



**State of Vermont**

**AGENCY OF NATURAL RESOURCES**

**Department of Environmental Conservation  
Facilities Engineering Division  
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### **MEMORANDUM**

**TO:** Chairman of the Board of Selectmen  
**FROM:** Edward L. Leonard, P.E., Dam Safety Engineer  
**DATE:** June 21, 2004  
**SUBJECT:** Inspection of the Curtis Pond Dam, Calais

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On June 8, 2004, Edward Leonard, P.E, Stephen Bushman, P.E, Laura Allen and Josh Ferrell made a routine inspection of the Curtis Pond Dam in Calais, Vermont, State Identification Number 40.09. Photographs and observations were taken. The inspection was carried out under the provisions of Title 10 of the Vermont Statutes Annotated, Section 1105. The last inspection of this dam was July 14, 2003. This report updates those observations and records additional information.

### **OVERALL CONDITION**

The overall condition of the dam is poor and permanent repairs should be made to the structure.

### **RECOMMENDATIONS FOR OWNER**

1. The dam should be observed daily and any changes should be recorded, such as:
  - a) increased leakage
  - b) different location of leakage
  - c) muddy leakage
  - d) enlargement of or formation of new sink holes
  - e) movement of the dam

Any observed changes should be immediately reported to the Town or the State Dam Safety Office at (802) 241-3454.

2. The Town should make periodic checks of the dam.
3. Distribute the current Emergency Action Plan (EAP) to all persons on flow chart.
4. Small brush and weeds on the upstream embankment should be removed.
5. Dig out and fill animal burrow with select fill.
6. The project to determine the appropriate rehabilitation of the dam should be finalized.

### **BACKGROUND DESCRIPTION OF DAM**

Curtis Pond dam is a small earth fill gravity structure with a vertical rock face on the downstream side. The dam is located on an unnamed brook just upstream of the junction with Pekin Brook, a tributary of the Kingsbury branch of the Winooski River. When the dam was constructed, it raised the water behind it approximately seven feet causing the two natural ponds upstream to combine into what is now Curtis Pond. The dam is about 120 feet long and has a maximum height of 14 feet. The pond was created for recreational purposes.

### **INSPECTION**

The inspection of the dam was conducted on June 8, 2004. The weather was sunny and warm. The ground was firm and dry. The water level was 0.42 feet above the PK nail. The following was observed:

1. Embankment Section.
  - a) Upstream Slope: The upstream slope of the embankment was firm, dry, and regular. The upstream face of the dam is lined with a rock wall to prevent erosion, however there was minor beaching observed. The sandbags that had been placed on the left side of the spillway, to prevent water from passing through the wall, are no longer visible. Some possible sinkholes were also noted occurring on the upstream side under water near the low level outlet. There was a probable animal burrow on the left upstream side of the embankment that was approximately one foot deep and wide, and two feet long reaching almost to the top of the dam.
  - b) Downstream Slope: The downstream slope of the dam was in poor condition. The downstream slope consists of a rock wall and the lower face was observed to lean downstream. Much of the rock wall was covered with moss and other vegetation. Water was seeping through the rock wall on both sides of the spillway, and

specifically 15-20 gpm was observed to be flowing out of the wall on the left side. These observations are all indicating a possible future failure of the dam.

- c) Crest: The top of the dam serves as a footpath, and there is a small bridge with a gate that passes over the spillway. A past sinkhole had been filled to prevent further erosion.
- d) Toe: The toe of the dam was moist with some weeds and plants growing from it on both sides of the discharge channel.

## 2. Principle Spillway.

- a) Weir and inlet: The weir and inlet of the principle spillway was in fair condition. The spillway is uncontrolled and there was no debris observed in the approach channel.
- b) Discharge Channel: The discharge channel was noted to have some leakage into the dam.

## 3. Sluice.

- a) Structure. The sluice was in poor condition. Discharge was seeping into and around the sluice. Moss and brush was found growing in and around the sluice, an indication of continuous water flow.

## **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.

## **DOWNSTREAM CLASSIFICATION**

The dam is a Class 2, “significant hazard” dam.

## **JURISDICTION**

Since the dam impounds more than 500,000 cubic feet, any alteration, reconstruction or breaching would require prior approval from the Department under provisions of 10 VSA Chapter 43. Further drawdown of the pond would require approval from the Department under a 1272 Order.