Saskatchewan-Alberta Bilateral Water Management Agreement

APPENDIX D
Surface Water Quantity

2024-04-04

Appendix D – Surface Water Quantity

*Reference: Section 6, Surface Water Quantity, of the Saskatchewan – Alberta Bilateral Water Management Agreemen*t

D1. Surface Water Quantity Classification

At the time of signing, none of the Transboundary Waters were classified. As needed, the Bilateral Management Committee (BMC) will work to develop a reproducible approach to the classification of Transboundary Waters that meets both Parties' interests. The BMC will begin this work by reviewing relevant risk assessment tools (e.g., desktop tools for comparison of withdrawals/consumption to Available Water, flow statistics and/or flow needs). Other factors which could be considered include the seasonal flow fluctuations (e.g., winter and summer low flows and spring-summer floods), statistical probabilities of extreme flow rates (e.g., flood and drought risks), the average recorded flow rate (e.g. mean monthly flows), stream size (e.g., as a function of long term mean annual discharge), the annual totals of allocated withdrawals and, when required, the estimation of consumption and return flows, etc.

D2. Learning Plans

A Learning Plan is required for Transboundary Waters that are class 2 or higher. The Learning Plan will contribute to acquiring baseline information for Transboundary Waters and will provide additional information to confirm or alter the assigned classification. The water quantity Learning Plan may consist of several topics such as general information on watershed profile; the existing hydrology of the watershed; identification and estimation of various water uses in the watershed along with their significance, influence on water resources by existing Developments and/or Activities; potential influence on water resources by proposed future Developments and/or Activities, assessing climate change impacts etc. The BMC will determine the focus of the water quantity Leaning Plan for Transboundary Waters on a case-by-case basis. The Learning Plan is intended to facilitate the existing and future Developments and/or Activities and the use of Triggers (section D3) and Transboundary Water Quantity Objectives (section D4).

D3. Approach to Setting Transboundary Water Quantity Triggers

This section describes the general approach to setting transboundary water quantity Triggers. Specific Triggers are to be defined in section D5.

As described in Appendix A, Triggers are defined as specific conditions defined by the Parties that will require an appropriate Jurisdictional and/or Bilateral Water Management response. Multiple Triggers can be set to invoke additional actions as necessary (e.g., degrading conditions).

Triggers may be set for class 2 Transboundary Waters (where data is available) and will be set for class 3 Transboundary Waters, using the results of the Learning Plan if available, according to the Risk Informed Management (RIM) Approach.

D4. Approach to Setting Transboundary Water Quantity Objectives

This section describes the general approach to setting Transboundary Water Quantity Objectives. Specific Objectives are to be listed in section D5.

Available Water will be shared as per section 6.1 of the Agreement and the sharing will be formalized into a Transboundary Water Quantity Objective if the relevant Transboundary Water body reaches class 3 classification.

The setting of Transboundary Water Quantity Objectives would best be determined using site-specific knowledge of hydro-climatology, basin water balance, Consumptive Uses, and ecological flow needs. For most Transboundary Waters in this Agreement, long-term continuous records of streamflow are not available at or near the boundary. Therefore, in many cases, it may be necessary to use alternate methods to characterize hydrology of a water body and to estimate ecological flow needs. Such alternative methods could include approaches such as transfer from hydrologically similar gauged watersheds, and/or use of hydrologic simulation models.

For class 3 Transboundary Waters, the BMC will set Transboundary Water Quantity Objectives and identify, based on the best available scientific information, indigenous Knowledge, and/or a desktop method or an instream flow needs study, the amount of water needed to avoid unreasonable harm to the Ecological Integrity of the Aquatic Ecosystem and, hence, the Available Water.

D5. Water Quantity Triggers and Objectives for Class 3 Water Bodies

Once Water Quantity Triggers and Objectives have been set for any Transboundary Waters, they will be included in this section.

D6. Monitoring

Water quantity monitoring can occur independent of RIM classification as determined and directed by the BMC. Long-term monitoring is critical to understanding whether significant changes are taking place in the natural environment. Long-term datasets reveal important patterns, which allow trends, cycles, and rare events to be identified. This is particularly important for complex, large systems where signals may be subtle and slow to emerge. Long-term datasets are essential to test hypotheses that may have been overlooked at the time the monitoring was started. With increasing variability in hydrological regimes associated with increasing climatic variability, long-term monitoring is critically important.

The primary goals of water quantity monitoring of Transboundary Waters are to track changes in water quantity over time, determine anthropogenic and natural drivers for changes in water quantity, and monitor Transboundary Water Quantity Objectives. The parties recognize that all current and historical provincial and federal hydrometric data may be useful for implementing the risk-informed management approach. The parties may enhance transboundary monitoring goals by identifying, assessing, and implementing additional monitoring measures as necessary, alongside the existing hydrometric monitoring network.