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ICMC corrective action plan completion report

CANADIAN MALARTIC MINE

MARCH 23RD, 2022
PROJECT NO.: 21EHS114

PREPARED FOR:

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1400 I Street, NW, Suite 550
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Date CAP was issued:

May 26th, 2021

ICMC Standard of practice requirements requiring correction:

- 3.1 (6) Are cyanide mixing and storage tanks located on a concrete or other surface that can prevent seepage to the subsurface?
- 3.1 (7) Are secondary containments for cyanide storage and mixing tanks constructed of materials that provide a competent barrier to leakage?
- 4.7 (1) Are spill prevention or containment measures provided for all cyanide unloading, storage, mixing and process solution tanks?
- 4.8 (5) Where there is no available quality control and quality assurance documentation or as-built certification for cyanide facility construction, has an appropriately qualified person inspected those elements of the facility involving cyanide and issued a report concluding that its continued operation within established parameters will protect against cyanide exposures and releases?

Description of deficiency:

BBA conducted an audit of the facilities in 2020 to confirm that the facilities were constructed in conformance with ICMI and accepted engineering practices. The report confirms that the structures are located on concrete but recommends further investigation to confirm that the joints between the concrete foundation and walls ensure containment.

Required corrective action:

Have the joints between the foundation and the walls at all cyanide unloading, storage and process tank locations inspected by a suitably qualified professional and, if applicable, ensure that any areas of concern are sealed / repaired.

Evidence required for verification of corrective action completion:

1. Evidence that an inspection was conducted by a suitably qualified professional.
2. Evidence that repairs, if any were determined to be required, were effectively conducted.
3. A formal statement by a suitably qualified professional that the joints between the foundation and walls are sufficient to ensure containment.

Evidence provided to verify completion of corrective action:**1. Inspection**

Supporting document: BBA report entitled “Rapport d’inspection visuelle dalle de l’usine”¹, dated April 16th, 2021, BBA Ref. no.: 5843125-000000-42-ERA-0001 / RAA

The report details that an inspection of the concentrator’s concrete foundations was undertaken on April 1st, 2021, by a team from BBA. The inspection included the visual inspection of the floor

¹ English translation: Concentrator slab visual inspection report

slab, walls, joints and other foundation elements associated with liquid retention integrity. A review of the foundation drawings and design parameters was conducted prior to the visual inspection.

The inspection was conducted report was prepared by Jean-Philippe Grenier. The report was reviewed by Bertrand Comeau. Both are members of the Quebec Order of Engineers (QOE). Qualifications are presented in Table 1 and can be viewed at:

<https://membres.oiq.qc.ca/OIQ/Public/En/Directory/Search.aspx?WebsiteKey=10e43d88-a2f9-4064-8e04-c4f4b4522ad0>

Table 1: Qualifications of the inspection team

Name	QOE #	Engineering permit issue date	Fields of practice
Jean-Philippe Grenier	142796	2011-05-31	Building - Building structure Mining - Mining exploration or operation
Bertrand Comeau	31711	1981-02-25	Building - Building structure Civil - Structure

Observations made during the inspection included:

- A general deterioration of sealing in isolation and control joints;
- Several small cracks in the concrete slab. Note that only cracks of 2mm wide or more were noted as these were hypothesized to represent a risk to the integrity of the slab; and,
- Degradation of the concrete slab in areas where mobile equipment circulates regularly.

The report indicated that certain areas of the concentrator could not be inspected due to the presence of dirt or clutter, or because the areas were flooded at the time of the inspection. The report also noted that none of the signs of deterioration observed suggested that the integrity of the concrete structure was compromised. In general, the foundation was found to be in good condition for the sections inspected.

Recommendations issued in the report included:

- For slab joints, BBA recommended cleaning all slab joints and applying SIKAFLEX 2C/SL sealant or DUOFLEX from the company "SIKA" as indicated in the general notes – reinforced concrete section 1 of the referenced drawing 601-C-0101-00 (or equivalent), and to follow manufacturer's recommendations for sealant application.
- For cracks (2mm or more), BBA recommended cleaning all the cracks and applying a sealant such as SIKAFLEX 2C/SL or DUOFLEX from the company "SIKA". They also recommended that the areas that could not be inspected on April 1st be cleaned, inspected, and sealed as required during the sealing work mandate.

- For concrete surfaces that are worn due to the movement of mobile equipment, BBA recommended that these surfaces be repaired as soon as possible, as a priority where the concrete was observed to be worn down to the reinforcement. They also recommend monitoring be implemented where the concrete shows signs of wear and to apply the same treatment if the wear is observed to increase.
- With regards to the Carbon in Leach (CIL) basin, BBA recommended that an inspection be scheduled when the CIL basin is accessible and cleaned to identify if other types of problems are present in this section of the plant. This recommendation was also extended to the outdoor leaching tank area.

2. Repairs and 3. Statement of adequacy

Supporting document : *BBA letter report entitled “Attestation des travaux de restauration de l’intégrité des dalles et murets de béton”², dated February 28th, 2022, BBA Ref. no.: 5843125-000000-42-ERA-0002-RAB.*

The report certifies that the visible defects on the concrete slabs and walls of the concentrator, as listed in BBA’s *April 16th, 2021*, inspection report were repaired to restore their watertightness in the event of a spill.

The report was prepared by Jean-Philippe Grenier and reviewed by Bertrand Comeau. Both are members of the Quebec Order of Engineers (QOE). Qualifications are presented in Table 1 on page 2.

The repairs also included the restoration, where necessary, of areas that could not be inspected due to the presence of dirt or clutter, or because the areas were flooded at the time of the inspection conducted on April 1st, 2021 and included the CIL basin and the outdoor leach area.

Finally, the Canadian Malartic Mine has implemented periodic monitoring of the concerned concrete structures for signs of cracking, joint deterioration, and surface wear that could impact the watertightness.

Corrective action completion date :

February 28th, 2022

Closure verified by :

Ross Szwec, Lead auditor

Signature :



Date :

March 23rd, 2022

² English translation: Certification of restoration work on the integrity of concrete slabs and wall