MEETING SUMMARY
Ajax Technical Working Group Meetings

Day 1 – Tuesday, February 23, 2016

Topics: Water, Fish, Accidents & Malfunctions and Tailings Storage Facility

Location: Sandman Signature Hotel, Kamloops, BC

Time: 8:30 AM - 4:30 PM

Attendees: See below

KAM Attendees:			
1.	Nicola Banton; NB	**2.**	Nettie Ore; NO
3.	Ryan Deneault;	**4.**	Todd Goodsell
5.	Jean-Paul Salley; JPS	**6.**	Mike Wypych

Consultant Team Attendees:			
1.	Jason Rempel; JR (ERM)	**2.**	Allyson Longmuir (ERM)
3.	Bruce Mattson; BMat (Lorax)	**4.**	Peter Reid (Stantec)
5.	Stephanie Eagen; SEa (Knight Piesold)	**6.**	Jessica Mackie; JM (Knight Piesold)
7.	Oscar Gustafson; OG (Knight Piesold)	**8.**	Trevor Crozier; TC (BGC)
9.	Kyle Simpson: KS (Keystone)	**10.**	Cassandra Koenig (BGC-phone)
11.	John Osler (Intergroup)	**12.**	Hamish Weatherly; HW (BGC-phone)
13	Sean Ennis; SE (Norwest)		

Working Group Attendees and Agency Representing:			
1.	Tracy James; TJ (BC EAO)	**2.**	Andrew Rollo; (MMPO)
3.	Kevin Inouye (CEAA)	**4.**	Krysia Zurakowski (BC EAO)
5.	Erin McGuigan (BC EAO)	**6.**	Alanya Smith (BC EAO)
7.	Andrea Raska (CEAA)	**8.**	Brent Beattie: BB (MEM- phone)
9.	Mike Anderson; MA (SSN/Skeetchestn)	**10.**	Sean Shaw; SSh (MEM- phone)
11.	Greg Baytalan; GB (Interior Heath)	**12.**	Darren Bennett (FLNRO)
13.	Peter Rennie (FLNRO)	**14.**	Bruce Carmichael; BC (MOE)
15.	Agathe Lebeau; AL (Environment Canada-Canadian Wildlife Services)	**16.**	Sunny LeBourdais; SL (SSN)
17.	Tracy LeClair (MoTI)	**18.**	Alan Michener (City of Kamloops)
19.	Glen Farrow (City of Kamloops)	**20.**	Lucille Lukey (Health Canada-phone)
21.	Bhupendra Khadka (FLNRO)	**22.**	John McQueen; JMc (FLNRO)

23.	Regina Sadilkova (TNRD)	**24.**	Sheryl Wurtz (FLNRO)
25.	Colleen Dreger (FLNRO)	**26.**	Travis Marr; TM (SSN)
27.	Erin Rainey: ER (MOE)	**28.**	Leslie Berkes (MOE)
29.	Bruce McFarlane; BM (FLNRO)	**30.**	Mark Phillpotts : MP (FLNRO)
31.	Shelley Ball (NRCAN - Phone)	**32.**	Christa Pattie (FLNRO)
33.	Ian Simpson (SSN)	**34.**	Marina Wright: MW (DFO)
35	Phil Belliveau: PB (FLNRO)	**36.**	Emily Lomas (City of Kamloops)
37	Paul Draycott; PD (SLR for City of Kamloops)	**38.**	Stephen Sheehan; SS (Environment Canada)
39	Gilles Wendling; GW (SSN-phone)	**40.**	Peter Lighthall: PL(SSN-phone)
41	David Thomson; DT (FLNRO)	**42.**	Jessica Eustache (SSN)
43	Mike McKenzie (SSN)	**44.**	Amanda Watson (SSN)
45	Brian Arquilla; BA (Mountain Pacific Environmental - SSN)	**46.**	Susan Fitton; SF (FLNRO- phone)
47	Ame-Lia Tamburrini (Habitat Corp/SSN-phone)	**46.**	Jo-Ann Aldridge; JA (Health Canada- phone)

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

Item	Details
	Welcome – Kevin Inouye and Tracy James • 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. • Summary of application review phase; timing of WG meetings, submission of comments and responses. • EAO referral materials: technical report; CPD; table of conditions; assessment report. • This meeting is discussion based, not a presentation of the Application. The agenda was built from issues solicited in advance by EAO from the Working Group members.
Water Quantity (Trevor Crozier - BGC)	
2	• Overview of water quantity; water diversion, ponds, and process use and capacity. • Baseline -> model -> effects assessment; summary of residual effects regarding reduction in surface flow; <1% effect to Kamloops lake. Changes in GW quantity localized to within 2km of mine facilities. • Q- FLNRO (JMc) – regarding metal leaching in pit from fracturing; has GW monitoring noted

Item	Details
	any metals that may leach from fractured rock? • A- BGC (TC) - evaporation is 2x greater than water flowing into pit; GW is flowing into pit; whether or not at equilibrium is hard to say. • Q- FLNRO (DT) – couldn't' find anything on hydrostratigraphy; has this been separated from geological units? • A- BGC (TC) -assigned hydrostratigraphic units to geological units in the area; have relied on bedrock geology mapped in the area and rock types supplied from KAM to do this. Where more details are available from drilling, BGC used these. • Q- FLNRO (DT) - Edith Lake fault zone was included in model but model didn't show flow reporting to this zone, correct? • A - BGC (TC) – the Edith Lake fault zone was considered and sensitivity studies noted flows moving towards that area. • Q- FLNRO (DT) - Large residuals in area of Aberdeen; have you considered a worst case scenario in this area? • A- BGC (TC) – The residuals data is out of date (2008). • Q- SSN/Skeetchestn (MA) – what is the feasibility of using the City of Kamloops wastewater for process? Notes that use of treated water could be a benefit of the project. Indicated this query has gone unanswered in previous discussions. • A –ERM (JR) - section 17.4.10 discusses water supply alternatives; noted that CoK treated water would only contribute a small amount of the needed water for process. • Q – SSN/Skeetchestn (MA) - our understanding is that Jacko Lake will not be compromised; will it? • A- BGC (TC)- NE arm of Jacko Lake will be impacted; this pit outline is the same pit outline as last presented to the WG in technical meetings. • Q – DFO (MW) – where are the prediction and monitoringsites on Peterson creek (PC02)? • A- BGC (TC)- PC02 is here (indicates downstream location on Peterson Creek). • Q - Interior Health (GB) – explain post closure reduced rates in flows? About 5% is flowing from GW to pit ~ 300 years to equalize? • A- BGC (TC) -flows are maximum; effects are not additive • Q – Interior Health (GB) - how deep is the pit? • A – BGC (TC) - 520 m at maximum • Q - Interior Health (GB) – Is depth of Jacko Lake lower than the bottom of the pit? • A- BGC (TC)- No, there is no water that would move from the pit to Jacko Lake. • Q – DFO (MW) – there is a concern that the last 100m of Peterson Creek before the Thompson River has fish habitat; do you have flow info for this section? • A - BGC (TC)- we will discuss this in fish presentation. • Q – Interior Health (GB) – what is the maximum predicted reduction of flow to the Thompson River? Concerned about how noticeable the draw down would be. • A – BGC (TC)- max predicted drawdown is 0.28% reduction on river and wouldn't be measurable. Cannot comment on whether an individual would notice this level of change. • C – SSN (SL) – disagree that the impact of Kamloops Lake level not measurable. Any change in flow may impact active fishing locations and would be noticed by people using these locations. • A- BGC (TC)- fish group can talk further to this. • Q – MOE (BC) - small pond south of plant site, what is the description of this? There is concern

Item	Details
	about Humphrey Creek inputs. • A- BGC (HW) - The position of the pond will be further away from Humphrey Creek ***See action item below (location of pond).** It is the emergency tailings pond; water and tailings would be piped to this pond in an emergency; capacity is 20,000m^3 and will be lined. • Q- FLNRO (SF) - Where will the pond be located? • A- BGC (HW)- Still on the perimeter of plant site, well away from Humphrey Creek. • Q – MOE (BC)- what will be the impact of the EMRSF on water quality? Especially between PC02 and PC03 impact? How much groundwater will flow from this facility? • A – BGC (TC) – This information can be provided. ****See action item below (volume of water impacted).** Generally half of water will flow towards the pit and half will flow to Peterson creek; all will daylight by PC02. Groundwater pathways come up to surface at PC02 and the concentration loading is based on the transport simulations. • Q – MOE (BC) - does Davidson aquifer feed PC02? • Q – MOE (BC) - 9% drop on annual average of Peterson base flow; 30% flow reduction on several months at PC02, correct? • A- BGC (TC) - monthly flow combines surface and GW so % decrease annually is up to 17 %. • Q- MOE (BC) - 7Q10 = 4L/Sec at PC02, and will be reduced. Have the 7Q10 flows been consider in water quality model? • A- BGC (TC)- The next presentation on the water quality model will discuss how this was done. • C – Environment Canada (SS) – ratio of GW to SW on Peterson Creek will be a main part of the comments we submit to EAO. Intrusion into Jacko Lake is a concern. Adaptive mining management is mentioned in the application but some additional “comfort” on where these concerns will be dealt with is needed (permitting or EA process). • C- BGC (TC)- a great deal of detail on the connectivity between the lake and west pit extent is included in the Application/EISI and Klohn Crippen Berger (KCB) assessed the relationship between the pit and lake. Connection is minimal. • Q- SSN (GW) – with a pit that is >2km long, why was there only 1 pumping test? • A- BGC (TC)- pumping tests in the area went to 200 m depth and drawdowns were looked at in the model; KCB pumping tests agreed with BGC results. The radius of influence from the pumping test extended to the middle of the pit. • Q- SSN (GW) - fractured rock, so not homogeneous medium; isn’t more than one pumping test needed to see how fractures connect? • A- BGC (TC) - A lot of packer testing was completed, which include fractured areas, and they support the connectivity of the rock. This is a robust testing of the hydraulic connectivity. • Q- FLNRO (DT) – GW monitoring plan proposed; does it include a strategy on what the adaptation will be when a change in quantity and quality occur? • A - BGC (TC) - Management plans are a initial version EA and will be refined as required at the permitting level. • Q - FLNRO (DT) - increase of 5 in sensitivity analysis is not that robust. Are all aquifers being treated the same? • A- BGC (TC)- well was aimed at depressurizing rock units; rock units are slightly different in hydraulic connectivity.

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	• Q- FLNRO (BM) – What is the difference between the surface model and GW model?; GW model appears to be more sophisticated.
	  • A- BGC (TC)- perhaps not more sophistication but inputs are different and time steps are different; Surface water model has faster monthly time steps vs. 6 months time step in GW model.
	• Q- FLNRO (BM)- How do you link models when temporal differences exist?
	  • A- BGC (HW) – Groundwater model seasonal results are relatively small with little variation and then they are broken up into monthly components for use in surface water model.
	• Q- FLNRO (BM)- government/reviewers usually use metrics like 7Q10; can these be captured in the model?
	  • A - BGC (HW) – no, because they are a different time step.
	• Q- FLNRO (BM)- then how were these metrics derived, if not from the model? Concered that the models are not integrated.
	  • A- BGC (HW) - those are regionally derived from other regional stations.
	• Q- Interior Health (GB) - what is the prediction on potential GW springs in Aberdeen?
	  • A- BGC (TC) - 2 m drop in GW is predicted in Aberdeen; no chance of springs upwelling.
	• Q- MOE (BC) - Peterson Creek DS pond; Will it connect flow with Humphrey Creek?
	• C- MOE (BC) – Likely need more information to quantify potential habitat impacts; if there is continuity between Humphrey and Peterson creeks, it may lead to Humphrey being fish habitat.
	• C- BGC (HW)- Humphrey is dry most of the year.
	• Q - MOE (ER)- variable climate model is in 5 yr increments, correct?
	  • A- Knight Piesold (JM) - actually used only for the water quality model.
	  • A- BGC (HW) – water balance model is considering a longer timeframe but considered the climate time steps as well.
	• Q- SSN (GW) – how have you considered climate change in the numerical model?
	  • A - BGC (HW) – in Chapter 6.4 climate change impacts are discussed qualitatively but it is not integrated into the numerical model.
	Actions:
	• **EAO to coordinate a focused groundwater modelling clarification discussion with Dave Thompson/FLRNO and BGC.**
	• **KAM to confirm location of emergency tailings pond identified.**
	• **KAM to confirm volume of groundwater impacted by the EMRSF for Bruce Carmichael.**
	• **MOE and FLNRO to discuss concerns about surface water modeling, including surface evaporation from the Peterson Creek Downstream Pond and how that could affect water quantity and other water licenses/ users downstream.**

Geochemistry (Bruce Mattson - Lorax)	
3	• Geochemical characterization overview; source terms and ML/ARD management; pit lake model. • Majority of rock units are all NPAG; block model predicts that 10% of mine rock is PAG, tailings are NPAG. • Blending of PAG and NPAG in west and south MRSFs; and in the pit MSRF. • Pit lake model ran for 200yrs; depth reached 290 m, 140 m deep in Year 1 of closure. Mo, Se, and As at higher concentrations in surface water.

Item	Details

	• Q - MEM (SSh)– Acid-based Accounting (ABA) results: what implications for mine rock management if CaNP is applied more broadly?
	  • A –Lorax (BMat) – more PAG would be categorized leading to lower ratios in blended storage facilities; so it was better to ID non-carbonate NP.
	• Q- MEM (SSh)- for Ironmask formation kinetic tests but no humidity cell tests done on this rock? why not?
	  • A-Lorax (BMat) – went with column testing due to climatic conditions at site to better understand the "low water rock" situation. Humidity cell tests primarily focused on carbonate depletion.
	  • A- MEM (SSh)- were tests scaled from test situations to field?
	  • A- Lorax (BMat)- yes; in appendix 3-B.
	• Q- FLNRO (PB) - will groundwater exit the pit?
	  • A-Lorax (BMat) – no chance for it to exit the pit lake since gradient is towards pit lake surface.
	• Q- SSN/Skeetchestn (MA) - what is the pressure of the water in bottom of the pit lake; what does 200 m deep equal in PSI? Concern about water exiting pit. ****See action item below (PSI at bottom of pit lake).**
	  • A-Lorax (BMat) - Pressure = meters of head to surface; year 1 is 140 m of head.
	  • A- BGC (TC) - water table in surrounding rock is higher than lake level so gradient is always towards pit.
	• Q- SSN (TM)- will backfill impede monitoring seepage of pit walls?
	  • A-Lorax (BMat)- Defer to geotechnical engineers. ****See action item below (seepage of pit walls).**
	• Q- Interior Health (GB) - is water coming into pit at depth?
	  • A- BGC (TC)- yes but fractures are tighter at depth because of the increased pressure.
	• Q- SSN (GW) - when you remove rock, fractures will open up, correct?
	  • A- BGC (TC)- locally that is correct but Jeff Beals's work on "open pit project" supports the methods used in the model.
	Action:
	  • **KAM to confirm what the pressure would be (in PSI) at the bottom of the pit lake and how this would affect the movement of water through cracks and fissures - for Mike Anderson**
	  • **KAM to confirm if buttressing will impede monitoring seepage of pit walls. – for Travis Marr**

Water Quality (Jessica Mackie – Knight Piesold)	
4	• Overview of Water quality; based on water quantity and geochemistry inputs. • Noted 13 scenarios included for sensitivity model • Groundwater effects were local, although a number of parameters (except Mn) already exceeded at baseline. • Q – FLNRO (PB) – did you look at relationship between water temp and water quality in Peterson creek? Concerned in the increase of biotic processes with temperature. • A – Knight Piesold (JM) - not specifically but baseline temps are already high (>20^{o}C); the Aquatic Resource group may be able to answer the biotic effects question. ** **See action item below (temperature effects in Peterson Ck.)** • Q- FLNRO (PB) - how is determination of significance derived; it was not clear.

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	• A-ERM (JR) – assessment methodology was put together and provided to team; however, environmental assessment is an iterative process. If results of the assessment are trending toward a finding of significance, this is flagged to the proponent, and opportunities to modify project design or increase mitigation are explored to reduce a finding of significance before the completion of the assessment. • C- EAO (TJ) – all adverse effects (not just significant) are considered. EAO's report will reach its own conclusions regarding significance of potential adverse effects • Q- FLNRO (DT) - dust mitigation methods? • A- Knight Piesold (JM)- tomorrow's presentation on air will help with this. • Q- SSN/Skeetchestn (MA)- was Hg assessed in water quality? • A- Knight Piesold (JM)- yes it was included and modeled based on detection limit values (half of detection levels used as a conservative measure as Hg was below detection); and were excluded from model based on the concern around false positives. • Q- MOE (BC) –Predicted results should be able to be compared to baseline sites. Also concerned about input from Davidson aquifer. • A- Knight Piesold (JM)- assume that elevated chloride may be coming from Davidson aquifer, particular during low flow months; perhaps related to road salting (non-Project effect). • Q - MOE (BC)- can you point me to a place where a comparison can be made between predictions and upstream Jacko lake sites? • A - Knight Piesold (JM) - wouldn't want to directly compare those to upstream site with natural contributions; the figures in the baseline report have the figures you want to see. • Q- Health Canada (JA) – only one active drinking water well identified in HHERA. Did model consider flow through bedrock and will that one well be protected? • A- BGC (TC)- assumed the well was accessing the Peterson Creek Aquifer. • A- Knight Piesold (JM)- based on info from well owner, understood well was not being used as drinking water but that well was included in considering potential loading; how this is treated in Human Health assessment I don't know. • Q- SLR for City of Kamloops (PD) - did you model dust fall from concrete plant? • A- Knight Piesold (JM) -- not sure if included in model; Stantec can confirm. ****See action item below (modeling of dust fall from concrete batch plant).** • A- Knight Piesold (JM) -- I don't know how this effluent will be treated ****See action item below (**t**reatment of effluent).** • C- Knight Piesold (JM) --pit water is not treated for storage in the TSF. • Q- SSN (TM) - does water quality study consider impacts to north shore of Kamloops Lake? • A- Knight Piesold (JM)- no, project effects not expected there • C- SSN (TM) - concerned about the lack of monitoring of dustfall on Kamloops Reserve. • A- Knight Piesold (JM)- assumed that all of the dustfall will affect water quality, which is conservative as not all parameters are soluble. • Q- Health Canada (JA) - parameters that are not soluble will settle out and impact sediments, correct? • A- Knight Piesold (JM)- This was applied to the TSF only; did not account for any accumulation of sediment loading in receiving environment. • Q - Environment Canada (SS) –cumulative effects at mouth of Peterson Creek not considered?

Item	Details
	why no station there? • A- Knight Piesold (JM) -extent of model is to PC02; to extend into the city where urban runoff and trash contributes heavily introduces high amount variability to any model would make project effects difficult to discernible. We did look further afield into the Thompson. • Q- Mountain Pacific Environmental - SSN (BA) - what happens to invertebrate communities for fish in Peterson creek? • A- Knight Piesold (JM)- flows need to be factored into this, very low wetted width during summer when bugs are most active. • C- MOE (BC)- cumulative effects need to be addressed below PC02. The lower end of Peterson creek is important habitat; Assessment that there will be no cumulative effects at full mixing in Thompson is reasonable. However, we need to know what is going on at the mouth of Peterson Creek (habitat values from DFO); • A- Knight Piesold (JM)-noted that MOE wants water quality data at that site; info on fisheries values from that location are needed but I would be cautious in modelling urban runoff. • C- MOE (BC) - urban runoff exists and can be monitored, not modelled, and supplemented by studies. • A- Knight Piesold (JM)- considering adding a WQ monitoring station at that point. • C- MOE (BC) - may have to go further than that in the EA. • A- Knight Piesold (JM)- acknowledged comment for discussion. **Actions:** • **KAM aquatic resources group to confirm whether increase of biotic processes with temperature was considered in Peterson Ck.** • **KAM to confirm if/how effluent from concrete batch plant will be treated.** • **KAM to confirm whether dust fall from the concrete batch plant was considered in the air quality modelling.**
5	**ACCIDENTS & MALFUNCTIONS (Jason Rempel, ERM; Sean Ennis, Norwest)** • Overview of assessment; Chapter 17 is where this info is provided. • Q – FLNRO (JMc) - are eolian deposits in areas where load will be? • A – yes but those areas will be stripped prior. • Q-FLNRO (JMc)- what was the magnitude used for the one in 10,000 event? • A- Norwest (SE) - 0.34g EDGM. • Q- FLNRO (PB) - the case for pit failure; was Jacko Lake draining into pit considered? • A-ERM (JR)- yes, 2 scenarios considered this; rated as rare but catastrophic. Conservative approach taken; Failure Modes Effects Analysis workshop concluded that the risk of that failure would be introduced slowly (if at all) and can therefore be monitored and reacted to. Pit backfilling will reduce the risk. • Q- SSN (TM) - regarding buttressing of the TSF dams. How will the dam stability be monitored when it is covered by rock piles? • A- Norwest (SE)- addressed by having instruments extended (with cables) to dam; some cables may be lost but some will come up with as the buttress rock levels get higher; will require ongoing care and attention on site (i.e. management of cables).

Item	Details

	• Q- SSN (TM) - If you get a break in the dam how do you access the dam with the mine rock in the way?
	  • A- Norwest (SE)- given the width of the buttress we don't see a breach as likely but perhaps a movement that may cause increased seepage. A credible failure mode of the dam was a challenge to come up with as the proposed TSF design makes failure unlikely.
	• Q-FLNRO (MP)- average size of tailings beach?
	  • A- Norwest (SE) - 100m away from pond crest up to an average of 200m; fairly large beach area.
	• Q - FLNRO (MP) - dust will be controlled by beach being more of a slurry?
	  • A- Norwest (SE) - yes, thickened tails end up being coarse material (some fines) and bound together with flocculant material.
	• Q- FLNRO (PB) – what happens if TSF collapses?
	  • A- Norwest (SE)- we looked at credible failure modes; we couldn't see a failure mode that the contents of the TSF would collapse.
	• C- EAO (TJ) –can KAM define the role of the independent review board?
	  • A-KAM (NB)- KAM retained an independent tailings review board, as this was one of the recommendations of the as a result of Mt Polley report. The board looked at design and assessment and provided feedback to KGHM. This feedback has been incorporated into design. KGHM intends to continue to work with the board over the life of the project. It has been a valuable process and made the design better.
	  • A- Norwest (SE)- it has been great to have the input from the independent tailings review board.

6	**Tailings Storage Facility (Sean Ennis - Norwest)**
	• Overview of TSF design;
	• Design tested under the extreme TSF consequence category; no surface water discharge over the life of the facility; thickened tailings (60% solids) identified as the BAT.
	• Q – SSN (PL)- Generally the TSF is a safe design overall; what is the contributing catchment to the TSF?
	  • A - Norwest (SE)– we are almost at the headwaters and small area to the southeast.
	• Q- SSN (PL) - that is a good situation, extent of waste rock to embankment
	  • A- Norwest (SE) - will reissue figure to make it clear ****See action item below (extent of waste rock dump).**
	• Q- SSN (PL)- is there a filter zone under the till? Is a till blanket needed? Requested independent engineering review board report ****See action item below (Independent Engineering Review Board report).**
	  • A- Norwest (SE) - yes review board has considered the filter zone during review and has already reviewed the design.
	• C-MEM (BB) - echoes comments that the TSF design is favorable.
	Action:
	• **KAM to re-issue a figure to clarify the location/extent of the old waste rock dump (anthropogenic rock) with respect to the embankments of the TSF.**
	• **KAM to determine what can be released from the Independent Engineering Review Board report.**

Item	Details

7	**Fish and Aquatics (Stephanie Eagan and Oscar Gustafson – KP)**
	• Overview of assessment (Stephanie); section 6.7
	• Jacko Lake supports a recreational fishery; stocked with diploid and triploid females; Peterson Crk. – low fish use and marginal habitat; lower Peterson dries up by mid to late summer and wouldn't support spawning.
	• NE arm of Jacko Lake will be dewatered (~2.04 ha); primarily fish rearing area.
	• Offsetting Plan (Oscar); enhancement of Inks Lake is the leading option being proposed. Meets 3 of 4 DFO's policy requirements. Looking for feedback from Fisheries sub-WG on offsetting plan.
	• Q – Environment Canada – Canadian Wildlife Services (AL) - how did you consider how the plan for Inks Lake will affect other wildlife species (i.e. amphibians)?
	  • A – Keystone (KS) - these concerns will be considered; waiting for a more developed/advanced conceptual plan but we are aware of the potential tradeoffs between fish and wildlife values.
	• Q- Mountain Pacific Environmental - SSN (BA) – we expect a "like for like" compensation plan for fish, as does DFO. How did you arrive at the ratio in the plan? You can't discount for what you refer to as shallow; warm; high productivity parts of the lake or the primary and secondary producers.
	  • A- Knight Piesold (OG) – we considered many options as discussed; 2:1 is not always the best plan; we are planning to enhance an entire lake (~6ha).
	• C- Mountain Pacific Environmental - SSN (BA) - fish assessment doesn't fully address productivity of all areas of Peterson Creek; fishing effort needs to be considered.
	• Q- Interior Health (GB) - please clarify if offsetting is required?
	  • A- Knight Piesold (OG) - that is a question for DFO as they make a recommendation based on the data we provide and their policy. The ratio is not written in stone but is a project by project discussion.
	• Q- FLNRO (JMc)- fishery in Peterson Creek is artificial as it is stocked. Do any options consider removing the dam and returning it to historical levels?
	  • A- Knight Piesold (OG)- anticipate that DFO would not likely accept that option; KGHM needs a fishery authorization to impact habitat and fish habitat currently exists at that site.
	• C- SSN/Skeetchestn (MA) - FN elders would tell you that a traditional fisher existed prior to agriculture and mining impacts.
	• C- DFO (MW) - offsetting is required if serious harm is determined, as in this case. A traditional and recreational fishery is valued under the Act. In order for DFO to assess the offsetting plan more details on impacts are required (i.e. details on the habitat quality, riffle, glide etc.); characterization of the invertebrate community of the areas lost (NE arm).
	• C- SSN (TM) - not only SSN but all the FNs utilize the food fishery in Kamloops Lake. SSN considers the intake location as potential serious harm to Kamloops Lake. The SSN have indicated the need for a cumulative effects study to understand impacts to food fishery on Kamloops Lake.
	• Q- FLNRO (PB) – Peterson Creek DS Pond…is this considered a fish habitat gain?
	  • A- Knight Piesold (OG)- the habitat in that section of Peterson Creek is low quality and fish use is low; the pond will likely increase fish use.

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	• Q- FLNRO (PB) - sub-lethal effects of blasting on fish behavior did not seem to be carried forward.
	  • A-Knight Piesold (SEa)- literature suggested that the duration that fish stop feeding is short (< 1 hour after disturbance), which won't cause an impact on the population so we did not carry forward.
	• Q- FLNRO (PB) - degradation of outlet by reduced flow; this loss of habitat was not assessed?
	  • A-Knight Piesold (SEa)- mitigations for this would include dredging and additions of macrophytes if needed.
	• Q- FLNRO (MP)– seeding DS populations below Hwy 5 was considered?
	  • A-Knight Piesold (SEa)- that was noted in the application; mitigations would include a potential catch and release to the area.
	• Q- FLNRO (MP) – you stated 5-10% food production from the NE arm. It should be more?
	  • A- Knight Piesold (OG)- looked at relative area of littoral zone, the NE arm is about 10 % of the littoral area;
	• C- SSN (SL)- the Trout Children tells us of the connections to our heritage. The SSN has outlined the history of the area including Philip Jacko using the area for hunting and fishing. Restoration plans should respect this history. Peterson Creek has been a spawning habitat and a fishing location; the inflow and outflow creeks have been utilized for fishing by the SSN prior to stocking in 1950. A history of dispossession in key fishery areas by other users reduces the number of fishing locations and this is not assessed in the application. A reduction in knowledge and language regarding using the area by the SSN is not something can be offset. This is one of the reasons that the SSN doesn't support the Inks Lake option, plus the impacts to the animals at that location are not supported.
	• Q-FLNRO (MP) – sub-lethal effects regarding lowest region of Peterson creek: The assessment needs to consider the use of chinook in Peterson creek.
	  • A- Knight Piesold (JM)- Water quality model does not go to lower Peterson Creek but we have considered adding a monitoring site there.
	• C- MOE (BC)- water quality data from urban impact to add to the model is not available.
	• C-FLNRO (JM)- although some literature would help this (the water quality model).
	• Q-DFO (MW) – need to understand the habitat for the fish that use the stretch in Peterson Creek Park. Were any habitat features of this section of the creek measured?
	  • A-Knight Piesold (SEa)- yes the depths and flows were measured (not just desktop study); flows measured are similar to predicted flow.
	• Q- SLR for City of Kamloops (PD) - sure DFO is still using 100 KP threshold regarding mortality?
	  • A-Knight Piesold (SEa)– no threshold is being applied by DFO; DFO policy lists mitigation measures that should be met.
	• C- SLR for City of Kamloops (PD) - will be in compliance with the mitigation measures but they are presented as averages, meaning there will be some mortalities.
	• C - Environment Canada (SS) – Environment Canada has a code for mine blasting but there is some guidance on these issues in EC's code of practices. ****See action item below (EC code on mine blasting).**
	• C-Environment Canada – Canadian Wildlife Services (AL) –potential impacts to wildlife at Inks Lake; note that fish compensation should not impact another species (i.e migratory birds and amphibians). ****See action item below (species potentially impacted by compensation plan).**

Item	Details
	Action: • **KAM to note potential species that could be impacted by the compensation plan at Inks Lake.** • **KAM to review Environment Canada's code on mine blasting.**
9	EAO summarizes high level issues that we heard during the day: • integration of surface and groundwater models; • how appropriate and effective is fish offsetting plan; • uncertainty around assessment of fish effects; • verification on model inputs and outputs (air and water); and • extent of downstream effects. These themes will be reflected in the forming of the sub-committees during the review process. During initial 45 day review- EAO is looking for WG input regarding whether the data presented is adequate and accurate, and recommendations to EAO on means to address any information gaps and/or uncertainties
	• MEETING CLOSE

Summary of action items from Day 1:

1. EAO to coordinate a focused groundwater modelling with Dave Thompson and BGC.
2. KAM to confirm location of emergency tailings pond.
3. KAM to confirm volume of groundwater impacted by the EMRSF for Bruce Carmichael.
4. MOE and FLNRO to discuss concerns about surface water modeling, including surface evaporation from the Peterson Creek Downstream Pond and how that could affect water quantity and other water licenses/ users downstream.
5. KAM to confirm what the pressure would be (in PSI) at the bottom of the pit lake and how this would affect the movement of water through cracks and fissures.
6. KAM to confirm if buttressing will impede monitoring seepage of pit walls.
7. KAM aquatic resources group to confirm whether increase of biotic processes with temperature was considered in Peterson Ck.
8. KAM to confirm if/how effluent from concrete batch plant will be treated.
9. KAM to confirm whether dust fall from the concrete batch plant was considered in the air quality modelling.
10. KAM to re-issue a figure to clarify the location/extent of the old waste rock dump (anthropogenic rock) with respect to the TSF embankments.
11. KAM to determine what information can be released from the Independent Engineering Review Board report.
12. KAM to note potential species that could be impacted by the compensation plan at Inks Lake.
13. KAM to review Environment Canada's code on mine blasting.