


**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: Hazeltine Mine	MINE/PROSPECTING ID#: M-2004-031	MINERAL: Sand and gravel	COUNTY: Adams
INSPECTION TYPE: Monitoring	INSPECTOR(S): Jared L. Ebert and Wally Erickson	INSP. DATE: November 8, 2017	INSP. TIME: 09:30
OPERATOR: Aggregate Industries - WCR, Inc.	OPERATOR REPRESENTATIVE: Connie Davis and Mike Refer	TYPE OF OPERATION: 112c - Construction Regular Operation	

REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: None	BOND AMOUNT: \$670,602.00
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None
WEATHER: Clear	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: December 22, 2017

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: Availability Of Records

PROBLEM: The water monitoring data required for monitoring well HZMW-2 and for staff gauge SG-2 was incomplete or missing for the 2017 monitoring year submitted with the 2017 annual report. This is a problem at this time for failure to submit the required water monitoring report data in accordance with Rule 3.1.7(7) and for failure to comply with the condition of a reclamation permit in accordance with C.R.S. 34-32.5-109(2)(a).

CORRECTIVE ACTIONS: Submit the results of the water monitoring for HZMW-2 and SG-2 to the Division for the 2017 monitoring year.

CORRECTIVE ACTION DUE DATE: 12/29/17

INSPECTION TOPIC: Hydrologic Balance, Off-Site Damage

PROBLEM: The Orr property is still flooded and the Operator has failed to mitigate the disturbance to the prevailing hydrologic balance in the surrounding area and has failed to protect areas outside of the affected land from damage. This is a problem at this time pursuant to C.R.S. 34-32.5-116(4)(h) and 34-32.5-116(4)(i).

CORRECTIVE ACTIONS:

- (1) The Operator shall take immediate action to sufficiently dry the surface of the Orr property. Mitigation measures shall be taken immediately and the Orr property must be sufficiently dry by the corrective action due date.

- (2) Submit a Technical Revision to the Permanent Plan for the Orr property so the mitigation measures to be taken for the Orr property will function year round with little maintenance.

CORRECTIVE ACTION DUE DATE: 1/31/18

OBSERVATIONS

This was a monitoring inspection of the Hazeltine Mine, DRMS permit number M-2004-031, operated by Aggregate Industries - WCR, Inc. (Operator or AI). I, Jared Ebert and Wally Erickson with the Colorado Division of Reclamation Mining and Safety (Division or DRMS) conducted the inspection. This inspection was conducted in response to a complaint received by the Division from an adjacent landowner, Fred Orr with Equity Funding, LLC. Mr. Erickson and I inspected both Mr. Orr's property located adjacent to the mine site and the Hazeltine Mine site. Mr. Steve O'Brian with Environment Inc. a consultant representing Mr. Orr accompanied us during the inspection of the Orr property. Mr. Orr was unable to attend the inspection. Mr. Mike Refer, Mrs. Connie Davis and Mr. Joel Bolduc with AI accompanied us during the inspection of the Hazeltine Mine. Mr. Tom Hessman and Mr. Justin Stoeber with Tetra Tech, consultants working for the Operator also accompanied us during the inspection of the Hazeltine Mine site.

The Division received a complaint letter from Mr. Orr on September 29, 2017. Overall, the complaint letter raised concerns regarding the groundwater mounding issue occurring at the site. Mr. Orr also raised concerns about the mitigation measures the Operator committed to complete and the timing of the completion of the mitigation measures. Mr. Orr is conducting groundwater elevation monitoring on his property to measure the effectiveness of the mitigation measures put in place by the Operator. According to Mr. Orr, the mitigation measures have not had any significant impact on the groundwater elevations on his property.

On March 25, 2015 the Colorado Mined Land Reclamation Board (Board) found the Operator in Violation of C.R.S 34-32.5-116(4)(h) for failing to minimize the disturbance to the prevailing hydrologic balance in the surrounding area. The Board imposed two corrective actions on the Operator. First, the Operator was to submit a temporary groundwater mounding mitigation plan "Temporary Plan" to the Division in the form of a Technical Revision. The plan was ordered to commence within five (5) days of approval of the Technical Revision. Second, the Operator was ordered to submit a Permanent Groundwater Mounding Mitigation Plan "Permanent Plan" to the Division no later than ninety (90) days after the effective date of the Order in the form of a Technical Revision or Amendment. The Operator was ordered to implement the Permanent Plan within (30) days of the Division's approval.

The Operator submitted the Temporary Plan in the form of Technical Revision No. 4 (TR04) on May 21, 2015. TR04 was approved on June 15, 2015. Based on a review of the Division's files it is not clear if the Operator implemented the Temporary plan within the Board ordered five (5) day deadline. However, it does appear the Operator did implement the Temporary Plan. The Division conducted an inspection of the Orr property on August 19, 2015. The inspection report documented the temporary plan had been completed, the groundwater level had dropped roughly 2 feet and that the Orr property was much dryer.

The Operator submitted Amendment No. 1 (AM01) which included the Permanent Plan on December 16, 2015. On November 16, 2016, the Board approved AM01 over objections. The effective date of the Board Order for the AM01 approval was December 5, 2016. The Board ordered the Operator to implement the Permanent Plan by January 4, 2017. Based on documentation submitted by the Operator, it appears the

Operator implemented the Permanent Plan on November 23, 2016. The Operator's Permanent Plan approved with AM01 included the design of a gravity fed groundwater drain that will be referred to here as the Orr Drain and reservoir outlet pipes. The final AM01 design for the Orr Drain and reservoir outlet pipes were included in a MEMO from Tetra Tech to the Operator dated August 24, 2016. The purpose of the drain was to mitigate elevated groundwater conditions on the Orr property resulting from the installation of the slurry wall surrounding the Hazeltine Mine pit. The Orr Drain allows groundwater to flow into the Hazeltine Mine pit as controlled by the Operator. The location of the Orr drain is near the location of the surface water channel known as the Bull Seep. The Bull Seep was relocated by the Operator to facilitate the mining operations. The Bull Seep now flows on the east side of the Hazeltine Mine between the pit and the Orr property. The Orr drain was not designed to convey all the flows from the Bull Seep into the pit. According to the Operator, the Bull Seep conveys water to maintain pre-existing jurisdictional wetlands as well as compensatory wetlands as required by the US Army Corps of Engineers. The design indicated the amount of water necessary to maintain the wetlands and drain the Orr property was not known and that the drain would be operated to regulate the water levels and flows into the mine pit in an effort to accomplish the competing objectives of maintaining the wetlands and draining the Orr property.

We first observed the Orr property with Steve O'Brian. At the time of the inspection, the Fulton Ditch was discharging through the turnout into the Bull Seep. Wetland vegetation is well established throughout the Orr property and standing water was observed throughout the property. A larger pond areas has developed on the northwest side of the Orr property. During the inspection, Mr. O'Brian took groundwater level measurements at three wells installed on the Orr property. They are designated as MW01, 02 and 03. The water elevations of these wells were found to be 5039.34 feet in MW01, 5040.18 feet in MW02 and 5040.27 feet in MW03. Steve O'Brian sent the Division the monitoring results of these wells taken from January 25, 2017 through November 8, 2017. These results are enclosed with this report. Overall, it appears the majority of the Orr property is flooded from both surface and groundwater sources.

After inspecting the Orr property, we observed the Orr Drain with the representatives of AI and their consultants. Mr. Tom Hessman with Tetra Tech provided a brief description of the construction of the Orr drain. The drain consists of an 18 inch pipe installed through the slurry wall. The Operator installed a concrete headwall with a large metal pile wall driven into the slurry wall. The headwall included a gate to close the drain and stop logs. The discharge pipe discharges into a concrete lined channel that crosses the access road for the reservoir. A parshall flume was installed at the top of the pit slope used to measure discharge into the pit. A concrete and rip-rap lined channel allows the Orr Drain discharge to flow into the pit. Mr. Refer provided the Division with documentation that they initiated construction of the Orr Drain on November 23, 2016 and completed the drain on September 22, 2017. On November 21, 2017, the Operator supplied the Division with as-built certification for the Orr Drain. Based on the as-built, the upstream invert elevation of the Orr drain is at 5,036.40 feet about .1 foot lower than the approved design. It appears the Operator has installed the Orr Drain in accordance with the approved plan. At the time of the inspection, the Fulton Ditch was turned out and discharging through the channel on the Orr property into the relocated Bull Seep within the Hazeltine Mine site. In accordance with the approved plan submitted with AM01, the Orr Drain gate was closed because the Fulton Ditch was releasing water to the Bull Seep. The Orr Drain was not discharging with the exception of a very small leak from the pipe. Given this, a pond of water was observed behind the headwall of the Orr Drain approximately 5 feet deep. Monitoring Wells HZMW-2, 11a and 11b were observed. A significant amount of wetland vegetation has established around these wells and water was observed above the base of the casings.

It should be noted that a reservoir outlet pipe system must be installed on the north side of the reservoir to convey Orr Drain flows and release some flood waters when the reservoir is operating at the normal high water surface elevation. As of the date of the inspection, these outlet pipes have not been installed. Prior to when the reservoir becomes operational, the Operator must install these reservoir pipes. Mr. Refer indicated that Aggregate Industries was having difficulty working with the City of Thornton who now owns the reservoir and Denver Water the entity that owns land to the north to obtain an easement to install the reservoir pipes. While the Division sympathizes with these challenges, in order for the Permanent Plan to function as designed when the reservoir is in operation, the Operator must install these outlets pipes.

Availability Of Records:

A review of the Operator's annual reports from the site was conducted. Part of the Operator's approved plan is to monitor groundwater monitoring wells HZMW-2, 11A and 11B adjacent to Mr. Orr's property. Also the Operator committed to monitoring existing staff gauges installed on site. Monitoring of these devices is supposed to occur monthly. Upon review of the Operator's annual report for 2017, monitoring well HZMW-2 was noted to be "unaccessible" on October 11, 2016 and no additional data was submitted for the rest of the reporting year (September 27, 2016 to September 27, 2017). Near HZMW-2, the Operator is monitoring a staff gauge, SG-2. During the 2017 reporting year, for SG-2, between January 2017 through July of 2017, no monitoring data was provided in the annual report. Wells HZMW-11a and 11b were measured monthly for groundwater elevations for the reporting year for 2017.

Based on the available data, the groundwater level reported for monitoring wells HZMW-2, 11a and 11b, it does not appear groundwater levels have dropped below the maximum groundwater elevation reported for the area prior to the completion of the slurry wall. It does not appear the Operator has lowered the groundwater level at the site either temporarily or permanently.

Hydrologic Balance:

Based on the observations made during the inspection, the Orr property is still flooded and the Operator has failed to mitigate the disturbances to the prevailing hydrologic balance in accordance with the Board's order. The Operator is not allowing the Orr Drain to function when the Orr Drain gate is closed which prevents the drawdown of the groundwater. In addition, the Division believes surface water is a significant source of the water flooding Mr. Orr's property because the Bull Seep is not sufficiently conveying the surface water around the Orr property. This issue is cited as a problem at the beginning of this report. The Operator must mitigate this issue in the time specified by the Division or enforcement action will be taken.

PHOTOGRAPHS



Figure 1. Inlet from the Fulton Ditch to the drain that flows to the Bull Seep.



Figure 2. Outlets from the Fulton Ditch to the Bull Seep.



Figure 3. From the turn-out from the Fulton Ditch on the Orr property looking north.



Figure 4. Small pond that has formed on the west side of the Orr property.



Figure 5. From the northeast end of the Orr property looking southwest.



Figure 6. Orr Drain, from the south looking north. Inlet and headwall.



Figure 7. Headwall of the Orr Drain.



Figure 8. Outlet of the Orr Drain.



Figure 9. Parshall Flume of the Orr Drain.



Figure 10. Orr Drain channel run-down into the pit.



Figure 11. Bend in the Bull Seep drainage located north of the Orr Drain. Significant water back-up noted.



Figure 12. Picture taken west of HZMW-11a and 11b looking east. Water observed around the bottom of the well casings.

GENERAL INSPECTION TOPICS

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

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

Y = Inspected and found in compliance / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

Inspection Contact Address

Mike Refer
Aggregate Industries - WCR, Inc.
1687 Cole Blvd., Ste. 300
Golden, CO 80401

Enclosure: 1.) Orr Wells, Monitoring Results

EC: Connie Davis, AI Connie.davis@aggregate-us.com
Fred Orr, fred@5040group.com
Steve O'Brian, Environment-inc@outdrs.net

UPDATED: 11/8/2017

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