

Michigan Dam Safety Program



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Who Are We?

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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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EGLE

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Water Resources Division

www.michigan.gov/wrd ↔ 517-284-5567

7/3/2019

Dam Safety Program Budget

Funding Sources:

- MOU with DNR for inspection of DNR Dams - \$112,300
- FEMA National Dam Safety Program Grant - \$87,000
- State of Michigan General Fund - \$74,200
- EGLE-WRD Permit Fees - \$74,200
- Total - \$348,100

Expenditures:

- Staffing (2 FTEs) - \$300,000
- Travel - \$4,000
- Supplies - \$300
- DNR Inspections - \$37,500
- Contracts - \$2,500
- Other - \$3,800
- Total - \$348,100

What do we do?

Statutes Administered by Dam Safety Program

Natural Resources and Environmental Protection
Act, 1994 PA 451, as amended (NREPA)

- Part 307, Inland Lake Levels
- Part 315, Dam Safety

Overall Goal: Reduce/Prevent Dam Failures



- An incident resulting in an unplanned or uncontrolled release of water from a dam.

Part 307, Inland Lake Levels

- Process to establish and maintain legal lake levels
- Set up special assessment districts to fund construction, inspection, maintenance, and repair of dams
- Requires dam inspection every three years
- We review inspection reports and provide comments
- Do NOT issue Part 307 permits – review plans and issue approval letters



Part 315, Dam Safety

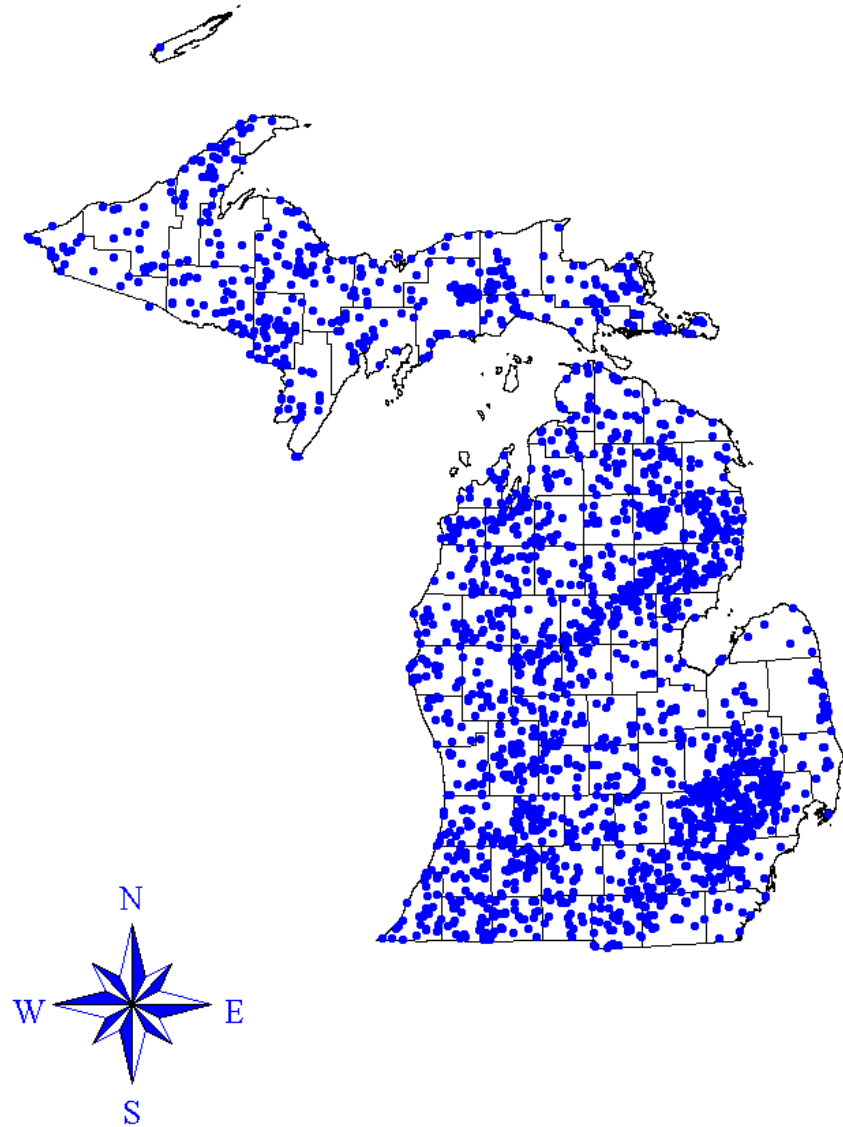
- Formerly known as “Dam Safety Act, 1989 PA 300, as amended”
- Mandates inspection of regulated dams
- Grants the department the authority to enforce statute and issue permits for dam related activities
- Inspect state and municipally owned dams
- Review and provide comments on consultants’ inspection reports for privately owned dams
- Review Emergency Action Plans (EAPs)
- Take enforcement action when dams are out of compliance with Part 315 regulations
- Issue permits for construction of new dams and alterations, enlargement, or removal of existing dams



Inventory of Michigan Dams

- In every county
- Over 2600 structures
 - ~825 Part 315 dams
 - ~235 Part 307 dams
- Continuously updated
- Currently updating to a web-based platform
- Interactive Map:
 - <https://mdeq.maps.arcgis.com/apps/webappviewer/index.html?id=f8c0637f34864bcabb9c794fd8e452b>

Michigan Dams



What is a dam?

Part 315 Regulated Dam – Definition

- An artificial barrier, including dikes, embankments, and appurtenant works, that impounds, diverts, or is designed to impound or divert water or a combination of water and any other liquid or material in the water; that is or will be when complete 6 feet or more in height; and that has or will have an impounding capacity at design flood elevation of 5 surface acres or more.

Hazard Potential Classification

- Determined by the Dam Safety Program
- Based upon potential downstream impacts caused by failure of the dam
- NOT based upon the structural condition of the dam

Hazard Potential

- Three hazard potential categories:
 - High – expected loss of life, severe impacts
 - Significant – possible loss of life, significant impacts
 - Low – no loss of life, minor impacts
- Inspection Frequency:
 - High – once every 3 years
 - Significant – once every 4 years
 - Low – once every 5 years
- Only High and Significant hazard potential dams require EAPs

Emergency Action Plans

- Specifies who to notify in the event of an impending or actual dam failure
 - Emergency management and responders
 - Downstream residents
 - National Weather Service
 - Downstream dam owners
 - Technical consultants
 - Contractors
 - Dam Safety Program
- Identify downstream impacts
 - Inundation maps or list of affected areas
 - Downstream infrastructure
- Specifies Actions to be taken
 - Dam repairs (if possible and safe)
 - Evacuations
 - Road closings
- The Dam Safety Program reviews EAPs to make sure they contain the required elements, and provides suggestions to improve the effectiveness of the plans

Inspection Report Requirements

- Must Be Conducted by a
Licensed Professional Engineer
- Evaluation of Dam's Structural Condition
- Evaluation of Dam's Spillway Capacity
- Make Recommendations as Necessary to
Meet Safety Standards
- Assigned an overall condition assessment

Condition Assessments

■ Satisfactory

- No existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions.

■ Fair

- No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency.

■ Poor

- A dam safety deficiency is recognized for loading conditions that may realistically occur. Remedial action or further investigations and studies are necessary to determine risk.

■ Unsatisfactory

- A dam safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution.

■ Not rated

- The dam has not been inspected, is not under State jurisdiction, or has been inspected but, for whatever reason, has not been rated.

High Hazard Potential Dams

- There are 85 state regulated High Hazard Potential Dams in Michigan.
 - Of those 85 High Hazard Potential Dams:
 - Zero (0) are in unsatisfactory condition – 0%
 - Six (6) are in poor condition – 7.1%
 - Nineteen (19) are in fair condition – 22.4%
 - Fifty-nine (59) are in satisfactory condition – 69.4%
 - One (1) is unrated – 1.1%

High Hazard Potential Dams in Poor Condition

■ Buttermilk Creek Detention Dam

- More analysis needed - working with the owner to resolve unauthorized modifications to the dam's auxiliary spillway
- Does not impact dam's ability to pass the regulatory design flood (200-year)
- May impact ability to pass larger floods

■ Cornwall Creek Dam, Cheboygan County

- Spillway has deteriorated with age, warranting a poor condition assessment
- State-owned (DNR) – currently working on design, permitting, and funding of full spillway replacement project.

■ Edenville Dam

- Failed 5/19/2020

High Hazard Potential Dams in Poor Condition

- Manistique Papers Dam, Schoolcraft County
 - Dam has deteriorated with age, warranting a poor condition assessment
 - Owner in bankruptcy proceedings, working with state and federal agencies to remove the dam in the next 3 to 5 years
- Little Black River Structure B, Cheboygan County
 - Sinkhole has formed that is being monitored, warranting a poor condition assessment
 - Working with owner to pursue grant funding to repair the dam
- Portage Plant Dam, St. Joseph County
 - Owner delinquent/non-responsive
 - EGLE staff inspected in 2013
 - Dam has deteriorated with age, warranting a poor condition assessment
 - Planning enforcement action

When Deficiencies are Identified

- Deficiencies are typically identified in inspection reports, along with recommended actions, and timeframe for implementation of a remedy.
 - Can also be reported by the owner or observed by Dam Safety Program staff during review of inspection reports or site visits.
 - Dam Safety Program then work with the dam owner to amicably resolve any issues identified.
 - If a dam owner fails to resolve any issues within the timeline provided by their consultant and/or EGLE, then EGLE will consider escalated enforcement action.

Escalated Enforcement Action

- Typically starts with a letter to the owner directing them to submit an acceptable plan and schedule for addressing the identified deficiency.
- When there is no action by the owner, EGLE may take the following actions:
 - Issue a Notice of Violation and impose civil fines.
 - Up to \$10,000 per day of violation
 - Issue an order under Section 31518 of Part 315
 - When a condition exists that endangers the dam
 - Order the owner to take actions to alleviate the danger

Escalated Enforcement Action (cont'd)

- Issue an order under Section 31519 of Part 315
 - When significant damage to public health, safety, welfare, or natural resources is resulting from the operation, condition, or existence of a dam.
 - Order the owner to limit operations of the dam or remove the dam.
- Issue an emergency order under Section 31521 of Part 315
 - When a dam is in imminent danger of failure or threatening to cause harm to public health, safety, welfare, property, or natural resources
 - Order the owner to immediately repair, draw down, breach, or cease operation of a dam
 - If the owner will not/cannot comply with the order, then EGLE may step in and take necessary actions to alleviate the danger
 - EGLE can then sue the owner to recoup costs

Available Resources

- National Inventory of Dams
 - <https://nid.sec.usace.army.mil/#/>
- FEMA National Dam Safety Program:
 - <https://www.fema.gov/national-dam-safety-program>
- EGGLE Dam Safety Program:
 - Website: <https://www.michigan.gov/egle/about/organization/Water-Resources/dam-safety>
 - Existing Inspection Reports and EAPs on file
 - Obtained through FOIA request
- Association of State Dam Safety Officials (ASDSO)
 - <https://www.damsafety.org/>

Any Questions?