cost/Hour:	$10.94	NA
Ripper op. Cost/Hour:	$3.41	50
Operator Cost/Hour:	$41.85	NA

Total unit Cost/Hour: $244.02
Total Fleet Cost/Hour: **$244.02**

MATERIAL QUANTITIES

Initial Volume: 10,070
Swell factor: 1.330
Loose volume: **13,393** LCY

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

HOURLY PRODUCTION

Average push distance: 80 feet
Unadjusted hourly production: 1,460.1 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -30 %
Average site altitude: 5,060 feet

Material weight: 2,900 lbs/LCY

Weight description: Decomposed rock - 50% Rock, 50% Earth

Job Condition Correction Factor Source

Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8535

Adjusted unit production: 1,246.20 LCY/hr

Adjusted fleet production: **1246.2** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: $0.196/LCY

Total job time: **10.75** Hours

Total job cost: **$2,622**

SCRAPER TEAM WORK

Task description: **Replace Topsoil over Phase 1 area, 4 acres. - AM01**

Site: **Westhoff Pit** Permit Action: AM01 Permit/Job#: M1977094

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 3/31/2017 County: Morgan Filename: M094-002
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 627G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	50	25	25
Ownership cost/hour:	$99.75	NA	NA	$100.59	$28.02	$24.01
Operating cost/hour:	$118.23	NA	NA	$43.62	$7.07	$8.53
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	NA	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$31.26	NA	NA	$41.85	$28.90	$21.39
Unit Subtotals:	$249.24	NA	NA	$186.05	$63.99	$53.94
Number of Units:	2	0	0	1	1	1
Group Subtotals:	Work:	$498.48	Support:	$186.05	Maint:	$117.93

Total work team cost/hour: **$802.46**

MATERIAL QUANTITIES

Initial volume: 3,227 CCY Swell factor: 1.000
Loose volume: **3,227** LCY

Source of estimated volume: 6” over 4 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 1,600 lbs/LCY
Material description: Top Soil
Rated Payload: 52,800 pounds
Payload Capacity: 33.00 LCY

Scraper Bowl (volume) Basis:

Struck Volume: 15.70 LCY
Heaped Volume: 22.00 LCY
Average Volume: 18.85 LCY
Adjusted Capacity: **18.85** LCY

Cycle Time:

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

Job Condition Correction: Site Altitude: 5060 feet

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

Travel Time:

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	875.00	0.00	3.00	3.00	2824	0.49

Haul Time: **0.49** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	875.00	0.00	3.00	3.00	2874	0.42

Return Time: **0.42** minutes

Total Scraper team cycle time: **2.41** minutes
Adjusted for job conditions: 779.03 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 779.03 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **779.03** LCY/Hour

Unadjusted unit production/hour: 938.59 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **4.14** Hours

Unit cost: $1.030 /LCY Total job cost: **$3,324**

REVEGETATION WORK

Task description: **Revegetation of Phase 1 area - AM01**

Site: **Westhoff Pit** Permit Action: AM01 Permit/Job#: M1977094

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 3/31/2017 County: Morgan Filename: M094-003
User: JLE

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Potassium nitrate, 13-46-0	40.00	pound	$1.23	$49.20
			Total Fertilizer Materials Cost/Acre	**$49.20**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$144.62
Total Fertilizer Application Cost/Acre	**$144.62**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$106.29
Total Tilling Cost/Acre	**$106.29**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Lovington	0.50	8.16	$8.13
Sand Dropseed	0.50	59.69	$5.42
Prairie Clover, Purple - Kaneb	0.50	3.42	$28.27
Sideoats Grama - Vaughn	5.00	16.41	$50.00
Western Wheatgrass - Native	3.00	7.58	$21.00
Totals Seed Mix	9.50	95.25	**$112.81**

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	$261.00	$522.00
Total Mulch Materials Cost/Acre				**$522.00**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$66.02
Total Mulch Application Cost/Acre	**$66.02**

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:	4	Cost /Acre:	$1,232.94
Estimated Failure Rate:	25%	Cost /Acre*:	$344.81
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	**$4,931.76**
Reseeding Job Cost:	**$344.81**
Total Job Cost:	**$5,277**
Job Hours:	**2.00**