

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Gloria L. McCutcheon, Regional Director

Waukesha Service Center
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Waukesha, Wisconsin 53188
Telephone 262-574-2100
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February 17, 2010

Tom Day, Chairman
Eagle Springs Lake Management District
PO Box 196
Eagle, WI 53119

Dear Mr. Day:

The purpose of this letter is to provide written approval of the plans and completed repair work on the Wambold Dam. The Department of Natural Resources (Department) is hereby approving after-the-fact, the revised plans dated January 11, 2010, submitted by Ayres Associates under the professional seal of Chris Goodwin, P.E. This approval does not constitute settlement of the enforcement action initiated by the Department against the Eagle Spring Lake Management District (ESLMD) for the unauthorized dam work completed during the summer of 2009.

Submittal of the plans was requested in the Department's August 27 and September 24, 2009 letters to the ESLMD after we learned of the work on the dam. The plans describe the following:

- 1) An outline of the techniques used for the work on the Wambold Dam.
- 2) An accurate description of the extent of work performed including dimensions, steel reinforcement, concrete material specifications and quantity, elevations, and dimensions of the affected areas of the dam.
- 3) A determination of the low flow ($Q_{7,10}$) of the Mukwonago River.
- 4) A description of the flow passage during the project and estimated flow rate of the bypass.
- 5) A hydraulic capacity analysis of the Wambold Dam indicating any resulting decrease in capacity.
- 6) A stability analysis since weight was added to the structure.

The Department first learned of the dam work by reviewing the July 2009 ESLMD meeting minutes. The Department was surprised that the ESLMD did not contact the Department prior to initiating this work. The Department and the ESLMD have been communicating frequently over the past two years regarding the ESLMD request for a change in the ordered lake water level, maintenance and cleaning of the mill race and spillway improvements to accommodate the need for the Wambold Dam to safely pass the 500-year flood flows.

Dam work which is not considered maintenance requires a plan approval from the Department regardless of hydraulic capacity and stability impacts. Maintenance includes, but is not limited to, routine mowing of embankments, minor concrete patching, painting and other similar minor work. Any work beyond this, including major concrete work, requires plans and specifications from a Professional Engineer registered in the State of Wisconsin, be submitted to and approved by the Department **prior** to construction.

The concrete work done on the spillway apron is considered a "substantial alteration or addition" as per Chapter 31.18 of the Wisconsin State Statutes and required Department approval. Six to ten inches of concrete was placed on the spillway in a trough design, which was not a part of the original structural design for this dam. In addition, a bulkhead in combination with a dewatering mechanism was used to significantly restrict flow downstream to the Mukwonago River. This also required Department review and approval.

The Department reviews repair work for many reasons. The techniques which were used to add the concrete to the apron do not appear to meet the best construction practice standards. Preparation of the old concrete is of primary importance to ensure durable repairs. Even the best of repair materials will give unsatisfactory performance when applied to deteriorated concrete. The repairs must be able to properly bond to sound concrete. Since the spillway concrete repair work does not appear to have been completed using proper techniques, the dam is vulnerable to water entering the area between the old and new concrete, shortening the design life of the alteration and possibly damaging the spillway in the future. Your engineer would have been able to reduce the likelihood of problems in the future had plans and specifications been prepared and approved by the Department prior to the work being done.

In the future, please remember to contact me prior to initiating **any** repairs to the dam. If you have any questions you may contact me at 262-574-2127 or michelle.schneider@wisconsin.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Michelle Schneider". The signature is fluid and cursive, written in a professional style.

Michelle Schneider, P.E.
Water Management Engineer
Department of Natural Resources
Southeast Region, Waukesha

Cc: Bill Sturtevant—DNR, WT/3
Matt Maederer—Ayres Associates
Chris Goodwin—Ayres Associates
Stan Riffle—Arenz, Molter, Macy & Riffle, S.C.
Deb Roszak—DNR, Milwaukee
Doug Zeihen—DNR, Warden
Jim McNelly, DNR

**BEFORE THE
DEPARTMENT OF NATURAL RESOURCES**

IN THE MATTER of
Plan Approval
for the Wambold Dam,
Located on the Mukwonago River, in
Waukesha County.

FF #67.04,

FINDINGS OF FACT

1. The Department of Natural Resources has examined the plans for repair of the Wambold Dam, located in Section 36, Township 05 North, Range 17 East, Waukesha County, on the Mukwonago River.
2. The Wambold Dam is owned and operated by the Eagle Spring Lake Management District.
3. The after-the-fact plans for repair of the dam were submitted by Ayres Associates under the professional seal of Chris Goodwin, P.E.
4. The Department has determined that the project complies with Section 1.11, Wisconsin Statutes, and Section NR 1.95, Wisconsin Administrative Code.

CONCLUSIONS OF LAW

1. The review has been conducted in accordance with Chapter 31, Wisconsin Statutes, and Chapters NR 333 and NR 116, Wisconsin Administrative Codes.
2. The Department has authority under Chapter 31, Wisconsin Statutes, and Chapter NR 333, Wisconsin Administrative Code, to approve reconstruction and repair of dams.
3. The plans include, but are not limited to the addition of concrete to the existing spillway and other concrete repairs.

APPROVAL

1. The plans are hereby approved in accordance with Chapter 31, Statutes.
2. The approved plans are not transferable.


NOTICE OF APPEAL RIGHTS

If you believe that you have the right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

To request a contested case hearing pursuant to s.227.42, Wis. Stats., you have 30 days after the decision is mailed or otherwise served by the Department of Natural Resources. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

This decision was mailed on February 18, 2010.

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By  _____
Michelle Schneider, P.E.
Water Management Engineer
Department of Natural Resources
Southeast Region, Waukesha