

Environmental Protection Operations Directorate
Prairie & Northern Region
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ECCC File: 6100 000 009/011
NWB File: 2AM-LUP2032



July 15, 2024

via email at: licensing@nwb-oen.ca

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Richard Dwyer:

RE: 2AM-LUP2032 – Lupin Mines Incorporated (LMI) – Lupin Mine – 2021, 2022 & 2023 Annual Reports

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned Annual Reports.

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate, including climate change, air quality, water quality, biodiversity, environmental preparedness and emergencies. This work includes reviewing proponent characterization of environmental effects and proposed mitigation measures. We provide advice to decision-makers regarding a proponent's characterization of environmental effects, the efficacy of their proposed mitigation activities, and may suggest additional mitigation measures. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

The following comments are provided:

1. Incinerator Status

Reference(s)

- Executive Summary, 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024
- Section 1.1.3: Site Infrastructure, Appendix A: Geotechnical Inspection Report, 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024



Comment

The Executive Summary of the 2023 Annual Report indicates that during the time the camp was open, activities included “incineration of general camp wastes”. However, Section 1.1.3 of the 2023 Geotechnical Inspection Report indicates that the incinerator and burn pit were among the facilities which were decommissioned as part of the closure activities. It is unclear from the conflicting information presented, whether the incinerator was decommissioned at the end of the period the camp was open.

ECCC Recommendation(s)

ECCC recommends that the Proponent provide clarification on the current status of the incinerator, and update the 2023 Annual Report and 2023 Geotechnical Inspection Report to reflect this information.

2. Inconsistent Representation of Seasonal and Annual Temperature Averages

Reference(s)

- Section 1.2: Climate, Appendix A: Geotechnical Inspection Report, 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024
- Section 3.1: Climate, 2023 Dam Safety Review, Lupin Mine Tailings Containment Area (TCA), April 26, 2024

Comment

Section 1.2 of the 2023 Geotechnical Inspection Report indicates that the average winter temperature during the seven (7) month period from October to April was -21C, and that the average summer temperature during the five (5) month period from May to September was +8C. This equates to an annual average temperature of about -8.9C, which is in contradiction to the stated annual mean temperature of -13C. Section 3.1 of the 2023 Dam Safety Review indicates that the average annual temperature was -10.9C.

ECCC Recommendation(s)

ECCC recommends that the Proponent clarify what the annual temperature averages were in 2023 at site, and update the 2023 Geotechnical Inspection Report and 2023 Dam Safety Review with these changes.

3. Implementation of Recommendations

Reference(s)

- Table 4-1: Inspection Observations and Recommendations, Appendix A: Geotechnical Inspection Report, 2AM-LUP2032 Lupin Mine Site 2022 Annual Report, April 30, 2024

- Table 4-1: Inspection Observations and Recommendations, Appendix A: Geotechnical Inspection Report, 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024
- 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024
- Section 11.0 Conclusions & Recommendations, 2023 Dam Safety Review, Lupin Mine Tailings Containment Area (TCA), April 26, 2024

Comment

Following review of the 2023 Annual Report and the 2023 Dam Safety Review report, it is unclear whether the Proponent has implemented the recommendations listed in Table 4-1 of the 2022 Geotechnical Inspection Report.

Furthermore, it is unclear if the Proponent plans to implement the recommendations made Section 11 of the 2023 Dam Safety Review report, given that there are the risks indicated.

The studies and measures noted in the 2023 Dam Safety Review and the 2022 and 2023 Geotechnical Inspection Reports form an important mitigation for accident and malfunction scenarios that could result in spills of tailings to the environment during the passive closure of the mine.

ECCC Recommendation(s)

ECCC recommends that the Proponent indicate:

1. Which of the recommendations from Table 4-1 of the 2022 Geotechnical Inspection Report, that they have implemented, and update the 2023 Annual Report and 2023 Dam Safety Review report with this information.
2. Whether they plan to implement the recommendations made in Section 11 of the 2023 Dam Safety Review report and Table 4-1 of the 2023 Geotechnical Inspection Report.
3. Report on the progress and results of these measures, in future years of the Lupin Mine Site annual reports.

4. Water Quality Monitoring Data

Reference(s)

- Summary of Monitoring Program (Type A Water Licence 2AM-LUP2032, Schedule J), Item 1 (g): Tabular Summaries of all data generated under the "Monitoring Program", 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024
- Section 3.5: Surface Water Sampling, Appendix A: Geotechnical Inspection Report, 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024
- Appendix C: Water Sampling Laboratory Results, Appendix A: Geotechnical Inspection Report, 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024

Comment

Item 1 (g) of the 2023 Annual Report is supposed to provide a summary of all data generated under the “monitoring program” (Schedule J of the Water Licence). However, this table does not provide a summary of the monitoring data, instead only summarizes the stations and their monitoring requirements.

It is acknowledged that no discharge occurred in 2023 and therefore some monitoring locations would not be active, but not all monitoring location requirements are tied to discharge (e.g. LUP-EL-01, LUP-BL-01, and LUP-LSL-01).

In addition, the 2023 Geotechnical Inspection Report indicates that samples were taken as part of the inspection in September 2023, but also that post-freshet samples were collected in July 2023 as stipulated by the Water Licence. The 2023 Annual Report does not provide a summary of the July sampling, does not indicate which monitoring locations were sampled, and does not provide the laboratory results of the July sampling. The laboratory data sheets provided in Appendix C of the 2023 Geotechnical Inspection Report only include data from the September sampling.

ECCC Recommendation(s)

ECCC recommends that the Proponent:

1. Clarify which monitoring locations were sampled in 2023.
2. Provide a summary of all water quality monitoring data from the 2023 sampling period and the laboratory result data sheets.
3. Update the 2023 Annual Report and the 2023 Geotechnical Inspection Report with this information.

5. Water Quality Sampling

Reference(s)

- Section 3.5: Surface Water Sampling, Appendix A: Geotechnical Inspection Report, 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024
- Appendix C: Water Sampling Analysis, Appendix A: Geotechnical Inspection Report, 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024

Comment

Section 3.5 of the 2023 Geotechnical Inspection Report describes the surface water quality sampling completed as part of the inspection and notes that,

“Fifteen water quality samples and concurrent field parameter readings were collected on September 15 and 16th, 2023 to identify TCA in-situ conditions. For the past three years, surface water samples were collected earlier in the season by Stantec as part of post-freshet sampling stipulated by the Water Licence. Although post-freshet samples were collected in July 2023, surface water samples were also collected during the DSI to allow

for experienced personnel to be onsite to target potential items of concern previously identified by the greater Lupin Technical Team.”

The September water quality monitoring program included 5 locations: Pond 2, Pond 1, cell 4, Cell 4 NW corner seep, and Cell N seeps. The field water sampling results are summarized in Table 3-2 and full laboratory data reports for this monitoring is provided in Appendix C. As noted in the report, the intent of this monitoring was to “identify TCA in-situ conditions” and to “target potential items of concern previously identified.” However, no summary or interpretation of the monitoring results are provided as part of the submission.

ECCC Recommendation(s)

ECCC recommends that the Proponent:

1. Provide a summary of the results of the September 2023 water quality sampling.
2. Discuss the areas of concern that were targeted by the September 2023 water quality sampling and an interpretation of the results, including a discussion on how the results will ongoing management.
3. Update the 2023 Geotechnical Inspection Report with this information.

6. List of Hazardous Waste and Chemicals

Reference(s)

- Item 1 (f): Details on the types and quantities of Hazardous Waste and Chemicals stored on site, 2AM-LUP2032 Lupin Mine Site 2021 Annual Report, April 30, 2024
- Item 1 (f): Details on the types and quantities of Hazardous Waste and Chemicals stored on site, 2AM-LUP2032 Lupin Mine Site 2022 Annual Report, April 30, 2024
- Item 1 (f): Details on the types and quantities of Hazardous Waste and Chemicals stored on site, 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024

Comment

The table presented in Item 1(f) of the 2021, 2022 and 2023 Annual Reports does not contain rows for non-contaminated diesel or jet fuel. This information is instead found in the text below the table. This information could easily be overlooked if not present with the other similar information.

ECCC Recommendation(s)

ECCC recommends that the Proponent include rows in the table in Item 1 (f) of the Annual Reports for non-contaminated diesel and jet fuel, and include information regarding quantities of each material, and their method of storage.

7. Reporting of Spills and Unauthorized Discharges for 2021

Reference(s)

- Item 1 (j): List of description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up actions taken, 2AM-LUP2032 Lupin Mine Site 2021 Annual Report, April 30, 2024

Comment

Item 1 (j) of the 2021 Annual Report states that "No unauthorized discharges or spills occurred necessitating reporting in 2022."

As the scope of this report is for 2021, it is possible that this is a typographical error. Though, as the 2021 Annual Report was produced at the same time as the 2022 and 2023 Annual Reports, there is concern that other information included in Item 1 (j) of the 2021 Annual Report is from the later years. Proponents should verify that the information contained in this report is covering the correct year.

ECCC Recommendation(s)

ECCC recommends that the Proponent verify the accuracy of the information presented in Item 1 (j) of the 2021 Annual Report, and update the report to either correct the typographical error, or to include any missing unauthorized discharges or spills that occurred in 2021.

8. Clarification of Movement of Hazardous Chemicals and Waste

Reference(s)

- 1 (m): Summary of any abandonment and reclamation work completed during the year and an outline of any work anticipated for the next year, 2AM-LUP2032 Lupin Mine Site 2021 Annual Report, April 30, 2024
- Item 1 (f): Details on the types and quantities of Hazardous Waste and Chemicals stored on site, 2AM-LUP2032 Lupin Mine Site 2021 Annual Report, April 30, 2024

Comment

Under the "Chemicals and Fuel" subheading in Item 1 (m) of the 2023 Annual Report, in the "Proposed Works proposed in 2024" column, it states that "Waste fuel, oils and chemicals to be prepared for demobilization on 2024 winter road."

Under Item 1 (f), it states "No waste was shipped in 2023, as all waste, hazardous waste and chemicals will be shipped to Yellowknife via the winter road in 2025."

Based on the conflicting information present in these two sections, it is unclear which year the waste is planning to be demobilized from the site.

ECCC Recommendation(s)

ECCC recommends that the Proponent provide corrections to the information in Item 1 (f) and 1 (m) of the 2023 Annual Report, to accurately indicate the year in which waste will be shipped via the winter road.

9. Inventory of Hazardous Chemicals

Reference(s)

- Section 3.1: Purchasing, OZ Minerals – Canada, Waste Management Plan, Lupin Mine Site (Care and Maintenance), Doc. No. OZM-CASA-0000, Document Version: 00
- 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024

Comment

The Waste Management Plan states that "The Site Manager, or Purchasing Agent shall create an inventory of all chemicals used at the Lupin Site except fuels and lubricants."

It is not clear why fuels and lubricants are excluded from the inventory, as they are considered hazardous and can also form part of the hazardous waste stream (when used or otherwise contaminated).

ECCC Recommendation(s)

ECCC recommends that the Proponent include fuels and lubricants in the inventory of chemicals used at the Lupin site, and update their supporting plans, including the Waste Management Plan, with this information.

10. Storage of Batteries

Reference(s)

- 3.3.1: Batteries, OZ Minerals – Canada, Waste Management Plan, Lupin Mine Site (Care and Maintenance), Doc. No. OZM-CASA-0000, Document Version: 00
- 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024

Comment

The Waste Management Plan states that "batteries shall be collected and stored in a well organized manner that prevents the release of any hazardous constituents to the environment".

Further details on the method of battery storage should be provided, to help prevent release of hazardous constituents to the environment in case of improper storage methods.

ECCC Recommendation(s)

ECCC recommends that the Proponent update the Waste Management Plan to include information on the storage methods for batteries on the Lupin site.

11. Disposal of Metal Drums

Reference(s)

- Section 3.3.3: Empty Drums and Scrap Metal, OZ Minerals – Canada, Waste Management Plan, Lupin Mine Site (Care and Maintenance), Doc. No. OZM-CASA-0000, Document Version: 00
- 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024

Comment

The Waste Management Plan states that "To the maximum extent practical, all metal drums received on the property will be returned to the vendor, sent to a drum recycler, or recycled for scrap metal recovery. All empty metal drums shall be taken to designated area, crushed and buried."

These two sentences conflict with each other, as it is not clear whether metal drums will be sent back to the vendor/recycled, or crushed and buried. ECCC recommends the procedure of returning drums to the vendor or a recycler, if practicable, to reduce the quantity of material entering the landfill.

Furthermore, the procedures used to clean metal drums (making them safe for recycling or burial) are not detailed in the plan.

ECCC Recommendation(s)

ECCC recommends that the Proponent clarify the intended method of disposal of metal drums in the Waste Management Plan. Furthermore, ECCC recommends that the Proponent add information to the plan, detailing any cleaning procedures that will be used to remove residual material in metal drums, prior to their disposal.

12. Sewage and Greywater Disposal

Reference(s)

- Waste Management Plan, Lupin Mine Site (Care and Maintenance), Doc. No. OZM-CASA-0000, Document Version: 00
- 2AM-LUP2032 Lupin Mine Site 2023 Annual Report, April 30, 2024
- Spill Contingency Plan, Lupin Mines Incorporated, June 26, 2021

Comment

The Waste Management Plan for the Lupin site, does not include information on management of sewage and greywater. It is noted that this information does appear in other plans, including the Spill Contingency Plan.

Information on sewage and greywater management, is often included in waste management plans, as spills / improper management of sewage could have impacts to the environment (e.g., nutrient loading) as well as human health. Including this information, or references to where it can be found in other plans, would ensure that the relevant information can more easily be located when needed.

ECCC Recommendation(s)

ECCC recommends that the Proponent revise the Waste Management Plan, and any other relevant plans and reports, to include a section on the management of sewage and greywater at the Lupin site, including references to other plans where information on sewage and greywater management can be found.

If you need more information, please contact Stephinie Mallon at Stephinie.Mallon@ec.gc.ca.

Sincerely,

[original signed by]

Stephinie Mallon
Acting Senior Environmental Assessment Officer

cc: Eva Walker, Head, Environmental Assessment North (NT and NU)