



PO Box 32, Wekweètì NT X0E 1W0  
Tel: 867-713-2500 Fax: 867-713-2502

#1-4905 48th Street, Yellowknife NT X1A 3S3  
Tel: 867-765-4592 Fax: 867-765-4593  
[www.wlwb.ca](http://www.wlwb.ca)

May 23, 2023

File: W2020L8-0003; W2020X0005

Rasel Hossain,  
Senior Manager  
Crown-Indigenous Relations and Northern Affairs Canada  
Contaminants and Remediation Division  
P.O. Box 1500 4923-52nd St  
Yellowknife, Northwest Territories, X1A 2R3

Sent by email

Dear Rasel,

**Re: Waste Management Plan, Version 4 – Approved with Revisions Required – Rayrock Remediation Project – Miscellaneous – Former Rayrock Mine, NT**

The Wek'èezhì Land and Water Board (Board) met on May 18, 2023, and considered the Waste Management Plan (WMP), Version 4,<sup>1</sup> submitted by Crown-Indigenous Relations and Northern Affairs Canada – Contaminants and Remediation Division (CIRNAC-CARD) on April 13, 2023, as required by Water Licence (Licence) W2020L8-0003 and Land Use Permit (Permit) W2020X0005.

The Board has decided to approve the Waste Management Plan, Version 4 and requires submission of Version 4.1 to the Board. Version 4.1 is to include the revisions outlined in the attached Reasons for Decision and should be prepared in accordance with the Land and Water Board's *Document Submission Standards*.

As described in the attached Reasons for Decision, the Board also provided directions for the Mill Lake Water Treatment Facility Operation and Maintenance Plan, and the Post-Closure Monitoring and Maintenance Plan.

The details of the Board's decision are set out in the attached Reasons for Decision.

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<sup>1</sup> See WLWB Online Registry ([www.wlwb.ca](http://www.wlwb.ca)) for [Rayrock – Waste Management Plan – Version 4.0 – Apr 13 23](#).

Please direct questions or concerns regarding this letter to Ryan Fequet in writing.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Mason Mantla', written in a cursive style.

Mason Mantla  
Chair, Wek'èezhìi Land and Water Board

BCC'd to:       Rayrock Distribution List  
                  Clint Ambrose – Inspector, GNWT-ECC  
                  Tim Morton – Inspector, CIRNAC

Attached:       Reasons for Decision



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## Reasons for Decision

<b>Reference/File Number:</b>	W2020L8-0003 (Type A Water Licence) and W2020X0005 (Type A Land Use Permit)
<b>Licensee:</b>	Crown-Indigenous Relations and Northern Affairs Canada – Contaminants and Remediation Division (CIRNAC-CARD)
<b>Subject:</b>	Waste Management Plan (WMP), Version 4.0

## Decision from the Wek'èezhì Land and Water Board Meeting of May 18, 2023

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### 1.0 Decision

On May 18, 2023, the Wek'èezhì Land and Water Board (WLWB or the Board) considered Crown-Indigenous Relations and Northern Affairs Canada – Contaminants and Remediation Division's (CIRNAC-CARD) Waste Management Plan, Version 4.0.<sup>2</sup> In consideration of the submission, reviewer comments, and proponent responses, the Board has decided the following:

1. To approve Version 4.0 of the Waste Management Plan.
2. To require CIRNAC-CARD to submit Version 4.1 of the Waste Management Plan. Version 4.1 is to include Revisions 1 to 17.
3. The Post-Closure Monitoring and Maintenance Plan is to include the following details: i) contingencies in the event of water volumes within the CDF exceeding design; and ii) how quality of water removed or collected from the CDF would be assessed and handled.
4. The Mill Lake Water Treatment Facility Operation and Maintenance Plan submission is to include a description of how the water treatment waste will be managed, including a description of any containers, and expected time before the waste will be placed in the CDF.

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<sup>2</sup> See WLWB Online Registry ([www.wlwb.ca](http://www.wlwb.ca)) for [Rayrock – Waste Management Plan – Version 4.0 – Apr 13 23](#).

## 2.0 Background

On September 21, 2020, CIRNAC-CARD submitted Version 3.0 of the Waste Management Plan (WMP) along with its complete Type A Water Licence and Land Use Permit Applications.<sup>3</sup> The requirement for a Waste Management Plan is standard for Licences and Permits issued by the Board. Under the Licence, Rayrock's WMP is to be developed in accordance with MVLWB *Guidelines for Developing a Waste Management Plan*,<sup>4</sup> which state that:

These guidelines provide a template for proponents to write a plan and a benchmark for reviewers to evaluate a proponent's plan, thus ensuring that waste management plans are submitted and reviewed in a consistent way. This document is not meant to be a prescriptive guide for the management of waste; however, references to relevant guidance have been provided.

On November 18, 2021, Type A Water Licence W2020L8-0003 (the Licence) and Land Use Permit W2020X0005 (the Permit) were issued, and Version 3.0 of the WMP was approved with a requirement to submit Version 4.0 of the WMP to the Board in accordance with Part E, Condition 4 as detailed in the Board's Reasons for Decision.<sup>5</sup> Part E, Condition 4 states that:

A minimum of 90 days prior to the commencement of Construction activities (with the exception of winter road Construction), the Licensee shall submit to the Board, for approval, a revised Waste Management Plan. The Plan will be in accordance with the MVLWB Guidelines for Developing a Waste Management Plan and the requirements of Schedule 4, Condition 1. The Licensee shall not commence activities described in the Plan prior to Board approval of the revised Plan.

CIRNAC-CARD submitted Version 4.0 of the WMP on April 14, 2023, as it intends to commence construction activities in the Spring of 2023. The Plan was distributed for public review on April 14, 2023. Comments and recommendations were received by the deadline of May 5, 2023, from the Tłıchǰ Government (TG), the Government of Northwest Territories – Environment and Natural Resources<sup>6</sup>, Environment and Climate Change Canada (ECCC), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), and Canada Nuclear Safety Commission (CNSC); Board staff also submitted questions. Due to technical issues, the review comments from CNSC were submitted by Board staff, under the WLWB Board staff questions on the ORS. Proponent responses were submitted by the deadline of May 8, 2023. The review summary is available on the WLWB Online Review System ORS.<sup>7</sup>

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<sup>3</sup> See WLWB Online Registry for [W2020L8-0003 – Rayrock – Waste Management Plan – V 3.0 – Sep 21 20](#)

<sup>4</sup> See WLWB Resources for [LWB Guidelines for Developing a Waste Management Plan \(2011\)](#)

<sup>5</sup> See WLWB Online Registry for [Rayrock - Licence and Permit - Reasons for Decision - Sep 30 21](#).

<sup>6</sup>The GNWT Departments of Lands, and Department of Environment and Natural Resources were amalgamated into the Department of Environment and Climate Change on April 1, 2023. For cohesion with the wording on the Online Review System (ORS), Government of the Northwest Territories – Environment and Natural Resources – Environmental Assessment and Monitoring (GNWT-ENR) was used throughout these Reasons for Decision.

<sup>7</sup> See WLWB Online Review System (ORS) for [Rayrock – Waste Management Plan V 4.0 - IFR](#)

### **3.0 Reasons for Decision**

As indicated in Part E, Condition 4 of the Licence, CIRNAC-CARD was to provide a revised WMP to the Board for approval a minimum of 90 days prior to the commencement of Construction activities (with the exception of winter road Construction). Part E, Condition 4 states that the Licensee shall not commence activities described in the Plan prior to Board approval of the revised Plan. Version 4.0 of the WMP was reviewed for conformity to Part E, Condition 4, and Schedule 4, Condition 1 of the Licence. All reviewer comments and proponent responses submitted during the public review period were also reviewed. Based on the review, the Board has decided to approve Version 4.0 of the WMP, with revisions required for Version 4.1. The reasons for this decision are the following:

- Version 4.0 includes waste management information associated with the Schedule 4, Condition 1 requirements, and the Board is of the opinion that Version 4.0 addresses the requirements identified through the Licencing and Permitting proceedings;
- The Tłı̨ch̓ Government expressed its view that they did not want to cause a delay in the project schedule, and that the WMP was acceptable in its current form to allow construction to start (TG comment 1); and
- As discussed throughout these Reasons for Decision, the outstanding issues and information gaps that have been identified through this public review can be addressed in Version 4.1 of the Waste Management Plan and/or via updates to other plans. In general, the revisions suggested for Version 4.1 relate to providing greater clarity on the waste management practices being applied. Thus, the Board is of the opinion that approval of Version 4.1 is not required for construction activities to commence.

➤ ***Decision #1: The Board has approved Version 4.0 of the Waste Management Plan.***

➤ ***Decision #2: CIRNAC-CARD is to submit Version 4.1 of the Waste Management Plan. Version 4.1 is to include Revisions 1 to 17.***

### **3.1 Waste Streams**

The Rayrock Remediation Project includes the remediation of Rayrock, Sun Rose, and affiliated sites, where various waste streams have been identified as needing to be consolidated and disposed of. These legacy wastes, as well as materials and waste that will be used and/or produced during remediation work, will need to be managed along with the associated risks. Version 4 of the WMP describes planned waste management practices and procedures for the Rayrock Remediation Project. During the public review of Version 4 of the WMP, comments and recommendations were received from reviewers regarding waste management associated with operational and legacy wastes; these comments are discussed in this section of the Reasons for Decision. Comments regarding radioactive wastes are discussed in Section 3.2.

### **3.1.1 Potential Environmental Effects**

In its review, Tłıchq Government noted that the potential environmental effects column listed in Tables 5 and 6 (page 45 of the PDF document) of the Contractor's WMP (i.e., Appendix B) appear to focus on the pathway in which waste can get into the environment, rather than the potential impact of the waste to the environment (TG comment 6). CIRNAC-CARD responded that Tłıchq Government was correct that the column identifies pathways, not effects, and in future versions of the plan the column would be changed to "Potential Impact Pathways, or something similar." CIRNAC-CARD noted that it felt the potential pathway of exposure, as provided, is the correct information for a WMP, as the intention of the plan is to manage the waste and potential pathways of exposure to prevent environmental effects. The Board notes that the LWBs' *Guidelines for Developing a Waste Management Plan* (the Guidelines) specifies that in the identification of waste types, potential environmental effects should be included.<sup>8</sup> As noted in Part E, Condition 4 of the Licence, the WMP is to be in accordance with the Guidelines; the Board thus directs CIRNAC-CARD to include this information in the next version of the WMP.

- ***Revision #1: Version 4.1 of the WMP is to include a description of potential environmental effects for the identified waste types.***

Tłıchq Government also noted that in Table 6 of the Contractor's WMP, "contaminated soils" are "determined to not pose a human health or environmental risk" under the Potential Environmental Effects Column (TG comment 14). Tłıchq Government commented that it believed this statement "is misleading and underrepresents the risk posed to workers and the environment during excavation, movement, and handling of the contaminated materials at site." Tłıchq Government noted that the HHERA (Human Health and Ecological Risk Assessment)<sup>9</sup> recommended that the spilled tailings and waste rock at Rayrock should be cleaned up, which contradicts the position that those contaminated materials do not pose a risk, and that the clean up process itself may increase potential exposure beyond the HHERA assumptions. Tłıchq Government recommended the statement reflect the potential risk to workers and the environment. CIRNAC-CARD responded that potential environmental effects from the remediation are described in the Sediment and Erosion Control Plan and the Spill Contingency Plan, and risks to workers are covered in the Health and Safety Plan. CIRNAC-CARD noted that the HHERA recommended that "in addition, while the risk assessment showed there was little environmental transfer into animals at the site, it may be prudent to consider some remedial actions for the mill workings area and spilled tailings." The Board agrees that while the statement in Table 6 appears to somewhat reflect the HHERA findings, it is unclear that there are absolutely no human health or environmental risks from this waste, especially if these risks required addition to the SECP, SCP, and H&S Plan, and is of the view that a more balanced statement can be included in Table 6.

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<sup>8</sup> See WLWB ([www.wlwb.ca](http://www.wlwb.ca)) 'Policies and Guidelines' webpage for WLBs' [Guidelines for Developing a Waste Management Plan](#); pg. 13.

<sup>9</sup> The HHERA was a risk assessment conducted for the Rayrock Mine Site to determine "whether constituent of potential concern concentrations in various media may have an adverse effects on humans or animals that either use or may potentially use the Rayrock site."

- **Revision #2: Version 4.1 of the WMP is to provide a description of the potential environmental effects for contaminated soils in Table 6 of the Contractor’s WMP that reflects the assessment of the material.**

### **3.1.2 Waste Inventory Tracking Plan**

The Contractor component of the WMP references a “Waste Inventory Tracking Plan” (WITP), which would be “provided a minimum 30 days prior to debris removal work”. The Tłıchq Government noted that it appeared the WITP would detail procedures, labelling, and containerization for various debris on-site, and it was not clear what date the WITP was required (TG comment 10). Tłıchq Government recommended that CIRNAC-CARD provide an estimate of when the WITP would be ready and provide Tłıchq Government a copy for review. CIRNAC-CARD responded that the WITP submittal was required 30 days prior to debris leaving site, and that no debris would be leaving site until the 2024 winter road. CIRNAC-CARD estimated that a draft WITP would be ready in August 2023, and a draft would be provided to the Tłıchq Government for review, once available. Submission of an “WITP” is not a condition or schedule requirement under the Licence, but the description of the WITP in the WMP includes waste management procedures that are directly linked and referenced within the WMP. It is unclear to the Board if the “provided 30 days prior to debris removal work” is intended for submission of the WITP to CIRNAC-CARD by the contractor, or if the intent is for the WITP to be a component of the WMP. Given the lack of clarity, the Board requires CIRNAC-CARD to clarify the purpose of the WITP in relation to the WMP with Version 4.1 of the WMP.

- **Revision #3: Version 4.1 of the WMP is to clarify the purpose of the WITP in relation to the WMP, and if the WITP is being submitted as a part of the WMP for review.**

### **3.1.3 Camp wastewater**

In section 3.2.2 of the WMP, CIRNAC-CARD described the discharge of treated camp wastewater as “treated wastewater will be released onto the ground”, “the drainage field will be sized to handle the maximum volume”, and “the construction details of the sump cannot be provided until field fitting.” ECCC and WLWB staff asked for clarification on CIRNAC-CARD’s description of how treated camp wastewater would be released (ECCC comment 3; WLWB staff comment 3). Reviewers asked CIRNAC to clarify what was meant by “drainage field”, and to clarify the proposed pathway for discharge from the camp wastewater treatment facility. CIRNAC-CARD responded that a drainage field is also known as a septic drain field, and is defined as “a number of individual absorption trenches laid parallel to one another”, with each trench containing perforated PVC pipe, gravel, and filter cloth. Wastewater then flows through the parallel pipes to evenly distribute the effluent which percolates through the gravel into the surrounding soil. CIRNAC-CARD noted that the drainage field would be used in lieu of a sump, and future versions of the WMP would provide the sump (drainage field) configuration approved by the Inspector. The Board notes that the definition of a sump in the Licence allows for “human-made excavation or a natural depression designated for depositing Water and/or Waste.” No Party indicated that they believe this form of treatment falls outside the definition of a sump.

The information provided in CIRNAC-CARD's response would provide clarity on CIRNAC-CARD's management of treated camp wastewater and is to be included in the next version of the WMP.

- ***Revision #4: Version 4.1 of the WMP is to provide: clarification for how a drainage field falls within the sump definition, and clarify the pathway for discharge from the camp wastewater treatment facility. When the drainage field configuration details are available, CIRNAC-CARD is to submit a revised WMP, and should consult with Board staff regarding appropriate timing for submission of the revised plan.***

### ***3.1.4 Internal Confined Disposal Facility water***

The WMP notes that once the Confined Disposal Facility (CDF) is completed and sealed, water levels will be monitored in the CDF, but water quality monitoring is "not needed since the CDF is sealed." ECCC and WLWB staff asked CIRNAC-CARD if it had considered any contingencies for assessing water quality if water levels within the CDF exceeded design, and how wastewater would be assessed (ECCC comment 4; WLWB staff comment 5). ECCC recommended that any water removed or collected from the facility be tested to ensure sufficient quality. CIRNAC-CARD responded that the issue with water in the CDF was not water quality but quantity, and that rising water volumes in the CDF would indicate water infiltration into the CDF, which would create hydraulic pressure on the seams. Any water volume measurements would be part of the post-closure monitoring of the CDF, and the project is currently exploring "potential methods for dehumidifying the interior of the CDF" and other means for reducing volume without treatment and discharge. CIRNAC-CARD noted that the intention would be to reduce the water volume without also removing contaminants. CIRNAC-CARD posited that these details would be included in the Post-Remediation Monitoring and Maintenance Plan (PRMMP) and are not required for the WMP. The Board agrees with CIRNAC that this information is suitable for the PRMMP, but notes that it is not a current schedule requirement for the Plan under Schedule 7, Condition 3, and as such directs CIRNAC-CARD to include those details in the PRMMP submission.

- ***Decision #3: The Post-Closure Monitoring and Maintenance Plan is to include the following details: i) contingencies in the event of water volumes within the CDF exceeding design; and ii) how quality of water removed or collected from the CDF would be assessed and handled.***



### **3.1.5 Dust Suppression water use**

Page 25 of the WMP notes that “wastewater from the Mill Lake water treatment facility may also be used for dust suppression on roads and trails. This water will be of a quality that would permit discard to Sherman Lake, so its use for dust suppression would not present an issue.” WLWB staff asked CIRNAC-CARD to confirm that any treated wastewater from the Mill Lake water treatment facility would be sampled to ensure it meets Effluent Quality Criteria (EQC) prior to use (WLWB staff comment 6). CIRNAC-CARD confirmed that while EQCs were not specifically noted in the WMP, the Licence and all Rayrock documentation is clear that “quality that would permit discard to Sherman Lake”, means meeting EQCs, and a qualifying clause would be added to the WMP.

- ***Revision #5: Version 4.1 of the WMP is to clarify that any wastewater from the Mill Lake water treatment facility used for dust suppression must meet EQCs.***

### **3.1.6 Burning of Waste**

#### Burning of wood waste

In its review, ECCC noted that burning of wood wastes on site is identified throughout the plan, and requested clarification on the burning method and whether the wood waste is untreated. ECCC requested that where practicable, untreated wood be incinerated rather than consumed in open burns (ECCC comment 5). CIRNAC-CARD responded that all wood sampled to date on project sites has been shown to be untreated, and references to burning of wood in the plan had been in sections describing non-hazardous waste. CIRNAC-CARD highlighted that treated wood would be considered a potentially hazardous waste, but again hadn’t been identified as a concern. CIRNAC-CARD noted that untreated wood could also be considered for chipping and use as a soil amendment, and that appropriate burn permits would be obtained as necessary, but that the Project would choose the most appropriate disposal method. The Board agrees that CIRNAC-CARD should be able to select the most appropriate waste management method but agrees with ECCC that it should be clarified in the plan that only untreated wood waste can be burned or incinerated. It is also not clear from the WMP that only untreated wood is on site as Table 6 of Waste Types (pg. 18 of the PDF) includes “Creosote-treated wood” in the list of hazardous or potentially hazardous wastes under legacy wastes.

- ***Revision #6: Version 4.1 of the WMP is to clarify that only untreated wood waste can be burned, and to specify which disposal methods can be considered for untreated wood waste. Version 4.1 is also to clarify the disposal method for creosote-treated wood.***

### Disposal of incinerator ash

The WMP indicates that an incinerator will be used for burning of eligible waste, and that any ash produced from incineration may be subject to testing for contents of hazardous materials. The ash may then be disposed of according to established guidance, in the CDF or an approved off-site facility. GNWT-ENR noted that it was unclear which guidance CIRNAC-CARD intended to follow, and that it was unclear what process CIRNAC-CARD intended to follow to determine where the ash would be disposed (GNWT-ECC comment 4). CIRNAC-CARD responded that the guidance being referred to is the GNWT *Guideline for General Management of Hazardous Waste* and would revise the reference in future WMP submissions. The Board notes this revision can be made in submission of version 4.1 of the WMP. CIRNAC-CARD also noted that because water from the CDF [during construction] would go to the Water Treatment Plant, and the water treatment was only designed for specific contaminants, any ash would need to be tested before disposal in the CDF to ensure there were no contaminants that could not be treated. CIRNAC-CARD posited that the decision as to which of the two acceptable means of disposal will be chosen is a Project decision based on potential impact to the water leaving the CDF. The Board agrees that the decision as to where the ash is disposed of should remain a Project decision but believes the WMP should be revised to clarify when ash would be tested.

- ***Revision #7: Version 4.1 of the WMP CIRNAC is to i) clarify the guidance being used for ash disposal in section 3.2.3; and ii) clarify that ash being disposed of in the CDF will be tested for hazardous substances.***

### **3.1.7 Petroleum Impacted Soils**

In section 3.2.1 of the WMP, two options for petroleum impacted soils through operational spills are identified: i) containerization/off-site disposal; and ii) on-site bioremediation. GNWT-ENR noted there was no description of the bioremediation process that may be used, beyond stating using the “windrowing method” and that the CIRNAC-CARD team would use the “same process as the Colomac site and that the project team has extensive experience in the successful treatment of petroleum wastes” (GNWT-ENR comment 8). GNWT-ENR recommended that details of the proposed bioremediation be added to the WMP, as per requirements of the LWBs’ *Guidelines for Developing a Waste Management Plan*<sup>10</sup>, and to expand on the process used at Colomac, expected timelines, and use of liners. CIRNAC-CARD responded that the WMP addressed known and potential waste streams, and that it had acknowledged the possibility of hydrocarbon spills. CIRNAC-CARD noted that it had submitted Board-reviewed Plans, such as the Spill Contingency Plan, detailing measures to “make sure a large scale spill does not occur.” CIRNAC-CARD argued that it does not agree that it is necessary to detail responses to all unlikely waste streams, and that the Project “is not planning on having these failures.” The Board would like to clarify for CIRNAC-CARD that the purpose of the Spill Contingency Plan (SCP), as written in the approved Version 4.0 of the SCP is:

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<sup>10</sup> See WLWB ([www.wlwb.ca](http://www.wlwb.ca)) ‘Policies and Guidelines’ webpage for LWBs’ [Guidelines for Developing a Waste Management Plan](#); section 3.4.1

The purpose of this SCP is to outline response actions for potential spills of any size, including a worst case scenario for CARD and all Contractors for the Rayrock Remediation Project. The SCP identifies key response personnel and their roles and responsibilities in the event of a spill, as well as the equipment and other resources available to respond to a spill. It details spill response procedures that will minimize potential health and safety hazards, environmental damage and clean-up efforts. The SCP has been prepared to ensure quick access to all the information required in responding to a spill.

While CIRNAC-CARD may not plan on spills occurring, plans such as the SCP and WMP are in place, in part, to manage accidents and resulting wastes.

As identified by GNWT-ENR, per the LWBs' Guidelines, the WMP's description of a landfarm has specific information requirements, and as noted previously, the Licence requires CIRNAC-CARD to submit a WMP in accordance with the Guidelines. As such, CIRNAC-CARD is required to align the description of on-site bioremediation with these Guidelines.

- ***Revision #8: Version 4.1 of the WMP is to include information pertaining to bioremediation as outlined in section 3.4.1 of the LWBs' Guidelines for Developing a Waste Management Plan.***

### **3.1.8 Waste Stream Hierarchy**

Section 2.0 of the WMP outlines the waste management hierarchy as provided in the WLBs' *Guidelines for Developing a Waste Management Plan*, which includes the last component of the hierarchy as "Release to the Receiving Environment."

GNWT-ENR noted that "release to the receiving environment" could be misleading as it is technically disposal of wastes without causing adverse environmental impacts and recommended "release" be changed to "disposal" (GNWT-ENR comment 10). CIRNAC-CARD responded that it had written the section in accordance with the Guidelines and would retain the description until the guideline is updated. The Board notes that it recently released an updated LWB *Waste and Wastewater Management Policy*<sup>11</sup>, which references the Guidelines and the hierarchy, and has updated the hierarchy to refer to "disposal" rather than "release." As this is a recent publication, the Guidelines have not yet been updated, but the Board agrees with GNWT-ENR that Section 2.0 of the WMP should reflect recent Board policy decisions.

- ***Revision #9: Version 4.1 of the WMP is to update the Waste Stream Hierarchy in Section 2.0 to "Disposal to the Receiving Environment" from "Release to the Receiving Environment" to align with recent update to the LWB Waste and Wastewater Management Policy.***

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<sup>11</sup> See WLWB ([www.wlwb.ca](http://www.wlwb.ca)) 'Policies and Guidelines' webpage for LWBs' [Waste and Wastewater Management Policy \(2023\)](#); section 4.1

### **3.1.9 Non-hazardous Waste Table**

Table 6 of the Contractor's WMP provides a list of identified non-hazardous wastes. In its review, GNWT-ENR identified that some entries were vague or did not provide sufficient information (GNWT-ENR comment 13). This included the waste identification of "drums", which "may contain free product". CIRNAC-CARD responded that while much of the hazardous waste has been addressed, some items like drums have been found, and that it is the nature of site remediation of long abandoned sites that some hazardous waste may be found that had not been previously identified. The Board acknowledges that there are some wastes that may be difficult to provide specific information on, but as CIRNAC-CARD identified drums as possibly being hazardous, is of the view that this should be reflected in the table to ensure appropriate management.

- ***Revision #10: In Version 4.1 of the WMP, the Drums listed in Table 6 should be moved to Table 5 of the Contractor WMP as a Hazardous or Potentially Hazardous Waste.***

GNWT-ENR also identified that waste oil and used oil filters and lead-based paint items were listed as non-hazardous in Table 6 but fall under GNWT's *Guidelines for Hazardous Waste Management*. CIRNAC-CARD did not respond specifically to this comment, but the Board is of the opinion this identification change should be reflected in Version 4.1 of the WMP.

- ***Revision #11: In Version 4.1 of the WMP, Lead-based paint items, waste oil, and used oil filters should be reflected as Hazardous or Potentially Hazardous Waste in Table 5 of the Contractor's WMP.***

Finally, GNWT-ENR asked CIRNAC-CARD to clarify what it meant by the potential environmental effect of "visual pollution" caused by plastics and concrete as described in Table 6, and to clarify how it impacted the environment. CIRNAC-CARD did not respond specifically to this comment. Due to the lack of clarity, the Board has decided CIRNAC-CARD should identify how visual pollution impacts the environment or remove the description from Table 6.

- ***Revision #12: Version 4.1 of the WMP is to clarify in Table 6 of the Contractor WMP how "visual pollution" impacts the environment or remove the text from the table.***

### **3.2 Waste Management of Uranium/Radioactive Wastes**

The Rayrock Project includes a number of historical metal mining and exploration properties, including the Rayrock and Sun Rose sites. The Rayrock site is a Canadian Nuclear Safety Commission (CNSC) licenced site, under Licence WNSL-W5-3208.08/2027, and is subject to regulation by the CNSC under that Licence (WNSL: Waste Nuclear Substance Licence), including the Nuclear Substances and Radiation Devices Regulations. The CNSC mandate identifies that the CNSC regulates the use of nuclear energy and materials to protect health, safety, security, and the environment.<sup>12</sup> Naturally Occurring Radioactive Material

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<sup>12</sup> See Canadian Nuclear Safety Commission website for [CNSC Mandate](#)

(NORM) also exists within the Rayrock project and is regulated by provincial and territorial governments. There are *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials*, which were developed to harmonize standards in Canada.<sup>13</sup>

### **3.2.1 Naturally Occurring Radioactive Material**

In review of the WMP, CNSC noted that “all radioactive material within the licenced footprint of the Rayrock site are considered nuclear substances, not Naturally Occurring Radioactive Material (NORM). Therefore, all radioactive waste found on the Rayrock site cannot be removed from the site unless it meets the requirements set out in the Nuclear Substances and Radiation Devices Regulations” (WLWB staff comment 9 – comment made on behalf of CNSC). CIRNAC-CARD responded that the Rayrock Remediation Project WMP covers many NORM sites since Rayrock isn’t the only site being remediated as part of the project. CIRNAC-CARD noted that due to the boundaries established for the Rayrock site under the WNSL, any uranium-impacted material would be considered nuclear substances and would need to be added to the inventory of nuclear substances for the site. The Board’s interpretation of this is that for any parts of the project that fall within the boundaries of the WNSL, radioactive material is considered nuclear substances, and is regulated by CSNC and applicable regulations, and parts of the project that fall outside of the boundaries of the WNSL would use the *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials* for management of radioactive material. The Board is of the opinion that this distinction should be made clearer in the WMP.

Several reviewers asked CIRNAC-CARD about the procedure outlined in the WMP for dealing with loose surface contamination with elevated NORM that may require removal/cleaning. WLWB staff asked about the disposal of this brushed-off debris with elevated NORM (WLWB staff comment 1). ECCC and CIRNAC asked for additional information on how the cleaned off NORM dust and/or soil would be managed to protect the environment (ECCC comment 2; CIRNAC comment 1). CIRNAC-CARD responded that the waste materials requiring this cleaning and decontamination is expected to be limited. CIRNAC-CARD also noted that “screening is only required for legacy wastes – operational wastes, equipment and materials used in the remediation in the mill area go through a decontamination and screening process that is distinct from NORM screening” and is regulated by the CNSC.

The Board notes that language used in Version 4.0 of the WMP does not make a clear distinction between “nuclear substances” that will be regulated by CNSC and NORM. The difference in approach between the Rayrock site and sites outside of the WNSL Licence for management of nuclear substances as compared with NORM is not clear in the WMP. As CIRNAC-CARD has identified a different process for this type of waste management depending on the location within the project, this requires clarification in the plan to ensure that it is clear where NORM guidelines apply to the cleaning and screening of brushed-off debris. The Contractor’s WMP is also unclear as to which management practices apply and where, as it notes in section 3.4 that “if NORM criteria are exceeded, soils and adhered materials will be brush-cleaned”; the section does not indicate that this management procedure is specific to a particular part of the project.

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<sup>13</sup>See Government of Canada website for [Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials](#)

- **Revision #13: In Version 4.1 of the WMP, provide definitions for NORM and “nuclear substances” and clarify what parts of the project use the Canadian Guidelines for the Management of Naturally Occurring Radioactive Material, and which are subject to the Nuclear Substances and Radiation Devices Regulations under the WNSL Licence.**
- **Revision #14: In Version 4.1 of the WMP, clarify what decontamination and screening process applies for the cleaning and removal of loose surface contamination from non-hazardous materials with elevated NORM. This is to also be reflected in the Contractor’s WMP.**

GNWT-ENR also commented on how it was unclear how background radiation measurements would be made at the area where non-hazardous waste would be cleaned (GNWT-ENR 11). GNWT-ENR recommended the proponent: specify methods for this measurement, clarify what the Unconditional Derived Release Limit is, and at what stage contaminated wastes would be segregated to eliminate spread of contamination. CIRNAC-CARD responded that waste screening, release limits, and details on the methodology are requirements of the Radiation Protection Program submitted to and under the authority of the CNSC and wants to maintain details of radiation protection under this program under the WNSL. However, as indicated above in response to CNSC comments (WLWB comment 9), CIRNAC-CARD has indicated that the Rayrock Remediation project includes NORM sites that do not fall within the WNSL boundaries. As such, it is unclear that the Radiation Protection Program is also under CNSC authority when applied at NORM sites outside of the WNSL. Clarification is required on this authority, which would determine if GNWT-ENR’s recommended information should be included in the WMP.

- **Revision #15: Version 4.1 of the WMP is to clarify if CIRNAC-CARD is choosing to apply the Radiation Protection Program to NORM sites outside of the WNSL Licence. CIRNAC is to include the information requested in GNWT-ENR comment 11.**

CIRNAC-CARD also responded to ECCC comment 2, about management of cleaned-off debris with NORM, with “as opposed to specifically addressing this material in the Waste Management Plan, CIRNAC-CARD will include a general note that impacted or potentially impacted dust, dirt or debris will report to the CDF [Confined Disposal Facility] (either directly or through the temporary impacted soil storage facility).” It is unclear where CIRNAC-CARD intends to include this general note, but the Board is of the opinion that it should be reflected in the WMP to address reviewer comments.

- **Revision #16: Version 4.1 of the WMP is to include the note that “impacted or potentially impacted dust, dirt or debris will report to the CDF (either directly or through the temporary impacted soil storage facility).”**

### **3.2.2 Confined Disposal Facility Inventory**

The CNSC and Tłıchq Government both commented that there should be an inventory of CDF contents (WLWB staff comment 10 (CNSC) and TG comment 7). CIRNAC-CARD responded that this inventory is required under Waste Nuclear Substances inventory and noted it would submit it to CNSC and provide it

to the Tłıchq Government as well. CIRNAC-CARD has noted that this submission is required as part of the WNSL, and as such it appears not to fall within the Board's authority. The Board has no further direction on this issue at this time.

### **3.2.3 Mill Lake Water Treatment**

In its review, the Tłıchq Government noted there was no discussion of waste management of Mill Lake water treatment wastes and highlighted that it should be discussed in the WMP especially as the "uranium rich sludge may pose a health risk if not properly handled and stored." Tłıchq Government noted that the treatment wastes will require temporary storage in containers until the CDF is able to accept the waste (TG comments 15 and 18). CIRNAC responded that the Mill Lake Water Treatment Facility Operation and Maintenance Plan (O&M Plan) (required under Part E, Condition 10 of the Licence) will include a description of water treatment waste production (as per Schedule 4, Condition 4 Item c), and is not needed in the WMP. The Board acknowledges that the O&M Plan requires a "description of water treatment waste production" but is of the view that the details recommended by Tłıchq Government would be useful in the O&M Plan as well.

- ***Decision #4: The Mill Lake Water Treatment Facility Operation and Maintenance Plan submission is to include a description of how the water treatment waste will be managed, including a description of any containers, and expected time before the waste will be placed in the CDF.***

### **3.3 General Revisions**

Reviewers made several comments regarding revisions and updates to the WMP, to which CIRNAC-CARD responded that a revision would be made in a future revision of the WMP. The Board is not concerned with the proposed revisions because they reflect Parties' recommendations. These revisions are summarized here and are to be completed with submission of Version 4.1 of the WMP.

- ***Revision #17: Version 4.1 is to include revisions as described in response to the following comments: TG comments 2 4, 5, 8, 16, and 17, GNWT-ENR comments 3, 5, 6, 7, 9, and 12.***

### **3.4 Other Comments**

Other comments submitted during the public review are not discussed in this this Reasons for Decision because in the Board's opinion, the responses provided by CIRNAC-CARD adequately addressed the reviewers' comments or were identified as not requiring a response (e.g., letter to support comments). These comments include the following: WRRB comment 1; ECCC comment 1; TG comments 3, 9, 11-13, and 19-21; GNWT-ENR 1; and WLWB staff comments 1, 7, 8, and 10.

Signed the 23<sup>rd</sup> day of May 2023, on behalf of the Wek'èezhìi Land and Water Board



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Witness



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Mason Mantla  
Chair, Wek'èezhìi Land and Water Board