

**MEMORANDUM OF UNDERSTANDING
BETWEEN
THE STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
AND THE CHIPPEWA AND FLAMBEAU IMPROVEMENT COMPANY**

This Memorandum, dated effective as of April 4, 2016, by and between the State of Wisconsin Department of Natural Resources with offices at 101 South Webster Street, Madison, Wisconsin (Department) and the Chippewa and Flambeau Improvement Company (CFIC), a Wisconsin corporation, with offices at 1414 West Hamilton Avenue, Eau Claire, Wisconsin 54702.

WITNESSETH:

WHEREAS CFIC is an improvement company created by the provisions of Chapter 181, Wisconsin Statutes; and

WHEREAS the Department and CFIC have historically worked closely together to develop information and procedures that maximize the benefits available to both tollpayers and the general public from CFIC's release of water from the Rest Lake Dam (the Dam) on the Manitowish Waters Chain of Lakes (the Chain) in Vilas County, Wisconsin; and

WHEREAS, s. 182.71(2)(a), Wis. Stats. identifies the CFIC as "the company" and provides that: "The company shall produce as nearly a uniform flow of water as practicable in the Chippewa and Flambeau rivers, by storing in reservoirs surplus water for discharge when the water supply is low, to improve the usefulness of the rivers for all public purposes and to reduce flood damage; and

WHEREAS there is a certain Operating Order for the Dam (attached) that remains in effect after the execution of this MOU pursuant to the applicable provisions of CH. 31 "Regulation of Dams and Bridges Affecting Navigable Waters" Wis. Stats. and is subject to Wis. Stats. s. 31.02 and s. 182.71(b) (2015); and

WHEREAS the Department is giving consideration to adoption of a revised Operating Order but has determined that it would be beneficial to first engage in a Memorandum of Understanding (MOU) for a period of time to evaluate the effect resulting from modifications to operations consistent with this MOU but within bounds of the existing Order referenced in this document on downstream flow, Chain water levels and related environmental effects; and

WHEREAS, to ensure the continuity of these efforts and the future protection of all resources, the Department and CFIC wish to document the principles which have guided and will continue to guide CFIC's operation of the Dam for a period of time and in consideration of the levels and attendant flow releases provided in this document.

NOW, THEREFORE, the Department and CFIC agree that the following MOU shall apply to CFIC's operations of the Dam within the current Operating Order for four years from the date of this MOU, unless this MOU is amended by agreement between the Department and the CFIC, and only after notification of the Chain interests and the downstream interests:

I. Consultation

- a. The Department, CFIC, the Chain interests and downstream interests intend to periodically meet to exchange information and, as necessary, discuss additional possible Dam operating modifications. In the first year of this agreement, meetings will be held in the fall (October or November) and in the spring (March or April). Subsequent meeting dates and frequency will be decided by the consultation group at the second meeting. The Department, and the CFIC agree to cooperatively develop a public medium (most likely a website) designed to provide public access to water level and flow data developed during the term of this MOU.
- b. It is understood by the Department and CFIC that this MOU may be modified by the undersigned parties or superseded by an amended MOU consistent with any recommendations based on the above, so long as such changes do not significantly conflict with the Major Principles. It is further understood that after a period of time determined by the Department, the Department, may adopt a new Operating Order to replace the current order in effect, but consistent with the legislative approval process provided in s. 31.02 and 182.71(b) Wis. Stats.(2015)

II. Major Principles of Dam Operation and Chain Water Levels

- a. CFIC shall coordinate with Department staff to establish a tailwater staff gauge that delineates the flow levels immediately downstream from the Dam. CFIC shall install a staff gauge with these tailwater levels designated on it. CFIC will purchase and maintain the tailwater staff gauge.
- b. Reservoir headwater levels shall be measured using the Dam gauge. The Dam gauge shall be maintained so that 8'6" equates to 1601.0 ft. pursuant to the National Geodetic Vertical Datum (NGVD).
- c. Except as otherwise provided herein, outflow from the Dam shall not be less than the minimum of 45 cubic feet per second (cfs) during the Summer Period (see chart on page 4), except during drought conditions. At all other times, outflow from the Dam shall not be less than the minimum of 50 cfs, except during the November 1 to the Spring Break Up period when it shall be "run of the river" (see chart on page 4). During drought conditions the CFIC may reduce minimum flow to the following:
 - i. If the headwater level falls below 8', then the minimum flow shall be reduced to 40 cfs, and if it falls below 7'9", then the minimum flow shall be reduced to 32 cfs. If the headwater level falls below 7'6", the department and the CFIC shall consult to

determine the minimum flow. The Department has determined the natural low flow to be 82.6 cfs based on the United States Geological Survey flow duration curve for August, where 80% of flows are estimated to be greater than 82.6 cfs. Section 31.34 Wis. Stats. requires the CFIC to pass at all times 25% of the natural low flow, or 20.65 cfs. Discharge calculations at the Dam will be made by operations staff utilizing spillway curves that determine discharge levels on the reservoir level and spillway opening.

- ii. The United States Geological Survey ("USGS") gauges currently located on the Bear River and Trout River or alternative calibrated gauges that may become established in the future on tributaries to the Chain may be used for comparison purposes to inflow measurements determined by the Dam attendant.
- d. The gauge to determine the reservoir water level shall be the headwater water level staff gauge located at the Dam.
- e. Spring Break Up means when open water can be observed on at least 75 percent of Rest Lake.
- f. The duration of this MOU may be used at the CFIC's discretion to determine if the Spring Break Up definition can be adjusted to allow for refill of the reservoir earlier than the above-described Spring Break Up definition. The objective is to determine if earlier refill of the reservoir in the spring can be achieved without incurring reservoir property damage while providing better assurance of higher reservoir levels during summer months while maintaining higher river flows during the summer months. But, under no circumstances shall the reservoir water level be allowed to rise above 5'6" before Spring Break Up.
- g. The reservoir drawdown rate for the fall drawdown (October 1 to November 1) shall be targeted for 1 inch to 2 inches per day but shall not exceed the upramping rate described below.
- h. During the Spring Refill which begins on the 31st day after Water Temperature Achievement Day (WTAD – see Chart on page 4) and Fall Drawdown of the Chain, downramping of discharge flow (spring) and upramping (fall) shall be as follows:
 - i. Downramping: Immediately prior to commencement of the Spring Refill, discharge flows shall be downramped until the minimum flow is achieved. Flows shall be reduced by 75 cfs on consecutive days until the minimum flow (see chart on page 4) is reached. For example, if the discharge flow prior to refill is 400 cfs, then the flow would be reduced to 325cfs on the first day. On the second day, the flow would be reduced to 250cfs. On the third day, the flow would be reduced to 175 cfs. On the fourth day the flow would be reduced to 100 cfs and on the fifth day it would be reduced to the minimum flow (see chart on page 4).
 - ii. Upramping: At the onset of the Fall Drawdown, the discharge flow shall be increased by 75 cfs on each day of the drawdown until the appropriate drawdown rate (target of 1" to 2" /day) is reached. For example, when the

discharge flow is 60 cfs at the onset of the drawdown, the flow would be increased to 135 cfs on the first day, and 75 cfs each day thereafter until the appropriate drawdown rate of 1" to 2" per day is achieved.

- i. The maximum headwaters level should be 8'6" at any time. If it raises above 8'6" because of a rain or other event, enough water should be passed as quickly as possible to protect the Dam integrity even if it exceeds the required downramping or upramping rate.
- j. Water temperature shall be taken at the Dam by CFIC during April and May. That temperature determination shall be used to identify the WTAD (of 51°F) referred to below. The Dam shall be operated to meet the parameters in the chart below:

Headwaters Level and Minimum Flow Chart

Time Period	Headwaters Level	Minimum Flow
Nov. 1 to Spring Break Up	Min. 5'0"	Run of river
Spring Break Up to Water Temperature Achievement Day ("WTAD")	Target: 8' to 8'6"	50 cfs or more
WTAD and the 30 days thereafter *Note #1	Target: 8' to 8'6"	50 to 200 cfs *Note # 2
Spring Refill and Summer Period 31st day after water temperature achievement day (typically around June 1 to Sept. 30)	Target: 8' to 8'6"	45 cfs or more *Note # 3
Oct. 1 to Nov. 1 Fall Draw Down	Target 5' by Nov. 1	50 cfs or more

*Note #1: This water system has been the subject of a great deal of scientific study as summarized in the Environmental Assessment (2013). There are numerous downstream (of the Dam) ecosystem considerations that will benefit from enhanced flow in the spring, including fish spawning, especially if that flow occurs at or above a water temperature of 51° F.

*Note #2 If the reservoir level at WTAD is at 8' or greater, the CFIC will increase the flow rate to 200cfs. If the reservoir level at WTAD is between 7'6" and 8', the CFIC will increase the flow rate to 125cfs. If the reservoir level at WTAD is below 7'6" the CFIC will maintain the flow rate at the minimum rate of 50 cfs. If these flow rates result in a lowering of the reservoir level at any time during the 30 day period, the flow rates shall be reduced so that the reservoir level that existed at WTAD is maintained for the remainder of this period.

*Note #3: If the headwaters level falls below 8', then the minimum flow shall be reduced to 40 cfs, and if it falls below 7'9", then the minimum flow shall be reduced to 32 cfs. If the headwater level falls below 7'6", the department and the CFIC shall consult to determine the minimum flow. Any reductions shall be consistent with s. 31.34 Wis. Stats, that requires the CFIC "to pass at all times 25% of the natural low flow", which the Department has determined to be 25% of 82.6 cfs, or 20.65 cfs.

III. Modifications

- a. The CFIC may implement any of the following modifications to the extent that they are necessary and to the extent that they do not conflict with the Major Principles:
- b. Annually, from November 1 to Spring Break Up, "Run of the river" is subject to alteration at the Dam to maintain recreational ice stability on the reservoir at the 5'0" headwaters level.
- c. There may be extreme events (e.g., droughts, floods) where neither Headwaters Levels nor Minimum Flows (see chart above) can be met. During these instances, unless "Emergency Conditions" exist (see below) the CFIC shall consult with Department staff to determine a plan of action during the course of the event that considers the use of the reservoir and its associated benefits as well as the downstream resources and safety of the dam.

IV. Emergency Conditions

- I. The Major Principles and Modifications shall not apply during any period of flood or other emergency condition which, in CFIC's judgment, are required to protect the integrity of the Dam and other operating structures and to comply with flood management requirements. Emergency actions will be reported to the Department's Dam Safety Section Chief or designee within one working day of occurrence.

V. Miscellaneous

- a. Nothing in this MOU shall be construed to alter the Department's authority under Chapter 31, Wis. Stats., or any other applicable regulatory authority .
- b. In the event the Department intends to modify the existing operating order under Section 31.02, Wis. Stats., while this MOU is in effect, the Department shall consult with CFIC, the Chain interests, and downstream interests prior to issuing a new or amended operating order and such order shall go into effect only after the legislative approvals required by s. 182.71(b) and s. 31.02, as modified by the Laws of 2015, have been secured.
- c. This MOU may be cancelled at any time without penalty by either party upon 90 days written notice to the other party.
- d. This MOU and all information created or kept by the Department in conjunction with this MOU may be provided to requestors to the extent required by Wisconsin's Public Records Law, Sections 19.31-19.39, Stats.
- e. This MOU shall not be construed as creating a public debt.
- f. Each party to this MOU shall be responsible for the acts or omissions of its own agents and employees to the extent provided by law.

**CHIPPEWA AND FLAMBEAU
IMPROVEMENT COMPANY**

By: _____

Mark Stoering, President

**STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES**

By: _____

Kurt Thiede, Deputy Secretary

April 2016

Rest Lake Memorandum of Understanding

Comparison of Current Operation and MOU Provision

Item #	Description	Current Operation	MOU Operation
1	Fall Drawdown		
	Start	October 1	October 1
	Completion	November 15	November 1
	Minimum Flow	40 CFS	50 CFS
	Up-ramping	None	75 CFS per day to drawdown rate of 1-2 inches
	Reservoir Height	5'0"	5'0"
2	Winter Operation		
	Minimum Flow	Run of river	Run of River
3	Spring Refill		
	Refill during ice "on"	None	Up to 5'6"
	Start	Ice Out	Spring Break Up (75% open water on Rest Lake)
	Minimum Flow	40 CFS	50 CFS
	Water Temperature Achievement Day (WTAD)	NA	51 Degrees
	WTAD	NA	Pool at 8' - 200 CFS Pool at 7'6" - 125 CFS Below 7'6" - 50 CFS
	Down-ramping		
	Start	None	At spring Break up and 31 days after WTAD as necessary
Rate	None	75 CFS to summer minimum	
4	Summer Operation		
	Start	After refill to 8'6"	After refill to 8'6"
	Minimum Flow	40 CFS	45 CFS
5	Drought Conditions		
	Minimum Flow	0 - 40 CFS	Pool < 8' - 40 CFS Pool < 7'9" - 32 CFS Pool < 7'6" - Consult 31.34 level - 20.65 CFS

SOURCE: Wisconsin Department of Natural Resources