

# Michigan Dam Safety Task Force Subgroups

## Legislation and Authority

### Focus of the Subgroup:

The Legislation and Authority subgroup is focusing on the need to revise or adopt laws and/or rules to meet desired outcomes.

Note: Legislation and Authority includes the Association of State Dam Safety Officials (ASDSO) report recommendations regarding the need to revise or adopt laws and/or rules to meet the legislative authorities outlined in the National Dam Safety Act and FEMA Model Dam Safety Program.

### Composition of the Subgroup:

Task Force members: Dr. Bryan Burroughs, Brett Fessell, Doug Jester, Tanya Paslawski, Evan Pratt, Bill Rustem

Facilitator: Mark Coscarelli

Michigan Department of Environment, Great Lakes, and Energy (EGLE) technical support: Mario Fusco

### Association of State Dam Safety Officials (ASDSO) Recommendations:

#### **Legislation and Authority**

#### Michigan Dam Safety Program (MI DSP) 2020-01-a:

#### Revision or adoption of laws and/or rules to:

1. Provide liability disclaimer statement for the state agencies' personnel.
2. Require permits for existing unpermitted dams to operate and maintain these dams in a safe condition and to annually report on maintenance, operation, and engineering investigations.
3. Require owners to maintain dam operation, monitoring, and maintenance records.
4. Require owners of high- and significant-hazard dams which present a substantial potential risk to life or property to provide proof of financial responsibility or security to ensure the continued safe operation and maintenance of their dam and to ensure that funding is available for the Dam Safety Program (DSP) to mitigate any hazard presented during a dam incident or emergency, should the owner fail to do so.
5. Require inspection of construction by DSP staff and the owner's design engineer.
6. Require the owner to submit a first-filling plan, including a monitoring schedule, developed by the design engineer, for DSP review and approval.

7. Require periodic exercising of emergency action plans (EAPs) as discussed further in MI DSP 2020-15-e.
8. Meet Federal Emergency Management Administration's Model Dam Safety Program (MDSP) recommendations for design floods.
9. Meet MDSP recommendations for inspection frequency as discussed further in MI DSP 2020-12-a.

MI DSP 2020-01-b:

10. Creation of a dedicated dam safety emergency fund that does not revert to the General Fund at the end of budget cycles. This fund would be utilized by the DSP to mitigate any hazard present during a dam incident or emergency should the owner fail to do so. Michigan should provide an initial allocation to establish this fund. Replenishment of this fund is addressed in MI DSP 2020-05-d and MI DSP 2020-14-h.

MI DSP 2020-01-c:

11. The DSP should closely consider the substantial increases in program costs (beyond those already detailed in this report), compared to possible benefits and drawbacks of duplicative regulatory authority for hydropower dams. While that change is being considered, it is further recommended that the DSP seek to work with ASDSO and the leadership of the Federal Energy Regulatory Commission to see if a systemwide simplification of this problem of information transfer can be developed and implemented.

MI DSP 2020-01-d:

12. To provide for future inflation, it is recommended that the value of any fees, fines, and penalties related to dam safety be established in the regulations, with the concurrence of the proper EGLE oversight entity.

# Michigan Dam Safety Task Force Subgroup

## Compliance, Enforcement, and Emergency Response

### Focus of the Subgroup:

The Compliance, Enforcement, and Emergency Response subgroup is focusing on regularity and immediacy of enforcement of statutes and regulations, as well as plans, procedures, and resources (funding and personnel) to act in the case of emergencies.

Note: Compliance, Enforcement, and Emergency Response combines the ASDSO report topics of Compliance and Enforcement and Emergency Response/Emergency Action Plans, as well as address the survey responses relating to removal of out of compliance dams, portfolio risk management and dam owner funding mechanisms.

### Composition of the Subgroup:

Task Force members: Myndi Bacon, John Broschak, Liesl Clark, Dan Eichinger, Dr. Dana Infante, Dan Scripps, Abby Watkins

Facilitator: Jon Beard

EGLE technical support: Luke Trumble

### ASDSO Recommendations:

#### **Compliance and Enforcement**

##### MI DSP 2020-14-a:

1. Establishing a priority led by senior management for portfolio-wide compliance enforcement.

##### MI DSP 2020-14-b:

2. Development of a compliance and enforcement priority list, with ten or 20 of the most problematic dams initially identified for focused follow up.

##### MI DSP 2020-14-c:

3. Conducting a monthly Compliance and Enforcement Triage Meeting focused specifically on dams, including senior management, DSP staff, a dedicated Dam Safety Enforcement Officer (see MI DSP 2020-04-d), and legal counsel, for the purpose of creating, following up on, and tracking dam-specific strategies for the above chosen most problematic structures.

##### MI DSP 2020-14-d:

4. Development or adaptation of a written policy for violation management and a standardized pathway for progressive enforcement to apply to dams.

##### MI DSP 2020-14-e:

5. Utilization of water level lowering orders as a compliance tool, as well as in dam hazard incidents, to reduce the safety risks posed by long unmaintained, deteriorating dams and unresponsive dam owners.

MI DSP 2020-14-g:

6. Creation and implementation of Dam Safety 101 and Enforcement Cross Training.

MI DSP 2020-14-h:

7. Penalties and/or fines collected for dam safety violations should be directed to replenish the Dam Safety Emergency Fund (see MI DSP 2020-01-b).

**Emergency Response/Emergency Action Plans**

MI DSP 2020-15-a:

1. Development of a General Dam Emergency Response Plan designed specifically for dam hazard emergencies, coordinated with the EGLE emergency response manager, the DSP, and representatives of state, county, and local emergency response offices. This plan should clearly identify the responsibilities of each entity should a dam emergency occur. This plan should also refer to the utilization of the Dam Safety Emergency Fund (see MI DSP 2020-01-b) to finance any construction activity necessary for the DSP to mitigate any hazard presented by a dam should the owner fail to do so.

MI DSP 2020-15-b:

2. EAPs should be annually checked:
  - For accurate contact information in the notification chart
  - For changes in population and facilities at risk as a result of hazard creep

MI DSP 2020-15-c:

3. EAPs should also be updated annually to include a description of circumstances which would require activation of the EAP. This update should also reflect any significant change in the condition of the dam and/or threshold readings of monitoring equipment requiring activation.

MI DSP 2020-15-d:

4. Consider, for best practice, the development of a standardized EAP format or requiring the use of an existing, widely accepted standardized EAP format to ensure consistency from one EAP to another.

MI DSP 2020-15-e:

5. Require testing (i.e., orientation seminar, drill, tabletop exercise, functional exercise, or full-scale exercise) as agreed upon by the county or local emergency management office on a frequency concurrent with every other required dam inspection.

# Michigan Dam Safety Task Force Subgroup

## Permitting and Design Review

### Focus of the Subgroup:

The Permitting and Design Review subgroup is focusing on permitting requirements and design plan review processes, tools, and capacity/expertise.

Note: Permitting and Design Review combines the ASDSO report topics of Permitting and Design Review.

### Composition of the Subgroup:

Task Force members: Dr. Marty Holtgren, Jim Kochevar, Paul Malocha, Dr. Stan Vitton, Glen Wiczorek, Brad Wieferich

Facilitator: Elizabeth Riggs

EGLT technical support: Dan DeVaun

### ASDSO Recommendations:

#### **Permitting**

##### MI DSP 2020-09-a:

1. Development of a more inclusive list of the calculations and documents to be provided by the dam owner, regardless of who the applicant is, or the dam owner's engineer to assure the dam will be designed, operated, and maintained in a safe manner.

##### MI DSP 2020-09-b:

6. Development of requirements for the dam owner of significant- or low-hazard dams to address the potential change in hazard classification and the related changes to the dam that will be required as a result of the change in hazard classification. (Related to MI DSP 2020-15-b.)

##### MI DSP 2020-09-c:

7. Development of a permit period for the dam construction permit that notes a time period for construction and also provides for the ongoing operation and maintenance of the dam or development of a permit to be issued following DSP acceptance of work completed under the dam construction permit for the ongoing operation and maintenance of the dam for the lifetime of the facility.

#### **Design Reviews**

##### MI DSP 2020-10-a:

1. Consider periodically (i.e., every four years) awarding an engineering services contract to a qualified consulting firm to be readily available to augment the DSP staff when needed. The engineering services contract could be used for:

- A sudden increase in staff workload due to an event or program need
- A complex design review in connection with a new dam or major rehabilitation project
- Assistance in accomplishing dam inspections in a timely and efficient manner
- Assistance in performing construction assurance reviews for complex projects or dam removal projects
- Assistance in performing reviews of periodic (ten-year) detailed dam re-evaluations

MI DSP 2020-10-b:

2. Requirement for the owner of proposed complex projects to provide an independent board of review to affirm the owner's design.

MI DSP 2020-10-c:

3. Development of a standard-format DSP engineering report for the construction, modification, rehabilitation, operation, and maintenance of dams in Michigan to be completed by the reviewing dam safety engineer.

# Michigan Dam Safety Task Force Subgroup

## Reevaluations, Inspections, and Surveillance Monitoring

### Focus of the Subgroup:

The Reevaluations, Inspections, and Surveillance Monitoring subgroup is focusing on requirements for periodic reviews to ensure existing dams meet current design standards and the frequency and requirements for inspections and surveillance monitoring.

Note: Reevaluation, Inspections, and Surveillance Monitoring combines the ASDSO report topics of Reevaluations, Inspections, and Surveillance Monitoring, as well as address the survey responses relating to risk assessment and coordination on water courses with multiple dams.

### Composition of the Subgroup:

Task Force members: John Broschak, Liesl Clark, Dan Eichinger, Paul Malocha, Dr. Stan Vitton, Glen Wiczorek

Facilitator: Jon Beard

EGLE technical support: Dan DeVaan

### ASDSO Recommendations:

#### **Reevaluations**

##### MI DSP 2020-11-a:

Considering adopting a requirement that high- and significant-hazard dam owners be required to have periodic independent comprehensive reviews conducted by a qualified team of people with appropriate technical expertise, experience, and qualifications to cover all aspects of original design, construction, maintenance, repair, and failure modes of the assets under consideration for all features of their dam. A maximum ten-year periodic cycle should be considered. Reporting requirements for specific dams should be evenly distributed over the cycle to distribute the workload for the total portfolio of dams.

#### **Inspections**

##### MI DSP 2020-12-a:

1. Amending inspection frequencies to annual for high-hazard dams and to biennial for significant-hazard dams.

##### MI DSP 2020-12-b:

2. Establishing a construction inspection requirement for the design engineer and for DSP staff.

##### MI DSP 2020-12-c:

3. Developing an inspection checklist and/or standard inspection report form to assist dam owners in providing inspection documentation in a consistent manner.

MI DSP 2020-12-d:

4. Frequent inspections by DSP staff during dam construction, alteration, repair, and the first filling.

**Surveillance Monitoring**

MI DSP 2020-13-a:

Consider, as appropriate, requiring the installation of surveillance monitoring equipment (piezometers, inclinometers, settlement monuments, etc.) and the regular submittal of monitoring analyses to the DSP at regulated high- and significant-hazard dams.

# Michigan Dam Safety Task Force Subgroup

## Program Management/Funding and Budgeting

### Focus of the Subgroup:

The Program Management/Funding and Budgeting subgroup is focusing on staff capacity, resources, systems and tools (including tracking dam inventory and maintenance of records and files), policies and procedures, and professional development/training needed to meet the goals and objectives as described in the legislation and rules for the dam safety program, as well as financial management tools, processes, and resources for program operations.

Note: Program Management combines the ASDSO report topics of organizational management, program management, resource allocation, funding and budgeting, policies and procedures, human resources, inventory, and files and records.

### Composition of the Subgroup:

Task Force members: Dr. Bryan Burroughs, Doug Jester, Jim Kochevar, Evan Pratt, Bill Rustem, Brad Wiefelich

Facilitator: Mark Coscarelli

EGLE technical support: Luke Trumble

### ASDSO Recommendations:

#### **Organizational Management**

##### MI DSP 2020-02-a:

EGLE should add public safety to its mission statement.

#### **Program Management**

##### MI DSP 2020-03-a:

1. The DSP manager position description should be revised to include:
  - a. Technical experience in the design, construction, operation, and maintenance of dams
  - b. Overall program management
  - c. Mentoring subordinate staff
  - d. Developing a portfolio risk assessment of regulated dams to determine the DSP's priorities
  - e. Preparing a DSP annual report for executive management
  - f. Performing performance reviews of staff

- g. Administering dam safety awareness within the department and for outside stakeholders (see MI DSP 2020-17b and MI DSP 2020-17c)
- h. Developing an annual budget request for the DSP
- i. Tracking required inspections
- j. Planning and tracking training for staff
- k. Ensuring enforcement actions are performed for DSP compliance
- l. Performing quality assurance (QA) and ensuring quality control (QC) is practiced
- m. Developing relationships with dam safety champions within EGLE and with outside stakeholders (owners, consultants, emergency management officials, county drain commissions, floodplain managers, legislators or legislative committees). See MI DSP 2020-17c.
- n. Developing dam safety policies and procedures manual
- o. Leading dam safety initiatives to enhance the protection of the public, the environment, and property
- p. Participating in professional societies, such as ASDSO, to remain current and maintain professional development credits
- q. Developing a recommendation for a revolving loan program to provide funding for rehabilitation of high-hazard, publicly owned dams

MI DSP 2020-03-b:

- 2. Scheduling periodic DSP meetings to discuss program issues.

MI DSP 2020-03-c:

- 3. Providing a DSP annual report to convey the importance and benefits of the program to executive management.

MI DSP 2020-03-d:

- 4. Adopting a risk-based approach to manage the DSP using a portfolio risk assessment program (i.e., one available from ASDSO) of the inventory of regulated dams, beginning with high-hazard dams, to allocate human and financial resources for the greatest dam safety return.

MI DSP 2020-03-e:

- 5. Developing a formal QA/QC program to document QA/QC practice for all work products prepared by the DSP, such as inspection reports; design reviews; and engineering studies, calculations, and reports. For permit application reviews, a checklist should be developed to ensure consistency in the reviews conducted by various staff.

MI DSP 2020-03-f:

- 6. Developing a DSP policy and procedures manual to provide for consistent quality of performance.

MI DSP 2020-03-g:

7. Developing a recommendation for a revolving loan program to provide funding for rehabilitation of high-hazard, publicly owned dams.

**Resources Allocation**

MI DSP 2020-04-a:

1. Obtain proprietary software in specific engineering fields, such as hydraulics, geotechnical and structural, and computer-aided design (CAD) as the dam engineering staff identify the specific need.

MI DSP 2020-04-b:

2. Establishing the DSP in a stand-alone unit under the Field Operations Support Section.

MI DSP 2020-04-c:

3. Based on ASDSO findings regarding comparable DSPs, the Michigan DSP staffing should consist of a dedicated DSP unit manager, three senior dam safety engineers, three junior dam safety engineers, one engineering technician (alternatively an additional junior dam safety engineer), and one clerical support person. A proposed organization chart reflecting this recommendation is contained in Appendix K of the peer review report.

MI DSP 2020-04-d:

4. Dedicating two qualified dam safety enforcement officers for the DSP.

**Funding and Budgeting**

MI DSP 2020-05-a:

1. Restricting the use of FEMA Dam Safety Grant funds solely for DSP enhancements, not DSP salaries.

MI DSP 2020-05-b:

2. Considering detailed input from the DSP manager when establishing the budget.

MI DSP 2020-05-c:

3. Michigan dam-owner agencies should strive to lead by example with regard to responsible dam ownership. This could start with an inventory-wide assessment of state-owned dams and then setting financial and project goals to provide adequate yearly routine budget resources and yearly lifecycle budget resources to perform deferred maintenance and rehabilitate any safety deficiencies.

MI DSP 2020-05-d:

4. Require a designated portion of dam permit application fees and/or annual dam permit registration or renewal fees to be used for the replenishment of the Dam Safety Emergency Fund (see MI DSP 2020-01-b) for the purposes of the DSP to mitigate any hazard present during a dam incident or emergency should the owner fail to do so. When the total value of the Dam Safety Emergency Fund has reached a sufficient amount, as determined by the department, it may be possible to commit all

dam permit application fees to the funding of an engineering services contract (see MI DSP 2020-10-a) or toward DSP budget.

## **Policies and Procedures**

### MI DSP 2020-06-a:

1. The DSP should consider developing its own typical permit review documents and procedures, which can reference federal documents. The dam owner's engineer can then determine which method they want to use to design the dam and will know how the project will be reviewed so they can coordinate with the DSP prior to submittal of the application to achieve the most expeditious review.

### MI DSP 2020-06-b:

2. The DSP should consider developing its own set of safety policies for work in the field and establish the minimum number of people and the equipment associated with various tasks. Walking on riprap and some portions of spillways can easily lead to falls that may be in remote locations. Confined space locations and poorly maintained steps in drop spillways may require additional equipment and personnel for access.

## **Human Resources**

### MI DSP 2020-07-a:

1. Executive management develop a DSP succession plan to provide for continuity of practice.

### MI DSP 2020-07-b:

2. Development of an annual training plan and budget to ensure technical and professional growth of staff.

### MI DSP 2020-07-c:

3. Development of a technical engineering career path for several technical/engineering positions.

### MI DSP 2020-07-d:

4. Revising the qualifications of the DSP manager to include significant experience in the design, construction, operation, and maintenance of dams.

### MI DSP 2020-07-e:

5. Developing a practice to plan and track professional development training and continuing education of staff. The plan should provide for education to fill gaps in expertise and enhance the overall capabilities of the DSP.

### MI DSP 2020-07-f:

6. Following reorganization recommended in MI DSP 2020-04-b, MI DSP 2020-04-c, and MI DSP 2020-04-d, begin developing workplans to assign staff to the most appropriate projects and provide varied opportunities for staff.

MI DSP 2020-07-g:

7. Developing an organization for the DSP that provides a defined career path and opportunity for advancement without leaving the DSP for professional advancement (see MI DSP 2020-04-c). A defined career path would also reduce undesirable staff turnover.

MI DSP 2020-07-h:

8. Developing a mentoring program for all staff within the DSP.

MI DSP 2020-07-i:

9. Maintaining competitive compensation and benefits to sustain the quality of staff in the DSP.

MI DSP 2020-07-j:

10. Continuing the encouragement of employees to volunteer for technical committees and organizations and participate in professional organizations and technical conferences. Such participation should be considered when developing staff workload planning.

**Inventory**

MI DSP 2020-08-a:

1. Adding missing parameters from the National Inventory of Dams to the Michigan Inventory of Dams.

MI DSP 2020-08-b:

2. Adding tracking capability to the Michigan Inventory of Dams for such things as due dates for inspection reports, responses to notice of violation/orders and EAP updates and adding capability to generate reminders of these due dates for staff.

**Files and Records**

MI DSP 2020-16-a:

1. The DSP should determine the most efficient method of storing electronic files (cloud-based vs department server) and provide funds to scan pre-2014 documents for each dam.

MI DSP 2020-16-b:

2. The DSP should consider storing all paper copies of EAPs in one area to avoid confusion during emergency events.

MI DSP 2020-16-c:

3. The DSP is encouraged to continue their efforts toward moving their inventory to a data system based on a Geographic Information System (GIS).

# Michigan Dam Safety Task Force Subgroup

## Outreach and Awareness/Safety and Security at Dams

### Focus of the Subgroup:

The Outreach and Awareness/Safety and Security at Dams subgroup is focusing on plans, strategies, tactics, and activities for educating the public about the dam safety program and engaging and building relationships with stakeholders, public safety plans and outreach and education activities, as well as dam security awareness and activities.

Note: Outreach and Response/ Safety and Security at Dams combines the ASDSO report topics of Outreach and Awareness, Safety at Dams, and Security.

### Composition of the Subgroup:

Task Force members: Myndi Bacon, Brett Fessell, Dr. Marty Holtgren, Dr. Dana Infante, Tanya Paslawski, Dan Scripps, Abby Watkins

Facilitator: Elizabeth Riggs

EGLE technical support: Mario Fusco

### ASDSO Recommendations:

#### **Outreach and Awareness**

##### MI DSP 2020-17-a:

1. Adding a clear icon link to the DSP.

##### MI DSP 2020-17-b:

2. Providing periodic Dam Safety 101 Awareness Seminars to other appropriate EGLE support staff, public information officers, attorneys, or specific units and sections outlining the DSP's mission to protect the environment and public safety.

##### MI DSP 2020-17-c:

3. Developing a proactive written outreach and awareness plan to provide periodic external dam safety awareness seminars and outreach for a broad range of stakeholders in order to develop advocates and grow a dam safety culture in Michigan. Such groups may include:
  - County drain commissions
  - County emergency management officials
  - Dam owners
  - Floodplain managers and residents
  - Legislators or legislative committees

- Consulting firms

MI DSP 2020-17-d:

4. Engaging staff from consulting firms with voluntary professional development opportunities, such as serving on event planning teams and as speakers for locally delivered dam safety awareness seminars.

**Safety at Dams**

MI DSP 2020-18-a:

As a dam safety culture can only grow if there is an educated and informed public, it is recommended that a voluntary Safety at Dams Initiative Team (this team could be part of a Silver Jackets initiative) be formed with:

- Multidisciplined members that have strong leadership and collaborative talents, public education skills (both youth and adult), graphic information, and database skills
- Multiple stakeholder state agencies and divisions, the law enforcement community, emergency managers, safety incident first responders, recreation interest groups, and academia

The team should first focus on:

- Developing and providing outreach and education initiatives
- Developing recommended uniform and standardized voluntary signage templates
- Conducting field-verified inventory and ownership research and risk prioritization in partnership with conservation officers and county surveyors
- Enhancing the online interactive GIS map with dam locations and resources, such as public access points
- Finding local champions for safety at dams to advance education and voluntary removal initiatives

**Security**

MI DSP 2020-19-a:

Refer to ASDSO's *Guidelines for State Dam Safety Office Implementation of a Dam Security Program* (ASDSO 2013) and begin to develop awareness of dam security issues; collaborate with local, state, and federal agencies and national organizations on dam security issues; identify, prioritize, and evaluate security risks on state-regulated dams; and conduct security exercises and participate in related dam security activities.