




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: Cooley Reservoir & Fulton Wildlife Area	MINE/PROSPECTING ID#: M-1999-034	MINERAL: Sand and gravel	COUNTY: Adams
INSPECTION TYPE: Monitoring	INSPECTOR(S): Jared L. Ebert	INSP. DATE: October 10, 2018	INSP. TIME: 10:00
OPERATOR: Aggregate Industries - WCR, Inc.	OPERATOR REPRESENTATIVE: Connie Davis and Joel Bolduc	TYPE OF OPERATION: 112c - Construction Regular Operation	
REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: Partial Bond	BOND AMOUNT: \$1,510,800.00	
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None	
WEATHER: Cloudy	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: October 24, 2018	

GENERAL INSPECTION TOPICS

This list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each. No problems or possible violations were noted during the inspection. The mine operation was found to be in full compliance with Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials and/or for Hard Rock, Metal and Designated Mining Operations. Any person engaged in any mining operation shall notify the office of any failure or imminent failure, as soon as reasonably practicable after such person has knowledge of such condition or of any impoundment, embankment, or slope that poses a reasonable potential for danger to any persons or property or to the environment; or any environmental protection facility designed to contain or control chemicals or waste which are acid or toxic-forming, as identified in the permit.

(AR) RECORDS----- <u>Y</u>	(FN) FINANCIAL WARRANTY----- <u>N</u>	(RD) ROADS----- <u>Y</u>
(HB) HYDROLOGIC BALANCE----- <u>Y</u>	(BG) BACKFILL & GRADING----- <u>Y</u>	(EX) EXPLOSIVES----- <u>NA</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---- <u>Y</u>
(SM) SIGNS AND MARKERS----- <u>Y</u>	(SP) STORM WATER MGT PLAN---- <u>NA</u>	(RS) RECL PLAN/COMP-- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>NA</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>NA</u>
(AT) ACID OR TOXIC MATERIALS----- <u>NA</u>	(OD) OFF-SITE DAMAGE----- <u>Y</u>	

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

OBSERVATIONS

This was a monitoring inspection of the Cooley Reservoir & Fulton Wildlife Area site, Division of Reclamation, Mining and Safety (DRMS or Division) permit number M-1999-034 operated by Aggregate Industries - WCR, Inc. (AI). I, Jared Ebert and Patrick Lennberg with DRMS conducted the inspection. Ms. Connie Davis and Joel Bolduc with AI as well as Josh Redman with the City of Thornton accompanied us during the inspection.

This is a 399.17 acre 112c operation in Adams County. Mining is complete at the site and the majority of the area has been reclaimed. The permit boundary is divided by the South Platte River. On the west side of the South Platte, mining has created three water storage reservoirs. These three reservoirs are designated as Phase 2, 3, and 4 from south to north. On the east side of the South Platte River, the permit area includes the processing area, two wetland areas and the Jeronimus Lake area. The approved post mining land use for the site is developed water resources and wildlife habitat.

Backfilling and Grading:

The Phase 2 reservoir area was observed. It appears an area near the southeast corner of this reservoir has been recently affected as very little vegetation has established. Some rilling was noted and this area will need to be stabilized with vegetation.

The embankment between the Phase 2 and Phase 3 reservoir cell was breached during the 2015 flood event. This area has not been repaired. The Phase 3 reservoir cell was observed. Shoreline cutting and erosion was observed in the southwest corner of the reservoir cell and along the eastern shoreline. These areas will need to be stabilized.

The Phase 4 reservoir cell was observed. The slopes were stable and vegetated. The eastern shore was rip-rapped and appeared stable.

Hydrologic Balance:

A flood occurred in 2015 causing multiple breaches as well as embankment and slope failures. The Division required AI to submit a flood control and mitigation plan. The problem remains outstanding. According to Mr. Redman, the City of Thornton has applied for flood damage assistance from the Federal Emergency Management Agency and hopes to receive funds to construct the required flood control and mitigation structures at the site. Mr. Redman indicated this may occur this winter. Once the final plans have been developed the Division requests that AI submit them to the Division. DRMS will not be able to release AI from the site until reclamation is complete and the flood control structures have been installed.

The temporary breach repair that occurred on the southeast portion of the Phase 2 reservoir was observed. Overall, the temporary measures appear to be functioning. The breach between the Phase 2 and Phase 3 cells has not been repaired.

The damage that occurred on the northeast corner of the Phase 3 reservoir appears to have partially repaired, as the riverside breach appears to have been backfilled and stabilized. However, the pit-side failure in the Phase 3 reservoir area has not been repaired. The side slopes at this location are steep and eroded.

The Division has received documentation from the Colorado Division of Water Resources (DWR) that the slurry walls around the Phases 2, 3 and 4 reservoirs have been certified by the Office of the State Engineer (SEO) in

2002 and 2006.

Several areas of exposed groundwater and wetlands exist within the Phase 1 and 5 areas located east of the South Platte River. These areas were observed from their perimeter and it appears dense riparian vegetation has established. The Jeronimus Lake area has been partially filled in with fines from the processing of the aggregate.

Gen. Compliance With Mine Plan:

Mining is complete at the site and only the processing facilities remain.

Processing Waste:

Wash fines have been backfilled in the Phase 5 and Jeronimus Lake property. The areas where wash fines have been placed have turned into wetland habitat with dense riparian vegetation. However, the pipeline system used to transport the material from the processing area to these areas are still in place at the site and will need to be removed.

Reclamation Success:

AI requested that the Division observe the Cooley Reservoir areas to assess the vegetation established around the reservoirs. Other than in the areas discussed in this report where shoreline cutting was observed and areas that have been recently affected like the southwest corner of the Phase 2 cell, desired grassy vegetation has established around the reservoirs. The eastern shoreline of the Phase 2 and 3 cells are cutting near the water line. Mr. Redman indicate the City may install rip-rap along these shorelines. If this is not done, AI will need to stabilize the shoreline from cutting.

Slides and Other Damage:

The slopes damaged by the 2013 and 2015 flood event will need to be repaired and stabilized prior to release of the site.

Support Facilities On-site:

The processing equipment was still in place within the processing area in the southeast portion of the site. Several small ponds were observed in the processing area and there were several large stockpiles of material that appear to have been in place for many years. The small ponds will need to be backfilled and the area will need to be graded. According to the reclamation plan, the processing area is required to be covered with six to twelve inches of topsoil and revegetated with the non-irrigated grass seed mixture approved.

A large stockpile of material is located on the west side of the Phase 4 reservoir. This area will not be eligible for release until the stockpile has been removed and the area reclaimed in accordance with the reclamation plan.

Topsoil:

There appears to be a stockpile of material that is likely topsoil located on the west side of the processing facilities.

PHOTOGRAPHS



Figure 1. From the west side of the Phase 3 reservoir looking south.



Figure 2. From the northwest corner of the Phase 3 reservoir looking northeast.



Figure 3. View of the southwest corner of the Phase 2 reservoir area where sparse vegetation has established.



Figure 4. Southwest breach area of the Phase 2 reservoir.



Figure 5. Riverside view of the Phase 2 breach area.



Figure 6. Berm breach between the Phase 2 reservoir and Phase 3 reservoir.



Figure 7. Shoreline cutting along the eastern slope of the Phase 2 reservoir.



Figure 8. Shoreline cutting in the southwest corner of the Phase 3 reservoir.



Figure 9. Rip-rap lined shoreline on the south and east corner of the Phase 4 reservoir area.



Figure 10. Slope cutting on the east slope of the Phase 3 reservoir area.



Figure 11. Pit side flood damaged area on northeast corner of the Phase 3 reservoir.



Figure 12. Large stockpile on the west side of the Phase 4 reservoir area.



Figure 13. Processing facilities.



Figure 14. Scale and scale house.



Figure 15. Wetland area in the Phase 5 reclamation area east of the South Platte River.



Figure 16. Wetlands established in the Jeronimus Lake area.



Figure 17. Discharge pipeline in the Jeronimus Lake area.

Inspection Contact Address

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