VERMONT

Vermont Department of Environmental Conservation *Agency of Natural Resources*
Facilities Engineering Division, Dam Safety Section
1 National Life Drive, Main 1 [phone] 802-490-6229
Montpelier, VT 05620-3510

MEMORANDUM

TO:	For the Record
FROM:	Stephen Bushman, P.E., Dam Safety Engineer
DATE:	May 22, 2013
SUBJECT:	Inspection of Curtis Pond Dam, Calais, VT

On May 22, 2013, Stephen Bushman, P.E., and Seth Haven, 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 May 25, 2012. 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) 490-6229.

3. Keep clearing the spillway 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. Debris cleared from the spillway should be removed from the embankment as soon as possible.

5. The footbridge over the spillway should be raised to insure a clear unobstructed spillway channel.

6. The small woody vegetation along the upstream waters edge should be removed. The crest of the dam should be kept mowed.

7. Remove the tree on left side of downstream slope. Leaving it in place can lead to further displacement of the stones in the downstream wall.

8. 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 22, 2013 at 1240 hours. The weather was cloudy with temperatures in the high 60'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. A large amount of beaver dam debris cleared from the spillway was piled up on the left edge of the slope.

   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 to be getting worse over time; 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. Original rocks that are still in place are deteriorating and weakening. 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: The crest consisted of well mown grass with some woody brush at the shoulders. There was an area near the left abutment being used as a sandbox. There were several sinkholes concentrated with in 3ft of the spillway that were filled in with stone and soil.

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; however the spillway had been recently cleared of beaver debris.

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.