VERMONT

**Vermont Department of Environmental Conservation** *Agency of Natural Resources*
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MEMORANDUM

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| TO: | For the Record |
| FROM: | Stephen Bushman, P.E., Dam Safety Engineer |
| DATE: | June 22, 2010 |
| SUBJECT: | Inspection of Curtis Pond Dam, Calais, VT |

On June 1, 2010, Stephen Bushman, P.E., and Shawn Thompson made a routine periodic inspection of the Curtis Pond Dam located in Calais, Vermont, State Identification Number 40.09. A number of photos where taken. The last inspection of the dam was conducted on May 29, 2009. This report updates those observations and records additional information.

## OVERALL CONDITION

The overall condition of the dam was poor, which has been noted in previous reports.

## 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) 241-3450.

3. Keep the spillway clear of debris, and remove all accumulated debris from the dam. Debris 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.

3. The erosion at the water's edge along the left side should be backfilled with suitable material.

4. 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.

5. 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 June 1, 2010 between 1000 and 1100 hours. The weather was cloudy and raining, with temperatures in the 70's. The previous weather conditions were dry. The water level was 0.35 feet above the pipe to the right of the spillway.

1. Embankment Section

   a) Upstream Slope: The upstream slope had minor woody vegetation at the water's edge. There was also minor erosion along the waters edge.

   b) Downstream Face: The downstream face consists of a dry masonry wall. The wall leans off vertical to the downstream side, as has been recorded in previous reports. Seepage through the stone face appears similar to previous inspections in both pattern and quantity, roughly five feet on either side of the spillway. Rocks have been filled in where originals have fallen out. There is a large maple tree growing at the toe of the rock, near the left abutment.

   c) Crest: There was significant erosion and repairs on each side of the spillway, which is believed to be evidence of high flows or overtopping. There were a few sinkholes along the top of the crest that were filled in with sod and soil. There was a pile of debris from the spillway to the left of the channel. The crest was covered with grass and some minor woody vegetation at the upstream shoulder. There was an area near the left abutment being used as a sandbox. It appeared as if some disturbance to the crest was occurring as a result.

2. Spillway: The principal spillway consists of an uncontrolled channel on the crest. The approach was blocked by a clump of lily pads and mud. The discharge channel was rock lined and was free of vegetation.

3. Sluice Gate: The condition of the sluice gate is not known. Water flow around the exit of the sluice gate was evident.

## 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.