

Vermont Department of Environmental Conservation*Agency of Natural Resources*

Facilities Engineering Division, Dam Safety Section

103 South Main Street, Laundry Bldg. [phone] 802-654-8971

Waterbury, VT 05671-0511 [fax] 802-338-4895

MEMORANDUM

TO: For the Record
FROM: Stephen Bushman, P.E., Dam Safety Engineer
DATE: June 4, 2012
SUBJECT: Inspection of Curtis Pond Dam, Calais, VT

On May 25, 2012, Stephen Bushman, P.E., and James Coolidge, made a routine periodic inspection of the Curtis Pond Dam located in Calais, Vermont, State Identification Number 40.09. This inspection was carried out under provisions of Title 10 of the Vermont Statutes Annotated, Section 1105. A number of photos were taken. The last inspection of the dam was conducted on July 27, 2011. This report updates those observations and records additional information.

OVERALL CONDITION

The overall condition of the dam was POOR.

DOWNSTREAM HAZARD CLASSIFICATION

The dam is a Class 2, "Significant Hazard" Dam.

JURISDICTION

Since the dam impounds more than 500,000 cubic feet, any alteration, reconstruction, breaching, or removal would require prior approval from the Department under provisions of 10 VSA Chapter 43.

RECOMMENDATIONS FOR OWNER

1. The project to determine the appropriate rehabilitation of the dam should be finalized. The dam should be replaced or repaired as soon as possible.
2. The dam should be observed periodically for any change in the seepage pattern, volume or clarity. Also any sinkhole development or dam movement should be noted. Report any changes to the State Dam Safety Office at (802) 654-8971.
3. Keep the spillway clear of debris, and remove all accumulated debris from the dam. Debris or docked boats in the approach channel should be removed so that the spillway can function at full capacity.
4. The footbridge over the spillway should be raised to insure a clear unobstructed spillway channel.

5. The small woody vegetation along the upstream waters edge should be removed. The crest of the dam should be kept mowed.
6. Remove the tree on left side of downstream slope. Leaving it in place can lead to a displacement of the stones in the downstream wall.
7. Discourage the use of the crest as a sandbox for children, especially if crest material is being disturbed or removed. In an overtopping event, the exposed soils can become a weak point and act as a conduit for erosion and failure.

INSPECTION

The inspection of the dam was conducted on May 25, 2012 at 1245 hours. The weather was cloudy with temperatures in the 70's. The weather prior to the inspection was dry and the ground conditions were dry. The following was observed:

1. Embankment Section

- a) Upstream Slope: The upstream slope had moderate woody vegetation at the water's edge. There was also minor erosion along the waters edge. Due to the dam's construction much of the upstream slope in under water and was unable to be thoroughly inspected.
 - b) Downstream Face: The downstream face consists of a dry laid masonry wall. The wall leans off vertical to the downstream side, as recorded in previous reports. Seepage through the stone wall appears similar to previous inspections in both pattern and quantity; the flow was heavy and roughly five feet on either side of the spillway. Rounded rocks have been filled in where originals have fallen out. There was a small collapse on the right side and several additional rocks have dislodged themselves since the last inspection indicating active movement. There is a large maple tree growing at the toe near the left abutment. A garden is planted along the bottom of the right wall and weedy vegetation is growing along the left wall.
 - c) Crest: There were several recent sinkholes concentrated within 3ft of the spillway that were filled in with stone and soil. The left side of the crest was covered with tall grass, weeds and woody vegetation. The right side, past the wood fence, was well mown grass with some woody brush at the shoulder. There was an area near the left abutment being used as a sandbox. Additional sand had been brought in since the last inspection.
2. Spillway: The principal spillway consists of an uncontrolled channel on the crest. A foot bridge crosses over the spillway. The approach contained a floating pedal boat that was tied off on the crest. The spillway contains leaks as seepage at the bottom of the downstream face spans out to five feet on either side of the spillway. It is believed that this short circuiting of the spillway is the primary cause of the sinkholes that appear each year. The discharge channel was rock lined and was free of debris. Weeds were growing along the banks.
 3. Sluice Gate: The stone tunnel in the dam wall seemed flush and level. Wooden planks were acting as the gate holding water back. Water was pouring into the tunnel after cutting behind the spillway and flowing through the dam wall.

HYDROLOGY AND HYDRAULICS

The drainage area at this site is about 917 acres. The pond area at the normal pool is about 76 acres with storage of about 724 acre-feet. At the dam crest, the pool stores 1,000 acre-feet.