

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
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Madison WI 53703

Tony Evers, Governor
Preston D. Cole, Secretary
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Tuesday, June 04, 2019

Brent Binder, P. E.
1155 Pilgrim Rd.
Plymouth WI 53073

Expedited delivery via email: Brent.Binder@wisconsin.gov

Subject: 2019 revised dam failure analysis (FAD = 20307) approval and reassignment of the hazard rating for Fishtrap Dam. FF #: 63.03, Key Sequence #: 628, Vilas County. This document supersedes the incorrectly issued manual code approval dated 05/31/2019

Brent,

I am sending you this formal approval of the revised dam failure analysis and setting the hazard rating for the Fishtrap Dam. The hazard rating is being set as High Hazard due to the existing development in the Fishtrap Dam hydraulic shadow that may be inundated to a depth greater than 2 feet and/or increase probability of loss of human life should the dam fail.

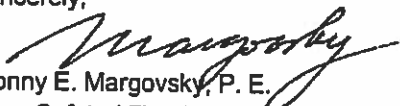
As a result of the study Vilas County will have to adopt hydraulic shadow zoning downstream of the dam. The hydraulic shadow inundation area identified in the study must also be used in the development of the Emergency Action Plan (EAP) for your dam. Preparation of the EAP will require inventory of all structures within the dam hydraulic shadow. Jennifer L. Jefferson, P. E. in our Rhinelander office will be assisting you in the adoption process and the development of the EAP. Depending on the lowest adjacent grade elevations of the habitable structures in the hydraulic shadow the Fishtrap Dam may be classified as Significant Hazard. Once the complete inventory is developed you may request in writing that we evaluate the data and if appropriate reclassify the dam as Significant Hazard.

As a dam having an assigned High Hazard rating, the Fishtrap Dam must be capable of passing the 1000-year flood without overtopping. In its current configuration, the Fishtrap Dam does have sufficient capacity to safely pass a 1000-year flood without overtopping through its spillways as defined by NR 333, for a High Hazard dam.

If you have questions about this approval, please give me a call at 608-266-1925. If you have other questions pertaining to the operation and maintenance of your dam please contact Jen at 715-401-0194, or via email at jennifer.jefferson@wisconsin.gov.

Thank you for your continued cooperation.

Sincerely,


Konny E. Margovsky, P. E.
Dam Safety / Floodplain Engineer
Wisconsin Department of Natural Resources

Copy to: Uriah Monday P. E. – MSA Professional Services - via email
Jen Jefferson, P. E. – Rhinelander office via email

**BEFORE THE
DEPARTMENT OF NATURAL RESOURCES**

IN THE MATTER of the approval of the revised dam failure analysis and the reassignment of the Hazard Rating for the Fishtrap Dam, located across the Manitowish River, in Vilas County. Field File #: 63.03, DKS: 628

FINDINGS OF FACT

1. The Department of Natural Resources (Department) has examined the revised dam failure analysis, for the Fishtrap Dam, across Manitowish River, in the NW 1/4 of the SE 1/4 of Section 15, Township 42N, Range 07E, Vilas County, Wisconsin.
2. The Fishtrap Dam is owned and operated by the Wisconsin Department of Natural Resources.
3. The revised dam failure analysis was performed by MSA Professional Services and the final version submitted to the Department on May 29, 2019. The current revision of the 2013 approved dam failure analysis is based on the following:
 - a) revised HEC-HMS hydrologic analysis incorporating recomputed contributing watershed area and the NOAA Atlas 14 Precipitation Frequency Data for a selected critical duration storm,
 - b) recomputed reservoir normal and maximum storage, and
 - c) revised hydraulic analysis downstream boundary condition
4. MSA Professional Services has determined that a rating of High Hazard would be appropriate for the dam and the area downstream of the dam.
5. There is a dwelling located approximately 100 feet upstream of CTH M within the dam hydraulic shadow floodway that may be inundated to a depth of 1.5 feet and subjected to moving water at velocity of 1.8 ft/s. Additionally MSA Professional Services has identified habitable structures in the dam hydraulic shadow along the Boulder Lake shores that have not been surveyed and may potentially be inundated to a depth greater than 2 feet and/or increase probability of loss of human life should the dam fail.
6. The current Flood Insurance Study (FIS) zoning in place downstream from the Fishtrap Dam is not adequate in providing sufficient protection of life, health and property.
7. Design flood routing provided by your consultant as part of the dam failure analysis demonstrated that in its current configuration the Fishtrap Dam does have sufficient capacity to safely pass a 1000-year flood without overtopping through its spillways as defined by NR 333, for a High Hazard dam.
8. The revised analysis was performed in compliance with Wisconsin Administrative Codes NR 333, and NR 116.
9. The hazard rating meets the standards of Section NR 333.06, Wisconsin Administrative Code.

CONCLUSIONS OF LAW

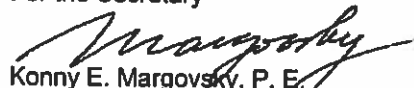
1. The review has been conducted in accordance with Chapter 31, Wisconsin Statutes, and Chapters NR 333 and NR 116, Wisconsin Administrative Codes.
2. The Department has authority under Chapter 31, Wisconsin Statutes, and Chapter NR 333, Wisconsin Administrative Code, to assign a hazard rating.

ASSIGNMENT OF THE HAZARD RATING

1. The hazard rating of High Hazard is hereby assigned to the dam.
2. MSA Professional Services has provided the hereby approved study narrative report in electronic format to Jennifer L. Jefferson, P. E. in our Rhinelander office. Jen will send all relevant information of the approved analysis including: a) hydraulic shadow profile, b) dam failure floodway data table, and c) hydraulic shadow map to the Vilas County with the official letter requesting to adopt the study into the floodplain zoning ordinance.
3. An Emergency Action Plan (EAP) based on the approved dam failure analysis must be prepared and submitted to Jen for review and approval by 12/01/2019. Please note that EAP must include inventory of all structures potentially impacted by the hydraulic shadow.

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

For the Secretary


Konny E. Margovsky, P. E.
Dam Safety / Floodplain Engineer
Wisconsin Department of Natural Resources
Bureau of Watershed Management

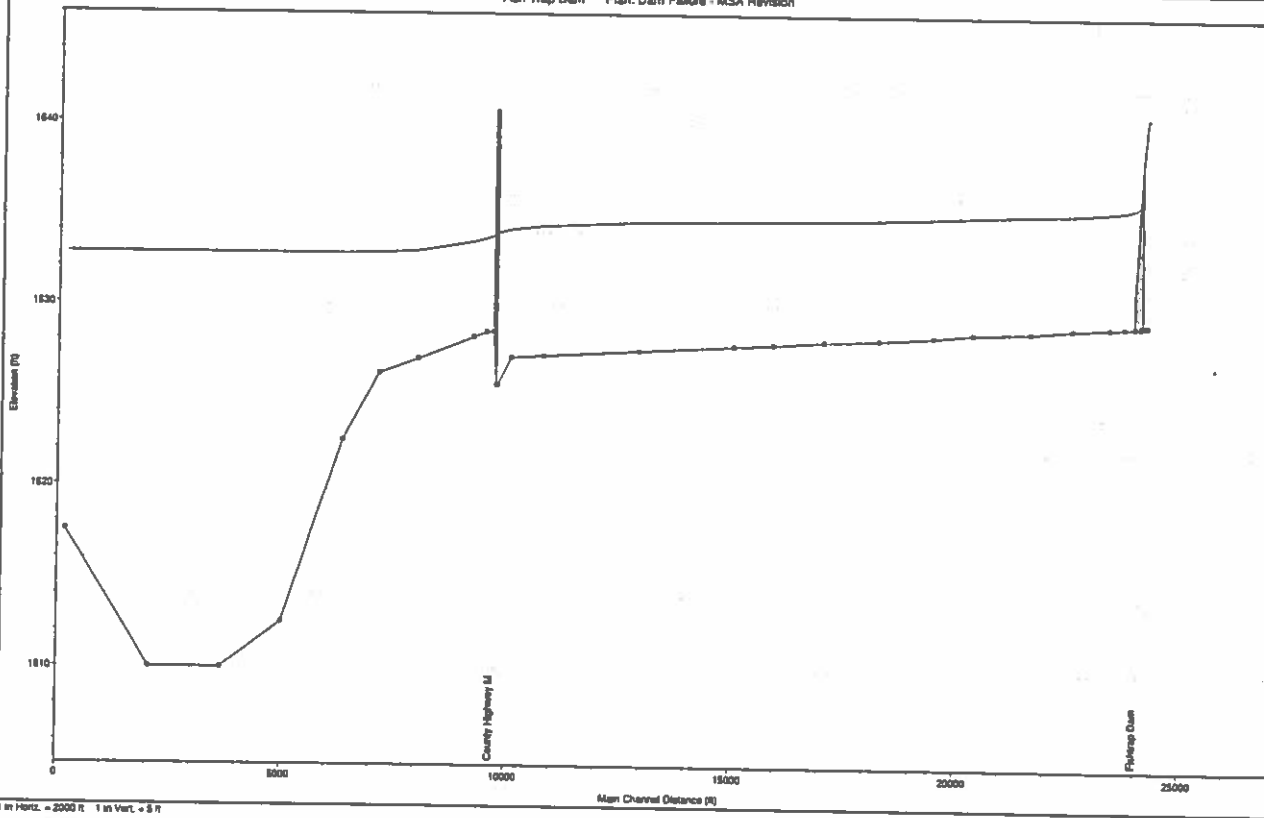
FLOODING SOURCE	FLOODWAY DATA			STAGE-FLOW DATA	
CROSS SECTION	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	MAXIMUM FLOW RATE (CUBIC FEET PER SECOND)	MAXIMUM WATER SURFACE ELEVATION (FEET NAVD 88)
MANITOWISH RIVER - DAM FAILURE					
24200	131	1,018	0.5	479	1640.54
24152	131	1,018	0.5	479	1640.54
Fishtrap Dam					
23916	127	496	3.3	1635	1635.61
23692	117	552	2.9	1624	1635.46
23361	234	815	2.0	1610	1635.36
22536	294	1,428	1.1	1508	1635.21
21615	457	1,725	0.9	1485	1635.15
20340	354	1,341	1.1	1443	1635.03
19454	335	1,235	1.1	1404	1634.93
18244	248	1,374	1.0	1378	1634.83
17035	826	1,983	0.7	1350	1634.75
15909	1,322	3,113	0.4	1334	1634.70
15018	693	1,971	0.7	1321	1634.65
12912	986	2,275	0.6	1307	1634.58
10806	479	1,176	1.1	1298	1634.35
10082	194	724	1.8	1288	1634.15
9774	80	468	2.7	1277	1633.98
County Highway M					
9528	80	370	3.4	1250	1633.65
8241	107	411	3.0	1226	1633.45
8016	202	835	1.4	1172	1632.95
7157	430	1,159	1.0	1157	1632.84
6352	1,317	10,307	0.1	1150	1632.78
5003	3,371	56,466	0.0	1150	1632.78
3654	4,438	78,222	0.0	1147	1632.78
2064	1,527	18,700	0.1	1148	1632.78
180	1,580	20,043	0.1	1147	1632.78

VILAS COUNTY, WI AND UNINCORPORATED AREAS	FLOODWAY DATA
	MANITOWISH RIVER - DAM FAILURE

Dated: 05/31/2019

Fish Trap Dam Plan: Dam Failure - MSA Revision

Legend	
WS	Max WS
Ground	Ground



1 in Horiz. = 2000 ft 1 in Vert. = 5 ft

Dated: 05/31/2019

