

Elk Valley Water Quality Plan Technical Advisory Committee – Meeting #6 Notes

June 9-11, 2014 – Victoria, BC

Meeting Objectives

- Provide an update on the Elk Valley Water Quality Plan (EVWQP or “Plan”) and discuss the incorporation of Technical Advisory Committee (TAC) advice into the Plan.
- Review and discuss the action items from previous TAC meetings.
- Review and discuss the TAC technical advice received during and after TAC Meeting 5.
- Review and discuss key parts of the Synthesis Report on the State of the Aquatic Ecosystem, including Conceptual Site Models, Designated Area Report Card, and data gaps (a more detailed presentation of the Synthesis Report will occur at the Monitoring Working Group meeting).
- Review and discuss the selection of short-, medium-, and long-term water quality targets, including:
 - the results of the ecological effects assessment, including an analysis of interactive effects;
 - the assessment of effects in tributaries;
 - the results of the water quality planning model; and,
 - the socio-economic analysis.
- Review and discuss the EVWQP Monitoring Framework.
- Review and discuss the approach for the protection of human health and groundwater, including the drinking water evaluation and the results of the Human Health Screening Level Assessment.
- Review and discuss the approach to address calcite.
- Review and discuss the management options to meet short-, medium-, and long-term water quality targets and Teck’s proposed management scenario to meet targets.
- Review and discuss the approach to adaptive management for the EVWQP.
- Brief the TAC on the Plan approval and implementation process.
- Provide time for the TAC to have an open discussion on a topic of their choosing.
- Confirm the TAC workplan and next steps (for Working Group Meeting 7).

Meeting Participants in Attendance

At least one representative from each TAC member agency was present. The nine TAC members represent:

- Teck;
- the BC Ministry of Environment (MOE);
- the BC Ministry of Energy and Mines (MEM);
- the BC Environmental Assessment Office (EAO);

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- the Government of Canada represented by Environment Canada (EC);
- the US Federal Government represented by US Geological Survey (US Govt);
- Montana State Government represented by Department of Environmental Quality (MT Govt);
- the Ktunaxa Nation Council (KNC);
- an independent third-party qualified professional scientist (Independent Scientist).

Meeting Summary

TAC Advice

The Technical Advisory Committee's (TAC's) specific technical advice on the topics discussed at TAC Meeting 6 is summarized in two separate appendices¹ to this Meeting Summary.

TAC Administration

The TAC discussed a number of administrative items, including the process for TAC members to comment on Teck's response to TAC advice (which is submitted with the Plan on July 22, 2014), a summary of the TAC process, the status of TAC action items, the process for submitting technical advice on TAC Mtg #7 materials, and the schedule for upcoming meetings.

Aquatic Environment Synthesis Report

Teck gave an overview presentation of their draft Aquatic Environment Synthesis Report, which included an overview of conceptual site models for the Elk River Watershed and Lake Koocanusa, an evaluation of the current environmental data (water, sediment, tissue, community structure), an integrated data evaluation of environmental quality for specific locations (also referred to as "Report Cards"), data gaps and recommendations.

Discussion topics included: the screening process for identifying constituents of potential concern, sediment toxicity testing, exposure pathways in the screening-level environmental risk assessment,

¹ Appendix A – TAC Technical Advice Received at TAC Meeting 6 and Appendix B – TAC Technical Advice Received After TAC Meeting 6.

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benthic invertebrate monitoring methods, the integrated data evaluation “Report Cards”, and the conclusions that Teck made on the overall environmental quality of Lake Koocanusa.

Water Quality Targets

Teck presented their process for setting targets, the long-term and short-term targets for Order Stations, and their initial implementation plan for meeting the targets. Teck explained that their water quality modeling of management scenarios indicate that water quality guidelines or their equivalent can be met for some Order constituents and portions of the Designated Area. As a result, site-specific long-term targets are required only for selenium in the Fording and Elk Rivers (Management Units 1-5), and for nitrate in the Fording River (Management Units 1-2). Teck further explained that these long-term targets were informed by aquatic ecosystem toxicity benchmarks, which were reviewed by the TAC’s Toxicology Working Group.

A key message from the TAC’s Toxicology Working Group was that they reached agreement that the selenium level 1 toxicity benchmarks for the Fording River and Elk River can be characterized as a “best estimate with residual uncertainties”. The members of the Working group agreed to disagree on the characterization of the benchmark as “protective” of fish and wildlife populations.

Some TAC members stated that there has been too little analysis on Lake Koocanusa, which is potentially the most sensitive receiving water for selenium in the watershed. Further, it was stated that there is uncertainty on whether a selenium water quality concentration of 2 $\mu\text{g/L}$ is protective for Lake Koocanusa since selenium bioaccumulation rates are dependent on site-specific factors.

Monitoring Framework

Teck presented on the draft EVWQP Chapter for Monitoring, which covered monitoring objectives for the Plan, how the Regional Aquatic Effects Monitoring Program (RAEMP) will be used to meet some of the requirements of monitoring for the Plan, monitoring that is specific to the Plan (as opposed to the RAEMP), and how monitoring results will be reported.

TAC discussion focused on monitoring objectives, the RAEMP monitoring schedule, groundwater monitoring, and updates to the human health assessment.

Drinking Water Evaluation & Human Health Evaluation of Baseline Conditions

The TAC reviewed the drinking water evaluation and the human health evaluation of baseline conditions for the Elk Valley. Discussion focused on aesthetic water quality guidelines, the well sampling program, and the estimates of current total daily intake of selenium for Elk Valley residents.

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Approach to Calcite

Teck's presentation on calcite covered the following topics (1) updated narrative objective for calcite (2) 2013 monitoring results (3) medium- and long-term calcite targets (4) Implementation Plan for mitigation measures and (5) knowledge gaps.

TAC discussion focused on the calcite index, factors influencing calcite formation, management actions outlined in the Implementation Plan, calcite targets and triggers, and calcite monitoring.

Summary of Management Options

Teck's presentation on management options focused on what they have learned to date through their Research & Development (R&D) program and their plans for future R&D. A key piece of advice from the TAC was that the Plan should include greater detail on the rationale for the management actions outlined in the Implementation Plan.

Approach to Adaptive Management

Teck presented their adaptive management (AM) framework for the Plan, which included a review of the adaptive management decision flowchart, the AM triggers² associated with monitoring components under the Plan and the RAEMP, the AM triggers associated with Teck's Research & Development program, and AM triggers associated with changing circumstances (e.g. future mine planning).

Several TAC members advised that the adaptive management framework should be more detailed – for instance by providing more quantitative triggers and outlining the specific actions that would be considered when a trigger is met and a root cause analysis is completed. It was also suggested that the adaptive management framework should include greater detail on how the results of the R&D program get incorporated into the Implementation Plan to enable the implementation of more long-term mitigation solutions (as opposed to active water treatment).

² An adaptive management trigger is a quantitative or qualitative threshold, which if reached, requires further investigation. Further investigation may then lead to changes or additions to management actions.

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Plan Approval Process & Implementation

The Order Manager made a presentation on the regulatory aspects of Plan approval and implementation. TAC members asked questions around Plan compliance mechanisms, whether there will be a review or update of the Plan, the factors that are considered in the permitting process, and the Lake Koocanusa selenium target.