MEETING SUMMARY
Ajax Technical Working Group Meetings

Day 2 – Wednesday, February 24, 2016

Topics: Air Quality, Human Health, Terrestrial Vegetation, Wildlife & Wildlife Habitat, Economic Considerations

Location: Sandman Signature Hotel, Kamloops, BC

Time: 8:30 AM - 4:15 PM

Attendees: See below

KAM Attendees:			
1.	Nicola Banton; NB	**2.**	Nettie Ore
3.	Ryan Deneault;	**4.**	Todd Goodsell
5.	Jean-Paul Salley; JPS	**6.**	Mike Wypych
7.	Kate Parsons		
Consultant Team Attendees:			
1.	Jason Rempel; JR (ERM)	**2.**	Allyson Longmuir (ERM)
3.	Brian Leece: BL (Stantec)	**4.**	Peter Reid: PR (Stantec)
5.	Jonathan Chui: JC (Stantec)	**6.**	Stephanie Eagan: SEa (Knight Piesold)
7.	Kyle Simpson: KS (Keystone)	**8.**	Sean Innis (Norwest)
9.	John Osler: JO (Intergroup)	**10.**	Leslie Bol (ERM)
11.	Gerry Papini: GP (ERM)	**12.**	
Working Group Attendees:			
1.	Tracy James; TJ (BC EAO)	**2.**	Ralph Adams; RA (MOE)
3.	Kevin Inouye (CEAA)	**4.**	Krysia Zurakowski (BC EAO)
5.	Erin McGuigan (BC EAO)	**6.**	Alanya Smith (BC EAO)
7.	Andrea Raska (CEAA)	**8.**	Claude Pierce (BC EAO-phone)
9.	Brian Arquilla: BA (Mountain Pacific Environmental for SSN)	**10.**	Lyudmila Merkulova (MOE-phone)
11.	Greg Baytalan; GB (Interior Heath)	**12.**	David Fox: DF (Environment Canada-phone)
13.	Ken Froese; KF (Gateway on behalf of SSN)	**14.**	Bruce Carmichael; BC (MOE)
15.	Agathe Lebeau: AL (Environment Canada-Canadian Wildlife Services)	**16.**	Sunny LeBourdais; SL (SSN)
17.	Dan Wallace: DW (TNRD)	**18.**	Alan Michener (City of Kamloops)
19.	Glen Farrow (City of Kamloops)	**20.**	Lucille Lukey: LL (Health Canada-phone)
21.	Bhupendra Khadka (FLNRO-phone)	**22.**	John McQueen; JMc (FLNRO)
23.	Christie Nelson (CEAA)	**24.**	Sheryl Wurtz: SW (FLNRO)

25.	Colleen Dreger (FLNRO)	**26.**	Travis Marr; TM (SSN)
27.	Erin Rainey: ER (MOE)	**28.**	Leslie Berkes (MOE)
29.	Jo-Ann Aldridge; JA (Health Canada-phone)	**30.**	Mark Phillpotts: MP (FLNRO)
31.	Shelley Ball (NRCAN - Phone)	**32.**	Phil Belliveau: PB (FLNRO)
33.	Ian Simpson (SSN)	**34.**	Shauna Jones; SJ (FLNRO)
35	Sanya Petrovic (HC-phone)	**36.**	Emily Lomas (City of Kamloops)
37	Paul Draycott: PD (SLR for City of Kamloops)	**38.**	Stephen Sheehan; SS (Environment Canada)
39	David Thomson; DT (FLNRO)	**40.**	Amanda Watson (SSN)
41.	Mike McKenzie (SSN)	**42.**	Chris Joseph (Compass Resource Management for SSN)

Q – Question
A – Answer
C – Comment
**** means action item**

Item	Details
	Welcome – CEAA (KI) and EAO (TJ) • Brief summary of key issues and topics from February 23 Working Group meeting • Objectives: 1. Provide WG a chance to get clarity on aspects of application for the purposes of finalizing their technical comments to EAO by March 3; 2. Provide EAO and the Agency with early feedback on key issues, for the purposes of planning the issue-resolution approach. • Roles: WG provides advice to EAO and Agency and Proponent on technical issues; EAO/Agency to coordinate process; facilitate dialogue; ensure clarity; consolidate comments into clusters of related topics, and use an issues-based approach particularly for multi-agency matters.
1	**ERM (JR):** • Reflecting on yesterday's discussion, there were good comments related to wanting to know and understand how various aspects of the assessment are integrated (e.g., groundwater modelling and water balance model), and wanting full answers to questions, not deferral to others. • Heard comments that the format of the WG agenda allows for only a short summary presentation, which does not provide much opportunity to highlight the interconnectedness of the assessment. Therefore, wanted to provide the group with some context about how each of the VC assessments includes an interaction diagram (example shown on screen), which shows information sources (inputs) from other VCs, and assessment outputs to other VCs. • The Application/EIS is the culmination of 2 years of work by the consulting team. Regular meetings and interaction has allowed a level of understanding and trust to develop between the various lead authors regarding topics such as the validity of the input data (e.g., dustfall deposition as input to the water quality model). • In particular, for the social and health related VCs, the level of interaction and connection is very high, and this will come through in today's discussion. • Recognizing the feedback provided, we will work to ensure that we have the right experts available in the room to answer questions right away, and that we are providing full answers.

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2	**Air Quality (Peter Reid- Stantec)**
	• Overview of Air Quality; we modelled the city of Kamloops as it is the nearby source for air quality inputs.
	• Project effects are minimal in Aberdeen (increase of 6.6% in PM 2.5) and City (1%).
	• Q - Health Canada (JA) - what is assumed as the project source? What about effects to Jacko Lake?
	  • A- Stantec (PR) - the illustration is of the effects; all project features were inputs into the model (pit; haul roads; mine rock storage; tailings). The aggregate of all sources pushes effects to the northeast because of prevailing winds.
	• C- Health Canada (JA) - Human health used your model results for the assessment but I had a hard time finding the characterization for inputs from ore, tailings and ore profiles.
	  • A- Stantec (PR) - we filed a table with the EAO that summarizes all of the profiles. We provided Brian Leece with the dust profiles from each facility so he could add all aspects from each.
	• C-EAO (TJ) – Table is posted to WG Sharepoint. (Also available on EAO website).
	• Q- Health Canada (JA) will this include the deposition rates?
	  • A- Stantec (PR) - not sure if we provided those in the table but have the model files and can provide
	  • A- Stantec (PR) - yes, we will provide dustfall deposition rates and summary of characterization of inputs ****See action item below (dustfall deposition rates).**
	• Q-SSN (SL)- when it comes to sharing info how will the rest of the WG be included in sharing?
	  • A- EAO (TJ)- new information will be available on the SharePoint as it comes in. (Supplemental information also posted toEAO's website)
	• Q-FLNRO (MP) - is the model a best or worst case scenario?
	  • A- Stantec (PR)- natural mitigation (rain and snow); and the year modelled was the worst case (combined years 4 and 8) (i.e number of trucks on the road; amount of rock moved); KAM committed to implementing a high level of mitigation. A 90% efficiency factor is the highest outlined in the US EPA guidance, so that is what was modeled. Noted as well that built-in mitigations include reducing the truck haul, and adding a conveyor belt for ore transportation to mill.
	• Q- FLNRO (MP) - how far does PM2.5 travel?
	  • A- Stantec (PR) - Around the world; but considerable dispersion takes place to reduce effects.
	• Q- FLNRO (DT) - mitigation would include chemicals on the road?
	  • A- Stantec (PR) – Specific products not determined at this point; KAM has a commitment to maximum dust control effectiveness.
	  • A- KAM (NB) - most mines in area are using an organic product as opposed to Chlorides.
	• Q- SSN (TM)- Did the model including Kamloops Indian Band Reserve #1?
	  • A- Stantec (PR) - yes, that area was included in model inputs.
	• Q- SSN (TM) - What about the Skeetchestn to the west of Savana?
	  • A- Stantec (PR) - It was not included in the base case as it was too distant.
	• C- SSN (TM) - believes that pit is the key source of dust, and has concerns about the tailings. Note that KAM has a duty to fulfill consultation and provide information.
	• Q- TNRD (DW) - Will there ever be a day that the citizens see clouds of dust above this mine?

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	Who is on site to ensure 90% mitigations will occur on site? • A - Stantec (PR) - our model can't answer that specific question. The permit conditions will dictate how to enforce mitigations. • A- EAO (TJ) - one of the things the EA can do is determine the conditions of the project regarding monitoring plans; oversight etc. When you are submitting comments, please include comments on how mitigation effectiveness will be monitored and enforced. • C- TNRD (DW) - the commentary on visual quality is key; we don't currently really notice the Afton project in the area; want to know if Kamloops will have "bad mine dust days". • C- Stantec (PR) - part of the baseline assessment includes the New Gold site; the air quality there is better than in most parts of Kamloops. • Q - SLR for City of Kamloops (PD) – CoK requested the model output files and needs these to complete the review. ****See action item below (model output files).** • A- Stantec (PR) - willing to discuss and need to take into account any proprietary software considerations and how to work with this to get reviewers the information. • Q - SLR for City of Kamloops (PD) - dust fall and emissions from diesel during the construction phase and concrete batch plant included in the model? • A- Stantec (PR) - we will confirm ****See action item below (emissions from diesel and concrete batch plant).** • Q - Environment Canada (DF) - 90% effectiveness for fugitive dust seems optimistic. How will you verify that without the methodology known? Did you do sensitivity model runs? Human health hinges on this. • A- Stantec (PR) - mentioned that this would be challenging but the permit will include a means to monitor this; followed the USEPA protocols. 90% is the highest efficiency that the methodology allows. • Q- Environment Canada (DF)- the USEPA method is for a "soggy road". Some sensitivity runs would have been reassuring • A- Stantec (PR)- suggest that the mitigation topic be further discussed. • A- Environment Canada (DF)- did you compare the wind roses between model and site profiles? • A- Stantec (PR) - 4 regional stations have high quality data and we put these into CALMET. New stations have since come on line (New Gold; KGHM; and Upper Aberdeen. Subsequent to the application we have extracted data from these sites. These sites show agreement between the sites and the CALMET. A year is a minimum time interval to make these comparisons. • C- MOE (RA) - for the room; interested to know if anyone other than SLR is reviewing the modelling and emission factors • A- Environment Canada (DF) - Environment Canada is. • C- MOE (RA) - would like request EAO hold a sub-group technical meeting with reviewers who are looking at the technical aspects of the model. (EC, SLR and MOE indicated they have specialists conducting review.), and that the technical reviewers report back on discussion for the rest of the WG. Notes that much of assessment and other VCs rely on dust levels and model use. Initial impression is that the model was done as requested by MOE; further MOE review will attempt to see if we can replicate most of the emission factors. Points out that the most common air quality events occur during dry times in summer followed by high winds. intrigued by the circular shape of isopleths inn the Application; emission sources are at ground

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	level so it would be common to see concentrations extending from specific sources.
	• C- EAO (TJ)-yes, we will have the sub-group meeting with modelling experts. ****See action item below (focused air quality modellers meeting).**
	  • A- Stantec (PR) - we can look at the animations if we have time. The 15,000 receptors are smoothed out by the software; we can provide more detail to air quality modellers if needed. Also note that tailings will be wetted to sufficient degree to control dust.
	• Q- Interior Health (GB)-with respect to wind direction, is it different at the site vs. the city? Multiple directions mentioned in application over the seasons and how the surface of the tailings will be affected. Have other mines performed at the 90% control rate?
	  • A- Stantec (PR) -winds are complex and do change site by site and season by season. the wetted part of the tailings is a mine plan question for KGHM; Appendix 10.1-A includes studies that show these control rates.
	• Q- Health Canada (LL) - confirm that years 4 and 8 are worst case scenarios for air quality? Is the TSF % used for the model from Year 8 or end of mine life?
	  • A- Stantec (PR) - we will have to check the details; but note that in a year when the TSF is larger, there is less truck activity on roads
	• Q- MOE (BC) – describe relationship of air quality/dust to the water quality predictions for the aquatic environment.
	  • A- Stantec (PR) - all particulate that was input to the water quality model came from the air quality model.
	• Q- MOE (BC) - good; the 65 µm fraction is most bioavailable (silt/clay); is this size a concern for dust fall to aquatic environment?
	  • A- Stantec (PR) - that size will fall quickly and close to the source. The water model would have used the dustfall (coarse fraction).
	• C- SSN (TM)-year 4 and 8; SSN have been going through a dam construction process at New Gold and TM believes that construction phase is the biggest source of dust. There is no aquatics study on Kamloops Lake. Saying that there is no north-south wind is a bold statement.
	  • A- Stantec (PR) - modeled construction and found that the operations phase had higher activity; the Application studies did not find construction was the worst phase for air quality. There are north-south winds as you suggest, but those winds do not dominate.
	
	Action:
	• **KAM to provide dustfall deposition rates and a summary of characterization of model inputs.**
	• **KAM to confirm how the concrete batch plant and diesel emissions during construction were considered in air quality model.**
	• **KAM to provide details regarding the wetted surface of the tailings with respect to dust control and implications to air quality modeling.**
	• **KAM to provide Dave Fox (EC) with the air quality modeling files, as requested.**
	• **KAM to follow-up with City of Kamloops/SLR regarding access to output files from CALPUFF (Paul Draycott).**
	• **EAO to organize Air Quality technical model discussion for Stantec, MOE, EC and SLR.**

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3	**Human Health (Brian Leece - Stantec)**
	• Overview of Human Health: PM2.5 in application and base case are all below human health risk guidelines.
	• Determination of significance for domestic water quality and country foods VC occurs in the human health assessment section.
	• Q – Health Canada (JA) – assumption for depth of soil for uptake is 10 cm?
	  • A – Stantec (BL) - assumption for soil ingestion is based on a greater depth than of a spade turnover; therefore conservative.
	• C- Health Canada (JA)- would like to see some sensitivity analysis on depth.
	• Q- Health Canada (JA)- fish consumption at about 100g/day but for the toddler you used a small rate? HC uses a recommend rate of greater than 20g/day
	  • A- Stantec (BL)- would need to check the numbers you refer to but generally using an annual average. ****See action item below (consumption rates).**
	• C- Health Canada (JA)- were sub-chronic rates considered?
	  • A- Stantec (BL)- the difficulty with sub-chronic rates is that toxicity data is missing to support them.
	• Q- SLR for City of Kamloops (PD) - hazard quotient of 1 is used; what is the HC hazard quotient?
	  • A- Stantec (BL)- Health Canada uses a HQ of 0.2; however, BC guidance uses an HQ of 1.0. Consistent with other mining projects in the province, the BC guidance was followed.
	• Q- SLR for City of Kamloops (PD) - what was the Hazard quotient in the AIR?
	  • A- Stantec (BL)-I would need to check. ****See action item below (Hazard Quotient in AIR).** (*Post-meeting note: The AIR requires they follow Health Canada guidance for HHERA; a specific HQ is not specified).*
	• Q- Mountain Pacific Environmental for SSN (BA) – what was included in country food?
	  • A- Stantec (BL)- moose; deer; fish
	• Q- SSN (SL)- recognition that the HHERA uses western methodologies which are different than FN food processing methodologies and doesn't adequately capture the seasonal rounds of the communities.
	  • A- Stantec (BL)-specific consumption patterns for Aboriginal communities would be helpful; would need to be applied to both the baseline and the project case;
	• Q- Mountain Pacific Environmental for SSN (BA) - account for seasonal acute toxicity?
	  • A- Stantec (BL)- if concentrations were high enough to cause an acute response yes, but the concentrations would need to be much higher than the reported evidence for this.
	• Q- TNRD (DW) - Hg in fish in Jacko Lake (refers to news story); is this a concern?
	  • A- Stantec (BL)- the levels of Hg in Jacko Lake are the same as other lakes in the area.
	• Q- Health Canada (LL) - why were only 3 of 20 trout tissue samples from Peterson Creek?
	  • A- Stantec (BL)-Knight Piesold can respond to this; (see below)
	• Q- Health Canada (LL)- references to country food chapter for surrogate results from Knutsford because samples not available…rationale?
	  • A- Stantec (BL)-we were unable to get garden produce samples from Reserve #1 and Knutsford; regarding wild meat, local beef is an appropriate surrogate.
	• Q - Health Canada (JA)- some uptake factors for COPCs were not available

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	• A- Stantec (BL) –if we didn't have uptake factors for them would have used metals that react in a similar manner. • Q - Health Canada (JA)-fish weighed between 10 and 35 g; notes that this is not a serving size. • C - Stantec (BL)- these may be fillet weights. • Q- Gateway on behalf of SSN (KF) - hazard quotient of 1; 0.2 is more appropriate according to HC. If you used 0.2 you would have a number of exceedances, correct? • A - Stantec (BL) -in BC the benchmark is 1, which is why we are using it. The exceedances for 0.2 are for base and project case. • Q - Gateway on behalf of SSN (KF)- this question relates to cumulative effects then; if base case is exceeded then why do a cumulative assessment? • A- Stantec (BL)- HC uses a benchmark of 0.2, which is derived from contaminated sites and considered air, water soil and consumer products. • *Knight Piesold (SEa)- arrives on the phone* • Q- Health Canada (LL)- fish tissue sampling; why not more in Peterson Creek? • A- Knight Piesold (SEa)- - the fact was that few sites in Peterson Creek had fish and the size of the fish in the creek were often too small; to get the min volume for tissue analysis we would need most of the fish of that population to get the sample and did not want to destroy fish for that purpose. • Q- SSN (TM)-Reserve #1 risks: did impacts to the fish consider cumulative sources like New Gold, and is salmon included? • A- Stantec (BL)-New Gold would have been captured in baseline data. Salmon was not included as project-related effects not expected in the Thompson River. • Q- Interior Health (GB)- fish size question again; why was the weight of the tissue 10 to 30 grams? • A- Stantec (BL) I need to check if we used fillet or whole fish. ****See action item below (fillet vs. whole fish weights).** • Q- Health Canada (LL)- just trying to determine if fish sampled represent food fish and, if not, the data may under represent exposure. • Q- Health Canada (JA)- uptake factor for sediments from dissolved water quality in pore water? How were the sediment concentrations estimated? • A- Stantec (BL)- I would need to check that. ****See action item below (uptake factors and sediment concentrations).** • Q- Health Canada (JA)-it looks like one sample characterizes all tailings? • A- ERM (JR)- we can defer to Lorax and find out; • A-KAM (NB)-there were definitely more tailings samples generated and tested during the pilot runs but the one sample used as it was most representative of the tailings. • C- Health Canada (JA)-we just need a bit more rationale around the concentrations used ****See below for action item (tailings characterization).** **Action:** • **KAM to confirm whether receptor information (consumption rates for each receptor group) was provided in the Appendix to the HHRA – for HC (Jo-Ann Aldridge)** • **KAM to confirm whether fish or fillet weights were used in the Health Assessment – for HC (Jo-Ann Aldridge)** • **KAM to confirm uptake factors used for each parameter in the HHRA – for HC (Jo-Ann**

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	Aldridge)
	• **KAM to confirm estimate of sediment concentrations – for HC (Jo-Ann Aldridge)**
	
	Jonathan Chui – noise and vibrations
	• Overview of Noise and vibration.
	• East side of Jacko Lake exceeds annoyance threshold during construction; and audible near project boundary.
	• Vibrations from blasting will not damage structures and be of short duration during the day.
	• Q- Interior Health (GB)-dominant sources do not include blasting?
	  • A-Stantec (JC)- blasting effects are generally vibration and air blast as over pressure; over pressure is below audible thresholds but was included and assessed more as a vibration.
	• Q- Mountain Pacific Environmental for SSN (BA) – how were wildlife considered?
	  • A- Keystone (KS)- wildlife assessment did consider blast noise and noise for VCs (sections 6.9 to 6.17)
	• Q- Interior Health (GB)-vibrations levels in Aberdeen…have we considered ongoing effect on infrastructure (pluming)?
	  • A- Stantec (JC) -when you look at the closest part of Aberdeen the vibrations are 2 mm/second which is well below thresholds that may cause damage (50 mm per second).
	• Q- SLR for City of Kamloops (PD) - was pile driving effects under water looked at?
	  • A- Stantec (JC)-this is addressed in the fish effects assessment (section 6.7)

4	**Terrestrial Vegetation (Kyle Simpson – Keystone)**
	• Overview of terrestrial; Summary of rare plant survey efforts.
	• Wetland compensation enhancement details will be determined with regulatory authorities and is linked to potential fish offsetting plan proposed for Inks Lake.
	• C – Environment Canada-Canadian Wildlife Services (AL) - rare plants; noted occurrence for wing-nerved moss: There will be a federal protection plan based on a 50 m buffer.
	  • A – Keystone (KS) - that 50 m buffer may be attainable as the occurrence is not under any infrastructure footprint.
	• C- Environment Canada-Canadian Wildlife Services (AL) -regarding wetlands; feel like the plan is not robust; partly because of the locations proposed (i.e potential water quality concerns in Humphrey Creek may make this location unsuitable; and combining wetland offsetting with the fish offsetting may not work as a result to impacts created by the addition of fish).
	  • A- Keystone (KS) - proposed locations are only a framework at this point until plans develop further.
	• Q-FLNRO (PB) -reclamation plan infers a domestic and native seed mix; what will be the proportion of the different mixes will be applied?
	  • A- Keystone (KS) -native mix will be focused on the stock piles; End land use map is in section 3.17
	  • A-ERM (GP) - agri seed mixes will be focused on the flatter areas.
	• Q- FLNRO (PB)- appears that numbers for area of grasslands lost and reclaimed do not add up (difference of 600 Ha)?
	  • A- Keystone (KS)- the maximum potential lost area (based on IDA) is within the 50 m

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	buffer; and the reclamation plan is just the actual footprint (equivalent to IF); section 3.17 has a table summarizing this.
	• C- FLNRO (SJ) - agronomic mix will not be habitat for native species and this should be noted; Where is the habitat compensation plan?
	  • A- Keystone (KS) - Appendix 11.27-A
	• Q- Mountain Pacific Environmental for SSN (BA) – there is large uncertainty for the reclamation of grasslands; difficult for the area and ephemeral wetlands are difficult to mimic. how certain are you of reclamation success?
	  • A- Keystone (KS)- it is technically challenging to create new wetlands so that is why the focus in Application has been on wetland enhancement.
	• Q- Mountain Pacific Environmental for SSN (BA) -habitat compensation does not appear to be "like for like". Also, what is the the intuitive meander method?
	  • A- Keystone (KS)-the intuitive meander method is a best professional estimate based on the botany specialist and focused on the footprint.
	• C- Environment Canada-Canadian Wildlife Services (AL) –disturbance within the waterline and power line corridors in the LSA is an issue as there are new facilities described in the project description. Rare plants are variable from year to year; surveys seem to be within the same year? The wetland plan needs further information including the setting of clear objectives around habitat function to inform monitoring plan and achievement of no net loss objective.
	• C- FLNRO (PB) - recommend that proponent commitment wording on mitigations should be stronger and enforceable.
	• C- FLNRO (SW)- grasslands can be improved; reclaiming native grasslands is more difficult and takes a long time. What are the long-term monitoring plans?
	  • A-GP- the first 5 years after closure are active reclamation and maintenance followed by 5 additional years of monitoring and less maintenance and ultimately returned to ALR.
	• Q- FLNRO (SW)- rationale around seeding?
	  • A-GP- flatter areas would be focused on grazing; MRSFs would have a more native mix of species. The details will be elaborated on during permitting.
	• C-FLNRO (SW)-please note I have a concern about use of agronomics on the flats
	  • A- ERM (JR)-the figure in 3.17 talks about the timing of progressive reclamation as well as in the management plans.
	• C- EAO (TJ)-reclamation is an overlap between EA and permitting; we need a conceptual plan at this stage with the knowledge that permitting will add more.
	  • A- Keystone (KS)-Table 6.10-6 shows the totals for grassland lost.
	• C- ERM (JR)- infrastructure footprint and disturbance area needs to be understood to understand the numbers.
	  • A- Keystone (KS)- the commitment is that if more area is cleared, more will be reclaimed.
	• Q- FLNRO (SW)- seeded stockpiles; what is the plan regarding what will be used for seeding.
	  • A- Keystone (KS)- depends the timeframe
	• Q- Interior Health (GB)- echo the concern regarding the discrepancies/confusion between loss and reclaimed. Does FLNRO require offsetting? ****See action item below (grasslands loss vs. grasslands to be reclaimed).**
	  • A- FLNRO (PB)- it is a policy.

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	• C- SSN (SL)-grasslands include the hunting blind complex; show that the land use pre-contact has been impacted; you can't reclaim a hunting blind and some of the plants that will be harvested. Reclamation will never reflect the original use of the area so SSN believes it is a loss that needs to be compensated. **Action:** • **KAM to provide a summary to clarify the loss of grasslands and the amount of grasslands to be reclaimed.** • **KAM to confirm how tailings characterization was derived, i.e. whether more than one sample was used – for HC (Jo-Ann Aldridge)**
5	**Wildlife and Wildlife Habitat (Kyle Simpson – Keystone)** • Overview of Wildlife; • Q – Environment Canada-Canadian Wildlife Services (AL) - what are the potential timeframes for federal recovery programs for critical habitat? • A – Keystone (KS)-Badgers overlap with the project; the plan for badgers include filling in den sites under the footprint in order to encourage the badgers to use den sites further a foot. Spadefoot overlaps with the project- plan includes a pre-clearing survey and salvage effort. Some affected critical habitat would be the focus of monitoring and mitigation efforts to maintain the diversity of ecosystems. • C- Environment Canada-Canadian Wildlife Services (AL) -my comments will reflect the need for additional analyses regarding critical habitat. • Q- Mountain Pacific Environmental for SSN (BA) -compensation issues are not addressing the ecological boundaries including sensory disturbance • A- Keystone (KS)-spatial boundaries are difficult; as soon as home ranges of some species are included the boundaries get very large. • A- ERM (JR)-the AIR/EIS guidelines illustrate the discussion that resulted on the VCs that are in the EA. • Q- FLNRO (SJ) - over 3 KM of Peterson creek will be lost to downstream pond; do you have control over the water to the pond? • A-ERM (JR)- water levels are controlled from the supply by Jacko Lake. • Q- FLNRO (SJ) - fish compensation plant at Inks Lake; current proposal included fish stocking and increase in water levels; is this a habitat gain for all indicator species? • A- Keystone (KS)- not for amphibian species, we know fish would benefit more from compensation/offsetting plan. • Q- MOE (BC) -what is the amphibian and waterfowl value in Humphrey creek? • A- Keystone (KS)- low, as the creek is subterranean at times; in lower end some amphibians are present but not waterfowl; selenium may exceed guidelines at location. • C- SSN (SL)-regarding VCs determined in the AIR; SSN's view is that there is insufficient attention to interactions between components. The principle of the Trout Children story talks about the interaction between animals and the animals and the land/water. We are trying to work to have the whole considered as opposed to the sum of individual components. • Q- Environment Canada-Canadian Wildlife Services (AL) -Were RISC standards followed? For example, there were no surveys for the long bill curlew, aa species at

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	risk found in grasslands. Also, the fish habitat offsetting plan would need to consider effects to other species at risk. • A-Keystone (KS)-we did not survey specifically for that species (they would have been captured under the surveys for indicator species); after looking at the habitat analysis we scoped them out as we didn't think we would find them in the area. • Q- FLNRO (SJ) - a methodology red flag includes the migratory bird survey timing; the critical period for migratory birds are at a different time than the survey. • A- Keystone (KS)- incidental observations would have been recorded over that time. • Q- FLNRO (SJ) - were 419 spadefoots were observed at one site, as listed in the Application? • A- Keystone (KS)- suspect the number is estimated by egg counts but will have to look at the table to confirm. ****See action item below (confirm spadefoot count).** • Q- FLNRO (PB) -grouse lek mitigation; 2 leks lost at construction and 2 not impacted- how are you considering mpact at the other 2? • A- Keystone (KS)- those two will experience sensory disturbance but are not under footprint. • Q- FLNRO (PB) -what will be the mitigation for those? • A- Keystone (KS)- having suitable lek sites available for them to use if they are disturbed is part of the plan as well as delaying the blast to noon, which is outside of the majority of the calling activity. • C- FLNRO (PB) - There is great uncertainty to the success of artificial leks. • Q- Mountain Pacific Environmental for SSN (BA) - how did you model sensory disturbance including dark sky? • C- SLR for City of Kamloops (PD) - glare aspect of dark sky not integrated into wildlife effects; Glare from the model is not incorporated into the wildlife effects assessment. The Dark Sky model bases glare on asphalt, which would produce a different amount of glare than gravel. Glare may extend to effect wildlife and that hasn't been adequately modelled. (Paul referred to research of Robert Dick, Carlton University) **Action:** • **KAM to confirm source of 419 spadefoot count.**
6	**Economic Conditions (John Osler - Intergroup)** • Overview of Economic VCs and links to other disciplines including social, human health. • Summary of potential effects to social and economic VCs. • Q- Environment Canada (SS) -sequencing of mining is important in this area but what consideration has been given to ideas like backfilling of mines and impacts to land use? • A- Intergroup (JO) - the perception of mining in the area may be different than the economic diversity; the community is not that dependent on the mining sector. The use of tailing material for this project is different than what was originally proposed. The company is considering how they are going to impact the visual environment now and in the future. Progressive reclamation looks at this as well. • Q- SLR for City of Kamloops (PD)- effects on tourism multi-night stays considered? • A- Intergroup (JO) -yes, that concern has been noted. Tourism Kamloops has been contacted to understand this and the perception of image. No effect on tourism is expected.

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	• Q- SLR for City of Kamloops (PD)-how much of the mines' employment and supply needs will be accommodated within the area/locally?
	  • A-Intergroup (JO) - employment was looked at regarding the requirements for construction employment against the local labour supply; this was an important part of the analysis of stress on local facilities. Kamloops is set up well to take advantage of the potential business opportunities.
	• Q- FLNRO (PB) -How did you look at the mine's effects on the physician shortage?
	  • A- Intergroup (JO) -It was factored in as it was identified early in the process, and we considered the surveys produced by the physicians. The mitigation of contracting with a specific physician speaks to this. We know physician availability isn't a problem specific to Kamloops.
	• Q- FLNRO (PB) - did you look at effects of the mine on other professionals like educators at TRU?
	  • A- Intergroup (JO) -we have looked at this. We asked ourselves what are the pathways of Project effects that may contribute to this. Ultimately, there may be people who look at the mine and perceive it as negative; some perceive it as positive. The assessment does not get into that debate because it is a different level of analysis.
	• Q- Interior Health (GB)-can you elaborate on the community investment program?
	  • A- Intergroup (JO) - that is a KGHM initiative; we just looked at from the perspective of they have demonstrated a community commitment.
	  • A-KAM (NB) - we run a community investment program in every community where we operate and it is related to the size of the project. It would increase as the project moves forward and we tend to focus on health, sports and kids.
	• Q- SSN (SL)-when assessing impacts on the health care system did you look at the potential loss of doctors?
	  • A- Intergroup (JO) -yes, we have been aware of this issue for a couple of years. The Application recognizes that a survey was completed by the local doctors and we did factor in the potential exposure of doctors leaving because of the project. The shortage of doctors exists with or without the project.
	• Q- SSN (SL) - have the Kamloops doctors been surveyed directly or would this been done in future?
	  • A- Intergroup (JO) -the survey was conducted by the doctors, it wasn't repeated by us. KAM approach KPHES to speak about options and they declined to meet.
	• Q- SLR for City of Kamloops (PD)-regarding agreements for waste storage/treatment exist now?
	  • A- Intergroup (JO) - no, the process is ongoing as the design process becomes finalized.
	• Q- SLR for City of Kamloops (PD)-is it a viable mitigation?
	  • A- Intergroup (JO) - it is viable as we currently understand it. More work to be done with the City of Kamloops.

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9	**Next steps and review of action items (EAO/Agency)** EAO (TJ) Summary: • Summary of some issues heard during this session: o Uncertainties in baseline assumptions, mitigations, and sources of dust for air assessment o Clarifications or further information need to increase confidence in reliability of inputs to health assessment o Uncertainties regarding effectiveness of reclamation for terrestrial impacts, and appropriateness/ applicability of offsetting
	• MEETING CLOSE

Summary of action items from Day 2:

1. EAO to share with the WG a supplemental memo (from Stantec) regarding metals emission rates used in the HHERA.
2. KAM to provide dustfall deposition rates and a summary of characterization of model inputs.
3. KAM to confirm how the concrete batch plant and diesel emissions during construction were considered in air quality model.
4. KAM to provide details regarding the wetted surface of the tailings with respect to dust control and implications to air quality modeling.
5. KAM to provide Dave Fox (EC) with the air quality modeling files, as requested.
6. KAM to follow-up with City of Kamloops/SLR regarding access to output files from CALPUFF (Paul Draycott).
7. EAO to set up focused Air Quality discussion with Stantec, MOE, EC and SLR.
8. KAM to confirm whether receptor information (consumption rates for each receptor group) was provided in the Appendix to the HHRA – for HC (Jo-Ann Aldridge)
9. KAM to confirm whether fish or fillet weights were used in the Health Assessment – for HC (Jo-Ann Aldridge)
10. KAM to confirm the uptake factors that were used for each parameter in the HHRA – for HC (Jo-Ann Aldridge)
11. KAM to confirm estimate of sediment concentrations – for HC (Jo-Ann Aldridge)
12. KAM to confirm source of 419 spadefoot count.
13. KAM to provide a summary to clarify the loss of grasslands and the amount of grasslands to be reclaimed.
14. KAM to confirm with HC how tailings characterization was derived, i.e. whether more than one sample was used – for HC (Jo-Ann Aldridge).