



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: Howe Pit	MINE/PROSPECTING ID#: M-1978-052	MINERAL: Sand and gravel	COUNTY: Adams
INSPECTION TYPE: Monitoring	INSPECTOR(S): Nikie Gagnon	INSP. DATE: June 15, 2022	INSP. TIME: 09:00
OPERATOR: City & County of Denver, Board of Water Commissioners	OPERATOR REPRESENTATIVE: Brad Piede	TYPE OF OPERATION: 112c - Construction Regular Operation	

REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE:	BOND AMOUNT: \$0.00
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None
WEATHER: Clear	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: July 1, 2022

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>Y</u>	(BG) BACKFILL & GRADING----- <u>Y</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>Y</u>	(FW) FISH & WILDLIFE----- <u>N</u>	(RV) REVEGETATION---- <u>Y</u>
(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>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----- <u>N</u>	

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

OBSERVATIONS

This was a monitoring inspection of the Howe Pit, DRMS Permit No. M-1978-052, operated by the City and County of Denver, Board of Water Commissioners (Denver Water). Nikie Gagnon and Jason Musick of the Colorado Division of Reclamation, Mining and Safety (Division) conducted the inspection. Brad Piede, representing Denver Water, accompanied us during the inspection. The weather was warm and clear during the inspection.

General Compliance with Mine Plan

The Howe Pit is a 112c mining operations with 389.24 permitted acres. Mining is complete at the site and two lined water storage reservoirs and one open groundwater pond remains. The site has been reclaimed for water storage, private recreation and wildlife habitat.

Backfilling and Grading

The slopes of Reservoir A and B vary in steepness, graded to a 3:1 or less, which is consistent with the grading requirements of Rule 3.1.5 (7) of the Construction Materials Rules and Regulations. The South Platte flooded in 2013 and damaged the western pit slopes of both reservoirs. These slopes have been regraded and drill seeded.

Hydrologic Balance

Reservoirs A and B are clay lined reservoirs. A leak test was conducted and the slurry wall was reapproved by the State Engineer in 2017 after the flood repairs were complete. No water was observed during the inspection in the two lined storage reservoirs. A mounding drain was installed west of Reservoir B. The outlet to the drain is located adjacent to the site's main office. Water was flowing during the time of inspection through the discharge pipe into the First Creek channel.

The exposed ground water pond, located east of Reservoir B, was full of water with dense wetland vegetation established around the perimeter. The pond was an existing feature on site due to mining that occurred at the site prior to 1981.

Roads

There is a gravel access road around the two reservoirs that will remain on site when reclamation is complete.

Revegetation

The sides are sloped at 3H:1V or flatter along the majority of the reservoir. All slopes were structurally stable with no evidence of instability noted at the time of the inspection. Dense grass is established throughout the site. Weeds are well controlled. While not as densely vegetated as the rest of the site, the grasses have reestablished on the slopes of the flood repair along the western edge of both reservoirs. The original reclamation plan called for planting of trees and shrubs. A public recreation path was installed on the west of the reservoirs along the South Platte. Denver water planted trees along this path, but does not plan to plant trees or shrubs around the reservoirs that would impact the clay liner.

Reclamation Plan Revision

In order to obtain a release of the reclamation permit for the Howe Pit, Denver Water will need to submit a Technical Revision and update the approved Reclamation Plan and Map to include items noted in the 2017 Inspection Report and reiterated here:

- All structures that will remain on site after mining is complete.
 - groundwater mounding drain and valves
 - water conveyance structures such as inlet and outlets, and ramps to the bottom of the pit
- Access roads that will be left in place after reclamation
- Update final configuration of the reclaimed area. The original plan called for connecting the northern reservoir to the ground water pond.
- The approved reclamation plan indicated the eastern side of the reservoirs would be graded to a 5:1 slope. Given that 3:1 slopes are acceptable per Rule 3.1.5 (7), revise the permit to indicate the slopes on the eastern portions of the reservoir will be no greater than 3:1.
- Revise the reclamation plan to change or eliminate the requirement for tree and shrub planting.

Photographs taken during the inspection are attached.

Please contact Nikie Gagnon (303) 866-3567 ext. 8126 or email at nikie.gagnon@state.co.us if you have any questions regarding this report.

PHOTOGRAPHS



Looking southeast across Reservoir B



Looking north at overflow drain between Reservoir A & B. Flood repair occurred on western slopes.



Access Road along the western edge of Reservoir B. Fenced, public bike path is on the right.



Looking southwest at Emergency Spillway of Reservoir B.



Looking northwest at the Bull Seep on the western side of Reservoir A.



Headgate and monitoring station on irrigation canal east of Reservoir A.



Monitoring station on the eastern side of the reservoirs.



Water discharging from mounding drain into the First Creek channel north of the site office.



First Creek south of Reservoir A. Water control facility in the foreground.

Inspection Contact Address

Brad Piede
City & County of Denver, Board of Water Commissioners
1600 W. 12th Ave.
Denver, CO 80204

Enclosure

CC: Jason Musick, DRMS