STATE OF COLORADO

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# Midterm review for North Thompson Creek Mine

1 message

**Zuber - DNR, Rob** <rob.zuber@state.co.us> Mon, Jan 4, 2021 at 12:33 PM
To: Stan Muhr <minrecinc@gmail.com>, Jim Stover <jestover@bresnan.net>

Hello -

Please see attached file. It is the Division review (MT-08) for the North Thompson Creek Mine.

Rob

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COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

**MIDTERM PERMIT REVIEW (MT-08)**
For MINREC, Inc.

# North Thompson Creek Mine

Permit No. C-1981-025

January 4, 2021

Virginia Brannon, Director

Prepared by
Robert D. Zuber, P.E.

In Fulfillment of C.R.S. 34-33-115 and the following
Regulations of the Colorado Mined Land Reclamation Board for Coal Mining:
Rules 2.08.3, 2.06.2, 2.06.3, 2.06.5, 2.06.7 and 3.02.2

## Introduction

This document presents the results of the Midterm Review of the North Thompson Creek Mine permit, conducted by the Colorado Division of Reclamation, Mining and Safety (Division). The North Thompson Creek Mine is owned and operated by MINREC, Inc. This Midterm Review was conducted to fulfill the requirements of the Colorado Surface Coal Mining Reclamation Act (Act), and Rules 2.08.3, 2.06.2(9), 2.06.3(4), 2.06.5(3), 2.06.7(5), and 3.02.2(4) of the Rules and Regulations of the Colorado Mined Land Reclamation Board for Coal Mining (Rules), which were promulgated to implement the Act.

Rule 2.08.3 requires that the Division conduct a review of each permit issued not later than the middle of the permit term. (Permit terms are five years.) Based on this review, for good cause shown, the Division may require reasonable revisions to, or modifications of, the permit provisions to ensure compliance with the Act and Regulations.

Rules 2.06.2, 2.06.3, 2.06.5, and 2.06.7 require that during the midterm review, where applicable, experimental practices, mountaintop removal variances, variances from approximate original contour (AOC), and variances from contemporaneous reclamation, respectively, be reviewed by the Division.

Rule 3.02.2(4) requires that the Division review the amount of performance bond liability and the terms of acceptance of the bond every two and a half years.

This Midterm Review consisted of a review of the North Thompson Creek Mine permit application package (PAP) and previous Division findings of compliance to ensure that the proposed operation is in compliance with the Rules and Act. The Division also reviewed all subsequent revisions and stipulation responses to ensure that all permit commitments and conditions were being followed. Problems and observations from past Division inspection reports were also considered as part of this review.

The document has seven sections.

- Section I contains a brief description of the mine history and the surrounding environment.
- Section II lists permit actions since the last Permit Renewal.
- Section III lists active stipulations attached to the permit.
- Section IV lists any permit variances or specific approvals, including: experimental practices, mountaintop removal variances, variances from approximate original contour (AOC), and variances from contemporaneous reclamation.
- Section V lists any enforcement actions issued since the permit was last renewed, and the current status of any actions that were issued.
- Section VI is a discussion of any problems identified as a result of this review that are required to be resolved.
- Section VII is a summary of the review of the reclamation cost estimate and the performance bond(s) held by the Division.

# Section I - Mine History and the Environment

## Mine History and Current Status

The North Thompson Creek Mine (aka, "the mine" or "the mines" because the current site encompasses multiple historical portals) was initially mined from 1911 to 1964. The Snowmass Coal Company mined the site from 1971 to 1984. The major facilities included portals, an air shaft, coal processing facilities, a spur road, and a loadout. The spur road and loadout facility, which have been released from the permit, were located on private lands within Garfield County, Colorado, northwest of Carbondale.

In August 1983, Snowmass was issued a mining permit by the State of Colorado. Operations and reclamation elements of the existing mine were incorporated into the permit. The permit (C-1981-025) was transferred to MINREC, Inc. in 1990. The Division has renewed the permit every five years, with the latest renewal in October 2018. The current permit expires in August 2023.

The operator filed for temporary cessation of operations on July 31, 1984 and for permanent cessation status on August 15, 1986. Reclamation of the site was initiated in 1986. By 1987, the mine site was entirely reclaimed. The surface facilities had been removed and the portals, shafts, exploration holes, and wells were sealed. After several bond release actions (the final one, SL-06, was issued in January 2010), there is no remaining reclamation work required at the North Thompson Creek Mine. The current permit area (1,093.5 acres) consists mostly of land that overlies underground workings, but also includes several ponds, as discussed below.

Because of the discharge from the mine portals that contains high concentrations of iron, a passive water treatment system was constructed at the site. The treatment system, also referred to as the Developed Water Resources Area, has been permitted as a permanent feature. It includes four ponds, and encompasses 4.1 acres (which remain in the disturbed area of the site). The water rights for the water produced from the mine workings and subsequent treatment in the Developed Water Resources Area were obtained by the mine operator in the 1960s. Water from one of the treatment ponds is used by the landowner for cattle.

Because of the potential for discharge from the treatment system to North Thompson Creek, Minrec, Inc. currently holds a CDPS permit with the Colorado Water Quality Control Division for this mine site. This permit, CO-048233, became effective on February 1, 2010. (Previously, there was another permit for the site, CO-029599.) Discharge Monitoring Reports from the past five years show no discharges into the creek. The water is now diverted via channel to an additional pond, the Refuse Pond, where the water infiltrates or is used by the landowner. (The channel to the Refuse Pond is approximately 1,000 feet long.)

The Refuse Pond was constructed for sediment control for runoff from the refuse pile (now reclaimed). The Refuse Pond and the channel from the treatment system encompass approximately 0.7 acre, and are included in the total of disturbed acres at the site.

Description of the Environment

The North Thompson Creek Mine is located on federal and private lands about seven miles southwest of Carbondale, within Pitkin County, Colorado.

*Geology*

The mine site is located along the Grand Hogback monocline. The Grand Hogback forms the steeply dipping eastern edge of the Piceance Basin. The Pennsylvanian through Tertiary Age sedimentary formations which form the Grand Hogback dip 15 to 45 degrees to the west.

An unnamed syncline and the Wolf Creek anticline are located to the west of the mines. The Wolf Creek anticline plunges to the north, northwest. The sedimentary beds on the eastern limb of the unnamed syncline (in the area of the mines) dip 25 to 34 degrees to the west.

Most faults along the Grand Hogback are perpendicular to the strike of the strata and trend east-west. The faults in the area of the mines are low displacement normal faults. The displacements of faults increase in faults located south of the mines.

The mined resources included the A seam and the Anderson seam. The A seam is seven to ten feet thick and lies above the Rollins Sandstone of the Iles Formation. It is 3,300 to 3,500 feet below the ground surface. The Anderson seam is nine to ten feet thick and lies approximately 2,400 feet below the ground surface.

*Ground Water Hydrology*

There are three major bedrock aquifers within the mine area: the Upper Sandstone, the Middle Sandstone, and the Rollins Sandstone. These are regional aquifers and are relatively thick and laterally extensive throughout the mine area. The Rollins Sandstone is below the lowest coal seam that was mined (A seam) and is within the Iles Formation. The A coal seam, the Middle Sandstone and the Upper Sandstone all lie within the Bowie member of the Williams Fork Formation. The Anderson coal seam lies within the Paonia member. The North Thompson Creek No. 1 Mine is in the A seam, while the No. 3 Mine is in the Anderson seam. In addition to the sandstone aquifers mentioned above, several other potential sandstone aquifers exist above and below the Anderson seam. However, these sandstones are thin and laterally discontinuous.

A shallow and discontinuous alluvial aquifer exists on portions of the permit area adjacent to North Thompson Creek. The alluvial aquifer along the Roaring Fork River has good quality water.

*Surface Water Hydrology*

The permit area of the North Thompson Creek Mine is located within the North and Middle Thompson Creek Drainage Basins. These two perennial streams combine to form Thompson Creek about two and one half miles below the mine portals. Thompson Creek is a major tributary of the Crystal River, which is located about five miles downstream of the mining disturbance.

The stream valleys of North and Middle Thompson Creeks have steep gradients and valley walls. Elevations of the Thompson Creek drainage basin are 10,927 feet at Twin Peaks; 7,700 feet at the mine; and 6,375 feet at the confluence with the Crystal River.

Stream flow on North Thompson and Middle Thompson Creeks is derived primarily from snowmelt. Hydrographs resulting from snowmelt typically have a gradual rise, moderate peak, lengthy recession, and large volume. The peak occurs in May or June. Base flow is in late fall or winter.

*Climate*

Annual precipitation at the mine is approximately 22 inches, with upland areas receiving up to 35 inches. Approximately 65 percent of the annual precipitation occurs as snowfall.

*Vegetation*

The mine permit area is characterized by five vegetation types: riparian woodland, dry mountain shrub, moist mountain shrub, aspen forest, and spruce-fir forest. Riparian woodland is prevalent along the Thompson Creek stream banks and its tributaries adjacent to the mine area.

*Soils*

Topsoil in the Thompson Creek drainage is limited. Only a thin veneer of topsoil exists on the steep sides lopes of the ridges. Furthermore, much of the topsoil at the mine facility area was lost through historic mining disturbances

*Wildlife*

The predominant types of wildlife inhabiting the mine site are elk, deer, coyote, grouse, beaver, and rainbow and cutthroat trout. Mountain lion, bobcat, and turkey are also found in the area.

No endangered species are known to be present in the mining area, nor is there any critical wildlife habitat or high value habitat.

*Land Use*

Historically, agricultural communities in the Roaring Fork Valley have produced cattle, sheep, and hay. Today, however, sheep production is limited. Cattle are now the only significant agricultural commodity exported from the valley.

Other land uses in this region are recreation, timber production, and mining. Recreational uses are seasonal and include skiing in winter, hunting in fall, fishing, camping, river rafting, and backpacking in summer. The Roaring Fork Drainage Basin has become a popular location for vacation homes and condominiums, due in part to the skiing, recreation, and tourism which are popular in the area.

## Section II - Revisions to the Permit

Only one revision for the North Thompson Creek Mine has been approved since Permit Renewal 06 (PR-06 was approved on October 23, 2018). Minor Revision 27 (MR-27) was submitted on November 26, 2018 and issued on November 27, 2018. MR-27 updated Section 2.0, Identification of Interests, within the PAP.

## Section III - Status of Stipulations

The stipulation history for the North Thompson Creek Mine was reviewed as part of the midterm review. All stipulations associated with this permit were complied with or terminated in 2013 or earlier.

## Section IV – Permit Variances and Specific Approvals

There are no specific variances and approvals by the Division for the North Thompson Creek Mine.

## Section V - Enforcement Actions

There have been no enforcement actions taken in the last two and a half years since the last permit renewal, RN-07.

## Section VI - Identified Issues and Required Revisions

On Drawing D-2-5 of the PAP, the Pond P-9 spillway and the exact location of the CDPS outfall need to be clarified. The currently approved drawing does not clearly illustrate the course of flow out of Pond P-9. Also, on the drawing the outfall appears to be in the ditch to the Refuse Pond. **Please revise this drawing or provide an explanation as to why the current drawing is accurate.**

## Section VII – Reclamation Liability and Performance Bonding

All of the required reclamation has been completed at the North Thompson Creek Mine. The remaining facilities, the Developed Water Resources Area discussed above, have been permitted as permanent. The Division has set the liability requirement for the North Thompson Creek Mine at $10,000, which is the minimum bond amount required until the entire permit area is fully released (Rule 3.03.1(4)).

The Division holds a $10,000 bond for the North Thompson Creek Mine in the form of a Certificate of Deposit.

This concludes the Division's Midterm Review, MT-08, for the North Thompson Creek Mine.