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)

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120 W. Chapin Street
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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

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