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October 29, 2021

To: Mr. Todd Powell
Director, Mineral Resources
Department of Energy, Mines and Resources
P.O. Box 2703
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Dear: Mr. Powell

RE: SUBMISSION OF 2021 ENVIRONMENTAL AUDIT AND REMEDIAL ACTION DETAILS

Please find attached to this letter the Keno Hill Environmental audit and an annotated table of contents detailing changes and updates to be made to the 2020 Adaptive Management Plan in response to the audit. This audit was conducted in accordance with Quartz Mining Licence QML-0009, Part VI, Section 12.

On June 25, 2021, Alexco Keno Hill Mining Corp. received direction on the focus and scope of the 2021 environmental audit, specific to the Adaptive Management Plan. On July 27, 2021, AKHM was advised that the proposed independent contractor, Morrison Hershfield was acceptable.

The revised Adaptive Management Plan, and all linked environmental management plans will be updated to correspond with the revised Adaptive Management Plan, no later than the Annual Reporting deadline.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

ALEXCO KENO HILL MINING CORP.

A handwritten signature in black ink, appearing to read "Wayne Zigarlick", with a small horizontal line at the end.

Wayne Zigarlick
General Manager
Alexco Keno Hill Mining Corp.

Attachment 1: Final Report, Audit of Alexco Keno Hill Mine Adaptive Management Plans Rev. 01, Morrison Hershfield, October 21, 2021.

Attachment 2: Adaptive Management Plan, Annotated Table of Contents, Alexco Keno Hill Mining Corp. October 2021.

cc by email: A. Kenward, Energy, Mines and Resources, Mineral Resources
B. Thrall, L. Broughton, Alexco Resource Corp.
A. Stearman, Alexco Keno Hill Mining Corp.



**ATTACHMENT 1: FINAL REPORT, AUDIT OF ALEXCO KENO HILL MINE ADAPTIVE
MANAGEMENT PLANS REV. 01, MORRISON HERSHFIELD, OCTOBER 21, 2021**



MORRISON HERSHFIELD

FINAL REPORT

Audit of Alexco Keno Hill Mine Adaptive Management Plans

Presented to:

Alexco Keno Hill Mining

Elsa & Keno City YT



Rev. 01
October 21, 2021

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1. INTRODUCTION

Alexco Keno Hill Mining Corporation (AKHM) is undertaking care and maintenance, exploration and development, active mining, and processing activities within the Keno Hill Silver District. The principal activities within the active quartz licence for AKHM (QML-009) are located at Bermingham, Flame & Moth, and the Bellekeno deposits.

As part of the both the quartz and water licence conditions for the site, both past and current, an adaptive management plan (AMP) is a requirement. AKHM currently has an approved AMP from 2018, as well as a draft revised AMP for discussion from 2020. Furthermore, AKHM is required to conduct an audit in accordance with the requirements of quartz licence QML-009, Section 12.2.

AKHM retained Morrison Hershfield to conduct an audit of the 2018 and 2020 AMPs. The audit uses qualitative analysis to evaluate the documents and supporting evidence and provide observations and recommendations that can be used internally at AKHM to improve performance. This audit report should be read in conjunction with the 2018 and 2020 AMP.

2. SCOPE OF WORK

The scope of this audit includes a review of the 2018 and 2020 Adaptive Management Plans and any environmental protection plan(s) that are specific to adaptive management. Specifically, the audit includes:

1. In relation to the 2018 Adaptive Management Plan:
 - a. Compliance with the plan
 - b. The adequacy of the plan to meet the objectives and intent of the plan
 - c. Compliance of the plan with internal environmental policies and procedures of AKHM
 - d. The reliability and integrity of information relating to the environmental reporting and compliance
2. Comparison of the 2020 Adaptive Management Plan to the Yukon Government Adaptive Management Plan Guidelines (YG 2021)
3. Evaluation of the ability of the 2020 Adaptive Management Plan to ensure the attainment of the water quality objectives (Table 4.9 of the 2020 Adaptive Management Plan).

Analysis of the implementation and efficacy of the 2018 Adaptive Management Plan are audited as part of task 1 a) and b).

Based on the audit scope, conclusions are made regarding the capacity of the 2020 Adaptive Management Plan to meet the environmental objectives for the site.

Recommendations and opportunities are provided for areas of improvement or alternative methods. Recommendations can be considered as information that could help ensure compliance and/or improve a rating. Opportunities can be considered information to improve a

rating. The recommendations are made by the audit team based on their collective experience and do not preclude AKHM staff from planning and implementing other actions.

2.1 Scope Exclusions & Adjustments

The scope of the audit focuses on adaptive management, as directed by the Mineral Resources Branch. The scope includes the following exclusion:

- Item (d) from Section 12.2 of the Quartz Mining Licence relates to reclamation progress and success, however this is not a subject of the 2018 AMP and therefore has been excluded from the scope of the audit.

3. APPROACH AND METHODOLOGY

The audit was conducted in general accordance with ISO 19011:2018 Guidelines for Auditing Management Systems and in consideration of information provided in CAN/CSA-ISO 14001:16 (Environmental management systems – Requirements with guidance for use). Auditing activities are focused on the identification and characterization of material issues related to the 2018 and 2020 AMPs. The audit prioritizes assessing areas where there appears to be issues or challenges with either the implementation of the plans or attaining the plan objectives.

The audit period is January 1, 2019, to August 31, 2021.

A number of supporting documents, reports, and results were used to complete the audit, primarily from public data sources (e.g., Waterline, Yukon Government). The list of documents reviewed during this audit includes:

- Keno Hill Silver District Mining Operations – Adaptive Management Plan. July 2018.
- Keno Hill Silver District Mining Operations – Adaptive Management Plan. October 2020.
- Yukon Government. 2021. Guidelines for developing adaptive management plans in Yukon; Water related components of quartz mining projects. January 2021.
- Yukon Water Board Licence QZ18-044 Monthly Reports for 2020 & 2021
- 2019 Annual Report – Quartz Mining License QML-0009. March 2020
- 2020 Annual Report – Quartz Mining License QML-0009. March 2021
- EBA Engineering Consultants Ltd. 2010. Revision 2010-1 Operation, Maintenance, and Surveillance Manual. Dry stack tailings facility. Keno Hills District. EBA File: W14101178.008
- Ensero Solutions/AKHM. 2020. Keno Hill Silver District Mining Operations, Monitoring, Surveillance and Reporting Plan. October 2020.
- Dry Stack Tailings Facility Construction and Operation Plan Revision 4, QML-0009 (submitted to Government of Yukon November 5, 2018, by AKHM)
- Relevant compliance monitoring and inspection reports from 2020 & 2021

- Yukon Government Department Comments on Plans Submitted for Review & Approval (no date)

Various elements of this audit refer to specific items or content within the 2018 and 2020 Adaptive Management Plans; these AMPs should be read in conjunction with this audit report.

Efforts were made to review a representative number of reference documents, monthly reports and other evidence, with the caveat that an audit is not an inspection. Reasonable skill and care are exercised to assess the information acquired during the preparation of this report.

In conduct of the audit, a set of criteria were applied that are based on the Guidelines for developing adaptive management plans in the Yukon (2021), ISO19011:2018, and ISO14001:16. While reviewing applicable documentation, the auditors considered the following:

- Degree to which proposed methodology and prescribed technology meet the objectives of the AMPs.
- Degree to which information is based on sound scientific and engineering principles.
- Degree to which the information provided by AKHM demonstrates understanding of areas of uncertainty associated with project issues, concerns, and permitting process (with the inclusion of applicable terms and license requirements).
- Degree to which the information provided exhibits innovation and forward thinking.
- Overall, clarity, logic, completeness, and appropriateness of any described event and how it will be managed (which includes response).
- Overall adaptability of the AMP when dealing with uncertainties and/or unanticipated events.

The audit findings have been rated using the following ratings:

Rating	Description
Good	The evidence fully addresses all aspects of the criteria, convincingly demonstrates it will meet the regulatory requirements and demonstrates no weaknesses. The use of this rating occasionally includes a rationale.
Adequate	The evidence addresses all aspects of the criteria and demonstrates the ability to meet regulatory requirements. The evidence may contain a moderate weakness and/or a number of minor weaknesses. The use of this rating occasionally includes a rationale.
Poor	The evidence does not address all aspects of the criteria nor is evidence presented indicating the likelihood of successfully meeting regulatory requirements. Serious weaknesses are demonstrated and clearly outweigh any strengths presented. The use of this rating typically includes a rationale and/or provides specific examples.
Unacceptable	The evidence does not address all aspects of the criteria and the information presented indicates a strong likelihood of failure to meet regulatory requirements. The use of this rating typically includes a rationale and/or provides specific examples.

No Rating	The audit criteria are not applicable or relevant. Each use of this rating includes a rationale.
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4. FINDINGS AND RECOMMENDATIONS

4.1 Compliance with the 2018 AMP

The review of the 2018 AMP considered the following major categories to determine compliance:

- Event Responses
- Inspection & Monitoring
- Reporting & Communication

These categories are based on the structure of the AMP. There are several events that are defined by thresholds, these trigger an event response. The thresholds are detected through inspection and monitoring activities. As per the licence requirements, reporting of any AMP activities is required in the annual report. The 2018 AMP should be read in conjunction with Section 4.1 of this audit.

4.1.1 Event Responses

Event responses are triggered if certain conditions, or thresholds are met. Unique thresholds have been set in the AMP for each event as well as approaches to guide next steps if a threshold is exceeded.

According to the 2019 and 2020 water licence annual reports (QZ18-044), no adaptive management activities were undertaken from 2014 to 2020.

Based on a review of the exceedances logged on Waterline, it does not appear there has been a trigger for an event in the AMP.

Since there are no events recorded to date, there have been no responses required. The process and application of the responses cannot be audited; therefore, the rest of the audit looks at the other components and processes that support the AMP to determine compliance.

<i>Audit Rating:</i> No Rating	No rating has been allocated for this component of the audit since no events have been triggered.
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4.1.2 Inspection & Monitoring

As there were no events triggered under the AMP within the audit period, there are no specific monitoring activities associated with responses to an event. Monitoring to date is the routine monitoring to identify if event thresholds are exceeded. The routine monitoring requirements are not outlined in detail in the 2018 AMP, but are provided in other supporting documents such as the licences, Monitoring, Surveillance and Reporting Plan (July 2018) and other Approved

Plans¹. Samples of these documents and the associated reporting were inspected to assess if monitoring is being implemented to support identification of events in the AMP.

- Daily monitoring results appear complete in the AKHM tracking form as per the schedule and parameters identified in Table 1 in the Monitoring, Surveillance and Reporting Plan (2018).
- Monthly reports are present on Waterline for QZ18-044 from July 2020 to present and as well as QZ09-09-2 for July 2020 to January 2019 and appear approximately one month after the monitoring period, with only one exception. This demonstrates consistent report timing and no major delays between reports.
- Some sections of the monthly reports in 2020 - physical inspections and waste rock - do not include monthly findings and refer to the site records or future reporting. This seems to be remedied in the 2021 monthly reporting.
- The 2020 QZ18-044 water licence annual report with results from associated monitoring is on Waterline and appears comprehensive and complete.
- The 2019 and 2020 QML-009 mining licence annual reports include monitoring results for physical inspection, noise and dust monitoring.

In addition to the monitoring results and reporting, there are a number of Yukon Government inspection reports on Waterline for the audit period. It appears that although monitoring is being undertaken, exceedances of the Effluent Quality Standards (EQS) occurred a total of 25 times in 2020 and 2021, as reported on Waterline. These exceedances did not meet the thresholds for an AMP event. However, they did result in a warning letter being issued to AKHM from Yukon Government. AKHM subsequently implemented changes to the processes on site, as well as adjusted monitoring programs. AKHM continues to work through each step of the treatment process for Bermingham to remediate the EQS exceedances, at the time of the audit it is not conclusive if the process review has been successful.

Audit Rating:

Good

Monitoring appears to be conducted as outlined in the AMP (or supporting documents) to identify thresholds/triggers.

4.1.3 Reporting & Communication

The current mining licence (QML-0009) includes adaptive management reporting as part of the outline of required information in the annual report (Schedule D, Environmental Monitoring (a)). Both the 2019 and 2020 QML-009 annual reports refer to the water licence annual report for a summary of any adaptive management triggers and actions. In each of the water licence (QZ18-044) annual reports there is a section for adaptive management. Both annual water licence reports indicate there have been no adaptive management activities undertaken from 2014 to 2020.

¹ Approved Plans as defined in Schedule C of the mining licence (QML-0009).

Audit Rating: Good	<p>Reporting mechanisms are present in the templates used for the annual water licence report. As no thresholds have been exceeded, the depth and type of information presented could not be assessed.</p> <p>Opportunities for Improvement: Consider clarifying the language to use terminology from the AMP (i.e., threshold, response) to indicate status of any events or actions taken by AKHM. For example, there were no events triggered during the 2020 reporting period.</p> <p>Consider presenting the AMP results in both annual reports (quartz and water licence) to improve transparency.</p>
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4.1.4 Summary

Audit findings indicate that AKHM has met the requirements of the approved 2018 AMP.

Table 1 Summary of audit results for compliance with the 2018 AMP

Category	Audit Rating	Notes
Event Response	None	No rating has been allocated for this component of the audit since no events have been triggered.
Inspection & Monitoring	Good	Monitoring appears to be conducted as outlined in the AMP (or supporting documents) to identify thresholds/triggers.
Reporting & Communication	Good	Reporting mechanisms are present in the templates used for the annual water licence report. As no thresholds have been exceeded, the depth and type of information presented could not be assessed. Opportunities for Improvement: Consider clarifying the language to use terminology from the AMP (i.e., threshold, response) to indicate status of any events or actions taken by AKHM. For example, there were no events triggered during the 2020 reporting period. Consider presenting the AMP results in both annual reports (quartz and water licence) to improve ease of finding information.

4.2 Adequacy of the 2018 AMP to Meet the Objectives and Intent

As defined in Schedule B of the quartz mining licence (QML-009), the Adaptive Management Plan is:

A plan that provides detailed descriptions of procedures and actions to identify, understand and respond to changing conditions that may cause negative environmental effects on the environment. The plan should demonstrate that actions can be taken prior to causing unacceptable effects.

Using the definition of the licence as a guide for the AMP objectives, the elements of each event in the 2018 AMP have been assessed, the elements include: Event Description; Monitoring Requirements & Location; Thresholds; and Responses. The 2018 AMP should be read in conjunction with Section 4.2 of this audit.

4.2.1 Event Description

Each event name and description provides suitable information to understand the potential impact or effect, however many events do not provide a defined point that is considered an unacceptable effect or the objective of the event. The events could be improved by including clear statements of the risks and potentially unacceptable environmental impact that could occur without the application of adaptive management.

<p><i>Audit Rating:</i> Adequate</p>	<p>Event descriptions are generally adequate to identify the issue or risk.</p> <p>Recommendation for Action: Consider adding statements to clarify the unacceptable risk or impact to be avoided. This information can be referred to later in the AMP to indicate the unacceptable effect that is being prevented with the defined threshold(s).</p>
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4.2.2 Monitoring Requirements & Locations

In order to identify and understand changing conditions the monitoring requirements are a key component of each event. In most of the AMP events the monitoring details are high level and there is reference to other reports and supporting documents for monitoring details (e.g., location, frequency, parameters). The information on schedule and parameters is present consistently, however persons or positions responsible for monitoring as well as training requirements are generally not included.

Information on the frequency or method for analysis of the monitoring data is not consistently included in the AMP or supporting documents. In a number of events the AMP references the EQWin database and the ability to add in triggers, however the triggers are not clearly identified and can only be deduced by the specific thresholds for the event.

Consistent use of the monitoring naming convention in all documents would be helpful for ease of understanding between documents.

<p><i>Audit Rating:</i> Adequate</p>	<p>Identification of persons or positions responsible and any training requirements are not consistently provided.</p> <p>Frequency of analysis, methods and triggers for analysis are not clearly and/or consistently identified.</p> <p>Recommendations for Action:</p> <p>Update the AMP and/or supporting materials to include responsible persons or positions, reporting structure, and training requirements.</p> <p>Clearly identify frequency and/or methods for data analysis.</p> <p>Opportunities for Improvement: Include a summary of the monitoring locations, schedule and parameters for each event and remove reliance on cross references.</p> <p>Include in the AMP the triggers for the EQWin database and how the tool is being used for analysis.</p>
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4.2.3 Thresholds

The thresholds for each event indicate when action should be taken in order to respond to changing conditions. The thresholds and associated actions in any AMP should be adequate to prevent unacceptable effects.

Generally, the thresholds do not include an explanation of how the values were set or at what point the event is approaching an unacceptable environmental impact. For events associated with licensed parameters, such as water quality, the thresholds are the associated licensed values. AKHM staff identified staged thresholds that are applied in the daily sample tracking and EQWin database, but are not identified in the AMP. Without a rationale for the thresholds as well as the water quality related thresholds being set at the licensed maximum value, the auditor's confidence is low that the thresholds trigger a response in time to prevent unacceptable effects². This seems to have been largely addressed in the 2020 AMP.

Audit Rating: Poor	Thresholds lack definition for key terms, such as significant and trending. Rationale or methodology for establishing thresholds is not provided for multiple events. Thresholds set at the licenced maximum values do no demonstrate that actions can be taken before unacceptable effects occur. Recommendation for Action: Consider incorporating thresholds that apply a stepwise escalation of actions to prevent unacceptable effects. These may include those being used in the daily tracking spreadsheet and EQWin database.
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4.2.4 Responses

The responses are the actions that are taken to alleviate the cause of the changing conditions that may cause negative environmental effects.

In general, there is language in the AMP to indicate there should be responses that are staged. Since no events have been triggered the adequacy of the responses have not been tested.

Reporting requirements are generally not part of the AMP responses. The addition of reporting requirements can be used to improve annual reporting, including clear evidence to show each event was addressed and closed out, as well as improve internal coordination.

Where there were reporting requirements, they were generally associated with events related to water quality (events 1, 12, 13, 14 and 16). The requirement to report a response to the Water Inspector and the Board in water licence (QZ18-044) Part G, Section 69, is within 24 hours of detecting the exceedance, whereas the 2018 AMP indicates notification within three working days.

Audit Rating: Adequate	The responses generally do not include requirements for reporting or communication, either internally or externally. Recommendations for Action: Incorporate stepwise thresholds and corresponding responses to be commensurate with the severity and risk. Include reporting requirements for responses taken and follow-up to confirm responses have adequately addressed the issue.
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² Assumes that an unacceptable effect is exceeding the licence or regulatory parameters.

Ensure that reporting requirements meet the timelines specified in licenses and authorizations.

4.2.5 Summary

Overall, the 2018 AMP adequately meets the objectives and intent of an AMP, however there are a number of areas for improvement to increase the clarity of the document as well as improve confidence in the ability of the AMP to address and prevent unacceptable environmental affects.

Table 2 Summary of audit results for adequacy of the 2018 AMP to meet objectives and intent

Category	Audit Rating	Notes
Event Description	Adequate	Event descriptions are generally adequate to identify the issue or risk. Recommendation for Action: Add statement to clarify the unacceptable risk or impact to be avoided. This information can be referenced later to indicate the unacceptable effect that is to be prevented with the defined threshold(s).
Monitoring Requirements & Locations	Adequate	Identification of persons or positions responsible and any training requirements are not consistently provided. Frequency of analysis or methods for analysis is not clearly or consistently identified. Recommendations for Action: Update the AMP and/or supporting materials to include responsible persons or positions, reporting structure, and training requirements. Clearly identify frequency and/or methods for data analysis. Opportunities for Improvement: Include a summary of the monitoring locations, schedule and parameters for each event and remove reliance on cross references. Include in the AMP the triggers for the EQWin database and how the tool is being used for analysis.

Category	Audit Rating	Notes
Thresholds	Poor	<p>Thresholds lack definition for key terms, such as significant and trending.</p> <p>Rationale or methodology for establishing many thresholds is not provided.</p> <p>Thresholds set at the licenced maximum values do not demonstrate that actions can be taken before unacceptable effects occur.</p> <p>Recommendation for Action: Include thresholds that apply a stepwise escalation of actions to prevent unacceptable effects.</p>
Responses	Adequate	<p>The responses generally do not include requirements for reporting or communication, either internally or externally.</p> <p>Recommendations for Action: Incorporate stepwise thresholds and corresponding responses to be commensurate with the severity and risk.</p> <p>Include reporting requirements for responses taken and follow-up to confirm responses have adequately addressed the issue.</p> <p>Ensure that reporting requirements meet the timelines specified in licenses and authorizations.</p>

4.3 Compliance of the 2018 AMP with Alexco Environmental Policies & Procedures

According to AKHM representatives there are no corporate environmental policies or procedures beyond those that are part of the Environmental Protection and Environmental Management Plans (QML-0009, Schedule C).

Compliance with the AMP has been audited in section 4.1 and adequacy in section in 4.2, no further auditing has been conducted.

4.4 Reliability and Integrity of Information

The 2018 AMP information is generally well organized and presented in the primary audit documents and supporting information. Information cross-referenced in other reports is generally present and accessible. Improving the use of consistent cross referencing and including the location of the document (e.g., electronic or hard copies, Waterline, etc.) would help accessibility of the supporting material. Monthly and annual monitoring reports appear complete and are provided in a timely manner.

The monitoring programs, particularly for water quality, include QA/QC procedures which improve data reliability for water quality results.

The AMP does not indicate the authors or professionals responsible for preparation or review of the documents. This information could be provided to strengthen the integrity and reliability of the information presented in the AMPs. Furthermore, responsible persons and their expertise or credentials is generally not provided for the monitoring programs, which reduced confidence in the reliability of the monitoring data.

Audit Rating: Adequate	Reporting is complete and provided in a timely and organized manner. Recommendations for Action: Identify the authors and reviewers for documents to demonstrate author expertise as well as a QA/QC process for document delivery. Include identification of responsible persons and training/credentials to increase data reliability in monitoring programs. Reference any supporting documents in a consistent manner. Identify location of supporting documentation which can be hard copy, electronic, or both.
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4.5 Comparison of the 2020 AMP to Yukon Government Guidelines

The 2020 AMP and each of the 15 events have been reviewed in consideration of the expectations outlined in the *Guidelines for developing adaptive management plans in Yukon, Water-related components of quartz mining projects* (Yukon Government, 2021). The key components of a comprehensive AMP required by the guideline are shown in Figure 1. The structure and components from the guidelines have been used to compare to the AMP. The guidelines, although specific to potential water-related impacts, uses a framework and structure that is applicable to any potential effect pathway, therefore the audit considers the complete AMP for comparison. For each AMP component as per the Yukon Government (YG) guideline the key elements are identified before presenting the audit findings.

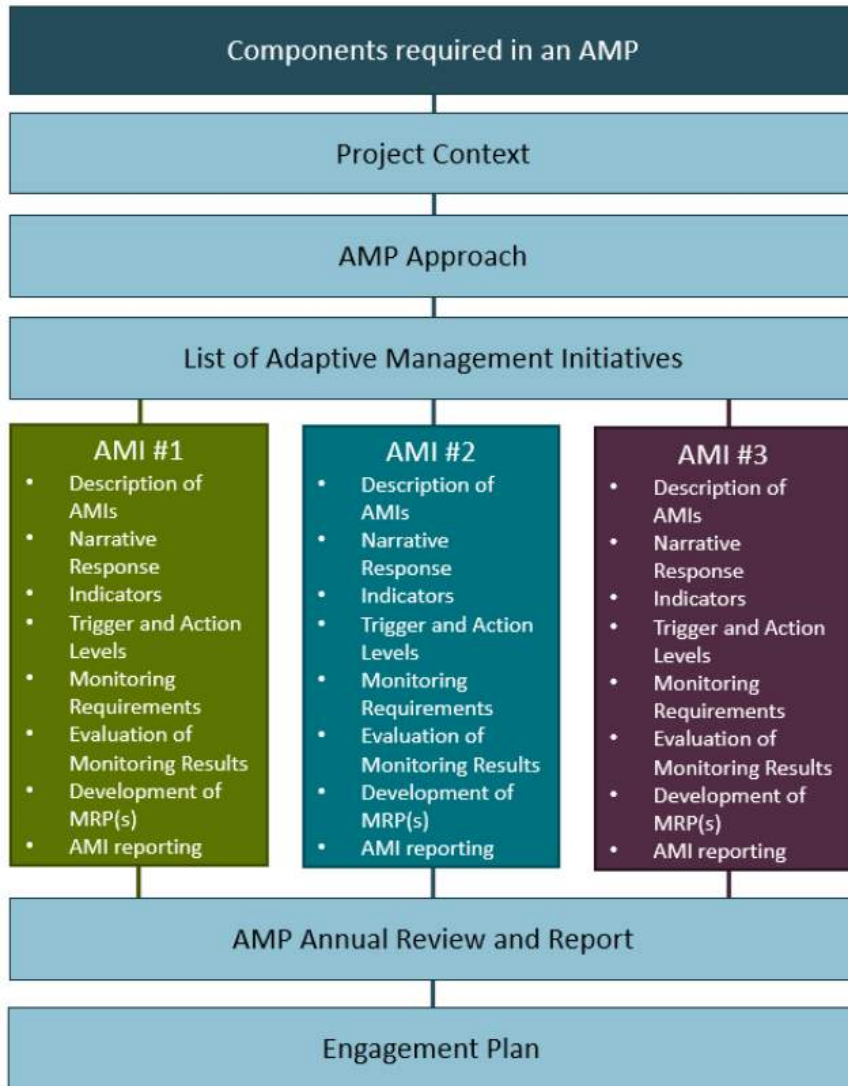


Figure 1 Expected Content of a Comprehensive AMP, as per the Yukon Guidelines (YG, 2021)

4.5.1 Project Context

Key Elements as per YG Guidelines

Overview of the mine site, monitoring and reporting plans, regulatory context and linkages between the AMP and other management programs (i.e., monitoring programs).

The 2020 AMP provided an introduction which provided regulatory context (QML-009 and WL QZ18-044) and elaborated on license updates. Activities at the site are described and supporting plans pursuant to the licences are listed.

Audit Rating:
Adequate

The information provided allowed an understanding of AKHM activities in the Keno Hill Silver District and how operations have evolved over time.
Recommendation for Action: A map or figure could be added which would allow for a better understanding of the mine layout and location of key facilities.

4.5.2 AMP Approach

Key Elements as per YG Guidelines

Presentation of management goals and objectives of the AMP, including an overview of the AMP components.

Management goals and objectives are concisely listed in the 2020 AMP. A summary of the events, or key components, of the AMP is presented. A scope or timeline for implementation of the AMP is not provided. Information is not consistently presented in the AMP.

Audit Rating:
Adequate

Opportunities for Improvement:

Consider including the timelines for implementation of the AMP.
Where possible, include consistent use of headings (for presentation of information) for ease of interpretation (e.g., description, locations, monitoring requirements, specific thresholds, approaches to responses).

4.5.3 Adaptive Management Initiatives

The 2020 AMP includes 15 events, or AMIs. Ratings for each of the eight (8) sub-components for AMI's identified in the YG guidelines are provided in the sub-section below.

4.5.3.1 Description of the AMI

Key Elements as per YG Guidelines

The description should identify the risk being addressed as well as specific management objectives. The description should clearly link the project component or activity with the potential aquatic impact.

Generally, the 2020 AMP is adequate in identifying risk and overall demonstrates the ability to meet regulatory performance requirements, as per the audit findings in Table 3.

The events rated as 'adequate' are well described and easily interpreted. Elaboration on specific management objectives would strengthen the AMIs rated as 'adequate'.

A 'poor' rating was allocated for events 3 and 7 where reference to supporting documentation is given. The use of supporting documents is part of AMP development but referred plans should be approved and/or updated as required. For example, in event 3, reference is given to the Sludge Management Plan which is identified in the AMP (Table 2-1) as needing to be updated. Reference to a plan that is pending update can create uncertainty. Regardless of any supporting documents, the event should be described in sufficient detail so the reader can establish the link

between project component and potential impact. Specific management objectives and confirmation of approved/dated plans would strengthen the event descriptions rated as 'poor'.

Poor ratings were also allocated for events 6, 10 and 11. In all three, reference to a supporting document is given. The document is not consistently referenced and reference should be made to any updated plans (where required). Inconsistent reference to supporting documentation leads to uncertainty in the connection between any new licensed conditions and the AMP objectives. For example, in event 10 there is a reference to Water License QZ09-092 which was renewed to QZ18-044 on July 22, 2020.

Table 3 Description of the AMI Audit Findings

AMI / Event Number	Audit Rating
1	Adequate
2	Adequate
3	Poor
4	Adequate
5	Adequate
6	Poor
7	Poor
8	Adequate
9	Adequate
10	Poor
11	Poor
12	Adequate
13	Adequate
14	Adequate
15	Adequate

4.5.3.2 Narrative Response

Key Elements as per YG Guidelines

The narrative response is a qualitative description of the trigger. The description should link to the specific indicators and thresholds for the AMI.

Overall, the 2020 AMP was good/adequate in provision of qualitative descriptions of triggers, as per the audit findings in Table 4.

Although an 'adequate' rating was allocated for events 8 and 9, in both cases the threshold is described in moderate detail, but the triggers are not clearly described. Events 6 and 10 were rated as 'poor' as an inconsistent reference to supporting documentation made it difficult to track and find information specific to the 2020 AMP events. Clearer qualitative descriptions would

improve the narrative responses. Event 11 was rated 'unacceptable' as it also referenced supporting documentation but with even less detail than events 6 and 10.

Table 4 Narrative Response Audit Findings

AMI / Event Number	Audit Rating
1	Good
2	Good
3	Adequate
4	Adequate
5	Adequate
6	Poor
7	Adequate
8	Adequate
9	Adequate
10	Poor
11	Unacceptable
12	Adequate
13	Good
14	Adequate
15	Adequate

4.5.3.3 Indicators

Key Elements as per YG Guidelines

Indicators are used to measure the environmental conditions related to risk associated with the AMI. The indicators should: adequately characterize or measure the condition that could change; provide early detection; and be easily measured, accurate and reproducible.

Overall, the 2020 AMP was good/adequate in providing characterization on changing conditions and offering descriptions that are measurable, accurate and reproducible, as per the audit findings in Table 5.

In both cases where a 'poor' rating has been allocated, the 2020 AMP strongly relied on the reference to supporting documentation. Although the Yukon Guideline for AMP development encourages the use of associated Management Response Plans the reference document (i.e., EBA 2010) has been updated (in 2020) and the path to updated information was not clear. Specifically, events 10 and 11 refer to the EBA (2010) Operation, Maintenance, and Surveillance Manual (OMSM). Only part of the EBA 2010 OMSM was included as an appendix in AKHMs Monitoring, Surveillance and Reporting Plan (October 2020) which makes cross referencing of these plans problematic. More information on indicators should be provided in the 2020 AMP and current WL references should be made.

Event 8 is noted as ‘unacceptable’ as it does not clearly define indicators or provide reference to any documentation.

Table 5 Indicator Audit Findings

AMI / Event Number	Audit Rating
1	Good
2	Good
3	Adequate
4	Adequate
5	Adequate
6	Adequate
7	Adequate
8	Unacceptable
9	Adequate
10	Poor
11	Poor
12	Good
13	Good
14	Good
15	Adequate

4.5.3.4 Trigger & Action Levels

Key Elements as per YG Guidelines

Triggers and action levels are set that have associated actions or management responses. The basis for setting the triggers is an established significance threshold or benchmark, which should never be reached. The triggers are then set conservatively to initiate an adaptive response at effect levels that are below the significance threshold. Where possible actions levels of low, moderate and high should be incorporated to represent increasing severity and magnitude of change in the indicator(s) being measured.

Eight of the 15 events were rated as either ‘good’ or ‘adequate’ (as per Table 6).

A total of seven events are rated as ‘poor’. In these instances, thresholds were either not clearly established or well presented. Reference to stand-alone documentation is used which did not provide enough information to support the AMP. In the case of event 8, the threshold could be improved by providing more detail, it is currently subjective. In addition, the triggers/thresholds refer to trends in exceedance. The Yukon Guideline (2021) suggests a threshold be developed where action is taken prior to exceedance of standards being realized (not when exceedance is determined).

Table 6 Trigger & Action Level Audit Findings

AMI / Event Number	Audit Rating
1	Adequate
2	Good
3	Adequate
4	Adequate
5	Poor
6	Poor
7	Poor
8	Poor
9	Adequate
10	Poor
11	Poor
12	Adequate
13	Good
14	Adequate
15	Poor

4.5.3.5 Monitoring Requirements

Key Elements as per YG Guidelines

Presentation of the monitoring required to support the implementation of each AMI. Information should include locations, indicators being monitored, and frequency.

Overall, the 2020 AMP is 'good' or 'adequate' in describing the monitoring required to support each event, as per Table 7. Events found to be good or adequate could be strengthened by providing the location of any referenced documents. In addition, any discharge points described in text could be identified on figures.

Four events, related to physical and/or visual inspections, were rated as 'poor' (Table 7). These events are typically vague in describing monitoring indicators or frequency or unclear as to where established reporting plans are located. In addition, some events appeared to rely on staff "being familiar with things" which is subjective and can be inconsistent depending on experience. Detail on locations and clearer descriptions of available information would improve these events.

Events 6 and 7 were also rated as 'poor'. In addition to exhibiting similar traits to the poor events described above, event 6 referenced supporting documentation (e.g., 2010 EBA OMSM) which in turn cited outdated licences and licence sections (i.e., QML-009 and WLQ209-092). Although these citations may not detract from any monitoring efficacy established, their reference does cause some confusion in interpretation and hints at unreliability. With the caveat that several

plans are pending update, there is low confidence in the accuracy of the crossover between the 2020 AMP and 2010 EBA OMSM. Reference to the 2010 EBA document in the 2020 AMP is also not consistent. Event 7 lacks adequate detail for the monitoring requirements, furthermore it suggests monitoring turbidity ‘visually’. Turbidity cannot be monitored visually as this is subjective, non-repeatable, and inconsistent. Turbidity should be measured by metering devices or collection of samples for analysis.

Table 7 Monitoring Requirements Audit Findings

AMI / Event Number	Audit Rating
1	Good
2	Good
3	Adequate
4	Adequate
5	Poor
6	Poor
7	Poor
8	Poor
9	Adequate
10	Poor
11	Poor
12	Good
13	Good
14	Good
15	Good

4.5.3.6 Evaluation of Monitoring Results

Key Elements as per YG Guidelines

Timely evaluation of monitoring results to identify trigger activation, including details on: schedule review of data and comparison to triggers; verification of monitoring results and confirmation of exceedance; analysis of related monitoring data; and confirmation of threshold exceedance.

Overall, the 2020 AMP is ‘poor’ in presenting details on evaluation of monitoring results, as per Table 8. In events 5, 8, 9, 10, 11 and 15, clear timelines for evaluation of results are not provided, there are generic references to supporting documents, and response sequence (in general) is poorly described. In addition, timelines and ‘close-out’ processes are not clearly identified (e.g., event 5). Event 9 is another example that could be strengthened to offer end-point conclusions to any repair or remediation. Although event 9 offers ‘monitoring for continued erosion or degradation’ it doesn’t offer a measurable activity or endpoint.

Events 6 and 7 rely on references to supporting documentation and extracted information (i.e., Table 13 and 14 from EBA OMSM 2010). There are generic references (e.g., apply appropriate measures, visual observation) provided in the AMP. The extracted tables provide information that would make comparison, evaluation of results or effectiveness monitoring difficult to achieve. These two events also include reference to a 'Facility Designer' who will review existing well data. We recommend that if not already in place, there are provisions for the Facility Designer to avoid challenges or issues in implementation of the evaluation of results.

Table 8 Evaluation of Monitoring Results Audit Findings

AMI / Event Number	Audit Rating
1	Good
2	Good
3	Adequate
4	Adequate
5	Poor
6	Poor
7	Poor
8	Poor
9	Poor
10	Poor
11	Poor
12	Good
13	Good
14	Good
15	Poor

4.5.3.7 Developing Management Response Plans (MRP(s))

Key Elements as per YG Guidelines

Responses and a "toolbox" of potential mitigations associated with each of the established trigger levels, commensurate with the levels of severity (i.e., low, moderate or high). Low level responses: define the problem. Moderate action; design of the mitigation measures and potential interim responses. High level responses: implement, monitor, evaluate and adjust the response.

Generally, the 2020 AMP is good or adequate in describing its developed managed response plans, as per Table 9. However, seven events were rated 'poor'. The events rated as poor refer to staged responses and/or those staged responses will be implemented when a threshold is triggered. The responses are not well described and do not include stepwise response commensurate with the level of risk (i.e., low, moderate, and high responses).

In addition, events 6, 7, 10, and 11 did not provide sufficient detail to clearly understand the management response plan(s). These events should be reevaluated to include descriptions of low, moderate and high response actions. The use of generic phrases and/or mitigations (e.g., event 7 refers to ‘appropriate runoff, erosion or sediment control measures’ in Table 4.7) should be avoided.

Table 9 Developing Management Response Plans Audit Findings

AMI / Event Number	Audit Rating
1	Good
2	Adequate
3	Adequate
4	Poor
5	Adequate
6	Poor
7	Poor
8	Poor
9	Adequate
10	Poor
11	Poor
12	Good
13	Good
14	Poor
15	Adequate

4.5.3.8 AMI Reporting

Key Elements as per YG Guidelines

Reporting associated with review of relevant monitoring data and trigger activations, including inspectors, regulators, First Nations and stakeholders per the Engagement Plan.

Overall, the 2020 AMP is poor in describing reporting associated with the review of relevant monitoring data, trigger activations and event follow-up, as per the audit findings in Table 10. Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications, etc. In addition, the references to supporting documents (e.g., groundwater monitoring plans) are inconsistent and presented in a manner which is difficult to decipher. Where monitoring is discussed, it is also not clear who results should be reported to and when. There are examples where reporting to the Water Board is to be conducted within 60 days but the process and Departments are currently not identified (e.g., event 7). In events 1, 12 and 13 it states that the ‘inspector’ will be notified of the remedy implementation in a timely manner. Response and reporting could be strengthened by identifying what agency/department the inspector works for and what the reporting mechanism is (e.g., phone, email, or both). Rather than

responding 'in a timely manner', a response time should also be identified (e.g., within 24 hrs of implementation).

Observations are similar for the events noted as 'unacceptable' and 'poor', with a few additional factors. Event 6 identifies a reporting procedure that does not clarify who the occurrence is reported to (i.e., General Manager, facility designer and/or Chief Operating Officer). Within the AMP, reporting is not mentioned for events 10 and 11. There is a high risk that an occurrence goes unreported or is lost when the reporting body is ambiguous. In addition, this reporting procedure appears to be based on an operating plan developed in 2010 (i.e., EBA OMSM) which may not be up to date with AKHM's current operating procedures as this plan was updated by AKHM in 2020.

Table 10 AMI Reporting Audit Findings

AMI / Event Number	Audit Rating
1	Poor
2	Poor
3	Poor
4	Poor
5	Adequate
6	Unacceptable
7	Poor
8	Poor
9	Poor
10	Unacceptable
11	Unacceptable
12	Poor
13	Poor
14	Poor
15	Poor

4.5.3.9 Summary

Overall, the 2020 AMP adequately meets the objectives and intent of an AMP, however there are a number of areas for improvement to increase the clarity of the document as well as improve confidence in the ability of the AMP to address and prevent unacceptable environmental affects (Table 11).

Table 11 Summary of the rating results for the 15 Events described in the 2020 AMP.

AMP Events	Rating - Description of Specific Adaptive Management Initiatives							
	Description	Narrative Response	Indicators	Trigger & Action Level	Monitoring	Evaluation of Monitoring Results	Development of MRPs	Reporting
1	Adequate	Good	Good	Adequate	Good	Good	Good	Poor
2	Adequate	Good	Good	Good	Good	Good	Adequate	Poor
3	Poor	Adequate	Adequate	Adequate	Adequate	Adequate	Adequate	Poor
4	Adequate	Adequate	Adequate	Adequate	Adequate	Adequate	Poor	Poor
5	Adequate	Adequate	Adequate	Poor	Poor	Poor	Adequate	Adequate
6	Poor	Poor	Adequate	Poor	Poor	Poor	Poor	Unacceptable
7	Poor	Adequate	Adequate	Poor	Poor	Poor	Poor	Poor
8	Adequate	Adequate	Unacceptable	Poor	Poor	Poor	Poor	Poor
9	Adequate	Adequate	Adequate	Adequate	Adequate	Poor	Adequate	Poor
10	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Unacceptable
11	Poor	Unacceptable	Poor	Poor	Poor	Poor	Poor	Unacceptable
12	Adequate	Adequate	Good	Adequate	Good	Good	Good	Poor
13	Adequate	Good	Good	Good	Good	Good	Good	Poor
14	Adequate	Adequate	Good	Adequate	Good	Good	Poor	Poor
15	Adequate	Adequate	Adequate	Poor	Good	Poor	Adequate	Poor

4.5.4 AMP Annual Review, Reporting and Updating

Primary AMP Review, Reporting and Updating Consideration per Section 3.3. of YG Guidelines

The AMP is a living document, subject to updates as new information and data becomes available through the implementation of the AMP and related site monitoring programs.

While a revised AMP should be submitted to YWB at frequencies defined by license conditions, a report on the implementation of the AMP that includes triggered events, responses, AMP updates and engagement activities should be submitted as part of the annual report required under the QML and the WL.

The applicant or licensee will describe the process and timeline for routine reporting and the annual AMP review.

The 2020 AMP has been updated to include the collection of annual validation data as per licence clause requirements. Statements in the 2020 AMP also indicate it will be 'reviewed and updated as required' and that 'annual reviews and updates of the AMP will also occur to incorporate new monitoring data collected in the previous year.' In another section (4.1.1.3), the AMP states mass load models will be updated annually to validate model predictions using measured flow and water quality data. In Section 4.12.4, water quality objectives (WQOs) would be updated annually until a three-year dataset is available from which final WQOs would be derived. These examples show the 2020 AMP is a 'living document' which is subject to updates as new information and data becomes available.

Based on a review of Waterline (Yukon Water Board) reports for water license QZ18-044 monthly and annual reports are submitted in a consistent, thorough and compliant manner. The front cover of the 2020 Annual Water License report identifies it was distributed to the Yukon Water Board, First Nation of Na-cho Nyak Dun and the Keno City Library.

Audit Rating:

Good

Annual AMP review, reporting and updating appears to be addressed in the 2020 AMP. Annual reports are provided to the Yukon Water Board, First Nation of Na-cho Nyak Dun and the Keno City Library.

Opportunity for Improvement: Process and timeline for routine reporting and annual AMP review should be developed and included in the 2020 AMP.

4.5.5 Consultation and Engagement Plan

Consultation and Engagement Requirements per Section 3.4 of YG Guidelines

The AMP development process should include engagement with Yukon and First Nations Government, local communities or other stakeholders and efforts should be made to co-develop the AMP, or part of the AMP, with affected First Nations.

An AMP Engagement Plan should be developed by the applicant or licensee, in collaboration with the relevant First Nation(s).

It is not clear how, or to what extent, the 2020 AMP was developed with any of the groups identified above. In addition, although the 2020 AMP identifies reporting exceedances to inspectors (for example) there is little to no mention of reporting or communication with First Nations, community members, or other stakeholders. However, the 2020 Annual Water License report was distributed to First Nation of Na-cho Nyak Dun and the Keno City Library which makes it publicly available.

Section 4.12.4, of the 2020 AMP, states “Alexco has proposed to convene a workshop between Alexco, Yukon Government, Government of Canada, and the First Nations of Na-cho Hyak Dun to develop a mechanism to update the WQOs for KV-21 as water quality in No Cash Creek improves.” Beyond stating intent, no details are provided on outcomes of this workshop, therefore not enough information is available for a rating.

Audit Rating:
No Rating

The 2020 AMP does not provide sufficient detail on how it incorporated any consultation or engagement. It is also vague in providing detail on future engagement initiatives or sharing information.

Recommendation for Action: Create a summary statement outlining previous consultation and engagement that was conducted and used in the development of the 2020 AMP. The summary should include, for example, timelines and file location of correspondence.

Opportunities for Improvement: If any future workshops are proposed, consider including anticipated timelines, objectives and ultimately the outcomes. A brief summary or table format for reference would be useful.

Consider identifying who will be notified if there are exceedances or threshold tolerances being met, for example First Nations, local communities, etc.

4.5.6 Summary

Overall, the 2020 AMP was rated as ‘adequate’ when compared to the Yukon Government guidelines (2021). The evidence reviewed primarily addressed all aspects of the criteria and demonstrated the ability to meet regulatory performance requirements. However, the categories reviewed either contained a major weakness and/or a number of minor weaknesses.

Category	Audit Rating	Notes
Project Context	Adequate	The information provided allowed an understanding of AKHM activities in the Keno Hill Silver District and how operations have evolved over time
AMP Approach	Adequate	Management goals and objectives are concisely listed in the 2020 AMP but components could use elaboration and presentation of information made more consistent.
AMIs (Events)	Adequate	Overall, the 2020 AMP was rated as adequate with some events being poor or unacceptable.
AMP Annual Review, Reporting and Updating	Adequate	Annual AMP review, reporting and updating appears to be addressed in the 2020 AMP. The AMP could be strengthened by including process and timelines for annual reviews.
Engagement Plan	No Rating	The 2020 AMP does not provide sufficient detail on how it incorporated any consultation or engagement. It is also vague in providing detail on future engagement initiatives.

4.6 Ability of the 2020 AMP to meet WL QZ18-044 Water Quality Objectives

Key Elements as per WL QZ18-044

The Licence references a table in the 2018 AMP (which is also in the 2020 AMP) for the Water Quality Objectives (WQO) that are broadly protective of aquatic resources in Table 4-9 of the 2020 AMP.

Furthermore, Part F – Section 58 b) of the licence requires an update of AMP Event 12 to include: i) the integration of WQOs at KV-111 between May and September; and, ii) insight into the establishment of an adaptive WQO at KV-21 which captures projected changes to the water quality within the No Cash Catchment. Also, Section 58 c) requires the development of a site specific WQO for arsenic.

An AMP is a management tool that provides a consistent and pre-planned approach for understanding and responding to deviations in project performance (YG 2021). The use of licensed water quality objectives (WQO) needs to be part of AMP development and forms a large part of management responses, which should range in level of intervention (YG 2021).

WQOs provide a numerical definition of acceptable water quality conditions to prevent degradation of the environment. The WQO for AKHM are presented in the 2020 AMP in Table 4-9 (associated with Event 12). The 2020 AMP should be read in conjunction with this section of the audit.

4.6.1 Water Quality Objective Monitoring Points

A comparison of Table 4-9 (2020 AMP) and Table 2-2 (Ensero/AKHM 2020) was conducted specifically related to locations for water quality predictions and WQOs. This comparison identified both inconsistencies and omissions in location identification and/or purpose. For example, while Table 4-9 identifies KV-2 as a location for WQOs there is no reference to a KV-2 in Table 2-2 or the entire Ensero/AKHM 2020 document. In another instance, Table 2-2 identifies KV-56 and KV-111 as stations for water balance and water quality modeling while Table 4-9 identifies them as stations with water quality objectives. Although these tables should support and strengthen compliance in meeting WQOs, the intent and/or direction they offer is convoluted. Additional review (and confirmation) of locations established for water quality predictions and WQOs would strengthen the 2020 AMP and help ensure compliance. The identification of the parameters to be measured for WQOs in Table 4-9 is valuable.

The use of generic WQOs objectives (e.g., CCME, BCMoE) is standard practice and is adequate. However, providing numerical values in table format would allow for immediate understanding of expected WQOs rather than having to conduct a reference search.

<p><i>Audit Rating:</i> Poor</p>	<p>Information offered in the 2020 AMP in Table 4-9 compared to Ensero/AKHM 2020 appears to be inconsistent.</p> <p><u>Recommendations for Action:</u> Complete a comparative review of the information provided in Tables 4-9 and 2-2 to ensure location accuracy, intent and objectives.</p> <p><u>Opportunities for Improvement:</u> Use numerical values rather than a generic reference to CCME or BCMoE WQOs.</p>
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4.6.2 Water Licence, Part F, Section 58(b)

As per Section 58 (b), Part F of the Water Licence, updates to Event 12 of the AMP are required to reflect adjustments to WQOs at KV-111 and KV-21. Furthermore, in Section 58 (c) site specific arsenic WQO are to be included in the AMP. Table 1-1 of the 2020 AMP identifies each of these licence requirements and provides a description of how it is addressed in the document.

The 2020 AMP does provide reference to KV-111 in its Table 4-9 and Figure 4-1. In addition, WQOs have been established using generic CCME or BCMoE guidelines and/or using a background concentration procedure. The information provided appears adequate to meet WQOs but the AMP could be strengthened by including context around the 'May and September' integration period required under WL QZ18-044.

The 2020 AMP does provide 'insight' into the establishment of an adaptive WQO at KV-21 which includes specific and generic WQOs (Table 4-9 of the 2020 AMP). The insight provided should be adequate in meeting WQOs but the approach (at this time) is unproven. In addition, although a collaborative effort 'with the three government stakeholders' could help ensure compliance, this approach does bear certain risks (e.g., extension of timelines, shifting objectives, expansion of scope, etc.). Unless already established, a Memorandum of

Understanding (MOU) could be established between the involved parties which would include (for example) anticipated start and end times; specific objectives; and measurable results.

<p><i>Audit Rating:</i> Adequate</p>	<p>The 2020 AMP does provide reference to KV-111 and established WQOs for this location. The 2020 AMP also provides insight into the establishment of a WQO at KV-21. Information offered in the 2020 AMP compared to Ensero/AKHM 2020 appears to be inconsistent.</p> <p>Recommendations for Action: Include context around the 'May to September' integration period.</p> <p>Opportunities for Improvement: If not already established, consider the creation of a MOU between involved parties.</p>
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4.6.3 Water Licence, Part F, Section 58(c)

The 2020 AMP (Event 12 – Table 4-9) provides specific and generic CCME WQOs for arsenic. This table includes all the locations for water quality predictions and WQOs with the exception of KV-41. The only reference the 2020 AMP makes to KV-41 is a marker point on Figure 4-1. Despite providing WQOs for arsenic, the omission of information related to KV-41 in the 2020 AMP is poor. The 2020 AMP could be strengthened by reviewing information on KV-41 (including the Keno Hill Silver District Mining Operations, Monitoring, Surveillance and Reporting Plan (Ensero/AKHM, 2020)) to ensure its validity and referencing it in text and table format as required.

<p><i>Audit Rating:</i> Poor</p>	<p>The 2020 AMP does provide specific and generic WQOs for arsenic at most locations but appears to omit reference to KV-41</p> <p>Recommendation for Action: Review Event 12 and the 2020 Monitoring, Surveillance and Reporting Plan for validity of KV-41.</p>
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4.7 Summary of Recommendations for Action & Opportunities for Improvement

Table 12 Summary of AMP Audit Recommendations

Compliance with the 2018 AMP
<p>Opportunities for Improvement:</p> <ul style="list-style-type: none"> ▪ Consider clarifying the language to use terminology from the AMP (i.e., threshold, response) to indicate status of any events or actions taken by AKHM. For example, there were no events triggered during the 2020 reporting period. ▪ Consider presenting the AMP results in both annual reports (quartz and water licence) to improve ease of finding information.
Adequacy of the 2018 AMP to meet the objectives and intent
<p>Recommendations for Action:</p> <ul style="list-style-type: none"> ▪ Add statement to clarify the unacceptable risk or impact to be avoided. This information can be referenced later to indicate the unacceptable effect that is to be prevented with the defined threshold(s). Include a summary of the monitoring locations, schedule and parameters for each event and remove reliance on cross references. ▪ Update the AMP and/or supporting materials to include responsible persons or positions, reporting structure, and training requirements. ▪ Clearly identify frequency and/or methods for data analysis.

- Include thresholds that apply a stepwise escalation of actions to prevent unacceptable effects.
- Include reporting requirements for responses taken and follow-up to confirm responses have adequately addressed the issue.
- Ensure that reporting requirements meet the timelines specified in licenses and authorizations.

Opportunities for Improvement:

- Include a summary of the monitoring locations, schedule and parameters for each event and remove reliance on cross references.
- Include in the AMP the triggers for the EQWin database and how the tool is being used for analysis.

Reliability and integrity of information

Recommendations for Action:

- Identify the authors and reviewers for documents to demonstrate author expertise as well as a QA/QC process for document delivery.
- Include identification of responsible persons and training/credentials to increase data reliability in monitoring programs.
- Reference any supporting documents in a consistent manner.
- Identify location of supporting documentation which can be hard copy, electronic, or both.

Comparison of the 2020 AMP to the Yukon Guidelines

Recommendations for Action:

- Consider including the timelines for implementation of the AMP.
- Include clearer qualitative descriptions for some Events/AMIs.
- For Event 8 develop more details for the threshold.
- Define in the AMP thresholds with actions prior to exceedance of standards being realized (not when exceedance is determined).
- Improve turbidity monitoring by using a metering device or collection of samples for analysis (not visual observation).
- If not already in place, establish provisions for the 'Facility Designer' to avoid challenges or issues in implementation of the evaluation of results (for Event 6 & 7).
- Incorporate additional information for management responses, including actions that are stepwise commensurate with the level of risk (i.e., low, moderate, and high responses) (when developing MRPs).
- Process and timeline for routine reporting and annual AMP review should be developed and included.
- Create a summary statement outlining previous consultation and engagement that was conducted and used in the development of the 2020 AMP. The summary should include, for example, timelines and file location of correspondence.
- Reporting of exceedances or threshold tolerances being met (for example) should identify if First Nations, local communities, etc. will be contacted.

Opportunities for Improvement:

- A map or figure could be added to the AMP which would allow for a better understanding of the mine layout and location of key facilities.
- Where possible, include consistent use of headings (for presentation of information) for ease of interpretation (e.g., description, locations, monitoring requirements, specific thresholds, approaches to responses). Elaboration on specific management objectives to include consistent document references and updated plans (where available).

- Add more information on indicators in the 2020 AMP.
- Monitoring events found to be good or adequate could be strengthened by providing the location of any referenced documents.
- Revise events to remove the use of generic phrases and/or mitigations in the MRPs.
- If any future workshops are proposed, they should include anticipated timelines, objectives and ultimately the outcomes. A brief summary or table format for reference would be useful.

Ability of the 2020 AMP to meet water quality objectives

Recommendations for Action:

- Include context around the 'May to September' integration period.
- Complete a comparative review of the information provided in Tables 4-9 and 2-2 to ensure location accuracy, intent and objectives.
- Review Event 12 and the 2020 Monitoring, Surveillance and Reporting Plan for validity of KV-41.

Opportunities for Improvement:

- If not already established, consider the creation of a MOU between involved parties.
- Use numerical values rather than a generic reference to CCME or BCMoE WQOs.

5. CLOSURE

Alexco Keno Hill Mining Corporation (AKHM) retained Morrison Hershfield to conduct the work described in this report, and this report has been prepared solely for this purpose.

This document, the information it contains, the information and basis on which it relies, and factors associated with implementation of suggestions contained in this report are subject to changes that are beyond the control of the authors. The information provided by others is believed to be accurate and may not have been verified.

Morrison Hershfield does not accept responsibility for the use of this report for any purpose other than that stated above and does not accept responsibility to any third party for the use, in whole or in part, of the contents of this document. This report should be understood in its entirety, since sections taken out of context could lead to misinterpretation.

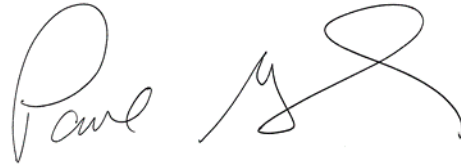
We trust the information presented in this report meets AKHM's requirements. If you have any questions or need addition details, please do not hesitate to contact one of the undersigned.

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**ATTACHMENT 2: ADAPTIVE MANAGEMENT PLAN, ANNOTATED TABLE OF CONTENTS,
ALEXCO KENO HILL MINING CORP. OCTOBER 2021**



KENO HILL SILVER DISTRICT MINING OPERATIONS

ADAPTIVE MANAGEMENT PLAN

ANNOTATED TABLE OF CONTENTS

October 2021

Prepared by:

ALEXCO KENO HILL MINING CORP.

DOCUMENT REVISIONS

Date	Section	Summary of Changes

DRAFT

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1. INTRODUCTION

2. PROJECT CONTEXT

2.1. OVERVIEW OF MINE SITE

<Insert Site Description section, including figures, allowing for better understanding of mine layout and location of key facilities.>

2.2. PROJECT ACTIVITIES

2.3. REGULATORY CONTEXT

2.4. ADAPTIVE MANAGEMENT HISTORY

2.5. LINKAGES TO OTHER ENVIRONMENTAL MANAGEMENT PROGRAMS

<All linked environmental management plans will be updated to correspond with the revised AMP by Annual report deadline.>

3. ADAPTIVE MANAGEMENT PLAN APPROACH

3.1. GOALS AND OBJECTIVES

<Event Descriptions -Consider adding statements to clarify the unacceptable risk or impact to be avoided. This information can be referred to later in the AMP to indicate the unacceptable effect that is being prevented with the defined threshold(s)>

<Monitoring Requirements and Locations – Update AMP and/or supporting materials to include responsible persons or positions, reporting structure and training requirements. Clearly identify frequency and/or methods for data analysis. Include a summary of the monitoring locations, schedule and parameters for each event and remove reliance on cross references. Include in the AMP the triggers for the EQWin database and how the tool is being used for analysis>

<Thresholds – Include thresholds that apply a stepwise escalation of actions to prevent unacceptable effects>

<Responses – Incorporate stepwise thresholds and corresponding responses to be commensurate with the severity and risk. Include reporting requirements for responses taken and follow-up to confirm responses have adequately addressed the issue. Ensure that reporting requirements meet the timelines specified in licences and authorizations>

<Reporting - Identify the authors and reviewers for documents to demonstrate author expertise as well as a QA/QC process for document delivery. Include identification of responsible persons and training/credentials to increase data reliability in monitoring programs. Reference any supporting documents in a consistent manner. Identify location of supporting documentation which can be hard copy, electronic, or both.>

3.2. APPROACH

<Process and timeline for routine reporting and annual AMP review.

Consider including the timelines for implementation of the AMP>

3.3. SUMMARY OF ADAPTIVE MANAGEMENT INITIATIVES (AMIs)

<Where possible, include consistent use of headings (for presentation of information) for ease of interpretation (e.g., description, locations, monitoring requirements, specific thresholds, approaches to responses).>

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Table 3-1: Adaptative Management Plan Summary

Description	Narrative	Indicator	Trigger and Action Level	Monitoring Requirements	Evaluation Monitoring Results	Development MRP	AMI Reporting
1.	CHANGE IN WATER QUALITY OR QUANTITY						
2.	N-AML WASTE ROCK SEEPAGE OR TAILINGS EXHIBIT AML						
3.	SLUDGE STORAGE AREA EFFECTIVENESS COMPROMISED						
4.	PHYSICAL INSTABILITIES						
5.	SITE SECURITY COMPROMISED						
6.	HIGH PORE PRESSURE UNDERNEATH DSTF						
7.	SIGNIFICANT EROSION OF EXPOSED DSTF SURFACES						
8.	EROSION AT THE DISTRICT MILL OR FLAME & MOTH DISCHARGE SITES						
9.	TRANSPORT OF SEDIMENTS FROM BIRMINGHAM DISCHARGE, MILL POND DISCHARGE AREA, OR FLAME & MOTH DISCHARGE AREAS						
10.	LARGE DIFFERENTIAL SETTLEMENTS AT DSTF						
11.	LARGE DIFFERENTIAL SETTLEMENTS FROM DSTF TO STORMWATER COLLECTION POND						
12.	EXCEEDANCE OF WATER QUALITY OBJECTIVES IN RECEIVING ENVIRONMENT						
13.	IDENTIFICATION OF GROUNDWATER QUALITY IMPACT WITHIN THE KENO HILL SILVER DISTRICT MINING OPERATION						
14.	FUGITIVE DUST RESULTS IN THE EXCEEDANCE OF AMBIENT AIR QUALITY STANDARDS AND/OR METAL GUIDELINES						
15.	ATTENUATION OF CONSTITUENTS IN THE FLAME & MOTH DISCHARGE TO CRISTAL CREEK OR BIRMINGHAM DISCHARGE TO NO CASH CREEK, DOES NOT PERFORM AS PREDICTED						

3.4. CONSULTATION AND ENGAGEMENT

<Create a summary statement outlining previous consultation and engagement that was conducted and used in the development of the 2020 AMP. The summary should include for example, timeline and file location of correspondence.>

4. ADAPTIVE MANAGEMENT INITIATIVES

4.1. AMI #1 – CHANGE IN WATER QUALITY OR QUANTITY

4.1.1. *Description of Specific AMI*

<Description of AMI - Elaborate on specific management objective in description of AMI. >

4.1.2. *Narrative Response*

4.1.3. *Indicators*

4.1.4. *Triggers and Action Levels*

4.1.5. *Monitoring Requirements*

<Monitoring – Identify discharge points on figure>

4.1.6. *Evaluation of Monitoring Results*

4.1.7. *Development of Management Response Plan*

4.1.8. *AMI Reporting*

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

<AMI Reporting - Response and reporting could be strengthened by identifying what agency/ department the inspector works for any what the reporting mechanism is (phone, email, or both). Rather than responding in a 'timely manner', a response time should be identified. (e.g., Within 24 hours of implementation)>

4.2. AMI #2 – N-AML WASTE ROCK SEEPAGE OR TAILINGS EXHIBIT AML

4.2.1. *Description of Specific AMI*

<Description of AMI - Elaborate on specific management objective in description of AMI>

4.2.2. *Narrative Response*

4.2.3. Indicators

4.2.4. Triggers and Action Levels

4.2.5. Monitoring Requirements

<Monitoring - Provide location of referenced documents>

4.2.6. Evaluation of Monitoring Results

4.2.7. Development of Management Response Plan

4.2.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

4.3. AMI #3 – SLUDGE STORAGE AREA EFFECTIVENESS COMPROMISED

4.3.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

<Description of AMI – Provide confirmation of approved/ dated plan>

4.3.2. Narrative Response

4.3.3. Indicators

4.3.4. Triggers and Action Levels

4.3.5. Monitoring Requirements

4.3.6. Evaluation of Monitoring Results

4.3.7. Development of Management Response Plan

4.3.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

4.4. AMI #4 – PHYSICAL INSTABILITIES

4.4.1. *Description of Specific AMI*

<Description of AMI - Elaborate on specific management objective in description of AMI>

4.4.2. *Narrative Response*

4.4.3. *Indicators*

4.4.4. *Triggers and Action Levels*

4.4.5. *Monitoring Requirements*

4.4.6. *Evaluation of Monitoring Results*

4.4.7. *Development of Management Response Plan*

<Developing Management Response Plans – incorporate additional information for management responses, including actions that are stepwise commensurate with the level of risk (ie. Low, moderate, and high response) when developing MRPs>

4.4.8. *AMI Reporting*

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

4.5. AMI #5 – SITE SECURITY COMPROMISED

4.5.1. *Description of Specific AMI*

<Description of AMI - Elaborate on specific management objective in description of AMI>

4.5.2. *Narrative Response*

4.5.3. *Indicators*

4.5.4. *Triggers and Action Levels*

<Trigger and Action levels – thresholds not clearly established or presented. Reference to stand- alone documentation is used which does not provide enough information to support the AMP.

Develop threshold where action is taken prior to exceedance of standard being realized.>

4.5.5. Monitoring Requirements

<Monitoring - Subjective ...depends upon experience, Provide detail on locations and clearer descriptions of available information >

4.5.6. Evaluation of Monitoring Results

<Evaluation of Monitoring Results – clear timelines for evaluation of results are not provided. Response sequence is poorly described. Timelines and ‘close-out’ processes are not clearly identified.>

4.5.7. Development of Management Response Plan

4.5.8. AMI Reporting

4.6. AMI #6 – HIGH PORE PRESSURE UNDERNEATH DSTF

4.6.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

<Description of AMI – Check that supporting document is consistently referenced and reference made to any updated plans>

<EBA 2010 has been updated in 2020>

4.6.2. Narrative Response

<Narrative Response - Inconsistent reference to supporting documentation makes it difficult to track and find information specific to the 2020 AMP events.>

4.6.3. Indicators

4.6.4. Triggers and Action Levels

<Trigger and Action levels – thresholds not clearly established or presented. Reference to stand- alone documentation is used which does not provide enough information to support the AMP.

Develop threshold where action is taken prior to exceedance of standard being realized.>

4.6.5. Monitoring Requirements

<Monitoring - Describe monitoring indicators, frequency. Provide location of referenced documents.>

4.6.6. Evaluation of Monitoring Results

<Evaluation of Monitoring Results – There are generic references (eg, apply appropriate measures, visual observation) provided here. The extracted tables provide information that makes comparison, evaluation of results or effectiveness monitoring difficult to achieve.>

<Evaluation of Monitoring Results – Establish provisions for Facility Designer to avoid challenges or issues in implementation of the evaluation of results>

4.6.7. Development of Management Response Plan

<Developing Management Response Plans – incorporate additional information for management responses, including actions that are stepwise commensurate with the level of risk (ie. Low, moderate, and high response) when developing MRPs.>

Insufficient detail to clearly understand the MRP. Re-evaluate to include descriptions of low, moderate and high response actions.

Revise event to remove the use of any generic phrases and mitigations in the MRP such as ‘appropriate runoff, erosion or sediment control measures>

4.6.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments>

4.7. AMI #7 – SIGNIFICANT EROSION OF EXPOSED DSTF SURFACES

4.7.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

<Description of the AMI - Check that supporting document is consistently referenced and reference made to any updated plans.>

4.7.2. Narrative Response

4.7.3. Indicators

4.7.4. Triggers and Action Levels

<Trigger and Action levels – thresholds not clearly established or presented. Reference to stand- alone documentation is used which does not provide enough information to support the AMP.

Develop threshold where action is taken prior to exceedance of standard being realized.>

4.7.5. Monitoring Requirements

<Monitoring – Describe monitoring indicators, frequency. Provide locations of referenced documents. Monitoring of turbidity should be measured by metering devices or collection of samples for analysis.>

4.7.6. Evaluation of Monitoring Results

<Evaluation of Monitoring Results – There are generic references (eg, apply appropriate measures, visual observation) provided here. The extracted tables provide information that makes comparison, evaluation of results or effectiveness monitoring difficult to achieve.>

<Evaluation of Monitoring Results – Establish provisions for the facility designer (or staff) to avoid challenges or issues in implementation of the evaluation of results.>

4.7.7. Development of Management Response Plan

<Developing Management Response Plans – incorporate additional information for management responses, including actions that are stepwise commensurate with the level of risk (ie. Low, moderate, and high response) when developing MRPs.>

Insufficient detail to clearly understand the MRP. Re-evaluate to include descriptions of low, moderate and high response actions.

Revise event to remove the use of any generic phrases and mitigations in the MRP such as ‘appropriate runoff, erosion or sediment control measures>

4.7.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.>

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

4.8. AMI #8 – EROSION AT THE DISTRICT MILL OR FLAME & MOTH DISCHARGE SITES

4.8.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

4.8.2. Narrative Response

4.8.3. Indicators

<Indicators - Threshold described in moderate detail but trigger not clearly described>

<Indicators - Clearly define indicators and provide reference to any documentation>

4.8.4. Triggers and Action Levels

<Trigger and Action levels – currently subjective, provide more detail. Develop threshold where action is taken prior to exceedance of standards being realized (not when exceedance is determined)>

4.8.5. Monitoring Requirements

<Monitoring - Provide location of referenced document. Describe monitoring indicators, and frequency.>

4.8.6. Evaluation of Monitoring Results

<Evaluation of Monitoring Results – clear timelines for evaluation of results are not provided, and response sequence is poorly described.

Identify close out processes.>

4.8.7. Development of Management Response Plan

<Developing Management Response Plans – incorporate additional information for management responses, including actions that are stepwise commensurate with the level of risk (ie. Low, moderate, and high response) when developing MRPs>

4.8.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

4.9. AMI #9 – TRANSPORT OF SEDIMENTS FROM BIRMINGHAM DISCHARGE, MILL POND DISCHARGE AREA, OR FLAME & MOTH DISCHARGE AREAS

4.9.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

4.9.2. Narrative Response

<Narrative response - Threshold described in moderate detail but trigger not clearly described.>

4.9.3. Indicators

4.9.4. Triggers and Action Levels

4.9.5. Monitoring Requirements

<Provide location of referenced document>

4.9.6. Evaluation of Monitoring Results

<Evaluation of Monitoring Results – clear timelines for evaluation of results are not provided, there are generic references to supporting documents, and response sequence is poorly described.

Could be strengthened by offering end-point conclusions to any repair or remediation. Although event 9 offers “monitoring for continued erosion or degradation” it doesn’t offer a measurable activity or endpoint.>

4.9.7. Development of Management Response Plan

4.9.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.>

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

4.10. AMI #10 – LARGE DIFFERENTIAL SETTLEMENTS AT DSTF

4.10.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

<Description of AMI – Check that documents are consistently referenced and reference is made to any updated plans>

<Reference document EBA 2010 has been updated (2020) and the path to updated information is not clear>

4.10.2. Narrative Response

<Narrative Response - Inconsistent reference to supporting documentation makes it difficult to track and find information specific to the 2020 AMP events.>

4.10.3. Indicators

<Indicators – Only part of the EBA 2010 manual is included in AKHM's Monitoring Surveillance and Reporting Plan (Oct 2020) which makes cross referencing problematic. Provide more information on indicators in the AMP>

4.10.4. Triggers and Action Levels

<Trigger and Action levels – thresholds not clearly established or presented. Reference to stand-alone documentation is used which does not provide enough information to support the AMP.>

Develop threshold where action is taken prior to exceedance of standard being realized.>

<Correction - Water licence was renewed to QZ18-044>

4.10.5. Monitoring Requirements

<Monitoring – Describe monitoring indicators, frequency.>

4.10.6. Evaluation of Monitoring Results

<Evaluation of Monitoring Results – Establish provisions for the Facility Designer to avoid challenges or issues in implementation of the evaluation of results.>

<Evaluation of Monitoring Results – clear timelines for evaluation of results are not provided, there are generic references to supporting documents. And response sequence is poorly described. Identify close out processes.>

4.10.7. Development of Management Response Plan

<Developing Management Response Plans – incorporate additional information for management responses, including actions that are stepwise commensurate with the level of risk (ie. Low, moderate, and high response) when developing MRPs.

Insufficient detail to clearly understand the MRP. Re-evaluate to include descriptions of low, moderate and high response actions.

Revise event to remove the use of any generic phrases and mitigations in the MRP such as ‘appropriate runoff, erosion or sediment control measures>

4.10.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.

Within the AMP, Reporting is not mentioned for event 10. There is a high risk that an occurrence goes unreported or is lost when the reporting body is ambiguous. In addition, this reporting procedure appears to be based on an operating plan developed in 2010 which may not be up to date.>

4.11. AMI #11 – LARGE DIFFERENTIAL SETTLEMENTS FROM DSTF TO STORMWATER COLLECTION POND

4.11.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

4.11.2. Narrative Response

4.11.3. Indicators

<Indicators – Only part of the EBA 2010 manual is included in AKHM's Monitoring Surveillance and Reporting Plan (Oct 2020) which makes cross referencing problematic. Provide more information on indicators in the AMP>

4.11.4. Triggers and Action Levels

<Trigger and Action levels – thresholds not clearly established or presented. Reference to stand-alone documentation is used which does not provide enough information to support the AMP.

Develop threshold where action is taken prior to exceedance of standard being realized.>

4.11.5. Monitoring Requirements

<Monitoring – Describe monitoring indicators, frequency. Provide locations of referenced plans.>

4.11.6. Evaluation of Monitoring Results

< Evaluation of Monitoring Results – clear timelines for evaluation of results are not provided, there are generic references to supporting documents. And response sequence is poorly described. Identify close out processes.>

4.11.7. Development of Management Response Plan

<Developing Management Response Plans – incorporate additional information for management responses, including actions that are stepwise commensurate with the level of risk (ie. Low, moderate, and high response) when developing MRPs.

Insufficient detail to clearly understand the MRP. Re-evaluate to include descriptions of low, moderate and high response actions.

Revise event to remove the use of any generic phrases and mitigations in the MRP such as ‘appropriate runoff, erosion or sediment control measures>

4.11.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.

Within the AMP, Reporting is not mentioned for event 10. There is a high risk that an occurrence goes unreported or is lost when the reporting body is ambiguous. In addition, this reporting procedure appears to be based on an operating plan developed in 2010 which may not be up to date.>

4.12. AMI #12 – EXCEEDANCE OF WATER QUALITY OBJECTIVES IN RECEIVING ENVIRONMENT

4.12.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

<Include context around the ‘May to September’ integration period>

<Complete a comparative review of the AMP WQOs table and the WQOs table in the Monitoring and Surveillance Reporting Plan. Incorporate KV-41 as appropriate. Use numerical values rather than a generic reference to CCME or BCMoE WQOs>

4.12.2. Narrative Response

4.12.3. Indicators

4.12.4. Triggers and Action Levels

4.12.5. Monitoring Requirements

4.12.6. Evaluation of Monitoring Results

4.12.7. Development of Management Response Plan

4.12.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

<AMI Reporting - Response and reporting could be strengthened by identifying what agency/ department the inspector works for any what the reporting mechanism is (phone, email, or both). Rather than responding in a 'timely manner', a response time should be identified. (eg. Within 24 hours of implementation)>

4.13. AMI #13 – IDENTIFICATION OF GROUNDWATER QUALITY IMPACT WITHIN THE KENO HILL SILVER DISTRICT MINING OPERATION

4.13.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

4.13.2. Narrative Response

4.13.3. Indicators

4.13.4. Triggers and Action Levels

4.13.5. Monitoring Requirements

<Monitoring - Provide location of referenced document>

4.13.6. Evaluation of Monitoring Results

4.13.7. Development of Management Response Plan

4.13.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

<AMI Reporting - Response and reporting could be strengthened by identifying what agency/ department the inspector works for any what the reporting mechanism is (phone, email, or both). Rather than responding in a 'timely manner', a response time should be identified. (eg. Within 24 hours of implementation)>

4.14. AMI #14 – FUGITIVE DUST RESULTS IN THE EXCEEDANCE OF AMBIENT AIR QUALITY STANDARDS AND/OR METAL GUIDELINES

4.14.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

4.14.2. Narrative Response

4.14.3. Indicators

4.14.4. Triggers and Action Levels

4.14.5. Monitoring Requirements

4.14.6. Evaluation of Monitoring Results

4.14.7. Development of Management Response Plan

<Developing Management Response Plans – incorporate additional information for management responses, including actions that are stepwise commensurate with the level of risk (ie. Low, moderate, and high response) when developing MRPs>

4.14.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.>

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

4.15. AMI #15 – ATTENUATION OF CONSTITUENTS IN THE FLAME & MOTH DISCHARGE TO CRISTAL CREEK OR BIRMINGHAM DISCHARGE TO NO CASH CREEK, DOES NOT PERFORM AS PREDICTED

4.15.1. Description of Specific AMI

<Description of AMI - Elaborate on specific management objective in description of AMI>

4.15.2. Narrative Response

4.15.3. Indicators

4.15.4. Triggers and Action Levels

<Trigger and Action levels – thresholds not clearly established or presented. Reference to stand- alone documentation is used which does not provide enough information to support the AMP.>

Develop threshold where action is taken prior to exceedance of standard being realized.>

4.15.5. Monitoring Requirements

<Provide location of referenced document>

<Identify discharge points on figure>

4.15.6. Evaluation of Monitoring Results

<Evaluation of Monitoring Results – clear timelines for evaluation of results are not provided, there are generic references to supporting documents. And response sequence is poorly described. Identify close out processes.>

4.15.7. Development of Management Response Plan

4.15.8. AMI Reporting

<AMI Reporting – Sufficient detail is not provided to understand reporting requirements for monitoring, reporting bodies, notifications etc.>

In addition, references to supporting documents should be consistent and clearly presented.

Where monitoring is discussed, describe who results should be reported to and when – identify processes and appropriate departments.>

5. ANNUAL REPORTING AND REVIEW

<Consider clarifying the language (in annual reports) to use terminology from the AMP (ie. Threshold, response) to indicate status of any events or actions taken by AKHM. For example, there were no events triggered during the 2020 reporting period>

<Consider presenting AMP results in both annual reports (quartz and water licence) to improve transparency>

<Identify the authors and reviewers for documents to demonstrate author expertise as well as a QA/QC process for document delivery. Include identification of responsible persons and training/credentials to increase data reliability in monitoring programs. Reference any supporting documents in a consistent manner. Identify location of supporting documentation which can be hard copy, electronic, or both.>

6. ENGAGEMENT PLAN

<If any future workshops are proposed they should include anticipated timelines, objectives, and ultimately the outcomes. A brief summary or table format for reference would be useful.>

Reporting of exceedances or threshold tolerances being met (for example) should identify if First Nations, local communities etc. will be contacted>

7. REFERENCES