

November 18, 2012

Panel Chair
Joint Review Panel for the Jackpine Mine Expansion Project
Energy Resources Conservation Board
9915 Franklin Avenue
Provincial Building, 2nd Floor
Fort McMurray, AB T9H 2K4

Dear Chairman,

Re: Secretariat Questions for the ACFN Witnesses

Please accept the following responses to the questions posed by the Secretariat staff for Bruce Maclean.

Reference: Exhibit #006-013BB; Final Report on the 2011 Water Quantity Monitoring; page 5 [pdf page 123]; Figure 1: All CBM (Community Based Monitoring) water quantity sampling sites.

1. Confirm that Figure 1 of the report shows the eight sampling sites that are included in your report?

Figure 1 shows the eight sampling sites included in the report.

2. Did you review the RAMP 2011 Technical Report (a copy of the report is available at http://www.ramp-alberta.org/UserFiles/File/RAMP_2011_Final_Technical_Report.pdf)?

References: RAMP 2011 Technical Report, Figure 2.4-1, page 2-7, provides the location of RAMP Station S24. This station is upstream of the confluence of the Athabasca River and the Firebag River. In the same figure, RAMP shows that station S24 is located downstream of mineable oil sands operations' withdrawal locations.

RAMP 2011 Technical Report, Section 5.1.2, page 5-8, provides information collected at station S24 regarding Hydrologic Conditions for 2011 Water Year. In this section RAMP states:

“The open water period (May to October) runoff volume of 16,539 million m³ was 22% higher than the historical average open water runoff volume.”

“Once monitoring resumed on June 18, two extreme flow events were recorded on June 25 and July 14 due to runoff conditions upstream of Fort McMurray. The 2011 WY annual maximum daily discharge of 4,410 m³/s following the second rain event was 124% higher than the historical mean annual maximum daily flow.”

“Following the peak on July 14, flows decreased until the end of the 2011 WY. The minimum open water period daily flow of 374 m³/s recorded on October 31 was 4% higher than the mean historical open-water minimum daily flow.”

I have reviewed some of the RAMP 2011 water monitoring data though not this whole report in detail.

3. Are the eight sampling sites from your report located downstream or upstream of RAMP station S24?

Downstream. Our first site at the Firebag River is approximately 30 km downstream of S24.

4. Do you agree or disagree that during the months that you reported flows below the Aboriginal Threshold of 1.2 meters, RAMP Station S24 collected data indicating that the 2011 minimum open water period daily flow of 374 m³/s recorded on October 31 was 4% higher than the mean historical open-water minimum daily flow?

My understanding is that the S24 gauge only has a decade of sampling records and therefore to call that a historic flow is a bit of a misleading title. The last ten years of recorded flow for the Athabasca River have been largely below the greater historic period mean (50-60 years) therefore a value of 374 m³/s, while 4% higher than the mean of the last 10 years at that site, is still below the mean if we extend recording back into multiple decades. The RAMP findings (cited above) in fact correspond well with the Traditional Knowledge which classified 2011 as a good water year, and noted extreme flow events in the summer months, however despite 2011 being a good water year by the end of fall (late September and October) water levels had dropped too low in the majority of pinch points to be able access traditional areas. This is in keeping with what the Elders and Knowledge holders have been saying for more than a decade; that water levels are trending downward in general and especially in the most vulnerable times of year such as late fall when moose and waterfowl harvests are so important. Some clarification is needed to determine how 374m³/s at site S24 on Oct 31st, 2011 translates into more specific process in the PAD itself.

a) If you agree, how do you explain the apparent inconsistencies between your report and the data?

If we use the above value of 374m³/s at site S24 on Oct 31, 2011, irregardless of its relationship to a mean, what it really implies is that one gauge 80 km south of the PAD is not sufficient to catch the complexities of change in the PAD. One gauge is not enough to manage the system. Rather than compare these two sources of data as inconsistent, I think they instead point out that change is occurring in the Delta due to a complex set of interactions, to which the Athabasca River plays a major, yet uncertain role. Is the Delta drying out, are Delta channels silting over and filling in? Answers that one gauge south of the Firebag River will not answer. Our study did not compare flow rates to data sets, but was far more interested in ground truthing water level knowledge and how it translated into access to treaty rights. We took 5 actual physical depth measurements (across each channel) by hand with a graduated measuring rod at 8 important ACFN navigational channels. These sites measured by the ACFN are important areas to them and have been for ages. The Elders did not establish cabins and hunting blinds in areas that were awkward or consistently difficult to get to. Both studies may well be completely accurate, which points out that a complex set of interactions, due to changes in flow by multiple rivers to the PAD, are causing water levels at important areas to drop; - interactions to which we are sufficiently ignorant of to be able to manage appropriately. More likely these numbers, when placed in the context of historical and traditional knowledge are saying the same thing; - that water levels are declining in the Peace Athabasca Delta.

5. Are your sampling sites located within the areas classified as “Flooded Vegetation” areas shown in the August 3, 2011 map provided by Parks Canada?

Question removed

6. What were the water levels in the sampling sites in August 2011? Were the levels below the Aboriginal Threshold? If so, provide supporting information.

Sampling began for the first time in September 2011. While our 'western' science data is limited the key to this report is that the scientific data is useful as a means to allow the Traditional Knowledge (TK) to be heard and discussed with equal weight to the science. The courts have decided that we can no longer just dismiss Traditional Knowledge as anecdotal, yet the reality is it remains difficult to use in a heavily science based EA process. The weight of this report is on the unanimous voice of the ACFN Elders and land users that water levels in the PAD have been dropping steadily over the last 15-20 years. This dropping water has caused challenges in reaching traditional use areas. The physical data measurements simply confirm that levels in Sept and Oct 2011 were below the ABF threshold at times, and that access is in fact difficult with water levels below 4 feet as the TK states. Without a doubt, 2 months of data would not be enough data to draw conclusions from if it were on its own, however, tied to the decades of Traditional Knowledge it validates what Elders have been saying. In the very least it raises some serious questions about navigation challenges and loss of treaty rights in the PAD and points to the need for a thorough study of Delta water levels, influences and hydrologic processes – certainly prior to handing out more water withdrawal permits.

7. What criteria or rationale was used to determine the Aboriginal threshold of 1.2 metres (4 feet) depth?

The Aboriginal Base Flow (ABF) is a threshold of needed water depth to safely and effectively navigate waterways to reach traditional use areas. The ABF was established by the Firelight Group interviews for their report "As Long as the Rivers Flow" (EXH 006 013I p 185). This is a physical measurement of 4 feet or 122 cm. Its basis is rooted in TK and represent the amount of water needed to get up on step in a boat loaded down with a harvested bull moose. The 4 foot depth is an average of all of the responses from the Firelight Group interviews. Part of the work of the CBM monitoring was to test the appropriateness of this ABF.

8. Have you reviewed the information provided in AESRD website regarding the flows in the Athabasca River? If you have, in your opinion, what does the information provided by AESRD show?

I have not reviewed it.

9. Could water level changes in the Peace-Athabasca Delta (PAD) be due to changes on other rivers feeding the delta?

They are certainly influenced by hydro electric regulation on the Peace River, however the fact remains that current access to traditional areas and hence treaty rights are severely stressed already at sensitive times of the year by low water levels. Any more withdrawals or flow regulations on any part of the whole complex PAD system will only exacerbate this.

10. Do you agree or disagree that the PAD flooding events are mainly influenced by the Peace River?

One of the main flooding events in the PAD is driven by ice jams as the Peace River converges with the Slave River, as the spring swollen Athabasca River waters meet them. Flooding dynamics across the entire PAD are variable though and due to a complex of factors and not just due to the Peace River. There are PAD zones where the Athabasca River dominates, the Peace dominates and where they are both influential. It matters how big the Athabasca River flood is both in terms of the zone where the Peace River really dominates, but also the areas where the Athabasca River is the main driver behind the recharge of perched basins. The natural flooding processes to the PAD have been

disrupted by the flow regulation by the Bennett Dam which has smoothed peak spring flows and has also created different ice conditions that do not allow for the easy formation of ice jams. Climate change has also influenced the system in recent decades, making it difficult to make sweeping statements about processes which shape perched-basin recharge. Climate change, for example leads to weaker ice and less ice in general and by altering flow coming from the mountains which may limit the ability of ice jams to form. High Peace River flows, even without ice, as seen in the 97 – 98 flood can influence levels in the PAD. However, high spring Athabasca flows are needed to in part cause this flooding and Athabasca River floods also contribute water to perched basins in the Athabasca portion of the PAD. Regardless, as I mentioned in question 9 the cause of low water in the Delta, or changes to flood regimes is still not completely understood, and may be irrelevant to the question of access to treaty rights. The fact remains that access to traditional use areas, proven by this report, is already at a critical point. Any further water withdrawals will only make access to treaty rights that much more difficult for the ACFN.

11. In your opinion, has the regulation of water flows on the Peace River affected the PAD flood regimes, the perched basins and the ability to navigate on water in and near to the PAD?

Yes. Water regulation on the Peace has had serious implications to navigation and ecosystems in the Delta. And to re-iterate, we must view the system (the PAD) as having been cumulatively impacted in a negative way. Those negative trends continue, and until a management change which allows for more natural water regimes to be re-established on the Peace River occurs, then any further withdrawals from the Athabasca River will decrease the ability of ACFN members to safely access traditional harvesting areas.

12. Do you agree or disagree that flows in the Athabasca River naturally decrease at the end of fall and during the winter months?

I agree. And again we must take into consideration the Traditional Knowledge of the ACFN Elders who live in and have always relied on the Delta, who insist that water levels are decreasing in a trend that sees overall water levels lower each year. They judge this by water levels on rock faces, beaches, islands and by vegetation growth such as willow, in areas that were formerly dominated by wetland species, or were open water. The Elders insist that the greatest water declines are in the late fall (beyond what they would consider normal water level declines towards the winter low).

a) If you agree, how is that natural cycle of flows reflected in the depth of perched lakes in the PAD?

The natural cycle has been altered based on flow regulation in the PAD. But in principle, perched lakes went through cycles of flooding and drying out, and do not correspond to the same hydrological curves as a river system might. Not all perched lakes are the same – yet they are only connected with the river system during floods. Evaporation is the main reason for these lakes to dry out, as they are naturally shallow and wide.