



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

MI Dam Safety Task Force Introduction

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Outline

- Brief overview of the Dam Safety Program
- Recap of 5/19/20 Dam Failure Event
- Governor Whitmer's Directive
- Independent Forensic Investigation
- ASDSO Peer Review
- MI Dam Safety Task Force
- Next Steps

Michigan's Dam Safety Program

- Established in the 1970s following failure of the Buffalo Creek and Teton Dams, which sparked the national dam safety movement
- Originally part of MDNR's Engineering Division
 - Permitted construction of dams, but had little regulatory authority over safety of existing dams
- 1990 – Act 300 (Dam Safety Act) established permitting authority over construction, alteration, and removal of dams; set forth safety requirements; and provided compliance and enforcement authorities
- 1994 – Part 315, Dam Safety, and Part 307, Inland Lake Levels, of the NREPA replace previous laws regulating dams
 - Both laws currently in effect

Michigan's Dam Safety Program

- Historically staffed at 2-3 engineers plus a supervisor
- Until recently...

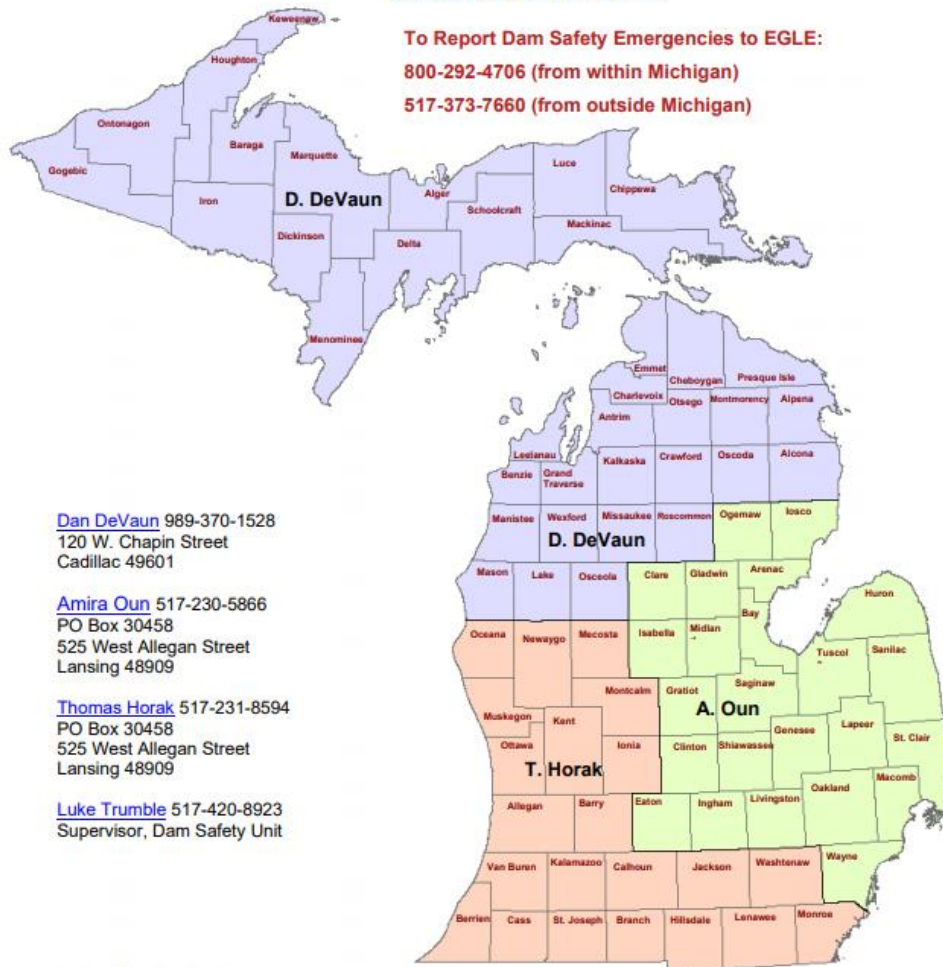
Dam Safety Staff

www.mi.gov/damsafety

To Report Dam Safety Emergencies to EGLE:

800-292-4706 (from within Michigan)

517-373-7660 (from outside Michigan)



[Dan DeVaun](#) 989-370-1528
120 W. Chapin Street
Cadillac 49601

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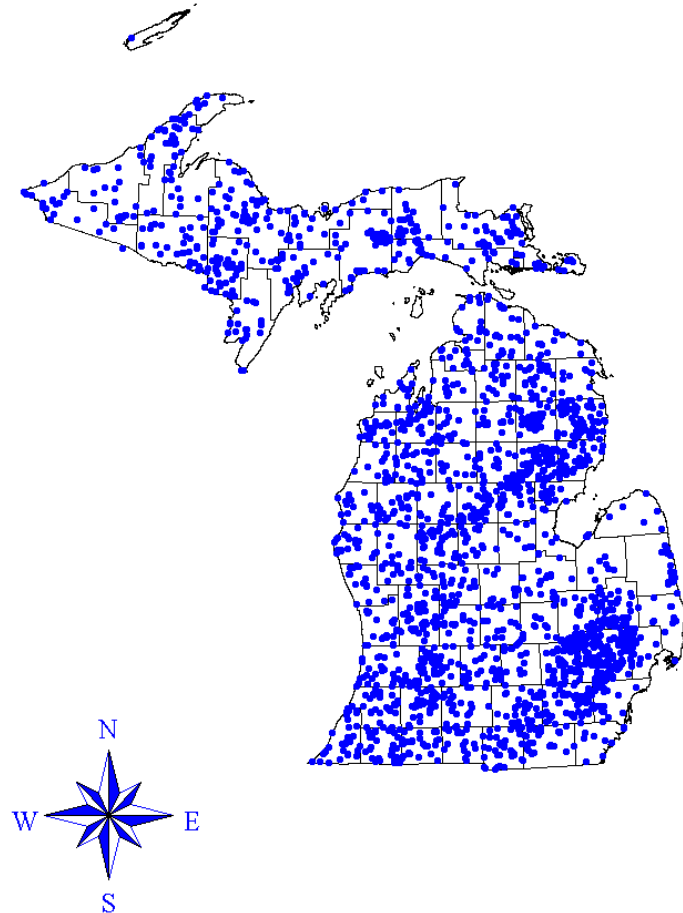
Water Resources Division

www.michigan.gov/wrd ↔ 517-284-5567

3/22/2021

Dams In Michigan

- In every county
- Over 2,600 structures
 - ~825 Part 315 dams
 - ~235 Part 307 dams
 - 92 FERC Regulated Dams
 - Remainder unregulated
- Interactive Map:
 - <https://mdeq.maps.arcgis.com/apps/webappviewer/index.html?id=f8c0637f34864bcbabb9c794fd8e452b>



May 17-18 Flood Event

- Rainfalls ranging from 3 to 5 inches over 48 hours in much of the Tittabawassee River watershed.
 - Local reports of up to 8 inches over 48 hours
 - Heaviest rains occurred in the Rifle River watershed
 - Several dams in the area sustained moderate to significant damage
 - Many were on high alert for failure

Edenville Dam

- Failed around 5:30 PM on 5/19/20
 - Embankment failure and full breach at east end of dam
 - Resulting flood wave contributed to the failure of the Sanford Dam
 - Impacted over 2,500 homes and businesses
 - Forced evacuation of 11,000 people
- EGLE's Response
 - Onsite during and following failure
 - Emergency Response and Assessment
 - Safety concerns with remaining dam

Edenville Dam Failure



Edenville Dam Failure



Edenville Dam Failure



Sanford Dam

- Failed around 7:45 PM on 5/19/20
 - Overtopping and breach of earthen embankment in several locations
 - Full breach occurred at near west end of dam
 - Failure was slowed/obscured by high tailwater elevations resulting from backwater from downstream obstructions
- EGLE's Response
 - Onsite during and following failure
 - Emergency Response and Assessment
 - Safety concerns with remaining dam

Sanford Dam Failure



Sanford Dam Failure



Sanford Dam Failure

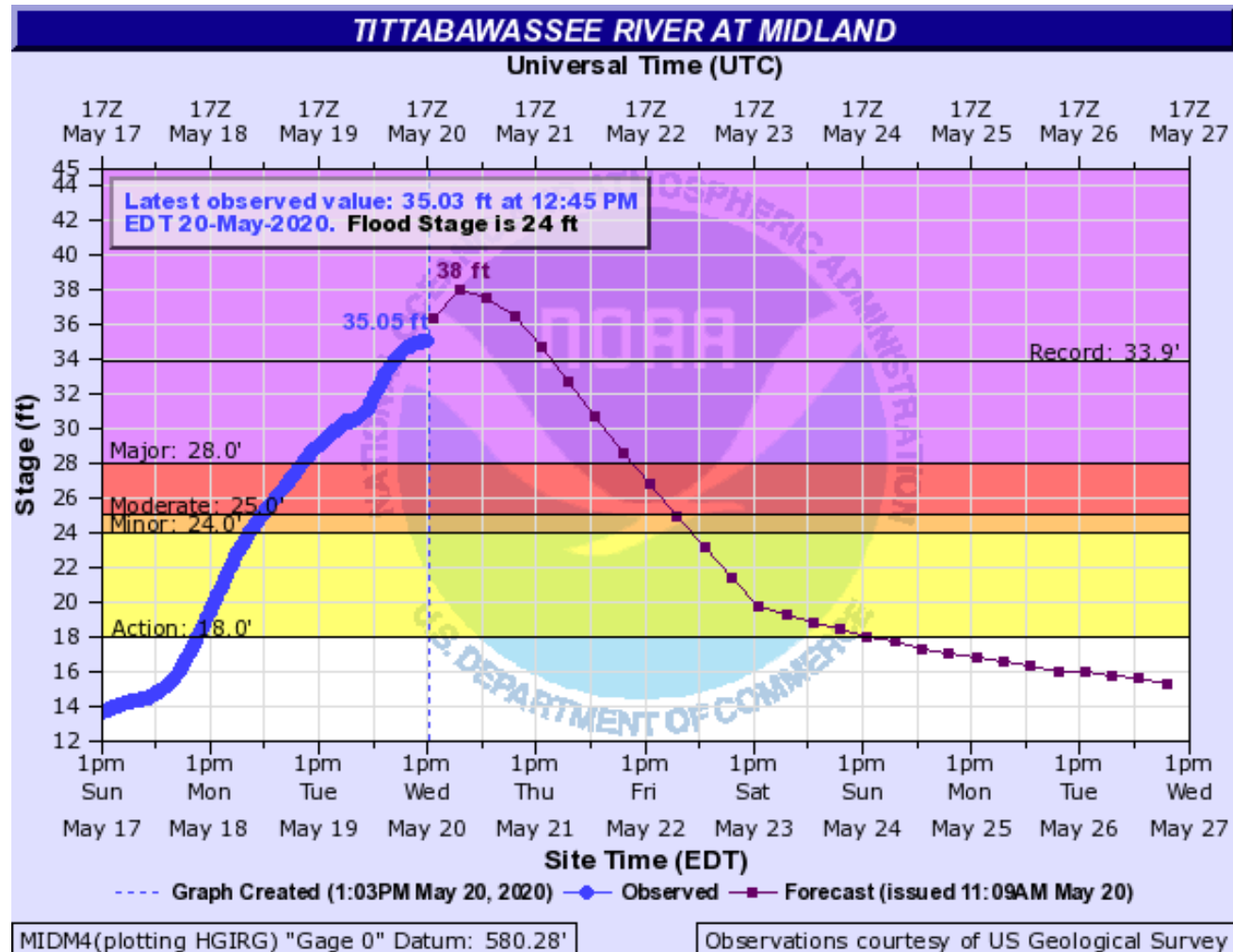


Sanford Dam Failure



Tittabawassee River Flows

- Projected to crest at ~31 feet
 - Less than the flood of '86
- With dam failures, crested at ~35 feet
 - Greater than the flood of '86
 - Roughly equivalent to a 500-year event
 - Impacted ~2,500 homes and businesses
 - Force evacuation of 10,000+ residents
 - Preliminary damage estimates > \$200 M



Governor Whitmer's Directive

- Following the failure of the Edenville and Sanford Dams, Governor Whitmer issued a directive to EGLE to perform the following:
 - Investigate the cause(s) and contributing factors to the failure the two dams
 - Perform a full evaluation of the dam safety program, and overall safety of dams in Michigan
 - Report back to the Governor's office on the findings of both

Failure Investigation

- FERC and EGLE team up for a single, independent investigation
 - Team Members:
 - **John W. France**, President, JWF Consulting, who will serve as team leader.
 - **Irfan A. Alvi**, President and Chief Engineer, Alvi Associates.
 - **Steve Higinbotham**, Hydraulic structures engineer consultant.
 - **Arthur C. Miller**, Technical Advisor, AECOM.
 - **Jennifer Williams**, Geotechnical engineer and consultant.
 - FERC contracted with investigation team
 - Must form their own scope
 - Must work outside any influence from the dam owner, FERC, or EGLE
 - Work began in late August 2020
 - To be completed in 12-18 months

ASDSO Peer Review

- EGLE contracted with the Association of State Dam Safety Officials, Peer Review Program, to perform an independent audit of the Dam Safety Program.
 - Completed 49 peer reviews of state dam safety programs.
 - Including Michigan in 2006 and 2020.
 - Completed 4 peer reviews of private owner dam safety programs.
 - Completed 18 reviews of federal dam safety programs.
 - MI peer review team had over 140 years of combined experience!

ASDSO Peer Review

- ASDSO Peer Review Final Report was submitted on September 4, 2020.
 - ASDSO presented findings to the MI Dam Safety Task Force at their second meeting on October 1, 2020.
 - To serve as a baseline for Task Force recommendations
 - Peer review team remain available for consultation

MI Dam Safety Task Force

- Formed in August/September 2020
 - 19 members representing various arenas/stakeholders
- Inaugural meeting held September 8, 2020
- Met every 3 weeks until their final meeting on February 3, 2021
- Several workgroup meetings to focus on recommendation areas/topics
- Final report and recommendations were issued to Governor Whitmer on February 25, 2021.

Next Steps

- Independent Forensic Investigation Team to complete investigation and submit final report in Fall 2021 to Spring 2022.
- EGLE currently reviewing and prioritizing recommendations of the MIDSTF
 - Now - increased budget, hiring new staff
 - Implementing internal recommendations of the TF
 - 2021 and beyond - Form stakeholder groups to refine TF recommendations where needed
 - Start legislative processes with goal of implementing recommended statute/rule changes, obtaining funding, etc.

Michigan Department of
Environment, Great Lakes, and Energy

800-662-9278

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