

City of Lake Mills
Grounds & Facilities Department
Dam Management Policy

PURPOSE

The purpose of this dam management policy is to create consolidated and standardized operating procedures for City of Lake Mills Staff to manage the Rock Lake Dam in compliance with WI DNR requirements and to make known the duties, responsibilities, and capabilities in management and mechanical operations of the dam to residents and interested parties. This will be accomplished by means of the following:

- Describe the functions of the dam.
- Outline the WI DNR Water Level Order requirements.
- Outline the management capabilities and responsibilities of City Staff.

DEFINITIONS

- **Dam** – The City of Lake Mills owned and operated water control structure located on Veteran’s Lane.
- **Rock Creek** – The outflow creek of discharged water from Rock Lake.
- **Spillway** – The area between the dam box culvert and Main Street storm water system.
- **Discharge** – The amount of water flowing through the dam from Rock Lake to Rock Creek.
- **Cubic Feet per Second (CFS)** - The unit of measurement for volumetric flow rate of discharged water.
- **Water Level Order (WLO)** – The requirements of discharge rates and seasonal water level changes created and enforced by the WI DNR administrative codes.
- **Dam Operator** – The designated City of Lake Mills staff member responsible for managing the dam. The Grounds & Facilities Director holds this title.
- **Supervisory Controls and Data Acquisition (SCADA)** - Operating system which monitors system operations and collects and records data.
- **Spring Breakup** – The date at which the ice on Rock Lake has broken up and open water is visible.
- **Integrated Process Solutions (IPS)** – Software engineering firm currently responsible for implementing and servicing the dam operating system and data collection instruments.
- **Inspection, Operation, and Maintenance Plan (IOM)** - The document that outlines maintenance practices and requirements on the dam.
- **Dashboard** – Software program used by City staff that lists all diagnostic systems and real time operations of the dam.

ROCK LAKE DAM

The Rock Lake Dam constructed in 2018 autonomously operates accurately and reliably to comply with the Wisconsin Department of Natural Resources Water Level Order.

The dam consists of two moving, split gates. The SCADA system automatically controls the raising and lowering of the two split gates of the dam. This operating system is programmed to meet and hold the water level within the WLO. The raising and lowering of the dam fluctuates regularly to meet these levels.

This can be witnessed on site at the dam through three variations of water discharge. Water flowing over the top (**Wier Mode**), flowing underneath (**Orifice Mode**), and minimum required amounts of discharge through the bottom of the gates at periods below minimum water levels (**Minimum Flow**). It is to be expected that various modes of operation will be witnessed and will fluctuate based on water levels and required amounts of discharge. This is by design and within normal operating procedures. The dam currently autoregulate on a 30-minute cycle.

Water is continuously discharged in the spillway beyond the dam at all times regardless of water levels. The dam is operated in automatic mode by default. Manual mode will be used when conducting routine maintenance operations, if an emergency exists, or at the discretion of the Dam Operator.

Lake levels are always measured and recorded via a hydrostatic submersible pressure transducer. This transducer measures the pressure of the current water column and converts the measurement to elevation with respect to sea level.

WATER LEVEL ORDER AND STATUTORY REQUIREMENTS

The Wisconsin Department of Natural Resources (WI DNR), per Wis. Stat. 31, 19(2), NR 330, and NR 333, has implemented and enforces required water levels of Rock Lake. The dam must be regulated within the seasonal minimum and maximum levels established within the order. A constant minimum discharge of 0.13 CFS is required.

Season	Minimum/Maximum
November 1 to Spring breakup	minimum = 827.25 ft.
	maximum = 827.50 ft.
Spring breakup to May 1	minimum = 827.25 ft.
	maximum = 827.63 ft.
May 2 to September 15	minimum = 828.03 ft.
	maximum = 828.33 ft.
September 15 to October 31	minimum = 827.25 ft.
	maximum = 827.63 ft.

IMPLEMENTATION OF WLO

City staff are to operate the dam to maintain target water levels at maximum of WLO:

- November 1 to Spring breakup – 827.50 ft.
- Spring breakup to May 1 – 827.63 ft.
- May 2 – September 15 – 828.33 ft.
- September 15 – October 31 – 827.63 ft.
- During periods at or below minimum water levels:
 - Dam will be programmed to hold minimum discharge with top gate set at seasonal target water level.
 - Dam Operator will conduct inspections of physical discharge rates and water levels. These values will be validated with dashboard system diagnostics.

CITY OF LAKE MILLS MANAGEMENT RESPONSIBILITIES

- Report the daily minimum and maximum water levels on a monthly basis. Reports to be publicly available on the City of Lake Mills website.
- Respond to and address emergency alerts and notifications from dashboard.
- Establish and adhere to city staff response chain in periods of vacancy or unavailability.
- Adhere to maintenance requirements established within the IOM.
- Coordinate and record results of WI DNR required dam infrastructure inspections by State certified dam inspector every other year.
- Implement SCADA system and data collection instrument calibrations and inspections by engineering/programming servicers every other year.

CITY OF LAKE MILLS CONTACT INFORMATION

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