



Mackenzie Valley Land and Water Board
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January 26, 2017

File: MV2016X0013 & MV2016L8-0004

Mr. Carey Ogilvie
Department of Indian Affairs and Northern Development
Contaminants and Remediation Division
PO Box 1500
YELLOWKNIFE NT X1A 2R3

Email: Carey.Ogilvie@aandc-aadnc.gc.ca

Dear Mr. Ogilvie:

**Waste Management Plan – Denial under Water Licence; Interim approval under Land Use Permit, Follow-up required
Department of Indian Affairs and Northern Development – Bullmoose-Ruth Remediation Project**

The Mackenzie Valley Land and Water Board (MVLWB or the Board) met on January 26, 2017 and reviewed your Waste Management Plan for the Bullmoose-Ruth Remediation Project, which was submitted to fulfil Part F, item 3 of Water Licence MV2016L8-0004 and Conditions 43 and 77 of Land Use Permit MV2016X0013 on December 22, 2016.

The Board hereby grants interim approval under the Land Use Permit of the Waste Management Plan. The Waste Management Plan, as submitted, reflects the scope and scale of Land Use Permit MV2016X0013 and can be approved to support activities associated with that Permit, including construction of the winter access road. It does not, however, conform to the requirements of Water Licence MV2016L8-0004 or reflect the level of detail required to describe the waste management activities associated with the remediation of the Bullmoose-Ruth Project area. The Board rejects the Waste Management Plan under Water Licence MV2016L8-0004. As such, no activities associated with the Licence can be carried out until there is a final, Board-approved Waste Management Plan.

The Board requires that Department of Indian Affairs and Northern Development - Contaminants and Remediation Division (DIAND-CARD) revise and resubmit the Waste Management Plan in accordance with comments made during this review, as summarized in Table 1 (attached), and as directed in the Reasons for Decision (attached). A revised Waste Management Plan shall be submitted by February 27, 2017. This Plan will be distributed for review prior to going to the Board for an approval decision. DIAND-CARD shall adhere to the commitments made in their responses to reviewer comments (attached) dated January 13, 2017 and shall include a detailed conformity table in accordance with Part B, item 3 (c) of Water Licence MV2016L8-0004. Final approval will be provided upon written confirmation from the Board following a public review.

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If you have any questions or concerns, please contact Julian Morse at (867) 766-7453 or email jmorse@mvlwb.com or Shannon Allerston at (867) 766-7458 or email sallerston@mvlwb.com.

Yours sincerely,

A handwritten signature in black ink, appearing to read "V. C. Blondin". The signature is fluid and cursive, with a long horizontal stroke at the beginning.

Violet Camsell-Blondin
MVLWB, A/Chair

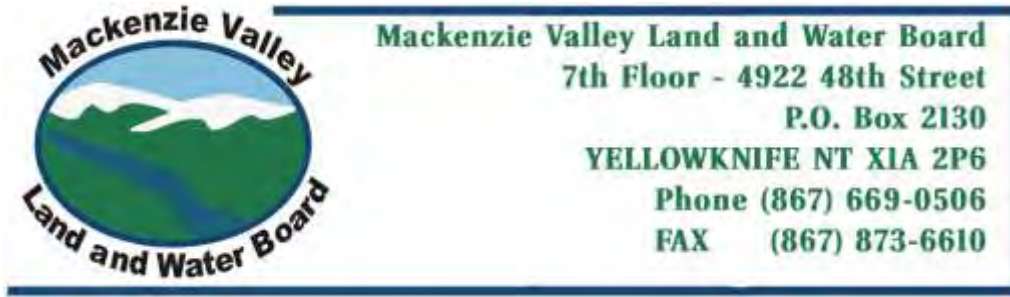
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Attachments: Table 1
Review Comment Summary Table
Reasons for Decision

Table 1: Department of Indian Affairs and Northern Development – Miscellaneous - Bullmoose-Ruth Remediation Project – List of Requirements from review of Waste Management Plan required by Water Licence MV2016L8-0004 and Land Use Permit MV2016X0013

	Summary of Requirement	Location of Recommendation
1	Include a map identifying the proposed location for all waste management activities with GPS coordinates and where applicable, the location of historical waste management areas.	Review Comment Summary Table ENR-1
2	Include a description of the site physical, surface and subsurface characteristics, site water management (flow and drainage patterns) and geotechnical characteristics.	Review Comment Summary Table ENR-2
3	Include engineering analysis, plans, studies or operational requirements for infrastructure required to manage and contain waste including any detail on the design, structure, capacity, management, monitoring, operation or maintenance of the landfarm or the landfills including any information on cover design(s) (or where this information can be found);	Reasons for Decision and Review Comment Summary Table ENR-3
4	Provide more information regarding the location of temporary stockpiles and the duration of storage, including any monitoring of the stockpiles.	Reasons for Decision
5	Clarification regarding the collection and disposal of impacted sediment, including the amount of sediment moved and the location of sediment disposal.	Reasons for Decision
6	Provide more detail on the well locations, monitoring schedule and management of impacted groundwater (including monitoring areas where contaminants have been excavated) and leachate.	Reasons for Decision
7	Provide details of how PHC contaminated Groundwater will be delineated and treated.	Reasons for Decision
8	Explain how sump discharge water will meet Water Licence criteria (Part F, item 21) prior to discharge and include the planned location of sumps for discharge and the quantity of water to be discharged at each location.	Reasons for Decision
9	Include a discussion on the installation of a weir and any supporting structures in the Bullmoose wetland.	
10	Include a description of the BMR Remediation Project.	Reasons for Decision
11	Outline environmental and social goals and objectives used for designing the Waste Management Plan.	Reasons for Decision
12	Include more detail on waste characteristics, sources, or potential environmental effects	Reasons for Decision
13	Include a description of the activities involved in the management (e.g handling, storage, processing, collection, separation, transportation, treatment, disposal, etc.) of waste.	Reasons for Decision

14	Provide rationale for the methods of waste management chosen	Reasons for Decision
15	Provide detailed descriptions of soak-away sumps including the surrounding environment or any monitoring plans.	Reasons for Decision
16	Include results of the geochemical characterization of waste rock or plans for sampling to ensure the management methods are successful.	Reasons for Decision
17	Provide an identification of all sources, locations and volumes of waste rock or identify locations of possible sources of seepage that may require monitoring or management.	Reasons for Decision
18	Provide a summary of the anticipated volumes of sewage generation, volume balance or treatment time, location of sludge disposal or discharge volumes	Reasons for Decision
19	Provide references to reports that contain additional details of waste management planning for specific waste streams.	Reasons for Decision
20	Provide references to reports that support the waste management activities that are submitted to the Land and Water Boards to satisfy regulatory requirements (i.e. the Remedial Action Plan).	Reasons for Decision
21	Describe the methods and techniques to measure the effectiveness of waste management practices, as well as, the steps taken to review and improve the waste management plan or correct any management or operational problems should also be provided.	Reasons for Decision



Reasons for Decision

Issued pursuant to sections 72.25 of the *Mackenzie Valley Resource Management Act* and section 54 of the *Waters Act*

Management Plan	
Reference/File Number	MV2016L8-0004 & MV2016X0013
Applicant	Department of Indian Affairs and Northern Development (DIAND) – Contaminants and Remediation Division (CARD)
Project	Bullmoose-Ruth Remediation Project - Waste Management Plan

Decision from Mackenzie Valley Land and Water Board Meeting of

January 26, 2017

1.0 Background

Department of Indian Affairs and Northern Development (DIAND) – Contaminants and Remediation Division (CARD) submitted a Waste Management Plan, Spill Contingency Plan, Community Engagement Plan, and Sediment and Erosion Control Plan on December 22, 2016, to satisfy the following conditions of their Permit MV2016X0013 and Licence MV2016L8-0004:

- Requirements for the Waste Management Plan are outlined in Part F, item 3 of Licence MV2016L8-0004 and Conditions 43 and 77 of Permit MV2016X0013.
- Requirements for the Spill Contingency Plan are outlined in Part G, item 2 of Licence MV2016L8-0004 and Conditions 62 and 77 of Permit MV2016X0013.
- Requirements for the Engagement Plan are outlined in Part B, item 12 of Licence MV2016L8-0004 and Conditions 77 and 79 of Permit MV2016X0013.
- Requirements for the Sediment and Erosion and Control Plan are outlined in Part F, item 5 of Licence MV2016L8-0004 and Conditions 21, 22 and 77 of Permit MV2016X0013.

2.0 Discussion

The Waste Management Plan does not include all components outlined in the Board's *Guidelines for Developing a Waste Management Plan* or Schedule 3, item 1 (see Table 1 below). Table 1 lists the components of the Waste Management Plan required by Schedule 3, item 1 of Licence MV2016L8-0004 and details on the adequacy of the submission.

Table 1: Waste Management Plan Completeness

	Components of the Waste Management Plan as required in Schedule 3, item 1 of MV2016L8-0004	Board analysis of the adequacy of the Waste Management Plan in addressing the component
a)	The development and management of excavation areas (trenches, quarries, borrow sources, and overburden) so as to eliminate or minimize the risk of potential for Acid Rock Drainage and Metal Leaching;	Attachment 1(A) Adequate.
b)	The consolidation and disposal of Tailings, including the quantity of Tailings to be consolidated, the location of disposal, and confirmatory sampling plans for the site of origin;	Attachment 1(B) and Attachment 2 Inadequate. More information regarding the location of temporary stockpiles and the duration of storage should be provided, including any monitoring of the stockpiles.
c)	The collection and disposal of impacted sediment, including the amount of sediment moved and the location of sediment disposal;	Attachment 1(C) Inadequate. Total quantity of impacted sediment reported in section C is 500m ³ . This is equivalent to the impacted sediment expected to be addressed at the Bullmoose Sewage Lagoon. The RAP discusses an additional 176m ³ down gradient of the portal seep and 63m ³ within Bullmoose Creek that have also been identified for collection and disposal.
d)	The collection and disposal of metal impacted soils, including the quantity to be collected, the location of disposal, and confirmatory sampling plans for the site of origin;	Attachment 1(D) and Attachment 2 Adequate. Includes calculations of co-mingled soils.
e)	The collection and disposal of petroleum hydrocarbon (PHC) contaminated soils, including the quantity to be collected, the location of disposal, and confirmatory sampling plans for the site of origin;	Attachment 1(E) and Attachment 2 Adequate. Includes calculations of co-mingled soils.
f)	Details of how Groundwater will be managed in areas where Tailings, impacted sediments, and metals-impacted soil are removed;	Section 5 – Wastewater Management Inadequate. This section refers to the establishment of groundwater wells surrounding the Bullmoose landfill, Ruth landfill, and Bullmoose landfarm. More detail on the well locations, monitoring schedule and management of impacted groundwater is required.
g)	Details of how Groundwater and free-product will be managed in areas where free product is identified during PHC contaminated soil excavation;	Section 5 – Wastewater Management Inadequate. This section refers to the establishment of groundwater wells surrounding the Bullmoose landfill, Ruth landfill, and Bullmoose landfarm. More detail on the well

		locations, monitoring schedule and management of impacted groundwater is required – including monitoring areas where contaminants have been excavated.
h)	Details of how PHC contaminated Groundwater will be delineated and treated;	Attachment 2 Inadequate. The delineation of contaminated groundwater is identified in the purpose of this section but is not discussed in the body of Attachment 2.
i)	The sampling and Discharge of portal and trench Water into soak-away Sumps, including the quantity of Water to be Discharged, and the location of the Sumps and the surrounding environment;	Attachment 1(I) Inadequate. This section refers to water quality in the trenches meeting the maximum allowable concentration of the treated wastewater stated in Specifications Section (SS) 01 35 15. It is unclear how these specifications relate to Water Licence conditions and criteria. This section should explicitly state that water will meet Water Licence criteria (Part F, item 21) prior to discharge. Additionally, this Plan should be updated to include the planned location of sumps for discharge and the quantity of water discharged.
j)	A Wastewater management plan, addressing the management of all Seepage and leachate Waters from all Engineered Structures intended to contain, withhold or divert Waste or Waters, including the management of Water from the equipment decontamination facility and any contact Water;	Section 5 – Wastewater Management Inadequate. This section refers to the establishment of groundwater wells surrounding the Bullmoose landfill, Ruth landfill, and Bullmoose landfarm. More detail on the well locations, monitoring schedule and management of leachate is required. This section does not address the management of leachate waters from the landfills, landfarm or identify potential sources of site-wide contact water.
k)	Any manipulation of the Bullmoose portal seep and adjacent wetland; and	Attachment 1(K) Inadequate. Please discuss installation of a weir and any supporting structures. Some clarification is required.
l)	Any other item as directed by the Board.	N/A

Many requirements of the Board's *Guidelines for Developing a Waste Management Plan* have not been addressed in the Waste Management Plan. The Waste Management Plan should be a stand-alone document to support the BMR Project, however, it does not include any description of the project for which it is designed. Details on the following requirements as laid out in the Guidelines are also missing:

- Environmental and social goals and objectives used for designing the Waste Management Plan;
- Detail on waste characteristics, sources, or potential environmental effects;
- A description of the activities involved in the management (e.g. handling, storage, processing, collection, separation, transportation, treatment, disposal, etc.) of waste;
- Rationale for the methods of waste management chosen;
- Engineering analysis, plans, studies or operational requirements for infrastructure required to manage and contain waste including any detail on the design, structure, capacity, management, monitoring, operation or maintenance of the landfarm or the landfills including any information on cover design(s) (or where this information can be found);
- Detailed descriptions of soak-away sumps including the surrounding environment or any monitoring plans;
- Results of the geochemical characterization of waste rock or plans for sampling to ensure the management methods are successful;
- Identification of all sources, locations and volumes of waste rock, or identify locations of possible sources of seepage that may require monitoring or management; and
- A summary of the anticipated volumes of sewage generation, volume balance or treatment time, location of sludge disposal or discharge volumes.

In addition to the missing details outlined above, the Guidelines require an overall summary of each waste type, and a plan for its management should be provided in a tabular format for easy reference. This should include, but is not limited to:

- References to reports that contain additional details of waste management planning for specific waste streams;
- References to reports that support the waste management activities that are submitted to the Land and Water Boards to satisfy regulatory requirements (i.e. the Remedial Action Plan); and,
- Methods and techniques used to measure the effectiveness of waste management practices, as well as, a description of the steps taken to review and improve the Waste Management Plan or correct any management or operational problems should also be provided.

Many of the missing Waste Management Plan details are provided in the Remedial Action Plan and Updated Remedial Action Plan which were submitted with the applications. The Waste Management Plan, should, however, be a stand-alone document providing the same level of detail on waste management plans and procedures as understood by Rowe's Outcome Joint Venture (ROJV), the contractor for the BMR Project.

3.0 Public Review

By January 10, 2017, comments and recommendations on the Waste Management Plan were received from 2 reviewers:

- Department of Fisheries and Oceans Canada (DFO); and
- Government of the Northwest Territories (GNWT) – Department of Environment and Natural Resources (ENR)

DIAND-CARD responded on January 13, 2017.

4.0 Decision

After reviewing the submissions of DIAND-CARD, the written comments received by the Board and the Staff Report prepared for the Board, the Board, having due regard to the facts and circumstances, the merits of the submissions made to it, and to the purpose, scope, and intent of the MVRMA and Regulations made thereunder, has determined that the Waste Management Plan as submitted, reflects the scope and scale of Land Use Permit MV2016X0013 and can be approved to support activities associated with the permit, including construction of the winter access road. It does not, however, conform to the requirements of applicable Guidelines, Licence MV2016L8-0004, or reflect the level of detail required to describe the waste management activities associated with the BMR Project as a whole. The Board rejects the Waste Management Plan under Water Licence MV2016L8-0004. As such, no activities associated with Water Licence MV2016L8-0004 can be carried out until there is a final, Board-approved Waste Management Plan. The Board requires update and resubmission of the Waste Management Plan for Board approval by February 27, 2017.

The revised plan should provide additional information identified in the Reviewer Comment Summary Table and as laid out in the Discussion, above, to be in line with applicable guidelines and authorization requirements before final approval.

SIGNATURE

Mackenzie Valley Land and Water Board



January 26, 2017

Violet Camsell-Blondin, A/Chair

Date

Review Comment Table

Board:	MVLWB
Review Item:	INAC-CARD - Bullmoose Ruth Remediation Project - Waste MGMT Plan (MV2016X0013 & MV2016L8-0004)
File(s):	MV2016L8-0004 MV2016X0013
Proponent:	INAC - Contaminants and Remediation Directorate
Document(s):	MV2016X0013 MV2016L8-0004 - INAC-CARD - Waste Management Plan (9MB)
Item For Review Distributed On:	Dec 22 at 15:30 Distribution List
Reviewer Comments Due By:	Jan 10, 2017
Proponent Responses Due By:	Jan 13, 2017
Item Description:	<p>Indigenous and Northern Affairs Canada - Contaminants and Remediation Directorate (INAC-CARD) submitted their Waste Management Plan on December 22, 2016. This Plan was originally submitted in conceptual form in support of INAC-CARD's Applications for a Permit and Licence for remediation activities associated with the Bullmoose Ruth Remediation Project. The Plan has now been revised and re-submitted in accordance with conditions in Licence MV2016L8-0004 and Permit MV2016X0013.</p> <p>Reviewers are invited to submit questions, comments, and recommendations on this submission using the Online Review System (ORS) by the review comment deadline specified below. All documents that have been uploaded to this review are also available on our public registry. If you have any questions or comments about the ORS or this review, please contact Board staff identified below.</p>
Contact Information:	Julian Morse 867-766-7453 Shannon Allerston 867-766-7458

Comment Summary

Fisheries and Oceans Canada: Mark D'Aguiar				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Response
1	General	<p>Comment Fisheries and Oceans Canada - Fisheries Protection Program has reviewed the Waste management plan according to our mandate and has no comments.</p> <p>Recommendation Fisheries and Oceans Canada - Fisheries Protection Program has reviewed the Waste MGMT Plan according to our mandate and has no comments.</p>	<p>Jan 13: Thank you for your review</p>	Noted.
GNWT - ENR: Central Email GNWT				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Response
4	General File	<p>Comment (doc) ENR Letter with Comments and Recommendations</p> <p>Recommendation</p>		Noted.
1	Topic 1: Site Map	<p>Comment The MVLWB Guidelines for Developing a Waste Management Plan (2011) suggest the inclusion of a map identifying the proposed location for all waste management activities with GPS coordinates and where applicable, the location of historical waste management areas.</p> <p>Recommendation 1) Rowe's Outcome JV (ROJV) should provide a map of each former mine site included in the Bullmoose Ruth Remediation project and identify the proposed locations of all waste</p>	<p>Jan 13: Maps with locations of all waste management activities, both construction related and historic, will be included in the revised version of the Plan.</p>	Adequate.

		management activities with GPS coordinates and where applicable, the locations of historical waste management areas.		
2	Topic 2: Site Description	<p>Comment The MVLWB Guidelines for Developing a Waste Management Plan (2011) suggest a description of the site physical, surface and subsurface characteristics, site water management (flow and drainage patterns) and geotechnical characteristics.</p> <p>Recommendation 1) ROJV should provide a separate description of each former mine site included in the Bullmoose Ruth Remediation project and include a description of the site physical, surface and subsurface characteristics, site water management (flow and drainage patterns) and geotechnical characteristics. This information could be included within the map referenced in the preceding recommendation.</p>	Jan 13: Individual site descriptions will be provided in revised version of the Plan.	Adequate.
3	Topic 3: Landfarm and Landfill	<p>Comment It is stated in the Waste Management Plan (WMP) that a Landfarm Design Plan and a Landfill Design Plan will be prepared by April, 2017. As the project involves the transport and remediation of a significant amount of petroleum hydrocarbon contaminated soils, the WMP should include more detailed information concerning the landfarm and landfill design, operation and maintenance.</p> <p>Recommendation 1) The</p>	Jan 13: Information regarding landfarm and landfill design will be included in the submission of the Landfill Design Plan and Landfarm Management Plan as per Water Licence requirements. Any elements of the WMP that change as result of the finalized Plans will be reflected as revisions to the WMP.	The <i>Guidelines for Developing a Waste Management Plan</i> requires engineering analysis, plans, studies or operational requirements for infrastructure required to manage and contain waste including any detail on the design, structure, capacity, management,

		<p>WMP should be updated and resubmitted to include the required information concerning the landfarm and landfill, according to the referenced regulations and guidelines listed in the MVLWB Guidelines for Developing a Waste Management Plan (2011). The Landfarm Design Plan and the Landfill Design Plan should then be submitted to the board for review, with an addendum to the WMP for the temporary stockpiles and handling of the hydrocarbon contaminated material.</p>		<p>monitoring, operation or maintenance of the landfarm or the landfills including any information on cover design(s). The Waste Management Plan should provide details on where this information can be found. These updates should be made in subsequent revisions to the plan.</p>
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