

APPENDIX G

- G-1 Chronology of Newfound Lake Dam and Pertinent Data

Newfound Lake Dam D031001

1848-2010 Chronology from NHDES Dam Bureau Files

1848	Original dam built for Bristol Water Co.
1924	WRB Inventory Form – Mason Perkins Paper Co and Bristol Water Co. owners- 9’ drawdown allowed.
11/10/1927	Letter from Foundry Equipment Engineer, Walter Prince regarding the poor condition of the dam.
8/23/1934	Newfound Lake Power Co. owner – photos of dam as a timber crib
10/31/1934	PSC hired by Newfound Power Co to inspect dam.
3/30/1937	Property map of Newfound River
3/16/1938	PSCo. of NH records dam as being 12’ high with 3’-2” flashboards
10/26/1938	PSCo. of NH is new owner
10/9/1939	Dam is inspected and found to be in good condition – used to store water for NH PSC.
7/12/1939	Sketch of dam.
11/30/1943	Ltr from PSC to WRB regarding water levels. Fish screens downstream prevent discharge.
2/19/1948	PSC provides lake elevation charts to WRB.
8/10/1953	Abutters to NH Public Utilities Commission- water too low in Brown Grove.
8/17/1953	Letter from WRB to abutters – 3 foot drawdown is needed for downstream mills.
9/26/1955	Ltr from Newfound Lake Boaters Association to WRB- high water complaints.
9/17/1956	Newspaper article on high water levels in lake.
8/2/1960	Ltr to WRB regarding water levels – PSC is owner of dam and uses 5 feet of storage in lake for power
3/17/1961	Ltr to WRB from Talham, two property owners claim beach is private property. They may be trespassing on state land.
11/25/1963	Ltr to Governor from Bowdoin Plumer re: abutters claim to own land that is within PSC flowage.
12/6/1963	WRB to Plumer re: flowage and elevations. State owns area below gate sill.
12/11/1963	State owns below 584.12’.
9/24/1964	WRB to Wacome: State owns 5 feet below full lake or 7/24 on gauge. Any fill placed below this is encroaching on state ownership.
1/4/1965	PSC sells dam #31.03 to International Packing Corp.
3/16/1966	Letter from NHFG to Bristol Conservation Officer: Remove fish screens.
10/26/1967	Ltr to WRB from Attridge, regarding fill in lake.
10/30/1967	Lrt from WRB to Attridge – fill in lake is above state jurisdiction, dam is still owned by PSC
2/15/1972	Proposal for water level variation based on Newfound Area

	Chamber of Commerce survey. WRB and PSC to work out compromise.
2/22/1972	WRB to NH Division of Parks; public hearing is planned.
2/18/1972	Legislature does not vote to accept dam and water rights.
2/27/1973	Proposed repairs – reconstruct spillway, convert timber crib into dam with 4 gates and stoplog bays. Install Tellemark recording device.
7/13/1973	Ltr PSNH to WRB – proceed with repairs estimated at \$50K.
8/9/1973	HB 283 – signed – gives dam to WRB for \$1. Provides \$50K for repairs.
8/10/1973	PSC to WRB – Operating procedures for dam.
3/21/1974	Photos of dam
9/19/1974	Ltr WRB to Int. Packings Corp. re: proposed winter drawdown will provide increased flow downstream
4/9/1975	Gate plans on file – Rodney Hunt gate and design calculations – 5’ - 2.7” x 10’ timber gate.
7/10/1975	Notice in paper re: lake lowering required for dam repairs to begin in September.
11/3/1975	Wetlands (Water Supply and Pollution Control) permit issued for reconstruction work on dam.
1975	Design calculation on file.
1/1976	Reconstruction photos in file
2/5/1976	Newspaper articles stating how drawdown has harmed fish population.
2/25/1976	Coffer dam washes out. Coffer dam had a 12” CMP culvert.
3/7/1976	Work is suspended on the dam.
3/18/1976	Ltr from Meldrin Thompson to Newfound high school teacher, P. Cornelisuen re: WRB reconstruction work. Article in NH Sunday News criticizing WRB reconstruction work and dam to fish population.
4/1/1976	Newspaper article titled, “Three Weeks of Work Will Complete Lake Dam”.
4/28/1976	New coffer dam installed.
5/13/1976	Additional \$7K authorized for coffer dam
6/18/1976	Construction on dam completed which included work on left abutment, new gate and spillway (2/3 of structure).
10/6/1976	Newspaper article – “Meeting on Lake Problems Forms Two Committees”. Newfound Lake Region Association and Newfound Region Chamber of Commerce meet with WRB regarding lake pollution and water levels.
9/20/1978	Internal memo GLKerr to VAKnowlton regarding proposed public hearing on dam operations and high water complaints, and dam operation modifications.
10/ 1978	ACOE Phase I Report issued.
7/23/1980	Internal review of ACOE report – corrections needed especially

	with H&H.
9/3/1980	Internal memo: GMM to VAK regarding the need for operating procedures and upgrade to spillway needed to pass greater than 200 cfs.
8/21/1981	Public Notice issued regarding Labor Day drawdown of 3 feet.
6/24/1982	Public Hearing requested by property owners.
8/18/1982	New operating procedures adopted.
1/6/1983	Ltr from P.Cornelisuen to WRB regarding dry stream bed and damage to fish.
6/9/1983	Public hearing requested by abutters regarding high water levels.
6/15/1984	Photos of gate supports.
7/31/1985	Telemark equipment relocated to upstream right abutment of Rte 3 Bridge.
10/1/1985	Calculations on file for discharge through upstream highway bridge culvert.
10/30/1985	WRB inspection of dam – leak noted downstream of spillway.
Fall 1986	Allocation \$140 K for repair of deteriorated timber section of dam and right abutment.
1986	Design calculations on file.
10/1986	Photos of dam under construction
1/9/1987	Construction work has completed. Water to be raised.
4/27/1988	Dam Safety Inspection performed
3/15/1991	DSI performed – EAP needed.
10/94/1994	DSI performed
7/27/1995	Ltr from Green International Affiliates to WRB regarding H&H study underway to update FEMA flood maps.
7/29/1996	Winter drawdown moved to 10/1/1996.
8/15/1996	Ltr from Moffet of Newfound Hydro Col to WRB regarding the need for better flow management during water releases from dam.
10/1/1996	Ltr from K.Stern to Moffet – Dam Bureau will continue to manage dam to benefit downstream hydros as well as recreational interests.
10/31/1997	Lake level gauge repaired.
1/6/1998	DES dambreak analysis completed
9/14/2000	DSI performed, new H&H analysis
8/27/2002	DSI performed
5/15/2006	Flooding – problems experienced downstream at Dam #31.03 requiring removal of the steel walkway to remove debris jam.
8/26/2008	DSI performed
3/31/2010	DSI performed, MOD issued

ACOE – Army Corps of Engineers
DSI – NHDES Dam Safety Inspection
EAP – Emergency Action Plan
FERC – Federal Energy Regulatory Commission
H&H – Hydrology and hydraulics

MOD – Memorandum
NHDES – New Hampshire Department of Environmental Services
NHFG - New Hampshire Department of Fish and Wildlife
PSC - Public Service Commission
WRB – New Hampshire Water Resources Board

PERTINENT DATA

NAME: Newfound Lake

DAM NUMBER: 31.01

TOWN: Bristol

DATE BUILT: 1920 (partially 1977)

OWNER: Water Resources Board

STORAGE: 24,000 ac. ft.

SIZE OF IMPOUNDMENT: 4,100 acres (5th largest)

DATE OF ACQUISITION: March, 1974

DAM:

Newfound Lake Dam is a concrete masonry and timber dam. The structure consists of three main sections; a 48 foot long timber section, a sluice gate section which is approximately 14 feet wide and a stop plank section with three bays totaling approximately 15 feet wide. Overall length is approximately 115 feet and maximum height is 12 feet.

USES, PRIMARY:

Recreation. Newfound Lake can be classified as a "multiple use" lake as it has both public and private shoreline development. Its shoreline is over 80% developed with more than 600 cottages, homes and commercial buildings.

Due to the lake's scenic beauty and easy access by State Route 3A, Newfound Lake attracts thousands of visitors yearly. There are five public access areas on the lake affording the general public great opportunity to utilize the waterbody.

Wellington State Park is located on the westerly shore of Newfound Lake and in 1982 attracted over 41,000 visitors. Secondary: Hydroelectric Storage Reservoir. The dam was originally built to store water for power production along the Newfound River through Bristol. Presently, there are two active hydroelectric sites downstream of this dam, both owned by the International Packing Corporation. Tertiary: Spring Flood Retention. To aid in the prevention of downstream flooding during the springtime snow melts, Newfound Lake is drawn down in the fall and is used to retard excessive outflows from the extreme "flashy" lake.

HYDRO POTENTIAL AT SITE:

It is estimated that a future hydro plant at Newfound Lake Dam could generate over 1,000 MWH yearly which would replace 59,000 gallons of oil yearly and generate a gross revenue of \$80,000 yearly.

POTENTIAL DAMAGE:

This dam has been classified as a Class "C" (High Hazard) structure. In the event of a failure, excessive damage could occur to downstream property together with the loss of more than a few lives.

COST OF REMOVAL:

Dewatering of the site would not be a major undertaking or expense. However, the economic loss to the local community as well as the loss of a major state recreational resource would be unconscionable.

SCOPE OF WORK:

The proposed work consists of replacement of the old timber section with a concrete overflow spillway equipped with automatic failing flashboards.

JUSTIFICATION:

The work intended for Newfound Lake Dam is well justified due to the tremendous value in both recreational and economic benefits derived from the lake's many attractions. The maintenance of a consistent and dependable lake level as well as a control structure that will provide a sure measure of safety in times of major storm events also justifies the reconstruction of the old timber section.

In 1977, the Water Resources Board replaced the timber gate section and overflow spillway at the left abutment (comprising two thirds of the total structure) with concrete sections and new gates. The rebuilding of the remaining timber section, constructed around 1920, would complete the upgrading of the dam to current design and safety standards.