



COLORADO

Division of Reclamation,
Mining and Safety


Department of Natural Resources

MINERALS PROGRAM INSPECTION REPORT

PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Byzantine Quarry	MINE/PROSPECTING ID#: M-2007-014	MINERAL: Limestone (general), granite, granite gneiss and sandstone (silica, stone, quartzite)	COUNTY: Fremont
INSPECTION TYPE: Surety-Related Inspection	WEATHER: Clear	INSP. DATE: September 14, 2023	INSP. TIME: 11:40
OPERATOR: Holcim - WCR, Inc.	OPERATOR REPRESENTATIVE: Lu Toxvard & Kurt Thurmman	TYPE OF OPERATION: 112c - Construction Regular Operation	

REASON FOR INSPECTION: Surety Related	BOND CALCULATION TYPE: Complete Bond	BOND AMOUNT: \$90,052.00
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None
INSPECTOR(S): Timothy Cazier, P.E.	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: January 31, 2024

The following inspection topics were identified as having Problems or Possible Violations. OPERATORS SHOULD READ THE FOLLOWING PAGES CAREFULLY IN ORDER TO ASSURE COMPLIANCE WITH THE TERMS OF THE PERMIT AND APPLICABLE RULES AND REGULATIONS. If a Possible Violation is indicated, you will be notified under separate cover as to when the Mined Land Reclamation Board will consider possible enforcement action.

INSPECTION TOPIC: Revegetation

PROBLEM/POSSIBLE VIOLATION: Problem: There are state-listed noxious weeds (Diffuse knapweed) present on site. This is a problem for failure to employ weed control methods for state listed noxious weed species within the permitted area, and to reduce the spread of weeds to nearby areas as required by Section 3.1.10 (6) of the rule.

CORRECTIVE ACTIONS: Implement approved weed control plan and provide proof to the Division that this has been done.

CORRECTIVE ACTION DUE DATE: 4/01/24

OBSERVATIONS

This inspection was conducted as part of a Succession of Operator (SO) application. The SO application was called complete for the purpose of filing on 9/5/2023. A draft bond estimate was generated prior to this inspection and provided to Mr. Thurmann during the inspection. A copy is attached to this report.

The Byzantine Quarry access road is located approximately 2.5 miles north of Hwy 50 on Fremont Co Rd 69. This is a 112c mine producing primarily decorative stone for landscaping. It was not operating at the time of the inspection. Site representatives stated the site is open for material sales twice a month on Fridays.

Availability of Records: Annual reports are current, having been filed through December 2022. The previous inspection was on June 15, 2021. The approved post-mine land use is rangeland. There were no open infractions prior to the inspection. Both the surface and minerals are privately owned.

Acid And Toxic Materials: No acid or toxic materials are involved in or stored at this operation.

Backfilling and Grading: Benches are to be ~30 feet high by ~55 feet wide. The 55-foot width includes 15 feet of "horizontal" highwall face as the 30-foot face should be excavated at 0.5H:1V.

Excess Spoil and Dev. Waste: No overburden piles were observed.

Financial Warranty: The DRMS currently holds a \$90,052 bond which was last updated in 2013. As part of the SO review process, the bond was reviewed and updated with current unit costs. A draft estimate for a **\$218,952 bond** was provided to Mr. Thurmann during the inspection and is attached to this report. This is a phased bond and includes both the "Stockpile Area and Crusher Setup" area (46.23 acres) and Phase 1 (58.13 acres). Subsequent to this inspection, Holcim-WCR indicated that they accept this revised bond estimate. **This report will accompany a surety increase letter.**

Fish and Wildlife: No impact to wildlife was observed.

Hydrologic Balance: No standing water was observed in the pit and no exposed groundwater was observed.

Gen. Compliance with Mine Plan: Only a small part of Phase 1 and a portion of the Stockpile/crusher area have been disturbed, totaling approximately 15 acres, based on a review of Google Earth imagery from 2019. The maximum allowed phased disturbed area is 104.36 acres. Highwalls were estimated to vary between 15 and 20 feet in height and the flat portion varied between 30 and 50 feet. The face of the highwall above the lowest bench appeared to be 0.5H:1V or flatter (see **Photo 1**). The face of the highwall above the second bench was flatter on the upper portion (nearer to 1H:1V), but closer to vertical on the lower portion (see **Photo 2**), presenting an overall face of near 0.5H:1V. The steeper portion of the upper highwall face appeared to be subject to some raveling but appeared to be stable overall. The operation appeared to be in compliance with the approved mine plan.

Off-site Damage: The operation appeared to be confined to the permit boundary, based on Google Earth review and site observations.

Processing Waste: All observed stockpiles (including crusher fines) were characterized by site representatives as product (see **Photo 3**). No processing waste was observed.

Roads: Haul and access roads did not appear to be a source of sediment that could be tracked offsite.

Right of Entry: Holcim-WCR demonstrated ownership of the site as part of the SO application process.

Reclamation Success: No reclamation has been initiated.

Revegetation: A significant amount of Diffuse knapweed was observed (see **Photo 4**). **The presence of this List B noxious weed is cited as a problem on p. 1 of this report.**

Sediment Control: No erosion problems were observed and no BMPs were needed at the time of the inspection.

Signs and Markers: The permit sign was properly posted (see **Photo 5**) near the cattle guard on the access road just west of FCR 69 and boundary markers were observed to delineate the permit boundary.

Permit Stipulations: There are two permit stipulations:

- 1. During each year when development and/or production blasting occurs in the quarry, the Operator shall include a geotechnical section into the annual reclamation report providing updated geotechnical observations and measurements and associated recommendations for quarry development to provide a safe highwall during operations and a long term stable highwall at the time of reclamation. In particular, the geotechnical observations and measurements will include evaluation of the presence or absence of clay filling in geologic structures that dip out of the quarry face, and will evaluate any changes in orientation, spacing, and roughness of geologic structures observed relative to the observations documented in the initial report. [This requirement is current with the December 13, 2023 submittal from HDR.](#)*
- 2. The Applicant must commit to preparing a blasting report for each shot. These reports must be retained by the Operator for at least three years and be available for inspection by the DRMS on demand. Please remember to prepare these reports and keep them on file for at least 3 years. The specific requirements for the blasting report were detailed in the Division's 2013 inspection report.*

Storm Water MGT Plan: No oil or fuel spills observed. Stormwater drains to the sediment pond to prevent offsite discharge.

Structures: No structures were observed within 200 feet of the affected area.

Post Inspection Meeting: The following issues were discussed during the closeout meeting:

- Problem cited – presence of diffuse knapweed. We discussed needing a technical revision (TR) for a noxious weed control plan. A subsequent file review found the approved reclamation plan (Exhibit E) contains the following verbiage: *"Larsen Colorado LLC [original Permittee] will control all prohibited noxious weeds and other weed species which seriously threaten revegetation success in accordance with and in concert with the Fremont County Weed Control Department"* (reference paragraph 3.1.10(6)). As such a TR is not necessary, but the program needs to be initiated and documentation provided to the DRMS to verify its implementation.
- Bond – Mr. Thurmann asked about reducing the affected area to in turn reduce the required financial warranty. The DRMS would require a TR to modify the current approved mine plan. Once that was submitted and approved, Holcim-WCR could follow-up with a surety reduction request.

Please contact Tim Cazier (303)328-5229 or email at tim.cazier@state.co.us if you have any questions regarding this report.

PHOTOGRAPHS



Photo 1. Highwall face at 0.5H:1V or flatter above the lowest bench (looking south).



Photo 2. Highwall face with breakpoint above the upper bench (looking SSW).

PHOTOGRAPHS (cont.)



Photo 3. Product stockpiles on pit floor (looking east from upper bench area).



Photo 4. Diffuse knapweed on north side of product stockpiles (looking east).

PHOTOGRAPHS (cont.)



Photo 5. New permit sign (near cattle guar just west of FCR 69).

Inspection Contact Address

Kurt Thurmann
Holcim - WCR, Inc.
1687 Cole Blvd, Suite 300
Golden, CO 80401

Enclosure: Final SO-2 Reclamation Cost Estimate

ec: Hunter Ridley, DRMS
DRMS file

GENERAL INSPECTION TOPICS

The following list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each

(AR) RECORDS----- <u>Y</u>	(FN) FINANCIAL WARRANTY----- <u>Y</u>	(RD) ROADS----- <u>Y</u>
(HB) HYDROLOGIC BALANCE----- <u>Y</u>	(BG) BACKFILL & GRADING----- <u>Y</u>	(EX) EXPLOSIVES----- <u>Y</u>
(PW) PROCESSING WASTE/TAILING---- <u>Y</u>	(SF) PROCESSING FACILITIES----- <u>Y</u>	(TS) TOPSOIL----- <u>Y</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>Y</u>	(FW) FISH & WILDLIFE----- <u>Y</u>	(RV) REVEGETATION---- PB
(SM) SIGNS AND MARKERS----- <u>Y</u>	(SP) STORM WATER MGT PLAN---- <u>N</u>	(RS) RECL PLAN/COMP-- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>Y</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>Y</u>
(AT) ACID OR TOXIC MATERIALS----- <u>Y</u>	(OD) OFF-SITE DAMAGE----- <u>Y</u>	

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / **PB = Problem cited** / PV = Possible violation cited

COST SUMMARY WORK

Task description: Cost Summary

Site: Byzantine Quarry

Permit Action: SO-2

Permit/Job#: M2007014

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 9/12/2023

County: Fremont

Filename: M014-000

User: TC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
101	Regrade Portions of Site to 10% Slopes-Only Portions to Revg	DOZER	2	66.92	\$35,082
102	Reapply Topsoil to Portions of Site to be Revegetated	DOZER	2	14.02	\$7,350
103	Reveg Portions of the Site (TR01 revised seed mix)	REVEGE	1	0.00	\$122,684
104	Removal of out-buildings	DEMOLISH	1	0.00	\$6,618
105	Mobilize/Demobilize Equipment	MOBILIZE	1	2.30	\$3,118
<u>SUBTOTALS:</u>				83.24	\$174,852

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$3,532

Performance bond: 1.05

Total = \$1,836

Job superintendent: 41.62

Total = \$2,709

Profit: 10.00

Total = \$17,485

TOTAL O & P = \$25,562

CONTRACT AMOUNT (direct + O & P) = \$200,414

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$0

Total = \$0

Engineering work and/or contract/bid preparation: 4.25

Total = \$8,518

Reclamation management and/or administration: 5.00

\$10,021

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$44,100

TOTAL BOND AMOUNT (direct + indirect) = \$218,952

BULLDOZER WORKTask description: **Regrade Portions of Site to 10% Slopes-Only Portions to Revg**Site: **Byzantine Quarry**Permit Action: SO-2Permit/Job#: M2007014**PROJECT IDENTIFICATION**Task #: 101State: ColoradoAbbreviation: NoneDate: 9/12/2023County: FremontFilename: 101User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D7R DS XR Series IIHorsepower: 240Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$114.76	NA
Operating Cost/Hour:	\$91.98	100
Ripper own.		
Cost/Hour:	\$9.06	NA
Ripper op. Cost/Hour:	\$5.02	100
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$262.12Total Fleet Cost/Hour: **\$524.24****MATERIAL QUANTITIES**Initial Volume: 20,000Swell factor: 1.330Loose volume: **26,600 LCY**Source of estimated volume: Division of Reclamation, Mining & Safety

Source of estimated swell

factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 200 feet

Unadjusted hourly

production: 410.8 LCY/hrMaterials consistency description: Consolidated stockpile 1.0

Average push

gradient: -10 %Average site altitude: 6,100 feetMaterial weight: 2,900 lbs/LCYWeight description: Decomposed rock - 50% Rock, 50% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4838

Adjusted unit
production: 198.75 LCY/hr

Adjusted fleet
production: **397.5** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$1.319/LCY

Total job time: **66.92** Hours

Total job cost: **\$35,082**

BULLDOZER WORKTask description: **Reapply Topsoil to Portions of Site to be Revegetated**Site: **Byzantine Quarry**Permit Action: SO-2Permit/Job#: M2007014**PROJECT IDENTIFICATION**Task #: 102State: ColoradoAbbreviation: NoneDate: 9/12/2023County: FremontFilename: 102User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D7R DS XR Series IIHorsepower: 240Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$114.76	NA
Operating Cost/Hour:	\$91.98	100
Ripper own.		
Cost/Hour:	\$9.06	NA
Ripper op. Cost/Hour:	\$5.02	100
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$262.12Total Fleet Cost/Hour: **\$524.24****MATERIAL QUANTITIES**Initial Volume: 13,500Swell factor: 1.125Loose volume: **15,188 LCY**Source of estimated volume: Division of Reclamation, Mining & Safety

Source of estimated swell

factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly
production: 1,022.9 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push
gradient: -10 %Average site altitude: 6,100 feetMaterial weight: 2,650 lbs/LCYWeight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5295

Adjusted unit
production: 541.63 LCY/hr
Adjusted fleet
production: **1083.26** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.484/LCY

Total job time: **14.02** Hours
Total job cost: **\$7,350**

REVEGETATION WORKTask description: Reveg Portions of the Site (TR01 revised seed mix)Site: Byzantine QuarryPermit Action: SO-2Permit/Job#: M2007014PROJECT IDENTIFICATIONTask #: 103State: ColoradoAbbreviation: NoneDate: 9/12/2023County: FremontFilename: 103User: TC1Agency or organization name: DRMSFERTILIZING**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Sodium nitrate, 16-0-0	20.00	pound	\$1.32	\$26.40
Triple superphosphate, 0-46-0	40.00	pound	\$0.89	\$35.60
			Total Fertilizer Materials Cost/Acre	\$62.00

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$41.82
Total Fertilizer Application Cost/Acre	\$41.82

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$112.82
Total Tilling Cost/Acre	\$112.82

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.30	4.90	\$4.79
Indian Ricegrass - Nespar	1.20	3.88	\$10.65
Little Bluestem - Pastura	0.70	4.18	\$9.44
Sideoats Grama - Vaughn	1.40	4.60	\$11.73
Streambank Wheatgrass - Sodar	1.70	5.54	\$9.69
Western Wheatgrass - Arriba	6.40	16.16	\$41.60
Totals Seed Mix	11.70	39.26	\$87.90

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
Hydromulch, 1 ton/ac. rate {Materials Only}	1.00	ACRE	\$1,655.28	\$1,655.28
Total Mulch Materials Cost/Acre				\$1,655.28

Application

Description	Cost /Acre
Hay bales, staked, >3h:1v (MEANS 31 25 14.16 1310)	\$3.58
Total Mulch Application Cost/Acre	\$3.58

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: 50 Cost /Acre: \$2,230.62
 Estimated Failure Rate: 10% Cost /Acre*: \$2,230.62
 *Selected Replanting Work Items: FERTILIZING, TILLING, SEEDING,
MULCHING

Initial Job Cost: **\$111,531.00**
 Reseeding Job Cost: **\$11,153.10**
 Total Job Cost: **\$122,684**
 Job Hours: **0.00**

DEMOLITION WORK

Task description: Removal of out-buildings

Site: Byzantine Quarry

Permit Action: SO-2

Permit/Job#: M2007014

PROJECT IDENTIFICATION

Task #: 104

State: Colorado

Abbreviation: None

Date: 9/12/2023

County: Fremont

Filename: 104

User: TC1

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 94.10 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Small shack	8'x8'x9'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	576.00	CF	\$0.38	\$219.69
Scale House	15'x12'x9'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	1,620.00	CF	\$0.38	\$617.87
Small shack slab	8'x12'x6"	Pavement, concrete, demolition only, to 6 in. thick - Mesh reinforcing	10.67	SY	\$13.55	\$144.58
Scale House slab	15'x15'x6"	Pavement, concrete, demolition only, to 6 in. thick - Mesh reinforcing	25.00	SY	\$13.55	\$338.75
Scale	40'x12'	Bridge Demolition - Steel	480.00	SF	\$11.90	\$5,712.00

Job Hours: 0.00

Subtotal
(unadjusted): \$7,032.89

Total Cost
(adjusted for location): \$6,617.95

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilize/Demobilize Equipment**Site: **Byzantine Quarry**Permit Action: SO-2Permit/Job#: M2007014**PROJECT IDENTIFICATION**Task #: 105State: ColoradoAbbreviation: NoneDate: 9/12/2023County: FremontFilename: 105User: TC1Agency or organization name: DRMS**EQUIPMENT TRANSPORT RIG COST**Shift basis: 1 per dayCost Data Source: CRG DataTruck 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:	\$20.26	\$36.04	\$47.05
Operating Cost/Hour:	\$39.51	\$76.08	\$82.85
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$82.29	\$158.17	\$175.95

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
Cat D7R DS XR Series II	32.01	\$114.76	\$158.17	2	\$545.86	\$316.34	\$500.00
Hydroseeder with Tractor	28.00	\$12.80	\$158.17	1	\$170.97	\$158.17	\$250.00

Subtotals: **\$716.83** **\$474.51** **\$750.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 2,500 Gal.	\$34.27	1	\$34.27	\$34.27

Subtotals: **\$34.27** **\$34.27**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>CAÑON CITY</u>	
Total one-way travel distance:	<u>3.00</u>	miles
Average Travel Speed:	<u>40.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$3,112.36</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$5.14</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.08</u>	<u>0.08</u>
Return Time (Hours):	<u>0.08</u>	<u>0.08</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.15</u>	<u>0.15</u>

JOB TIME AND COST

Total job time:	<u>2.30</u>	Hours
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Total job cost:	<u>\$3,118</u>
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