

January 24, 2013

Our File: 05320

Shannon Flint
Assistant Deputy Minister
Policy Division
Environment and Sustainable Resource Development
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Dear Ms. Flint,

RE: Comments on Surface Water Quality Management Framework for the Lower Athabasca Regional River

The Environmental Law Centre (ELC) is an Edmonton-based charitable organization established in 1982 to provide Albertans with an objective source of information about environmental and natural resources law and policy. The ELC's vision is an Alberta where the environment is a priority, guiding society's choices. It is the ELC's mission to ensure that Alberta's laws, policies and legal processes sustain a healthy environment for future generations.

The ELC has been monitoring the Government of Alberta's regional planning and its evolving approach to cumulative effects management policy and is pleased to provide these comments regarding the *Surface Water Quality Management Framework for the Lower Athabasca Regional River (the Framework)*.¹

Introduction

The stated goals of the *Framework* are laudable as they include addressing cumulative effects, supporting pollution prevention and identifying triggers and limits for surface water quality in the region.² However, the ELC finds that the *Framework* is ill suited to accomplish these goals in a way that is adequately protective of the regional aquatic environment. Specifically the *Framework*:

1. Fails to adequately deal with effects at a regional level, allowing for potential detrimental impacts across a region; and

¹Government of Alberta, (Edmonton: Government of Alberta, 2012), online: Alberta Environment and Sustainable Resource Development

<http://environment.alberta.ca/documents/LARP_Framework_SurfaceWaterQuality_FINAL.pdf>

² *Ibid.* at p. 5.

2. Is based on a questionable definition of “historical condition” which may undermine a true cumulative effects approach.

Addressing regional cumulative effects

The laudable but difficult goal of managing cumulative effects is a policy focal point for Alberta Environment and Sustainable Resource Development. The general approach is logical in its use of trigger points and limits being set for prescribed environmental indicators, but several issues may undermine the effectiveness and appropriateness of cumulative effects management.

A key issue with the *LARP Surface Water Quality Framework* is its use of one monitoring station on the main-stem of the Athabasca River for identifying triggers and limits.³ The use of the Old Fort station as the single point for triggering a management response is inappropriate for two central reasons:

1. Cumulative effects management must focus on meeting regional environmental quality, not environmental quality at a single point; and
2. The dilutive capacity of the main-stem is likely to be misleading in relation to actual impacts on upstream water bodies, such as main tributaries of the Athabasca River.

The use of the Old Fort station as the monitoring point for implementing the management framework is inappropriate as upstream and tributary environmental quality may be compromised without leading to any statistically significant increase at Fort Station. This is directly contrary to the principles espoused in the Framework, i.e. “the framework proactively manages water quality within the region with consideration of human population and ecosystem health”.⁴ To deal with regional cumulative effects requires monitoring and place based triggers and limits for the main tributaries of the Athabasca River. These triggers and limits should reference tributary specific baseline conditions. This approach is required for two primary reasons:

1. To ensure regional surface water quality at a meaningful scale; and

³ *Ibid.* at p. 20.

⁴ *Ibid.* at p. 10. It should be noted that the principles in the Framework under s.3.3.3 are contradictory in the sense that they seek to ensure regional quality by using a single, downstream, monitoring station for framework implementation. It would be illustrative for Alberta Environment and Sustainable Resource Development to evaluate and publish how much further loading of the Athabasca River would be allowed prior to a trigger or limit might be reached.

2. To recognize that the use of water quality guidelines as the reference for triggers and limits may not be appropriate in many circumstances.

An evaluation of future allowable impacts on surface water should also be conducted to derive an understanding of how much “wiggle” room there is before the adjusted triggers and limits will be met.

Recommendation 1: The *Framework* should be amended to have multiple monitoring stations that are scientifically defensible to discern cumulative effects on the main tributaries of the Athabasca River.

Recommendation 2: Indicators, triggers and limits should be adjusted to reflect the “pre” and post-industrial condition to appropriately manage cumulative effects objectives at the major tributary level.

Recommendation 3: Identify and publish “projected future allowable loading” for each tributary and reach of the Athabasca River.

The need to reevaluate “historical conditions” of the Athabasca River

The second major concern with the *LARP Surface Water Quality Framework* is its use of “historical conditions” and how these are used to identify triggers and limits. The *Framework*, in using data sets from 1988-2009, is directly undermining the concept of cumulative effects management.⁵ This, in combination with the limitations inherent in using a single monitoring station on the Athabasca River, is likely to undermine reaching place-based objectives that should be set.

More research must be done to get an accurate picture of pre and post-development scenarios on the Athabasca River and its tributaries. Failure to do so increases the risk of the framework being merely a tool of “future effects” and not cumulative ones. Additional scientifically defensible modeling should be used to back out contributions on a reach basis. The potential to grandfather those impacts from 1988-2009 in both the upper and lower Athabasca region as “normal” or acceptable effects on surface water quality must be avoided.

The risks of having an inadequate or inappropriately derived baseline (or historic condition) are elevated where one considers how the triggers are based on statistical movement away from that baseline. This does not reflect any scientific assessment of actual impacts of surface water quality, as specifically espoused by the framework, but is merely a relativist approach to placing triggers on indicators. It appears likely that this was done to facilitate further growth prior to the meeting of any triggers.

⁵ *Ibid* at p. 19.

In addition, the management approach that will be taken in instances where a limit is already exceeded remains unclear. While the data deficiencies must be acknowledged, there is work to be done, through appropriate modeling, that would allow a more accurate historical condition to be established. This modeling is likely more feasible at the major tributary scale as well.

Following on the work conducted for the report, *Analysis of Water Quality Conditions and Trends for the Long-Term River Network: Athabasca River*, there is a need to fill in gaps in understanding about the state of contributions to surface water quality.⁶ The need for additional resources to do this work is likely to be high.

Further, where water quality guidelines are currently exceeded there is need for additional clarity regarding the monitoring, research and management response that will be undertaken. The exceedance of guideline levels is a preliminary indication of increased risks to the aquatic environments that must be targeted by a clear plan of action (with specified timelines).

Recommendation 4: Evaluate and adjust the “historical condition” in the *Framework* to better represent environmental conditions pre-development, using research and modeling to “back out” contributions to degradation of surface water quality.

Recommendation 5: Clearly articulate contributions to surface water quality under current authorizations for point source emissions and work toward quantifying and reporting on non-point related inputs for water quality indicators.

Recommendation 6: Extend recommendations 4 and 5 to be applicable at a regional scale.

Recommendation 7: Provide greater clarity in terms of management actions and approaches to respond to indicators that are currently exceeding guidelines, indicating an increased risk to the aquatic environment.

Inclusion of the quantity-quality nexus

The approach taken by the *Framework* is also problematic insofar as it disregards flow impacts on quality. The *Framework* should be reworked to recognize that times of low flow may result in increased water quality stresses. The approach to triggers as currently stated may capture some aspects of water quantity impacts on water quality where there is movement away from peak values for water quality indicators; however, the use of mean values may allow for

⁶ Hebben, Thorsten, 2009 *Analysis of Water Quality Conditions and Trends for the Long-Term River Network: Athabasca River (1960-2007)* Edmonton, AB; Alberta Environment, online: Alberta Environment <http://www.environment.gov.ab.ca/info/library/8142.pdf>

increased impacts on water quality in lower flow periods. (This may become particularly stark in years where there is a period of time with above average flows followed by below average flows.)

Recommendation 8: Amend the Framework to consider triggers and limits based with incorporation of relevant flow data and seasonal variability.

Coverage of relevant substances

There is a need to address gaps in indicators where long term data is absent. The *Framework* acknowledges these gaps and there needs to be significant scientific capacity committed to identifying appropriate triggers and limits for polycyclic aromatic hydrocarbons and naphthenic acids.

Conclusion

In summary, the surface water quality monitoring system is not well suited to identify or address the cumulative effects of development of the region. Past monitoring has been criticized for being inadequate to the task of discerning the cumulative effect of development of the region. This approach appears to be continued in the *Surface Water Quality Management Framework for the Lower Athabasca Regional River*.

Please do not hesitate to contact the Environmental Law Centre should you have any questions.

Yours truly,

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