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April 24, 2025

File: S19L1-003 and S19A-004

Terence Hughes  
Regulatory and Community Affairs Advisor  
MGM Energy Ltd.  
Suite 2800, 421, 7th Avenue SW  
Calgary, Alberta T2P 4K9

Sent by [email](#)

Dear Terence Hughes,

**Re: CRP V 3.1 and Engagement Plan V 2.0 - MGM Energy Closure and Reclamation Consolidation Project - Colville Lake, NT**

The Sahtú Land and Water Board (Board) met on April 22, 2025 and considered the following submissions made by MGM Energy Ltd. (MGM) on November 25, 2024 and December 3, 2024 as required by Water Licence S19L1-003<sup>1</sup> and Land Use Permit S19A-004,<sup>2</sup> and the Board's direction in its June 7, 2021, Decision Letters.<sup>3</sup>

- **Closure and Reclamation Plan (CRP) Version 3.1** <sup>4</sup>, including:
  - Risk Assessment Report for Sumps V 1.0 (Appendix F);
  - Sump Remediation and Restoration Plan Version V 1.0 (Appendix E); and
  - Revised Security Estimate (Appendix B).
  
- **Engagement Plan and Record V 2.0** <sup>5</sup>

<sup>1</sup> See SLWB Online Registry for [S19L1-003 - Water Licence - Jun 7 21.pdf](#)

<sup>2</sup> See SLWB Online Registry for [S19A-004 - Land Use Permit - Jun 7 21.pdf](#)

<sup>3</sup> See SLWB Online Registry for [S19L1-003 - Decision Letter - Jun 7 21](#) and [S19A-004 - Decision Letter - Jun 7 21](#)

<sup>4</sup> See SLWB online registry for [S19A-004 - S19L1-003 - MGM Colville Lake - Closure and Reclamation Plan V3.1 - Dec3 24](#)

<sup>5</sup> See SLWB online registry for [S19A-004 - S19L1-003 - Engagement Plan V2 and Engagement Record Compiled - Nov25 24](#)

The Board has made the following decisions:

1. The Board has not approved CRP V 3.1;
2. The Board has not approved the Risk Assessment Report for Sumps V 1.0;
3. The Board has not approved the Sump Remediation and Restoration Plan Version V 1.0;
4. The Board has not approved Engagement Plan and Record V 2.0; and
5. The Board has decided to defer the setting of Licence security at this time.

The rationale for these decisions and directions for plan revisions are detailed in the Board's Reasons for Decision (attached) and available on our Registry.

Please direct questions or concerns regarding this letter to Paul Dixon via [email](#).

Yours sincerely,



Valerie Gordon, Chair  
Sahú Land and Water Board

BCC'd to: K'ahsho Got'ine Distribution List  
Délı̄ neq District Distribution List  
Tulit'a District Distribution List  
John Hawkins – Director, Asset Management, MGM  
Ian Keir – Environmental Coordinator, MGM  
Jeff Walker – Regional Superintendent, GNWT-ECC

Attachments: Reasons for Decision  
Reviewer Comment Summary Table with Board Direction



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## Reasons for Decision

Issued pursuant to subsection 72.03(1) and section 72.25 of the *Mackenzie Valley Resource Management Act* (MVRMA).

Closure and Reclamation Plan V 3.1 and Engagement Plan V 2.0	
<b>File Number</b>	S19L1-003 and S19A-004
<b>Company</b>	MGM Energy Ltd. (MGM)
<b>Project</b>	Colville Lake Closure and Reclamation Consolidation Project
<b>Location</b>	Colville Lake NT
<b>Activity</b>	Industrial /Oil and Gas
<b>Date of Decision</b>	April 22, 2025

## 1.0 DECISIONS

On April 22, 2025, the Sahtú Land and Water Board (SLWB or the Board) reviewed the submissions made by MGM, in consideration of Permit and Licence requirements, previous Board direction, as well as reviewer comments, proponent responses, and Board staff recommendations. The Board has made the following decisions:

1. The Board has not approved the Risk Assessment Report for Sumps V 1.0;
2. The Board has not approved the Sump Remediation and Restoration Plan Version V 1.0;
3. The Board has not approved Closure and Reclamation Plan (CRP) V 3.1;
4. The Board has not approved Engagement Plan and Record V 2.0; and
5. The Board has decided to defer the setting of Licence Security at this time.

## 2.0 BACKGROUND

On June 7, 2021, MGM was issued Type A Permit S19A-004<sup>1</sup> (Permit) and Type B Licence S19L1-003<sup>2</sup> (Licence) for the final closure and reclamation of nine oil and gas exploration sites in the Colville Lake area (Project). These sites - which included wellsites, camps and sumps - were constructed in the early 2000's and were authorized by the below permits and licences which are now expired (Table 1).

**Table 1: Licences and Permits consolidated under S19A-004 and S19L1-003**

Program Locations	Land Use Permit	Water Licence
E-35 Wellsite and Sump	S04A-010	S04L1-011
C-34 Wellsite	S03A-007	S03L1-015
A-67 Wellsite	S04A-010	S04L1-011
M-17 Wellsite	S01A-007	S01L1-003
C-49 Wellsite and C-49/M-17 Sump	S01A-007	S01L1-003
K-14 Wellsite and Sump	S03A-008	S03L1-016
B-23 Wellsite and Sump	S03A-008	S03L1-016
L-80 Wellsite and Sump	S03A-007	S03L1-015

While the SLWB approved the Permit and Licence in 2021, it did not approve CRP V 2.0 at the time of issuance. As explained in the June 7, 2021 Reasons for Decision <sup>3</sup> (RFD) and in Part 5.91 of the May 27, 2021 Staff Report,<sup>4</sup> CRP V 2.0 did not adequately address Board and reviewer concerns, and did not meet the intent and requirements of the *MVLWB/AANDC Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*.

<sup>1</sup> See SLWB online registry for [S19A-004 - Land Use Permit - Jun 7 21](#)

<sup>2</sup> See SLWB online registry for [S19L1-003 - Water Licence - Jun 7 21](#)

<sup>3</sup> See SLWB online registry for [S19A-004 - S19L1-003 - Reasons for Decision - Jun 7 21](#)

<sup>4</sup> See SLWB online registry for [S19A-004 - S19L1-003 - Staff Report No. 2 - May 27 21](#)

The Board required MGM to submit a revised CRP (as per Licence Part I, Condition 2, and Schedule 3 Part 1) including:

- A Risk Assessment for Sumps (as per Licence Part C, Condition 9 and Schedule 3 Part 2);
- A Sump Remediation and Restoration Plan (as per Permit Condition 87); and
- A revised security estimate (as per Licence Part C, Condition 2 and Schedule 2, Part 1).

Engagement Plan V.1.0 was approved by the Board at issuance. In accordance with Permit Condition 90 and Licence Part B, Condition 10 the Engagement Plan may be revised at any time and submitted to the Board for approval.

The revised Plans were submitted to the Board on November 25, 2024 and December 3, 2024. The Plans were circulated for public review on December 4, using the SLWB Online Review System.<sup>5</sup>

Comments and recommendations were received from the following Parties:

- Fisheries and Oceans Canada (DFO)
- Environment and Climate Change Canada (ECCC)
- Sahtú Renewable Resources Board (SRRB)
- Government of the Northwest Territories Environment and Climate Change (GNWT-ECC)
- University of Alberta researcher (UA); and
- Behdzi Ahda First Nation Band (BAFN);

### **3.0 REASONS FOR DECISION**

#### **3.1 Risk Assessment Report for Sumps V 1.0**

MGM submitted Appendix F of CRP V 3.1 to satisfy the Licence requirements for a Risk Assessment Report for Sumps (Risk Report).

The Risk Report contains *Conceptual Site Model and Path to Closure Reports (CSM/PTC)* for the Nogha C-49/M-17 Sump Area, the Maunoir E-35 Sump and the Nogha K-14 Wellsite and Sump. The purpose of the Risk Report is “to qualitatively evaluate potential risk to human health and ecological receptors based on a comparison of estimated exposure to human health and ecological risk-based territorial, federal, and provincial environmental guidelines, and an assessment of the potential vulnerability of the sump to further degradation” (Section 7). No assessment was submitted for the L-80 or B-23 sumps; however, the Risk Report indicates that the sump at L-80 was constructed but never used, and that the drilling sump material deposited in B-23 was excavated and hauled offsite during well abandonment.

As per Licence Schedule 3 Part 2, the Risk Report must contain the information presented Table 2. The Board considered public review comments, undertook a conformity determination, and considered staff recommendations in reaching its decision. Direction to MGM is provided in Section 3.1.4.

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<sup>5</sup> See SLWB Online Review System for [Closure and Reclamation Plan V 3.1 and Engagement Plan V 2.0](#)

### 3.1.1 Public Review Comments

The Board received several comments and recommendations pertaining to the Risk Report from parties. Sautú Renewable Resources Board (SRRB) recommended that MGM provide additional information pertaining to:

- How community engagement informed the Risk Report (SRRB 42);
- Contaminant of Potential Concern (CPC) impacts to wildlife receptors and habitat (SRRB 43, SRRB 50, SRRB 51 SRRB,52, SRRB 53);
- Consideration of ingestion and dermal contact levels specific to Indigenous land users (SRRB 44, SRRB 47, SRRB 48);
- Surface water and groundwater as potential exposure pathways (SRRB 45, SRRB 46);
- The determination of human health CPCs on site (SRRB 49);
- The impact of soil chemical exceedances on surface water bodies (SRRB 54);
- How Report recommendations informed the CRP (SRRB 5); and
- If/how Report recommendations for further studies were undertaken (SRRB 6).

SLWB staff requested that MGM clarify if additional environmental or geotechnical drilling will be undertaken to close data gaps (SLWB 4, 5, 7), and what standards were used to guide the Report (SLWB 6).

MGM responded to public review comments. It provided additional information, and/or committed to do so in a revised CRP. Board Staff provided input on the comments and responses, and recommended follow-up actions where appropriate.<sup>6</sup>

### 3.1.2 Schedule Conformity

**Table 2 - Conformity with Schedule Requirements for Risk Assessment Report for Sumps**

Licence Requirement	Section	SLWB Comments	Conforms?
a) Identify the applicable exposure pathways.	6.2	<p>Some exposure pathways are identified.</p> <ul style="list-style-type: none"><li>• Additional pathways (e.g. those specific to indigenous land users, such as handling/consumption of animals that have been exposed to CPC) should be considered</li><li>• Additional engagement to identify all exposure pathways should be undertaken</li></ul>	Partial

<sup>6</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Staff Report - Apr22\\_25](#)

Licence Requirement	Section	SLWB Comments	Conforms?
b) Compare measured concentrations against exposure pathway specific screening values to identify contaminants of potential concern (CPC).	6.3  Appendix C	Section 6.3 explains how CPCs are identified.  Appendix C provides screening tables. <ul style="list-style-type: none"> <li>The CSMs provided are incomplete due to the absence of full site assessment data, wildlife studies, vegetation site studies, groundwater data, thermistor data etc.</li> <li>CPCs can not be accurately evaluated without data.</li> </ul>	No
c) For CPCs, use a weight of evidence approach (e.g., including consideration of field observations, likely exposure patterns) to evaluate risk qualitatively.	6.5	Section 6.5 explains how risk was evaluated. <ul style="list-style-type: none"> <li>The CSMs provided are incomplete due to the absence of full site assessment data. Risk can not be accurately evaluated without this information.</li> </ul>	No
d) Human and ecological receptors that are likely to be found at the sites will be identified, and exposure pathways that are applicable to the identified human and ecological receptors will be described based on the available data.	6.1	Human and ecological wildlife receptors are discussed in Section 6.1. <ul style="list-style-type: none"> <li>The CSMs provided are incomplete due to the absence of full site assessment data. Exposure pathways can not be accurately described without this information.</li> </ul>	No
e) The relationship between potential contaminant sources, exposure pathways, and receptors will be summarized.	6.4	Simplified conceptual site models are provided. <ul style="list-style-type: none"> <li>The CSMs provided are incomplete due to the absence of full site assessment data. Contaminant sources, exposure pathways and receptors can not be accurately characterized without this information.</li> <li>A full CSM for each site outlining the data sources for eliminating ecological or human health</li> </ul>	No

Licence Requirement	Section	SLWB Comments	Conforms?
		<p>pathways, including Traditional Knowledge input based on community meetings is required, as per Health Canada guidance documentation for Risk Assessments.</p> <ul style="list-style-type: none"> <li>CSM should demonstrate how these pathways will be eliminated, via the remediation plan for each site.</li> </ul>	
<p>f) Any data gaps, that are limiting the ability to adequately characterize the potential risks to human and ecological receptors found at the sites will be identified. These may include, but not be limited to:</p> <p>i. knowledge of site history (e.g., excavation, discharges to the sump, closure of the sump, reclamation activities, survey plan, former drill rig location, equipment storage, access roads)</p> <p>ii. characterization and/or delineation of contaminants present within the sump or adjacent environment</p> <p>iii. characterization of impacts to site receptors and the environment</p> <p>g) These identified data gaps will then be addressed as well as any remaining remedial efforts that may be required for remediation and closure.</p>	<p>6.6</p>	<ul style="list-style-type: none"> <li>Data gaps have greatly limited the ability to adequately characterize the risks to receptors. Recommendations to close these gaps were made in CSMs, yet the required work has not been completed.</li> </ul> <p><i>e.g. "The current chemical composition and properties (e.g., texture, moisture content, thermal regime, whether the material is frozen in permafrost) of the sump material is unknown. Potential risk, now and in the future, associated with sump materials cannot be accurately determined with the current analytical data. Confirming the content and properties of the material contained within the sump would inform the level of risk related to further sump failure, and the extent of future ecological impacts in the case of a failure."</i> (CSM 6.6)</p> <ul style="list-style-type: none"> <li>Site data that supports the remedial solution and reclamation work, in accordance with GNWT and MVLWB regulatory guidance documentation should be included (in form of PII Environmental Site Assessment (ESA) delineation reports, updated CSMs, RAPs and remedial end points for all Areas of Potential Concern (APECs) at each site).</li> <li>An updated CSM for each site, showing full list of, APECs CPCS,</li> </ul>	<p>No</p>



Licence Requirement	Section	SLWB Comments	Conforms?
		<p>delineation status, soil and or water plume dimensions, remedial option analysis and chosen remedial method (i.e. full source removal, risk management etc..) that outlines the pathway to closure, in accordance with GNWT and MVLWB regulatory guidance should be provided.</p> <ul style="list-style-type: none"> <li>• A sustainable remediation analysis of APECs at each site that may be vulnerable to various criteria, including climate change impacts, ground temperature changes and other environmental factors that would require full remediation and reclamation should be provided.</li> <li>• To complete full CSMs for each site, site-specific groundwater and surface water assessment reports should be included. (These should outline how surface water features move on and off each site), groundwater monitoring data (or the absence of groundwater due to dry wells monitored over several seasons). Where surface water or groundwater data is absent, a plan outlining how these data gaps will be addressed is required, so remedial options can be determined with more certainty, for site closure).</li> <li>• Thermistors for ground temperature readings should be completed, and identification of permafrost depths is required, for a CSM.</li> <li>• All applicable guidance documentation for development of CSMs at each site should be followed. All APECs, CPCs, Source-Pathway-Receptor linkages should be</li> </ul>	

Licence Requirement	Section	SLWB Comments	Conforms?
		included, and MGM should show how they were included or screened out, based on northern community engagement and experience working at similar northern oil and gas sites.	

3.1.3 Conclusions

The Board conducted a conformity determination of the Risk Report and concludes that while the document addresses each of the schedule requirements, there are significant data gaps which prevent an accurate evaluation of the risk associated with the sumps. During the Public review, parties also expressed concerns with the Report.

Of particular concern to the Board is the fact that the Report acknowledges that “the characterization of the chemical concentrations within the sump mix zone is currently unknown” so MGM is “unable to quantify the potential risk to ecological receptors” and unable to “quantify the risk associated with the sump material” thus is not possible “to delineate possible scenarios to support a regulatory path to closure for the Site that does not require removal of the sump material” (section 7).

Because of these data gaps, MGM’s consultant recommended that additional testing be carried out and that MGM “Update [the Risk Report] herein with the new soil data from the sump mix zones and electromagnetic (EM) survey results to evaluate the potential risk to ecological receptors regarding the long-term leaching potential of the encapsulated salt mud into the surrounding environment” (Section 8). It also recommended that a Net Environmental Benefit Analysis (NEBA) be completed, so to “identify the most effective remedial solution that manages risks to human health and the environment but does not cause additional and unnecessary environmental impacts through implementation” (Section 8). No updates to the Risk Report were provided to reflect these recommendations.

The Board concludes that the Risk Report does not conform to the requirements Licence Schedule 3 Part 2. The Risk Report/CSMs are incomplete due to the absence of full site assessment data, wildlife or vegetation site studies, surface water or groundwater information, ground temperature and permafrost information, and many other required components of a CSM.

A detailed CRP requires a complete and accurate Risk Report/CSM; without it the Project can not proceed to closure.

### 3.1.4 Directions

- **The Board directs MGM to submit Risk Assessment Report for Sumps V 2.0 to the Board for approval. The revised Risk Report/CSM is to address the conformity deficiencies identified in RFD Table 2, and the Board direction provided in response to public review comments.<sup>7</sup> MGM is to include a conformity table with the submission which clearly identifies how each of these requirements has been addressed.**

## **3.2 Sump Remediation and Restoration Plan V 1.0**

MGM submitted Appendix E of CRP V 3.1 to satisfy the Permit requirements for a Sump Remediation and Restoration Plan (Sump Plan).

The Sump Plan contains Net Environmental Benefits Analysis (NEBAs) for the Nogha C-49/M-17 Sump Area, the Maunoir E-35 Sump Area and the Nogha K-14 Sump Area. The purpose of the Sump Plan is to outline the steps that would be required to achieve 100% sump stability either using Option A (RO1) which leaves the sump materials in place and involves maintenance, remediation, and restoration of the sump; or Option B (RO2) which involves the removal of contaminated sump materials, maintenance, remediation, and restoration. No Plans were submitted for the L-80 or B-23 sumps, however the report states that the sump at L-80 was constructed but never used, and that the drilling sump material deposited in B-23 was excavated and hauled offsite during well abandonment.

As per Permit Condition 87, the Sump Plan for each sump site must contain one of the two sets of information (Option A or Option B) as outlined in Tables 3 and 4. The Board considered public review comments, undertook a conformity determination, and considered staff recommendations in reaching its decision. Direction to MGM is provided in Section 3.2.4.

### 3.2.1 Public Review Comments

The Board received several comments and recommendations pertaining to the Sump Plan from parties.

SRRB requested that MGM provide additional information pertaining to:

- The absence of remediation in RO1 (SRRB 31);
- How engagement informed the remedial options and analyses (SRRB 32, 36);
- The unique impacts to Indigenous values and land use patterns (SRRB 33,37);
- Remedial options that consider climate change and permafrost degradation impacts to sump integrity (SRRB 34);
- The additional studies that were recommended in the [Risk Report] including the data that was collected and/or plans to conduct research in the future (SRRB 35);

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<sup>7</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Reviewer Comment Summary Table with Board Direction - Apr22 25](#)

- The rationale for NEBA methods including weightings for each factor, the grouping of social, economic and environmental factors, and how scores were calculated (SRRB 37,38,39); and
- Knowledge gaps surrounding groundwater, permafrost, and chemical uncertainties (SRRB 40, SRRB 41, SRRB 63, SRRB 65, SRRB 73).

University of Alberta Researcher provided recommendations related to permafrost integrity and monitoring (UA 3, 4).

SLWB staff also requested details regarding MGM’s plans for environmental sampling, Environmental Site Assessment, geotechnical drilling and permafrost stability assessments (SLWB 4, 5, 6, 7, 9).

MGM responded to public review comments. It provided additional information, and/or committed to do so in a revised CRP. Board Staff provided input on the comments and responses, and recommended follow-up actions where appropriate.<sup>8</sup>

### 3.2.2 Schedule Conformity

**Table 3a -Conformity with Requirements of Sump Remediation and Restoration Plan**

Permit Requirement	Section	SLWB Comments	Conforms?
The Plan shall detail the options for achieving 100% sump stability through maintenance, remediation, and restoration ( <b>Option A</b> ). Components for this option will include but not limited to:			
i. sampling plan/ geotechnical borehole drilling plan for Phase II/III site assessments	N/A	<ul style="list-style-type: none"> <li>• Drilling/sampling plan not included.</li> </ul>	No
ii. sump maintenance methods and monitoring (backfilling, sealing the cracks, assessing permafrost suitability for long term containment etc): details provided for each sump	2.6	<p><i>“Maintenance and reclamation activities would include backfilling depressed areas and tension cracks and revegetating the Bare Areas and backfilled areas” (NEBA 2.6).</i></p> <ul style="list-style-type: none"> <li>• The requirement for 100 % sump stability is not addressed.</li> <li>• There has been no permafrost integrity assessment, so it is unclear what the effect of drilling mud additives is having on permafrost at these sites.</li> <li>• A full detailed CSM with environmental data included is required to show how source contaminants (sump/camp</li> </ul>	Partial

<sup>8</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Staff Report - Apr22\\_25](#)

Permit Requirement	Section	SLWB Comments	Conforms?
		<p>sump/spills) will be remediated, in accordance with GNWT and MVLWB remediation guidance.</p> <ul style="list-style-type: none"> <li>• RO1 does not adequately deal with the source material (drill mud additives in the sump - causing permafrost degradation and mobilization of COPCs along the active layer) so alternative remedial options must be evaluated (i.e. stabilization or dig and dump) before any reclamation work can occur.</li> <li>• Monitoring details are limited. Surface water and groundwater monitoring and assessment should be included.</li> </ul>	
iii. targeted soil criteria based on anomalies reported in ESMS (example: PHC exceedances, exceedances in trace metals, EC, SAR etc) and agreed upon standards (eg. CCME)	N/A	<ul style="list-style-type: none"> <li>• Target soil criteria not provided or referenced in the Sump Plan.</li> </ul>	No
iv. sump restoration methods to attain final physical and biological state (capping the sump, revegetation etc)	2.6	<ul style="list-style-type: none"> <li>• Limited details provided.</li> <li>• RO1, which includes monitoring and backfilling depressed areas does not address environmental concerns, does not address the requirement for 100% stability.</li> </ul>	Partial
v. post-reclamation monitoring requirements.	2.61	<i>“a minimum of five years of annual monitoring following the completion of surface reclamation activities to confirm that the sumps do not experience any terrain changes, and that vegetation is re-established throughout the sump area.” (NEBA 2.6.1)</i>	No

Permit Requirement	Section	SLWB Comments	Conforms?
		No details pertaining to monitoring methods.	

**Table 3b -Conformity with Requirements of Sump Remediation and Restoration Plan**

Permit Requirement	Section	Staff Comments	Conforms?
The Plan shall detail the options for achieving 100% sump stability through the removal of contaminated sump materials, maintenance, remediation, and restoration ( <b>Option B</b> ). Components for this option will include but not limited to:			
I. sampling plan/ geotechnical borehole drilling plan for Phase II/III site assessments	N/A	<ul style="list-style-type: none"> <li>Drilling/sampling plan not included. It is unclear how the delineation of contaminants would occur prior to excavation.</li> </ul>	No
II. soil removal methods and details	2.6.2	<p><i>“RO2 would include excavation, transportation, and disposal of the buried drilling waste from the sump area. The buried drilling waste would be disposed of at the KBL Environmental soil treatment facility in Yellowknife, NWT.” (NEBA 2.6.2)</i></p> <ul style="list-style-type: none"> <li>Limited details provided.</li> </ul>	Partial
III. sump maintenance methods and monitoring (backfilling, sealing the cracks etc): details provided for each sump	2.6.2	<ul style="list-style-type: none"> <li>Limited details for each component.</li> </ul>	Partial
IV. targeted soil criteria based on anomalies reported in ESMs (example: PHC exceedances, exceedances in trace metals, EC, SAR etc), agreed upon standards (eg. CCME)	N/A	<ul style="list-style-type: none"> <li>No details regarding the source of fill, volumes required, soil criteria etc.</li> </ul>	No

Permit Requirement	Section	Staff Comments	Conforms?
V. sump restoration methods to attain final physical and biological state (capping the sump, revegetation etc.).	2.6.2 3.2.2	<p><i>“Appropriate bulk materials (i.e., clean backfill with similar properties to the native material of the area) would be hauled to the sump area for use as backfill to complete the required reclamation activities.” (NEBA 2.6.2)</i></p> <p><i>“RO2 would not require ongoing maintenance associated with woody vegetation removal as vegetation re-establishment could be catered towards restoration.” (NEBA 3.2.2)</i></p> <ul style="list-style-type: none"> <li>Limited details provided.</li> </ul>	Partial

3.2.3 Conclusions

The Board conducted a conformity determination of the Sump Plan and concludes that it does not satisfy the schedule requirements. During the public review, parties also expressed concerns with the Plan.

The requirement was for MGM to provide a Sump Plan which outlines the steps that would be required to achieve 100% sump stability either using Option A (RO1) which leaves the sump materials in situ and involves maintenance, remediation, and restoration of the sump; or Option B (RO2) which involves the removal of contaminated sump materials, maintenance, remediation, and restoration.

MGM’s consultants undertook NEBAs to determine the preferred remedial option for each site. For each sump, Option A (RO1) was recommended. As discussed above, the treatment recommendations were made despite significant CSM data gaps, and an assumption that the sump integrity will remain stable in the long term. As explained in the NEBA Executive Summary:

*The Path to Closure (PTC) and Conceptual Site Model (CSM) recommended additional testing to be conducted to confirm the chemical composition and physical properties of the sump materials. The most recent Environmental Site Assessment (ESA) work completed to guide the PTC and CSM was conducted in 2022. However, uncertainty still remains with the potential impacts of the COC to ecological receptors. Potential risk, now and in the future, cannot be accurately assessed with the current analytical data. Therefore, the results of the NEBA have considered potential risk to ecological receptors based on the assumption that the sump integrity would remain in the long-term. Based on the results of the NEBA and the aforementioned assumptions, RO1 will result in the optimal outcome for the local ecosystem functionality over the long-term.*

The Board is of the opinion that RO1 does not adequately deal with the source material (i.e. drill mud additives in the sump, which can cause permafrost degradation and mobilization of COPCs along the active

layer). Alternative remedial options must be evaluated (i.e. stabilization or excavation and removal) before any reclamation work can occur.

The NEBA concluded that R02 (full source removal of sump/camp sump and backfilling) would have a greater impact to the environment because it would undo the stabilization and revegetation that has already taken place, but this conclusion was made using flawed assumptions and insufficient data.

The Board suggests that R02 is a similar process to R01 (partial backfilling of depressed spots, without removal of the source causing the depressions and stressed vegetation) and will result in similar disturbances. It appears that R02 will have the best chance of eco-recovery as the contaminant source (salt impacts and PHC impacted material) will be removed allowing the soil, vegetation and ecosystem to recover fully, which would ultimately benefit local wildlife in the area and reduce the risks to land users.

The Board concludes that the Sump Plan does not conform to the requirements of Permit Condition 87. The Plan contains significant data gaps and does not adequately address public concerns.

### 3.2.4 Directions

- **The Board directs MGM to submit Sump Remediation and Restoration Plan V 2.0 to the Board for approval. The revised Sump Plan is to address the conformity deficiencies identified in RFD Table 3, and the Board direction provided in response to public review comments.<sup>9</sup> MGM is to include a conformity table with the submission which clearly identifies how these requirements have been addressed.**

## **3.3 Closure and Reclamation Plan V 3.1**

As per Licence Schedule 3 Part 1, CRP V.3.1 must contain the information presented Table 4. The Board considered public review comments, undertook a conformity determination, and considered staff recommendations in reaching its decision. Direction to MGM is provided in Section 3.3.4.

### 3.3.1 Public Review Comments

The Board received many comments and recommendations pertaining to the CRP V 3.1 from parties.

SRRB recommended MGM provide the following information:

- How/when engagement was/will be used to inform the various aspects of the CRP (SRRB 1,2,3,4,10,11,71,72);
- Clarity on which third party recommendations for action and further study were accepted and adopted by MGM (SRRB 5, SRRB 6);

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<sup>9</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Reviewer Comment Summary Table with Board Direction - Apr22 25](#)



- How impact levels were determined, confirmed and monitored (SRRB 7,8);
- How reclamation goals were determined (SRRB 9, 10);
- How site data was collected and analyzed to inform reclamation plans (SRRB 12,13, 14, 15, 16,17,18,19);
- Details surrounding ongoing maintenance and monitoring (SRRB 20,60,61,62,67);
- A discussion of the root causes of physical reclamation challenges (SRRB 21, 22);
- A discussion on wildlife deterrents including selection, duration of employment, and resulting impacts to environment and land users (SRRB 23, 24);
- Sump chemistry, including delineation, characterization, sampling methods, and comparison to guidelines (SRRB 25,26,27);
- Details pertaining to remediation methodology (SRRB 26, 27, 28,29,70);
- A summary of historic monitoring data (SRRB 55);
- The metrics used to determine both reclamation success, and the severity of residual chemical and physical issues (SRRB 58,59,66);
- A description of knowledge gaps, and how they will be addressed (SRRB 63, 65,73); and
- A discussion on constituent migration as it relates to permafrost and groundwater (SRRB 68,69).

Government of the Northwest Territories Department of Climate Change (GNWT ECC) recommended MGM provide the following information:

- Additional details pertaining to reclamation activities (e.g. footprint areas/backfill volumes/timelines/ equipment and personnel requirements) (GNWT ECC 1,2,3,5,6);
- Confirmation of total length of winter road required (GNWT ECC 4); and
- Details regarding long term monitoring and maintenance of the sumps (GNWT ECC 7,8,9).

A U of A researcher made the following recommendations:

- Soil sampling should be prioritized over vegetation monitoring (UA 6);
- A detailed sump delineation and understanding of permafrost should happen before surface reclamation takes place (UA 7); and
- Sump G-18 EM survey was conducted by U of A team and data is available online (UA 8).

The Behdzi Adha First Nation (BAFN) made the following recommendations:

- Assess and address recent exceedances, standing water concerns, tension cracks and inspector reports in the CRP (BAFN 1);
- Clearly identify closure criteria/objectives (BAFN 2); and
- Indicate how Engagement with land users and affected parties was incorporated into the CRP (BAFN 2, 3).

MGM responded to public review comments. It provided additional information, and/or committed to do so in a revised CRP. Board Staff provided input on the comments and responses, and recommended follow up actions where appropriate.<sup>10</sup>

### 3.3.2 Schedule Conformity

**Table 4 - Conformity with Schedule Requirements for Revised Closure and Reclamation Plan**

<b>Licence Requirement</b>	<b>Section</b>	<b>SLWB Comments</b>	<b>Conforms?</b>
a) A plain language summary of the Plan;	1.1 to 1.3:	<ul style="list-style-type: none"> <li>A plain language summary is included, but details are limited, as reflects the plan.</li> </ul>	Partial
b) A description of the overall goals for Closure and Reclamation of the Project, including expected future land use;	2.3	<p><i>“To return the [project] site and affected areas to viable, and wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities.” For the locations listed in this Plan a healthy environment would include returning the land to equivalent land capacity to the surrounding area so that it can continue to be used by wildlife and sustain previously enjoyed human activities such as hunting, trapping and other traditional uses. (CRP 1.1)</i></p> <ul style="list-style-type: none"> <li>No remedial objectives are included.</li> </ul>	Partial
c) A description of the Closure and Reclamation planning team;	2.4	<ul style="list-style-type: none"> <li>Team identified.</li> </ul>	Yes
d) A description of engagement related to Closure and Reclamation planning, including a summary of completed and	2.5	<ul style="list-style-type: none"> <li>CRP engagement section only discusses engagement carried out in 2019 and does not address any engagement undertaken for the current CRP revisions.</li> <li>It is not clear how engagement informed the various Plan components.</li> </ul>	No

<sup>10</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Staff Report - Apr22\\_25](#)

Licence Requirement	Section	SLWB Comments	Conforms?
planned engagement, and links to the Engagement Plan referred to in Part B, Condition 17 for the Project;			
e) A list of any other regulatory authorizations required for Closure and Reclamation of the Project;	2.6	<ul style="list-style-type: none"> <li>• Plan lists some regulatory documents pertaining to the CRP, but does not reference Northwest Territories Water Board Protocol for the monitoring of drilling-waste disposal sumps Inuvialuit Settlement Region (2005) or GNWT 2023 Draft Environmental Guideline for Contaminated Site Remediation (2023), both of which are Industry standard for rem/rec activities at drill mud sites. CCME Guidance documents also not considered.</li> <li>• Plan does not list any other authorizations that may be required (e.g OROGO OA-2019-002-MGM).</li> </ul>	No
f) A description of the pre-existing and current Project environment, including, but not limited to:  i. climatic conditions; ii. physical conditions; iii. chemical conditions; iv. biological conditions; v. any physical or chemical assessments of		<ul style="list-style-type: none"> <li>• 3.2 directs reader to the Applications for the initial site conditions, if this information is not contained in the document, the pre-site assessments should be linked directly.</li> <li>• Historic well file record should be provided.</li> <li>• Section 4.3, Table 5 provides a high-level summary of each site, but details are limited.</li> <li>• No analytic data is provided (ie. Physical or chemical assessments of soil/water/permafrost).</li> <li>• Environmental studies that support the development of the CSM for each site, should be completed as per GNWT and MBLWB regulatory guidance.</li> <li>• APECs should be identified, along with a list of COPCs at each site (salts, PHCS, metals, etc.).</li> <li>• A baseline sump condition report outlining current sump condition (source material characterization, temperature readings, depth</li> </ul>	

Licence Requirement	Section	SLWB Comments	Conforms?
soil, water, and permafrost; and vi. traditional uses.		<p>and size of sump material vs permafrost layers etc.) should be provided.</p> <ul style="list-style-type: none"> <li>• EM or geophysical surveys should be used to identify changes in sub-soil/lithology and potential permafrost boundaries.</li> <li>• Thermistor ground temperature reading reports, permafrost assessment report, baseline ground stability information and other site information relating to physical properties of site features should be included.</li> </ul>	
g) A description of the Project, including, but not limited to:	4.1		
i. site history;	4.3	<ul style="list-style-type: none"> <li>• Table 5 provides a high-level summary of each site, but details are limited.</li> <li>• Historic well file records should be provided, to confirm sump dimensions, characteristics and chemistry.</li> </ul>	No
ii. Project development;	4.5	<ul style="list-style-type: none"> <li>• Abandonment, rem/rec, and winter road are identified as project components. Monitoring is not considered.</li> <li>• Remediation is identified as a Project activity: <i>“At the time of the well abandonment, areas of potential environmental concern identified in previous reports will be remediated, backfilled with available quarry material and capped with organics”</i> (CRP 4.4.2) but no details are provided.</li> <li>• Table 5 Location Summaries does not identify any remedial actions at any of the sump or spill locations, nor do the detailed reclamation plans provide in Appendix D.</li> <li>• All plans are reclamation based rather than remedial based solutions, and do not address the source of environmental impacts, likely located within the sump or camp sump, which can contain multiple COPCs (PHCs, salts, metals etc.). Remedial efforts of sumps at similar Northern sites require physical and chemical removal of source contaminants off-site, and a remedial</li> </ul>	No

Licence Requirement	Section	SLWB Comments	Conforms?
		<p>option analysis should consider these treatments, in accordance with GNWT and MVLWB regulatory guidance documents. Recontouring and backfilling does not address the source material (salts or hydrocarbons in drilling waste sumps) which can migrate along the active zone, degrading the permafrost and causing depressions and surface water ponding. Remedial solutions are required and should be proposed in a remedial plan for each site, following GNWT and MVLWB regulatory guidance documentation.</p> <ul style="list-style-type: none"> <li>• APECs need to be adequately characterized and assessed to understand environmental issues and develop specific remedial objectives for each site.</li> <li>• A Remedial Plan outlining the associated APECs, COPCs and site environmental data that supports any risk management or remedial strategy at each site should be provided. The selected remedial option should provide details on how it will be completed, a timeline of activities and logistical efforts associated with the option, in accordance with both GNWT and MVLWB regulatory guidance documents.</li> <li>• Remedial options that have been approved and completed in Northern Canada, as per GNWT and MVLWB regulatory guidance should be selected.</li> <li>• A water management plan should be provided. This should include applicable regulatory criteria to be used, and water treatment technologies to be utilized and any permitting requirements that will be needed to do this.</li> <li>• Remedial efforts are required at sites with environmental issues, prior to planning and completing any reclamation work.</li> <li>• Detailed reclamation plans for site closure are not provided and will require more information to understand end points.</li> </ul>	

Licence Requirement	Section	SLWB Comments	Conforms?
		<ul style="list-style-type: none"> <li>• Details regarding topsoil and backfill sources, including testing results of sources, and details relating to how it will be transported to site and utilized in remediation and reclamation activities.</li> <li>• A winter road access report specifying road details such as length, maintenance work required, length of operation and reclamation plans for re-establishing to native land conditions should be provided.</li> <li>• A post remedial/post reclamation monitoring plan should be included. This should include the monitoring work activities to be completed, how frequent the work will be conducted and what end point objectives will be reviewed to determine if reclamation efforts were completed.</li> <li>• Regulatory guidance should be used to guide the development of the monitoring plan including: a) NWB Protocol for the monitoring of drilling-waste disposal sumps Inuvialuit Settlement Region Northwest Territories, 2005; b) FCSAP Long-Term Monitoring Planning Guidance; c) Mine Site Reclamation Guidelines for the NWT</li> <li>• Community engagement should inform the development of the CRP.</li> </ul>	
iii. current status of the Project;	4.3	Table 5	Yes
iv. maps delineating all disturbed areas, borrow material locations, site facilities, hydrological features, and elevation contours; and		<p>Appendix A: Winter Road overview map</p> <p>Appendix D: Site Map and satellite imagery for each location provided in Site reclamation plans.</p> <ul style="list-style-type: none"> <li>• Borrow sources and contours not identified.</li> </ul>	Partial

Licence Requirement	Section	SLWB Comments	Conforms?
v. predicted environmental effects during and after Closure and Reclamation activities;		<p>CRP 5.1 <i>“MGM does not anticipate any negative residual effects to remain after reclamation is complete. Post reclamation activities will consist of reconnaissance level vegetation and terrain monitoring to confirm reclamation success. If necessary, minor reclamation treatments will be conducted via helicopter (i.e: revegetation).”</i> (CRP 5.1)</p> <ul style="list-style-type: none"> <li>• No remediation is planned for sump sites, and MGM has selected its reclamation options based on the assumption that sumps will remain stable over the long term. This is despite a body of evidence that links climate change to accelerating permafrost thaw, which increases the risk of sump failure. Yet MGM suggests that negative residual effects are not anticipated.</li> <li>• The chemical contents of the sumps have also not been confirmed, which is necessary to accurately predict the environmental effects.</li> <li>• Impacts to permafrost have not been considered. A permafrost assessment report and protection plan should be undertaken.</li> </ul>	No
vi. post-closure monitoring, maintenance, and reporting;		<ul style="list-style-type: none"> <li>• Monitoring is an “option” for each site, but it is not clear which option has been selected, and no monitoring details have been provided.</li> <li>• Ground temperature, groundwater, surface water, wildlife, vegetation and physical property monitoring should be all be considered.</li> <li>• Maintenance requirements not considered.</li> </ul>	No
vii. uncertainties and contingencies;	5.1	<p><i>“Due to the current environmental state of the well locations, and the nature of abandonment activities, MGM anticipates all selected closure activities will proceed and therefore will not require contingencies.”</i></p> <ul style="list-style-type: none"> <li>• Given the large data gaps, uncertainties are expected.</li> <li>• Contingencies and liability costs should be included.</li> </ul>	No

Licence Requirement	Section	SLWB Comments	Conforms?
viii. climate change considerations; and	NEBA Executive Summary	<p><i>“It is recommended that further analytical study of the chemical composition of the material within the sump, the potential risk this material would pose to receptors, and the potential impact this material would have to the integrity of the sump with consideration for climate change be conducted and the NEBA be further revised with this information.”</i></p> <ul style="list-style-type: none"> <li>• Climate change considerations are inadequate.</li> </ul>	No
ix. Closure and Reclamation Research plans	N/A	<ul style="list-style-type: none"> <li>• No site-specific C&amp;R Research Plans were discussed in the document.</li> </ul>	No

3.3.3 Conclusions

The Board conducted a conformity determination of CRP V 3.1 and concludes that it does not satisfy the schedule requirements. During the public review, parties also expressed concerns with the Report.

Appendix D of CRP V 3.1 is titled “Site Reclamation Plans”. The reclamation activities for each of the sites is limited to site prep (i.e. water pumpout), the backfilling of any depressions, and revegetation. No remediation is considered by the CRP. It is not clear how or why these methods were selected - in particular, the Site Reclamation Plans for the sumps sites are not directly linked to the Sump Plan (NEBAs) nor to the Risk Report (CSM) for Sumps.

The Board assumes that the methodology was selected based on the NEBAS, which recommend “Option A” for each location. This would involve leaving sump materials in place, however, as discussed above, the NEBAs /Sump Plans contain significant data gaps and can not accurately inform remediation or reclamation options for the sump sites. The reclamation plans for well sites are also lacking relevant assessment data and do not provide sufficient details.

The Board concludes that CRP V 3.1 does not satisfy the requirements of Schedule 3 Part 1. The Plan does not provide sufficient details, contains significant gaps, and does not adequately address public concerns.



3.3.4 Directions

- **The Board directs MGM to submit CRP V 4.0 to the Board for approval. The revised CRP is to address the conformity deficiencies identified in RFD Table 4, and the Board direction provided in response to public review comments.<sup>11</sup> MGM is to include a conformity table with the submission which clearly identifies how each of these requirements has been addressed.**

**3.4 Closure Cost Estimate and Security**

At Permit issuance, the Board set land-related security at \$911,582. As per Condition 56, MGM was required to deposit this amount with the Minister prior to the commencement of the land-use operation.

Water-related security was not set at Licence issuance, instead Part C, Conditions 2 and 3 and Schedule 2 Part 1 required that a revised security determination is to be submitted to the Board. The schedule requirements are outlined in Table 5, below.

MGM provided a revised security determination in CPR V 3.1 Appendix B. Using the RECLAIM Model, MGM estimated that Licence Security should be set at \$2,061,815. MGM also revised its estimate for Land Liability, from \$911,582 to \$912,862.

3.4.1 Schedule Conformity

**Table 5 -Conformity with Schedule Requirements for Security Deposit**

Licence Requirement	Conforms (Y/N)	SLWB Comments
Pursuant to Section 35(1) of the Waters Act, and section 11 of the Regulations, the Licensee shall post a security deposit referred to in Part C of this Licence, on the schedule set out below and once achieved shall maintain a security deposit.		
a) <u>Prior to commencement of the abandonment phase</u> of the Operation, the Licensee shall deposit with the Minister a security deposit as advised by the Board.		On January 3, 2025 GNWT ECC notified the Board that it accepted from MGM \$3,387,758.00.  MGM and GNWT agreed upon this amount prior to this proceeding, though gaps exist between the two determinations, and parties await a final determination from the Board.

<sup>11</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Reviewer Comment Summary Table with Board Direction - Apr22\\_25](#)

Licence Requirement	Conforms (Y/N)	SLWB Comments
b) <u>Prior to commencement of Sump Remediation activities</u> and following approval of the updated Closure Cost Estimate as per Part C, condition 2 and Part I, condition 2, the Licensee shall deposit with the Minister a security deposit as advised by the Board.	n/a	A revised security determination is included in Appendix B of CRP V 3.1, however remediation activities are not adequately considered by the CRP nor the closure cost estimate.  The CRP is not yet approved, and the Board has directed MGM to provide further revisions.
c) Prior to commencement of summer site restoration, reclamation, and monitoring activities, the Licensee shall deposit with the Minister a security deposit as advised by the Board.	n/a	
d) Two years prior to expiry of the Licence, the Licensee shall deposit with the Minister a security deposit as advised by the Board for Post-closure monitoring and maintenance.	n/a	

### 3.4.2 Public Review Comments

During the Public Review GNWT ECC recommended Licence Security should be set at \$4,258,434. It also recommended that the Permit Security be adjusted from \$911,582 to \$268,464 (GNWT 12).

The MGM and GNWT estimates are compared in Table 6, below. The discrepancies are linked to differences in assumptions regarding the mobilization and/or demobilization of equipment, fuel, cement, waste, camps and workers, as well as winter road construction and reclamation requirements. Contingency requirements and inflation calculations also produced discrepancies.

**Table 6 – Summary of Closure Cost Estimates**

Authorization	SLWB Security	Proponent's 2024 Estimate	ARKTIS 2025 Estimate	Proposed Change to Financial Security
Type B Water Licence (S19L1-003)	Not set	\$2,061,815	\$4,258,434	+\$4,258,434
Class A Land Use Permit (S19A-004)	\$911,582	\$912,862	\$268,464	-\$643,118
<b>Totals</b>	<b>\$911,582</b>	<b>\$2,974,677</b>	<b>\$4,526,898</b>	<b>+\$3,615,316</b>

### 3.4.3 Conclusions

The Board acknowledges there are significant data gaps, both in CRP V 3.1 and in the RECLAIM model inputs. Because so much information is lacking, the Board is unable to determine an accurate security estimate at this time. Thus, the Board has decided not to set Licence security for the Project until such a time as the revised CRP is approved. The Board acknowledges that GNWT ECC had already accepted from MGM Permit security in the amount of \$911,582 and Licence Security in the amount of \$3,387,758.00.

### 3.4.4 Directions

- **The Board directs MGM to submit a revised Closure Cost Estimate when it submits CRP V 4.0. If MGM makes changes to Permit security, an application to amend S19A-004 will also be required.**

## **3.5 Engagement Plan and Record V 2.0**

MGM submitted Engagement Plan and Record V 2.0 to reflect project updates, changes to party contact information, and a log of engagement that occurred between 2022 and 2024.

### 3.5.1 Public Review Comments

The Board received many comments and recommendations pertaining to engagement for the Project.

SRRB was concerned with MGM's strategy to rely on written notifications instead of in-person meetings, and recommended that MGM "amend the Engagement Plan to provide for culturally appropriate in-person meetings with local Indigenous land users so to provide an opportunity to discuss and influence the CRP" (SRRB 2).

SRRB recommended MGM provide the following information:

- Details pertaining to the Engagement Studies listed in Table 1 of the Engagement Plan, including methods for completing the studies such as community engagement details and how the studies were reflected in the CRP (SRRB 1);
- How community engagement was carried out to determine the planned infrastructure requirements for the project, such as roads and bridges (SRRB 3);
- When community engagement will be carried out for the next versions of the CRP (SRRB 4);
- How community engagement was/will be used to inform the selection of third-party remedial options presented in the CSP and NEBA (SRRB 5);
- How community engagement was used to describe impact levels of the Project (SRRB 7) and how it will be used to monitor these impacts over time (SRRB 8);
- How MGM's solicits and incorporates informed feedback from local Indigenous land users to inform the CRP's Reclamation Goals (SRRB 10);

- How MGM plans to ensure local land users are well-informed of reclamation realities (e.g., chemical risks) so that they can make informed decisions regarding safe land use in the future. (SRRB 11);
- How community engagement was/will be used to inform the selection of revegetation strategies, including the use of non-native grass species (SRRB 15), the selection of seed mixed (SRRB 16), or the use of natural encroachment (SRRB 19);
- How community engagement was solicited in the decision to pump and release of standing seepage water, and how community engagement will be carried out prior to pumping and releasing (SRRB 26);
- How community engagement was/will be used to in the development and assessment of the remedial option presented in the NEBA, including the identification of social and environmental values, which should include Local Indigenous Values (SRRB 32);
- How community engagement was used to determine the values, define evaluation criteria, and carry out the NEBA (SRRB 36) and how engagement with local Indigenous land users will be carried out to address the uncertainties and data gaps that remain (i.e. confirmation of the chemical composition and physical properties of the sump materials) (SRRB 35);
- How community engagement was/will be used to develop the CSM/PTC site model (SRRB 42);
- How community engagement was/will be used to determine and describe the impacts of contaminants to Indigenous land users (through direct ingestion and dermal contact and through wildlife and plant harvest) (SRRB 43, SRRB 44); and
- How community engagement will be used to ensure land users are fully informed, in perpetuity, of risks associated with surface waters remaining onsite (SRRB 46).

SRRB recommended that the Board require MGM to:

- “Meaningfully engage local Indigenous land users and Knowledge Holders throughout all aspects of remediation, revegetation, and reclamation planning, implementation, monitoring, and adaptive management, bearing in mind that the outcomes of implementing CRP will have lasting consequences for land users’ inherent rights, Treaty rights, and Land Claim benefits.” (SRRB 71);
- “Address outstanding uncertainties and knowledge gaps in a timely manner in order to ensure reclamation success and the protection of wildlife, wildlife habitat, and Indigenous rights.” (SRRB 73);
- Develop and present detailed remediation plans to the communities for feedback (SRRB 70);
- “Provide detailed remediation, revegetation, and reclamation plans as requested in the preceding recommendations, and that these be provided to the Sahtú Renewable Resources Board and other appropriate communities and organizations for review.” (SRRB 72);
- “Share detailed monitoring methods and data, conduct future monitoring in collaboration with land users, and provide a closure and reclamation plan that addresses what seem to be systemic challenges with MGM’s reclamation sites at the root cause, as opposed to managing symptoms in perpetuity.” (SRRB 74);

BAFN commented that it was not clear what criteria would be used to determine site closure and recommended that MGM include information from engagement/consultation with local land users and affected parties when developing closure criteria (BAFN 3). It also commented that “it is not clear how feedback from engagement activities has been incorporated into the CRP” and recommended that MGM “indicate in the Engagement Record (and in the Closure and Reclamation Plan) how feedback from engagement activities with local land users and affected parties has been included/incorporated” (BAFN 4).

SLWB staff noted inconsistencies in Engagement Plan regarding the number and location of the sites, and the historic permit numbers and requested that MGM provide an updated location table.

MGM responded to public review comments (with the exception of those submitted by BAFN). It provided additional information, and/or committed to do so in future revisions.

### 3.5.2 Conclusions

As explained in the sections above, CRP V 3. 1 does not conform with the Licence and Permit requirements and can not be approved at this time. There were significant data gaps in the Risk Report (CSM/PTC), Sump Plan (NEBA), and resulting site reclamation plans that will need to be addressed. The Board has directed MGM to revise and resubmit the plans so to address these deficiencies. During the public review MGM committed to providing an updated CRP by July 2025.

SRRB recommended that additional engagement be carried out prior to these CRP revisions, and that all aspects of the Project be addressed, including remediation, revegetation and reclamation planning, as well as implementation, monitoring, and adaptive management. SRRB recommended that engagement should be, meaningful, culturally appropriate engagement and carried out in person.

MGM did not make a commitment to initiate face-to-face engagement meetings, stating instead that “MGM is relying on the SLWB regulatory processes (as noted in the Project Engagement Plan)” and “MGM will continue to follow the project Engagement Plan and is available throughout the life of project to discuss all aspects with affected parties”.

The Board acknowledges that it approved Engagement Plan V 1.0 at time of Licence issuance. As per Table 4 in the Plan, engagement for reclamation and closure planning would be undertaken via “written notifications and the SLWB Process” and that planned follow up would be via “telephone calls and electronic correspondence”. The potential issues in this area included “Timing, techniques, technology and contracting opportunities.

In consideration of reviewer comments, the Board is of the opinion that the Engagement Plan should be revised to allow for in person engagement, should parties prefer this method.

### 3.5.3 Direction

- **The Board directs MGM to submit Engagement Plan and Record V 2.1 to the Board for approval. The revised Plan is to address the Board direction provided in response to public review comments.<sup>12</sup> MGM is to include a conformity table with the submission which clearly identifies how each of these requirements has been addressed.**

## **4.0 CONCLUSION**

Subject to the scopes, definitions, conditions, and terms set out in the Licence and Permit, and for the reasons expressed herein, the SLWB is of the opinion that the following must be completed by MGM while providing for the conservation, development, and utilization of waters in a manner that will provide the optimum benefit for all Canadians and in particular for the residents of the Mackenzie Valley.

- The Board directs MGM to submit Risk Assessment Report for Sumps V 2.0 to the Board for approval. The revised Risk Report/CSM is to address the conformity deficiencies identified in RFD Table 2, and the Board direction provided in response to public review comments.<sup>13</sup> MGM is to include a conformity table with the submission which clearly identifies how each of these requirements has been addressed.
- The Board directs MGM to submit Sump Remediation and Restoration Plan V 2.0 to the Board for approval. The revised Sump Plan is to address the conformity deficiencies identified in RFD Table 3, and the Board direction provided in response to public review comments.<sup>14</sup> MGM is to include a conformity table with the submission which clearly identifies how these requirements have been addressed.
- The Board directs MGM to submit CRP V 4.0 to the Board for approval. The revised CRP is to address the conformity deficiencies identified in RFD Table 4, and the Board direction provided in response to public review comments.<sup>15</sup> MGM is to include a conformity table with the submission which clearly identifies how each of these requirements has been addressed.
- The Board directs MGM to submit a revised Closure Cost Estimate when it submits CRP V 4.0. If MGM makes changes to Permit security, an application to amend S19A-004 will also be required.

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<sup>12</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Reviewer Comment Summary Table with Board Direction - Apr22\\_25](#)

<sup>13</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Reviewer Comment Summary Table with Board Direction - Apr22\\_25](#)

<sup>14</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Reviewer Comment Summary Table with Board Direction - Apr22\\_25](#)

<sup>15</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Reviewer Comment Summary Table with Board Direction - Apr22\\_25](#)

- The Board directs MGM to submit Engagement Plan and Record V 2.1 to the Board for approval. The revised Plan is to address the Board direction provided in response to public review comments.<sup>16</sup> MGM is to include a conformity table with the submission which clearly identifies how each of these requirements has been addressed.

Water Licence S19L1-003 and Land Use Permit S19A-004 contain provisions that the Board deems necessary to ensure and monitor compliance with the MVRMA, *Waters Act*, and the Regulations made thereunder, and to provide appropriate safeguards in respect of MGM Energy's use of the water and land as authorized by the Licence and Permit.



April 24, 2025

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**Valerie Gordon, Chair**  
**Sahtú Land and Water Board**

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**Date**

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<sup>16</sup> See SLWB online registry for [S19L1-003 S19A-004 - CRP V 3.1 and Engagement Plan V 2.0 - Reviewer Comment Summary Table with Board Direction - Apr22\\_25](#)

## Reviewer Comments and Proponent Responses

Project: MGM Energy - Colville Lake Closure and Reclamation Consolidation Project File Number: S19L1-003

Board: Sahtu Land and Water Board

Proponent: MGM Energy

Review Comments Due: January 8, 2025

Proponent Responses Due: February 28, 2025

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response	Board Direction
Fisheries and Oceans Canada (DFO) - Ms. Anna-Maija LaFlamme					
1		DFO has reviewed the MGM Energy- Colville Lake Closure and Reclamation Consolidation Project, Closures and Reclamation Plan V 3.1 and Engagement Plan V.20, file number S19L1-003 & S19A-004 in accordance with DFO's mandate and has no comments at this time.	DFO has no recommendations at this time.	Noted - thank you for the comment.	Noted – no action required.
No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response	
Environment and Climate Change Canada (ECCC) - Ms. Maja Crawley					
1		Environment and Climate Change Canada has reviewed the plan according to our mandate and has no comments at this time.	ECCC has no recommendations at this time.	Noted - thank you for the comment.	Noted – no action required.
No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response	
Sahtu Renewable Resources Board - Catarina Owen					
1	Community Engagement	The Engagement Plan includes a high-level overview of stakeholders identified and a log of previous engagements. "Engagement Studies" are listed in Table 1 of the	Please provide information pertaining to the Engagement Studies listed in Table 1 of the Engagement Plan, including methods for completing the studies such as community engagement details and how the studies were reflected in MGM's C&R Plan.	Details of the studies are captured in the Environmental Protection Plans of the previous Land Use Permits, S-01A-007, S03A-0007, S03A-008 and S04A-010. Engagement is	The Board directs MGM to provide a summary of and a link to these studies in a revised Engagement Plan.



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		document, but no information about how the engagement studies were completed is provided other than to state they were completed by the proponent.		covered in Section 5 of those documents.	
2	Community Engagement	Future engagement plans are summarized in Table 4 of the document and rely on written notifications, with no additional face-to-face meetings planned. The engagement record provided includes limited face-to-face meetings with community members directly; the topics of these community meetings focused on economic opportunities associated with the project, with no apparent detailed discussion regarding environmental concerns. The Engagement Package provided in Appendix B of the document does not include the remedial options discussed in MGM's C&R Plan, indicating that no community engagement has been completed pertaining to informing or selecting remedial options.	Please amend the Engagement Plan to provide for culturally appropriate in-person meetings with local Indigenous land users, to provide opportunity to discuss and influence the C&R Plan, including but not limited to the remedial options Net Environmental Benefits Analysis.	Reclamation and reclamation techniques were outlined in project engagement materials prior to application for the current Land Use Permit and Water Licence. MGM was and continues to be available to discuss any aspect of our planned activities	The Board directs MGM to revise the Engagement Plan to allow for in-person engagement upon request.

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3	Community Engagement on Planned Infrastructure	<p>MGM stated that it will begin abandonment and reclamation activities in the 2024-2025 Winter season for some wells and sumps: "Reclamation is scheduled at L-80 and E-35 for the 2024-2025 winter season. MGM will provide the remaining information in subsequent versions of this Plan" (p. 13 of 344). The Net Environment Benefit Analysis also indicates uncertainty about whether temporary or permanent infrastructure (i.e., roads and bridges) will be used in reclamation efforts and as such, did not include this distinction in the analysis (p. 91 of 344).</p>	<p>Please describe timing for subsequent versions of the C&amp;R Plan, including timelines for meaningful engagement of local Indigenous land users.</p>	<p>MGM anticipates submitting an updated C&amp;R on July 31, 2025</p>	<p>The Board notes the timing for the planned submission of a revised CRP, however the timeline for Engagement is not described.</p> <p>The Board directs MGM to revise the Engagement Plan to reflect additional engagement undertaken to inform MGM's future updates to the CRP.</p> <p>The Board directs MGM to update the Engagement Record to reflect any engagement undertaken in support of CRP Revisions.</p>
4	Community Engagement on Subsequent Closure and Reclamation Plans	<p>MGM stated that it will "provide the remaining information in subsequent versions of this Plan" .</p>	<p>Please describe timelines for community engagement to discuss the social and environmental impacts associated with temporary and permanent infrastructure for site access.</p>	<p>The project relies on temporary winter access, MGM is unsure what the reviewer means by permanent infrastructure. MGM has been engaging with affected parties on the timing of project closure activities.</p>	<p>The Board directs MGM to revise the Engagement Plan to include a timeline for additional engagement undertaken to inform MGM's proposed updates to the CRP.</p> <p>The Board directs MGM to revise the Engagement Record to capture any such engagement that was undertaken.</p>

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5	Provision of Detailed Reclamation Plans and Existing Data	MGM submitted the C&R Plan as a regulatory application. MGM's Land Use Permit and Water License require the submission of a Sump Remediation and Restoration Plan and Risk Assessment Report for Sumps. MGM submitted Appendix E to meet the requirements of the Sump Remediation and Restoration Plans, which consists of a compilation of Net Environmental Benefits Analyses for each site and which were prepared by a third party in 2024 (K'alo-Stantec Limited). Similarly, MGM submitted Appendix F to meet the requirements of the Risk Assessment Report for Sumps, which consists of a compilation of Conceptual Site Model and Path to Closure Reports for each site and which were prepared by a third party in 2021 (K'alo-Stantec Limited). However, it is unclear which recommendations MGM has accepted or not.	Please require MGM to submit Sump Remediation and Restoration Plans and Risk Assessment Reports for Sumps which clarify which third-party recommendations were accepted and adopted as part of the C&R Plan, including but not limited to recommendations related to the duration (years) for monitoring and remedial options analyses, and describe community engagement completed and planned to shape these decisions.	General timelines for monitoring were detailed in Table 5 of the CRP and proposed work plans for each of the Project components were referenced in Section 5.4 of the CRP to Appendix D (Site Reclamation Plans), which details the individual plans for remediation and reclamation of the sites. A further update to the CRP can provide more detail summarizing the work planned and work completed for each of the Project Components.	The Board directs MGM to clarify general timelines outlining the ESA updates to sites with APECs (sumps/camp sumps/well centre etc..) in accordance with GNWT ESA and Rem guidance and MVLWB closure documentation.  The Board directs MGM to provide remedial solutions (physical removal, stabilization/solidification, chemical treatment) must be included, with rationale for option selection and the execution methods outlined appropriately.
6	Addressing Knowledge Gaps	Appendices E and F include recommendations for additional studies and, in	Please confirm which further studies recommended by K'alo-Stantec Limited	A further update of the CRP will include additional details	The Board directs MGM to provide a proposed timeline for additional studies and required

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		some cases, provide recommended courses of action. However, it is unclear which recommendations MGM has accepted or not.	were or will be undertaken, and where this additional data can be found.	for the work completed and the work planned for each of the Project Components. Additionally, monitoring outcomes are available on the registry of the SLWB under the current and historical Licences and Permits.	work so that closure progress can be monitored.  The Board directs MGM to outline seasonal activities (such as ESA delineation work, risk management or remedial strategic planning)
7	Monitoring Environmental Impact	The C&R Plan states that because wellsite construction used an ice pad, there was minimal impact to surrounding vegetation (p. 5 of 344).	Please define “minimal impact” and describe what metrics were used to determine impact level, including any feedback or observations sought or obtained from local Indigenous land users.	Further detail supporting the statement that impacts were minimal at the time of wellsite construction can be provided in the revised CRP.	The Board directs MGM to provide historic well file records relating to the wellsite construction, so that this conclusion (and other statements regarding sump operations, camp sump operations and chemical utilized onsite during the drilling operations work) can be verified.
8	Monitoring Environmental Impact	The C&R Plan anticipates a low level of impact from reclamation work due to the use of an ice road (p. 13 of 344).	Please describe how impacts were confirmed and will be monitored through ground truthing, including plans to engage local Indigenous land users through ongoing monitoring.	A summary of the investigation and assessment activities completed to date are provided in the Conceptual Site Model appended to the CRP. Details regarding required post-closure monitoring and anticipated duration of monitoring will be included in a revised CRP.	The Board has determined that the CSM is inadequate and thus can not be used to inform this conclusion.  The Board directs MGM to provide additional evidence to support the conclusions that impacts are low.  The Board directs MGM to include the results of any relevant engagement used to reach this determination.

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9	Reclamation Goals	<p>MGM’s stated reclamation goals are: “To return the [project] site and affected areas to viable, and wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities ... so that it can continue to be used by wildlife and sustain previously enjoyed human activities such as hunting, trapping and other traditional uses” (p. 5 of 344). These goals do not explicitly address Sahtú beneficiary needs or involvement throughout the reclamation process (from reclamation planning through to implementation, monitoring, and adaptive management). No further detail regarding goals (e.g., ecosite targets) was found in the submitted C&amp;R Plan.</p>	<p>Please provide detailed reclamation targets, and describe risks and challenges associated with ongoing reclamation.</p>	<p>Closure objectives and expected final states of the sites were presented in Table 5.0 of the CRP. MGM can provide an updated table more clearly identifying reclamation targets and identify where there may be challenges and how those challenges will be addressed.</p>	<p>The Board notes that Table 5 only outlines high level infrastructure abandonment activities, however, details relating to remediation and reclamation activities are limited, with future statements regarding work not providing adequate details related to GNWT and MVLWB closure guidance documents.</p> <p>The Board directs MGM to provide additional details pertaining to reclamation targets and challenges, linking these details to relevant guidance documents.</p>
10	Reclamation Goals	<p>MGM’s stated reclamation goals are: “To return the [project] site and affected areas to viable, and wherever practicable, self-sustaining ecosystems that are compatible with a</p>	<p>Please describe MGM’s approach to soliciting and incorporating informed feedback from local Indigenous land users to inform its C&amp;R Plans.</p>	<p>MGM has relied on the previously gathered Traditional Use information for the project area under the historical Land Use Permits and Water Licences. Additionally, during</p>	<p>The Board directs MGMG to provide details relating to how community engagement and Traditional Knowledge informed the reclamation goals.</p>

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		<p>healthy environment and with human activities ... so that it can continue to be used by wildlife and sustain previously enjoyed human activities such as hunting, trapping and other traditional uses" (p. 5 of 344). These goals do not explicitly address Sahtú beneficiary needs or involvement throughout the reclamation process (from reclamation planning through to implementation, monitoring, and adaptive management). No further detail regarding goals (e.g., ecosite targets) was found in the submitted C&amp;R Plan.</p>		<p>Engagement for the current Land Use Permit and Water Licence MGM stated the purpose of the sought regulatory approvals would be the closure of the sites. MGM has and will continue to report on its monitoring and closure activities. MGM has been and will continue to be available to receive and consider feedback on its activities and project outcomes from affected parties.</p>	
11	Protection of Indigenous Land Use	<p>Local Indigenous land users require detailed information regarding reclamation processes and ongoing challenges in order to provide feedback to plans and in order to make informed decisions regarding safe land use in the future.</p>	<p>Please describe MGM's plans for ensuring local Indigenous land users are well-informed of reclamation realities (e.g., chemical risks).</p>	<p>MGM is committed to engaging on future versions of the Closure and Reclamation Plans which will be informed by previous engagements and review processes. Additionally, MGM has and will continue to report on its monitoring and reclamation work.</p>	<p>The Board directs MGM to include the results of any relevant engagement related to ongoing communication land users.</p>
12	Provision of Detailed Reclamation Plans and Existing Data	<p>Pre-disturbance, current status, and reclamation plan data presented for each site in Table 5 are inconsistent</p>	<p>For each site listed in Table 5, please provide the survey used to collect baseline conditions and subsequent monitoring data (this could be an additional appendix to the C&amp;R Plan); all species that comprise</p>	<p>Sections 3.2 and 4.5 of the CRP reference and summarize the baseline conditions that were</p>	<p>The Board directs MGM to provide detailed CSMs including all APECs, COPCs and background assessment work relating to each site, in</p>

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		and therefore could not be assessed by the reviewers.	the “vegetation cover” reported for each site, including invasive, non-native, and native species; and area (ha) of all site features, such as wallows, bare areas, standing water/ponding, tension cracks (provide length and depth), etc.	evaluated during assessments completed at the time of the original Water Licence and Land Use Permit applications. The baseline conditions and pre-disturbance assessments for the Program Component Locations may be found under each expired LUP and WL file on the SLWB registry which are linked with clickable URLs in Section 10.1.	accordance with GNWT and MVLWB regulatory guidance documents.  APECs must be adequately characterized and assessed to understand environmental issues so that appropriate remedial objectives can be set each site.  More information to is required before Reclamation plans for site closure can be developed.
13	Provision of Detailed Reclamation Plans and Existing Data	MGM plans to cap wells 1 m below ground level (p. 12 of 344).	Please describe all considerations in determining the well capping depth of 1 m below ground level, including regulatory requirements, land user input, and ongoing and predicted permafrost and settlement conditions.	A reference was provided in Section 1.2 of the CRP which states "The following wells will be downhole abandoned, cut, and capped in accordance with OROGO Well Suspension and Abandonment Guidelines". Reference to the OROGO guidelines is also provided in Section 2.6 of the CRP. Per the OROGO guidelines the capping depth of 1 m allows for potential future non-Project related disturbance at the near surface and reduces potential for subsidence that may occur with a deeper cap.	Noted – no action required

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14	Provision of Detailed Reclamation Plans and Existing Data	MGM does not provide detailed plans regarding the removal of garbage and debris.	Please describe the timing (season) for garbage and debris removal, considering access conditions and visibility restrictions (i.e., snow cover).	A Waste Management Plan was submitted in November, 2024 entitled Environmental Protection Plan and Waste Management Plan V3.2 and approval of that plan was received by MGM also in November 2024. Smaller volumes of waste on subsequent visits may be removed by other means such as helicopter to approved disposal locations.	WMP V 3.2 is approved – no action required.
15	Provision of Detailed Reclamation Plans and Existing Data  Community Engagement	MGM stated “Select reclamation and revegetation efforts will continue and may include fertilizer applications, scarification, organic amendment application and reseeding. Additional deterrent structures could be installed if the current structures prove to be effective” (p. 10 of 344).	Please provide detailed information on revegetation plans, including planting prescriptions/densities, expected time to maturity, target ecosites, and community feedback on any use of non-native grass species.	Proposed work plans for each of the Project components were referenced in Section 5.4 of the CRP to Appendix D (Site Reclamation Plans), which details the individual plans for remediation and reclamation of the sites. Within the plans in Appendix D it is specified that native grass seed mixes and/or transplants of local tree and shrub species will be used. A further update to the CRP can provided further revegetation targets.	The Board directs MGM to provide additional details pertaining to revegetation targets for each site.
16	Provision of Detailed Reclamation Plans and Existing Data	No detailed information was provided nor rationale for how seed mixes and seeding	Please describe how an “appropriate seed mix” was determined in collaboration with local Indigenous land users. If there	This topic falls under Reclamation and closure	The Board directs MGM to provide additional details



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	Community Engagement	preferences were determined.	was no engagement on this topic, please incorporate this topic into the Engagement Plan.	planning and activities in the Project Engagement Plan	<p>pertaining to revegetation targets for each site.</p> <p>The Board directs MGM to include the results of any relevant engagement related to seed selection methodology.</p>
17	Provision of Detailed Reclamation Plans and Existing Data	MGM includes fertilizers in its reclamation plans to address vegetation growth concerns.	Please describe benefits/risks considerations for reclamation and revegetation options, including potential risks associated with the use of fertilizers in creating nutrient regimes or plant communities that may not be representative of the surrounding environment.	Revegetation rates in NWT, post disturbance have ranged from 1-3% cover in 5 yrs and have taken over 40 yrs to achieve 60-70% growth (Neby et al 2022, Audet and Settingington 2024) and 10% coverage (daily average) after 5 years (Arktis Solutions Inc. 2020) as well as drilling sumps in the Mackenzie Delta region that have achieved vegetation cover amounts similar to the adjacent undisturbed land after approximately 30 yrs (Johnstone and Kokelj 2008). Furthermore in these ecoregions nitrogen and phosphorous may remain trapped in the permafrost or are only very slowly being released. Therefore due to the highly variable and generally slow regrowth rates in NWT as well as the low availability of nutrients, to	<p>The Board directs MGM to provide relevant studies that support these statements, including methodology and results.</p> <p>Site specific reclamation work is required to understand baseline conditions (vegetation for example) and how fertilizers or other additives will affect local conditions, without causing additional environmental effects.</p>

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				<p>achieve 70% in a reasonable timeframe (as required by the LUP) will likely require nutrient additives to support growth.</p> <p>Under climate change conditions there will likely be an increase in decomposition rates and therefore increased nutrient availability so it is likely that the infrequent addition of nutrients to these relatively small plots is going have limited effects to the overall nutrient balance over time.</p>	
18	Provision of Detailed Reclamation Plans and Existing Data	Topsoil capping material is planned to be sourced from Norman Wells and applied at a 0.2 m thickness . The proposed source location is not specified.	For all sites, please provide evidence of suitable capping depth and locate topsoil source locations on a map.	<p>In Section 3.1 Terrain and Soil Conditions of the CSMS appended to the CRP, information was provided on the extents of soils in off-site undisturbed locations ranged in depths from 0.5 m, 0.4 m and 0.25 m. The proposed topsoil thickness to be added to the selected locations identified in the CRP were proposed to both provide sufficient growing media to support revegetation and to provide similar soil cover to the undisturbed conditions off-</p>	The Board Directs MGM to provide details relating to topsoil and backfill sources, including testing results of sources, and details relating to how it will be transported to site and utilized in remediation and reclamation activities.

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				<p>site. Anticipated source locations, if known in advance and not likely to change may be included in an updated CRP however if specific source details are not yet known their locations may be provided separately in a notification to the Land Use Inspector prior to the start of placement.</p>	
19	<p>Provision of Detailed Reclamation Plans and Existing Data</p> <p>Community Engagement</p>	<p>MGM provided high-level information on revegetation plans, including species included in the seed mixes and a stated preference for natural encroachment over active seeding (p. 12 of 344).</p>	<p>Please describe how MGM's stated preference for natural encroachment is reflected in revegetation plans. Please also describe how MGM will monitor and adapt revegetation practices accordingly, such that Indigenous land user needs are met.</p>	<p>The CRP will be revised to include further details supporting the benefits and methodologies for natural encroachment which includes a return of species native to the surrounding areas, as well as additional details of proposed revegetation monitoring.</p>	<p>The Board directs MGM to provide additional details pertaining to revegetation methods, monitoring periods and contingencies</p>
20	<p>Ongoing Maintenance of Reclaimed Sites</p>	<p>The C&amp;R Plan identifies the need for "ongoing maintenance" of vegetation affiliated with the risks tree and shrub roots pose to sump cap integrity (p. 87 of 344). Given MGM's stated reclamation principle of 'no long term active care', it is not clear for how long MGM intends to manage vegetation at the sites or at what point in the future, if any, the risks are resolved.</p>	<p>Please describe the time period for which MGM anticipates needing to remove encroaching woody vegetation, and describe the time period for which roots may pose a threat to sump cap integrity. If the risk persists indefinitely, then please describe plans for managing this risk to ensure the long-term safety of wildlife and Indigenous land users.</p>	<p>An updated CRP will include more detail regarding revegetation monitoring periods and contingencies.</p>	<p>The Board directs MGM to provide additional details pertaining to revegetation methods, monitoring periods and contingencies</p>

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21	Physical Reclamation Challenges	Throughout the C&R Plan, physical issues with sites are described, including standing water/ponding, bare areas, tension cracks, slumping, subsidence, uneven settling (some areas of a sump cap raised while other areas of the same cap depressed), etc. The root causes of these issues are not fulsomely explained.	Please require a root cause analysis for all observed physical issues, and demonstrate how lessons learned through previous operations and reclamation has been and will be applied to ongoing and future reclamation, such that reclamation treatments address the root cause of challenges and not only symptoms that appear on the land's surface.	Further discussions regarding previous monitoring and assessment of the sites and potential causes of physical conditions such as sump stability are described in Appendix D and in the NEBAs. Additionally, the CSM/PTC reports (Section 6.5.2.1) provided a discussion of the sump assessments completed by other which spoke to the potential root causes of the physical changes to sites with sumps. The CRP can be updated to include additional references to appended reports, and can summarize potential causes for any observed physical changes at the sites that pose an environmental concern.	The Board directs MGM to provide historic well file records that confirm sump dimensions, characteristics, chemistry and environmental studies that support the development of the CSM for each site, as per GNWT and MBLWB regulatory guidance.
22	Reclamation Activities: Physical Challenges	Suggested terrain stabilization (e.g., infilling tension cracks, backfilling depressions) does not fulsomely discuss the root cause of physical issues nor how proposed plans will be adequate in the long-term. MGM and K'alo-Stantec Limited note ongoing changes to permafrost conditions, which may	Please provide a discussion of anticipated stability of reclaimed sites under various climate change scenarios, and for each of the two analyzed remedial options.	A revised CRP will provide a additional descriptions of the anticipated stability of portions of the site that pose environmental concern, and how future sump stability would differ for each of the remedial options. Permafrost integrity, which contributes to continued sump stability, is already discussed and	The Board directs MGM to provide details relating to sump waste characterization and how chemicals (salts, for example) may be causing permafrost degradation which may be a leading cause of surrounding land integrity issues.  The Board directs MGM to provide details how remedial and reclamation efforts will

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		impact the long-term integrity of the reclaimed sites.		incorporated into the NEBAs for the sites.	improve stability issues at each site, and a timeline for the work proposed to do this.
23	Reclamation Activities: Wildlife	Given the risks poor water quality in ponding areas pose to wildlife and the risks wildlife pose to revegetation, MGM proposes the use of wildlife deterrents. However, little information is provided regarding the type of deterrents proposed, the time period for deployment, or implications on meeting long-term reclamation goals of providing wildlife habitat and hunting, trapping, and other traditional uses (p. 6 of 344). It is noted that the use of woody debris was relatively ineffective as a means of wildlife deterrent (p. 80 of 344), but it is not clear how or if this observation altered reclamation plans.	Please describe the manner of wildlife deterrents proposed, including the type of deterrent, observed efficacy, anticipated duration of deployment, and input sought or received from local Indigenous land users. Where PVC grid structures are proposed, please describe monitoring triggers (i.e., metrics for successful revegetation) and anticipated timelines for removal. If inorganic (i.e., man-made) wildlife deterrents are proposed to be left in place indefinitely, please describe environmental impacts of leaving these materials on the landscape and discuss feedback from local Indigenous land users on any such plans.	Wildlife deterrents have been implemented at the sites where wildlife use is inhibiting revegetation efforts. The CSM/PTCs considered the potential for wildlife exposure to contaminants and concluded that no unacceptable risks were anticipated for wildlife receptors at any of the sites. The revised CRP can include timelines for observing success of revegetation relative to reclamation targets, which can include a timeline for removal of the PVC grids specifically. Additional potential deterrents can be generally described based on the wildlife observed to date however specific details such as the exact type, duration of deployment and efficacy are typically determined on a case by case basis and deterrents may change based on observed efficacy.	The Board directs MGM to provide a timeline for revegetation monitoring and deterrent removal.

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24	Reclamation Activities: Wildlife	Given the risks poor water quality in ponding areas pose to wildlife and the risks wildlife pose to revegetation, MGM proposes the use of wildlife deterrents. However, little information is provided regarding the type of deterrents proposed, the time period for deployment, or implications on meeting long-term reclamation goals of providing wildlife habitat and hunting, trapping, and other traditional uses (p. 6 of 344). It is noted that the use of woody debris was relatively ineffective as a means of wildlife deterrent (p. 80 of 344), but it is not clear how or if this observation altered reclamation plans.	Please discuss implications of the proposed use of wildlife deterrents on the ability to meet reclamation goals and objectives, specifically those pertaining to restoring wildlife habitat, matching the surrounding environment, and restoring the ability the practice Indigenous land uses.	A revised CRP will be provided, to include information on the effects the existing deterrents have had in achieving reclamation goals and the potential contribution that other proposed deterrents may have to meeting closure criteria. Past performance of wildlife deterrents is available in the Monitoring Reports on the public registry.	The Board directs MGM to include details regarding the effects of deterrents on reclamation and closure goals.
25	Reclamation Activities: Chemical Challenges	Throughout the C&R Plan, chemical issues with sites are described, including electrical conductivity, pH, sodium adsorption ratio, petroleum hydrocarbon, metals, and inorganics exceedances. The root causes, specific constituents in question, severity of exceedances, and other details are not fully	Please provide information on how chemical exceedances compare to regulatory guidelines and include a discussion on the extent to which guidelines referenced are protective of Indigenous use. This applies to soil, surface water, groundwater, and plant tissue samples.	The CSM/PTC reports compared analytical data for site media (i.e., soil, surface water) to guidelines (laid out in Section 5; includes application hierarchy of federal and provincial (AB) guidelines) protective of human health and ecological receptors. The guidelines applied and the screening	The Board directs MGM to provide a CSM for each site that outlines all APECs that have been identified similar to a PI ESA process (historic aerial photo interpretation, well file reviews)  MGM shall identify COPCs associated with each APEC and any site data that relates to environmental characterization

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		<p>explained. The C&amp;R Plan acknowledges a limited understanding of the chemical makeup of sump materials (discussed more below).</p>		<p>done to identify COPCs was completed in accordance with risk assessment guidance provided by Health Canada and Environment and Climate Change Canada. Relevant exposure pathways for local Indigenous use were considered in the CSM/PTC reports (Section 6.1).</p>	<p>of these issues, in accordance with GNWT and MVLWB regulatory guidance documents.</p> <p>Where risk assessments have been conducted, The Board directs MGM to provide the results of the risk assessment work including problem formulation, risk hazard assessments and results of risk assessment objectives, in accordance with applicable Federal and Territorial Guidance.</p> <p>The Board directs MGM to state remedial objectives and applicable remedial criteria for each COPC and explain how the remedial criteria was developed.</p>
26	<p>Reclamation Activities: Chemical Challenges</p>	<p>The C&amp;R Plan contemplates the pumping of standing or seepage water for release to the surrounding environment following water sampling, however, MGM does not provide water sampling guidelines to be used, details of release methods to minimize erosion and contribution to nearby surface water bodies, or</p>	<p>Please provide water sampling guidelines for use in determining suitability for release of ponded or seepage water to the surrounding environment, release methods, and contingency plans in the event water quality is deemed unsuitable. Please describe efforts made to solicit community feedback on this proposed reclamation activity or describe how community members will be engaged prior to pumping and releasing.</p>	<p>The CRP will be revised to include criteria for release of ponded water or seepage water to the environment, if it is determined through methods such as a risk-based evaluation that the release of ponded water poses a concern to potential receptors, and include contingencies for managing ponded or seepage water if</p>	<p>The Board directs MGM to provide a water management plan. The plan shall explain how ponded and seepage water will be managed, the applicable regulatory criteria to be used, what water treatment technologies will be utilized, any associated licensing requirements, and removal strategies.</p>

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		contingency plans in the event the water quality is deemed unsuitable for release.		removal is required and release criteria cannot be met.	
27	Reclamation Activities: Chemical Challenges	Throughout the C&R Plan, no remediation treatments are suggested or discussed, with the exception of 'Remedial Option 2' which would provide for the excavation of sump materials for disposal in a designated facility, and which was not recommended as the preferred path to closure. If revegetation or solar remediation is contemplated, this is not explicitly stated.	Please clarify what remedial activities are planned to neutralize risks from constituents of potential concern in soil, surface water, groundwater, and vegetation. Distinguish these from reclamation and revegetation activities. Describe expected chemical outcomes of reclamation options which involve leaving sump materials in place, including additional remediation that may be required, targeted constituents of potential concern, efficacy of proposed remedial activities, and time period until safe Indigenous land use and wildlife habitat will be supported.	Additional details regarding the expected long term outcome of the remedial options selected will be included in the revised CRP with discussions on the efficacy of both remediation and reclamation activities.	<p>The Board directs MGM to provide an updated Remedial Plan outlining the associated APECs, COPCs and site environmental data that supports any risk management or remedial strategy at each site.</p> <p>The Remedial Plan shall outline the various options considered in fully remediating all site impacts, in accordance with GNWT and MVLWB regulatory guidance</p> <p>The selected remedial option should provide details on how it will be completed, a timeline of activities and logistical efforts associated with the option, in accordance with both GNWT and MVLWB regulatory guidance documents.</p> <p>Remedial efforts are required at sites with environmental issues, prior to planning and completing any reclamation work.</p>



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28	Reclamation Activities: Chemical Challenges	While the C&R Plan acknowledges a lack of vertical and horizontal delineation of chemical concerns is a knowledge gap impacting the ability to characterize risks associated with different reclamation options, and that “[r]emoval or stabilization of the sump material is required for regulatory closure” (p. 189 of 344), physical reclamation activities seem only to address vertical migration of constituents through proposed backfilling measures.	Please discuss how reclamation options that involve leaving sump materials in place will stabilize sump materials such that lateral movement of constituents is eliminated or minimized.	The revised CRP will include additional discussion of stability in relation to the proposed reclamation options.	<p>The Board directs MGM to provide a CSM that outlines both horizontal and vertical delineation of all site impacts at APECs listing COPCs and environmental data supporting the CSM.</p> <p>The Board directs MGM to provide an updated Remedial Plan outlining the associated APECs, COPCs and site environmental data that supports any risk management or remedial strategy at each site.</p> <p>The Remedial Plan shall outline the various options considered in fully remediating all site impacts, in accordance with GNWT and MVLWB regulatory guidance</p> <p>The selected remedial option should provide details on how it will be completed, a timeline of activities and logistical efforts associated with the option, in accordance with both GNWT and MVLWB regulatory guidance documents.</p> <p>Remedial efforts are required at sites with environmental issues,</p>

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					prior to planning and completing any reclamation work.
29	Reclamation Activities: Chemical Challenges	Throughout the C&R Plan, no remediation treatments are suggested or discussed, with the exception of 'Remedial Option 2' which would provide for the excavation of sump materials for disposal in a designated facility, and which was not recommended as the preferred path to closure. If revegetation or solar remediation is contemplated, this is not explicitly stated.	Please discuss all other treatment (physical reclamation and chemical remediation) considered (e.g., liners) and how these were derived.	Additional treatment options may be included for comparison purposes in the next revision of the CRP however many typical options for site remediation in more southern locations (such as chemical remediation) have limited success in northern climate conditions.	Remedial options must consider sustainable remedial options that have been approved and completed in Northern Canada, as per GNWT and MVLWB regulatory guidance.  Remedial efforts are required at sites with environmental issues, prior to planning and completing any reclamation work.
30	NEBA and Adequacy of Reclamation/Remediation Options	Remedial Option 1 (RO1) was to address sump stability through infilling tension cracks, backfilling depressions, pumping collected surface water off of the sump for release to the surrounding environment, and treatments to aid in revegetation. It is unclear whether any remediation is planned under RO1, including whether or not passive remediation through revegetation and solar exposure is expected to result in adequate	Please confirm whether and what remedial activities are planned under RO1, including a discussion of the expected performance of passive remediation through revegetation and solar exposure.	To confirm, remedial activities are proposed for the sumps. As detailed in the NEBA, remedial activities proposed for the sumps under RO1 will include recontouring the sump areas to not allow for surface water accumulation, and backfilling of subsided areas and sump surface cracks with suitable subsoil/topsoil material. These ground preparation treatments would be followed by revegetation treatments in order to establish a long-term native	These options are reclamation based rather than remedial based solutions, and do not address the source of environmental impacts, likely located within the sump or camp sump, which can contain multiple COPCs (PHCs, Salts, metals etc..).  Remedial efforts of sumps at similar Northern sites require physical and chemical removal of source contaminants off-site, and a remedial option analysis should consider these treatments, in accordance with

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		remediation of contaminated sites.		<p>vegetation cover to limit surface erosion and the establishment of invasive plants (weeds), and aid in the surface stability of the sumps. If needed, additional treatments may be considered such as installation of wildlife deterrent grids and spreading of wood debris on the sump surfaces in order to control wildlife impacts, such as wallowing, on the sump surfaces. Following revegetation treatments, monitoring to confirm that the sumps do not experience terrain changes, and that vegetation is re-established throughout the sump area. Maintenance treatments may be considered if any issues arise.</p> <p>Passive remediation through solar exposure and revegetation of sump material contents was not considered as an option in the NEBA due to the following:  -The sump materials may have contaminants that will prevent the establishment of</p>	<p>GNWT and MVLWB regulatory guidance documents.</p> <p>Recontouring and backfilling does not address the source material (salts or hydrocarbons in drilling waste sumps) which can migrate along the active zone, degrading the permafrost and causing depressions and surface water ponding.</p> <p>Remedial solutions are required and should be proposed in a remedial plan for each site, following GNWT and MVLWB regulatory guidance documentation.</p> <p>The Board directs MGM to provide an updated Remedial Plan outlining the associated APECs, COPCs and site environmental data that supports any risk management or remedial strategy at each site.</p> <p>The Remedial Plan shall outline the various options considered in fully remediating all site impacts, in accordance with GNWT and MVLWB regulatory guidance</p>

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				<p>vegetation, or would affect the health/condition of any vegetation that establishes thereby reducing the effectiveness of contaminant uptake in the vegetation.</p> <p>-Contaminants that are uptaken by vegetation may be ingested by wildlife (e.g. grazing muskox), thereby posing a risk to those animals.</p> <p>-Exposing the sump materials for remediation through solar exposure would expose contaminants to receptors such as surrounding native vegetation, animals, or humans, thereby posing a risk to those receptors.</p>	
31	NEBA: Adequacy of Reclamation/Remediation Options	Remedial Option 2 (RO2) was to excavate sump materials for disposal off-site. The report described concerns related to disturbing permafrost and uncertainties related to the re-establishment of permafrost, and did not provide locations or confirmed available volumes for sourcing clean backfill. However, K'alo-Stantec Limited did state: "if the sumps are completely removed from the Site this	Please confirm available locations and volumes of clean backfill that support a viable RO2.	The subsoil could potentially be sourced in Norman Wells by HRN contracting, but their supply varies from year to year depending on the project. Topsoil sourcing could be from Norman Wells, MGM would also scout other potential local sources.	<p>The Board directs MGM to provide backfill source details including location of backfill, chemical testing results, and any other important information relating to the usage of backfill to replace waste sump material.</p> <p>The Board note that similar site projects have been conducted during winter to minimize permafrost degradation.</p>

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		could allow for backfilling of the area to match the original grade and the restoration of the Site to match the surrounding undisturbed ecosystem” .			The Board directs MGM to provide a permafrost protection plan that outlines the method during remedial and reclamation activities to maximize permafrost protection during these activities.
32	NEBA: Community Engagement	Engagement is not apparent pertaining to the Net Environmental Benefits Analysis of the remedial options. Indigenous Land Users and Knowledge Holders must be engaged in developing and assessing the remedial options. The social values used in assessing remedial options does not include local Indigenous values, which might include cultural values, opportunities for land-based knowledge-transfer, sharing of food, medicinal and ceremonial uses, etc..	Please provide meaningful opportunities for local Indigenous engagement on the remedial options analysis, including the identification of social and environmental values assessed. Please describe what, if any, community engagement has been carried out to inform the remediation options and analyses to-date.	MGM has been and continues to be available to all affected parties to discuss all aspects of the project. MGM engagement related to this Permit and Licence has been focussed on project closure, this included the potential closure activities and options	The Board directs MGM to update the Engagement Record to reflect any engagement undertaken in support of CRP Revisions.
33	NEBA: Consideration of Indigenous Land Use	The remedial options analysis assumed that social impacts were limited due to the remote nature of the site (p. 90 of 344).	Please acknowledge that the surrounding communities are largely Indigenous communities who, despite the remote location of the sites, incur unique impacts to their values and land use patterns, and who may experience increased levels of exposure to environmental hazards.	Noted - thank you for the comment.	Noted – no action required

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34	NEBA: Accounting for Permafrost and Climate Change Realities	<p>The 2021 Conceptual Site Model and Path to Closure Reports (C&amp;R Plan Appendix F) recommended “additional testing to be conducted to assess the chemical composition and physical properties of the sump materials. The most recent Environmental Site Assessment (ESA) work completed to guide the PTC and CSM was conducted in 2022 to address the uncertainties; however, the potential impacts of the COCs to ecological receptors is still not known” (p. 71 of 344). Despite these persistent uncertainties and acknowledgement that “the anticipated sensitivity of the sump integrity to climate change and permafrost degradation was moderate to high, and that a potential future failure of the sumps and/or release of sump materials would result in potentially unacceptable risk to ecological receptors” (p. 79 of 344), the Net Environmental Benefits Analysis still “considered potential risk to ecological</p>	<p>Please require a conservative reclamation/remediation options analysis which takes into account sump integrity sensitivities to climate change and permafrost degradation (i.e., does not assume sump integrity will remain in the long-term), as well as remaining uncertainties and knowledge gaps, such that options analyses are protective of wildlife habitat and Indigenous land uses.</p>	<p>The NEBAs discussed risks associated with permafrost however additional discussions regarding sump stability in relation to the chosen closure paths can be provided in a revised CRP.</p>	<p>The Board directs MGM to provide a sustainable remediation analysis of APECs at each site that may be vulnerable to various criteria, including climate change impacts, ground temperature changes and other environmental factors that would require full remediation and reclamation. This shall include site data that supports the remedial solution and reclamation work, in accordance with GNWT and MVLWB regulatory guidance documentation.</p> <p>The Board directs MGM to provide a timeline of when the analysis and further work (if required) will be conducted, and to explain how this fits into the long term closure plan for each site.</p>

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		<p>receptors based on the assumption that the sump integrity would remain in the long-term” (p. 72 of 344). Further study was recommended to understand the chemical composition of sump materials, associated risks to receptors, and associated implications for sump integrity given combined effects with climate change, and that the assessment “be further revised with this information” (p. 72 of 344).</p>			
35	NEBA: Addressing Uncertainties and Data Gaps	<p>The 2021 Conceptual Site Model and Path to Closure Reports (C&amp;R Plan Appendix F) recommended “additional testing to be conducted to assess the chemical composition and physical properties of the sump materials. The most recent Environmental Site Assessment (ESA) work completed to guide the PTC and CSM was conducted in 2022 to address the uncertainties; however, the potential impacts of the COCs to ecological receptors is still not known” (p. 71 of</p>	<p>Please provide the data for the recommended additional studies and/or describe plans to conduct this research in the future, including plans for engagement with local Indigenous land users.</p>	<p>In 2022, a drilling program was undertaken to collect soil samples at C-49, E-35, and K-14 to resolve the data gaps identified in the CSM-PTC reports. These reports can be provided in the updated CRP</p>	<p>As the CSM and additional environmental sampling reports are 2-3 years old, The Board directs MGM to provide an updated CSM for each site, showing full list of APECs, COPCS, delineation status, remedial option analysis and chosen remedial method (ie full source removal, risk management etc..) that outlines the pathway to closure, in accordance with GNWT and MVLWB regulatory guidance.</p>

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		<p>344). Despite these persistent uncertainties and acknowledgement that “the anticipated sensitivity of the sump integrity to climate change and permafrost degradation was moderate to high, and that a potential future failure of the sumps and/or release of sump materials would result in potentially unacceptable risk to ecological receptors” (p. 79 of 344), the Net Environmental Benefits Analysis still “considered potential risk to ecological receptors based on the assumption that the sump integrity would remain in the long-term” (p. 72 of 344). Further study was recommended to understand the chemical composition of sump materials, associated risks to receptors, and associated implications for sump integrity given combined effects with climate change, and that the assessment “be further revised with this information” (p. 72 of 344).</p>			
36	NEBA: Community Engagement	Social values included in the Net Environmental Benefits	Please describe engagement done to determine the values, define evaluation	The Indigenous values incorporated in the revised	The Board directs MGM to update the Engagement Record



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		Analysis focused on carbon emissions and indirectly considered costs to MGM (p. 76 of 344), omitting Indigenous values and longer-term social values which might include cultural values and Indigenous Knowledge. Factors that were deemed “external values”, although this is not defined, were excluded due to the site’s remote location; this does not acknowledge historic, ongoing, and future Indigenous use of the sites.	criteria, and carry out the assessment. If this has not been done, please require meaningful engagement on a revised NEBA.	NEBA's have been developed conservatively and are not based on any Project-specific community engagement or input and are based on publicly available engagement	to reflect any engagement undertaken in support of CRP Revisions.
37	NEBA: Methodology	Social values were given the highest weighting (15%), while wildlife habitat and water-based parameters were given the lowest weighting (5%). No rationale was provided for weightings.	Please provide the method or inputs used to derive weightings for each factor assessed, conduct an assessment that includes Indigenous values, and weight Indigenous values equitably in light of long-term implications to the practice of their rights.	A revised version of the NEBA reports is being prepared with additional information on the rationale/determination of weightings for each criterion. The revised NEBA will include an additional criteria Traditional Land and Resource Use that will be integrated into the overall assessment.	Noted – The Board recommends that MGM revisit the evaluation criteria when updating the NEBA.
38	NEBA: Methodology	Despite the results of the evaluation being presented as predicted impacts to ecological function, social, economic, and environmental factors were assessed together. This	Please conduct separate evaluations for social, economic, and environmental factors.	A separate evaluation criteria assessment was conducted with the social factors removed. Each remedial option (and the NFT scenario) were re-evaluated and the scores were totaled to give	The Board notes that CSMs (which were used to inform the NEBAs) have significant data gaps which prevent an accurate assessment of risk.

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		<p>combined with the higher weightings afforded to social and economic factors result in a biased evaluation that may undervalue environmental outcomes.</p>		<p>an updated functionality impact score, both with and without the additional criteria added (Traditional Land and Resource Use). The higher the score, the less the remedial option affected the overall ecosystem criteria within the given impact area. The result of all three NEBA's remains the same, RO1 received the highest scores across all the Sump Areas. Therefore, the recommended path forward remains to be RO1. This work will be included in a revised NEBA submission.</p>	<p>The Board notes that CSMs (which were used to inform the NEBAs) concludes that <i>"Removal or stabilization of the sump material is required for regulatory closure. Removal of the sump material will incur excessive costs, effectively eliminate the remedial work completed to date, and greatly disrupt the ecosystem services that have reestablished. However, <u>characterization of the chemical concentrations within the sump mix zone is currently unknown to quantify the potential risk to ecological receptors. The ability to quantify the risk associated with the sump material is required to delineate possible scenarios to support a regulatory path to closure for the Site that does not require removal of the sump material."</u></i></p> <p>As indicated by MGM, the only possible path forward, given the current site information, is removal of sump material (RO2). Yet in all cases, this option was not selected.</p> <p>Further, RO1 does not address the Licence requirement to</p>

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					<p>demonstrate 100% sump stability.</p> <p>The Board directs MGM to provide detailed CSMs including all APECs, COPCs and background assessment work relating to each site, in accordance with GNWT and MVLWB regulatory guidance documents.</p> <p>The Board directs MGM to revise and resubmit its NEBA/Sump Remediation Plan. The Board recommends that MGM revisit the evaluation criteria when updating the NEBA.</p>
39	NEBA: Need for Detailed Remediation, Revegetation, and Reclamation Plans	Regarding wildlife habitat, RO2 was consistently given the lowest possible score of 1, but it is not clear why from the rationale provided.	Please confirm revegetation plans considered in RO2. Considering revegetation activities and the improved chemical and physical issues predicted under RO2, explain why RO2 received the lowest possible score (1) for wildlife habitat.	The lowest possible score of 1 was applied to RO2 for wildlife habitat due to the evaluation criteria outlined in Table 3-2. The evaluation criteria for wildlife habitat is associated with removal of vegetation. As a result of RO2, excavation and off-site disposal, wildlife habitat would be permanently limited due to complete removal of established vegetation. Vegetation is a	The Board suggests that RO2 is a similar process to RO1 (partial backfilling of depressed spots, without removal of the source causing the depressions and stressed vegetation) and will result in similar disturbances. Ultimately RO2 will have the best chance of eco-recovery as the contaminant source (salt impacts and PHC impacted material) will be removed allowing the soil, vegetation and ecosystem to recover fully,

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				<p>key function of wildlife habitat and as such are interrelated values of the ecoregion.</p> <p>The ROA includes a high level summary of the revegetation plan "Vegetation will be re-established to acceptable background reference conditions within 5 years post remediation and reclamation activities". A detailed revegetation plan is not included in the scope of the NEBA, but would be included as part of the detailed design if RO2 is selected.</p>	<p>which would ultimately benefit local wildlife in the area and reduce the risks to land users</p> <p>The Board recommends that MGM recalculate these scenarios based on realistic scenarios for northern site remediation projects.</p>
40	NEBA: Groundwater as a Potential Pathway	In the Net Environmental Benefits Analysis, "[g]roundwater was not assessed and likely not accessible by ecological receptors" (p. 79 of 344).	Please provide data to verify the validity of the assumption that groundwater is "likely not accessible by ecological receptors", including under future climate change scenarios.	Groundwater was not encountered at E-35, permafrost was encountered at 1.2-2.4 mbgs, groundwater not encountered at K-14, permafrost encountered between 1.8-3.3 mbgs; at C-49, saturated soils (thawed permafrost) were encountered at approximately 0.45 mbgs and the water was inferred to be seasonally present. Under future climate change scenarios, thawed upper permafrost is more likely to	<p>The Board directs MGM to provide groundwater reports and groundwater data (even the absence of measured water levels in monitoring wells) to support this conclusion.</p> <p>Groundwater assessment is part of GNWT and MVLWB regulatory guidance documents on remediation and the CSM must be updated to include this information.</p>

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				<p>be present acting as an unconfined shallow water at least seasonally. However, based on the vegetation present at the sumps (predominantly grasses) with shallow rooting systems, the groundwater is unlikely to be accessible to vegetation within the footprints of the sumps.</p>	
41	NEBA: Addressing Uncertainties and Data Gaps	<p>The C&amp;R Plan acknowledges a lack of groundwater data available for the region: "it appears that there are no groundwater data and no hydrometric station data available to document aquifers, surface water discharge rates, surface water quality, or surface and groundwater interactions" (p. 167 of 344), and acknowledged uncertainties pertaining to the availability of groundwater as a pathway under changing permafrost conditions (p. 89 of 344).</p>	<p>Please describe plans to address the regional lack of groundwater data and/or complete the analysis using a conservative approach to ensure the safety of wildlife habitat and Indigenous land uses.</p>	<p>Shallow water within the active permafrost layer (active layer water) is not considered "groundwater" from the CSM perspective. Groundwater term is used for water within a aquitard/aquifer unit (either confined or unconfined). In the SSA region, true groundwater would be within the bedrock lithology. K'alo Stantec sampling to date has included surface water or active layer water results only. The NEBAs will be revised to clarify the definition of "groundwater" and "active layer water".</p>	<p>The Board directs MGM to provide groundwater reports and groundwater data and provide supporting information why shallow groundwater is not considered "groundwater" from the CSM perspective.</p> <p>The Board notes that the active layer is where most groundwater transportation occurs, and contaminants can travel horizontally long distances off-site if not addressed properly.</p> <p>Groundwater within bedrock has downward migration potential, so contaminants can migrate deeper into bedrock and permafrost environments if not addressed.</p>

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42	CSM and PTC: Community Engagement	It is not apparent if/how community engagement informed development of the conceptual site model.	Please describe community engagement completed to inform the Risk Assessment Reports for Sumps (i.e., Conceptual Site Model and Path to Closure Reports).	MGM is relying on the SLWB regulatory processes (as noted in the Project Engagement Plan).	The Board directs MGM to update the Engagement Record to reflect any engagement undertaken in support of CRP Revisions.
43	CSM and PTC: Consideration of Indigenous Land Use	Constituents of potential concern seem not to be considered in the evaluation of reclamation scenarios on impacts to wildlife in the Net Environmental Benefits Analyses or in the Conceptual Site Models or to subsequent human handling and consumption of wildlife.	Please confirm how constituents of potential concern were considered in describing potential impacts to wildlife receptors (including insects), and to human receptors through handling and consumption of wildlife. Consider bioaccumulation.	This will be addressed in the next version of the CRP	The Board directs MGM to explain how constituents of potential concern were considered in describing potential impacts and confirm if Health Canada guidance for risk assessments followed for determining constituents of potential human concern.
44	CSM and PTC: Consideration of Indigenous Land Use  CSM and PTC: Community Engagement	The Conceptual Site Models only considered incidental ingestion and dermal contact (p. 179 of 344), however, exposure through these pathways may be higher for Indigenous land users.	Please engage with local Indigenous land users to determine an appropriate level of ingestion and dermal contact for assessment, acknowledging that this may be higher in Indigenous land users than in other populations (e.g., site workers).	While it is acknowledged that ingestion and dermal contact may be higher for Indigenous land users, as no contaminants of potential concern (COPCs) were identified for human health protection, further consideration of these intake parameters in the CSM/PTC reports was not warranted.	The Board directs MGM to update the Engagement Record to reflect any engagement undertaken in support of CRP Revisions.
45	CSM and PTC: Consideration of Indigenous Land Use and Protection of the Environment	Surface water was not assessed as a potential exposure pathway, even on sites experiencing ponding.	Please require completion of the assessment including surface water and groundwater as potential exposure pathways.	It is unclear what this comment pertains to since surface water (on and off site) and groundwater were assessed either qualitatively and quantitatively in the three Conceptual Site Model	The Board directs MGM to consider both groundwater and surface water as exposure pathways in the CSM.

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				<p>and Path to Closure Reports. For example, in the E-35 Conceptual Site Model and Path to Closure Report, surface water and groundwater were assessed in Section 6.2.1 Human Health Exposure Pathways and Section 6.2.2 Ecological Exposure Pathways. Indeed, ponded water from seasonal thaw was also assessed as surface water in this report.</p>	
46	<p>CSM and PTC: Consideration of Indigenous Land Use and Protection of the Environment</p>	<p>The rationale for not assessing surface water as a potential exposure pathway was provided: "There are no potable water sources on-site. Surface water is unlikely to be used as a potable water source at the Site. Human health receptors are expected to bring potable water to site for use while at the Site ... Human health receptors are not expected to contact surface water while at the Site. If work on/near surface water is required, personal protective equipment (PPE) would be required" (p. 226 of 334).</p>	<p>Given the assumptions that "Human health receptors are expected to bring potable water to site for use while at the Site ... Human health receptors are not expected to contact surface water while at the Site" ...</p> <p>Please address how the proposed reclamation outcomes provide for the return of equivalent capability to the land, including the safe practice of Indigenous land uses.</p> <p>Please describe MGM's plans to provide potable water and associated transportation required to Indigenous land users indefinitely to ensure this assumption is correct in the short- and long-term.</p>	<p>Additional evaluation to address this comment will be provided in the revised CRP. MGM does not understand the requests on potable water given there are no sources on the sites. MGM is committed to keeping affected parties informed through project closure.</p>	<p>The Board notes that many surface water bodies typically serve as both ecological and human health sources of water and as such should be included in a CSM.</p> <p>The Board directs MGM to provide details on why surface water sources at each site are not considered potable. This shall include surface water reports which outline these data points and identify any traditional knowledge and land user engagement that was used to reach these conclusions.</p>

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			Please describe MGM's plans to ensure land users are fully informed, in perpetuity, of risks associated with surface waters remaining onsite.		
47	CSM and PTC: Consideration of Indigenous Land Use	Potential ingestion of plants for food was acknowledged but not assessed as an exposure pathway. The report stated that "food sources have not been observed at the Site" (p. 180 of 344), but does not describe engagement with local land users to confirm this observation. Ingestion of animals was not acknowledged. Ingestion of plants and animals for uses other than food (e.g., medicinal, ceremonial) was not acknowledged.	Please assess the ingestion of, inhalation of, and dermal contact with plants, animals, and fungi which may be used for food, medicinal, ceremonial, or other uses. Engage with land users to determine appropriate species and exposure pathways for consideration.	Additional evaluation to address this comment will be provided in the revised CRP.	The Board directs MGM to provide a full CSM for each site that outlines the elimination of ecological or human health pathways, in accordance with Health Canada guidance documentation for Risk Assessments.  This shall include an explanation of data sources, traditional knowledge, and the details of any land-user engagement used to determine appropriate exposure pathways.
48	CSM and PTC: Consideration of Indigenous Land Use and Protection of the Environment	Potential ingestion of plants for food was acknowledged but not assessed as an exposure pathway, stating that "food sources have not been observed at the Site" (p. 180 of 344).	Please address uncertainties related to potential establishment of plant and animals which may be consumed on the sites in the future and resultant implications for exposure pathways.	Additional evaluation to address this comment will be provided in the revised CRP.	The Board directs MGM to provide a full CSM for each site that outlines the elimination of ecological or human health pathways, in accordance with Health Canada guidance documentation for Risk Assessments.  This shall include an explanation of data sources, traditional knowledge, and the details of any land-user engagement used



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					to determine appropriate exposure pathways.
49	CSM and PTC: Consideration of Indigenous Land Use and Protection of the Environment	The human health Conceptual Site Models consider none of the potential exposure pathways to be complete. It is unclear how this outcome was determined, given the exposure pathways discussed in the same Conceptual Site Model documents.	In light of the aforementioned data gaps and methodology concerns, the statement that “there are no human health [contaminants of potential concern] at the Site” must be re-evaluated.	To identify human health COPCs, measured concentrations of contaminants in available site media were compared to applicable guidelines developed to be protective of human health. For an exposure pathway to be operable, a COPC must be present, a receptor must be present, and there must be a route for a receptor to have the potential to be exposed to the COPC. Since contaminant concentrations are less than health-protective guideline values, the exposure pathways for human receptors are considered inoperable because the human health COPCs are not present. Additional discussion to address this comment will be provided in the revised CRP.	<p>The Board notes that the CSMs provided are incomplete due to the absence of full site assessment data, wildlife or vegetation site studies, groundwater monitoring, temperature readings, and many other components of a CSM, as per CCME guidance documents.</p> <p>Further work must be conducted to properly delineate site specific impacts.</p> <p>A detailed RAP requires a CSM that has been adequately completed, and this is still outstanding for these sites to progress to site closure.</p> <p>The Board directs MGM to provide an updated CSM for each site, showing full list of APECs, COPCs, delineation status, remedial option analysis and chosen remedial method (ie full source removal, risk management etc..) that outlines the pathway to closure, in accordance with GNWT and MVLWB regulatory guidance.</p>

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50	CSM and PTC: Wildlife	Dermal contact and inhalation were not assessed as an exposure pathway for mammals, despite muskox and other wallows commonly observed at the sites.	Please fully evaluate dermal contact and inhalation as exposure pathways for mammal receptors.	<p>The CSM/PTC reports are conducted using federal ecological risk assessment guidance developed by the Canadian Council of Ministers of the Environment (CCME). The CCME guidance does not provide methods for evaluating mammal dermal contact with contaminants, as fur is typically effective at blocking dermal uptake of contaminants. Additionally, CCME does not provide guidance on the evaluation of the vapour inhalation pathway for mammals, and it is typically not evaluated unless there are site-specific conditions that would indicate that it would be a primary exposure route for a given species (e.g., a burrowing animal, an animal that hibernates in an enclosed space). Furthermore, as site COPCs are not volatile, exposure to COPCs via the inhalation pathway is considered to be negligible.</p>	<p>As above, the Board directs MGM to provide an updated CSM for each site, showing full list of APECs, COPCs, delineation status, remedial option analysis and chosen remedial method (ie full source removal, risk management etc..) that outlines the pathway to closure, in accordance with GNWT and MVLWB regulatory guidance.</p>

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51	CSM and PTC: Wildlife	The report stated: "Mammals, birds, amphibians and reptiles are not expected to be affected by soil conditions" because "if soil conditions are not preferred, they may move to another location" (p. 185 of 344). It is unclear how this is an acceptable outcome of reclamation, and further discounts observations of wildlife extensively using the sites despite measured chemical exceedances.	Please address the acceptability of unsuitable habitat requiring mammal, bird, amphibian, and reptile avoidance in meeting regulatory and community expectations. Provide mitigation measures that involve the remediation of sites such that animal deterrence, particularly in the long-term, is not required.	Additional evaluation to address this comment will be provided in the revised CRP.	As above, the Board directs MGM to provide an updated CSM for each site, showing full list of APECs, COPCS, delineation status, remedial option analysis and chosen remedial method (ie full source removal, risk management etc..) that outlines the pathway to closure, in accordance with GNWT and MVLWB regulatory guidance.
52	CSM and PTC: Consideration of Indigenous Land Use and Protection of the Environment	The report stated: "Mammals, birds, amphibians and reptiles are not expected to be affected by soil conditions" (p. 185 of 344).	Please provide a discussion of risks to insects (which were not identified as "mobile receptors" and consequently to higher trophic levels.	Additional evaluation to address this comment will be provided in the revised CRP.	As above, the Board directs MGM to provide an updated CSM for each site, showing full list of APECs, COPCS, delineation status, remedial option analysis and chosen remedial method (ie full source removal, risk management etc..) that outlines the pathway to closure, in accordance with GNWT and MVLWB regulatory guidance.
53	CSM and PTC: Consideration of Indigenous Land Use and Protection of the Environment	The report stated: "Mammals, birds, amphibians and reptiles ... may move to another location" (p. 185 of 344).	Given the acknowledgement that mammals, birds, amphibians, and reptiles are mobile receptors, please discuss measures taken to minimize the risk of these receptors transporting constituents of concerns off-site.	Additional evaluation to address this comment will be provided in the revised CRP.	As above, the Board directs MGM to provide an updated CSM for each site, showing full list of APECs, COPCS, delineation status, remedial option analysis and chosen remedial method (ie full source

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					removal, risk management etc..) that outlines the pathway to closure, in accordance with GNWT and MVLWB regulatory guidance.
54	CSM and PTC: Protection of the Environment	The C&R Plan stated that because electrical conductivity and sodium adsorption ratios are soil quality indicators, they are “not relevant for aquatic toxicity” (p. 186 of 344). It is unclear how these salinity implications are considered in terms of aquatic toxicity risks.	Please provide a comprehensive list of parameters analyzed for soil, vegetation, sediment, and aquatic toxicity, and discuss potential ramifications of soil chemical exceedances to impact the surrounding environment, including surface water bodies.	Additional evaluation to address this comment will be provided in the revised CRP.	<p>The Board notes that EC and SAR are components of a salt assessment following Alberta ENV guidance.</p> <p>The Board directs MGM to provide a full list of all APECs, COPCs associated with each APEC, details on characterization of all APECs (sumps, camp sumps, spills etc..) and show delineation details to depth, including groundwater and surface water samples outlining the full CSM for each site, as per GNWT, CCME and MVLWB guidance docs.</p>
55	Provision of Detailed Reclamation Plans and Existing Data	Previous monitoring data were submitted to the Sahtu Land and Water Board, but are not sufficiently summarized in the present application.	Please include a summary of previous monitoring data in the present C&R Plan.	A revision of the CRP will include a general summary of the monitoring data.	The Board directs MGM to provide all site data that supported the development of CSMs, RAPs and PTC reports included in this submission. Provide details where data gaps exist, in accordance with all regulatory guidance documents highlighted previously.

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56	Provision of Detailed Reclamation Plans and Existing Data	The 2024 C&R Plan states that “[d]etails of the reclamation plan are outlined within the 2020 Colville Lake Area Closure and Reclamation Plan document submitted under separate cover” (p. 50 of 344).	Please include sufficient detail to support a technical review of reclamation plans in a revised C&R plan, and highlight any updates to the plan since the 2020 C&R Plan.	Detail previously included in the 2020 and 2024 CRP that is applicable to the remediation and reclamation plans will be included in a revised CRP. A version history table will be included to summarize updates to the plans.	Due to incomplete CSMs and RAPs for each site, until data gaps are closed (ie source characterization, thermistor installations, groundwater wells etc.), final reclamation plans should wait until other ESA, CSM and RAP documents are completed.
57	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	Table 5 of the C&R Plan summarized pre-disturbed site conditions, interim reclamation and current states, and expected final states. Table 5 includes high-level evaluations of previous reclamation treatment, for instance, describing some previous treatments as “very successful”. The metrics used to determine these evaluations are not provided.	Please provide the metrics used to evaluate the success of previous reclamation treatments, including any input received from local Indigenous land users through monitoring efforts, and describe how these evaluations adaptively inform ongoing reclamation efforts.	Metrics used to evaluate the success of reclamation efforts are provided in the monitoring reports referenced in the Section 10.1 References of the CRP. Additional references to relevant monitoring data reports to substantiate claims of reclamation successes can be added in the revised CRP, if required.	Noted – no action required
58	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	Metrics used to characterize the severity of physical and chemical issues are not provided; for instance, M-17 Wellsite was reported to have no stability issues, but exhibits ponding (see Table 5, p. 9 of 344).	Please provide the method used in determining the severity of physical and chemical issues described in Table 5.	The method for determining severity of physical and chemical issues is soil and water sampling, terrain/permafrost assessments, and vegetation monitoring. For soil and water, the results are then compared with CCME standards to see if there are any exceedances. For terrain,	The Board directs MGM to provide surface water and groundwater monitoring reports as well as thermistor ground temperature reading reports and any other reports or site data that was used in making these conclusions.

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				<p>we're looking for issues such as sump subsidence, erosion, ground slumping/sloughing, etc. For vegetation, we are looking for issues such as low values for vegetation cover and poor health condition that do not meet land use permit LUP conditions (i.e., &gt;70% cover and in healthy condition).</p> <p>In the case of M-17, the area was assessed as stable because there were no erosion issues or terrain stability issues observed, and ground subsidence or slumping/sloughing was not observed. The site had ponding water as part of the natural drainage of the area which collects at a natural sedge wetland area at the west end of the wellsite area.</p>	
59	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	MGM states that "reclaimed sites will be inspected as required over subsequent years after the completion of the abandonment program to confirm reclamation success" (p. 4 of 344), but no detailed information regarding monitoring is provided.	Please describe the methods for predicting and evaluating residual effects, including how ongoing chemical exceedances and physical issues are considered when determining anticipated residual effects.	Details regarding post-closure monitoring to evaluate potential residual effects, including anticipated duration of monitoring will be included in the next revision of the CRP.	<p>The Board notes that MGM has not provided remedial plans to deal with the sources at each site (i.e. sumps, spills etc.).</p> <p>Reclamation success can only be determined once the sites are remediated, and as there are on-going chemical and physical sources that have not</p>

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					<p>been dealt with, this needs to be addressed, before post-monitoring activities begin.</p> <p>Post-Remediation and Reclamation efforts should conform with `Northwest Territories Water Board Protocol for the monitoring of drilling-waste disposal sumps Inuvialuit Settlement Region Northwest Territories, 2005`</p>
60	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	MGM states that “reclaimed sites will be inspected as required over subsequent years after the completion of the abandonment program to confirm reclamation success” (p. 4 of 344), but no detailed information regarding monitoring is provided.	Please address residual effects of mounding and future subsidence uncertainties, including long-term predictions of mound/sump cap heights relative to the surrounding environment.	Details regarding required post-closure monitoring and anticipated duration of monitoring will be included in the next revision of the CRP.	The Board directs MGM to provide thermistor ground temperature reading reports, baseline ground stability information and other site information relating to physical properties of site features and a description of how proposed reclamation activities will be monitored.
61	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	MGM states that “reclaimed sites will be inspected as required over subsequent years after the completion of the abandonment program to confirm reclamation success” (p. 4 of 344), but no detailed information regarding monitoring is provided.	Please provide monitoring parameters and methods; the expected duration and time of year of monitoring following the completion of reclamation activities, including what triggers to reduce or cease monitoring exist (i.e., when reclamation is deemed successful or on a trajectory to success without continued management) and how those triggers were determined; how future climate change scenarios may influence the duration of monitoring activities; and how monitoring is planned	Details regarding required post-closure monitoring and anticipated duration of monitoring as well as reclamation targets related to reclamation of the sites will be included in the next revision of the CRP.	As above, the Board directs MGM to provide thermistor ground temperature reading reports, baseline ground stability information and other site information relating to physical properties of site features and a description of how proposed reclamation activities will be monitored.

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			and implemented in collaboration with local Indigenous land users.		
62	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	MGM states that “reclaimed sites will be inspected as required over subsequent years after the completion of the abandonment program to confirm reclamation success” (p. 4 of 344), but no detailed information regarding monitoring is provided.	Please conduct monitoring or confirm that monitoring is conducted in multiple seasons to observe site conditions during frozen, thawing, and active growing seasons.	Details regarding required post-closure monitoring and anticipated duration of monitoring as well as reclamation targets related to reclamation of the sites will be included in the next revision of the CRP.	As above, the Board directs MGM to provide thermistor ground temperature reading reports, baseline ground stability information and other site information relating to physical properties of site features and a description of how proposed reclamation activities will be monitored.
63	Addressing Knowledge Gaps: Permafrost	Several knowledge gaps and uncertainties were identified in the C&R Plan and through the present review. Furthermore, the permafrost mapping relied upon in the C&R Plan was published in 1995 and places the sites within a continuous permafrost zone (p. 280 of 344). However, the C&R Plan describes evidence at sites “indicative of discontinuous permafrost conditions, which may contribute to lateral migration of the sump contents during permafrost thaw conditions” and instances where sump material is not frozen, at least to certain depths (p. 79 of 344). The C&R Plan also	Please describe how the following knowledge gaps will be addressed and the resulting data integrated into the C&R Plan (see pp. 80, 86, 87, 92 of 344): <ul style="list-style-type: none"> <li>- further settlement or instability</li> <li>- vertical and horizontal delineation of chemical exceedances and site features such as mixing zones</li> <li>- the content and properties of the material contained within the sumps and the associated potential toxicity to the receptors present or potentially present at each site</li> <li>- characterization of long-term leaching of salts into the surrounding environment, resultant from the encapsulation method for the salt-based drilling mud, under different climate and reclamation scenarios</li> <li>- soil chemistry data from the areas of apparently higher conductivity</li> </ul>	An update of the CRP will attempt to further address how the knowledge gaps were considered in the decisions for development closure plans and targets.	The Board directs MGM to provide a permafrost assessment report, permafrost protection plan and other related reports including thermistor ground temperature reporting, baseline ground stability reports, and any site assessment data, including borehole logs, to outline the presence of permafrost, location and depths, and how it will be preserved and monitored, as part of site reclamation activities.



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		<p>stated that there are uncertainties related to permafrost re-establishment (p. 87 of 344).</p>	<p>- assessments of permafrost outside of the sump footprints  - re-establishment of permafrost</p> <p>Until these knowledge gaps area addressed, please describe how uncertainties reflected in analyses to-date will inform conservative decision-making such that environmental and Indigenous land use goals are safely met.</p>		
64	Provision of Detailed Reclamation Plans and Existing Data	<p>MGM acknowledged risks associated with establishment of trees and shrubs, the roots of which may compromise cap integrity. MGM also listed several grass species included in its proposed seed mix, but did not provide information regarding anticipated rooting depths of species in the seed mix. It is not clear at what depth or any other parameters inherent in woody roots that may threaten sump failure.</p>	<p>Please describe rooting depths of species used in reclamation and observed in the surrounding environment, and discuss rooting depths' implications on long-term cap stability.</p>	<p>The revegetation plans and timelines for monitoring are under review and additional details will be provided in the revised CRP</p>	<p>The Board directs MGM to provide additional details pertaining to revegetation methods, monitoring periods and contingencies</p>
65	Addressing Knowledge Gaps: Permafrost	<p>Several knowledge gaps and uncertainties were identified in the C&amp;R Plan and through the present review. Furthermore, the permafrost mapping relied upon in the C&amp;R Plan was published in 1995 and places the sites</p>	<p>Please describe how changes to regional permafrost such that the sites may currently exist in a zone of discontinuous permafrost have been considered in the analyses presented in the C&amp;R Plan. Please comment on the validity of the continued use of the 1995 baseline in which the sites were predicted to be in a</p>	<p>The conditions, both measured and assumed based on historical data have been included in the reports appended to the CRP. MGM can include further detail for</p>	<p>The Board directs MGM to provide a permafrost assessment report, permafrost protection plan and other related reports including thermistor ground temperature reporting, baseline ground stability reports, and any site</p>

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		<p>within a continuous permafrost zone (p. 280 of 344). However, the C&amp;R Plan describes evidence at sites “indicative of discontinuous permafrost conditions, which may contribute to lateral migration of the sump contents during permafrost thaw conditions” and instances where sump material is not frozen, at least to certain depths (p. 79 of 344). The C&amp;R Plan also stated that there are uncertainties related to permafrost re-establishment (p. 87 of 344).</p>	<p>zone of continuous permafrost and discuss potential implications for closure, remediation, and reclamation success.</p>	<p>permafrost considerations in a revised CRP.</p>	<p>assessment data, including borehole logs, to outline the presence of permafrost, location and depths, and how it will be preserved and monitored, as part of site reclamation activities.</p>
66	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	<p>Throughout the C&amp;R Plan, MGM provides broad statements relating to the expected success of reclamation treatments, such as: “It is expected that reclamation treatments will be successful in reestablishing vegetation despite slightly elevated soil parameters and ongoing use by muskox” (p. 10 of 344); however, such statements are not typically accompanied by rationale or presentation of modelling or monitoring efforts to</p>	<p>Please provide the data (e.g., rationale, modelling, monitoring efforts) used to support the statements throughout the C&amp;R Plan regarding the expected success of reclamation treatments.</p>	<p>There have been several years of monitoring data that have been submitted to the SLWB under both closed and existing licenses and permits. The references to the closed files are provided in Section 10.1 of the CRP. Summaries of the historical data collected from the previous investigations are primarily included Appendix E and Appendix F which also contain further references to applicable reports. During the revision of the CRP if</p>	<p>The Board directs MGM to provide additional details pertaining to revegetation methods, monitoring periods and contingencies</p>

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		determine and confirm these assumptions.		statements are found requiring additional references to data they will be added.	
67	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	Regional sump failures and ongoing challenges experienced at Colville Lake, including physical and chemical issues with ponding and bare areas are acknowledged, but it is not clear what monitoring, if any, occurs to track the movement of constituents laterally and vertically.	Please describe monitoring efforts to observe the movement of constituents laterally and vertically, including any adaptive management actions identified, and including any collaboration or planned collaboration with land users.	Details regarding required post-closure monitoring and anticipated duration of monitoring as well as closure criteria related to reclamation of the sites will be included in the next revision of the CRP.	<p>The Board directs MGM to provide a permafrost assessment report, permafrost protection plans and other related reports including thermistor ground temperature reporting, baseline ground stability reports, and any site assessment data, including borehole logs, to outline the presence of permafrost, location and depths, and how it will be preserved and monitored, as part of site reclamation activities.</p> <p>The Board directs MGM to provide any TK studies or engagement records that provide information relating to these knowledge and data gaps.</p>
68	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	Regarding one instance in which limited groundwater data was provided, “elevated EC values were measured approximately 13 m further south of the South Sump in 2022 than in 2014, indicating that migration of salinity impacts can be occurring,	Please provide a discussion comparing the observed migration of constituents to baseline conditions, including a discussion on the observed flow rate of groundwater such as the 13 m over 8 years at the C-49/M-17 site . Please discuss implications to the surrounding environment, including potential impacts to off-site plants, animals, and Indigenous land use.	An update of the CRP will attempt to further address how the knowledge gaps were considered in the decisions for development of closure plans and targets.	The Board directs MGM to provide surface water and groundwater monitoring reports that support these conclusions. This includes a description of groundwater baselines conditions and plume model reports and any other reports or site data that was

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		likely as a result of groundwater movement” (p. 89 of 344), implications were not discussed nor the extent of available groundwater data presented.			used in making these conclusions.  Addressing these data gaps is required to complete CSMs and RAPs for each site, in accordance with GNWT, CCME, and MVLWB regulatory guidance documentation.
69	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	MGM stated that, despite the acknowledged risks associated in particular with ongoing climate change, “MGM anticipates all selected closure activities will proceed and therefore will not require contingencies” (p. 13 of 344).	Please describe potential circumstances where contingencies would be required and describe the associated contingencies. Please include any concerns shared by community members.	A revised CRP will be developed. If, during the CRP updates to address other comments, circumstances that require contingencies are identified they will be included in the next revision of the CRP.	Given the large data gaps and challenges associated with the Project, the Board suggests that uncertainties should be expected. The Board directs MGM to identify potential circumstances where contingencies would be required.
70	Provision of Detailed Reclamation Plans and Existing Data  Community Engagement	Despite regulatory requirements to submit remediation plans, no specific remediation treatments were found in the application. Instead, emphasis was placed on addressing physical symptoms of regional changes to permafrost, such as backfilling tension cracks. Excavating and disposing of contaminated sump materials (commonly referred to as ‘dig and dump’) was proposed but	Please require that detailed remediation plans are developed and presented for community feedback.	Table 5 of the CRP and Appendices D and E provided details regarding the plans for reclamation, well abandonment and maintenance of the Project Component sites. The revised CRP will more clearly identify proposed plans and targets.	A remedial solution to the drilling waste sumps and other APECs is required to stop the migration of contaminants off-site. There has been no permafrost integrity assessment so it is unclear what the affect of drilling mud additives is having on permafrost at these sites, however the presence of salt impacts (EC, SAR and Chlorides) at majority of the sites indicates remedial work is required (i.e. sump remedial work such as excavation and

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		not recommended as a path to closure. If the proponent intends to utilize passive remediation treatments, this was not explicitly stated and any associated performance expectations were not shared.			removal or chemical stabilization).  The Board directs MGM to provide a full detailed CSM for each site with environmental data included to show how source removal (sump/camp sump/spills) will be remediated, in accordance with GNWT and MVLWB remediation guidance.
71	Community Engagement	The Engagement Plan and Engagement Record describe primarily written notification and email communication. The C&R Plan lacks evidence of Indigenous land use and Knowledge Holder input. Conceptual site models for each site assumed that surface water, including areas currently experiencing ponding of water with chemical exceedances, would not be a pathway to receptors because animals can move away from impacted sites and humans are expected to pack potable water with them when going onto the land for hunting, trapping, etc.	Please require that MGM meaningfully engage local Indigenous land users and Knowledge Holders throughout all aspects of remediation, revegetation, and reclamation planning, implementation, monitoring, and adaptive management, bearing in mind that the outcomes of implementing the C&R Plan will have lasting consequences for land users' inherent rights, Treaty rights, and Land Claim benefits.	MGM will continue to follow the project Engagement Plan and is available throughout the life of project to discuss all aspects with affected parties.	The Board directs MGM to update the Engagement Record to reflect any engagement undertaken in support of CRP Revisions.

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72	Provision of Detailed Reclamation Plans and Existing Data  Community Engagement	Monitoring, revegetation plans, and root causes analyses are not available in the application reviewed.  While ongoing physical and chemical concerns were described at all sites, adaptive management of potential reclamation and sump failures was not discussed.	Please require that MGM provide detailed remediation, revegetation, and reclamation plans as requested in the preceding recommendations, and that these be provided to the Sahtu Renewable Resources Board and other appropriate communities and organizations for review.	Table 5 of the CRP and Appendix D and E provided details regarding the plans for reclamation, well abandonment and maintenance of the Project.	The Board directs MGM to update the Engagement Record to reflect any engagement undertaken in support of CRP Revisions.
73	Addressing Knowledge Gaps	Several key uncertainties and data gaps remain, with no plan presented to fill these knowledge gaps prior to implementing reclamation activities. This includes key parameters of importance to reducing risk to land users, including uncertainty regarding the materials in the sumps, delineation of the lateral and vertical migration of constituents, and regional and local permafrost changes due to climate change and chemicals in the sumps. In the face of uncertainties, the C&R Plan utilized broad assumptions unaccompanied by supporting data to enable the completion of its analyses, including	Please require that MGM address outstanding uncertainties and knowledge gaps in a timely manner in order to ensure reclamation success and the protection of wildlife, wildlife habitat, and Indigenous rights.	An update of the CRP will attempt to further address how the knowledge gaps were considered in the decisions for development closure plans and criteria.	The Board directs MGM to update all data and knowledge gaps, including sump and other APEC characterization, full P II ESA and delineation work, CSM and RAP updates and a PTC that follows regulatory guidance documentation (GNWT, CCME and MVLWB).

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		assumptions of the long-term integrity of sumps.			
74	Monitoring and Determination of Remediation, Revegetation, and Reclamation Performance	All wellsites with perhaps the exception of C-34 are experiencing physical and/or chemical issues (it is worth noting the drill fluids from C-34 Wellsite were disposed of at a different site). It is unclear how each site will be adequately remediated and reclaimed, for the reasons described in more detail below but primarily due to lack of remedial action and managing physical issues' symptoms but not necessarily root cause (e.g., subsidence and cracking due to permafrost melting facilitated by the chemicals within the sump).	Please require that MGM share detailed monitoring methods and data, conduct future monitoring in collaboration with land users, and provide a closure and reclamation plan that addresses what seem to be systemic challenges with MGM's reclamation sites at the root cause, as opposed to managing symptoms in perpetuity.	Suspected root causes such as potential effects of permafrost were identified in Appendices E and F however, an update of the CRP will include further clarifications to identify contaminant sources, closure criteria, closure objectives and defined post closure monitoring, including proposed timelines.	<p>Significant data gaps exist and the CSMs provided are incomplete due to the absence of full site assessment data, wildlife or vegetation site studies, groundwater well installation and monitoring (for presence or absence of groundwater), and many other components of a CSM, as per CCME guidance documents. Thermistors for ground temperature readings should be completed, and identification of permafrost depths is required, for a CSM.</p> <p>Further work must be conducted in delineating site specific soil impacts, within APECs (characterization of sump material for example) and other COPCs relating to APECs at each site. A detailed RAP requires a CSM that has been adequately completed, and this is still outstanding for these sites to progress to site closure, as per GNWT, CCME, and MVLWB regulatory guidance documents</p> <p>It is critical that MGM collaborates with land users to</p>

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					collect data, develop plans and share information regarding these sites.
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GNWT-ECC (Environment and Climate Change) - Environmental Regulatory Analyst					
1	GNWT-ECC Cover Letter	<p>The Department of Environment and Climate Change, Government of the Northwest Territories has reviewed the application at reference based on its mandated responsibilities under the Waters Act and has provided comments and recommendations for consideration of the Sahtu Land and Water Board.</p> <p>For any technical questions, please contact Bill Pain, Environmental Management Scientist at <a href="mailto:Bill_Pain@gov.nt.ca">Bill_Pain@gov.nt.ca</a> with the Regulatory and Permitting Division.</p> <p>Should you have any general questions or concerns, please do not hesitate to contact <a href="mailto:gnwt_ea@gov.nt.ca">gnwt_ea@gov.nt.ca</a>.</p>	N/A	No response required.	n/a
2	Well and sump site reclamation	Table 5 of the Closure and Reclamation Plan V3.1 (CRP) indicates select sites will undergo varying levels of reclamation earthworks and	GNWT-ECC recommends that MGM provide details on the activities, areas and quantities (e.g., footprints, material volumes, etc.) for reclamation work at each well site with supporting information	Additional details such as approximate estimated quantities and dimensions of estimated areas for	The Board directs MGM to provide source characterization results of each APEC including COPCs associated with each APEC (ie salts, PHCs, or other)



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		<p>revegetation but provides limited detail on the activities and total area/dimensions and quantities required for reclamation of each site, including if reclamation treatment for contaminated soils is expected to include revegetation only, or excavation and removal from site. Appendix E of the CRP provides details on the area/dimensions for reclamation of sump sites; however, similar details pertaining to reclamation of well sites are not provided. These details are needed in the CRP to define the scale of the reclamation activity for costing of the security.</p>	<p>(e.g., site photos or maps noting/outlining anticipated areas requiring earthworks, excavation, revegetation, etc.).</p>	<p>earthworks can be included in a revised CRP.</p>	<p>and provide soil and or water plume dimensions for each site, as per regulatory guidance documentation (GNWT, CCME and MVLWB).</p> <p>The Board directs MGM to provide a certainty analysis of estimated source volumes in each APEC and contingencies for when remediation work is conducted, and what liability costs associated with this work will be, as per RECLAIM estimate models.</p>
3	Abandonment and reclamation personnel and equipment	<p>The CRP does not indicate where personnel and equipment needed to complete the Project will be sourced. The updated MGM security estimate indicates the general Norman Wells area as the likely point of mobilization for equipment; however, the source of personnel is uncertain. These details will help to further</p>	<p>GNWT-ECC recommends that MGM clarify the anticipated source of workers to complete the Project, including the anticipated portion of the total workforce that is expected to be available locally (i.e., Colville Lake area), those available from other nearby locations (e.g., Fort Good Hope, Norman Wells) and those from more distant locations (e.g., Yellowknife, British Columbia, Alberta).</p>	<p>Information such as the sources of personnel and equipment are not a required component of the CRP per the MVLWB Guidelines for Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in Northwest Territories. Such level of detail can often not be determined in a higher</p>	<p>Noted – no action required</p>

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		define the reclamation activities and associated implications for costing of the security.		level plan such as the CRP. Further, MGM has informed GNWT of local workforce capacity as part of security discussions.	
4	Summer reclamation timeline, personnel, and equipment	Section 7 of the CRP indicates that abandonment and reclamation activities are planned for December to March, with remaining minor reclamation activities (e.g., revegetation) to occur following this work in the summer. Although general timelines, personnel and equipment requirements are also provided in the Project Description submitted with the Water Licence and Land Use Permit application package, these details are more specific to the work's winter abandonment and reclamation portion. Details on the timeline for summer reclamation work, and the personnel and equipment required, remain uncertain. These details will help to further define the reclamation activities and associated implications for costing.	GNWT-ECC recommends that MGM provide the following: a. A timeline of summer reclamation activities detailing the time requirements (e.g., days, weeks, months) for each Project activity and/or area; b. The number of personnel required for summer reclamation; and, c. The number and type of equipment required to complete summer reclamation.	The approximate timing for spring and summer activities were discussed in the Site Reclamation Plans in Appendix D. It is not detailed as a requirement in the MVLWB Guidelines for Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in Northwest Territories to provide granular details such as number of personnel required. The equipment anticipated to complete the proposed activities were provided as part of the Water Licence and Land Use Permit application. It is not detailed in the CRP Guidelines that the equipment list be duplicated in the CRP.	Noted – no action required

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5	Site access	Section 4.2 of the CRP indicates temporary winter ice roads will be constructed to access all well abandonment locations. The CRP Appendix A provides a map identifying potential winter road accesses, including access to all well and sump sites as well as various lakes. It is unclear the total length of winter access required, including whether all 9 reclamation locations identified in Table 2 of the CRP require winter road access, or only the 6 well abandonment locations identified in Table 1.	GNWT-ECC recommends that MGM confirm the total length of winter roads required, including identifying which wells, sumps and lakes require winter road access.	All locations are winter road access. MGM anticipates utilizing winter road to access the locations in Table 2	The Board directs MGM to provide a winter road access report specifying road details such as length, maintenance work required, length of operation and reclamation plans for re-establishing to native land conditions, as per regulatory guidance documentation.
6	Sump reclamation	The CRP Section 4.5 identifies that sumps with areas of terrain instability will be stabilized, recapped or recontoured, and revegetated. Further details provided in Appendix D of the CRP indicate depressions and cracks will be backfilled above surrounding grade to account for ground settlement over time and capped with topsoil (E-35 sump) or filled in and recontoured to blend with surrounding topography (C-	GNWT-ECC recommends that MGM confirm if and for which sumps overbuilding the repairs by placing thicker backfill/cover above grade to limit short-term settlement and risk of additional future repairs will occur. For sumps where overbuilding above grade is not considered required, explain why.  GNWT-ECC recommends that MGM clarify the area, thickness, and quantity of backfill and cover material that is required for each sump.	The specific reclamation plans provided in Appendix D detail which sumps will require regrading and contouring and/or backfill to address settlement. A revision of the CRP will further address the risks associated with potential settlement and the closure path forward that addresses any risks to the environment or land use as a result of settlement.	The Board directs MGM to provide a baseline sump condition report outlining current sump condition (source material characterization, temperature readings, depth and size of sump material vs permafrost layers etc..) and provide details on how physical reclamation work will occur once COPCs in the sump and surrounding areas have been remediated to regulatory criteria.

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		<p>49/M-17, K-14 and L-80 sumps), with surface soils left in a rough and loose condition to support revegetation. Previous site environmental monitoring reports and repairs of sump sites, and the need for current repairs indicate sump degradation does occur over time with a need for it to be managed. Backfill/cover that is loosely placed can experience settlement, as well as cause further subsidence of underlying material from the added weight. Settlement and subsidence can result in depressions and water pooling causing more settlement, as well as permafrost thawing leading to more settlement. The extent to which backfill is to be placed above grade to limit settlement at E-35, and if/why backfill will not be similarly placed above grade at other sumps to mitigate short-term settlement and potential longer-term stability issues that require more post-closure management/maintenance</p>			<p>The Board directs MGM to provide a backfill report specifying where backfill sources originate from, chemical analysis of backfill material, and any geotechnical discussion relating to backfill remediation and stabilization work, to form part of a post-remedial monitoring plan.</p>

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		<p>is uncertain. Although Appendix E of the CRP identifies dimensions/volumes of sump areas that require reclamation, the quantity of backfill and topsoil material required to complete repairs is uncertain.</p>			
7	Post-closure monitoring timeline	<p>The CRP Section 4.3 indicates between 1 to 5 years of monitoring is proposed for the well and sump sites, while Appendix E of the CRP indicates a minimum of 5 years monitoring is needed to confirm sumps do not experience any terrain changes, and that vegetation is re-established throughout the sump area. The updated MGM security estimate includes costing for 3 years of post-closure monitoring and 1 revegetation maintenance event. It is uncertain how the post-closure monitoring and maintenance timeline was selected and if it is representative of anticipated monitoring and maintenance requirements. Target plant growth has not been</p>	<p>GNWT-ECC recommends that MGM clarify the proposed post-closure monitoring duration and how it was selected, including any consideration of potential timelines to achieve required vegetation cover and if and/or why it is sufficient to demonstrate adequate performance of terrain stability.</p> <p>GNWT-ECC recommends that MGM provide additional detail on how the potential influence of vegetation on long-term sump performance was considered in the proposed reclamation approach for each sump and monitoring duration.</p>	<p>An update of the CRP will include further clarifications to identify the considerations for evaluation of closure plans for Project Components, reclamation targets, closure objectives and defined post closure monitoring, including proposed timelines.</p>	<p>The Board directs MGM to provide updated data gaps in form of PII ESA delineation reports, updated CSMs, RAPs and remedial end points for all APECs at each site. Once remedial efforts are completed then reclamation work can proceed.</p> <p>The Board directs MGM to provide a post reclamation monitoring closure report similar to other regulatory guidance including:</p> <ul style="list-style-type: none"> <li>a) NWB Protocol for the monitoring of drilling-waste disposal sumps Inuvialuit Settlement Region Northwest Territories, 2005</li> <li>b) FCSAP Long-Term Monitoring Planning Guidance</li> <li>c) Mine Site Reclamation Guidelines for the NWT</li> </ul>

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		<p>achieved at various areas in the time since drilling was completed (2004/2005), with previous revegetation works at E-35 sump in 2019 failing to establish sufficient vegetation cover after 5 years and necessitating further revegetation work. Consideration of the influence of vegetation on long-term sump performance is also unclear; it's stated in Appendix D of the CRP that revegetation at E-35 will focus on grass and forb cover to prevent establishment of trees and shrubs that could affect sump cap integrity. However, for sumps C-49/M-17, L-80 and K-14 the addition of shrubs and trees is proposed. Vegetation establishment may also influence the thermal regime of the sumps, such as through increased snow capture and insulation leading to potential thawing and further issues (settlement, pooling, more thawing) that could long-term contribute to failure of the sump.</p>			<p>This shall include the monitoring work activities to be completed, how frequent the work will be conducted and what end point objectives will be reviewed to determine if reclamation efforts were completed.</p>

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8	Long-term sump performance, monitoring and maintenance	<p>The CRP's proposed post-closure monitoring timeline (up to or a minimum of 5 years) does not appear to consider the long-term aspects of climate change and influence on sump performance. Previous studies on long-term sump performance (ARKTIS, 2020. Inuvialuit Settlement Region; Drilling Sumps Failure and Climate Change Report; ARKTIS, 2023. Gwich'in Settlement Area; Drilling Sump Study and Climate Change Implications Report) indicated drill waste sumps experience degradation over the long-term with sumps near the Colville Lake region potentially subject to impacts and degradation from climate change occurring already or in the near to long-term depending on cap thickness and degree of climate change. The CRP Appendix E identified the potential risks from climate change on sump performance but could not assess the long-term risk without further study and</p>	<p>GNWT-ECC recommends that MGM provide the following:</p> <ul style="list-style-type: none"> <li>a. Identify if additional studies are anticipated to further inform the long-term sump performance and risk, and if so, when these studies will occur.</li> <li>b. Identify how the potential influence of climate change on long-term sump performance is considered in the proposed post-closure monitoring and maintenance activities and duration for site, and if it has not been considered, provide an explanation for why.</li> <li>c. Describe the management response that will be needed for sumps that no longer perform as intended. If no management response is planned to address long-term sump degradation, explain why.</li> <li>d. Provide the adaptive management response program associated with sump degradation, including the parameters that will be monitored and the thresholds that would define when to implement a response action.</li> </ul>	<p>An update of the CRP will include further clarifications to identify the considerations for evaluation of closure plans for Project Components, reclamation targets, closure objectives and defined post closure monitoring, including proposed timelines. If additional risks are identified that require contingencies to be put into place, those will be identified in the revised CRP.</p>	<p>The Board directs MGM to provide updated data gaps in form of PII ESA delineation reports, updated CSMs, RAPs and remedial end points for all APECs at each site. Once remedial efforts are completed then reclamation work can proceed.</p> <p>The Board directs MGM to provide a post reclamation monitoring closure report similar to other regulatory guidance including:</p> <ul style="list-style-type: none"> <li>a) NWB Protocol for the monitoring of drilling-waste disposal sumps Inuvialuit Settlement Region Northwest Territories, 2005</li> <li>b) FCSAP Long-Term Monitoring Planning Guidance</li> <li>c) Mine Site Reclamation Guidelines for the NWT</li> </ul> <p>This shall include the monitoring work activities to be completed, how frequent the work will be conducted and what end point objectives will be reviewed to determine if reclamation efforts were completed.</p>

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		<p>recommended monitoring and maintenance to confirm sump integrity remains. Appendix E and F indicate potential sump drilling waste material migration may already be occurring in shallow groundwater. It is uncertain if additional studies are to occur to further define the long-term risk of the sumps. The proposed timeline for monitoring and maintenance of sump integrity with consideration of climate change and associated closure criteria is uncertain, as is the thresholds and response actions if closure criteria are not met and/or environmental risk is unacceptable.</p>			
9	Post-closure monitoring and maintenance activities	<p>The CRP describes monitoring and maintenance of site locations will occur to ensure vegetation recovery, residual environmental impacts and terrain stability are satisfactorily addressed. However, details of the proposed monitoring and maintenance programs following closure reclamation efforts are not</p>	<p>GNWT-ECC recommends that MGM confirm the following:</p> <ul style="list-style-type: none"> <li>a. Details regarding the anticipated post-closure monitoring to occur, including on-site time requirements, monitoring locations, anticipated quantity of soil and water samples and testing parameters.</li> <li>b. Thresholds are used to determine when and what maintenance activities will be required.</li> </ul>	<p>An update of the CRP will include further clarifications to identify the considerations for evaluation of closure plans for Project Components, reclamation targets, closure objectives and defined post closure monitoring, including proposed timelines.</p>	<p>The Board directs MGM to provide updated data gaps in form of PII ESA delineation reports, updated CSMs, RAPs and remedial end points for all APECs at each site. Once remedial efforts are completed then reclamation work can proceed.</p> <p>The Board directs MGM to provide a post reclamation</p>



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		<p>described, such as the anticipated quantity of soil and/or water samples to be collected and the testing parameters, as well as the expected on-site time requirements to complete the monitoring program each year. It is also unclear what thresholds will be used to determine when and what maintenance activities may be required. Further, although not identified in the CRP, it should be confirmed if wildlife will also be monitored given it is typically included within closure monitoring programs for other oil and gas exploration sites in the Northwest Territories.</p> <p>The CRP Appendix E indicates that the available data is too limited to accurately assess the potential risk to receptors now and in the future from sump materials due to climate change and permafrost degradation. Appendix E and F indicate potential sump drilling waste material migration may</p>	<p>c. If wildlife monitoring will occur post-closure.</p> <p>d. Identify what is being done to confirm there is no contaminant migration to an unacceptable level occurring downgradient of sumps, including if there is a need for a compliance monitoring point where specific groundwater quality criteria must be met, where the compliance monitoring points would be located, what the groundwater criteria should be, and what adaptive management would be needed to ensure criteria are not exceeded or address any exceedances that do occur. If no groundwater monitoring is proposed, justify why there is no need to confirm whether unacceptable contaminant migration is occurring from the sumps in shallow groundwater and in deeper groundwater in the long-term as a potential impact of climate change.</p>	<p>If additional risks are identified that require contingencies to be put into place, those will be identified in the revised CRP.</p>	<p>monitoring closure report similar to other regulatory guidance including:</p> <ul style="list-style-type: none"> <li>a) NWB Protocol for the monitoring of drilling-waste disposal sumps Inuvialuit Settlement Region Northwest Territories, 2005</li> <li>b) FCSAP Long-Term Monitoring Planning Guidance</li> <li>c) Mine Site Reclamation Guidelines for the NWT</li> </ul> <p>This shall include the monitoring work activities to be completed, how frequent the work will be conducted and what end point objectives will be reviewed to determine if reclamation efforts were completed.</p>

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		<p>already be occurring in shallow groundwater, but no monitoring of groundwater is identified to demonstrate if any migration of contaminants is occurring downgradient of the sumps to acceptable levels. The quality of sump material remains uncertain, and whether it will be necessary to demonstrate achievement of any groundwater quality criteria at a downgradient monitoring compliance point.</p>			
10	Closure objectives and criteria	<p>Schedule 3 of the Water Licence requires the CRP to include closure objectives and criteria. However, the objectives, criteria and/or desired final state, as generally presented in Table 5 of the CRP and other sections (e.g., Section 4.5), are not well defined and insufficient to demonstrate closure planning will result in adequate closure of the Project. Although the Land Use Permit requirement for a minimum 70% native vegetation cover is identified as a proposed closure criteria in the CRP, defined</p>	<p>GNWT-ECC recommends that MGM provide the following:</p> <p>a. Identify the closure criteria for objectives related to revegetation, soil quality, water quality and terrain stability, including specific measurable parameters, that monitoring will be used to demonstrate as achieved to confirm remediation/reclamation success.</p> <p>b. Specify the duration for which each criteria are required to be achieved in order for reclamation to be considered successful and closure objectives achieved. Include rationale for the duration selected.</p>	<p>An update of the CRP will include further clarifications to identify the considerations for evaluation of closure plans for Project Components, reclamation targets, closure objectives and defined post closure monitoring, including proposed timelines. If additional risks are identified that require contingencies to be put into place, those will be identified in the revised CRP.</p>	<p>The Board directs MGM to provide updated data gaps in form of PII ESA delineation reports, updated CSMs, RAPs and remedial end points for all APECs at each site. Once remedial efforts are completed then reclamation work can proceed.</p> <p>The Board directs MGM to provide a post reclamation monitoring closure report similar to other regulatory guidance including:</p> <p>a) NWB Protocol for the monitoring of drilling-waste disposal sumps Inuvialuit</p>

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		<p>quantifiable measures of success in achieving objectives for soil or water quality and terrain stability are not provided, such as specific concentrations for contaminants of concern (COC) based on guidelines or standards (e.g., CCME) and acceptable levels of settlement, ponding, etc. Although the site reclamation plans (Appendix D of the CRP), sump remediation and restoration plans (Appendix E of the CRP) and sump risk assessment (Appendix F of the CRP) identify various federal, territorial and provincial regulatory guidelines or standards (e.g., Canadian Council of Ministers of the Environment [CCME], ENR, Alberta Environment and Parks [AEP]) used to help define COCs or other elevated parameters, it is not clear the specific concentrations that soils or water at each sump and well site are required to achieve for reclamation to be considered successful. It is</p>	<p>c. Provide the response framework and potential response actions to be completed in the event monitoring indicates closure activities are not performing as desired to achieve closure criteria and reclamation success.</p>		<p>Settlement Region Northwest Territories, 2005  b) FCSAP Long-Term Monitoring Planning Guidance  c) Mine Site Reclamation Guidelines for the NWT</p> <p>This shall include the monitoring work activities to be completed, how frequent the work will be conducted and what end point objectives will be reviewed to determine if reclamation efforts were completed.</p>

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		<p>also not clear for what duration site data is required to show criteria are achieved for the objectives to be met. Associated triggers and responses for adaptive management to ensure criteria and objectives will be met are also not identified.</p> <p>As required by the water licence Part I, condition 2, the CRP should be advanced to a final stage prior to the commencement of Project activities. Given that MGM is currently seeking approval of the CRP to commence reclamation activities in early 2025, it is expected that the CRP and closure criteria are advanced to a level of closure planning that is considered reasonable for a Project at this stage and of sufficient detail to inform the estimation of reclamation security. It is recommended that the closure criteria be further developed with additional information to achieve the required level of closure planning.</p>			

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11	Security Holdbacks	<p>The updated Land and Water Board Guidelines for Closure and Reclamation Cost Estimates for Mines (2022) include a new recommendation for establishing holdbacks to account for performance uncertainty. The performance holdback is based on the performance uncertainty of closure activities not achieving objectives or criteria, including the activity not performing as planned and the associated consequences of such an occurrence, and the costs to undertake work to address said consequences or mitigate their occurrence. Performance holdbacks are to be determined at the time of security refund requests for completed reclamation activities.</p> <p>MGM's CRP V3.1 and proposed security estimate do not consider or discuss the topic of performance holdbacks for reclamation security. Notable performance uncertainties at</p>	<p>GNWT-ECC recommends that MGM provide an opinion on which project components are likely to require a security performance holdback following completion of reclamation activities with the request for refund of security. If no performance holdbacks for the sumps and soil impacts are considered required, explain why.</p>	<p>MGM anticipates submitting a number of Security Estimate Updates as the project progresses to closure, the first of which will be later in 2025. MGM is aware that project components will need to meet criteria and closure objectives in order for security to be reduced.</p>	<p>The Board directs MGM to submit a revised security estimate when it submits its revised CRP.</p>

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		<p>the project site may include the long-term sump performance, and remediation of soil quality impacts through revegetation. It is not clear from the CRP or their security estimate if and where MGM believes the application of performance holdbacks may be required.</p>			
12	Security	<p>GNWT-ECC has retained ARKTIS Solutions Inc. (ARKTIS) to update the financial security estimate associated with MGM Energy (MGM) Water Licence and Land Use Permit (LUP) for the Colville Lake well abandonment and reclamation program (the Project), WL S19L1-003 and LUP S19A-004. In January 2021, ARKTIS, on behalf of the GNWT-ECC completed a security estimate for the Colville Lake Project to help inform the Sahtu Land and Water Board's (SLWB) decision on determining security associated with the WL and LUP renewal applications. The WL (S19L1-003) and LUP (S19A-004) were renewed by the SLWB</p>	<p>GNWT-ECC recommends that the Board set the security for the Project at \$4,526,898, with \$4,258,434 set for water liability under the water licence and \$268,464 for land liability under the land use permit. Please refer to the attached ARKTIS memo and RECLAIM estimate for further details and rationale for the security estimate recommendation.</p>	<p>MGM anticipates submitting an updated Security Estimate in conjunction with a revised CRP later in 2025. This Security Estimate will include updates based on the activities MGM completes in the winter of 2024-2025</p>	<p>The Board directs MGM to submit a revised security estimate when it submits its revised CRP.</p>

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		<p>in June 2021. Updated security requirements were set under the LUP; however, WL security was not set at the time of Licence issuance, and the SLWB directed the Proponent to further consult with the GNWT and other affected parties, to revise and resubmit a security estimate for the Licence based on an updated Closure and Reclamation Plan, updated information and confirmation of Project timelines, mobilization/demobilization needs and logistics. On December 3rd, 2024, the Proponent submitted an updated security estimate associated with their CRP submission as required by WL Part C, Condition 2 and Part I, Condition 2.</p> <p>GNWT-ECC understands that the SLWB still needs to decide on the security amount and set it in Schedule 2 of the current water licence. As such, GNWT-ECC has provided an updated security</p>			

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		<p>recommendation for the Board's consideration.</p> <p>GNWT-ECC has provided ARKTIS' memorandum with an updated calculation of the security estimate for the closure and reclamation of the Colville Lake Project based on the most current information available, with comparison to ARKTIS' previous 2021 estimate as well as MGM's current 2024 estimate. It should be noted that GNWT-ECC and MGM have discussed the site's security in recent weeks, with the understanding that the Board is still seeking recommendations on security amounts. GNWT-ECC has updated their previous estimates based on the information MGM provided in these discussions.</p> <p>On January 3, 2025, GNWT-ECC confirmed that MGM provided the security deposit in the form of a letter of credit for both the water licence (\$3,387,758.00) and land use permit</p>			



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		<p>(\$911,582.00), for a total of security held by GNWT of \$4,299,340.00.</p> <p>GNWT-ECC's updated security recommendation reflects the updated understanding of some minor updates to quantities/areas based on info in the updated MGM CRP and is presented in the table below:</p> <p>For proposed changes to estimated security, please see attached.</p>			
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University of Alberta - Michelle Landry					
1	3.2.1 Permafrost Integrity	End of Paragraph 1: "... t is unknown if the thawed conditions observed within the sumps is related to the sump material or to natural fluctuations in ground temperatures in the area.	The natural fluctuations should be measured outside of the sump in undisturbed areas. The idea that thawed conditions are being attributed to "natural fluctuations" is misleading. Thermistors should be installed in the undisturbed area (control) and in close proximity to the sumps. This monitoring protocol allows for more understanding of the sump's thermal regime. Natural fluctuations makes it sound like the sump potentially has or has had no disturbance to permafrost and that permafrost has just naturally thawed. Comparison with the undisturbed areas is crucial.	Thank you for the comment, MGM will take this into consideration in the revision of the CRP. For clarification, is the reviewer representing the University of Alberta or commenting as an individual researcher?	Noted – no action required

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2	3.2.1 Permafrost Integrity	The surface disturbance associated with the sumps and ongoing reclamation/maintenance and the potential for the presence of surface water filled depressions and tension cracks may contribute to the latent heat effect and result in melting of the permafrost.	By removing contaminated soils, you further the degradation. This work should only be done in the winter to give the sump a fighting chance to refreeze	Thank you for the comment, MGM will take this into consideration in the revision of the CRP.	Noted – no action required
3	3.2.1 Permafrost Integrity	RO1: RO1 would include reclamation works to fill the depressions and tension cracks identified on Site. Additionally, it would include restoration works to increase the vegetative cover of the remaining bare areas. As a result of the implementation of RO1, secondary impacts to the permafrost may occur as a result of climate change and the uncertainty of the integrity and the chemical composition of the sumps.	Filling of the tension cracks could be accomplished with a low porosity material if possible to avoid having water (further heating the ground) pool in the cracks.	Thank you for the comment, MGM will take this into consideration in the revision of the CRP.	<p>The Board directs MGM to provide a permafrost assessment report, permafrost protection plans and other related reports including thermistor ground temperature reporting, baseline ground stability reports, and any site assessment data, including borehole logs, to outline the presence of permafrost, location and depths, and how it will be preserved and monitored, as part of site reclamation activities.</p> <p>Because RO1 does not adequately deal with the source material (drill mud additives in the sump - causing permafrost degradation and mobilization of COPCs along the active layer), alternative remedial options must be evaluated (i.e.</p>

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					stabilization or excavation and removal) before any reclamation work can occur.
4	3.2.1 Permafrost Integrity	RO2: RO2 would include the excavation of the sumps and complete removal and disturbance to the permafrost. The excavation would be filled with material as similar in composition and density as the native material, but differences will exist. It is not possible to predict how quickly the permafrost may re-establish itself.	Permafrost will NOT re-establish itself (very very low chance). Having permafrost re-establish in such an unstable environment, especially after fresh disturbance will be extremely unlikely. This should not be the design of your sump refilling premise because its flawed, especially in a warming climate.	Thank you for the comment, MGM will take this into consideration in the revision of the CRP.	The Board directs MGM to provide a permafrost assessment report, permafrost protection plans and other related reports including thermistor ground temperature reporting, baseline ground stability reports, and any site assessment data, including borehole logs, to outline the presence of permafrost, location and depths, and how it will be preserved and monitored, as part of site reclamation activities.
5	3.2.1 Permafrost Integrity	NFT	NFT acronym is not described. What is it? What does it entail? Must be further explained.	The acronym NFT (No Further Treatment) was described in Section 2.6 Remedial Options and again in the Abbreviations section of the NEBAs.	Noted – no action required
6	Appendix D: Site reclamation plans	Summer site reclamation (July, August) - Revegetation	Vegetation monitoring and revegetation is prioritized during remediation processes, but has anyone stopped to ask "is this the most important thing to focus on?" In my view, taller vegetation will need 20 years to re-establish (if contaminated soils even allow them to succeed). A ridged soil sampling protocol and laboratory testing for SAR, EC, pH should be prioritized.	Thank you for the comment, MGM will take this into consideration in the revision of the CRP.	The Board directs MGM to provide a post reclamation monitoring closure report similar to other regulatory guidance including:  a) NWB Protocol for the monitoring of drilling-waste disposal sumps Inuvialuit

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					<p>Settlement Region Northwest Territories, 2005  b) FCSAP Long-Term Monitoring Planning Guidance  c) Mine Site Reclamation Guidelines for the NWT</p> <p>This shall include the monitoring work activities to be completed, how frequent the work will be conducted and what end point objectives will be reviewed to determine if reclamation efforts were completed.</p>
7	Appendix D: Site reclamation plans	Summer site reclamation (July, August) - NO GEOPHYSICS?	Any surface reclamation of sumps is practically a band-aid if underlying issues aren't fully addressed. Permafrost exists under sumps, outside of wellsite and sump areas, but not in sumps. Geophysical surveys using ERT and drilling or inserting a metal apparatus (frost probing) to find the depth to permafrost should be crucial in surveys. The fact that surface remediation like revegetation or near-subsurface like excavation happens without a detailed delineation and understanding of where permafrost exists on site is maddening to me.	The conditions, both measured and assumed based on data collected from 2015 to 2023 have been included in the reports appended to the CRP. MGM will take the suggestions into consideration for any future potential evaluation of permafrost in the area of the sumps.	The Board directs MGM to provide a permafrost assessment report, permafrost protection plans and other related reports including thermistor ground temperature reporting, baseline ground stability reports, and any site assessment data, including borehole logs, to outline the presence of permafrost, location and depths, and how it will be preserved and monitored, as part of site reclamation activities.
8	Appendix D: Site reclamation plans	Summer site reclamation (July, August) - NO GEOPHYSICS?	Sump G-18 (Tate lake) in the Sahtu has undergone an EM survey to track where contaminants have moved. My team and the University of Alberta have monitored	Thank you for the information.	No – no action required

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			permafrost around and under the sump: <a href="https://www.permafrost.org/proceedings-of-the-12th-international-conference-on-permafrost-icop/">https://www.permafrost.org/proceedings-of-the-12th-international-conference-on-permafrost-icop/</a> (search: Michelle Landry's Abstract)		
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SLWB - Natalie Lippa					
1	CRP - E35 Wellsite vs. E35 Remote Sump. Different sites?	Table 2.0 lists the E-35 Wellsite and Sump as the same location. Figures in CRP only show the E-35 Sump site. P.53/59 of the Oct.28, 2013 Maunoir E-35 report on the registry, shows photos of E35 sump and E35 wellsite. They look like different sites.	Pls update on a Figure where the E35 wellsite is in relation to the E35 sumps. Pls update on the tables the latitude and longitude of the E35 wellsite and the E35 remote sumps site.	The photos and coordinate references will be verified and if required, updated figures will be included in the revised CRP.	Noted
2	CRP - Clarification on number of sites and sumps	Table 2.0 Reclamation Locations (pg.5 of 344) vs. Table 1.1 (pg.48/344). The list of wells sites, sump sites, remote sump numbers don't match.	Pls provide an accurate list of well sites, sump sites, remote sump sites in these tables so they match.	This will be corrected in the revised CRP.	Noted
3	CRP - NEBA for E35 Sumps 1 + Sump 2; Site Preparation for E35 Sumps	p.102 - In the last paragraph states: "Potential risk, now and in the future, cannot be accurately assessed with the current analytical data." p.50 - Under 'Site Preparation' there isn't mention of collection of sump material for analysis and reporting.	Pls confirm when the chemical composition of the sump material will be collected for the E-35 Sumps 1+2, and reported.	An update of the CRP will attempt to further address how the knowledge gaps were considered in the decisions for development closure plans and criteria.	The Board directs MGM to provide details relating to sump waste characterization and how chemicals (salts, for example) may be causing permafrost degradation which may be a leading cause of surrounding land integrity issues.  This shall include details on how remedial and reclamation efforts will improve stability

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					issues at each site, and a timeline for the work proposed to do this.
4	Sump Remediation and Restoration Plan	The board has included conditions in the Licence that require MGM to do a Risk Assessment of the sumps and develop a Sump Remediation and Restoration Plan in consultation with affected parties.	Pls submit a Sump Remediation and Restoration Plan to be available for public review. Must include detailed plans for each site that follow guidelines such as the Environmental Site Assessment Standard (Government of Alberta, Dec 2024).	The CRP references the NEBAs as satisfying the requirements of the Water Licence for the Sump Remediation and Restoration Plan. A conformity table will be included in the revised CRP to detail the references to information required to meet the Water Licence requirements.	<p>The current Screening Risk Assessments, CSMs, and NEBAs contain many data gaps and do not conform to GNWT, CCME and MVLWB regulatory guidance documents.</p> <p>The Board directs MGM to provide a detailed CSM for each site outlining all APECs that have been identified similar to a PI ESA process (historic aerial photo interpretation, well file reviews) and also include COPCs associated with each APEC and any site data that relates to environmental characterization of these issues, in accordance with GNWT and MVLWB regulatory guidance documents.</p> <p>Once this work is completed, MGM shall submit revised Sump Remediation and Restoration Plan / NEBAs for each location.</p>
5	CRP + Sump Remediation and Restoration Plan	It does not appear that additional environmental sampling to characterize the sumps is planned at this time. The current data is	Pls include in the CRP and Sump Remediation Plan if and when environmental drilling and sampling will be planned for the sites as currently, the remediation plan or potential risk cannot	An update of the CRP will attempt to further address how the knowledge gaps were considered in the	The current Screening Risk Assessments, CSMs, and NEBAs contain many data gaps and do not conform to GNWT, CCME

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		insufficient to complete a remediation plan for each of the sites.	be assessed with the limited analytical data available.	decisions for development closure plans and criteria.	<p>and MVLWB regulatory guidance documents.</p> <p>The Board directs MGM to provide a detailed CSM for each site outlining all APECs that have been identified similar to a PI ESA process (historic aerial photo interpretation, well file reviews) and also include COPCs associated with each APEC and any site data that relates to environmental characterization of these issues, in accordance with GNWT and MVLWB regulatory guidance documents.</p> <p>Once this work is completed, MGM shall submit revised Sump Remediation and Restoration Plan / NEBAs for each location.</p>
6	Sump Remediation and Restoration Plan	The plan for each of the sites is not clear in the CRP. Pls provide information such as if a Phase 1, Phase 2, Phase 3 assessment will be done/has been done, and what remediation and restoration plans will be, based off the assessment data, for the sites.	Pls reference what standards MGM will be using to guide the Sump Remediation and Restoration Plan, for example, the Environmental Site Assessment Standard (Government of Alberta, Dec 2024).	The CRP will be updated with proposed reclamation targets and included references to standards used in development of remediation and restoration targets as required.	<p>The current Screening Risk Assessments, CSMs, and NEBAs contain many data gaps and do not conform to GNWT, CCME and MVLWB regulatory guidance documents.</p> <p>The Board directs MGM to provide a detailed CSM for each site outlining all APECs that have been identified similar to a PI ESA process (historic aerial photo interpretation, well file</p>

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response	Board Direction
					<p>reviews) and also include COPCs associated with each APEC and any site data that relates to environmental characterization of these issues, in accordance with GNWT and MVLWB regulatory guidance documents.</p> <p>Once this work is completed, MGM shall submit revised Sump Remediation and Restoration Plan / NEBAs for each location.</p>
7	Sump Remediation and Restoration Plan	Cannot find detailed information on if an assessment of contaminant migration using geophysical surveys on the sites will occur.	Pls provide information on what the assessment of contaminant migration for the sites will be in the Sump Remediation Plan.	An update to the CRP will address outstanding gaps of information and how they were considered in selecting the closure path and post closure monitoring.	<p>The current Screening Risk Assessments, CSMs, and NEBAs contain many data gaps and do not conform to GNWT, CCME and MVLWB regulatory guidance documents.</p> <p>The Board directs MGM to provide a detailed CSM for each site outlining all APECs that have been identified similar to a PI ESA process (historic aerial photo interpretation, well file reviews) and also include COPCs associated with each APEC and any site data that relates to environmental characterization of these issues, in accordance with GNWT and MVLWB regulatory guidance documents.</p>



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					Once this work is completed, MGM shall submit revised Sump Remediation and Restoration Plan / NEBAs for each location.
8	CRP - General Comments	Cannot find details on what assessment of permafrost stability will occur at each of the sites.	Pls provide information on permafrost stability for each of the sites and what assessment activities will be conducted in the CRP.	The conditions, both measured and assumed based on data collected from 2015 to 2023 have been included in the reports appended to the CRP. MGM will take the suggestions into consideration for any future potential evaluation of permafrost in the area of the sumps and include additional discussions regarding permafrost in the CRP.	The Board directs MGM to provide a permafrost assessment report, permafrost protection plans and other related reports including thermistor ground temperature reporting, baseline ground stability reports, and any site assessment data, including borehole logs, to outline the presence of permafrost, location and depths, and how it will be preserved and monitored, as part of site reclamation activities.
9	Engagement Plan - Clarification on number of sites and sumps and previous LUPs and WLS file numbers.	P.3/26 of Engagement Plan lists out sites. P.5/26 lists 2 additional sites not mentioned on P.3. Table 2 historical LUPs and WLS on p.6/26 list Permit S02-006 - did you mean S02B-006, pls correct file#. Also missing some historical ones (ex. S01A-007/S01L1-003 for M-17).	Pls provide an accurate up-to-date list of all sites and sumps with correct Lat/Long and correct previous LUPs or WLS.	Updated tables will be included in the next version of the Engagement Plan. Location listings can be found in the project Closure and Reclamation Plan.	The Board directs MGM to revise the Engagement Plan to include updated location tables.
No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response	Board Direction
Behdzi Ahda First Nation Band - Joseph Kochon					

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response	Board Direction
1		See attached letter from Chief Richard Kochon	See attached letter from Chief Richard Kochon		n/a
2		<p>MGM notes the following at different sump locations in Section 4.3 Site History, Table 5 Location Summaries:</p> <ul style="list-style-type: none"> <li>• standing water;</li> <li>• tension cracks due to settling;</li> <li>• EC, pH, sodium adsorption ratio, soil parameter, and petroleum hydrocarbon exceedances.</li> </ul> <p>These exceedances, standing water, and tension cracks are concerning to us for the long term.</p> <p>Some sites indicate monitoring may be as short as 1 year.</p>	<p>These exceedances should be assessed and clearly addressed in the plan. Also consider the most recent Land Use Inspector's Report.</p> <p>Monitoring should take place over a longer period of time than 1 year.</p>	<p>MGM has and will continue to consider Land Use Inspector reports.</p> <p>Monitoring will be updated in the next version of the CRP</p>	<p>The current Screening Risk Assessments, CSMs, and NEBAs contain many data gaps and do not conform to GNWT, CCME and MVLWB regulatory guidance documents.</p> <p>The Board directs MGM to provide a detailed CSM for each site outlining all APECs that have been identified similar to a PI ESA process (historic aerial photo interpretation, well file reviews) and also include COPCs associated with each APEC and any site data that relates to environmental characterization of these issues, in accordance with GNWT and MVLWB regulatory guidance documents.</p> <p>Once this work is completed, MGM shall submit revised Sump Remediation and Restoration Plan / NEBAs for each location.</p> <p>The Board directs MGM to provide additional details pertaining to revegetation methods, monitoring timelines and contingencies</p>

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response	Board Direction
3		It is not clear what criteria will be used to determine site closure.	Clearly identify closure criteria/objectives. Consider Guidelines for the Closure and reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories which looks at physical stability, chemical stability, no long-term active care, and future use. Include information from engagement/consultation with local land users and affected parties as indicated in the Engagement Plan.	The referenced document was considered in the drafting of the CRP. Feedback from local land users and affected parties will be incorporated if and when received.	The Board directs MGM to update the Engagement Record to reflect any engagement undertaken in support of CRP Revisions.
4		Table 4: Activities Requiring Engagement indicates planned engagement as written notifications and SLWB Regulatory Process with follow-up calls and electronic correspondence for reclamation and closure planning and activities. It is not clear how feedback from engagement activities has been incorporated into the Plan.	Indicate in the Engagement Record (and in the Closure and Reclamation Plan) how feedback from engagement activities with local land users and affected parties has been included/incorporated into the Plan.	Feedback from local land users and affected parties will be incorporated if and when received.	The Board directs MGM to update the Engagement Record to reflect any engagement undertaken in support of CRP Revisions.