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COPY

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Major General
Commissioner
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**Department of Defense, Veterans and Emergency Management
State House Station 33
Camp Keyes, Augusta, Maine 04333-0033**

December 4, 2006

Officer of the Commissioner

Mr. Raymond J. Fortier
P. O. Box 621
Sabattus, Maine 04280

**DAM SAFETY ORDER
Anasagunticook Lake Dam, Canton, Maine**

Pursuant to the provisions of 37-B M.R.S.A. sections 1111-1130, the Maine Department of Defense, Veterans and Emergency Management has considered the State Dam Inspector's condition report on the Anasagunticook Lake Dam, the evidence presented by the dam owner, lessee or other person in control of the dam, the record from a review conference, and other related materials on file and finds the following facts:

PROJECT SITE

The Anasagunticook Lake Dam is located in Canton, Maine. The current owner, lessee or other person in control of the dam is Raymond J. Fortier, who has owned the site since 1996. The dam is a 100 year old, 11 foot high, 175 foot long earthen dam built at the outlet of a 582 acre lake with a 9,750 acre drainage basin. The dam is a state regulated "significant hazard" dam situated on Whitney Brook, 200 feet upstream of the intersection of state routes 108 and 140. The dam stores 5,700 acre feet of water. The spillway is a small masonry structure with four overflow sluice gates and a gate to the former power canal. The gates are operated by a single manual hoist attached to an overhead steel frame gantry.

FINDINGS

Following a review conference in April, 2004, I issued a dam safety order (entitled "Order for Meetings and Repairs") on May 5, 2004, directing the owner to undertake a number of steps to be specified in follow-up inspections and meetings required by the

order, to reduce hazardous conditions at the dam. The remedial actions required pursuant to that order included:

- 1) removal of trees, grass and roots, as specified in an on-site meeting with the owner, which was held on May 17, 2004, and documented in a letter to the dam owner, Mr. Fortier, on May 19, 2004;
- 2) repair of defects in the earthen embankments and retaining walls, as specified in writing following an on-site inspection with the owner on June 21, 2004 (ten defects were identified and documented in a report dated June 23, 2004);
- 3) repairs as necessary to ensure that all gates are functional and can be raised to the fully opened position;
- 4) preparation of an emergency procedure for operating the gates during flood situations; and
- 5) conduct of a functional gate test, following notice to all downstream residents and emergency services personnel, to verify that all gates are fully functional and can be raised to the fully opened position.

The gate test was originally scheduled to occur on August 3, 2004, but was postponed until December 1, 2004, by order of the Department issued on November 4, 2004. The November 4 order also directed the dam owner to immediately remove all extensions on the spillway gates, which were reducing the flow capacity of the spillway, and to perform structural repairs to the left embankment.

Subsequent inspections by the State Dam Inspector have revealed that, apart from the removal of trees, grass and roots, the remedial work that was ordered in 2004 has not been completed. Based on a site inspection conducted on May 24, 2006, the State Dam Inspector reported the following observations:

- 1) trees had been removed from the earthen embankments, but it was unclear whether all tree roots had been completely removed from the embankments;
- 2) settlement of the earthen embankments on both sides of the spillway was still apparent along the crest of both the left and right embankments, at the concrete abutments to the spillway, and along the concrete retaining walls on both sides approaching the spillway;
- 3) cavities continue to exist in the stone wall along the left earthen embankment;
- 4) the earthen embankment on the right side continues to leak;

5) the left earthen embankment is not connected to the spillway, leaving a gap through which water will flow under flood conditions, potentially undermining the structure;

6) approximately 100 feet along the crest of the left embankment has been covered by imported earthen material of unknown quality and compaction, to a depth of approximately 3 feet;

7) a new stainless steel gate has been installed in the third opening of the spillway, further restricting outflow; and

8) extensions on the remaining gates have not been removed, as previously ordered, thereby continuing to restrict the flow of water over the spillway.

Follow-up inspections between June and October 2006 indicated no change in the above conditions. In addition, to date, no gate test has been performed in the presence of the State Dam Inspector to ensure that all gates are fully functional, and an acceptable emergency operations plan has not been submitted by the owner to specify how the gates will be operated during flood situations.

A report of inspections conducted in 2006 was provided to the dam owner on August 28, 2006, with notice that the Department intended to schedule a review conference. Final notice of the review conference was provided to the owner and other interested parties on September 12, 2006, pursuant to Title 37-B M.R.S.A. section 1119. The conference was held on October 12, 2006, at the offices of the Maine Emergency Management Agency in Augusta, and recorded pursuant to 37-B M.R.S.A. section 1119(3). The dam owner attended as did representatives of the Town of Canton, the Oxford County Emergency Management Agency, the Department of Environmental Protection, and the State Planning Office. The latest reports by the State Dam Inspector were reviewed and discussed, along with the status of the 2004 dam safety order. The dam owner did not offer any explanation for placing the extra fill on top of the left embankment, nor did he offer any evidence to rebut the State Dam Inspector's findings that the other remedial work called for in 2004 has not been completed.

The Department of Environmental Protection (DEP) subsequently inspected the dam site, on October 20, 2006, and has estimated that the fill placed along the left embankment covers an area approximately 20 feet wide and 175 feet long. DEP notified the dam owner on October 23, 2006, that the placement of fill in this manner required a permit under the Natural Resources Protection Act, Title 38 M.R.S.A. section 480-C.

The operation of the Anasagunticook Lake Dam is subject to the terms and conditions of a water level order issued on September 13, 1978 by the State Soil and Water Conservation Commission. This order is currently enforceable by the DEP pursuant to Title 38 M.R.S.A. section 842.

CONCLUSIONS

The unrebutted evidence presented at the review conference indicates that the order of May 5, 2004, has not been carried out.

The current spillway does not have adequate capacity to handle outflow during flood conditions without overtopping the earthen embankments on both sides, potentially causing the dam to breach and flood areas below.

In addition, the placement of fill material along the top of the left earthen embankment, which was not called for by any prior dam safety orders or the recommendations of the State Dam Inspector, has placed an additional load on a structure which was already unstable as evidenced by settlement.

Based on the reports of the State Dam Inspector and the information presented at the review conference, I find that the integrity, structural stability, function and operation of the dam constitute a threat to public safety.

ORDER

Based on the above findings and conclusions, I hereby order the owner, lessee or other person in control of the Anasagunticook Dam to undertake the following necessary remedial measures:

- 1) Engage a licensed professional engineer, specializing in dam construction, to assist in preparing a remedial action plan;
- 2) Develop a remedial action plan with the assistance of the licensed professional engineer to restore the integrity and structural stability of the dam and to assure that it functions and operates in a manner that will protect public safety, including at a minimum:
 - a) An evaluation of the causes and extent of settlement, seepage and erosion of the left and right earthen embankments and a plan for restoring the integrity and structural stability of the embankments;
 - b) A plan for removing all new fill material along the left embankment or, if the engineer determines that the fill does not compromise the integrity and

structural stability of the embankment, a plan for stabilizing and incorporating the fill as part of the embankment;

c) A plan for repairing and testing the four spillway gates to ensure that all gates are functional and can be raised in a timely manner to the fully open position;

d) An emergency operational procedure that will be employed to open the spillway gates during flooding situations;

e) A plan for reducing the height of all four spillway gates to increase the flow capacity of the spillway; and

f) A schedule for completing all elements of the remedial action plan by December 31, 2007.

3) Submit the remedial action plan, signed by the engineer, to me for approval no later than March 31, 2007.

4) Complete the work outlined in the remedial action plan in accordance with the terms of my approval, which shall be specified in a supplemental order.

5) Complete all work in compliance with local and state permitting rules. By copy of this order, the Town of Canton and the Department of Environmental Protection are respectfully requested to process any complete permit applications that may be submitted by the owner as expeditiously as possible.

Failure to comply with this order may subject the owner, lessee or person in control of this dam to a civil penalty of not less than \$100 nor more than \$5,000 for each day that the violation continues, pursuant to Title 37-B MRSA section 1129.

By order of



John W. Libby

Commissioner

Department of Defense, Veterans and
Emergency Management

NOTICE OF APPEAL RIGHTS: Any person aggrieved by this Order has a right to seek judicial review by filing a Petition for Review within 30 days of receipt of this Order in Superior Court, in accordance with Title 5 M.R.S.A. §§11001 & 11002 and Rule 80C of the Maine Rules of Civil Procedure.

A copy of this order has been provided to Dana Murch, DEP; Scott Parker, Oxford Country EMA; Phyllis Gardner, AG; Ginnie Ricker, MEMA; Tony Fletcher, MEMA; Charlie Jacobs, MEMA; Wayne Dube, Canton Fire Chief; James Diamond, LT Canton Fire; Tom Marcotte, EMA Director SPO