



**COLORADO DIVISION OF RECLAMATION, MINING AND SAFETY**  
**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.

<b>MINE NAME:</b> Cooley Reservoir & Fulton Wildlife Area	<b>MINE/PROSPECTING ID#:</b> M-1999-034	<b>MINERAL:</b> Sand and gravel	<b>COUNTY:</b> Adams
<b>INSPECTION TYPE:</b> Monitoring	<b>INSPECTOR(S):</b> Tyler V. O'Donnell	<b>INSP. DATE:</b> August 19, 2015	<b>INSP. TIME:</b> 09:00
<b>OPERATOR:</b> Aggregate Industries - WCR, Inc.	<b>OPERATOR REPRESENTATIVE:</b> Connie Davis and Mike Refer	<b>TYPE OF OPERATION:</b> 112c - Construction Regular Operation	

<b>REASON FOR INSPECTION:</b> Normal I&E Program	<b>BOND CALCULATION TYPE:</b> None	<b>BOND AMOUNT:</b> \$1,510,800.00
<b>DATE OF COMPLAINT:</b> NA	<b>POST INSP. CONTACTS:</b> None	<b>JOINT INSP. AGENCY:</b> None
<b>WEATHER:</b> Clear	<b>INSPECTOR'S SIGNATURE:</b> <i>Tyler O'Donnell</i>	<b>SIGNATURE DATE:</b> December 29, 2015

**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>N</u>	(FN) FINANCIAL WARRANTY----- <u>N</u>	(RD) ROADS----- <u>Y</u>
(HB) HYDROLOGIC BALANCE----- <u>N</u>	(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>Y</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>Y</u>	(SW) STORM WATER MGT PLAN---- <u>N</u>	(CI) COMPLETE INSP---- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>N</u>	(SC) EROSION/SEDIMENTATION--- <u>N</u>	(RS) RECL PLAN/COMP-- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>Y</u>	(OD) OFF-SITE DAMAGE----- <u>N</u>	(ST) STIPULATIONS----- <u>N</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 inspection was conducted by Tony Waldron, Wally Erickson, and Tyler O'Donnell of the Division of Reclamation, Mining and Safety (Division). Aggregate Industries - WCR, Inc., the Operator, was represented by Connie Davis and Mike Refer during the inspection. The City of Thornton is the landowner for the portion of the permitted site located west of the South Platte River. The City purchased the land from Aggregate Industries. Phases 2, 3, and 4 located west of the South Platte River create a series of water storage reservoirs. The City of Thornton is managing the mined out phases west of the River. The City of Thornton was represented by the following people during the inspection: Eduardo Moreno, Josh Redman, and Walt Jenkins.

This inspection was conducted to observe and evaluate the site conditions after the City of Thornton repaired the earthen embankments between phase 2 and the South Platte River and between phase 3 and the River. The earthen embankment and reservoir banks were damaged during excessive flooding during the spring of 2015. After excessive flooding during the spring of 2015, a portion of the River breached through several of the reservoirs within the complex. A portion of the River entered the reservoir complex through phase 2 and flowed through the complex, inflow ultimately returned to the River by flowing through phases 3 and 4 by overtopping the land between the reservoirs and the River. For a more detailed explanation of the events and a description of the River's flow path through the reservoir complex please see the Division's July 2 and 9, 2015, inspection report.

On August 14, 2015, the Operator's representative notified the Division by email, that the repairs to the earthen embankment between phase 2 and the South Platte River had been completed. The Operator's representative also explained that an earthen embankment had been placed between phase 3 and the River. In the email the Operator's representative explained that the repair work was completed in late July 2015, and that the South Platte River was back in the original channel (Please see the enclosed photos and email from the Operator's representative).

During the inspection, the Division observed the reconstructed earthen embankment between the River and Phase 2 (Photo 1 and 2). The embankment was reconstructed in the same place as where it was prior to the 2013 flood and the 2015 flood. It appears that the embankment had been constructed with on-site overburden and riprap. The core of the embankment appears to have been constructed with a mixture of overburden and riprap. The outsides of the embankment appear to have been armored with riprap. The embankment was approximately 15 to 20 feet wide and approximately 10 feet high. The slopes of the embankment ranged between 1H:1V to 2.5H:1V. The entire embankment along phase 2 and the River had been stabilized and/or repaired. The River appeared to be back in the main channel. Very little water was flowing into phase 2 from the River. The water flowing into phase 2 from the River was only seepage through the earthen embankment (photo 3).

After observing the repairs between phase 2 and the River the Division went to phase 3 to observe and evaluate the repair work between phase 3 and the River. The land between phase 3 and the River was previously eroded after the failure at phase 2, water entering phase 2 exited through phase 3. The area between phase 3 and the River was eroded by water flowing out of the reservoir back to the River. The Division observed an area where an earthen embankment had been placed between phase 3 and the River preventing water from flowing into the River and vice versa (photo 4 and 5). It appears that the embankment had been constructed with on-site overburden and riprap. The core of the embankment appears to have been constructed with a mixture of overburden and riprap. The outsides of the earthen embankment appear to have been armored with riprap. The embankment was approximately 15 to 20 feet wide and approximately 10 feet high. The slopes of the earthen embankment ranged between 1H:1V to 2.5H:1V. No water was observed flowing from phase 3 to the River. No water appeared to be seeping through the earthen embankment.

## **CONCLUSION**

The repair work appeared to be adequate for temporary stabilization and keeping the South Platte River within the original river channel. Additional work will need to be conducted at the site to repair the damage to the slurry wall, earthen embankment, River embankment and reservoir slopes. Also Additional work will need to be conducted at the site to prevent future damage. In general the slopes will need to be graded to 3H:1V or flatter, damaged sections of the slurry wall will need to be repaired and all disturbed areas will need to be revegetated. The Division will continue to work closely with the Operator and the City of Thornton to make sure adequate repairs are conducted. The Division will work closely with the Operator to evaluate and approve a plan for inlet and outlet flood control structures.

### **Inspection Contact Address**

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## **PHOTOGRAPHS**



**Photo 1:** Earthen embankment between the South Platte River and Phase 2.



**Photo 2:** Earthen embankment between the South Platte River and Phase 2. Well armored side facing the South Platte River.





**Photo 3:** Seepage coming through the earthen embankment between the South Platter River and Phase 2.



**Photo 4:** Earthen embankment between the Phase 3 and the South Platte River.





**Photo 5:** Earthen embankment between the Phase 3 and the South Platte River.



**Photo 6:** Damaged earthen embankment between the Phase 2 and Phase 3.