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April 2, 2024

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 4.1 – Approved with Revisions Required – Rayrock Remediation Project – Miscellaneous – Former Rayrock Mine, NT

The Wek'èezhì Land and Water Board (Board) met on March 27, 2024, and considered the Waste Management Plan (WMP), Version 4.1,¹ submitted by Crown-Indigenous Relations and Northern Affairs Canada – Contaminants and Remediation Division (CIRNAC-CARD) on December 21, 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 4.1 and requires submission of Version 4.2 to the Board. Version 4.2 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*.

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

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

¹ See WLWB Online Review System (new.onlinereviewssystem.ca) for the [Rayrock - Waste Management Plan - Version 4.1 – Part 1 - Dec 21 23](#); [Rayrock - Waste Management Plan - Version 4.1 - Part 2 - Dec 21 23](#)

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
 Megan Larose – Inspector, CIRNAC

Attached: Reasons for Decision



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Reasons for Decision

Reference/File Number:	W2020L8-0003 (Type A Water Licence) and W2020X0005 (Type A Land Use Permit)
Licensee:	Crown-Indigenous Relations and Northern Affairs Canada – Contaminants and Remediation Division (CIRNAC-CARD)
Subject:	Waste Management Plan (WMP), Version 4.1

Decision from the Wek'èezhì Land and Water Board Meeting of March 27, 2024

1.0 Decision

On March 27, 2024, 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 4.1.² In consideration of the submission, reviewer comments, and proponent responses, the Board has decided the following:

1. To approve Version 4.1 of the Waste Management Plan; and
2. To require CIRNAC-CARD to submit Version 4.2 of the Waste Management Plan. Version 4.2 is to be submitted within 45 days of the Board communicating this decision and is to include Revisions 1 to 7.

2.0 Background

Part E, Condition 3 of Water Licence W2020L8-0003 (the Licence) requires compliance with the approved Waste Management Plan (WMP).³ Compliance with the WMP is also required by Part C, Condition 54 of

² See WLWB Online Review System (new.onlinereviewssystem.ca) for [Rayrock - Waste Management Plan - Version 4.1 – art1 - Dec 21 23](#); [Rayrock - Waste Management Plan - Version 4.1 - Part 2 - Dec 21 23](#)

³ See WLWB Online Registry (www.wlwb.ca) for [Rayrock – Licence – Jan 30 23](#)

Land Use Permit W2020X0005 (the Permit).⁴ Version 4.0 of the WMP was approved by the Board on May 23, 2023 with the requirement that CIRNAC-CARD revise the WMP as detailed in the Board's Reasons for Decision (RFD).⁵ On December 21, 2023, CIRNAC-CARD submitted Version 4.1 of its Waste Management Plan (WMP). Following conformity correspondence with Board staff, CIRNAC-CARD provided an updated cover letter on January 23, 2024. The Plan was distributed for public review on January 24, 2024 on the Online Review System (ORS). Comments and recommendations were received by the deadline of February 21, 2024, from the Government of Northwest Territories – Environment and Climate Change Department (GNWT-ECC) and Environment and Climate Change Canada (ECCC); Board staff also submitted questions. Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)-Resource and Land Management (RLM) stated that they have no comments at this time. The Tłı̨chǫ Government (TG) did not submit any comments. Proponent responses were submitted by the deadline of March 6, 2024. The review summary is available on the ORS.⁶

3.0 Reasons for Decision

As discussed throughout this Reasons for Decision, several recommendations and commitments were made during the public review of Version 4.1 of the WMP that the Board is requiring be addressed in a revised version of the plan. As detailed below, the revisions made to the WMP pertain to the provision of clear commitments and/or clarifications. Therefore, the Board has decided to approve Version 4.1 of the WMP and requires submission of Version 4.2 to include the Revisions 1 to 7 as outlined in this Reasons for Decision. Version 4.2 is to be submitted within 45 days of the Board communicating this decision.

- ***Decision #1: The Board has approved Version 4.1 of the Waste Management Plan.***

- ***Decision #2: CIRNAC-CARD is to submit Version 4.2 of the Waste Management Plan. Version 4.2 is to be submitted within 45 days of the Board communicating this decision and is to include Revisions 1 to 7.***

3.1 Options for Petroleum Impacted Soil Management

Section 3.2.1 of the WMP outlines two options for managing petroleum-impacted soils generated by on-site spills: containerization and either off-site disposal or deposition in the Confined Disposal Facility (CDF).

During the public review, Board staff noted that the specific criteria/factors used to choose between off-site disposal and deposition in the CDF for petroleum-impacted soils are unclear (WLWB staff comment 3). WLWB staff requested clarification on these criteria (WLWB staff comment 3). In response, CIRNAC-CARD stated that this decision is a Project decision that will be based on the potential impact to the water reporting to the Water Treatment Plant. The proponent assured that off-site disposal will be chosen if water treatment can't handle the impact. CIRNAC-CARD further clarified that all wastes will be handled in

⁴ See WLWB Online Registry (www.wlwb.ca) for [Rayrock - Amendment - Permit - Land Use Permit and Issuance Letter – March 13 24](#)

⁵ See WLWB Online Registry (www.wlwb.ca) for [Rayrock - Waste Management Plan - Version 4.0 - Reasons for Decision – May 23 23](#)

⁶ See WLWB Online Review System (new.onlinereviewssystem.ca) for the [Rayrock - Waste Management Plan - Version 4.1](#)

accordance with the Acts, Regulations and Guidelines provided in Table 4 of the WMP. Based on the proponent's response, the Board is of the opinion that this comment is addressed and is not requiring any revisions to the plan related to this topic.

Section 3.2.1 of the WMP also states that "Deposition in the CDF, if selected, would not occur until near the capping of the facility to reduce the need to treat petroleum impacted water in the water treatment plant." It was unclear to Board staff how CIRNAC-CARD will ensure that hydrocarbon-impacted water will not be an issue before hydrocarbon impacted soils final disposal (WLWB staff comment 4). WLWB staff requested CIRNAC-CARD to outline the measures in place to ensure that hydrocarbon-impacted water will not be an issue before hydrocarbon impacted soils final disposal and how CIRNAC-CARD will collect and treat hydrocarbon-impacted water if it becomes an issue (WLWB staff comment 4). In response, CIRNAC-CARD stated that the Spill Contingency Plan deals with operational releases of petroleum hydrocarbon that result in soil impacts and these are defined as spills and will be reported accordingly. CIRNAC-CARD also clarified that "... The water treatment system includes granular activated carbon (GAC) filtration. GAC filtration is the most common filtration means for petroleum impacted water." The use of Granular Activated Carbon (GAC) filtration is included in section 1.8 of the SCP, Version 4.1. The GAC is also included in the Mill Lake Water Treatment Facility Design and Construction Plan. Based on the proponent's response and the above context, the Board is of the opinion that this comment is addressed and is not requiring any revisions to the plan related to this topic.

3.2 Non-Hazardous Wastes for Incineration – Ash Disposal

Section 3.2.3 of the WMP states that "Any ash produced from incineration may be subject to testing for contents of hazardous materials, in accordance with GNWT Guideline for General Management of Hazardous Waste (GNWT, 2017)." During the public review, Board staff noted that criteria/ factors that will be used to determine if testing of ash generated from incineration is necessary are unclear (WLWB staff comment 5). Board staff requested CIRNAC-CARD to clarify these criteria/factors (WLWB staff comment 5). In response, CIRNAC-CARD stated that they included the reference to the Guidelines in section 3.2.3 of the WMP. CIRNAC-CARD also referred to the following instructions, in section 3.2 of the Guidelines, for incinerator wastes:

Incinerator ash might contain high levels of metals, dioxins and/or furans. This waste stream must undergo analytical testing for leachable metals as well as dioxins and furans to confirm the absence of contaminants (Schedule I and II) prior to disposal in solid waste facilities in the NWT." And "...While CIRNAC-CARD will not be directing wastes to facilities in the NWT, similar requirements apply to disposal at facilities in the south. These are the criteria/factors.

Based on the proponent's response, the Board is of the opinion that this comment is addressed and is not requiring any revisions to the plan related to this topic.

In addition, section 3.2.3 of the WMP states that "Ash material will be disposed of according to established guidance and will include disposing of material at an approved off-site facility or in the CDF." However, it

was unclear to Board staff whether the final disposal option will depend on ash test results regarding the presence of hazardous materials (WLWB staff comment 6). Board staff requested CIRNAC-CARD to determine if the ash final disposal option will depend on the ash test results regarding the presence of hazardous materials (WLWB staff comment 6). In response, CIRNAC-CARD stated that off-site hazardous waste disposal at an approved facility and disposal in the Confined Disposal Facility at Rayrock are both acceptable options for ash disposal. CIRNAC-CARD also outlined that containerization of the ash and deposit in the CDF at closure is acceptable to CIRNAC-CARD, meets the requirements of all applicable Acts and Regulations and is environmentally acceptable. CIRNAC-CARD also referred to Appendix B “SANEXEN Waste Management Plan” that has identified off-site disposal options if the ash test results show the presence of hazardous material. It was confirmed that section 3.1.4 of Appendix B states that residuals from the incinerator (ash) shall be sampled and tested by the Departmental Representative (DR) to determine proper management and disposal and that ash shall be containerized, segregated, and labelled as hazardous until confirmation from sampling results. Based on the proponent’s response and the above context, the Board is of the opinion that this comment is addressed and is not requiring any revisions to the plan related to this topic.

Section 3.2.3 of the WMP further states that choosing from the two options for fly ash disposal is a project decision. Within their comments on the WMP V4.1, GNWT-ECC requested CIRNAC-CARD outline the circumstances under which each disposal method will be selected for incinerator fly ash, update the WMP to be more specific with respect to the frequency of incinerator ash testing, and to reference the more recent guideline, which is the GNWT Guideline for Hazardous Waste Management (2017) (GNWT-ECC comment 3). In response, CIRNAC-CARD recognized that ash from incineration may be hazardous and that the receptor facility will dictate the requirement of testing for off-site disposal of any ash. CIRNAC-CARD also stated that testing for potential contaminants in the water from the CDF is described in detail in the Mill Lake Water Treatment Plant Operation and Maintenance Plan. CIRNAC-CARD also emphasized that the CDF is regulated indefinitely by the Canadian Nuclear Safety Commission (CNSC) for nuclear and environmental concerns. CIRNAC-CARD also asserted that both options are acceptable means of disposal, and CIRNAC-CARD will report which option was selected by the Contractor in the Report on the Completion of Remediation. CIRNAC-CARD further clarified that the frequency of testing will be in accordance with recommendations of guideline documents and/or requirements of receiving facilities. To ensure that ash test frequency is clear, the Board is of the opinion that the WMP should be revised to include this commitment.

- ***Revision #1: Version 4.2 of the WMP is to be revised to include a clear commitment that the frequency of ash testing will be in accordance with recommendations of guideline documents and/or requirements of receiving facilities.***

CIRNAC-CARD acknowledged that the Reference Section provides the former document year for the GNWT Guideline for Hazardous Waste Management; however, the correct document year is referenced in the section 3.2.3 body of the Plan. To ensure that CIRNAC-CARD will use the more recent guideline which is the GNWT Guideline for Hazardous Waste Management (2017), the Board is of the opinion that this should be reflected in all relevant sections in the WMP, including the Contractor WMP.

- ***Revision #2: Version 4.2 of the WMP is to be revised to replace GNWT Guideline for General Management of Hazardous Waste (1998) with GNWT Guideline for Hazardous Waste Management (2017).***

3.3 Hazardous Waste Designation

Table A-1 in Appendix A of Version 4.1 of the WMP outlines waste packaging; handling; and transportation and disposal facility options either on-site or offsite. Table 4 of the Contractor WMP lists offsite disposal facility options.

Within their comments on the WMP V4.1, GNWT-ECC noted that Precision North Recycling is still listed in both Table A-1 and Table 4 as an offsite disposal facility without additional information to state this receiver is authorized to accept hazardous waste (GNWT-ECC comment 5). Further, GNWT-ECC noted that a Letter of Waste Acceptance from Clean Harbours is also provided in Appendix A of the Contractor's WMP but this receiver is not included in Table 4 (GNWT-ECC comment 5). In response, CIRNAC-CARD recognized that Clean Harbours was omitted from the list in Table 4, but the company is mentioned in the paragraph directly below the Table. CIRNAC-CARD also stated that they listed potential waste disposal facilities, but only those with confirmed acceptance (letter submitted) will be used. CIRNAC-CARD further stated that all potential issues with Precision North Recycling would be addressed if they are selected as a future receiver. For more clarity and to avoid any confusion, the Board is of the opinion that CIRNAC-CARD should add Clean Harbours to the disposal facilities listed in Table A-1 and Table 4 of the WMP and to include its commitment to only use the receptors for which a letter of acceptance has been submitted.

- ***Revision #3: Version 4.2 of the WMP is to be revised to include Clean Harbours in the offsite disposal facilities listed in Table A-1 and Table 4 of the WMP.***
- ***Revision #4: Version 4.2 of the WMP is to be revised to include a clear commitment that CIRNAC-CARD will only use the receptors for which a letter of acceptance has been submitted.***

3.4 Non-Hazardous Wastes

Section 3.1.5 of the WMP outlines examples of non-hazardous wastes at the site, such as food and organic wastes, concrete, wood, plastics, and metals.

Within their comments on the WMP V4.1, GNWT-ECC noted that CIRNAC-CARD stated that concrete, wood, plastic, and metals are examples of non-hazardous materials that have negligible environmental effects (GNWT-ECC comment 7). GNWT-ECC requested that CIRNAC-CARD state that "concrete, wood, plastic and metals are examples of non-hazardous materials that have negligible immediate environmental effects, and represent visual pollution" (GNWT-ECC comment 7). In response, CIRNAC-CARD stated that in the case of plastic as litter, the associated environmental effect of small volumes of plastic would be virtually impossible to quantify; however, CIRNAC-CARD asserted that stating "negligible effect" invites requests to quantify that effect. CIRNAC-CARD also clarified that it cannot be put in a

position where the risk from litter has to be studied or quantified and that is outside the scope of a Waste Management Plan and a remediation project. The proponent further clarified that concrete, as a famous building material in the north, has similar impact and issues as those for plastics. While the Board is of the view that the risk identified by CIRNAC-CARD is small, the Board is also of the view that the WMP focuses on managing waste, not conducting in-depth studies to quantify effects of waste. Thus, the Board is of the opinion that no changes to the WMP are required to address this recommendation.

GNWT-ECC also noted that CIRNAC-CARD stated that visual pollution may be defined as visually unappealing litter, garbage, and other surficial debris that has no associated environmental effect but that results in a site that does not look “clean” (GNWT-ECC comment 7). GNWT-ECC requested that CIRNAC-CARD state that visual pollution be defined as “visually unappealing litter, garbage and other surficial debris that has limited immediate environmental effects.” (GNWT-ECC comment 7). CIRNAC-CARD did not address this part of GNWT-ECC’s recommendation; however, the Board is of the opinion that while GNWT-ECC’s suggestion might be helpful, it is not essential to how this waste is being managed. Thus, the Board is of the opinion that no changes to the WMP are required to address this recommendation.

3.5 Open Burning of Untreated Wood

Within their comments on the WMP V4.1, ECCC noted that section 3.1.5 of the WMP states the intention to open burn untreated wood; however, ECCC guidelines, as represented in the ECCC Solid Waste Management for Northern and Remote Communities, Planning and Technical Guidance Document, March 2017 discourages the use of open burning (ECCC comment 2). Accordingly, ECCC recommended that the Proponent follow the Contractor's Waste Management Plan in Appendix B, Section 3, and dispose of untreated wood using the onsite incinerator (ECCC comment 2). In response, CIRNAC-CARD stated that the contractor's Waste Management Plan will be followed for general wood disposal; however, CIRNAC-CARD stated that open burning will occur for small fires for site ceremonies and similar applications. To ensure that disposal of untreated wood is done using the onsite incinerator, the Board is of the opinion that CIRNAC-CARD should remove its intention to open burn untreated wood from section 3.1.5 of the WMP. Instead, CIRNAC-CARD could state that the contractor's Waste Management Plan will be followed for general wood disposal. As the WMP relates to handling waste, the Board does not view this revision as limiting the ability to have small fires for site ceremonies and similar applications as those activities would not be related to waste disposal.

- ***Revision #5: Version 4.2 of the WMP is to be revised to remove the reference to CIRNAC-CARD intention to open burn untreated wood as a means of general wood disposal.***
- ***Revision #6: Version 4.2 of the WMP is to be revised to include a clear commitment that CIRNAC-CARD will follow the contractor's Waste Management Plan for general wood disposal.***

3.6 Off-Site Disposal

Section 2.1 of the Contactor’s WMP states that letters required for disposal will be provided ten days prior to initial movement of waste to receivers.

Within their comments on the WMP V4.1, GNWT-ECC noted that section 2 of the Contractor's WMP states that "Sanexen's designated off-site disposal facility details and letters of waste acceptance shall be provided to the Departmental Representative a minimum 90 days prior to material leaving the Site." GNWT-ECC also noted that if the letters are provided to the Departmental Representative (CIRNAC) 90 days prior to movement off-site, they should also be shared with the Inspector and the Land and Water Board at that time (GNWT-ECC comment 4).

In response, CIRNAC-CARD clarified that Letters of Acceptance have been included for Secure Energy and Clean Harbors in Appendix A. CIRNAC-CARD also clarified that they will provide additional letters for the other receivers, should disposal at these facilities be required, in accordance with the Land Use Permit and Water Licence requirements.

Condition 50 of the Permit states that "the Permittee shall provide written notification to the Board and Inspector a minimum of 10 days prior to the initial deposit of Waste, demonstrating that the licenced disposal facility has agreed to accept the Waste and has the capacity to receive the volumes of Waste requested." Section 2.1 of the Contractor's WMP states that "...Other receivers listed will accept the wastes and provide the required letters to the Board and Inspectors a minimum of 10 days prior to the initial deposit of the waste in accordance with condition 50 of the LUP W2020X0005." Based on the proponent statement in section 2.1 of the Contractor's WMP that they will comply with Condition 50 of the Permit and asserting that in their response, the Board is of the opinion that this comment is addressed and is not requiring any revisions to the plan related to this topic.

3.7 Background Radiation Measurements

CIRNAC-CARD has a Radiation Protection Program which includes procedures for screening all non-hazardous waste intended to be removed from site as a due diligence measure. This Program includes background radiation measurements that will be made in the waste testing area (either where the waste was located or at the non-hazardous waste storage area) to establish a baseline radiation level.

Within their comments on the WMP V4.1, GNWT-ECC noted that it is unclear how CIRNAC-CARD will do the background radiation measurements at the waste testing area (GNWT-ECC comment 6). GNWT-ECC requested CIRNAC-CARD specify how the background radiation measurements shall be made (the equipment used, and the established baseline should also be specified) (GNWT-ECC comment 6). GNWT-ECC also requested CIRNAC-CARD clarify in the Plan, what Unconditional Derived Release Limit is or how it will be used to measure radiation levels in the waste (GNWT-ECC comment 6). GNWT-ECC further requested CIRNAC-CARD clarify if individual wastes components will be screened for radiation contamination and specify at what stage the contaminated wastes will be segregated to eliminate the spread of contamination (GNWT-ECC comment 6).

In response, CIRNAC-CARD stated that Radiation protection is regulated through the CNSC as they are the Canadian Authority on Radiation protection and regulation. CIRNAC-CARD clarified that the CNSC has

reviewed the WMP and did not require further detail on background radiation screening or further information on Release Limits. CIRNAC-CARD asserted that they provided sufficient information in the WMP to acknowledge the potential for radiological impacts, described the screening that will be used to verify the condition of the waste, and indicated the disposal options for pass and fail conditions from the screening. It was confirmed that section 3.1.5 of the WMP includes the information provided by CIRNAC-CARD in its response. Based on the proponent's response and the above context, the Board is of the opinion that this comment is addressed and is not requiring any revisions to the plan related to this topic.

3.8 Accidents and Malfunctions References

Section 3.6 of the Contractor's WMP makes reference to requirements that will be put into place during the storage of hazardous wastes. Several of the requirements address accidents and malfunctions (e.g., availability of appropriate spill response equipment, absorbent materials, spill kit, reporting of spills or accidents).

Within their comments on the WMP V4.1, ECCC noted that section 3.6 of the Contractor's WMP did not make explicit reference to the spill contingency plans that will be in place/implemented in the event of a spill of hazardous substances in storage (ECCC comment 3). ECCC made a similar comment regarding section 3.9 of the Contractor's WMP (ECCC comment 3). ECCC recommended that Spill Contingency Plan(s) are developed and in place to address spill response during storage and/or transportation of the hazardous wastes mentioned in the Contractor's WMP (ECCC comment 3). ECCC further recommended that the SCP(s) should be kept up to date, to account for all types of hazardous wastes/substances being stored and/or transported, as well as the applicable mode of transportation (ECCC comment 3).

In response, CIRNAC-CARD stated that Spill Contingency Plans are in place, with the latest approved version available on the WLWB website. CIRNAC-CARD further clarified that section 1.2 of the Contractor's WMP references the Spill Contingency Plan in place. Based on CIRNAC-CARD's response and the fact that there is an approved SCP in place (i.e., Version 4.1),⁷ the Board is of the opinion that this comment is addressed and is not requiring any revisions to the plan related to this topic.

3.9 Future Submissions

GNWT-ECC recommended that CIRNAC-CARD ensure all figures referenced in the overall WMP, including the Contractor's WMP, include figure numbers and captions within all appendices (GNWT-ECC comment 2). GNWT-ECC also requested CIRNAC-CARD use only quality images, such as those referenced in Appendix E of the Contractor's WMP (GNWT-ECC comment 2). In response, CIRNAC-CARD stated that future submissions will endeavour to include suitable quality figures with numbers and captions to facilitate understanding. As an updated version of the WMP is being required, the Board is of the opinion that CIRNAC-CARD should try to improve the quality of the figures and ensure that they all include figure numbers and captions. The Board understands that the file size submission limit can cause some

⁷ See WLWB Online Registry (www.wlwb.ca) for [Rayrock - Spill Contingency Plan - Version 4.1 - Jun 7 23](#)

challenges, but notes that CIRNAC-CARD can reach out to Board staff to discuss options if this is the main limiting factor.

- ***Revision #7: Version 4.2 of the WMP is to be revised to include improved figures that all have associated figure numbers and captions.***

3.10 Other comments addressed by CIRNAC-CARD

The following comments are not discussed in the Reasons for Decision because it is Board's view that the comments/recommendations and associated responses are clear and straightforward and have thus been adequately addressed: WLWB staff comments 1 and 2.

Signed the 2nd day of April 2024, on behalf of the Wek'èezhìi Land and Water Board



Witness



Mason Mantla
Chair, Wek'èezhìi Land and Water Board