

Inspection Number: 197644  
 File Number:  
 Permit Number: M-232  
 Total Orders: 0  
 Mine Number: 0100019

## Report of Inspector of Mines - Reclamation

Issued pursuant to Section 15 of the Mines Act

<b>Mine Name/Number</b>	Tulsequah Chief Mine 0100019	<b>Visit Date</b>	2022-10-03
<b>Type of Mining</b>	MIN	<b>Location</b>	
<b>Latitude/Longitude</b>	58.77389, -133.60806	<b>Northing/Easting/Zone</b>	580490, 6515711, 8V
		<b>Permittee</b>	Chieftain Metals Inc
<b>Inspector</b>	Jeanien Carmody-Fallows, INSPECTOR	<b>Accompanying Inspector</b>	Diane Howe, Inspector;
<b>Address</b>	2nd Floor, 3726 Alfred Avenue Smithers, B.C. V0J 2N0		

### In Attendance

**Copies to** Hermanus Henning, Chief Inspector of Mines  
 West Face Capital Inc.  
 Diane Howe, Director Abandoned Mines Branch  
 Chieftain Metals Inc., 200 King Street West, 11th Floor, Toronto, ONT, M5H 3T4

The Mine Manager is required to provide a written response within 15 business days of receiving the inspection report. The Manager's response must outline the remedial steps taken by a specified date and the work still outstanding. A copy must be provided to the inspector, and in the case of health and safety matters, the occupational health and safety committee and the local union. Appeals to a decision, order or ruling must be made in writing to the Chief Inspector within 30 days after the issue date of the inspection report. In this document, Code means Health, Safety and Reclamation Code for Mines in British Columbia.

### Introduction

On October 3, 2022, an inspection of the Tulsequah Chief Mine was conducted including the water treatment plant, 5200 and 5400 portals, and the air strip. The mine site was accessed via helicopter (approximately 35 min ride from Atlin). The barge landing site, access road, proposed waste rock storage site, and sludge storage pond was observed from the helicopter. Weather during the inspection was partly cloudy skies and approximately 12C. Accompanying Inspector was Diane Howe, Director of the Abandoned Mines Branch.

The purpose of the inspection was to document current site conditions and compliance with orders resulting from inspections at the mine in 2016 and 2017.

### Preamble

Tulsequah Chief Mine is located in the Northwest corner of British Columbia approximately 100 km southwest of Atlin BC. The mine is a small underground operation that produced ore from 1951-1957, pre-dating reclamation legislation. The site remained dormant until the late 80s when Redfern Resources undertook exploration activities at the mine, first as a joint venture and then as the sole owner. Redfern carried out a number of exploration and some construction activities at the mine but went bankrupt in 2009.

Chieftain Metals Corporation and its subsidiary Chieftain Metals Inc. took control of the Tulsequah Chief Mine in 2010 and obtained an EA Certificate in 2012. Chieftain obtained a Mines Act permit in 2012 that allowed for limited construction, however, the site was placed in care and maintenance in June 2012. On Sept. 6th, 2016 Chieftain was placed into

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receivership under Grant Thornton LPP. The receiver was discharged in October of 2020.

An inspection carried out by the Ministry of Energy, Mines and Low Carbon Innovation (EMLI) in 2016 resulted in a number of orders issued to Chieftain, including orders to remove/secure all hazardous products from the mine site and take immediate action to alleviate overflow and risk of uncontrolled flooding in relation to the exfiltration pond. Additionally, Chieftain was ordered to appoint a mine manager, obtain an Engineer of Record for the exfiltration pond, and to submit a remediation plan and implementation schedule. These orders are discussed in further detail below.

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### General Area Observations: Mine Site and Air Strip

#### Latitude/Longitude:

#### Northing/Easting/Zone:

At the time of our inspection, 3 ATEL contractors, hired by the Province, were on site, to close up the camp for winter and remove garbage and waste from the site.

A flight over the road at the mine site, confirmed that upgrades and maintenance to culverts and bridges was complete. The barge landing site was observed from the air. It was noted that jet boats were docked near the landing and it appears as if a small camp has been set up at the edge of the landing site.

At the mine site, the following was noted during the inspection:

- Reclamation at the mine site has not occurred, although some natural regrowth is starting to occur on the historic waste rock piles)
- The 5200 and 5400 portals remain open and accessible. Mine impacted water is flowing from both portals, with some bypass of collection works occurring downstream of both locations.
- The acid water treatment plant (AWTP) was not in operation. Plant appears to be in good condition and dry. Door was found unlocked at the time of the inspection.
- The AWTP's adjacent water storage pond level is causing flooding of the pump house for the pond.
- Hazardous materials remain at the AWTP storage area, susceptible to weathering and/or vandalism, posing a potential for spills.
- Hazardous materials were observed in the maintenance area of the airstrip including three pallets of improperly stored batteries adjacent to the shop area. Staining was also noted in front of a fuel tank in the maintenance area.

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### Area Inspected 1: Mine site - Exfiltration pond and collection works

#### Latitude/Longitude:

#### Northing/Easting/Zone:

Mine impacted water was observed discharging from the pond spillway. Sludge has accumulated in the pond, limiting effectiveness of settling. Mine water was observed to be bypassing collection works upstream of the pond. Evidence of previous overland flow was noted, but was dry at the time of the inspection. Mine impacted water was observed bypassing the exfiltration pond and pooling in the AWTP chemical storage area, where it was infiltrating to ground.

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### Area Inspected 2: Acid Water Treatment Facility and Storage Area

#### Latitude/Longitude:

#### Northing/Easting/Zone:

Chemical storage - Various containers of chemicals remain in open sheds and shipping containers in the storage area adjacent to the water treatment plant and are not secure from potential vandalism.

Water Treatment Plant - the plant was not operating at the time of the visit. The building was observed in good condition and dry inside, however was not locked. The pump house for the water storage pond is flooded by water in the storage pond. The temporary sludge pond adjacent to the plant still has some sludge stored in it.

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**Area Inspected 3: ORDER 1 - MINE MANAGER**

**Latitude/Longitude:**

**Northing/Easting/Zone:**

- The EMLI inspection of Sept 26, 2016, by Diane Howe, included an order to appoint an mine manager and provide a notification to the Chief Inspector by Nov 8, 2016.

- A review of the file finds no record of a notification that a mine manager has been appointed.
- This order remains open.

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**Area Inspected 4: ORDER 2 - Engineer of Record**

**Latitude/Longitude:**

**Northing/Easting/Zone:**

- The EMLI inspection of Sept 26, 2016, by Diane Howe included an order to "retain a Professional Engineer to act in the capacity of an Engineer of Record (EOR). Notification of an EOR shall be submitted to the Chief Inspector by November 8, 2016."

- A review of the records finds no EOR has been named for the exfiltration pond. This order remains open.

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**Area Inspected 5: ORDER 3 - Exfiltration Pond**

**Latitude/Longitude:**

**Northing/Easting/Zone:**

- The EMLI inspection of Sept 26, 2016, by Diane Howe included an order to "immediately take action to alleviate the concerns observed at the exfiltration pond. A proposed plan and schedule for activities shall be submitted to the Chief Inspector by November 8, 2016."

- On Sept 22-23, 2017, EMLI used security held by the ministry to retain a contractor and complete repair work and install a spillway at the exfiltration pond to address the immediate safety concerns.

- At the time of the inspection, the spillway was in operation, and discharging to the Tulsequah River. Significant accumulation of solids has occurred in the exfiltration pond, preventing effective settling of solids. The pond does not have an EOR, so it is unknown if additional recommendations for upgrades, monitoring and maintenance are necessary for safe operation of the facility.

This order remains open. It is noted that the Ministry engaged contractors to complete the necessary repairs, however, it unknown whether additional measures would be required by an EOR.

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**Area Inspected 6: ORDER 4 - Hazardous Products**

**Latitude/Longitude:**

**Northing/Easting/Zone:**

- The EMLI inspection of Sept 26, 2016, by Diane Howe included an order to "take immediate action remove/secure all hazardous products from the mine site. A proposed plan and schedule shall be submitted to the Chief Inspector by November 8, 2016.

- At the time of the inspection, hazardous products remain on the mine site. In the area of the water treatment facility and in the air strip maintenance area. Of concern, is that hazardous products still remain in areas where they are susceptible to weathering and vandalism, and pose a risk of spilling to the environment.

- This order remains open.

**Area Inspected 7: ORDER 5 - Remediation Plan**

**Latitude/Longitude:**

**Northing/Easting/Zone:**

- In a letter dated October 27, 2017, the Chief Inspector issued the following order:

Pursuant to Section 35(1) of the Mines Act, the permittee was ordered to comply with Part 10.7.20 of the HSRC to provide the Chief Inspector of Mines with a plan that sets out remediation strategies and an implementation plan to mitigate the discharge of the acid waters into the receiving environment and the exceedances of applicable provincial water quality standards in that environment. It was expected that this plan would include consideration of required mine reclamation activities that will contribute to mitigation efforts, as well as capital and operating costs associated with implementation of the plan. This plan was to be submitted to the Chief Inspector of Mine by November 30, 2017. This order served as notice under Section 10(8) of the Mines Act, to remedy a failure to comply with a condition of the M-232 permit to the satisfaction of the Chief Inspector of Mines. Failure to comply with this order may result in all or part of the reclamation security held by the Province being used toward payment of the cost of work required to be performed.

The letter acknowledged that West Face Capital Inc. (Chieftain' then primary secured creditor) had retained SLR Consulting to produce a report to meet the order requirements. An extension to the submission date to February 28, 2018, was provided on November 2, 2017. The report was received on February 12, 2018. Following ministry review, the permittee was notified that outstanding information was needed in order to consider the submission in compliance with the order. This information included a treatment plant sludge disposal plan, an implementation plan specifying timelines for the remediation strategies, and long-term capital and operating costs for the AWTP, and required submission by October 8, 2018.

- The additional information to complete the remediation plan was not submitted by the deadline. In 2019, the Ministry retained SNC Lavalin and SRK Consulting to prepare a closure and reclamation plan for the Tulsequah Mine site. That plan was submitted to the Ministry on April 15, 2020.

- The Chief Inspector provided notice to Chieftain pursuant to Section 17 of the Act regarding work to be completed at the mine site in 2020 and 2021, which included road and bridge repairs, an assessment of the treatment plant, an assessment of Tulsequah River water quality, ongoing water quality and aquatic monitoring, and LiDAR surveys.

- During the inspection, new bridges/culverts were observed from the air along the road. No other remediation/reclamation activities were noted.

- Status - this order remains open. It is noted that the Ministry retained contractors to prepare a closure and reclamation plan for the mine site, however, the Chief Inspector has not made a determination of whether it is to his satisfaction.

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**Closure**

This inspection report provides an understanding of the compliance status of the current orders for Tulsequah Chief Mine as well as a general overview of the site conditions on the date of the inspection. In general, the site remains largely unchanged from previous inspections. Hazardous materials remain on site, susceptible to weathering/vandalism, posing a risk to the environment. Mine impacted water is discharged, largely untreated and collection works are beginning to fail from lack of maintenance.

Received by \_\_\_\_\_ on \_\_\_\_\_  
[Mine Manager Name, Title] [Date]

Signature: \_\_\_\_\_