

**Procedures to Optimize the 2015-16 Winter Water Levels
in the Lower Mayo River at the Village of Mayo
August, 2015**

2015-16 Winter Operating Guidelines

The following course of action is recommended for the winter of 2015-16. This action is presumptive of a shore ice-type of ice cover forming like in 2014-15, but provides contingency guidelines if the ice cover forms by the accumulation of frazil slush.

1. The following location-specific water elevations should not be exceeded during the winter period:
 - i. Force main crossing: 487.0 m
 - ii. Mitford property: 489.0 m
 - iii. Silver Trail Bridge: 493.1 m
2. Starting on Nov 1, water levels should be monitored at least on a daily basis (frequency of monitoring should be flexible) at the above four locations. Groundwater levels should be monitored three times weekly on as broad a basis as possible. YG to monitor 2015-2016
3. No constraints would be placed on Mayo River flows while open water exists on the lower Mayo River, while the Stewart River is generally ice free or while mean daily air temperatures are above freezing.
4. After freeze-up occurs on the Stewart River and/or ice accumulations begin to develop within the back-channels and on the gravel bars of the Mayo River, preparations should be made to control flows on the Mayo River. The sub committee meets bi weekly starting Nov 1, 2015. The subcommittee will discuss current conditions and will make recommendations to YEC for flow adjustment based on conditions. YEC will supply weekly updates of the 15 minute flow rates
5. If shore ice begins to form in the active channel in advance of the accumulation of frazil slush, flows should be set to 15 m³/s and kept constant.
 - i. If no frazil slush is accumulating in the channel, and it appears that a shore ice-type of ice cover will form (shore ice growing systematically outward with minimal surface frazil accumulations), maintain flows in the 15 to 17 m³/s range while the shore ice-type of ice cover is in the process of forming.
 - ii. Upon the formation of a complete shore ice-type of ice cover, flows may be increased at a rate of 1.0 m³/s per week at maximum increments of 0.5 m³/s until water levels begin to approach the target level(s).
6. If it appears that an accumulation-type of ice cover is developing, flows should be set to 15 m³/s and kept constant while the ice cover forms.

- i. If, upon the formation of the cover, water levels are below the target level(s), the flows should be kept reasonably constant for one week to allow the surface of the slush accumulation to freeze. Flows then may be increased at a rate of $1.0 \text{ m}^3/\text{s}$ per week at maximum increments of $0.5 \text{ m}^3/\text{s}$ until water levels begin to approach the target level(s).
 - ii. If, upon the formation of the cover, water levels rise above the target level(s), flows should be reduced immediately at a rate of no more than $2.0 \text{ m}^3/\text{s}$ per day to effect the necessary water level reductions. Once the target water levels are achieved, maintain the flow and monitor water levels. If water levels drop to below the target level(s), increase flows at a rate of $1.0 \text{ m}^3/\text{s}$ per week at maximum increments of $0.5 \text{ m}^3/\text{s}$ while water levels are below the target level(s).
 - iii. If, after an ice cover has formed and water levels still remain above the target level(s) in spite of flows being reduced, the diversion channels should be opened, but only after due consideration of the prevailing ice conditions and if ice has been removed from the diversion channels.
7. An important objective in the overall winter operation is to allow flexibility to adjust flows to mitigate unexpected water level changes if adverse conditions develop during post-freeze-up operations.