

Town of Exeter  
 Operation & Maintenance Plan  
 Great Dam - Exeter, NH  
 Dam #082.01

Seasonal Operation:

Period	Operational Goals & Considerations
April 1 through June 30	The water level will be maintained at approximately 6 inches above the concrete spillway crest, insofar as reasonable and diligent monitoring, gate operations and gate capacity will allow. This period is the primary upstream migration period for anadromous fish. NH Fish & Game recommends that the water level be maintained approximately 6 inches above the elevation of the concrete spillway for efficient migration. May is also typically the month when the river becomes the primary source for drinking water supply. The heavy spring rains associated with snowmelt generally provide the greatest susceptibility to upstream flooding, so diligent monitoring and timely operations are crucial.
July 1 through October 30	The water level will be maintained at approximately 2 inches above the concrete spillway crest, insofar as reasonable and diligent monitoring, gate operations and gate capacity will allow. Try to maintain an adequate pool level for drinking water supply, recreation and downstream fish passage. Generally, two inches of flow over the spillway will provide the necessary flow for downstream passage. Heavy rains associated with hurricanes or severe thunderstorms can cause flooding; however, extensive periods without rainfall can cause drought.
November 1 through March 31	The water level will be maintained at approximately the level of the concrete spillway crest, insofar as reasonable and diligent monitoring, gate operations and gate capacity allow. Drinking water, recreation and fish passage considerations are less important during this period. Operations should be geared toward keeping the water level at or near the elevation of the spillway crest, although ice formation on the gate outlet or stem may prevent gate operations.

Contact information related to the operation of the dam:

Dam Owner: Town of Exeter

Dam Owner Designates	Contact	Office Phone	Cell (*Dispatch)
Lead Operator	Jay Perkins, Highway Supt	(603) 773-6157	(603) 512-1974
Alternate Operator	Scott Lebeau, General Fore	(603) 773-6157	(603) 944-3238
Emergency Operator	Brian Comeau, Fire Chief	(603) 773-6131	(603) 772-1212*

Contact information for other interested parties:

<b>Organization</b>	<b>Contact</b>	<b>Office Phone</b>	<b>Cell</b>
Exeter Elms Campground	Dana Anderson	(603) 778-7631	(603) 828-4390
Exeter Mills	John O'Connor	(781) 404-4240	(617) 571-2679
Town of Exeter	Russ Dean, Town Manager	(603) 778-0591	(603) 498-6989
Town of Exeter	Jennifer Perry, Director DPW	(603) 773-6157	(603) 770-6322
Exeter Water/Sewer Dept	Michael Jeffers, Managing Engr	(603) 773-6157	(603) 327-7903
Exeter Water Plant	Paul Roy, Operations Supervisor	(603) 773-6169	(603) 501-8220
NHDES Dam Bureau	Steve Doyon	(603) 271-3406	(603) 731-0146
NH Fish & Game	Cheri Patterson	(603) 868-1095	
Phillips-Exeter Academy	Roger Wakeman	(603) 777-3292	(603) 502-9631

### Operational Protocols:

A representative of the dam owner will visit the dam as often as necessary to ensure that the appropriate operational goals contained in the Seasonal Operation section are being met. When the low level gate is open visits will be made on a daily basis. At each visit the date, time, water level and gate opening shall be recorded in an observation logbook. In addition, any deficiencies noted or maintenance completed should be recorded in the logbook. Operations made that cause the water level to vary significantly from the goals established in the Seasonal Operation section may need to be coordinated with other water users.

To meet the seasonal goals defined above the Town of Exeter will operate the gated low level outlet at the dam, to the extent possible, to reduce both high and low water situations. It should be noted that the maximum capacity of the low level gate is approximately 310 cubic feet per second with the water level 2" to 8" above the spillway crest (the highest desirable operating range). Therefore, at river flows larger than this value the water elevation upstream of the dam must necessarily rise to keep pace. Attached to this document are rating curves for both the overflow spillway and the single low level gated outlet. These tools, along with the observation log, should be used to help determine when and to what degree the gate should be operated.

In addition to the operational resources noted above, the operator may gain insight into potential conditions at the Exeter River dam by tracking flows at the Exeter River stream gage near Haigh Road in Brentwood, NH and by monitoring developing weather conditions and forecasts issued by the National Weather Service and/or local media. NHDES Dam Bureau staff can provide additional insight into dam operations when needed.

The low level gate operating wheel is chained and locked while not in operation. Exeter DPW EN6 key is needed to open the lock.

When conditions require operation of the low level gate at Great Dam, consideration will also be given to the operation of gates at the Exeter Reservoir Dam and Colcords Pond Dam. Refer to the Operation and Maintenance Plans for those facilities for detailed information.

Operation and maintenance of the fish ladder and lower dam (weir) is the responsibility of NH Fish & Game Department. No modifications shall be made to the fish ladder and/or lower dam (weir) by Town personnel.

### **General Procedures:**

High water: When the water level exceeds or is expected to exceed the target elevation as indicated in the Seasonal Operation section, the operator will manipulate the gate to keep the level at or near the (approximate target range) specified target elevation. If anticipated meteorological conditions warrant, the water level may be drawn down 1” to 2” range (above dam crest) below the seasonal target elevation in advance of additional inflow during fish migration periods (April 1 through October 30). Since the maximum capacity of the low level gate is approximately 350 cfs, inflows above this value will cause water levels to rise.

Low water: As the water level drops, either due to an open gate or low inflow conditions, the gate will be closed as necessary to achieve the approximate target elevation as indicated in the Seasonal Operation section. In addition, the operator will work with NHF&G and other water users, to prevent waste through the fish passage system or for other reasons.

### Potential damage due to cresting of water over abutments:

Cresting of water over the abutments could lead to scouring of embankments adjacent to the abutments. In this emergency situation, effective water barriers (sandbags, etc.) shall be used to confine flow and protect embankments.

### Maintenance Program:

At each visit:

- Record the information noted in the Operational Protocols section (date, time, water level, gate opening, and gate operations) into the logbook.
- Note any maintenance deficiencies in the logbook and address as necessary. Example deficiencies may include, but are not limited to, the presence of floating debris that restricts flow over the spillway or through the low level gate, leakage/seepage through concrete sections or abutments, undesirable vegetative growth on the abutments, damaged gate mechanisms and erosion of earthen abutment areas.

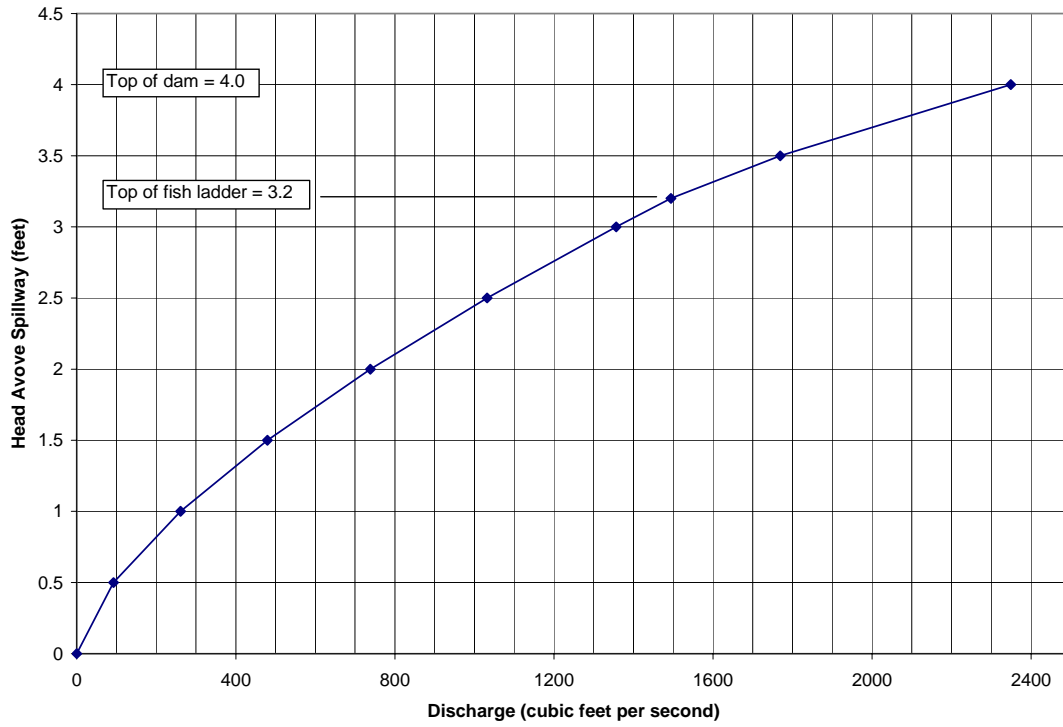
Semi-annually:

- Remove any undesirable vegetation growing on abutment areas.
- Check for and repair any erosion to earthen sections of both abutments.
- Inspect the gate operating mechanism and any visible portions of the gate panel and repair as necessary.
- Inspect previously identified seepage areas and compare findings with past inspections. Estimate leakage/seepage amount and note in logbook.
- Inspect all safety equipment, rails, stays and harnesses and repair or replace as necessary.

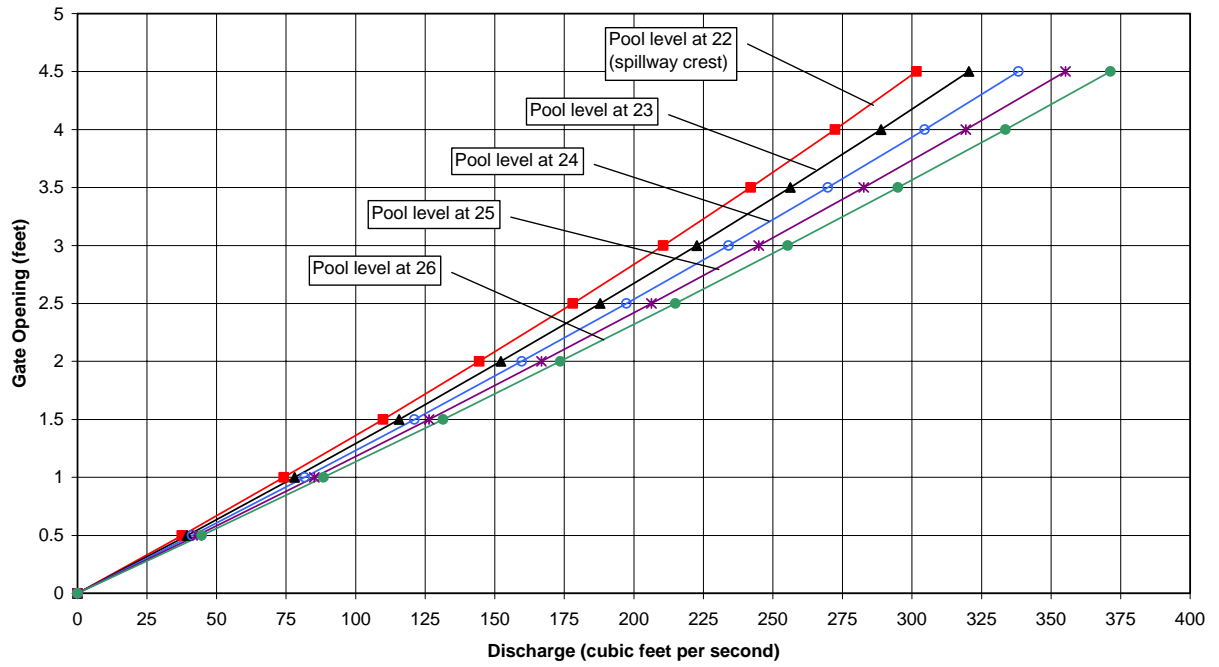
Annually:

- Perform a detailed visual inspection of the entire dam and schedule such maintenance or repairs as may be required.
- Adjust and lubricate the gate operating mechanism.
- Consult with NH Fish & Game on the operation and condition of the fish ladder.
- Consult with NH Fish & Game and NHDES if water levels need to be lowered below the crest of the dam.

### Exeter River Dam - Spillway Rating Curve



### Exeter River Dam - Gate Rating Curves



# FLOOD RESPONSE PLAN

## Exeter River Dam (Great Dam)

### Exeter, NH

It is the intent of this flood response plan to supplement the existing Operation & Maintenance Plan for Great Dam in the event of major flooding.

When this response plan is required, the Town's Emergency Operations Center (EOC) will be in operation. As such, the response will be managed through the EOC. Responsibilities are as assigned in the existing Operations & Management Plan.

The EOC will continually monitor river elevations through reports from the field. The EOC will utilize weather forecasts along with supplemental information from the Haigh Road gage in determining the appropriate response.

Sand bagging operations will start if the river heights are expected to over-top the northeast abutment.

Sand bagging operations are as follows:

- Approximately 10,000 nylon sand bags are stored in the emergency response container at the Department of Public Works (DPW).
- DPW will supply the sand.
- A garage bay at the DPW will be utilized for filling sand bags.
- If additional help is required for the bagging operations, then the EOC will call in necessary personnel or request volunteer help through various media communications as necessary.
- DPW will transport the sand bags to the required area.
- Sand bagging operations will be initially concentrated in the area as shown on the accompanying sketch.
- Sand bags will be stacked to the height of the existing penstock.
- Barricades and tape will be used to keep the general public away from hazardous areas.

