

OPERATION PLAN

WHITE LAKE DAM

Engineering Services

South Central Region

Ministry of Natural Resources

WHITE LAKE DAM - DATA

GENERAL

LOCATION

Lot 7, Concession III, McNab Twp.,
Renfrew County, north of the village of White Lake

DRAINAGE AREA

83.2 square miles
53,248 acres
21,566 hectares

LAKE SURFACE AREA

9.3 square miles
5,952 acres
2,411 hectares

1" RUNOFF

4438 acre-feet (over whole watershed)
5,473,450 cubic metres

EVALUATIONS (local datum)

SILL:

91.0 feet
27.76 metres

TOP OF DAM

100.0 feet
30.50 metres

REGULATED WATER LEVEL:

See rule curve (gauge reading of 5.0 = 97.0 feet)

DISCHARGE

NO. OF SERVICE

SPILLWAYS:

one @ 8' (2.44m) wide
two @ 14' (4.27M) wide

STOPLOGS: DIMENSIONS:

12" X 12" (.31M X .31M)

NO. IN EACH BAY:

5

OPERATION PROCEDURES

WHITE LAKE DAM

KEMPTVILLE & PEMBROKE DISTRICT

1. PURPOSE

The original White Lake dam was built in 1845 and rebuilt in 1948. It was purchased by the Ontario Ministry of Natural Resources and reconstructed by Ministry of Natural Resources in 1969.

The original purpose of the Dam was to provide water storage for the operation of a logging mill at Waba, 2 ½ miles downstream. The White Lake reservoir was also used to flush logs downstream to the mill.

The current purpose of the dam is the maintenance of water levels in White Lake conducive to the uses of the lake, such as fishing, boating, water skiing, waterfowl hunting and trapping. The last log drive took place in 1971. Therefore, the operation plan will assume that logs will not be driven through the dam. If resumption of the log drives is contemplated an adjustment to the operation regime will be required, as a log drive would cause a significant reduction in the water level in White Lake in a relatively short period of time.

2. DESCRIPTION

The White Lake Dam is a concrete gravity structure 98 feet long incorporating one eight-foot wide stoplog by between two fourteen-foot bays. The smaller middle bay was incorporated into the design of the dam for the purpose of driving logs through the dam downstream to the sawmill at Waba.

Each bay contains six 12" x 12" stoplogs. The elevation of the sill is 91.0 (local datum), and the top of the logs, with all of the logs in, is at 97.0. A water level of 97.0 corresponds to a gauge reading of 5.0. Half logs and spacers are available to fine tune operations.

3. OPERATION

3.1 Objectives

The purpose of this operation plan is two fold: to provide suitable water levels in White Lake for recreational purposes during the tourist season, and to provide proper water levels for fish and wildlife concerns. These levels will decrease gradually from the spring flood peak in April to a constant level through the first half of May. In the middle of May the summer drawdown will commence, which will bring the lake down to the winter holding level.

3.2 Spring Operation

The logs should be left at the winter setting until the water level rises above 3.5 on the gauge, at which point the logs should be replaced one at a time until there are 4 logs in each bay. Stop logs should remain in the 4/4/4 configuration until after the water level peaks.

Stop logs should be manipulated through the remainder of the spring period so that water levels follow those prescribed by the attached rule curve as closely as possible. The drawdown is to begin May 15 as indicated on the rule curve.

3.3 Summer Operation

The target level for July 1st is a gauge reading of 4.7, and the dam should be operated to reach its level by referring to the interim target levels on the enclosed rule curve. During the period from July 1 to September 1 water levels should be dropped gradually to reach 4.2.

3.4 Fall and Winter Operation

According to the rule curve the fall/winter holding level is 3.5 which should be reached by October 15th. However if this level is not achieved by November 1st then the level existing on that date is considered to be the fall/winter holding level and levels throughout the fall and winter should be maintained within +0.25 feet of the holding level.

3.5 High Flow Operation

For high flow events, the dam should be operated so that the lake levels does not rise above 5.0 on the gauge. During any period when the water level rises above the specified regulated water level by more than 0.3 feet the top log should be removed from one bay. If the water continues to rise the top log should be removed from the second bay. Further logs may be removed if absolutely necessary, but the possibilities of downstream flooding should be carefully considered before such a step is taken. Careful monitoring of lake levels during a high flow event is essential, in order to ensure that minimal flooding occurs and that the dam is not left open too far once the peak of the high flow has passed. Once the peak has passed the logs and spacers should be replaced in order to maintain the water level which was in effect prior to the high-flow event.

**WHITE LAKE
WATER LEVEL TARGETS
1997 to Current (2005)**

<u>TARGET DATES</u>	<u>TARGET LEVELS</u>
January 1 – March 15	3.5 feet
April 1	4.0 feet
April 15	4.5 feet
May 1	5.0 feet
May 15	5.0 feet
June 1	4.9 feet
June 15	4.8 feet
July 1	4.7 feet
July 15	4.6 feet
August 1	4.5 feet
August 15	4.3 feet
September 1	4.2 feet
September 15	4.0 feet
October 1	3.8 feet
October 15 – December 31	3.5 feet

Note: Target levels above 3.5 ft. are subject to a 3 inch above and below margin to allow for evaporation, heavy rainfall events and other man caused or weather related factors. The over-winter level of 3.5 ft. is subject to a 3 inch above margin only.