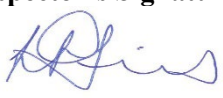
COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

PERMIT INFORMATION

Permit Number: C-1981-033 **Mine Name:** Bear Mine **Operator:** N/A **Operator Address:** N/A	**County:** Gunnison **Operation Type:** Underground **Permit Status:** Revoked **Ownership:** Private
	Operator Representative Present: N/A
Operator Representative Signature: (Field Issuance Only)	

INSPECTION INFORMATION

Inspection Start Date: September 14, 2022 **Inspection Start Time:** 07:30 **Inspection End Date:** September 14, 2022 **Inspection End Time:** 09:30	**Inspection Type:** Coal Complete Inspection **Inspection Reason:** Normal I&E Program **Weather:** Cloudy
Joint Inspection Agency: None	**Joint Inspection Contacts:**
Post Inspection Agency: None	**Post Inspection Contacts:**

Inspector(s):	**Inspector's Signature:**	**Signature Date:**
Leigh Simmons		October 7, 2022

1313 Sherman St. Room 215
Denver, CO 80203
(303) 866-3567

Inspection Topic Summary
NOTE: **Y**=Inspected **N**=Not Inspected **R**=Comments Noted **V**=Violation Issued **NA**=Not Applicable

N - Air Resource Protection
N - Availability of Records
N - Backfill & Grading
N - Excess Spoil and Dev. Waste
N - Explosives
N - Fish & Wildlife
Y - Hydrologic Balance
N - Gen. Compliance With Mine Plan
N - Other
N - Processing Waste
R - Roads
Y - Reclamation Success
Y - Revegetation
N - Subsidence
R - Slides and Other Damage
N - Support Facilities On-site
N - Signs and Markers
N - Support Facilities Not On-site
N - Special Categories Of Mining
N - Topsoil

COMMENTS

The Bear mine permit is revoked, the site has been reclaimed, and the inspection frequency has been reduced to quarterly.

Following a report of an initial flare up of the underground coal fire on May 25, visits were made to the Bear mine by Division staff throughout the summer. This report will summarize inspection and observation visits made by staff with the Active Mines Program, as well as mitigation activities conducted and coordinated by staff with the Inactive Mines Program.

ROADS – Rule 4.03
Construction 4.03.1(3)/4.03.2(3), Drainage 4.03.1(4)/4.03.2(4), Surfacing and Maintenance4.03.1(5) and (6)/4.03.2(5) and (6), Reclamation 4.03.1(7)/4.03.2(7):

As described below, a new road has been constructed on site. Sediment control devices were employed to minimize the impacts of surface run-off to the surroundings.

SLIDES and DAMAGE - Rule 4.12:

The underground coal fire flared up on May 25 and was reported to the Division by Doug Smith of Oxbow Mining, who has a view of the site from the Elk Creek mine offices across the river. Paonia Fire Department coordinated an initial response to the fire, which caught vegetation on the steep hillside above the escarpement alight. The response included helicopter drops of water collected from the North Fork of the Gunnison, as well as firefighters on the ground with wildland firefighting gear.

Funding for a hazard mitigation project was established through a coordinated effort of DRMS and OSMRE staff over the next few days. Although the surface expression of the fire was within the permit area of the Bear Mine, it was agreed that the fire could have originated in the pre-law Edwards Mine workings, and as-such the project was referred to as the "Edwards Mine Fire Emergency Project" in the associated documents.

Number of Partial Inspection this Fiscal Year: 0
Number of Complete Inspections this Fiscal Year: 1

A site visit for contractors interested in working on the project was held on May 31. The bid packet was prepared by Mark Mikos of the Inactive Mines Program and distributed to contractors on June 7, with bids to be submitted by 4pm on June 9. Work was tentatively scheduled to begin on June 13.

Mark Mikos coordinated the project and was present on-site a good deal throughout June and July. Visits to the site were made by Leigh Simmons of the Active Mines Program on June 15 and again on July 13. The first stage of the project was focused on clearing the hillside of vegetation around the vents and was accomplished by hand, with workers attached to anchors on the hillside using ropes and harnesses. The second stage was to construct a road to allow access to a bench above the escarpement, this work was subcontracted to Ryno Construction of Grand Junction, and was accomplished using a Caterpillar 328D excavator. On July 13, Ryan Crocker of Ryno Construction, reported that he had been working on the project for 8 days and hoped to finish that week.

The fire flared up for a second time sometime over the following weekend; Nicki Poulos of Mountain Coal Company notified the Division of the flare up on July 18. Once again helicopter drops of water were required to respond to the immediate hazard.

Leigh Simmons made further visits to the site on August 22 and September 14. During the September 14 inspection a survey was conducted using an Autel Evo II 640T drone, which carried a dual sensor (Visual and Infra-Red). The imagery was processed using Pix4D Mapper software to derive various data products including a high resolution ortho-image, and a lower resolution IR reflectance raster which was symbolized to allow the identification of areas of relatively high surface temperature.

The response to the fire is ongoing at the time of writing.

DOCUMENTS RECEIVED

N/A

OTHER (SPECIFY)

N/A

ENFORCEMENT ACTIONS/COMPLIANCE

N/A

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Number of Complete Inspections this Fiscal Year: 1

PHOTOGRAPHS

Figure 1: Still from a video clip of the fire taken from Hwy 133 on May 25, 2022

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Figure 2: Aerial photo of mitigation work in progress, June 15, 2022

Figure 3: Aerial photo of prominent vent (upper right) and evidence of high surface temperatures to the left of the vent, June 15, 2022

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Figure 4: Prominent vent from the west, June 15, 2022

Figure 5: Close up of prominent vent, June 15, 2022

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Number of Complete Inspections this Fiscal Year: 1

Figure 6: Road under construction, July 13, 2022

Figure 7: Partially constructed road, July 13, 2022

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Number of Complete Inspections this Fiscal Year: 1

Figure 8: Burned vegetation above escarpement, with toe of slide area in foreground, August 22, 2022

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Figure 9: GPS track showing path of new road overlain on earlier aerial image

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Number of Complete Inspections this Fiscal Year: 1

Figure 10: Top of new road, September 14, 2022

Figure 11: Sediment control in place, September 14, 2022

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Number of Complete Inspections this Fiscal Year: 1

Figure 12: High resolution ortho-image from drone survey, September 14, 2022

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Figure 13: Close up of bench

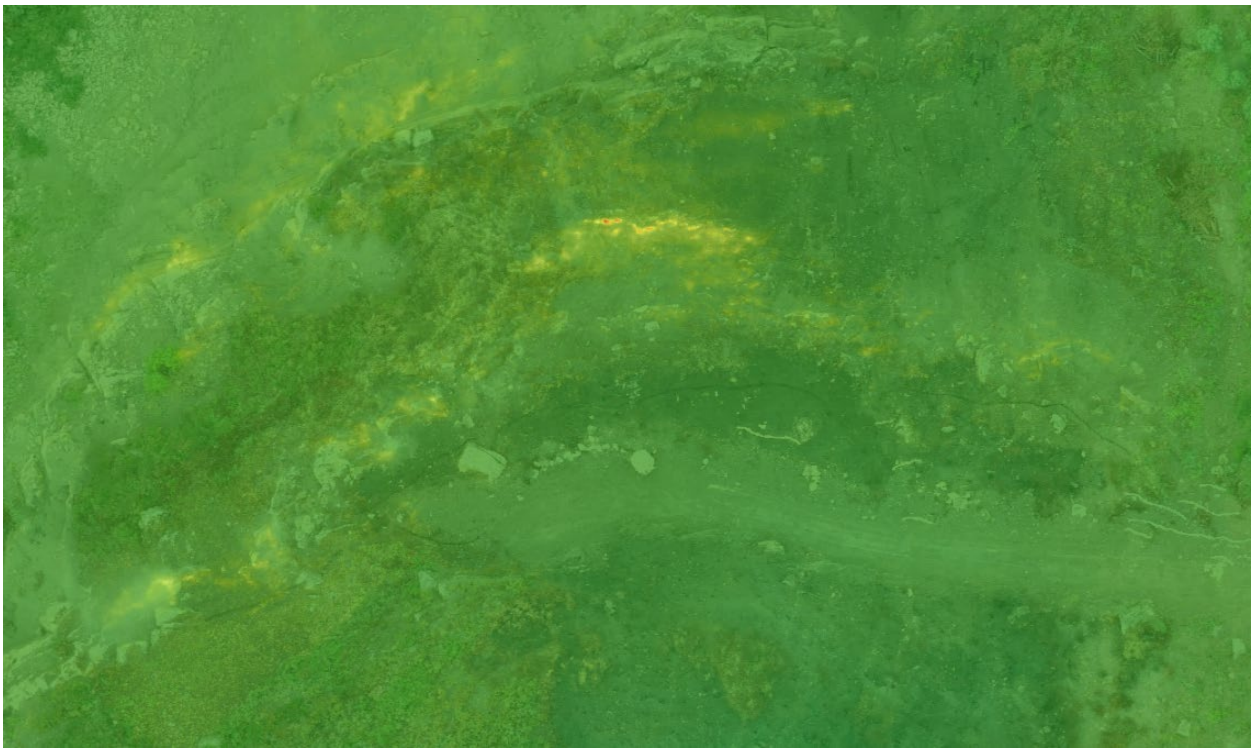

Figure 14: IR reflectance raster overlain on ortho-image, showing anomalously high surface temperatures (warm colors) downslope of bench, to north and west

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Figure 15: Point layer showing locations of individual images

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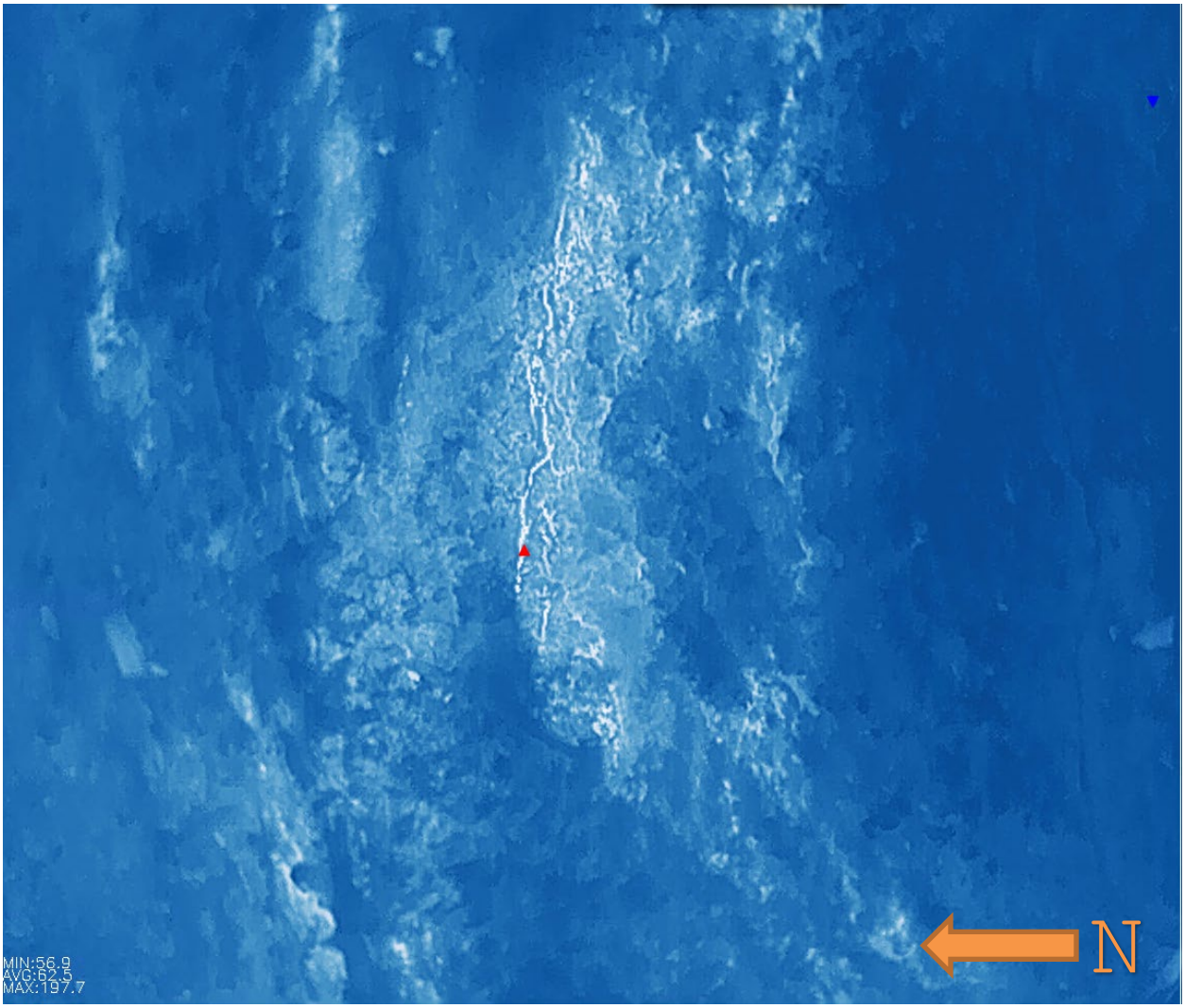

Figure 16: Thermal image captured at point 422, showing warmer areas in white and cooler areas in blue. Peak temperature ~200F, location marked with red triangle.

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