# **EVWQP INFORMATION AND DIALOGUE SESSION**

Version: Final

Issue Date: May 29, 2013

Minutes of Meeting			
Location: Sparwood Seniors Drop-In Centre		Date: May 23, 201	3 <b>Time:</b> 9 am-1 pm
Purpose: To provide info about Teck's EVWQP and foster dialogue on the topic			
ATTENDANCE			
Name	Representing	Position	Community of Residence
Anonson, Terry (TA)	Metis Nation, BC	Member	Elkford
Bellina, Bev (BB)	School District No. 5	Trustee	Sparwood
Beranek, Dave (DB)	Guide/Outfitters	Owner	Sparwood
Fraser, Sharon (SF)	District of Sparwood	Councilor (and Michel Creek Road resident)	Sparwood
Halko, Lois (LH)	District of Sparwood	Mayor	Sparwood
Lockhart, Lisa (LL)	Business Development	Administrative Consultant	Blairmore
McKee, Margaret (MM)	District of Sparwood	Councilor	Sparwood
Mercereau, Bunny (BM)	Seniors	Member	Sparwood
Poirier, John (JP)	Elk River Alliance	Member/Fly Fisher	Fernie
Talarico, Janice (JT)	Interior Health	Manager, Community Integrated Health Services	Sparwood
Walker, Lee-Anne (LW)	Elk River Alliance	Executive Director	Fernie
Wilson, George (GW)	Fernie Rod and Gun	Member	Fernie
Name	Representing	Position	Discussion Subject Area
Brennan, Casey (CB)	Teck	Coordinator Aboriginal Affairs	EVWQP Events Timeline
Digel, Mark (MD)	Teck	Manager Permitting	Se 101, EVWQP
Fraser, Carla (CF)	Teck	Manager Environmental Performance	AEMP
Gay, Matt (MG)	Teck	Engineer Projects	WLCAWTF and others
Gillespie, Kirsten (KG)	Teck	Project Lead Cumulative Effects	CEMF
L'Heureux, Dan (DL)	Teck	Director Water Strategy	WLCAWTF and others
Milligan, Nic (NM)	Teck	Manager Community & Aboriginal Affairs	General
Podrasky, Kevin (KP)	Teck	Superintendent Environment	LCO2 Permitting
Strom, Sharon (SS)	Teck	Coordinator Sustainability	General

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Meeting commenced around 9:20 am (delayed by accident on Hwy #3) and ended at 1:00 pm

Sharon Strom welcomed the attendees from the COI Advisory Initiative and thanked them for their presence despite bad weather and road conditions. This was followed by safety share reminding people that most have taken their winter tires off and will need to be extra cautious with unexpected snowfall such as today's. Exits and washrooms were pointed out.

Casey Brennan led the group to introductions – name, group representing and position. Comments to note during introductions:

**BM** – We have the best water in the world in Sparwood

**TA** – I represent the 'other' aboriginal group in the community – the Metis. There is not just the Ktunaxa in the area.

**SF** – Life is easier now that Teck connected the Michel Creek Road residents to the District of Sparwood water. It is safer.

#### Dialogue/Discussion (Q – question, A- answer, C – comment, R – response/reply)

**Q: TA** – When you talked about the Ministerial Order, the formation of calcite was not mentioned.

A: MD – As water passes through waste rock which is put back into the pit adjacent to area being mined, it percolates through calcium and carbonate (calcite aka limestone). This precipitates out and can line the bed of a stream. It can be like armor. Although it doesn't get into the flesh of the fish, it can make the streambed less suitable for fish and invertebrates. The formation of calcite is covered in the Order by the Area Based Plan but it requires a different solution from that required for Se etc. It is a more localized issue.

**Q: LL** – Is the water filtering through the waste rock rainwater?

A: MD – Yes, rainwater infiltrates waste rock – also includes snow and runoff.

**Q:** LH – Is the leaching of Se into the water a continual process? Will it continue forever? **A:** MD – It will be an ongoing process for the next hundred years plus but eventually the mineral in the waste rock will be exhausted.

A: DL – Leading off from what Mark said, the large boulders/rocks from blasting breakdown over time into very small pieces therefore exposing most of the minerals. After some time, the minerals will all have leached out.

**Q:** JP – Are insects, birds and fish closer to the source found to have a higher dose of Se? **A:** MD – Yes. The strategy is to manage the source areas to bring their Se levels down to long-term sustainable levels. Invertebrates have a small habitat ranges but fish are very mobile and therefore have a large range.

**C: JP** – And birds migrate.

**R: MD** – Yes, osprey and other large birds have very large ranges.

**Q: JP** – The fluctuating volumes of water must be a factor in levels of Se?

**A: MD** – The concentration varies with it being highest in late winter because of lower water flow. The good news is that more Se can be captured during the periods of low flows and higher concentrations.

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**C: TA** – In the research that I've done, there appears to be no formula that takes into consideration water volume.

Q: TA – Doesn't Se precipitate out further downstream?

**A: MD** – No, because water passes by quickly in streams and rivers. In a lake, such as Koocanusa, where the water is nearly still, the Se has a longer residence.

**Q:** LW – Can you explain how Se actually affects the environment? Is Se suspended, does it precipitate out? Does Se bio-accumulate in all species of fish?

**Q: MD** – Se (selenite) is soluble in water. We will be looking more at the effects in the Koocanusa to see if there is cycling occurring within the system. Se concentration varies from fish species to fish species. Mountain Whitefish have been found to have concentrations of Se in areas where it is lower in cutthroat. Other species of fish may be more tolerant.

**C: LW** – A fisherman friend who is particularly fond of whitefish said the whitefish he catches in the Elk River are poor tasting.

**R: MD** – I can't really speak to that but I've never heard of Se affecting the flavor of fish.

**C:** JP – Water temperature can have an effect on how fish taste. Fish caught in cold water taste better.

Q: TA – What about the Se level in animals/vertebrates, like bears, that eat fish?
A: MD – The levels of Se are not at levels that pose a risk to terrestrial organisms.

**Q: GW** – Has Teck discovered negative impacts already within the system?

**A: MD** – Yes. Some areas have fish with concentrations of Se which may have an effect on the reproduction of the fish. The levels of Se are high in fish found in Clode Pond. There shouldn't be fish in the settling pond so the strategy will be to exclude fish/prevent them from getting in/returning.

C: GW – There has been mining in the Elk Valley for over 100 years, more extensively in the last 40 years. In the Corbin area, in Michel Creek, Se has not seemed to be an issue.
R: MD – For whatever reason, coal and rocks at Coal Mountain Operations don't have the same concentrations of minerals as those at other coal sites in the Elk Valley.

**Q**: LL – Have studies been done by other industries, such as logging, to see if they have an effect on the water?

A: MD – Not that I am aware of.

**Q: BB** – If fish can get into Clode Pond, they can get out. Will the fish coming from Clode Pond with a high level of Se compromise other fish down river? **A: MD** – Se and its affects don't transfer from fish to fish.

**Q: LW** – Can you describe what happens with Se to affect fish? Is the embryonic species more sensitive to Se? How does it transfer?

A: MD – With too much Se in a fish there will be a lower amount of successful hatching of its eggs.

**C: MD** – Teck sees the Ministerial Order as a positive step forward, an opportunity to develop a plan. The previous work was on Se management specifically but with the EVWQP other constituents will be

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monitored and managed. The Ministerial Order came down April 15<sup>th</sup>. Teck is required to submit a Terms of Reference within three months of the issuing of the Order. When the TOR is finalized, it will be submitted to the MoE and then a Technical Advisory Committee will be formed. The plan is Teck's to develop, with input from EAO, Ktunaxa etc., because it is Teck's responsibility to address the increasing levels of constituents of concern that are present due to mining.

Q: LL – Has Teck given consideration/contemplation to harvesting and producing Se?

**A: MD** – The ART team out of Trail has been helping with the testing of this but it appears too difficult to make it worthwhile.

**C: JP** - A friend raising sheep in PEI had to buy Se because they weren't getting enough naturally.

**R: MG** – The treatment plant being built at WLC will capture about 1.9 kg of Se per day but primarily in the form of biomass and water with only about 20% solids. To isolate the Se is not feasible because the market for Se is only \$50 - \$60/kg. In the future, we'll get there and possibly with the help of the smelter at Trail.

**C: KP** – I want to clarify that the permit application for LCO2 is not an expansion of the current operation where production will be increased. It is an extension that is required to keep the mine operating. Its current reserves will run out in 2014.

**Q:** LW – What is the point of a treatment facility at WLC if with LCO's extension, the water won't be draining into the Elk.

**A: MD** – It is to treat the water at the current mine site and after the life of that site. There will be another treatment facility built at LCO's extension site in 2020.

**Q: GW** – With what we've learned over the years with Se management, is it fair to say dumps will be built in a different fashion?

**A: KP** – We don't have a lot of tools in our kit, yet, but ART is working on how to manage Se at the source. Dry creek dumps, covered and/or capped dumps are being planned.

**C: MD** – Research and development work is being done to find ways to minimize water getting into waste rock.

**C: KP** – We are considering backfilling of pits so oxygen can't get at the rock, for example.

**Q:** LW – I question how you can state that you are very confident in the success of the WLC treatment facility and its treatment and management of Se when it hasn't started yet.

A: MG – We studied a number of treatment facilities in the US and elsewhere and decided that one in Virginia would suit our needs best. They have had excellent results from their operations and, in fact, have captured their required levels of constituent some of which are more difficult to capture than Se. **Q: DB** – With so much focus on Se and fish, is concern with vegetation and animals such as Bighorn Sheep continuing?

A: KP – Yes, we continue to monitor our effects on terrestrial life as well. It is still very important to us.

**C: KG** – About a year ago, there was a lot of interest in the cumulative effects of mining which provided us with a unique opportunity to work together with a broader group and a working group/steering committee. Our overall goal is to come up with a framework we can all agree on through a consensus based process. Currently we have a tight scope and are focusing on a couple of key valued components

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in the environment to work toward consensus on the broad framework. It is more habitat-based and terrestrial.

**Q: NM** – Is it possible to get updates to the COI Advisory Initiative group through Lee-Anne who is part of the working group for the CEMF and the Advisory Initiative.

A: KG – Yes, of course.

**C: KG** – Currently the four key areas of focus are: bighorn sheep, grizzly bears, westslope cutthroat trout and riparian inhabitants.

**Q: CB** – In relation to the ABMP which covers a larger area than the CEMF currently does, is there consideration for a changing geography for the CEMF?

**A: KG** – The group hasn't discussed this yet because at this stage, they need to be clear about the components on which they are focusing.

**Q: TA** – Why did Teck choose the particular type of facility for the treatment of water?

A: MG – Pilot studies were done on four different treatment plants and we saw the fluidized bed reactor approach to be the best fit for us. We looked at a reverse osmosis process but because the water came out pure, it would have to be reconstituted. Our sister facility is in Charleston, West Virginia and is at the Patriot Coal Operations.

**Q:** JP – How many treatment plants is Teck planning on constructing? A: MG – Six will be phased in over 10 years.

**Q: TA** – What percentage of Se is captured in the water from WLC and LC going through the treatment plant?

A: MG – I don't know the answer to that. I will have to get back to you on that.

Q: TA – What is the retention time of the water going through treatment?

A: MG – About one hour.

**C: NM** – It would be good for the Advisory Initiative group to be given an opportunity to tour the WLC facility, perhaps in June.

**R: MG** – Sure, we love people to tour the facility. We are proud of it. (Sharon, Lois and Matt to work on timing and logistics)

**Q:** TA – The vast majority of watering going into the rivers is from underground. Is Teck looking at that? A: MG – Research and development is looking into ground water but we don't have a good handle on it yet.

**Q: TA** – With the water treatment and flow of water, what is the actual effectiveness downstream? **A: MD** - There are many sources of Se into the water. A large spreadsheet has been developed to track such things as waste rock's contribution of Se to water flow and the overall balance among the six locations as the water reaches the Fording and Elk Rivers then flows into lake Koocanusa.

**C: CF** – An AEMP related to Se began in 2006 as EV Se Task Force then studied again in 2009. In 2012, Teck began its most robust AEMP as it studies Se and all other constituents of concern. A report of results will hopefully be out by end of June. The Koocanusa has not been monitored previously but will be going forward. This year so far there has been sediment sampling done when the lake was low. The study of Lake Koocanusa will be integrated with Montana officials who are also sampling and monitoring

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there to ensure a consistent methodology. The AEMP committee has reps form EA, KN, ERA, Teck, regulators etc.

**C: MD** – A WCT study was done in the Upper Fording River (above Josephine Falls) which provided a unique opportunity because the fish are well controlled. Currently this part of the river is a no fishing zone.

**C:** JP – I was involved with the study and the fish I caught in the Upper Fording were in better shape (less scarring etc.) than fish in other areas of the river. There is not fishing pressure on fish in the Upper Fording.

**R: MD** – Westslope Fisheries, a consultant based in Cranbrook helped with the study. They found that the fish caught for the study were the largest and healthiest fish they've handled in the Kootenay watershed.

**C: MD** – Part of the study means knowing where the fish are at all times. Radio tags were installed in 60 fish allowing for the tracking of their movement. They can be tracked to record where they are at different times of the year. Snorkel surveys of the river used to track tagged fish. The second year of the study will focus more on fry/juvenile fish population. A 2-page summary of the first year's report is available.

**Q: BB** – Will the June report be available to the public and if so, how can we access it.

A: MD – There are plans to hold another Open House on the study but information will be online.

**Q: BM** – Regarding the AEMP, you said it began in 2006 then you mentioned 2009. What about the years in between?

A: CF - The AEMP follows a 3 year cycle (2006, 2009, 2012).

**C: BM** – The \$600 million dollars Teck is investing in ensuring the health of our water is an astronomical amount. That shows me that Teck has taken the lead in the protection of water and the environment. It cares about the environment. My hat is off to you. You've made an investment in the Valley. **R: CF** – As Teck employees, we all live and work here and have a vested interest in the environment.

**Q: BB** – As a money person interested in balanced budgets, if Teck is spending \$600 million over 5 years are they able to maintain financial stability?

A: NM – Over time it will reflect as a \$6 per tonne operating cost. It is the right thing to do.

**Q: BB** – So it is affordable?

**A: NM** – I'm sure because of the financial effects, there are other organizations which would rather not invest this kind of money but we at Teck feel it is very important.

**C: BB** – I echo Bunny's comments about Teck.

**C:** LH – I would like to note that I am very appreciative of the different department heads from Teck being here to share this information.

**C: LW** – As someone who is on a lot of committees/working groups discussed today, I found that synthesizing the COI, CEMF, AEMP, for example, with all area leads to be very helpful.