



## MEMORANDUM

**To:** Stk'emplupsemc te Secwepemc Nation   **Date:** 7 November 2016

**From:** KGHM Ajax Mining Inc.

**CC:** B.C. Environmental Assessment Office, Canadian Environmental Assessment Agency

**Subject:** Response to Ajax Project Application/EIS Panel Report:

An assessment of the cumulative effects of land use and management in SSN by B. Wilson, M. Carlson, M. Iverson, J. Straker, S. Sharpe.

ANTELOPE BRUSH HABITAT RESTORATION: DISTRICT LOT 953 (SIBCO) by David Polster.

### 1. INTRODUCTION

The KGHM Ajax Project Environmental Assessment Application/Environmental Impact Statement (the Application/EIS) for a Comprehensive Study was formally submitted for review to the BC Environmental Assessment Office and the Canadian Environmental Assessment Agency on January 18, 2016. The Stk'emplupsemc te Secwepemc Nation (SSN) provided KGHM Ajax (KAM) with comments associated with reports prepared by technical experts and provided to SSN in support of the SSN Panel Hearings which occurred May 2, 2016 through May 6, 2016. This memorandum documents the response for specific recommendations SSN- U, V, W, X, Y, and BB based on the report: An assessment of the cumulative effects of land use and management in SSN. Critical components of this assessment include:

- Assessment over the entire SSN traditional territory, as well as the Ajax Regional Study Area (RSA) where appropriate;
- Referencing current and forecast future conditions against ranges of natural variation approximating pre-contact conditions.

This report provides a summary of the undertakings, findings and any recommendations emerging from this work for consideration by the SSN Review Panel in its deliberations regarding the proposed KGHM Ajax project within the SSN Traditional Territory.

## 2. COMMENTS FOR RESPONSE

This memo addresses the recommendations submitted by the SSN that are based upon the following reports:

- *An Assessment of the Cumulative Effects of Land Use and Management in SSN, ALCES Landscape & Land Use Ltd., 2016*
- *Antelope Brush Habitat Restoration, David Polster, 2015*

The specific recommendations of the SSN are as follows:

Report Specific Recommendation SSN-U: SSN recommends that the proponent conduct additional cumulative effects modelling utilizing the ALCES model including updating inputs with adequate TEM baseline data and impact inputs for at minimum indicators (with special attention for red and blue listed species) currently included in the Application/EIS to pre- contact times in order to determine ranges in natural variation to inform the determination of appropriate significance levels.

Report Specific Recommendation SSN-V: Cumulative modelling shows that the SSN traditional territory is over allocated and 25% of the territory has been impacted through restrictive tenures, the majority which are in the Kamloops area and valley- this cumulatively with impacts from fire management etc. indicate that the grasslands and ecosystem in the project area are significantly reduced in both quality and quantity from pre- contact- SSN recommends that KGHM review and respond to the report conclusions regarding indicators identified in the ALCES report including reviews of significance findings and residual impacts.

Report Specific Recommendation SSN-W: SSN recommends that KGHM review and revise the assessment on the SSN's rights to fish and hunt including a description of the overall declines in protein availability for SSN members throughout their territory and how this impacts the SSN's ability to harvest simply in other areas.

Report Specific Recommendation SSN-X: SSN has previously and again requests that the proponent conduct a comparative analysis within the RSA and LSA to determine differing levels of SSN access and how this will change over the course of the proposed project and recommends utilization of the ALCES model to visually map comparisons for the SSN final recommendations cycle.

Report Specific Recommendation SSN-Y: Cumulative impacts on water quality in lower Peterson Creek on Coho and fish habitat should be examined and reported.

Report Specific Recommendation SSN-BB: SSN recommends that the proponent include in its assessment the current and proposed fire management regime, how fire will be used in the restoration of the grasslands in the area and how the mine site and project will impact the ability of

the SSN to manage this area utilizing fire management regime targeted at restoring the ecosystem and traditional and medicinal plants.

### 3. RESPONSES

The report completed by ALCES Landscape and Land Use Ltd. (ALCES) provides the results from a cumulative effects assessment of for the SSN traditional territory including potential effects contributed by the Ajax Project. ALCES conducted the assessment by application of a proprietary simulation model. The ALCES simulation model was used to simulate ecosystems and forest fires during precontact conditions, and current and future effects of key human land uses, including mining, forest harvest, road construction, rural and urban residential growth, and recreation. The report states that the analysis indicates substantial cumulative effects from land-management decisions and use in the SSN traditional territory from precontact to present. The report states that “Although the proposed Ajax project is relatively small, it is an additional stressor on the territory’s ecosystems and the organisms that depend on them, and its development would cause further loss to key SSN indicators, particularly grasslands and related species”. Cumulative effects simulations were carried out for five key indicators selected by the SSN including land dispossession and tenure, grasslands quantity and quality, mule deer, fish and an index of animal protein sources.

KAM has provided the following supplemental submissions to EAO/CEAA that are relevant to the concerns raised:

- *0720\_KAM\_Mitigation Hierarchy and Offsetting*: includes additional grassland offsetting measures and areas and mitigation for species of conservation concern
- *0706\_KAM\_Water Quality Downstream Cumulative Effects*: includes additional cumulative effects analysis of water quality in Lower Peterson Creek
- *0706\_KAM\_Fish Habitat and Fishery Offsetting Plan*: includes proposed habitat enhancement for Coho salmon in Lower Peterson Creek

In addition to these supplemental submissions to EAO/CEAA, KAM has received similar comments through the public comment period and is responding in the Public Comment Response Report.

#### *SSN-U and SSN-V: Cumulative Effects Assessment*

KAM has reviewed the ALCES (2016) report with particular attention to the same indicators that were identified as Valued Components (VCs) and assessed in the KGHM Ajax Project Application/EIS i.e. fish, mule deer, moose, sharp-tailed grouse, and grasslands. Although no additional cumulative effects modelling was conducted, the information provided in the report and ALCES modelling conclusions were considered in relation to the information presented in the Application/EIS, the cumulative effects assessments for those VCs, and additional mitigation that has been identified as part of the regulatory and public review of the Application/EIS. Below is a response to the ALCES (2016) report conclusions and a review of the Application significance findings and residual impacts.

Habitat effectiveness indices (HEIs) were developed and modelled for mule deer, moose, and sharp-tailed grouse from 1910 to 2010 and forecasted to 2060 (ALCES 2016). Due to forest succession and

maturation of forest stand age between 2010 and 2060, the HEIs for mule deer and moose were both modelled to improve to within 4.5% and 10.5% of the lower range of natural variation identified in the report at the SSN Traditional Territory scale. Habitat is expected to improve for both mule deer and moose in future decades according to the ALCES modelling due to more availability of older forests. Similar trends are stated to occur at the scale of the Ajax RSA, however, they are not indicated quantitatively but rather shown in figures.

In Chapter 6.17 Mammals, of the Application/EIS, no residual impact of habitat loss due to the Project was identified for moose due to the lack of critical winter range within the Local Study Area (LSA). Therefore, habitat loss was not carried forward for moose into the cumulative effects assessment. A Not Significant (Moderate) effect of habitat loss for mule deer was identified within the LSA. However, the loss of critical deer winter range within the Regional Study Area (RSA) as a result of the Project represents only 0.4% of the critical deer winter range (up to 154.4 ha out of 37,255 ha) and 0.7% of the draft mule deer winter range planning cells (up to 234.4 of 35,912 ha) identified in the RSA. As these areas are relatively small and the majority of forested areas throughout the RSA have no proposed development on them, a cumulative residual effect for habitat loss on mule deer due to the Project was not identified. The conclusions of the ALCES (2016) report which indicate an improvement in both moose and mule deer habitat (i.e. the HEIs) in future decades for do not provide evidence that the conclusions of the Application/EIS for mule deer and moose should be changed.

The ALCES (2016) report indicates that degradation of grassland habitat appropriate for the Columbian sharp-tailed grouse (provincially blue-listed) will continue into the future due in part to fire suppression and cattle grazing. The ALCES modelling indicates that the sharp-tailed grouse HEI is currently 35% below the estimated range of natural variation and will continue to decline until 2060 to 41% below the average range of natural variation. The cumulative effects assessment for sharp-tailed grouse in the Application/EIS considered the residual effects of habitat loss and sensory disturbance. The conclusion was a Not Significant (minor) cumulative effect. Additional mitigation for grassland enhancement and restoration on Sugarloaf Ranch lands has been identified and outlined in the memo 0720\_KAM\_Mitigation Hierarchy and Offsetting. The total area identified as potentially suitable for restoration treatments is 2,093 ha. Considering this additional mitigation which will improve grassland habitat which is also sharp-tailed grouse habitat and the commitment to replace lost leks at a ratio of 2:1, the conclusion of the cumulative effects assessment for sharp-tailed grouse would still remain Not Significant even with consideration of the ALCES modelling. Research has indicated that sharp-tailed grouse will use replacement leks if they occur in fairly close proximity to existing leks (Baydack 1986 and Baydeck and Hein 1987). The additional grassland restoration and enhancement that has been identified on Sugarloaf Ranch lands is anticipated to improve the grassland condition within the Ajax RSA and would likely also improve the sharp-tailed grouse HEIs at the same scale. A considerable amount of suitable habitat exists within the RSA to the southeast of the Project, as known lek locations occur in this area (Howie 2005). The RSA contains 14 leks of which 11 were active in 2014 (Section 6.16.6.5 - Evaluation of Significance of Residual Cumulative Effects). The area southeast of the Project is composed of large

patches of grassland that have not been heavily disturbed and do not have any anticipated projects/activities.

The methodology used in ALCES (2016) cumulative effects modelling for grasslands and fish habitat used a different approach than comparisons to a range of natural variation. Instead, a reference condition approach was used that assigned pre-contact conditions a value of 1. This approach does not take into account natural variation that would exist without anthropogenic influences and is considered conservative. Both grassland quantity and quality were investigated as part of the ALCES model.

Modelling indicated that grassland quantity has been reduced by 14% at the scale of the SSN Traditional territory and will decline a further 3% by 2060. At the scale of the Ajax RSA, grassland quantity has been reduced by 13% and will decline by another 6% by 2060. It is assumed that the ALCES modelling did not take into account the grassland reclamation that will be ongoing throughout Operations and will be a focus of the Decommissioning and Closure period after the 23 years of Operations. The ALCES modelling indicated that grassland quality or integrity has declined from a value of 1 to a value of 0.33 at the scale of the SSN Traditional Territory. This is modelled to decline to 0.32 by 2060. Integrity at the scale of the Ajax RSA was modelled to be 0.28 with further decline to 0.26 by 2060. An aggregate measure of grassland quantity and quality was also presented in the ALCES (2016) report although the methodology for combining the two metrics was not described.

A grasslands condition assessment was conducted as part of the Ajax baseline studies and used similar methodology to the ALCES (2016) modelling for determining grassland quality (i.e. Delesalle et al. 2009) within the LSA (Appendix 6.8-A). Across 109 grassland condition plots the average score was 38 out of 100 (moderately altered) or 0.38 out of 1 to put it into a comparable scale to the ALCES (2016) modelling; however, there were some areas with average scores as high as 0.74 (slightly altered; Table 7-6 in Appendix 6.8-A). The average score within the LSA is similar to the ALCES modelling as the scale of the SSN Traditional Territory and higher than the modelling for the Ajax RSA.

As described in the Section 6.10.4.2 of the Application/EIS – Effects on Grasslands, between 1,002 ha and 1,777 ha of grassland habitat will be lost as a result of Project infrastructure footprints and disturbance area. A range is provided because some grassland areas that are disturbed may not be lost. In the Application/EIS, KAM has committed to on-site restoration as part of closure and reclamation planning for the Project, with the objectives of having grassland ecosystems that support end land uses of agriculture and wildlife habitat, while providing access and ability for SSN to carry out traditional activities (see Section 11.26.2.1 –End Land Use Objectives of the Application/EIS, and the response to recommendation SSN-DD related to the research from Ben Collins).

Restoration would occur progressively over the mine life. A total of 1,325 ha or restoration is anticipated based on the infrastructure footprint for the EA. Of the total area that is restored, 69% will be grassland and herbaceous/sagebrush grassland.

In response to comments received from GCC and from reviewers on the government's technical working group, KAM has acknowledged the time lag between grassland loss associated with

Construction/Operation, and the planned reclamation. To address this, additional grassland restoration treatments are proposed on Sugarloaf Ranch lands to improve grassland extent and condition. The total area identified as potentially suitable for restoration treatments is 2,093 ha which will result in net gain of grasslands. These are further described in the memo 0720\_KAM\_Mitigation Hierarchy and Offsetting.

Cumulative grassland habitat loss was assessed as a Not Significant (moderate) effect. Within the context of the additional modelling information from the ALCES (2016) report, which aligns closely with the grassland baseline data presented in Appendix 6.8-A and Chapter 6.10 Grasslands, and with consideration of the additional 2,093 ha of grasslands that have been identified for restoration, KAM maintains that the conclusions of the Application/EIS are appropriate.

KAM maintains that an adequate project-level cumulative effects assessment has been completed for the purposes of assessing the effects of the Ajax Project. KAM appreciates SSN's broader concerns about cumulative effects in the SSN traditional territory, and the back-dated ALCES modelling provides an interesting tool for further analysis and evaluation. KAM is committed to work with SSN to evaluate specific proposals for advancing grasslands restoration and mine reclamation efforts to reduce cumulative effects.

#### **SSN-W: Fishing and Hunting Rights**

KAM appreciates the additional information provided in the ALCES report with regards to quantifying how the combined effects of habitat degradation, extirpation, and land dispossession have affected SSN's ability to access protein sources. The findings of this assessment are consistent with KAM's own conclusions in the Application/EIS.

In Section 8.5 (Current Use of Lands and Resources for Traditional Purposes), the effects assessment identified that the Project could affect hunting, trapping, gathering, and ceremonial/cultural activities through changes in the availability of harvested species, the quality of harvests (and potential implications for human health), ability to access harvesting areas, or through sensory disturbances (e.g., noise, visibility of the Project) that could affect the experience of these activities, particularly associated with the Hunting Blind Complex, Goose Lake, Jacko Lake, and Peterson Creek. With the implementation of mitigation measures, the residual effects of the Project on the SSN are expected to be Not Significant (Minor) for fishing and Not Significant (Moderate) for hunting, gathering, and ceremonial activities.

Cumulative effects are expected, and are largely related to the significant effects of past and present activities—including decades of ranching, mining, and private property. Residual cumulative effects in the Peterson Creek watershed are assessed to be Significant for hunting, gathering, and SSN ceremonial sites, and Not Significant (Moderate) for fishing. However, considering these effects and the influence of past and present developments, the Project represents a minor contribution to the cumulative effects that are already present.

Addendum #1 Aboriginal Economies presents an assessment of Project and Cumulative Effects on Income and Food Security. The assessment of cumulative effects acknowledges that approximately 65% of SSN traditional territory is affected by existing projects and activities. The Project will add to the loss of land and resources used by SSN for traditional purposes, although, most of the Project

area is private land and has already been affected by past activities. In the future, a large portion of SSN's traditional territory will continue to be affected by projects and activities and the Project will have a minor contribution to this effect. KAM will continue to facilitate access to the Project site in a safe manner for traditional purposes and support SSN on developing mitigation strategies to enhance traditional harvesting of country foods.

Therefore, while the ALCES report provides useful additional context and quantification, it does not change the conclusions of KAM's Application/EIS.

#### *SSN-X: SSN Access within LSA and RSA*

Section 8.5 (Current Use of Lands and Resources for Traditional Purposes) of the Application/EIS discusses how access would be affected by the Project around the Mine Site and the Peterson Creek Watershed, and how access effects would influence changes in the ability of the SSN use the land and resources for traditional purposes.

Regarding change in Access or Ability to Access or Use Fishing Areas, activities during the Construction, Operation, and Decommissioning and Closure phases may result in changes to access or the ability to access or use fishing areas include the following:

- There is a potential effect on access to Jacko Lake due to use of the existing road by Project vehicles. This has the potential to create delays on users accessing Jacko Lake via the boat launch (northwest side of Jacko Lake), which is currently the only way to access the lake.
- During Construction and Operation, safety zones will be enforced around the open pit during blasting periods, and will include restricted access to fishing areas (specifically Jacko Lake). Blasting is expected to be undertaken up to once per day. This will create a window of approximately 2 hours during which lake users will not be able to engage in activities within the specified blasting buffer area. Time is required before the blasting to clear the blasting buffer area of people and after the blasting to ensure that the blasting has been completed satisfactorily and that there are no hazards to people. According to the current mine plan, it is expected that during the first 13 years of operations this blasting buffer could extend across approximately the eastern half of the lake (Figure 8.5-8).
- During Construction, Operation, and Decommissioning and Closure, roads (a portion of Goose Lake Road) within the Mine Site will be closed affecting access. Access to Jacko Lake will continue although there will be modifications to the access road, and is proposed to be further south.
- During Construction, Operation, and Decommissioning and Closure, increased traffic generated by the Project could affect access as more time could be required to access fishing sites (Lac Le Jeune Road, Inks Lake Road). However traffic mitigation measures such as employee busing during construction and improvements to the Jacko Lake Road and intersection with Lac Le Jeune Road will mitigate this potential effect.
- Jacko Lake is a navigable body of water by small boat although both the inlet and outlet channels are not navigable. Some changes to navigability are expected from the loss of the northeast arm of the lake. Petersen Creek is not considered navigable due to its width, intermittent dry periods and the presence of Bridal Veil Falls at its eastern reaches. Goose

Lake is not considered a navigable lake. Goose Lake is located on private land, is very shallow (up to 1 m) and is limited with respect to inflow/outflow.

Regarding change in access or ability to access or use hunting areas, activities during the Construction, Operation, and Decommissioning and Closure phases may result in changes to access or the ability to access or use hunting areas include:

- During Construction and Operation, the Mine Site will not be accessible. Conditional access may be allowed during Decommissioning and Closure and Post-Closure.
- During Construction and Operation, safety zones, enforced around the open pit during blasting periods, will include restricted access to potential hunting areas (e.g., south shores of Jacko Lake).
- During Construction, Operation, Decommissioning and Closure, and Post-Closure, existing roads within the Mine Site will be closed (i.e., Goose Lake Road) which may affect access to hunting locations outside of the Mine Site but currently accessible via Goose Lake Road; and during Construction, Operation, and Decommissioning and Closure, increased traffic generated by the Project could affect access as more time could be required to access sites.

KAM is committed the following measures to mitigate effects on access:

- Development of an Access Management Plan (Section 11.21) in consultation with Aboriginal Groups to facilitate access to areas in the vicinity of the Mine Site;
- Development of an alternate road access to Jacko Lake to facilitate access to Jacko Lake area for harvesting;
- Development of an alternate parking lot to Jacko Lake to facilitate access to Jacko Lake area for harvesting;
- Provide appropriate signage indicating blasting times and restricted areas;
- Communicate with Aboriginal Groups regarding when blasting is likely to occur;
- Continue to facilitate Aboriginal harvesters safe access to ranch lands or grazing leases owned by KAM and not within the Project footprint;
- Reducing traffic by implementing the Transportation Management Plan (Section 11.20).

In KAM's opinion, the changes in access caused by the Project have been properly considered in the Application/EIS. KAM will continue to work with the SSN to develop an Access Management Plan to facilitate access to areas in the vicinity of the Mine Site.

#### **SSN-Y: Cumulative Effects Assessment on Lower Peterson Creek Water Quality**

The cumulative effects assessment included with the Application/EIS addressed water quality in the Thompson River, but did not explicitly consider lower Peterson Creek between site PC02 and the mouth. Additional analysis and assessment was undertaken for Lower Peterson Creek, taking into account cumulative inputs from sources such as urban runoff. The cumulative effects analysis has been expanded in two ways:

1. In the supplemental memo *0706\_KAM\_Historic Water Quality Data*, water quality data from the current and on-going sampling program (2007 to present) are compared to two different historical data sets collected for the historical Ajax Mine:

- Pre-mine water quality data (1986 – 1989 inclusive)
  - Post-mine water quality data (1991 – 2000 inclusive)
2. In the supplemental memo *0706\_KAM\_Water Quality Downstream Cumulative Effects*, cumulative effects are assessed in consideration of:
- the historical water quality analysis referenced above;
  - updated water quality model results;
  - data from two new surface water quality sites that were established in Peterson Creek, one below Bridal Veil Falls in Peterson Creek Park, and one near the mouth of Peterson Creek, downstream of the City of Kamloops; and
  - review and summary of relevant literature regarding urban runoff research in northern cities.

The assessment focused on the potential for synergistic or additive effects between Project residual effects (Category 1 and Category 2 parameters at PC02) with those associated with urban runoff (pollutants such as chloride from road salts, petroleum fuels, rubber from tire wear, and trace metals from wearing of car parts). Other effects of urban runoff such as changes to hydrology and increased sediment loading were not evaluated quantitatively, but were qualitatively considered in the interpretation of the data.

This work concluded that the cumulative residual effects of the Project on surface water quality in Lower Peterson Creek are not expected to be discernible from current conditions, and on that basis, there are no expected cumulative residual effects for surface water quality.

Also, KAM has updated the proposed fish habitat and fishery offsetting plan. The updated plan includes an Aboriginal Fishery Assessment, considering past and current Aboriginal fisheries and potential Project interactions. Recognizing SSN interests related to salmon in the larger Thompson system, and potential Project interactions on Peterson Creek, KAM has included restoration of habitat on Lower Peterson Creek as part of the plan. This restoration work will provide enhanced coho and chinook rearing habitat to a 158 m segment at the mouth of the creek that includes off channel rearing habitat for critical low water velocity habitat which is often a limiting factor of tributary streams within the Thompson system.

### **SSN-BB: Fire Management Regime**

Fire suppression and alteration of natural fire regimes is acknowledged in the Terrestrial Wildlife and Vegetation Report (Appendix 6.8-A) as having negative consequences to grassland associated species such as the provincially red-listed blue grama grass and the blue-listed Columbia sharp-tailed grouse. KAM has reviewed the Polster (2015) report and recognizes and acknowledges that fire can be an effective tool for grassland management and enhancement. At this time, fire has not been identified as a potential management approach for grassland restoration and reclamation due in part to the challenge of obtaining “social license” as described in Polster (2015). However, as stated in Section 6.10.4.3 (Mitigation Measures for Grasslands) of Chapter 6.10 Grasslands KAM would like to work collaboratively with the City of Kamloops, the Grasslands Conservation Council of BC, local landowners, tenure holders and Aboriginal Groups to improve the function of grasslands. The Grasslands Conservation Council also supports the use of fire as a management tool for the maintenance and restoration of grasslands

(<http://www.bcgrasslands.org/index.php/grasslands-of-bc/managing-grasslands/162-grasslands-management>). KAM is willing to explore opportunities with other local stakeholders for the use of fire as a grassland management tool.

Although they do not include fire use, additional grassland restoration treatments are proposed on Sugarloaf Ranch lands to improve grassland extent and condition as described in the memo 0720\_KAM\_Mitigation Hierarchy and Offsetting. A review of Sugarloaf Ranch lands that support native grassland was conducted to identify potential grassland restoration treatments. The review consisted of field reconnaissance of potential issues and treatment sites and follow-up delineation of treatment types using aerial imagery. Restoration treatment areas might involve one or all of the following treatment types, depending on site history and the particular restoration measures required for the site. The treatment types include:

- reduction of forest encroachment on grasslands,
- treatment of invasive plant species,
- fencing of riparian areas to exclude use by livestock, and
- thinning sagebrush dominated areas.

The total area identified as potentially suitable for restoration treatments is 2,093 ha which will result in net gain of grasslands. We understand that grassland restoration takes time to provide the same habitat characteristics as current native grasslands. Grassland restoration efforts will begin during Project operations to provide high functioning grassland habitat as soon as possible. These efforts will reduce the time lag between grassland losses and functional, self-sustaining restored areas.

KAM recognizes that in order to make the grassland restoration, enhancement and reclamation efforts successful, research programs and partnerships with Aboriginal Groups and local groups like TRU and the Grasslands Conservation Council will be necessary. Section 11.26 provides some key areas of reclamation research proposed for the Project. KAM has already initiated these efforts through support of reclamation research at TRU, and the company looks forward to opportunities to advance these types of programs to help ensure that restoration and reclamation efforts will be successful.

#### **4. CONCLUSION AND PROPOSED PATH FORWARD**

In recognition of the reduced grassland quality condition within the Ajax RSA as identified by both the ALCES (2016) modelling report as well as Ajax baseline studies (Appendix 6.8-A) and the importance of grasslands to wildlife and species at risk such as sharp-tailed grouse, KAM proposes to conduct a grassland condition assessment within the additional 2,093 ha area identified for grassland restoration on Sugarloaf Ranch lands. This assessment will serve as a baseline for determining priority areas and actions for grassland restoration and enhancement and also serve as a benchmark for comparison and to quantify improvements. The Delesalle et al. 2009 methodology is proposed as a potential approach for the grassland condition assessment although KAM is willing to discuss the best method to use with all interested parties. KAM will conduct this assessment prior to construction and conduct follow-up monitoring on a 5 year basis.

We hope that the information provided in this letter addresses the question or concern noted in Section 2. We respect that cumulative effects require cumulative solutions with actions and involvement from all parties that have created the effects where possible. To that end KAM supports government and SSN initiatives to address cumulative effects. We are interested in a partnership with the SSN similar to that which we proposed in a letter to the Ministries of Forest Lands and Natural Resource Operations and Energy and Mines voicing our support for a water stewardship study sent in March 2016.

We appreciate the comments received from SSN and look forward to continued collaboration.

### References

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