

November, 2013

Manitoba Hydro Response to:

Technical Information Request for Carrot-Saskatchewan River IWMP

- 1. The Carrot-Saskatchewan River watershed is impacted by periodic flooding and fluctuating surface water flows. Water control structures are maintained and operated by various stakeholders. What solutions do you suggest for improving communication among these stakeholders to support the better management of surface water in this watershed?**

Your current exercise to: identify all stakeholders who own/operate water control structures in the watershed; map out location of each structure; and determine its purpose and operating plan; will provide useful background water regime information. A next step might be to hold a workshop with all these stakeholders where they can provide a better description of what they are trying to achieve with each structure and where synergies in water level management and communication could be developed.

Note that at least the Saskatchewan portion of the watershed needs to be included in this exercise – control structures on the Saskatchewan River in Saskatchewan are the largest driver of flows downstream in the Manitoba portion of the river.

- 2. As a result of the operation of numerous water control structures, the watershed often experiences surface water fluctuations, impacting agriculture and residents in the watershed in both positive and negative ways. Can you suggest ways to improve how information on the operation of these structures, including operational requirements, current water flows and expected fluctuations, is shared with the public on a regular basis?**

Stakeholders need to be made aware of, and make use of, existing water data (e.g. available through Water Survey of Canada, Manitoba Hydro, Saskatchewan Water Security Agency). Manitoba Hydro provides forecasted water level information for Cedar Lake at http://www.hydro.mb.ca/corporate/water_regimes/cedar.shtml on a monthly basis. Also through agreements with local First Nations, we have Water Regime Review and Consultation Committees with both the Opaskweyak Cree Nation (formerly The Pas First Nation) and the Misipawistic Cree Nation (formerly Grand Rapids First Nation). Refer to the

following link for an example of the Committee terms of reference with OCN
http://www.hydro.mb.ca/community/agreements/thepas_settlement.html#6.01.

One suggestion to improve communication of information on operation of these structures, might be to develop a yearly operational plan. Also, as the stakeholder with the largest impact on flows on the Manitoba portion of the Saskatchewan River, it is important for the Saskatchewan's Water Security Agency to provide timely forecast information.

3. Can you please provide a description of the Grand Rapids Dam and its impacts on water levels within the Carrot-Saskatchewan River watershed?

A description of the Grand Rapids Generating Station is available at http://www.hydro.mb.ca/corporate/facilities/gs_grand_rapids.shtml. Flow impacts from the operation of the Grand Rapids Generating Station (GRGS) on the Saskatchewan River only occur in the short stretch between Cedar Lake and Lake Winnipeg (i.e. downstream of GRGS). Saskatchewan River flows upstream of Cedar Lake depend on hydrology and the operation of other water control structures (primarily EB Campbell Generating Station's outflow). GRGS operation causes persistent water level effects upstream on the Saskatchewan River to a point downstream of "Big Bend", while occasional water level effects upstream of this point occur under specific circumstances (e.g. low flow on River but high Cedar Lake water level). GRGS operations do not increase flood levels at The Pas.

The Summerberry Marsh (south of Summerberry River) and South Moose Lake are located in the Water Power Act licence area for GRGS. The licence area does not cover all areas that could be impacted by the project (i.e. further upstream on river, North Moose and Cormorant Lakes). Note we are currently conducting a more refined analysis on the hydraulic extent of Manitoba Hydro's Grand Rapids Generating Station impacts for our Water Power Act Licence Renewal of GRGS.

4. What information is available to the watershed team on the management of the Grand Rapids dam? Can information be provided on the annual surface water flows and standard operating range for water levels on Cedar Lake?

Operation of Grand Rapids and Cedar Lake provide both generation and storage for the Manitoba Hydro system. The capacity of Grand Rapids generating station and the volume of storage in Cedar Lake are large relative to the average inflows to Cedar Lake. Because of

this, Grand Rapids is commonly referred to as a 'peaking plant' where it is typical to operate at high generation (and discharge) levels during the daytime peak load hours and at low generation (discharge) overnight. On a seasonal basis, Cedar Lake storage and Grand Rapids generation are primarily used during high load periods of the winter and summer months. Storage is typically conserved during the spring and fall periods when electrical demand is lower (refer to hydrograph attached to e-mail).

With respect to extent of hydraulic impacts, the normal operating range of Cedar Lake is 252.984 m – 256.641 m (measured at Cedar Lake at Oleson Point, on Grand Rapids Datum). The powerhouse effectively discharges directly into Lake Winnipeg were hour-to-hour and daily changes to Grand Rapids discharge are absorbed by this massive lake; effects on Lake Winnipeg levels from these short-term operations are indiscernible. Refer to response to Q (3) above for GRGS imp[acts on water levels and flows.

The following additional information is available online:

- Cedar Lake Water Level Forecast Information is available at http://www.hydro.mb.ca/corporate/water_regimes/cedar.shtml
- "Real-time" water level information is available on the Water Surveys of Canada web site (http://www.wateroffice.ec.gc.ca/index_e.html) for the water level gauge "Cedar Lake Near Oleson Point 05KL005". Or data may be accessed for many of these stations through the Manitoba Hydro website at <http://www.hydro.mb.ca/hydrologicalData/static/>
- Information on the Grand Rapids Generating Station is available at http://www.hydro.mb.ca/corporate/facilities/gs_grand_rapids.shtml