Forum Notes: Licensing, Compliance & Managing Water Supply & Demand

Water Management: Supply & Demand Balancing Act

- Water management is about balancing supply and demand for water. There are two types of water demand: the water needed for a healthy ecosystem, and the water needed for our domestic, agricultural and industrial use. Water supply is the water nature provides.
- Every watershed has a limit to the amount of water available for consumptive use. In addition, water supply from the Battle River is highly variable, because the river's natural flows are highly variable. The Battle River's flows vary widely throughout the year, and also year to year.
- Because water supply is limited and variable, there is always a risk that there will not be enough water for all human uses *and* for a healthy ecosystem.
- Each water user must determine the risk of having a limited water supply that is tolerable before their operation is compromised, ie. how long can the operation go without water?
- We must also consider how long the ecosystem can tolerate poor water quality or alteration of its natural flows before it is significantly harmed.
- Balancing supply and demand is about balancing the 'risks' of not having water, and balancing the values of the ecosystem, human use and the economy. It is about making a decision on when enough is enough, in terms of withdrawing water or impacting water quality. We need to decide what the right balance is for the Battle River watershed.

Water Management and the Alberta Sustainable Resource Development Perspective

- Water in the Battle River is important not just for fish, but also for amphibians, birds and mammals.
- It is important that we maintain within the Battle River - productive capacity, connectivity – lateral and longitudinal, natural flow regime, healthy riparian areas. and most importantly perspective (our bench mark should be what it was pre-settlement, not what it was 10-20 years ago.)
- ASRD recommends that the instream flow objective for the Battle River be set at 85% of the natural flow for the flows above the 80% exceedance value and at the 100% of natural flows for the remaining low flow periods. This is based on the analysis done in the South Saskatchewan taking in to account the flows needed for fisheries, water quality, riparian vegetation and channel maintenance and are the flows needed to fully protect the aquatic environment. The risk of losing individuals or species increases the further we deviate from 85% of natural flow.

Water Act, Environmental Protection Enhancement Act, Alberta Environment Licensing & Approvals

- The purpose of the Water Act is to support and promote the conservation and management of water in Alberta, including the wise allocation and use of water.
- The purpose of the Environmental Protection and Enhancement Act (EPEA) is to ensure that activities that may adversely affect the environment take place in accordance with regulatory standards. With respect to water, EPEA primarily regulates industrial and municipal water treatment standards and discharge quality (releases).
- Water is a Crown resource that is not owned by individuals. Under the Water Act, any use which affects surface or ground water requires an approval and/or a license (exemptions described below).
- A license is required before using or diverting water. The license identifies the source of water supply, the location of the diversion site, the volume of water to be diverted and used from that source, the timing of

water withdrawal, the priority of the water right established by the licence, and the conditions under which the diversion and use must take place.

- An *approval* under either the Water Act or EPEA is required for any activity that potentially affects water quantity or quality. An *approval* includes "conditions" under which an activity must take place. Examples of activities that may require an approval include: pesticide use, soil disturbance potentially causing siltation of water body, excavating or placing materials along or near rivers; draining or filling wetlands, constructing bridges or culverts, dumping garbage, and stockwater dams.

- When a person applies for a water licence, they apply to Alberta Environment, and a number of Matters and Factors are considered, including the *need* for the water requested (timing and volume), water availability, and impacts on other users and the aquatic environment. The *type* of water use is not considered. The public is notified of the application. Appeals can be filed by directly affected parties only.

- Certain water uses do not require a water license. A license is not needed to use up to 1250 m^3/year for household use. Other license exemptions include: water from a hand pump, riparian rights (watering livestock from water bodies), use of water from certain dugouts, fire fighting, and water used for pesticide application.

- A water license allows the license-holder access to water *when* it is available; it does not *guarantee* access to water. Water rights are prioritized using the *First in Time, First in Right* principle. This means that those holding the oldest water licences have seniority or priority access to water, regardless of the type of water use. The older the licence, the less risk of being denied water. Temporary diversion licenses (which have maximum one year duration) have no priority.

- Water Mastering can be used during times of water shortage. It involves withdrawing the right of some licence-holders to take water. The most junior licence is shut-off first, then shut-offs progress to more senior licences until sufficient water is available to satisfy the remaining (more senior) licences. Some licence-holders have avoided water mastering by temporarily sharing water between licence holders during shortages.

Compliance & Enforcement

- Alberta Environment uses a combination of education, prevention and enforcement to ensure compliance with legislation.
- Compliance and enforcement tools include: notices of non-compliance; written warnings, administrative penalties (fines); Environmental Protection, Water Management or Enforcement Orders; prosecutions; and creative sentencing.
- Water related compliance activities include inspection and audits of regulated facilities (plants, factories); addressing public complaints; monitoring and mitigating spills, blow outs, etc. that might contaminate water bodies; ensuring dams, weirs, drainage ditches etc. comply with legislation; ensuring license and approval holders comply with their license or approval conditions.
- There are a limited number of compliance staff in the province. Alberta Environment relies on the public to report incidents and possible violations. A 24 hour Environmental Complaints/ Emergency Hotline is available: 1 800 222-6514 License holders are responsible for ensuring that they comply with the conditions of their licences.

Apportionment

- The Master Agreement on Apportionment is a Contract between Alberta, Saskatchewan, Manitoba and the Federal Government that defines how water in eastward flowing rivers should be shared among the three Prairie Provinces.

- The Apportionment Agreement requires that upstream provinces must pass 50% of rivers' natural volumes to downstream provinces. It also requires that this water meet certain water quality objectives.

- The Prairie Provinces Water Board (PPWB) administers this agreement, monitors flows and water quality, and reports on compliance with agreement.

- Alberta must pass a minimum of 50% of the Battle River's natural flow to Saskatchewan. Natural flows are calculated by adding estimates of water use from the Battle River (in Alberta) to measurements of the actual river flow at the Saskatchewan border. Natural flow is calculated on an annual basis.

Scenario Modelling & Management Tools

- There are currently 785 water licences for water consumption from the Battle River, for a total of 60,000 decameters^3 of water use per year. The average annual flow of the Battle River at the Saskatchewan border is 285,000 decameters^3/year, and the minimum flow has been 53,000 decameters^3/year.

- Computer-based Water Resource Management Modelling is being done for the Battle River Watershed. This model is run using 90 years of flow records for the Battle River, current licenced water allocations, and existing dams, weirs and diversions.

- Preliminary results from the model show that t in the 90 years with flow records, if current licence holders withdrew all of their licenced water amounts, there would have been six years where there was insufficient water to meet apportionment.Under these same conditions, there would have been 20 years when there was insufficient water to meet all existing licence allocations (1-13% deficit experienced) after apportionment was met.

- Increased operation of existing storage (dams) could improve the situation for licence holders, but increase the risk of not meeting Apportionment.

- If every licence holder had two years worth of water stored, there would be sufficient water available 98% of the time.

Considerations for Water Management

- A number of tools can be used to help meet the needs of water licence holders and/or the river ecosystem.
  - Capping water allocations (closing the watershed to additional licences)
  - Cancelling licences not in good standing
  - Enacting a water licence transfer system (including temporary or partial transfers)
  - Holding back 10% of transferred water for dedication to instream flow needs
  - Active forecasting of natural flows
  - Licence for withdrawals during high flows only
  - Licence holders reducing their own risk by building off-stream storage
  - Enacting sharing arrangements during water shortages to avoid Water Mastering.

More information:

Water Act, Licences & Approvals: www.gov.ab.ca/env/water/Legislation/Factsheets
Compliance& Enforcement: www.gov.ab.ca/env/protenf
Apportionment: www.pnr-rpn.ec.gc.ca/water/fa01/index.en.html