

Michigan Department of
Environment, Great Lakes and
Energy, Dam Safety Program

ASDSO Peer Review Report

September 2020



Association of State
Dam Safety Officials

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I. EXECUTIVE SUMMARY

A. Background

A peer review of the State of Michigan, Department of Environment, Great Lakes and Energy (EGLE) Dam Safety Program (DSP) was conducted by an Association of State Dam Safety Officials (ASDSO) Peer Review Team (Team). The objective of the peer review is to provide guidance for the DSP through an overall evaluation including the program's mission, objectives, policies, procedures, and other factors. The Team evaluates the competence of the DSP relevant to the generally accepted standards of practice for dam safety engineering and management. This report contains the findings and recommendations of the Team.

B. Overall Review of DSP Effectiveness

The Team has included all of its findings and recommendations in the report. However, we would like to comment on our overall review of the Michigan DSP for added emphasis on the findings and recommendations we believe to be most significant.

1. We found that the current DSP staff are dedicated, well-educated, experienced engineers that are doing the best they can, given the limited time and resources available under current budgeting.
2. We found that the DSP is extremely understaffed to perform the mission of dam safety as mandated by the legislation, rules, and best practice. We recommend that the minimum staffing required for Michigan DSP would include a manager of our recommended Dam Safety Unit, three senior dam safety engineers, three junior dam safety engineers, one engineering technician (or an additional junior dam safety engineer), one clerical support person, along with two full time enforcement officers dedicated to the DSP.
3. Michigan has not invested in safety of its dams for many decades and the needs have accumulated as the dams have aged. Unsafe dams pose a risk to the environment and ecology of Michigan as well as endanger public safety. Our review found that Michigan does not have any type of revolving loan program to fund dam rehabilitations that are determined necessary by the DSP. National experience has demonstrated that a state organized and funded program for grants and low interest loans is critical to achieving real

progress in rehabilitating publicly owned dams. We recommend the establishment of an effective revolving loan program to provide grants and low interest loans to public owners of high hazard dams in need of rehabilitation. These types of programs have accomplished much in many states including Pennsylvania, New Jersey, and others.

4. Our review found that rigorous enforcement of dam safety violations is seldom used and that this has existed for decades. The culture of minimal enforcement has become the commonly accepted practice in Michigan. Dam safety violations without strong enforcement to force dam rehabilitations have exposed those living downstream of non-compliant dams and the environment to the consequences of dam failure.
5. We found that many of the dams in the Michigan inventory are aging well beyond their originally intended design life and have never been re-evaluated. This is common nationally. The DSP does not require owners of high hazard dams to perform detailed engineering re-evaluations of their dams to determine conformance to current state-of-the-art and to uncover latent dam safety defects that come with age. All federal agencies that own dams are required by the *Federal Guidelines for Dam Safety* (FGDS) to perform periodic detailed re-evaluation (i.e., comprehensive reviews) of their dams. We recommend that Michigan require owners of high hazard dams perform detailed re-evaluations.
6. We found that the DSP does not seem to be respected as a vital component of the EGLE, as evidenced by its location in the organization and the lack of public safety in the Mission Statement. The Team recommends that the DSP be revised to become a stand-alone Unit under the Field Operations Support Section and that “public safety” be included in the Mission Statement of the Department.
7. We found that 92 hydroelectric dams are currently regulated by the Federal Energy Regulatory Commission (FERC) in Michigan. The statutes of Michigan do not create duplicative regulatory authority regarding hydropower dams. The State has recently experienced one of the negatives of not having duplicative regulatory authority. As FERC has moved to have a license surrendered (essentially transferring regulatory responsibility to the State program), the transfer of files and detailed historical technical information about the dam to the State program proved to be difficult. Other States have experienced similar problems with FERC. The Team recommends that the DSP seek to work with ASDSO and the leadership of FERC to see if a

system-wide simplification of this information transfer problem can be developed and implemented.

Many of the above findings and recommendations as well as those offered elsewhere in this report are supported in part by two documents we reviewed, ***The ASCE 2018 Report Card for Michigan's Infrastructure*** (see **Appendix B**) and the ***21st Century Infrastructure Commission Report, November 2016*** (see **Appendix C**).

The ***ASCE 2018 Report Card for Michigan's Infrastructure*** offered the following regarding the need to invest in dam safety:

- *Provide funding to the MDEQ Dam Safety Unit for additional staff to improve the dam inspection program and to support enforcement action for deficient dams. Currently, the MDEQ Dam Safety Unit has 3.3 full-time equivalent (FTE) staff. A 2006 informal audit of the MDEQ Dam Safety Unit by the Association of State Dam Safety Officials (ASDSO) recommended increasing the staffing level by 2 FTE staff.*
- *Create an asset management process to assist in making strategic and optimal decisions about dam improvements to ensure greater value for the investment. Establish performance metrics and ensure data transparency to the public regarding the condition of Michigan's dams.*
- *Develop educational materials and initiate a public relations campaign to educate the public on the need for proper maintenance and repair of dams, and to make the public aware of the current funding needs to address issues associated with Michigan's dams.*
- *Update the 2007 study to determine an appropriate current funding level to address the current condition of Michigan's aging dams. Set up a dedicated state fund for the repair, replacement, or removal of unsafe or failing dams, with the funding level based on the results of the recommended updated study.*
- *Provide funding to the federal program established to help dam owners with loans and matching grants for repair, replacement, or removal of unsafe, failing dams.*

The ***21st Century Infrastructure Commission Report, November 2016*** recommended:

MDEQ's Dam Safety Program should maintain a publicly accessible geospatial data layer within the statewide asset management system that includes the number, condition, risk, and ownership of public, and private, regulated, and nonregulated dams in the state. Working with partner organizations, the MDEQ should develop publicly available decision- support tools and training programs to assess risk, reinvestment and removal options for dams and low-head barriers. The tools should help communities and owners of dams evaluate potential safety, social-cultural, biological, ecological, and economic tradeoffs associated with the removal or maintenance of a dam. Utilizing the inventory of dams and the decision-support tool, the State should continue to support removal and maintenance of dams depending on the individual risks and benefits of each dam.

Estimated investment needed: \$227 million of state funding over 20 years.

C. Dam Safety Program Evaluation

At the conclusion of staff interviews, document reviews and facility tours, the Team reviewed all information gathered; discussed its findings and evaluated the program from this information; and concluded the peer review by developing a set of recommendations. All of the Team's findings and recommendations are included in detail in this report under the various DSP component Observations and Findings (starting on page 8).

In order to assist the DSP as it moves forward with the implementation of the recommendations, the Team then categorized and ranked its recommendations based on a number of factors including:

- The relative importance of a recommendation.
- Consideration of recommendations that would require either legislation or rule change.
- The ease of implementation based on low or no cost.
- The time required to develop the recommendation.
- Resources that may be available within the DSP.

The categorization of the recommendations is discussed further in **Section V CATEGORIZATION OF RECOMMENDATIONS** on page 56 of this report.

D. Acknowledgements

The Team extends its thanks to the Michigan EGLE DSP staff for their cooperation, assistance, and participation in this peer review of their program. It is a time-consuming task to collect advance information and to write and prepare summaries regarding various aspects of the DSP for the Team to review. Coordination for all confidential, virtual interviews of EGLE staff at various levels within the Department was also challenging. For these tasks, we deeply appreciate the efforts of the Lansing-based dam safety engineer.

The Team further appreciates the time taken by others who are affiliated with the DSP who submitted confidential questionnaires, took part in the confidential, virtual interviews, and attended the Report-Out Presentation of the Preliminary Findings and Recommendations of this Peer Review.

The Team also wishes to express its gratitude to the executive and senior level management of the Department for their attendance and attention during the Report-Out Presentation of the Preliminary Findings and Recommendations of this Peer Review. This exhibits to the Team the desire of EGLE leadership to lay the groundwork and take the additional necessary steps to improve the Michigan DSP, which will decrease the risk to public safety presented by deficient dams.

II. INTRODUCTION

A. Scope

This report documents the observations, findings, and recommendations made by the Team of the DSP. The peer review began with the review of advance documents provided by the DSP and the confidential questionnaires provided by the DSP staff as well as other selected EGLE staff that might impact the DSP. Due to the COVID-19 crisis, EGLE had closed its district offices and other facilities to the public. After discussions with the DSP staff, and taking into account personal preferences and the need to protect the health of all EGLE employees, it was decided to perform the Peer Review virtually. The normal onsite part of the review was performed virtually by the Team and EGLE staff during the weeks of July 27, 2020 and August 3, 2020. During the week of August 3, the Peer Review Team convened in the ASDSO headquarters office in Lexington, Kentucky. A preliminary debrief of the Team's findings was presented to the EGLE via a virtual video platform hosted by ASDSO.

This report is divided into six sections: (I) Executive Summary (II) Introduction, (III) Michigan EGLE Dam Safety Program Peer Review, (IV) Evaluation, (V) Categorization of Recommendations and (VI) Certification. Each section is based on the review of provided information and interviews of staff members chosen by the Team and the DSP.

B. Objective

The objective of an ASDSO Peer Review is to provide professional guidance to improve the performance and management of Dam Safety Programs (DSPs). A Peer Review evaluates the DSP including its mission, objectives, policies and procedures, and other factors of a dam safety agency or organization (Organization). The DSP is evaluated relative to the Organization's own governing regulations; the National Dam Safety Program (NDSP), Model State Dam Safety Program (MDSP) (FEMA 316); and commonly accepted standards of practice. The Model State Dam Safety Program can be viewed at this link: *(The link provided was broken and has been removed)*.

The Peer Review is limited in scope and cannot determine or guarantee that a DSP complies with all applicable state, federal or provincial regulations or standards of practice. The Peer Review is performed by a team of engineers and dam safety professionals who produce a technical opinion, not a legal opinion.

It is recognized that the success of any DSP depends upon adequate program funding, the quality of physical inspections, dedication, and commitment of the regulatory agencies, and especially the due diligence of the dam owner or operator.

C. Procedure

The Team reviewed documents furnished by the DSP pertaining to areas of business and project management, and development and maintenance of technical dam competence. The Team examined the DSP to determine if its objectives, procedures, and policies are clearly understood and are being uniformly implemented.

The Team followed the procedures outlined in the manual, "Peer Review for Dam Safety Agencies," issued by ASDSO dated January 2014 (Manual). Confidential interviews were conducted with personnel involved with the DSP. A virtual tour of the office and cursory review was completed of a dam safety file, and the Michigan Inventory of Dams.

As outlined in the Manual, the Team focused on the basic components of a Dam Safety Program including:

- Legislation and Authority
- Organizational Management
- Program Management
- Resources Allocation
- Funding and Budgeting
- Program Components
 - Policies and Procedures
 - Human Resources
 - Inventory
 - Permitting
 - Design Reviews
 - Re-Evaluations
 - Inspections
 - Surveillance Monitoring
 - Compliance and Enforcement
 - Emergency Response/Emergency Action Plans
 - Files and Records
 - Outreach and Awareness

ASDSO works to update the MDSP as requirements or practices change within the dam safety community. The Team is aware of some of the currently proposed modifications to the MDSP and have included two additional program components within this review, which include:

- Security
- Safety at Dams

The Team provides this written report, which documents its findings and recommendations. The Team does not perform follow-up or provide sanctions for not following recommendations. Implementation of recommendations is at the discretion of the Organization's decision makers, its state legislature, or enabling body.

The Teams do not inspect dams during reviews and are therefore not involved in evaluating any Program's portfolio of dams.

D. Key Points

Key points in interpreting this report are the following aspects of the ASDSO Peer Review Program:

A peer review is voluntary. This peer review was requested by the DSP. The access to certain materials and the documents reviewed was given voluntarily by EGLE. The documents reviewed may or may not be representative of EGLE's practice. Likewise, certain individuals that were interviewed, whether they were suggested by the EGLE or chosen by the Team, may not be entirely representative of EGLE, nor be fully responsive to the Team. However, six advance questionnaires were completed by EGLE staff and reviewed by the Team and 10 individuals were interviewed by the Team to gain insight into the execution of the DSP. The best efforts were made on these limited views of the EGLE.

A peer review is typically confidential. The Team will maintain confidentiality with respect to the sources of various observations that are reported here. The Team informed the staff that all comments would be treated in a confidential manner. The Team asks that the EGLE not probe beyond what is stated in the report concerning the sources of the comment or suggestions. The Team understands that this peer review may be released as a public document. In this case should ASDSO be contacted for further comment, the inquirer will be directed to the report with any additional inquiries beyond the text of the report to be directed to the Michigan EGLE.

Due to the remote application of the peer review process, the Team was unable to delve into files for selected dam safety facilities. Content of a typical dam file was discussed with DSP staff for the Team to understand how the DSP conducts and

documents its dam safety function. A few documents from several different dam files were presented to the Team for review. No technical aspects of the facilities' designer's approach to the projects were examined. No calculations for correctness, or confirmation of the results of the calculations were part of the Team's function. Similarly, the documents that were furnished were reviewed only from the standpoint of apparent conformance with the policies of the agency as to work planning, production, and adherence to the quality control/quality assurance policies.

E. Confidentiality

Since each member of Team has access to confidential information, each member submitted a signed "Peer Reviewer Statement of Nondisclosure" to EGLE and ASDSO prior to the formal process of the peer review, in order to preserve the confidentiality of the responses of the staff members of the DSP. The statement of nondisclosure states in part that the signatory will ". . . neither copy nor disclose such information in whole or in part to anyone other than members of the Team, the Peer Review Committee and the ASDSO Administrator without the prior consent of the DSP."

It is not intended that this report and documentation of the findings and recommendations in any way violate the statement of nondisclosure or reveal matters that would be considered confidential by the DSP. Further, this document was reviewed by the DSP and the Team for consistency and appropriateness.

F. Members of Peer Review Team

The Peer Review Team that visited the EGLE DSP was composed of the following members:

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Information concerning the qualifications of the members of the Peer Review Team is included in the **Appendix A Biographical Sketches of the Peer Review Team.**

III. MICHIGAN EGLE DAM SAFETY PROGRAM PEER REVIEW

A. History

The Team found the history of Michigan's DSP difficult to trace. The oldest known legislation that could be found relating to dam safety is Act 184 of 1963, as amended in 1970 and 1971. This statute was limited in its authority. It regulated dam construction and reconstruction only and provided for the inspection of dams considered to be in a hazardous condition. It authorized the Department to order repair or removal of unsafe dams. It did not regulate the repair, alteration, operation, or abandonment of dams. It also did not provide for periodic inspections to ensure that dams were maintained in a reasonable state of repair.

The current Michigan EGLE DSP is supported by Act 451 of 1994, NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, PART 315 DAM SAFETY (see **Appendix E**) and PART 307 INLAND LAKE LEVELS (see **Appendix F**). Dams are regulated by Part 315 when they are 6 feet or more in height and 5 acres or more are impounded during the design flood. Dams are regulated by Part 307 when a circuit court issues an order establishing the level at which the lake is to be maintained. There are also 92 hydroelectric dams in Michigan that are regulated by FERC under the Federal Power Act, but not under state regulation under Part 315. However, 11 of these 92 are regulated by Michigan under Part 307.

Dams and reservoirs are defined in Part 315. All dams under these definitions are subject to State supervision unless they are regulated by the FERC or owned and operated by the United States.

Permits are required for the construction, enlargement, repair, alteration, removal, abandonment, and reconstruction of state regulated dams. Inspection reports are required every three to five years for state regulated dams based on their hazard potential rating.

The administration and execution of the DSP has been delegated to the Hydrologic Studies and Dam Safety Unit within EGLE. The DSP is responsible for ensuring the safety of Michigan's state regulated dams. The DSP focuses on ensuring that dams are properly constructed, inspected, and maintained, and that the Owners have adequately prepared for potential emergencies.

The number of dams in Michigan varies depending on the source of information. The DSP has confirmed that as of the date of this report there are 2621 dams-of-record in the Michigan Dams Inventory, which includes dams that have failed, been removed, abandoned, and drawn down, as well as actively regulated dams. Of these 2621 dams,

the DSP solely regulates 85 high hazard dams under Part 315; 131 significant hazard dams; and 843 low hazard dams. In addition, the DSP regulates 8 high hazard dams under Part 307 that are also regulated by FERC; 1 significant hazard dam; and 2 low hazard dams. These dams are owned by both public and private entities and are located throughout the state.

Many of the dams in Michigan were constructed in the late 1800s and early 1900s, primarily to power sawmills and gristmills or for hydropower generation. As dams outlived their usefulness for power generation, local government units or private entities purchased them for recreational or aesthetics purposes. Over time, many of these dams have fallen into disrepair. It has been reported that there have been more than 300 dam failures in Michigan, mostly low hazard dams. There have been several more notable dam failures in the past decade. These include the Brown Bridge Dam failure in October 2012 and the more recent Edenville Dam failure in May 2020.

The Team believes that the DSP's regulations accommodate many but not all of the minimum requirements of the National Dam Safety Program criteria. There appears to be many areas within the statutes and regulations that may require specific attention. These areas are described in Section D Observations and Findings, Legislation and Authority, on Page 9 and by recommendation **MI DSP 2020-01-a***, which is found on Page 11, as well as elsewhere in this report. **Appendix N** contains a compilation of all Team recommendations.

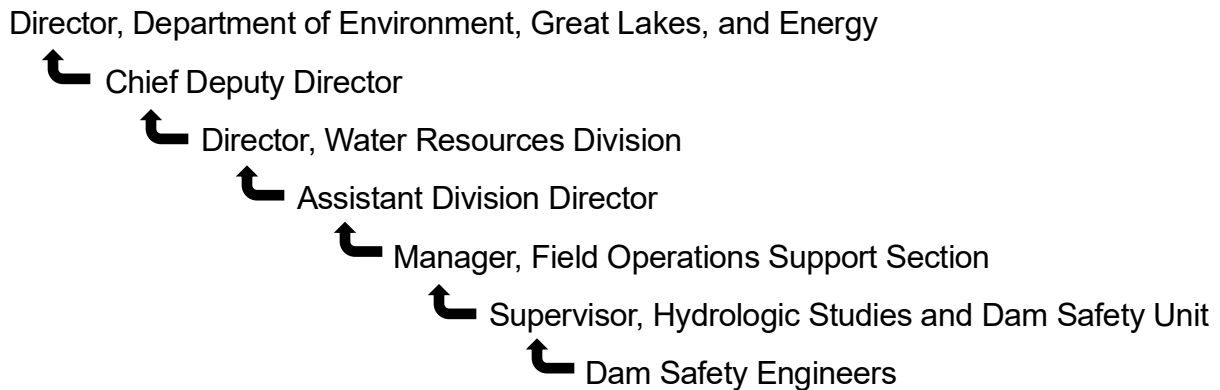
Recommendations which might require a revision to either legislation or rules are shown with a recommendation number in red text and are annotated with an asterisk (*) at the end of the recommendation number.

B. Organizational Structure

The administration and execution of the DSP have been delegated to EGLE. The DSP is located within the EGLE Organization in the Water Resources Division, Field Operations Support Section, Hydrologic Studies and Dam Safety Unit. Copies of the Organization charts showing the position of the DSP within the EGLE Organization are provided in **Appendix D**.

The supervisor of the Hydrologic Studies and Dam Safety Unit supervises a staff of nine, two of which comprise the DSP. In effect, the DSP has 2.3 FTEs. An additional position has been approved for the DSP but has not yet been filled.

The “chain of command” for the dam safety staff is as follows:



C. Publications

The following statutes or code relate to the DSP:

1. Act 451 of 1994, PART 315 DAM SAFETY (**Appendix E**)
2. Act 451 of 1994, PART 307 INLAND LAKE LEVELS (**Appendix F**)
3. Act 451 of 1994, PART 13 PERMITS (**Appendix G**)
4. Administrative Code R 281.1301 – R 281.1313 DAM SAFETY (**Appendix H**)
5. Act 302 of 1945, EMERGENCY POWERS OF GOVERNOR (**Appendix I**)
6. Act 390 of 1976, EMERGENCY MANAGEMENT ACT (**Appendix J**)

Additional documents relating to the DSP and reviewed by the Team include:

7. ASCE 2018 Report Card for Michigan’s Infrastructure (**Appendix B**)
8. 21st Century Infrastructure Commission Report, November 2016 (**Appendix C**)

D. Observations and Findings

The following observations, based on the italicized questions, were made of the DSP during the peer review in July/August 2020. The DSP is evaluated relative to the Organization’s own governing regulations; the National Dam Safety Program (NDSP), Model State Dam Safety Program (MDSP) (FEMA 316); and commonly accepted standards of practice.

MI DSP 2020-01: Legislation and Authority

Does the Organization have the minimum requirements to meet the legislative authorities outlined in the National Dam Safety Act?

The legislative authorities and rules contain some, but not all, requirements outlined in the National Dam Safety Act (NDSA) and the ASDSO Model Dam Safety Program (MDSP). The authorities that are not part of the DSP include the following:

- While permitting requirements exist for new dam construction or rehabilitation of existing dams, no requirements exist that require owners to obtain a permit to operate and maintain existing dams in a safe condition, nor to annually report to the DSP on maintenance, operation, and engineering investigations that may have occurred.
- The Owner is not required to maintain dam operation, monitoring, and maintenance records.
- Inspection of construction is not required by DSP staff or by the Owner's design engineer.
- The Owner or design engineer is not specifically required to submit a first-filling plan, including a monitoring schedule, for review and approval.
- There is no requirement for the periodic exercising of EAPs.
- Rules do not conform to the MDSP for frequency of inspections.
- Rules do not conform to the MDSP for design floods.
- Neither the legislation nor the rules provide a liability disclaimer statement for state personnel.
- Owners of high and significant hazard dams which present a substantial potential risk to life or property are not required to provide proof of financial responsibility or security to assure for the continued safe operation and maintenance of their dam and to assure that funding is available for the DSP to mitigate any hazard presented by the dam during a dam incident or emergency should the Owner fail to do so.
- No funding mechanism for the establishment of a Dam Safety Emergency Fund for the purposes of the DSP to mitigate any hazard present during a dam incident or emergency, should the Owner fail to do so.

Hydropower is one of the project types in which FERC regulates both the construction and operational phase of a project. Dam safety is a critical part of the FERC's hydropower program and receives top priority. Before projects are constructed, the FERC staff reviews and approves the designs, plans, and specifications of dams, powerhouses, and other structures. During construction, FERC staff engineers frequently inspect a project, and once construction is complete, FERC engineers continue to inspect it on a regular basis.

Neither the National Dam Safety Program, the Model State Dam Safety Program (MDSP) (FEMA 316); nor commonly accepted standards of practice, dictate expectations for dual State and Federal jurisdiction of power dams. Some states have duplicative regulatory authority over power dams, some states do not. To date, this has been a decision each state has made for themselves.

Currently, the statutes of Michigan do not create duplicative regulatory authority regarding power dams. There are clearly positives and negatives to the concept of duplicative regulatory authority. The State of Michigan has recently experienced one of the negatives of not having duplicative regulatory authority. As FERC moved to have a license surrendered (essentially transferring regulatory responsibility to the State program), the timely transfer of files and detailed historical technical information about the dam to the State program proved to be difficult. Other States have experienced similar problems obtaining timely historical technical information about dams where FERC was ending their jurisdiction.

Of course, there are reasons why duplicative regulatory authority must be considered carefully due to the likelihood that dual regulations may cause confusion between regulatory agencies and increased costs in additional resources and staffing. There are 92 hydroelectric dams currently regulated by FERC in Michigan. This would be a sizable increase in staff workload, should dual regulation begin in the State.

Are the statutes and regulations clearly written and well understood by the Organization?

The legislation and rules are clearly written and appear to be understood by the DSP staff. Dams are covered primarily in *Act 451 of 1994, Part 307 Inland Waters* and *Act 451 of 1994, Part 315 Dam Safety*.

Does the Organization's leader have access to and expertise assistance to deal with its governing legislative body?

The Department Director is a Governor-appointed cabinet member. EGLE legislative liaison staff and management frequently work directly with and provide testimony to the Legislature on various policy issues that impact the Department. The Director has ample experience working directly with the Legislature, as do many of her staff.

Additional observation:

We found that the value of dam safety related penalties is established in the regulations and are not specifically directed to the DSP.

Recommendations MI DSP 2020-01 Legislation and Authority

The Team recommends:

- **MI DSP 2020-01-a***: The Revision or adoption of laws and/or rules to:
 - Provide liability disclaimer statement for the state agencies' personnel.
 - 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.
 - Require owners to maintain dam operation, monitoring, and maintenance records.
 - 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 assure for the continued safe operation and maintenance of their dam and to assure that funding is available for the DSP to mitigate any hazard presented during a dam incident or emergency, should the Owner fail to do so.
 - Require inspection of construction by DSP staff and the Owner's design engineer.
 - Require the Owner to submit a first-filling plan, including a monitoring schedule, developed by the design engineer, for DSP review and approval.
 - Require periodic exercising of EAPs as discussed further in **MI DSP 2020-15-e**.
 - Meet MDSP recommendations for design floods.
 - Meet MDSP recommendations for inspection frequency as discussed further in **MI DSP 2020-12-a**.

- **MI DSP 2020-01-b*:** 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*:** The DSP 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 FERC to see if a system-wide simplification of this problem of information transfer can be developed and implemented.
- **MI DSP 2020-01-d*:** To provide for future inflation, it is recommended that the value of any dam safety related fees, fines, and penalties be established in the regulations, with the concurrence of the proper EGLE oversight entity.

MI DSP 2020-02: Organizational Management

Does the Organization have a clear and written vision, mission goals and objectives (strategic plan)?

EGLE has a clear statement of its Mission, Vision and Values; but public safety is not included, even though public safety programs are within the organization.

Are the vision and mission available to the public/users?

The vision and mission are readily available to the public and stakeholders via the EGLE website. <https://www.michigan.gov/egle/>

Are the vision, mission, goals, and objectives statements available to employees?

The vision, mission, goals, and objectives statements are available to employees via the EGLE website and EGLE documents, including the legislation and rules.

Do employees generally understand their purpose and what they are trying to accomplish?

The staff of the DSP seem to understand their purpose and the role they play in the DSP.

Is there an organizational structure that defines reporting relationships and assigns responsibility to managers and other employees?

The reporting structure consists of two dam safety engineers and one part time DSP manager. The DSP manager reports up to the Manager of the Field Operations Support Section. Each of the two dam safety engineers are assigned responsibility for dams within their respective regions. One engineer works out of the Lansing Office and the other out of the Cadillac Office.

Does the Organization have an appropriate span of control between supervisors and staff?

The number of staff reporting to the Manager of the Hydrologic Studies and Dam Safety Section is judged to be appropriate.

Recommendations MI DSP 2020-02 Organizational Management

The Team recommends:

- **MI DSP 2020-02-a:** EGLE add public safety to its Mission Statement.

MI DSP 2020-03: Program Management

Are the goals and objectives generally being met?

Not all of the goals and objectives as described in the legislation and rules related to the DSP are being accomplished, primarily due to understaffing.

Does the Organization have a functioning project management tool or system to track workload, inspections, etc.?

Inspections are tracked by a combination of the inventory database which automatically updates the next inspection date when a report is received and logged into the system. The system is then queried by staff each year to determine which dams are due for inspection in that year. Staff also have developed spreadsheets to track scheduling, report drafts, and submittal for inspections assigned to them each year. Owner/Consultant submittal of inspection reports, and DSP replies, are also tracked in the inventory database. Beyond that, there are no formal project management tools or software utilized to track workload or staff performance. The DSP does not utilize any type of portfolio risk

assessment to plan the utilization of human and financial resources for the greatest dam safety return.

Is the work being adequately tracked by program managers?

There is no formal overall workload planning tool to allow the manager to plan assignments and monitor performance.

Is there management review of employee workload and schedules?

We did not find that the DSP Manager regularly reviews the staff workload and schedule.

Is there an excessive backlog of work?

All work required of the DSP as defined in the legislation and rules is not being accomplished. This is primarily due to the size of the staff.

Is an annual report being completed which summarizes yearly accomplishments, issues, etc.

There is no Annual Report completed by the DSP.

Are communications among management and personnel satisfactory?

Communications among staff and the manager of the DSP seem to be informal and open. There also appears to be opportunities for staff to communicate with upper management, as necessary.

Are consultants being used in areas the Organization does not have expertise or to ensure they are performing to the state of practice?

It was reported that on rare occasions in the past, the DSP did engage consultants for expertise not available within the unit. There is no routine mechanism in place to provide for the ready engagement of consultants as needs arise.

Is there adequate supervision of employees and work to provide acceptable quality to the work product?

There is no formal QA/QC program in place. It was reported that the Dam Safety Program Manager reviews every inspection report before they are returned to the dam owner. The DSP manager does not have significant experience in the design, construction, and maintenance of dams.

Is there adequate communication between the project team and between the project team and management (i.e. Management meetings, memorandum of reviews, etc.)?

While there appears to be open communication between the staff and management, there are no regularly scheduled DSP meetings where general issues, and program concerns could be addressed.

Does the Organization continue participating in a project through the entire construction phase?

Once a new dam or rehabilitation project is permitted there is no further involvement by the DSP. The DSP does not perform construction site visits and inspections.

Are there project post-mortems?

Final inspections are completed of all projects permitted under the Dam Safety statute to ensure conformance with permitted plans and specs and to identify any major flaws/deficiencies. Design revisions must be approved and are typically submitted for review and approval. The Final Inspection occurs after the P.E. of record provides their certification, as-built plans, and any final engineering reports compiled. The Final Inspection is not a formal, in-depth inspection but is more like a walk-through of the project.

Do managers complete a series of training in supervision and management?

At assignment, managers do receive management and supervisory training. There are also continuing education seminars, retreats, and meetings for existing managers.

Recommendations MI DSP 2020-03 Program Management

The Team recommends:

- **MI DSP 2020-03-a:** The DSP manager position description should be revised to include:
 - o Technical experience in the design, construction, operation, and maintenance of dams.
 - o Overall program management.
 - o Mentoring subordinate staff.
 - o Developing a portfolio risk assessment of regulated dams to determine the DSPs priorities.
 - o Prepare a DSP Annual Report for Executive Management.
 - o Perform performance reviews of staff.
 - o Administer a Dam Safety Awareness within the Department and for outside stakeholders. See **MI DSP 2020-17b** and **MI DSP 2020-17c**.
 - o Develop an annual budget request for the DSP.
 - o Track required inspections.
 - o Planning and tracking training for staff.
 - o Ensuring enforcement actions are performed for DSP compliance.
 - o Performing QA and assuring QC is practiced.
 - o 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**.
 - o Developing Dam Safety Policies and Procedures Manual.

- o Leading Dam Safety Initiatives to enhance the protection of the public, the environment, and property.
- o Participating in professional societies such as ASDSO, to remain current, and maintain professional development credits.
- o Developing a recommendation for a revolving loan program to provide funding for rehabilitation of high hazard, publicly owned dams.
- **MI DSP 2020-03-b:** Scheduling routinely scheduled periodic DSP meetings to discuss program issues.
- **MI DSP 2020-03-c:** Providing a DSP Annual Report to convey the importance and benefits of the program to executive management.
- **MI DSP 2020-03-d:** 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:** 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 assure consistency in the reviews conducted by various staff.
- **MI DSP 2020-03-f:** Developing a DSP policy and procedures manual to provide for consistent quality of performance.
- **MI DSP 2020-03-g:** Developing a recommendation for a revolving loan program to provide funding for rehabilitation of high hazard, publicly owned dams.

MI DSP 2020-04: Resources Allocation

Does the agency use automated up-to-date equipment for clerical and administrative work?

Yes. It was reported that the DSP does have up-to-date equipment for clerical and administrative work.

What is the status of computer usage and how is it managed?

Computer usage is restricted and monitored by the Department of Technology, Management, and Budget. Though, employees only ever hear of reports when there is suspected abuse.

Based on the factors outlined in the Manual, Chapter II D, and guidance from the MDSP, does the Organization have adequate number of staff?

Based on ASDSO findings regarding comparable DSPs, the Michigan DSP staffing is not adequate.

Does the Organization have adequate resources (staff and budget) to meet their legislative and administrative mandates?

We found that the DSP does not have adequate staff to perform all legislative and administrative mandates. **Appendix K** includes an estimate of staffing level requirements based upon the MDSP.

Is there adequate equipment (field equipment, cameras, safety equipment, vehicles, etc.) for personnel to complete their jobs?

It was reported that the DSP does have access to equipment that is adequate for its needs.

Does the Organization have adequate technology to complete their job (i.e. Software, hardware, information technology support, etc.)?

For the most part, the DSP does have adequate technology to complete their job. The Team was told it would be beneficial at times to have access to some of the proprietary models (hydraulic, geotechnical, structural engineering) and CAD software, which they currently do not have.

Are there systematic approaches and budget available to keep equipment, facilities, etc., up to date?

Yes, computers are replaced on a regular basis and facilities are well maintained. Equipment budgets were indicated to be hit or miss, so the DSP makes budget requests

or writes grants to purchase special equipment purchases. These requests are not always approved or granted.

Are there adequate technical resources and references available to employees?

The Hydrologic Studies and Dam Safety Unit maintains a technical library in their work area. Technical references and classroom materials received while in training courses are stored in the technical library for future use by any of the staff.

Does the Organization have access to legal assistance?

The Team did learn that staff has access to legal assistance for compliance and enforcement efforts through the Enforcement Unit to the Attorney General's Office. While the DSP has access to the legal assistance, there is no experienced qualified Dam Safety Enforcement Officer.

Other Comments:

ASDSO's current efforts to update the MDSP will include risk-informed decision making. The Team determined in the Program Management evaluation above that the DSP does not utilize a risk-based approach to allocation of human and financial resources (see recommendation **MI DSP 2020-03-d**).

Recommendations MI DSP 2020-04 Resources Allocation

The Team recommends:

- **MI DSP 2020-04-a:** 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:** Establishing the DSP in a stand-alone Unit under the Field Operations Support Section.
- **MI DSP 2020-04-c:** 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 Michigan DSP Peer Review Report.

- **MI DSP 2020-04-d:** Dedicating two qualified Dam Safety Enforcement Officers for the DSP.

MI DSP 2020-05: Funding and Budgeting

Does the Organization have an adequate financial management tool?

The DSP does not have a unique budget as it is included as part of a larger organization. The existing technical staff of two engineers and the shared program manager have limited involvement with organizational financial management. Tools used by EGLE financial personnel were not researched.

Do the Organization's managers understand the budget, including available funds and expenditures and are the components monitored throughout the year)?

The organization's senior leadership and the program manager expressed an understanding of both the program's and organization's existing available funds and expenditures.

Is there a written process to supplement the budget as needed?

The organization's senior leadership expressed an understanding of how to, in written form, seek and defend the need for supplements to existing budgeted amounts. Through that process additional funding for staff training was obtained.

Does the Organization efficiently develop budget estimates?

The organization's budget development, estimating, and request process were not researched in detail. The DSP manager was previously included in discussions about program needs. The hope was expressed by leadership that this Peer Review Report would assist in the development and justification of future budget requests.

Does the Organization regularly monitor budgets and expenditures?

As the existing technical staff of two engineers and the shared program manager have limited involvement with organizational financial management, tools used by EGLE financial personnel were not researched.

Is there funding available to dam owners to rehabilitate existing dams?

Regarding locally and privately-owned dams, EGLE and the DSP do not have loan or grant fund programs to assist owners with dam rehabilitation / mitigation efforts. There is one State grant, funded at just \$350K per year, administered by DNR Fisheries Division, which can be applied to dam rehabilitation or removal. Dam owners are typically self-funded or rely on private, local, state, and federal funding opportunities for rehabilitation of their dams.

Regarding State owned dams (such as those owned by the DNR), it was not clear to the review team if the State is leading by example, with adequate budget resources to conduct appropriate routine maintenance or required rehabilitation work, for all State agencies that own dams.

Does the Organization have adequate management tools to track employee time?

The Organization has a system that tracks time and codes to various project designations. As program technical staff have limited involvement with organizational financial management, tools used for time tracking were not researched.

Does the Organization complete a workload analysis to adjust priorities and determine needed resources to put into the strategic plan?

The Team was not made aware if such analyses have been conducted in the past or is being routinely done.

Does the dam safety manager have input into the budget process?

The Team learned that the dam safety manager's input into the budget process is limited. The manager has made requests for additional training and technology. Typically, the DSP has received some amount from the FEMA NDSP Grant, some funding from DNR to inspect DNR-owned dams, and General Fund revenues are used to cover remaining staff salaries, benefits, and expenses. All other resources come from the Division budget.

Additional finding

The Team previously recommended the establishment of a 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. This recommendation

included an initial allocation by Michigan to establish this fund. Replenishment of this fund is addressed below in recommendation **MI DSP 2020-05-d** and further in recommendation **MI DSP 2020-14-h**.

Recommendation **MI DSP 2020-05-d** below discusses dam permit application fees and annual dam permit registration or renewal fees. Some states assess similar fees which partially or totally pay for their DSP budget. Attached in **Appendix P** is a sample fee structure from Pennsylvania which includes a worksheet for determining their appropriate fees.

Recommendations MI DSP 2020-05: Funding and Budgeting

The Peer Review Team recommends:

- **MI DSP 2020-05-a:** Restricting the use of FEMA Dam Safety Grant funds solely for DSP enhancements, not DSP salaries.
- **MI DSP 2020-05-b:** Considering detailed input from the DSP Manager when establishing the budget.
- **MI DSP 2020-05-c:** Michigan dam-owner agencies should strive to lead by example, regarding responsible dam ownership. This could start with an inventory-wide assessment of State-owned dams, and then setting financial and project goals to providing adequate yearly routine budget resources and yearly life-cycle budget resources to perform deferred maintenance and rehabilitate any safety deficiencies.
- **MI DSP 2020-05-d*:** 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 towards DSP budget.

MI DSP 2020-06: Policies and Procedures

Are there satisfactory policies and procedures (as outlined by the Manual, Chapter V.E) available and easily accessible to managers and staff?

EGLE does have general policies and procedures for permitting, compliance and enforcement, media relations, legislative contacts, etc. that are used day to day, but little specifically developed for the DSP.

Are there technical guidelines available to personnel?

The DSP has not developed its own technical guidelines. It has adopted a set of industry “best practices” such as the FEMA guidelines for Dam Safety Design, various USACE, USBR, NRCS, and FERC guidelines for engineering design, etc. The process has never been formalized for design review, but the resources are available to staff.

Are there adequate employee safety policies and procedures?

There are Department safety policies for both in office and field work, but nothing specifically developed for DSP staff.

Recommendations MI DSP 2020-06 Policies and Procedures

The Team recommends:

- **MI DSP 2020-06-a:** 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:** 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.

MI DSP 2020-07: Human Resources

Are written job descriptions available for all employees?

There are written position descriptions for the three positions within the DSP.

Is the technical, clerical and management staff qualified and have the skill set necessary to perform assigned work, as measured by education, training, experience, and familiarity with existing standards in the Manual, Chapter V.B.1?

The technical staff in the DSP are professionally qualified in terms of education, experience in the design, constructions, and regulation of dams and are well versed in the legislation and rules governing the DSP. The manager of the DSP has excellent technical education and experience in hydrologic studies and in management but does not possess experience in the design and construction of dams.

Are there satisfactory opportunities for employees for in-house or out-sourced training and are records kept for the continuing professional development of employees?

Technical and professional training is encouraged and supported by EGLE but is limited by workload. We found no records of training or continuing education for staff.

Are employees adequately trained (See Manual, Chapter V.B.6)?

The staff have had basic training in dam safety but there is no analysis performed of staff needs nor a plan to provide desirable professional development training for staff.

Are conscientious efforts made to assign professional and technical employees to projects of various types to expand their experience?

Due to small staff, the practice has been that assignments are based solely on geographical location of staff and projects.

Does the Organization recognize professional registration?

The DSP requires P.E. registration for its current two engineering positions as all inspection reports must be signed/sealed by a P.E. in Michigan. The Organization does not cover the cost of professional registration or offer formal continuing education

requirement support. However, both in-house and externally sourced training for staff have been enough to meet the continuing education requirements for P.E.s.

Does the Organization have written and effective policies and procedures for hiring, promotions, recruitment?

The Team learned that the state does have written policies on hiring and promotions but did not learn of policies about recruitment. The state-wide hiring and promotion policies are generally available to hiring managers and Human Resources but are not necessarily widely distributed at the staff level.

What is the morale of the Organization (i.e.: Are attitudes of staff toward management and the Organization satisfactory, are employees satisfied in their jobs, is there mutual respect between employees and between staff and management)?

The morale of staff and management was found to be excellent. All staff exhibited a desire to do the best they could with available resources and were happy in their positions.

Is staff turnover at a reasonable level?

Turnover does not seem to be excessive, but limited career paths within the DSP has created the need by some to migrate out of the DSP for advancement.

Are there new employee orientation procedures?

There is a new hire orientation process for all new EGLE staff. DSP does not have a formal process specific to the program. There is a set of standard trainings that the DSP would try to get new engineers to complete, as time, budget, etc., allow.

Is there acknowledgement of succession planning and are efforts needed or underway to ensure future experienced staff?

There is no succession plan within the DSP. There is no mentoring program in the DSP to nurture the professional growth of staff.

Are there procedures for periodic evaluation of employee performance and for individual conferences to discuss progress and advancement of professional and technical personnel?

There are annual performance reviews for all EGLE staff and opportunities to discuss performance and progress.

Are there sufficient career development opportunities?

There are limited career development opportunities in the DSP. Limited career paths within the DSP has created the need by some to migrate out of the DSP for advancement.

Does the compensation and benefits package appear comparable to other such Organizations?

Compensation and benefits are competitive as compared to other state Dam Safety Programs, but not competitive with private sector compensation.

Does the Organization encourage and do employees volunteer on technical committees and organizations?

Two past board members and one past president of ASDSO have been from Michigan. Staff are encouraged to participate.

Does the Organization encourage and do employees develop technical papers or make technical presentations at conferences or forums?

Staff are encouraged to devote time to present technical papers or presentations at professional conferences.

Are employees working conditions, physical facilities, and office environment satisfactory?

The Peer Review team did not have an in-person tour of the DSP offices, but did witness a virtual tour of the Lansing Office. We found the working conditions, physical facilities, and office environment to be satisfactory.

Recommendations MI DSP 2020-07: Human Resources

The Peer Review Team recommends:

- **MI DSP 2020-07-a:** Executive management develop a DSP Succession Plan to provide for continuity of practice.
- **MI DSP 2020-07-b:** Development of an annual training plan and budget to ensure technical and professional growth of staff.
- **MI DSP 2020-07-c:** Development of a technical engineering career path for several technical/engineering positions.
- **MI DSP 2020-07-d:** Revising the qualifications of the DSP Manager to include significant experience in the design, construction, operation, and maintenance of dams.
- **MIDSP 2020-07-e:** 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:** Following reorganization recommended in **MI DSP 2020-04-b**, **MI DSP 2020-04-c** and **MI DSP 2020-04-d**, begin developing work plans to assign staff to the most appropriate projects and provide varied opportunities for staff.
- **MI DSP 2020-07-g:** 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:** Developing a mentoring program for all staff within the DSP.
- **MI DSP 2020-07-i:** Maintaining competitive compensation and benefits to sustain the quality of staff in the DSP.
- **MI DSP 2020-07-j:** 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.

MI DSP 2020-08: Inventory

Does the Organization have an adequate data management tool capable of keeping the inventory of dams?

The Michigan Inventory of Dams appears to work well for the DSP's purpose. However, several fields in the National Inventory of Dams (NID) are missing from the Michigan Inventory.

As a minimum, does the Organization inventory the basic information outlined in the ASDSO Peer Review Manual (Manual), Chapter III.A?

Several fields in the National Inventory of Dams (NID) are missing from the Michigan Inventory.

Does the Organization periodically update the inventory?

The inventory is updated periodically by the dam safety engineers as new information is received.

Other comments:

The Michigan Inventory of Dams does not have the capability of electronically tracking such things as due dates for inspection reports, responses to Notice of Violation (NOVs)/Orders, and EAP updates, nor does it have the capability of generating reminders of these due dates for DSP staff.

Recommendations MI DSP 2020-08 Inventory

The Team recommends:

- **MI DSP 2020-08-a:** Adding missing parameters from the National Inventory of Dams (NID) to the Michigan Inventory of Dams.
- **MI DSP 2020-08-b:** Adding tracking capability to the Michigan Inventory for such things as due dates for inspection reports, responses to NOVs/Orders and EAP updates, and adding capability to generate reminders of these due dates for staff.

MI DSP 2020-09: Permitting

Does the Organization require a permit for all of the activities outlined in the Manual (IV A)?

The DSP requires permits for any repair, alteration, enlargement, construction, removal, or abandonment of any regulated dam. The DSP does not appear to have permit requirements for operation, maintenance, impoundment of water after initial construction or a significant drawdown for subsequent construction or change in ownership or hazard classification of a dam.

The DSP does have a list of information to be provided by the dam owner, or the Owner's engineer, and can request additional information as determined necessary to evaluate the project. The DSP list does not include generalized engineering items in the list that are typically applicable to all dam projects, such as, structural, geotechnical, hydrologic, hydraulic, and dam breach calculations. The DSP list does not address potential requirements if the hazard classification of the dam changes due to downstream development.

The DSP permits are for a period of two years unless the applicant requests a longer period. The permits may require a performance bond to assure completion of the project. The DSP does not appear to have permit periods or bonds to assure long term operation and maintenance of the dam nor the requirements for the Owner to maintain the necessary funds to assure ongoing repairs/safe breaching of the dam in an emergency.

Recommendations MI DSP 2020-09 Permitting

The Team recommends:

- **MI DSP 2020-09-a***: 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***: 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***: 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 on-going operation and maintenance of the dam for the lifetime of the facility.

MI DSP 2020-10: Design Reviews

Does the Organization regularly complete a design review of plans and specifications as part of the permitting process?

The DSP staff consists of two full-time dam safety engineers and one managing supervisor who spends approximately 25 to 30% of his time on the DSP. Design reviews are completed by the two dam safety engineers. All staff are dedicated individuals and the dam safety engineers are qualified with significant dam safety experience and expertise in some, but not all, aspects of dam safety engineering. DSP staff do have some structural and geotechnical training in their backgrounds, but they do not necessarily have a high level of expertise in these areas. Thus, reviews in these areas may be compromised somewhat. This is quite common in state DSPs. It was not clear that the DSP manager has established and/or implemented a written technical internal QA/QC process for design review.

Does the design review include each of the components outlined in the Manual, IV.B.?

Design reviews do consider design elements critical to dam design. Those are usual and unusual condition design loadings; hydrology and hydraulics; structural design and stability of the dam structure; structural design and stability of appurtenant structures; seepage and drainage; grouting plan; foundation preparation and treatment plan; exploration and testing plan; instrumentation plan; operation and maintenance plan; design drawings and specifications; regional and site geology; and site seismicity. As stated above, the expertise of the staff dam safety engineers is not necessarily significant in all these areas. Complex designs sometimes require staff engineers to seek expertise in certain aspects of engineering within or outside the department.

Does the Organization complete independent evaluations and analysis and is it documented?

Independent evaluations are completed to varying degrees. For simple repair/rehabilitation design, the DSP might review and confirm the design engineer's work prior to issuing the permit. Documentation would be commensurate with the level of

review. For major repair/rehabilitation, construction, or removal projects DSP reviews and confirms the design engineer's work and replicates calculations/models to verify results. Review of dam removal projects are documented in a Project Review Report. A report form does not exist for dam repair and rehabilitation projects. All calculations, models, and other review details are part of the application review record and retained indefinitely.

Due to the Joint Permit Process (includes permitting under Section 404 of the Clean Water Act) there is an administrative report to demonstrate to the U.S. Army Corps of Engineers that Michigan is properly permitting discharges of fill in Waters of the U.S.

Are either standard design plans or specifications available or a checklist to ensure consistent reviews are being completed?

There are no standard design plans or specifications for construction, modification, or rehabilitation of dams. Nothing formal other than for dam removal projects. There is also no checklist to ensure that reviews are completed consistently.

Does the Organization have the appropriate tools (software, hardware, etc.) to perform analysis and evaluations for dams?

The DSP has ample experience and adequate software to complete all or most hydraulic and hydrologic review of dam design. The DSP lacks significant expertise in areas such as geotechnical and structural engineering and do not have evaluation software that would provide a thorough review of geotechnical and structural design. The DSP must rely on expertise within the department or from consultants on an as-needed basis. The DSP does have the ability to review and approve simple structural and geotechnical design through coordination with the design engineer.

Does the Organization push to keep abreast using the state of practice and knowledge of state of the art in dam safety engineering?

Staff indicated that technical and professional training is encouraged and supported by EGLE but attendance by staff is limited due to workload. This is discussed further in the Team's findings in **MI DSP 2020-07: Human Resources**.

Recommendations MI DSP 2020-10 Design Reviews

The Team recommends:

- **MI DSP 2020-10-a:** Consider periodically (i.e., every 4 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 (10-year) detailed dam re-evaluations.
- **MI DSP 2020-10-b*:** Require the Owner of proposed complex projects to provide an independent Board of Review to affirm the Owner's design.
- **MI DSP 2020-10-c:** Develop 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.

MI DSP 2020-11: Re-Evaluations

Public and privately-owned dams are a critical part of our nation's infrastructure. Even privately-owned dams can present public safety risk. Further, the nation's dams are aging and deteriorating, while downstream populations are increasing. The 2018 ASCE Report Card for Michigan's Infrastructure stated the following:

- In the next five years, about 80 percent of Michigan's dams will be over 50 years old.
- There are 271 dams over 100 years old.
- Since the early 20th century, more than 300 dam failures have been documented in Michigan.
- The majority of dams (about 75 percent) in Michigan are under private ownership. The remaining dams are owned by a combination of local municipalities, the state and federal government, and public utility companies

Nationally and at the level of many state Dam Safety Programs, statistics such as these document the need for greater attention to and investment in measures that reduce risks

to public safety and economic assets. The 2018 “INDEPENDENT FORENSIC TEAM REPORT OROVILLE (California) DAM SPILLWAY INCIDENT” discussed several lessons learned that resonate for state programs throughout the country:

- As dams age, stakeholders can become somewhat overconfident and complacent regarding the integrity of their dam infrastructure.
- While important, routine visual inspections are not always sufficient to identify safety risks.
- Periodic comprehensive reviews of original design and construction and subsequent performance are imperative. These reviews should be based on complete records and need to be more in-depth than periodic general reviews.

The Oroville report stated the comprehensive reviews should be:

- Thorough, taking advantage of all available information.
- Critical and independent, rather than relying largely on the findings of past reviews.
- Completed by people with appropriate technical expertise, experience, and qualifications to cover all aspects of design, construction, maintenance, repair, and failure modes of the assets under consideration.

The Oroville report further stated that comprehensive reviews of original design and construction, performance, maintenance, and repairs are needed for all features of dam projects. These reviews should compare the various features of the project with the current state of practice to answer the following questions:

- Is the feature consistent with current design and construction practice?
- If there are variations from current practice, do they compromise the structure and present a risk of failure or unsatisfactory performance?
- If there is not enough information available to make those judgments, is the potential risk sufficient to justify further study or evaluation?

Does the Organization require periodic reevaluations, including in-depth analysis to ensure existing dams meet current design standards?

The DSP relies on visual observations and/or recommendation by the inspecting engineer to prompt the Owner to commission more in-depth analyses on an as needed basis. The DSP does not require dam owners to conduct more in-depth reevaluations beyond the typical visual inspection required by statute.

Recommendations MI DSP 2020-11 Re-Evaluations

The Team recommends:

- **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.

MI DSP 2020-12: Inspections

Are dams receiving periodic inspections to the frequency outlined in the Manual, Chapter III.B.1?

Dams are not being inspected to the frequency outlined in the ASDSO Peer Review Manual or as recommended in the MDSP. Currently, high hazard dams are inspected every 3 years; significant hazard dams every 4 years; and low hazard dams every 5 years. The Manual and MDSP recommend annual inspections of high hazard dams and biennial inspections of significant hazard dams. Inspections of low hazard dams every 5 years is sufficient.

Does the Organization have an inspection checklist or standard inspection report, so inspections are conducted in a consistent manner?

The DSP does not have an inspection checklist or standard inspection report form that assists dam owners in providing inspection documentation in a consistent manner. The DSP does have a listing of the minimum parts that are to be included in an inspection report. The DSP also has a checklist that staff use during an inspection that could potentially be adapted as a format for dam owners and their engineers to use.

Are the standards for periodic inspections outlined in the Manual, Chapter III, B.1.c, being followed?

Rule 281.1310 Inspection Reports does require periodic inspection reports to meet the standards of the Manual and the MDSP.

Does the Organization make frequent inspections of dams during construction, alteration, or repair at critical junctures of construction?

The DSP does not make inspections of dams during construction, alteration, or repair. Inspections are completed after notification that construction is completed to provide the Owner written notice of final approval if the project is determined to have been completed in accordance with the approved plans, specifications, and permit conditions. This is problematic if the DSP has not completed any inspections during construction and does not require a certification of the construction from the design engineer.

Are the construction inspection standards outlined in the Manual, Chapter III, B 2., being followed?

Construction inspection standards are not being followed as no construction inspections occur.

Does the Organization conduct inspections following extreme loading events or unique conditions such as earthquakes, floods, excessive seepage, etc.?

Staff frequently are in the field monitoring dams during and immediately following major flooding events. Michigan has not historically had major seismic events that have impacted dams; however, if issues related to earthquakes, flooding, or seepage are reported to the Department, DSP staff will respond immediately and prioritize field visits to assess the condition of impacted dams. During widespread events, such as the May 18-20, 2020 flood in Mid-Michigan, limited staff resources prevented immediate inspection of all impacted dams, so each incident was triaged, and staff resources were deployed where needed most until all impacted dams were inspected. DSP staff also partnered with FERC, USACE, and consultant engineers during this period so that more dams could be assessed in a shorter timeframe.

Does the Organization document all inspections to the level outlined in the Manual, Chapter III, B.3?

The DSP does utilize a form that provides a basic level of documentation required for a standard dam safety inspection by the program engineers or by a consultant. When this visual inspection identifies the need for more in-depth inspection and/or analyses, the DSP can require the Owner to hire a consultant to perform this more in-depth work and report back to the DSP with recommendations.

During inspections does the organization check the flow from relief wells and toe drains for changes in quantity due to the clogging of adjacent filter material by the movement of fine grain soils in the foundation or embankment indicating the need to clean or replace the filter material?

During inspections DSP staff monitor embankment drains, mostly on a qualitative basis, for noticeable changes in discharge, color, and sediment deposition. If dams have a seepage monitoring device (i.e., flume or weir) DSP staff may also estimate and document flow rates at those devices for comparison during subsequent inspections.

Recommendations MI DSP 2020-12 Inspections

The Team recommends:

- **MI DSP 2020-12-a***: Amending inspection frequencies to annual for high hazard dams and to biennial for significant hazard dams.
- **MI DSP 2020-12-b***: Establishing a construction inspection requirement for the design engineer and for DSP staff.
- **MI DSP 2020-12-c**: 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**: Frequent inspections by DSP staff during dam construction, alteration, repair, and the first filling.

MI DSP 2020-13: Surveillance Monitoring

Are there any dams within the inventory that have surveillance instrumentation?

There are some dams regulated by Michigan that have surveillance instrumentation, but most do not because they are small dams. Small dams make up much of the inventory in Michigan.

Does the Organization make thorough periodic evaluations of all surveillance instrumentation?

DSP staff do not typically evaluate surveillance data. The DSP inspection checklist includes locations to note whether there is surveillance equipment and whether monitoring is being performed. It is generally the responsibility of the dam owner/operator and/or their consultant to monitor surveillance equipment such as monitoring wells/piezometers,

seepage weirs, level recorders, SCADA equipment, and survey controls and to keep logs of the monitoring data. If there are issues, or significant changes, the DSP may request that data and direct the Owner to have their consultant perform additional analyses as warranted.

Do the inspectors understand the purpose of each instrument and is the purpose of each instrument clearly documented?

Inspectors have a good understanding of most surveillance equipment at dams. However, as mentioned above, it is typically the responsibility of the Owner and/or consultant to document readings and report any issues to the DSP.

Does the Organization require appropriate surveillance monitoring on dams?

When there are known or suspected deficiencies at a dam, the DSP will sometimes require the Owner to install monitoring devices to gain a better understanding of those potential deficiencies. This would typically include the hiring of a competent engineering firm to oversee the installation, monitoring, and analyses of the surveillance equipment with reporting of findings back to the DSP.

Recommendations MI DSP 2020-13 Surveillance Monitoring:

The Team recommends:

- **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.

MI DSP 2020-14: Compliance and Enforcement

A sustainable Dam Safety Program needs a proactive compliance culture supported by progressive enforcement, even during times when resources are scarce. Responsible dam owners will lose motivation if non-compliant dam owners experience no consequences. Internally, the characteristics modeled by leadership will be mirrored by staff, so it is important that staff continually observe compliance enforcement as a leadership priority.

Does the Organization regularly enforce the statutes and regulations?

To varying degrees over time, the DSP has enforced the Dam Safety Statute and rules. With existing small staff levels, little time has remained to deal with time consuming compliance and enforcement actions. Follow-up compliance for newly reported and/or new safety concerns is limited by staffing levels.

The DSP has the ability to be proactive, but in practice, compliance and enforcement efforts have typically been more reactive focused on dams with urgent needs and high consequences.

- No dam safety enforcement / compliance priority list has been developed.
- Standardized pathways (i.e. flowchart) for progressive enforcement have not been adapted to dam safety compliance / violation management.
- Dam Safety 101 and Enforcement Cross Training of staff has not been routinely conducted.
- The DSP has the ability to order removal of a dam under certain circumstances, but it was reported to the Team that an ordered removal has never occurred in the memory of the current staff.
- The DSP does have an NOV process. They also issue Notices of Intent to levy fines or to turn the matter over to the AG's office. The AG's office is reported to have exhibited a mixed priority relative to commitment to dam safety enforcement. If the issue is not a high priority, they are much less committed to follow through or elevate the level of enforcement.
- Water level lowering orders should be used, not just during emergency situations, but as a compliance tool to reduce the safety risks posed by long unmaintained, deteriorating dams, or unresponsive dam owners.

The DSP has reported that they have a good inspection-of-dams compliance rate for high and significant hazard potential dams. This compliance rate is routinely in the low to mid 90 percentile range. Inspection compliance for low hazard dams does drop off to around 75%.

- Some dam owners have failed to conduct and submit reports of inspections for years with no apparent enforcement consequences or fines. Overdue inspections result in a reminder letter and eventually may lead to issuance of an NOV.

Does the Organization take immediate action to protect life and property during an emergency such as lowering the reservoir level, removing the dam, etc.?

To varying degrees over time, the DSP has been able to take immediate action during an emergency. When faced with a rapidly developing dam safety deficiency has come up that would endanger the dam, public safety, and property, the DSP has responded. The actions taken by the DSP are summarized below:

- When risk reduction measures are available, such as drawdown or repair that can be implemented quickly, the DSP may and has, on several occasions, ordered the Owner to take those measures.
- In circumstances where the Owner is unable or unwilling to comply with that order, the DSP has stepped in and taken necessary measures under an Emergency Order.
- The DSP has experienced limited ability to undertake large projects that would involve significant costs.
- A dedicated Dam Safety Emergency Fund does not exist for dam safety incident and emergency operations for the DSP to mitigate any hazard presented by the dam, should the Owner fail to do so. This lack of funding was repeatedly mentioned as a problem seriously limiting DSP emergency mitigation actions.

Generally, when the circumstances dictate, the DSP may order “repair, replacement, or removal” of a dam, but will allow the Owner to decide which option to pursue provided that it is done in a timely manner.

- A typical dam safety order will include language to take whatever risk reductions measures are available (drawdown, stabilization, etc.) and to develop and implement a plan to “repair, replace, or remove” the dam within a given timeframe.
- Dam Safety Orders are utilized, if an inspection report identifies a deficiency and the DPS confirms the deficiency needs to be addressed.
- The DSP does not have a Field NOV or Order in its toolbox.
- If the Owner does not comply with an order, the DSP may then follow up with an Emergency Order, with a much tighter timeframe for compliance, which if missed then allows the DSP to take the necessary action to alleviate the danger. This option has been exercised from time to time.
- Emergency Orders are unilaterally issued by the DSP when failure is imminent. The DSP engineers draft the Order which is signed by the manager of the Hydrologic Studies and Dam Safety Unit.

Does the Organization take action requiring dams to be rehabilitated as necessary?

Some dam owners whose structures have longstanding and long recognized safety deficiencies, have experienced no apparent enforcement consequences or fines.

- Inspection reports recommend necessary rehabilitation when deterioration is observed. There is typically a timeframe for implementation provided when these recommendations are made.
- In the past, the DSP tended to make the same recommendation over and over, without elevating compliance efforts to compel rehab to occur.

In recent years, the DSP has been making stronger efforts to compel compliance with these recommendations when not implemented within the timeframe.

- Typically, this would be one reminder that the timeframe has passed with the directive to submit a plan and schedule that would address the deficiency.
- If that timeframe is missed or the Owner does not provide an adequate response, the DSP will consider elevated enforcement action such as violation notices and fines, dam safety orders, emergency orders, and court action.
- There is, however, significant effort to resolve these issues amicably with the Owner prior to elevating enforcement actions.

Recommendations MI DSP 2020-14 Compliance and Enforcement

The Team recommends:

- **MI DSP 2020-14-a:** Establishing a senior management led priority for portfolio-wide compliance enforcement.
- **MI DSP 2020-14-b:** Development of a compliance and enforcement priority list, with 10 or 20 of the most problematic dams initially identified for focused follow up.
- **MI DSP 2020-14-c:** 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:** 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:** 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:** Creation and implementation of Dam Safety 101 and Enforcement Cross Training.
- **MI DSP 2020-14-h*:** 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**).

MI DSP 2020:15: Emergency Response/Emergency Action Plans

Does the Organization have written policies and procedures to deal with dam safety emergencies?

In discussing the recent dam failure incidents in Michigan, the Peer Review Team found there may have been some confusion regarding the decision-making process during the incident. There are no written policies and procedures for dealing specifically with dam incidents or failures.

Does the Organization require each dam owner to have an emergency procedure plan which includes contacting the Organization during a dam emergency?

Statutes and code require EAPs for high and significant hazard dams. The Owner must submit the EAP to the county or local emergency management coordinator for review for consistency with county or local emergency operations plans and the Michigan Emergency Preparedness Plan.

An EAP for an existing dam must be submitted to the department with documentation that the plan has been submitted to the county or local emergency management coordinator not later than the time that the first inspection report for the dam is due or at another time agreed to by the department.

For a newly constructed dam, the EAP must be submitted to the department with documentation that the plan has been submitted to the county or local emergency management coordinator not later than the date of expiration of the permit for construction of the dam.

Statutes and Rules pertaining to the DSP do not specifically state that the Owner must contact the DSP directly during a dam emergency.

Does the Organization have adequate resources (funding and personnel), or have access to additional resources, to adequately act in the case of emergencies?

Currently the DSP only has two staff engineers. A third position has been approved but has not been filled yet. Certainly, they are adequately staffed to respond to an incident at one dam. Should widespread flooding and/or extreme rain event occur, the DSP would be hard pressed to act adequately. The staffing issue is discussed in further detail in other portions of this report.

Does the Organization participate in training or exercises to deal with emergencies?

The statutes and rules for the EGLE DSP do not require exercising of EAPs. The Team was not made aware of any DSP staff participation in routine EAP training.

Does the Organization manage or is there another Organization responsible to manage Emergency Action Plans of dam owners, including inventory of EAPs, filing EAPs, etc.?

Both the county or local emergency management coordinator and the DSP receive copies of the EAP during the development and approval process and maintain files with copies of the EAP. The DSP manages the EAP in the sense that the EAP must be updated at the time of the due date of the periodic inspection.

Does the Organization or is there an organization that assists dam owners with Emergency Action Plans (such as templates, contacts, etc.)?

Neither the DSP, nor any other organization provide a template for Michigan Dam EAPs. Standard formats, such as NRCS, are available for dam owner use.

Recommendations MI DSP 2020-15 Emergency Response/Emergency Action Plans

The Team recommends:

- **MI DSP 2020-15-a:** Development of a General Dam Emergency Response Plan designed specifically for dam hazard emergencies, coordinated with the EGLE Emergency Response Manager, the DSP, 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 by the DSP to mitigate any hazard presented by a dam, should the Owner fail to do so.

- **MI DSP 2020-15-b*:** EAPs should be annually checked:
 - for accurate contact information in the notification chart, and
 - for changes in population and facilities at risk as a result of Hazard Creep.
- **MI DSP 2020-15-c*:** 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:** 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*:** 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.

MI DSP 2020-16: Files and Records

It is important for DSPs to maintain clear records of all documents, including plans, specifications, letters, and reports. The documents should be easily accessible and readily available for use by employees and, in some cases, the general public. The files should be organized such that information on the subject can easily be found both chronologically and by other critical attributes. There should be ample space available to store the documents and the files should be electronically backed up.

Are there files, including documents and plans, for each dam/project and are they available and easily accessible to personnel?

The state is divided into two areas of responsibility for the two dam safety engineers. Paper files for dams in the southern area of responsibility are in Lansing, and paper files for the northern area of responsibility are in Cadillac. Paper copies of EAPs appeared to be kept in two different locations in the Cadillac office, either in the dam file or in the reference library, which is close by. Via a virtual tour, it appears the paper files are organized by county and dam name and that information should be found readily for a

given dam. All Emergency Action Plans are available electronically through the department server.

Does the agency have policies which define procedures for the storing of project records?

Files for dams are kept forever. There is no policy to discard information from dam files.

Are project files well organized and do they provide a reasonable complete and accurate chronological record documenting project activity, including telephone calls, conferences, calculations, field and laboratory data, decisions made, etc.?

The dam files are organized in date order, the most recent information on top. Reports, drawings, or other larger documents, if not located in the file, are located in other areas near the dam files in the DSP offices.

Are there backup files?

There are no backup files at this point in time. Beginning in 2014, documents have been scanned and are filed electronically. It is the desire of the DSP to scan all historic data, so that most information is available either through department servers or on a cloud-based data system. Electronic files stored on the department server are backed-up daily. Paper files are not stored in a fireproof area but are in an area with a sprinkler suppression system. Water damage is likely to occur to some files in the event of a fire. The DSP indicated a plan to move their inventory to a GIS-based data system, which would include some information from the dam files.

Recommendations MI DSP 2020-16 Files and Records

The Team recommends:

- **MI DSP 2020-16-a:** 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:** The DSP should consider storing all paper copies of EAPs in one area to avoid confusion during emergency events.
- **MI DSP 2020-16-c:** The DSP is encouraged to continue their efforts towards moving their inventory to a GIS-based data system.

MI DSP 2020-17: Outreach and Awareness

The effectiveness of Dam Safety Programs (both Safety of Dams and Safety at Dams programs) is improved when stakeholders and the general public have at least a basic and consistent understanding of programs' missions, challenges, and opportunities. A proactive Outreach and Awareness initiative, therefore, is an essential tool for a Dam Safety Program. An informed public can help reduce the loss of life and property from dam failures and help build advocates on the Program's behalf towards safer dams.

If a state does not conduct Outreach and Awareness initiatives, unaffiliated self-appointed "experts" with often inaccurate and incomplete information will fill information gaps. Their disinformation may be misleading and often counterproductive to public safety.

Does the organization have a written outreach and awareness plan?

The Team was not made aware of a Dam Safety Awareness plan to foster awareness for stakeholders for the DSP.

Does the plan include a wide range of activities that engage, educate, inform, and build good relations with dam owners, engineering practitioners, emergency response officials, stakeholders, and audiences (both externally and internally)?

There is nothing formal.

Does the plan contain a balance of both proactive and reactive communication?

There is no balance of proactive and reactive communication.

Is there a written media release policy?

The Team was told that the communications office has written procedures for all press contacts / responses, releases, etc.

Is there staff with public relations expertise available to assist the program?

The DSP works regularly with communications staff when high profile projects or incidents occur.

Has staff developed written key messages and consistent answers to frequently asked program questions?

The DSP has not developed key messages. Answers to FAQs have been developed and general resources are on the website.

As many state agencies will have specific public information officers (not part of the Dam Safety Program) that conduct most direct contact with members of the media, or with private sector attorneys, does the program have a specific “Dam Safety 101” class for new public information individuals and new in-house attorneys?

Dam Safety 101 type trainings and presentations have been adapted for and presented to several different audiences. The DSP has not yet done this cross-training for Public Information Officers (PIOs) or staff attorneys.

Have one day field trips been held by the program for new public information individuals and new in-house attorneys?

One day field trips have been held for support staff, managers, and other department technical staff and engineers, but not specifically for PIOs and staff attorneys.

Does the organization have a clear and effective website?

The EGLE webpage has clear icon links to many of the organization’s other programs, but no clear icon link to the DSP. The Dam Safety website is not easy to find from the EGLE main page

Does the Program occasionally conduct a formal Outreach and Awareness event, such as half day or day long “Dam Owners Workshop”, an IEAP exercise (Incident or Emergency Action Plan), or an awareness workshop for first responders?

The DSP has held Outreach and Awareness events in the past, but such efforts have dwindled in the past 5-10 years.

Do Program staff routinely serve as guest speakers at regularly occurring events planned by stakeholder groups, such as events that are organized by technical societies, regional and state real-estate associations, and groups providing continuing education opportunities?

DSP staff has occasionally served as guest speakers at local stakeholder events, as opportunities arise and schedules allow.

In the last 5 years, with which of the following stakeholder groups has the program conducted proactive outreach; and in brief explain the initiatives?

- ***Dam owners*** ***Yes***
 - The DSP invited surrounding dam owners to participate in EAP exercises to gain experience, encourage better communication, etc. between dam owners and operators.
- ***Downstream residents or buyers***..... ***No***
- ***Real estate industry*** ***No***
- ***Private sector consulting engineers*** ***Yes***
 - The DSP communicated with consultants who are on the DSP voluntary Dam Safety Consultant Registry.
- ***Earth moving and infrastructure contractors*** ***No***
- ***The general public*** ***Yes***
 - The DSP has performed outreach at general speaking events.
- ***The media*** ***Yes***
 - The DSP has performed outreach generally during high profile projects or incidents and made releases or offered interviews/stories to media.
- ***Persons and communities below dams***..... ***No***
- ***State and local elected officials***..... ***Yes***
 - Ahead of a high-profile project, the DSP will reach out through the legislative liaisons to provide heads-up on these issues.
- ***Local flood plain management officials***..... ***Yes***
 - The DSP has performed outreach during EAP exercises, or NFIP workshops when dams are in those communities.
- ***First responders*** ***Yes***
 - The DSP has performed outreach during EAP exercises.
- ***Emergency services officials***..... ***Yes***

- The DSP has performed outreach during EAP exercises.
- **Federal agencies** **Yes**
 - The DSP does not dual regulate hydropower dams under FERC jurisdiction, but DSP attempts to coordinate with the FERC Chicago Regional Office when there are issues at hydropower dams. The DSP will often offer technical services and input as their staff are much closer to the dams.
- **Students and prospective employees**..... **Yes**
- **Other state organizations**..... **Yes**
 - Generally, through networking online (ASDSO Collaborate) or at events (conferences, EMI), the DSP will brainstorm ideas and solutions to common problems.

Recommendations MI DSP 2020-17 Outreach and Awareness

The Team recommends:

- **MI DSP 2020-17a:** Adding a clear icon link to the DSP.
- **MI DSP 2020-17b:** Providing periodic Dam Safety 101 Awareness Seminars to other appropriate EGLE support staff, PIOs, attorneys, or specific Units and Sections outlining the DSP's mission to protect the environment and public safety.
- **MI DSP 2020-17c:** 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 2020-17d:** 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.

MI DSP 2020-18: Safety at Dams

Public safety is of paramount importance at all dams in areas adjacent to the dam and below the dam, particularly in recreational areas. Public safety measures can include things such as physical barriers, operating controls, warning systems, buoy systems, signage, enforcement actions, remediation construction, decommissioning projects, portage development, and public education and outreach. It is essential that every dam safety organization can periodically require owners to conduct public safety assessments and prepare public safety plans to minimize risks to the public, and to openly share with and educate the recreating public about safety near dams.

Does the organization have the ability to periodically require dam owners to conduct public safety assessments and prepare public safety plans?

Although the DSP has broad authority under Part 315 to require additional analyses and studies, it is not clear to the Team that the DSP is using that authority to require dam owners to conduct public safety assessments and prepare public safety plans.

Does the organization have the ability to require dam owners to make safety mitigation measures?

The DSP can order a dam owner to take whatever measures are necessary to eliminate a safety concern at a dam.

Does the organization have the ability to require dam owners to post safety signage?

The DSP does not have authority to require dam owners to post safety signage.

Do local or State law enforcement officers have enforcement authority to deal with public individuals participating in unsafe recreational behaviors near dams?

Law enforcement officers have no enforcement authority to deal with public individuals participating in unsafe recreational behaviors near dams. They can only deal with a violation of trespass, boating, or personal conduct laws.

Does the organization conduct a Safety Near Dams Outreach and Awareness Initiative?

The DSP conducted some awareness efforts in the past, but not with current staffing levels.

Does the organization partner with other water safety stakeholder groups to conduct a Safety Near Dams Outreach and Awareness Initiative?

The DSP participated in some awareness efforts in the past, when those initiatives were spearheaded by those outside groups.

Does the organization's website provide dam location information and Safety Near Dams Outreach and Awareness Initiative?

DSP recently launched an interactive GIS map with dam locations and resources related to safety near dams are available on the website.

Recommendations MI DSP 2020-18 Safety at Dams

The Team recommends:

- **MI DSP 2020-18a:** As a safety at dams 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:
 - Multi-disciplined members that have strong leadership and collaborative talents, public education skills (both youth and adult), graphic information, and database skills.
 - Members should include 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, and
- Finding local champions for safety at dams to advance education and voluntary removal initiatives.

MI DSP 2020-19: Security

Dams are one of the nation's 16 critical infrastructure sections and, as such, physical and cybersecurity at dams is important to protect the dam owner and/or downstream public from damage or loss caused by criminal or terrorist acts. The two specific areas of security are Physical Security and Cyber Security.

Physical Security involves the prevention of and/or protection against attempts to enter the dam and/or surrounding property to attempt to damage or mis-operate the dam in a fashion that aims to cause harm to the dam or initiate an uncontrolled release of water.

Cyber security involves the prevention of and/or protection against attempts to manipulate the operations of gates, valves and other flow control devices at dams that are remotely operated or can be remotely accessed that aim to initiate an uncontrolled release of water.

Does the Organization have awareness of dam security issues and responsibilities and familiarity with the National Infrastructure Protection Plan for Critical Infrastructure Security and Resilience (NIPP), and more specifically, the Dams-Sector Specific Plan (DSSP)?

The DSP has limited knowledge of dam security issues and responsibilities and familiarity with the NIPP and the DSSP. Current staffing and program priorities limit any effort in this area

Does the Organization collaborate with state, federal and national organizations with dam security responsibilities?

Yes, but in a limited capacity. The DSP is tied into the state's emergency reporting and response programs and system, but rarely monitors or contributes outside of major flooding or dam safety events.

Does the Organization identify, prioritize, and evaluate security risks on state-regulated dams?

When there has been vandalism or when a dam poses a high security risk, the state has engaged the Owners on these issues; however, there has not been much recent effort to prioritize or do a portfolio-wide evaluation of security risk at dams.

Does the Organization conduct security exercises and participate in related activities?

The DSP does not conduct security exercises, but does participate in exercises conducted by others, when available.

Recommendation MI DSP 2020-19 Security

The Team recommends:

- **MI DSP 2020-19a***: 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 dam; and conduct security exercises and participate in related dam security activities.

IV. EVALUATION

A. Summary

The Team has concluded that the DSP is doing the best it can with limited resources to protect the citizens of Michigan and the environment from the consequences of dam safety incidents and failures. The Team's review has included its recommendations for improvement and following are the most significant findings:

1. We found that the current DSP staff are dedicated, well-educated, experienced engineers that are doing the best they can, given the limited time and resources available under current budgeting.
2. We found that the DSP is extremely understaffed to perform the mission of dam safety as mandated by the legislation, rules, and best practice. We recommend that the minimum staffing required for Michigan DSP 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 along with two full-time enforcement officers dedicated to the DSP.
3. Michigan has not invested in safety of its dams for many decades and the needs have accumulated as the dams have aged. Unsafe dams pose a risk to the environment and ecology of Michigan as well as endanger public safety. Our review found that Michigan does not have any type of revolving loan program to fund dam rehabilitations that are determined necessary by the DSP. National experience has demonstrated that a state organized and funded program for grants and low interest loans is critical to achieving real progress in rehabilitating publicly owned dams. We recommend the establishment of an effective revolving loan program to provide grants and low interest loans to public owners of high hazard dams in need of rehabilitation. These types of programs have accomplished much in many states including Pennsylvania, New Jersey, and others.
4. Our review found that rigorous enforcement of dam safety violations is seldom used and that this has existed for decades. The culture of minimal enforcement has become the commonly accepted practice in Michigan. Dam safety violations without strong enforcement to force dam rehabilitations have exposed those living downstream of non-compliant dams and the environment to the consequences of dam failure.

5. We found that many of the dams in the Michigan Inventory are aging well beyond their originally intended design life and have never been re-evaluated. This is common nationally. The DSP does not require owners of high hazard dams to perform detailed engineering re-evaluations of their dams to determine conformance to current state-of-the-art and to uncover latent dam safety defects that come with age. All federal agencies that own dams are required by federal guidelines for dam safety to perform periodic detailed re-evaluation (i.e., comprehensive reviews) of their dams. We recommend that Michigan require owners of high hazard dams perform detailed re-evaluations.
6. We found that the DSP does not seem to be respected as a vital component of the EGLE, as evidenced by its location in the organization and the lack of public safety in the Mission Statement. The Team recommends that the DSP be revised to a stand-alone Unit under the Field Operations Support Section and that “public safety” be included in the Mission Statement of the Department.

B. Legislative Authority

The Michigan EGLE DSP meets many, but not all, of the legislative requirements of the National Dam Safety Program Act (NDSP), the Model Dam Safety Program (MDSP) and commonly accepted best practice.

We found the following shortcomings in the Legislation and Rules for the Michigan EGLE DSP:

- While permitting requirements exist for new dam construction or rehabilitation of existing dams, no requirements exist that require owners obtain a permit to operate and maintain existing dams in a safe condition, nor to annually report to the DSP on maintenance, operation, and engineering investigations that may have occurred.
- The Owner is not required to maintain dam operation, monitoring, and maintenance records.
- Inspection of construction is not required by DSP staff or by the Owner’s design engineer.
- The Owner or design engineer is not required to submit a first-filling plan, including a monitoring schedule, for review and approval.
- There is no requirement for the periodic exercising of EAPs.
- Rules do not conform to the MDSP for frequency of inspections.
- Rules do not conform to the MDSP for design floods.

- Neither the legislation, nor the rules provide a liability disclaimer statement for the state personnel.
- Owners of high and significant hazard dams which present a substantial potential risk to life or property are not required to provide proof of financial responsibility or security to assure for the continued safe operation and maintenance of their dam and to assure that funding is available for the DSP to mitigate any hazard present during a dam incident or emergency should the Owner fail to do so.
- No funding mechanism for the establishment of a Dam Safety Emergency Fund for the purposes of the DSP to mitigate any hazard present during a dam incident or emergency, should the Owner fail to do so.

C. Overall Program Evaluation

The Team is of the general opinion that the Michigan DSP is comprised of two dam safety engineers and a unit manager that are dedicated and conscientious and committed to serving the citizens of Michigan.

The Team has included all of its findings and recommendations in the report. However, we would like to comment on those areas of the DSP that are in need of significant improvement:

- The DSP is extremely understaffed to perform the mission of dam safety.
- The appropriate minimum number of staff includes the Dam Safety Unit Supervisor, seven technical/engineering staff, one clerical support person and two dedicated enforcement officers.
- Unlike many states, Michigan does not have a revolving loan program for dam rehabilitation.
- Michigan has a culture of minimal enforcement, leaving exposure to consequences of dam safety risks. The DSP lacks program-dedicated compliance/enforcement staff.
- The DSP does not require periodic detailed evaluations of aging high hazard dams.
- The DSP does not seem to be respected as a vital component of the EGLE, as evidenced by its location in the organization and the lack of public safety in the Mission Statement.

V. CATEGORIZATION OF RECOMMENDATIONS

Recommendations were categorized based upon various factors that are not all related to the importance the Team may have assigned to various findings and recommendations. Some of those additional factors include the current staff size and their anticipated ability to address the issues, relation of some recommendations to others that would require a sequencing to complete, potential immediate impact on the program, and ease with which some recommendations could be accomplished.

Category 1 recommendations are those for immediate action to meet basic DSP requirements and should be accomplished in **0 to 2 years**. Many should be relatively easy to accomplish by current EGLE or DSP staff without legislation or rule modifications.

Category 2 recommendations are those for immediate action, but which may require more time to accomplish considering the need for legislation or rule change and should be completed in **1 to 3 years**.

Category 3 recommendations are those for long-term action that are important, but which may take **3 to 4 years** to accomplish. Some may be dependent upon the completion of a recommendation(s) in **Category 1** or **2** in order to be addressed.

The recommendations considered to be most critical are placed in **Category 1**, unless they would require a legislation or rule change, in which case they are placed in **Category 2** due to the expected time necessary to accomplish this change. The Team has also ranked the recommendations within each category to provide the DSP with an understanding of the relative importance afforded each recommendation by the Team.

It should be noted that the Team believes all recommendations are essential to improve the Michigan DSP. The compilations of recommendations are found in **Appendix N-1 Recommendations by DSP Component** and **Appendix N-2 Recommendations by Category and Ranking**.

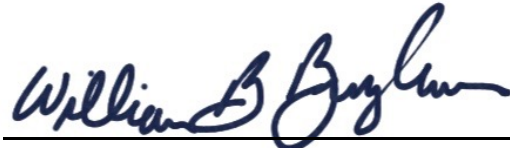
VI. CERTIFICATION

This report was prepared by the undersigned members of the Peer Review Team of the Association of State Dam Safety Officials as requested by the Supervisor of the Hydrologic Studies and Dam Safety Unit, Field Operations Support Section, Water Resources Division, Water Resources Division, Michigan Department of Environment, Great Lakes and Environment, Lansing, Michigan. The statements in the report reflect the engineering and professional observations, findings, and judgments of the Team based on interviews and review of documents presented by the Hydrologic Studies and Dam Safety Unit.



Team Coordinator

Robert Dalton, P.E.



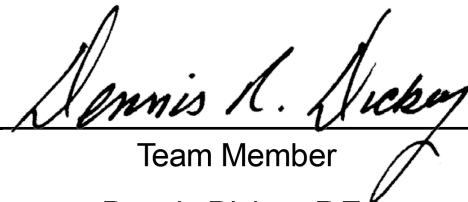
Team Member

William Bingham, P.E.



Team Member

Kenneth Smith, P.E.



Team Member

Dennis Dickey, P.E.

Date: September 18, 2020

APPENDICES

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

APPENDIX A

BIOGRAPHICAL SKETCHES OF THE PEER REVIEW TEAM

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

Biographical Sketch

for

Robert Dalton

Team Lead

Bob Dalton, P.E. received his BSCE from the Missouri University of Science & Technology in 1970. He has worked as an engineer with Veenstra & Kimm, Inc. and Vasconcelles Engineering Corporation, that merged with Veenstra & Kimm, Inc., since 2003. His assignments focus on hydrology, hydraulics, dam inspections, dam design, construction, and modification projects. Previously, Mr. Dalton worked for the Illinois Office of Water Resources with more than 30 years in the design, inspection, and regulation of dams. He has supervised and conducted over 400 dam field inspections and site visits (including those on underground and surface mining sites), computed and evaluated the hydrology, flood inflow hydrographs, spillway ratings, reservoir routings, energy dissipation, and dam breach wave analysis of existing and proposed dams. Mr. Dalton was also involved in the preparation of Illinois' dam safety regulations and guidelines and has assisted in the development of the TADS modules. He has also served on the ASDSO Executive Committee, the Advisory Committee, the Peer Review Committee (participating in reviews of state and federal agencies), FEMA's National Dam Safety Review Board, and its Research Work Group.

Biographical Sketch
for
William Bingham

Bill Bingham, P.E., has more than 54 years of experience, specializing in the areas of dam and flood control engineering with involvement as project principal, project manager, project engineer, or quality team leader on more than 20 flood control projects, 50 new dam projects, 100 dam rehabilitation projects, 150 annual dam safety inspections, 30 Phase 1 dam safety inspections, and numerous dam feasibility investigations and reports. He was a partner and the national practice leader for dam engineering at Gannett Fleming when he retired in December 2016 after more than 50 years with that firm. He is experienced in studies, designs, cost estimates, specifications, construction management, and public meetings on diverse assignments such as new dam and dam rehabilitation designs, basin-wide flood control studies, water supply alternative studies, flood control investigation and reports, existing flood control project rehabilitation design, field surveys, water needs assessments, and flood damage assessments. He has authored more than 20 technical papers and articles. Bill received the 1994 and 2012 President's Award, and the 1991 Award of Merit from the Association of State Dam Safety Officials (ASDSO). He was named an ASDSO Honorary Member in 2015. He was also selected by Engineering News-Record as one of the top 25 newsmakers in the construction industry for 1996 and was named Pennsylvania Engineer of the Year in 2000 by the Pennsylvania Society of Professional Engineers. Bill was appointed to the National Dam Safety Review Board by the Federal Emergency Management Agency. In addition, he served as the chair of the ASDSO Peer Review Program from its inception in 1989 through 2011 and remains on the Peer Review Committee. The Peer Review Program has performed reviews of 36 state dam safety programs and dam safety programs of the U.S. Army Corps of Engineers, the Department of the Interior, the Mine Safety and Health Administration, BC Hydro, Ontario Power Generation, and TVA. Bill was elected to the Board of Directors (1998-2004) of the United States Society on Dams (USSD), the U.S. member of the International Commission on Large Dams and was elected USSD President (2001-2003). In 2009 Bill received the USSD Lifetime Achievement Award recognizing his dedication, achievements, and contributions to the dam engineering profession.

Biographical Sketch
for
Dennis Dickey

Denny Dickey, P.E. graduated from The Pennsylvania State University in 1975 with a BS Degree in Civil Engineering. He is a Registered Professional Engineer in Pennsylvania and Delaware. His professional experience includes over 45 years in hydrologic, hydraulic, and dam safety engineering. Mr. Dickey currently is a Dam Safety Consultant and is part-time senior engineer with Gannett Fleming where he is responsible for areas of water resources engineering, including managing and mentoring project teams, performing quality assurance and peer reviews, providing dam analysis and design, and conducting field reconnaissance. He previously managed Pennsylvania's Dam Safety Program and served as Pennsylvania's state representative to ASDSO. Mr. Dickey served on the ASDSO Board of Directors and has been active in ASDSO's Nominating, Awards, Training, Dam Owner Outreach, and Peer Review Committees. As a member of ASDSO's Dam Safety Program Peer Review Panel he was a team member of the peer review of the CT Department of Energy and Environmental Protection Dam Safety Program; has been a five-time member of the US Bureau of Reclamation's Dam Safety Program Independent Review Panel, including serving as team lead; and served as ASDSO's team lead of a joint endeavor with an ISO Assessment contractor conducting a detailed management assessment of CA DWR's Dam Safety Program practices, using both the ISO 55001:2014 Asset Management Standard and the ASDSO Peer Review Program as frameworks. In addition, Mr. Dickey served as a subject matter expert for the ISO Assessment contractor to develop a Dam Safety Program Improvement Implementation Plan for CA DWR. Mr. Dickey served as Team Lead for the FERC-required ODSP Audit of CA DWR's Dam Safety Program and Co-Lead of the ODSP Audit of Grant County Public Utility District in the state of Washington. In addition, he has served as a member of the US Department of Homeland Security's Dams Sector, Government Coordinating Council.

Biographical Sketch

for

Kenneth Smith

Team Spokesperson

Ken Smith, P.E. is a graduate of Valparaiso University with a Bachelor of Science in Civil Engineering, and Butler University with a Master's Degree in Business Administration. He is a Registered Professional Engineer in the State of Indiana and has forty-three years of experience in water resources engineering. Mr. Smith, an Assistant Director of the Division of Water, Indiana Department of Natural Resources, is responsible for the Division's Compliance and Projects Branch, which includes the State's Dam and Levee Safety Section, the Project Development Section, and the Compliance and Enforcement Section. Mr. Smith is a past-President of ASDSO, and currently serves on the Board of Directors and several committees, including the Peer Review Program Committee. He was a member of the team that developed the Peer Review manual and has participated in several program reviews. He further has served on the National Dam Safety Board of Review. Currently, Mr. Smith is a member of Indiana Silver Jackets, an inter-agency natural hazard mitigation team, working together to protect life, property, and resources, with the vision "Many Agencies, One Solution."

APPENDIX B

ASCE 2018 REPORT CARD MICHIGAN'S INFRASTRUCTURE

(Dam Related Excerpt)

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**



Michigan Section of the American Society of Civil Engineers
INFRASTRUCTUREREPORTCARD.ORG/MICHIGAN



2018

REPORT CARD FOR
MICHIGAN'S
INFRASTRUCTURE



GRADING SCALE



EXCEPTIONAL: FIT FOR THE FUTURE

The infrastructure in the system or network is generally in excellent condition, typically new or recently rehabilitated, and meets capacity needs for the future. A few elements show signs of general deterioration that require attention. Facilities meet modern standards for functionality and are resilient to withstand most disasters and severe weather events.



GOOD: ADEQUATE FOR NOW

The infrastructure in the system or network is in good to excellent condition; some elements show signs of general deterioration that require attention. A few elements exhibit significant deficiencies. Safe and reliable with minimal capacity issues and minimal risk.



MEDIOCRE: REQUIRES ATTENTION

The infrastructure in the system or network is in fair to good condition; it shows general signs of deterioration and requires attention. Some elements exhibit significant deficiencies in conditions and functionality, with increasing vulnerability to risk.



POOR: AT RISK

The infrastructure is in poor to fair condition and mostly below standard, with many elements approaching the end of their service life. A large portion of the system exhibits significant deterioration. Condition and capacity are of significant concern with strong risk of failure.



FAILING/CRITICAL: UNFIT FOR PURPOSE

The infrastructure in the system is in unacceptable condition with widespread advanced signs of deterioration. Many of the components of the system exhibit signs of imminent failure.



ABOUT THE INFRASTRUCTURE REPORT CARD

GRADING CRITERIA

ASCE-MI's 2018 Report Card Committee is a group of dedicated civil and environmental engineers from Michigan, who volunteered their time to collect and analyze data, prepare, review, and revise each section, and develop the final Report Card. The committee worked with ASCE's Committee on America's Infrastructure and ASCE Infrastructure Initiative staff to provide Michigan with a snapshot of the state of our infrastructure, as it relates to us at home, and on a national basis.



The Report Card Sections are analyzed based on the following eight criteria:

CAPACITY Does the infrastructure's capacity meet current and future demands?

CONDITION What is the infrastructure's existing and near-future physical condition?

FUNDING What is the current level of funding from all levels of government for the infrastructure category as compared to the estimated funding need?

FUTURE NEED What is the cost to improve the infrastructure? Will future funding prospects address the need?

OPERATION AND MAINTENANCE What is the owners' ability to operate and maintain the infrastructure properly? Is the infrastructure in compliance with government regulations?

PUBLIC SAFETY To what extent is the public's safety jeopardized by the condition of the infrastructure and what could be the consequences of failure?

RESILIENCE What is the infrastructure system's capability to prevent or protect against significant multihazard threats and incidents? How able is it to quickly recover and reconstitute critical services with minimum consequences for public safety and health, the economy, and national security?

INNOVATION What new and innovative techniques, materials, technologies, and delivery methods are being implemented to improve the infrastructure?

2018

REPORT CARD FOR
MICHIGAN'S
INFRASTRUCTURE



2018 REPORT CARD FOR MICHIGAN'S INFRASTRUCTURE



AVIATION



RAIL



BRIDGES



ROADS



DAMS



SCHOOLS



DRINKING
WATER



SOLID WASTE



ENERGY



STORMWATER



NAVIGATION

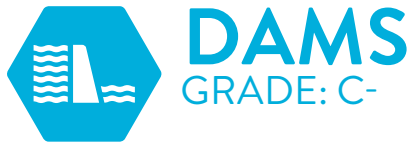


TRANSIT



WASTEWATER





SUMMARY

There are approximately 2,600 dams in Michigan, of which about two-thirds are older than their typical 50-year design life. In the next five years, about 80 percent of Michigan's dams will be over 50 years old. Many of Michigan's dams were originally constructed to support power or mill operations. Some of these dams still serve this original purpose. In some cases, dams no longer serve their original purpose, but continue to form impoundments for water supply or for recreational purposes. However, many of Michigan's dams are abandoned or are in need of repair or removal. Abandoned dams or dams that are in a deficient condition pose a safety hazard to downstream residents, a risk of environmental degradation, and other damage to downstream properties if the dam were to fail. While there has been some improvement with the overall condition of Michigan's dams (mostly through the removal of dams) since the last Michigan Report Card in 2009, Michigan must make more progress to address dams in need of repair or removal. Expanded funding is needed to provide additional staffing for the Michigan Department of Environmental Quality (MDEQ) Dam Safety Unit, and for resources for dam owners to address dam repair or dam removal projects.

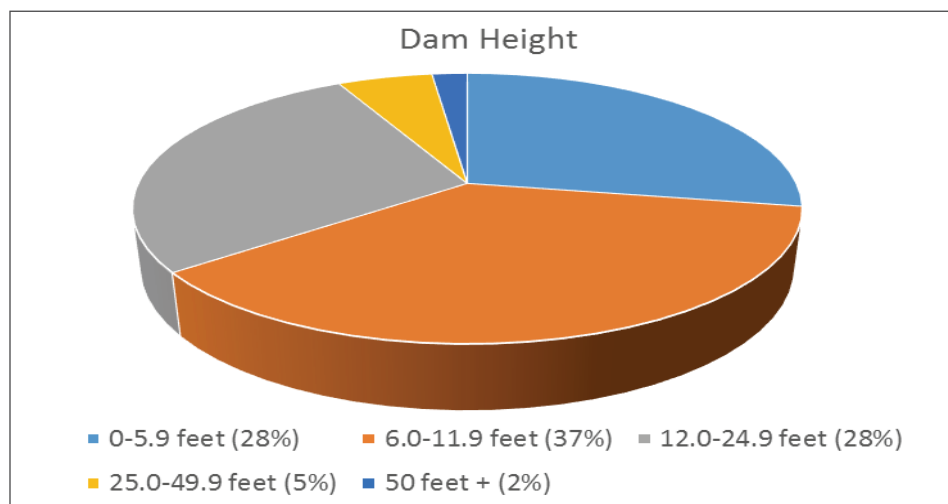
BACKGROUND

Throughout history, Michigan has supported the intensive use of rivers for economic development. Dams can provide many benefits, but if left unmanaged, can pose risks to public safety, local and regional economies, and the environment in the event of dam failure. Many dam owners, including public agencies, do not have the financial capability to repair and maintain dams, or to remove aging and abandoned dams. Owners of dams are responsible for maintenance and repair of their dams, but many owners of non-revenue generating dams do not set aside money to fund projects for the eventual repair or removal of these dams. The lack of sufficient state, federal, or other public-funding mechanisms to assist dam owners with these projects means that abandoned, deficient, or crumbling dams continue to remain unaddressed. This poses safety hazards to downstream residents and poses a risk to Michigan's environment and economy.

the frequency of inspection a function of dam height and reservoir volume. Once dams are inspected, dam owners still need money to repair or remove the dams if the dams have deficiencies or pose a safety hazard. Deficiencies identified during dam inspections often remain uncorrected, sometimes for decades, because their owners do not have the money to repair or remove them.

Statistics on Michigan's 2,600 dams:

- About two-thirds of Michigan's dams have reached their typical 50-year design life;
- In the next 5 years, this number grows to approximately 80 percent;
- There are 271 dams over 100 years old;
- Only 86 new dams were built in the last 25 years;
- There are almost 300 dams with a "high" or "significant" hazard potential rating;
- The largest dam in Michigan has a height of 170 feet;
- 28 percent of dams are 6 feet in height or less;
- There are 94 dams in Michigan that are under the jurisdiction of FERC because of the amount of hydropower these dams produce; and,
- Since the early 20th century, more than 300 dam failures have been documented in Michigan.



There have been improvements to some of Michigan's dams since the 2009 ASCE Michigan Report Card. For example, 24 dams in Michigan have been removed since 2009, or an average of about three dams per year, and there are approximately 22 permit applications each year for repair work to dams regulated by the MDEQ. However, the combined rate of dam removals and repairs (about 25 total per year) is not keeping pace with the 241 dams that will exceed their expected design life in the next five years. There has been some good news in the fact that the slow but steady rate of removal of dams in Michigan since the 2009 ASCE Michigan Report Card has eliminated some problematic dams that have been a concern for many years in terms of their condition and potential for causing damage should the dam have failed. Primarily, because of these removals, the current grade of Michigan's dams has improved slightly to a "C-" from the 2009 grade of "D". The current grade is qualitatively consistent with the general condition of "Fair" assigned to Michigan dams in the NID.

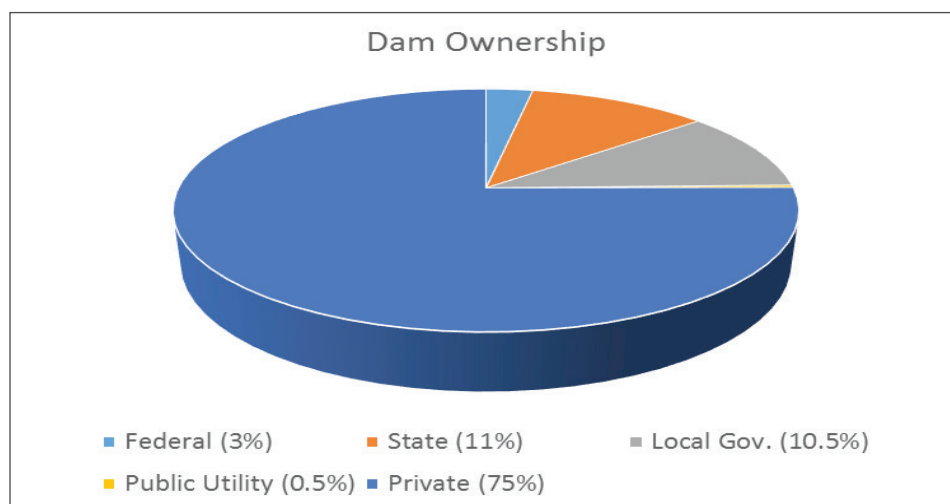
CONDITIONS AND CAPACITY

The Dam Safety Unit of the MDEQ maintains a database on dams in Michigan. There are approximately 2,600 dams in the MDEQ database or inventory. The 2,600 dams in the MDEQ database include 94 dams that generate hydropower and fall under the regulation of the Federal Energy Regulatory Agency (FERC). The National Inventory of Dams (NID), maintained by the U.S. Army Corps of Engineers, is a national dam database and lists 1,005 dams in their inventory for Michigan. The MDEQ's database contains more dams than the NID since the threshold for dam size included in the MDEQ database is lower than the threshold required for the NID.

Infrastructure age is a good indicator of overall condition since infrastructure (such as a dam) has a finite service life, allowing for the age of a dam to serve as a general qualitative indicator of condition. According to the MDEQ database, about two-thirds of Michigan's dams are older than the typical design life of 50 years. In the next 5 years, about 80 percent of Michigan's dams will be beyond their design life. Additionally, 271 of Michigan's dams were built prior to 1900, and have more than twice exceeded their typical 50-year design life. Michigan has averaged about two dam failures per year. While these failures typically have been on smaller dams without significant risk to public safety, these failures still result in environmental and economic damage.

Michigan has 140 "high" hazard potential dams (representing about 5 percent of Michigan's 2,600 dams). Hazard potential is not an indication of the dam's condition, but an indication of the potential for loss of life and property damage if the dam were to fail. A high hazard dam poses a high or serious risk of property damage or loss of life to downstream residents or a serious risk of environmental degradation if the dam were to fail. Almost 90 percent of Michigan's high hazard potential dams are greater than 50 years old. According to condition assessment data, Michigan's high hazard dams in the NID have an average rating of "Fair" (scoring about 79 on a 100-point scale). Average scores for Michigan's significant and low hazard dams in the NID are slightly higher than for high hazard dams, but remain in the rating range of "Fair".

The majority of dams (about 75 percent) in Michigan are under private ownership. The remaining dams are owned by a combination of local municipalities, the state and federal government, and public utility companies.



The MDEQ established its Dam Safety Program to ensure that a dam at serious risk of failure is identified and that dams are inspected and maintained in a safe condition. Dams regulated by the MDEQ must be inspected every three to five years, with the frequency of inspection depending on the hazard classification. Dams in Michigan regulated by FERC must also be inspected on a routine basis, with



INVESTMENT, FUNDING, AND FUTURE NEED

The choice to either repair or remove a dam is often difficult as there are safety, social-cultural, biological, ecological, and economic factors involved. Dam removal costs are highly variable and dependent on factors such as sediment contaminant levels, sediment volumes, surrounding infrastructure, wetland-related issues, and more. The many factors involved illustrate why the cost for dam repairs/maintenance/removal can be so high.

Lack of funding for addressing Michigan's aging dams has continued to slow progress on addressing Michigan's dams. According to a 2007 study, about 120 of Michigan's dams need at least \$50 million for repairs or rehabilitation. According to the 21st Century Infrastructure Commission Report, \$225 million is needed in additional state funding over the next 20 years to manage our aging dams in Michigan. This funding amount includes an initial investment of \$10 million to perform field assessments, upgrade the dam database, and procure decision-support tools and training to evaluate repair and removal options for Michigan's 2,600 dams. The remaining funding of \$215 million is the projected need to maintain or in some cases remove dams identified for attention by the upgraded database and decision-support tools. As previously discussed, many dam owners, including public agencies, do not have the financial capability to repair and maintain their dam, or to remove their aging or abandoned dam. As Michigan's dams continue to age, the need for state or federal funding, or funding from other sources, will increase. The rate at which Michigan's aging dam infrastructure is degrading has generated financial demands that far exceed the available funding to repair or remove these dams.

Funding mechanisms, such as the Michigan Department of Natural Resources Dam Management Grant, are a start toward dam funding needs. However, this funding alone is inadequate to keep pace with the financial demands of aging dams. From 2013 to 2015, this fund awarded slightly over \$1 million in Dam Management Grants. The MDNR directed three-quarters of the grants to dam removal, leaving many needs related to dam repair unfunded.

Governor Rick Snyder's 2016-5 Executive Order outlines ambitious goals for Michigan for the next 30 to 50 years. The 21st Century Infrastructure Commission Report states "Michigan must raise current annual infrastructure spending levels by an additional \$4 billion per year to close the investment gap". Closing Michigan's infrastructure funding gap, including dams, will require a combination of local, state, federal, and private investments, as well as financing strategies to meet long-term needs.

Funding for oversight of Michigan's dams by the MDEQ Dam Safety Unit is also lagging. Considering Michigan has 2,600 regulated dams, Michigan falls below the national average for budget funding on a per dam basis.

PUBLIC SAFETY AND RESILIENCE

To improve public safety and resilience, the risk and consequences of dam failures must be lowered. Since the early 20th century, more than 300 dam failures have been documented in Michigan. A recent example in Michigan is the 2003 Silver Lake Dam failure near Marquette which resulted in \$100 million in damages and economic losses of \$1 million per day. Concern about dam safety and environmental quality has become more prevalent over the last decade as more aging dams require repair. One positive for Michigan in addressing public safety is that approximately 97 percent of high and significant hazard potential dams have an Emergency Action Plan (EAP). An EAP outlines steps to be taken in the event of impending failure of a dam. Implementation of measures in an EAP can help to reduce the severity of damage should the dam fail, and can reduce the risk of loss of life.

By their nature, dams have a low level of resilience since dams cannot "recover" once significant degradation or movement is experienced. Multiple layers of redundancy are typically not provided in dam design and construction should a component fail. Therefore, when there is a dam failure, the consequences in terms of downstream damage can be relatively severe. This highlights the importance of proactive maintenance and monitoring of Michigan's dam infrastructure. Innovations in remote sensing technology, such as cameras, inclinometers, or piezometers that provide data through a web connection, can be utilized to allow for relatively rapid data collection in real time for larger more remote dams.



RECOMMENDATIONS TO RAISE THE GRADE

Some recommendations to improve the outlook for Michigan's dams include:

- Provide funding to the MDEQ Dam Safety Unit for additional staff to improve the dam inspection program and to support enforcement action for deficient dams. Currently, the MDEQ Dam Safety Unit has 3.3 full-time equivalent (FTE) staff. A 2006 informal audit of the MDEQ Dam Safety Unit by the Association of State Dam Safety Officials (ASDSO) recommended increasing the staffing level by 2 FTE staff.
- Create an asset management process to assist in making strategic and optimal decisions about dam improvements to ensure greater value for the investment. Establish performance metrics and ensure data transparency to the public regarding the condition of Michigan's dams.
- Develop educational materials and initiate a public relations campaign to educate the public on the need for proper maintenance and repair of dams, and to make the public aware of the current funding needs to address issues associated with Michigan's dams.
- Update the 2007 study to determine an appropriate current funding level to address the current condition of Michigan's aging dams. Set up a dedicated state fund for the repair, replacement, or removal of unsafe or failing dams, with the funding level based on the results of the recommended updated study.
- Provide funding to the federal program established to help dam owners with loans and matching grants for repair, replacement, or removal of unsafe, failing dams.

SOURCES

21st Century Infrastructure Commission Report, prepared for Michigan Governor Rick Snyder, dated November 30, 2016.

Coscarelli, M. and Hegarty, J., The Growing Crisis of Aging Dams: Policy Considerations and Recommendations for Michigan Policy Makers; Michigan River Partnership, dated 2007.

Information provided by the American Rivers website:

<https://www.americanrivers.org/threats-solutions/restoring-damaged-rivers/dam-removal-map/>.

E-mail correspondence from MDEQ Dam Safety Unit, dated May 4, 2017.

MDEQ Dam Safety Unit Dams Data Base, as of November 2016.

Information provided by 2017 ASCE National Infrastructure Report Card.

E-mail correspondence from MDEQ Dam Safety Unit, dated February 8, 2018.

APPENDIX C

21st CENTURY INFRASTRUCTURE COMMISSION REPORT

(Dam Related Excerpt)

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**



21ST CENTURY INFRASTRUCTURE COMMISSION REPORT



Prepared for
Governor Rick Snyder

Letter from Commission Chair

Dear Governor Snyder:

On behalf of Michigan's 21st Century Infrastructure Commission, I am pleased to present to you the Commission's final report, which we are confident will serve as a 50-year vision for improving the state's infrastructure system and enhancing the quality of life for all Michiganders. A robust, reliable, and sustainably funded infrastructure system allows for healthy communities, long-term economic prosperity, and more and better jobs—providing a solid foundation for our state's future.

This report is the first of its kind in the nation to offer comprehensive recommendations across asset types: water, transportation, energy, and communications infrastructure. It provides a current assessment of Michigan's infrastructure systems, a vision for the state's future, and how we can bridge the gap between those two things. The Commission, composed of industry experts, educators, business leaders, and government officials from across the state, came together to produce a set of implementable recommendations that prioritize the health and safety of Michigan's residents. Months of research, discussions with the public, and input from outside experts have allowed us to present a plan that we are confident will improve the quality of life for all Michiganders.

This report is an important first step in improving Michigan's infrastructure, but our work is not done. For too long, we have underinvested in our infrastructure systems and treated our assets as separate entities. In order to stay at the forefront of emerging technologies and remain competitive in an increasingly global world, we must start to think of our infrastructure systems in an integrated and holistic way.

Improving infrastructure today and for future generations is a responsibility every Michigander needs to take seriously. As Michigan looks to the future, it is essential that we have the infrastructure systems to match our goals. Sound and modern infrastructure is vital to the health and well-being of the people of Michigan and will help support our growing economy in the future. Michigan's residents deserve reliable, safe, and affordable infrastructure, and we look forward to creating a 21st century infrastructure system with you.

Sincerely,



S. Evan Weiner
Chair
21st Century Infrastructure Commission

7.8 DAMS

Where is Michigan today?

Michigan is home to an estimated 2,600 dams—many of which were built decades ago to supply power and run mill operations (Lane 2016). While many of these structures continue to serve a valuable purpose, others are in disrepair, risking failure that can cause significant ecological and economic damage, and threaten public safety (MDEQ 2016).

These decades-old dams have deteriorated due to age, erosion, poor maintenance, flood damage, or antiquated design, and they are particularly vulnerable during high water flow events.

Since the early 20th century, more than 300 dam failures have been documented in Michigan.

In addition, significant adverse environmental effects of dams interrupting the natural flow of water, material, and organisms have been documented. The risk of failure, in conjunction with adverse effects on tributaries, suggests that dams that no longer serve a valuable purpose should be candidates for removal.

Dams are not routinely assessed for social and economic value and operational risks, which hinders reaching informed decisions on reinvestment, repair, removal, or replacement. Adequate, consistent, and long-term funding sources are limited for dam removal. Removal costs are highly variable and dependent on factors such as sediment contaminant levels, sediment volumes, surrounding infrastructure, wetland-related issues, and more. Furthermore, information is lacking regarding the number, condition, and ownership of low-head barriers that are not regulated under Parts 307 and 315 of the Natural Resources and Environmental Protection Act.

What does a 21st century Michigan look like?

Michigan has far fewer dams than it did at the turn of the 21st century. Given the original purposes for dam construction dating back to the 1800s, many of these relics have met their useful lifespan and have been removed or modified to help restore the natural functions of river ecosystems, such as upstream and downstream passage of biological organisms, nutrient transfer, and recreation. Dams that continue to provide benefits to society, such as reservoirs that provide water supply, recreational opportunities, and wildlife habitat and refuge, will have investment mechanisms to ensure their maintenance and structural integrity over their remaining useful life.

How do we get there?

7.8.1 The MDEQ's Dam Safety Program should maintain a publicly accessible geospatial data layer within the statewide asset management system that includes the number, condition, risk, and ownership of public, and private, regulated and nonregulated dams in the state. Working with partner organizations, the MDEQ should develop publicly available decision-support tools and training programs to assess risk, reinvestment and removal options for dams and low-head barriers. The tools should help communities and owners of dams evaluate potential safety, social-cultural, biological, ecological, and economic tradeoffs associated with the removal or maintenance of a dam. Utilizing the inventory of dams and the decision-support tool, the State should continue to support removal and maintenance of dams depending on the individual risks and benefits of each dam.

Estimated investment needed: \$227 million of state funding over 20 years³⁸



³⁸ The figure represents \$10 million to develop and update the dam inventory database and develop decision-support tools to help assess removal or maintenance options. The MDEQ's Dam Safety Program currently estimates that an additional \$225 million is needed for dam management, which may be refined with additional data.

APPENDIX D

EGLE ORGANIZATION CHARTS

(Limited to Dam Safety
Chain of Command)

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

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Mike Neller, Director
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Water Resources Division

Teresa Seidel, Director
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Environmental Support Division

Michael McClellan, Director
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Finance Division

Paul McDonald, Director
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Information Management Division

Brad Pagratis, Director
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Gary Hagler, DNR Law Enforcement Division Chief
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WATER RESOURCES DIVISION

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Laura Smith, Senior Executive Management Assistant 11

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Dave Fongers, EE Spl 13
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Kevin Walters, Aqua Bio 12
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Jenni Laudazio, Exec Sec 10
Dan Beauchamp, EE Lic Spl 13 (Warren)
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Finance Unit
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(see page 2)
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Surface Water Assessment Section
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**Field Operations Section -
Lakes Erie and Huron**
(see page 4)
Jon Russell, SAM 15

Emerging Pollutants Section
(see page 7)
Vacant, SAM 15

**Field Operations Section -
Lakes Michigan and Superior**
(see page 5)
Luis Saldivia, SAM 15

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Amy Lounds, SAM 15

WATER RESOURCES DIVISION

Field Operations Support Section

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Holly Simons, Exec Sec 10

Chris Antieau, EQS 13

Tom Graf, EQS 13

Kate Lederle, EQS 13

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Ginny (Virginia) Berry, Sec 8

Karen Boase, EQA 12

Madeleine Gorman, EQA 9

Weston Hillier, EQA 11

Matt Smar, EQA 12

Matt Warner, EQS 13

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Francie Kline, Sec 9

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Justin Smith, EQS 13 (Lansing)

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Steve Holden, EE 11

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APPENDIX E

ACT 451 OF 1994

PART 315

DAM SAFETY

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (EXCERPT)

Act 451 of 1994

PART 315

DAM SAFETY

324.31501 Meanings of words and phrases.

Sec. 31501. For purposes of this part, the words and phrases defined in sections 31502 to 31505 have the meanings ascribed to them in those sections.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31502 Definitions; A to D.

Sec. 31502. (1) "Abandonment" means an affirmative act on the part of an owner to discontinue maintenance or operation of a dam.

(2) "Administrative procedures act of 1969" means Act No. 306 of the Public Acts of 1969, being sections 24.201 to 24.328 of the Michigan Compiled Laws.

(3) "Alteration" means a change in the design of an existing dam that directly affects or may directly affect the structural integrity of a dam.

(4) "Appurtenant works" means the structure or machinery incident to or annexed to a dam that is built to operate and maintain a dam, including spillways, either in a dam or separate from the dam; low level outlet works; and water conduits such as tunnels, pipelines, or penstocks, located either through the dam or through the abutments of the dam.

(5) "Auxiliary spillway" means a secondary spillway which is operational at all times and does not require stoplog removal or gate manipulation.

(6) "Dam" means 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. Dam does not include a storage or processing tank or standpipe constructed of steel or concrete, a roadway embankment not designed to impound water, or a dug pond where there is no impoundment of water or waste materials containing water at levels above adjacent natural grade levels.

(7) "Days" means calendar days, including Sundays and holidays.

(8) "Design flood" means the design flow rate for spillway capacity and dam height design.

(9) "Design flood elevation" means the maximum flood elevation that is considered in the design of the spillway capacity and freeboard for a dam.

(10) "Downstream toe elevation" means the elevation of the lowest point of intersection between the downstream slope of an earthen embankment and the natural ground.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31503 Definitions; E to H.

Sec. 31503. (1) "Emergency action plan" means a plan developed by the owner that establishes procedures for notification of the department, public off-site authorities, and other agencies of the emergency actions to be taken prior to and following an impending or actual failure of a dam.

(2) "Enlargement" means any change in or addition to an existing dam which raises or may raise the design flood elevation of the water impounded by the dam.

(3) "Failed dam" means a dam not capable of impounding water at its intended level due to a structural deficiency.

(4) "Failure" means an incident resulting in an unplanned or uncontrolled release of water from a dam.

(5) "Flood of record" means the greatest flow rate determined by the department to have occurred at a particular location.

(6) "Freeboard" means the vertical distance between the design flood elevation and the lowest point of the top of the dam.

(7) "Half probable maximum flood" means the largest flood that may reasonably occur over a watershed, and is derived from the combination of hydrologic runoff parameters and the half probable maximum storm

that produces the maximum runoff.

(8) "Half probable maximum storm" means the spatial and temporal distribution of the probable maximum precipitation, divided by 2, that produces the maximum volume of precipitation over a watershed.

(9) "Hazard potential classification" means a reference to the potential for loss of life, property damage, and environmental damage in the area downstream of a dam in the event of failure of the dam or appurtenant works.

(10) "Height" means the difference in elevation measured vertically between the natural bed of a stream or watercourse at the downstream toe of the dam, or, if it is not across a stream channel or watercourse, from the lowest elevation of the downstream toe of the dam, to the design flood elevation or to the lowest point of the top of the dam, whichever is less.

(11) "High hazard potential dam" means a dam located in an area where a failure may cause serious damage to inhabited homes, agricultural buildings, campgrounds, recreational facilities, industrial or commercial buildings, public utilities, main highways, or class I carrier railroads, or where environmental degradation would be significant, or where danger to individuals exists with the potential for loss of life.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31504 Definitions; I to P.

Sec. 31504. (1) "Impoundment" means the water held back by a dam.

(2) "Low hazard potential dam" means a dam located in an area where failure may cause damage limited to agriculture, uninhabited buildings, structures, or township or county roads, where environmental degradation would be minimal, and where danger to individuals is slight or nonexistent.

(3) "Maintenance" means the upkeep of a dam and its appurtenant works but does not include alterations or repairs.

(4) "One-hundred year flood" means a flood that has a 1% chance of being equaled or exceeded in any given year.

(5) "Owner" means a person who owns, leases, controls, operates, maintains, manages, or proposes to construct a dam.

(6) "Probable maximum precipitation" means the theoretically greatest depth of precipitation for a given duration that is physically possible over a given size storm area at a particular geographic location at a certain time of year.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31505 Definitions; R to T.

Sec. 31505. (1) "Removal" means the physical elimination of a dam or impoundment.

(2) "Repair" means to substantially restore a dam to its original condition and includes only such restoration as may directly affect the structural integrity of the dam.

(3) "Riparian owner" means a person who has riparian rights.

(4) "Riparian rights" means rights which accrue by operation of law to a landowner on the banks of an inland lake or stream.

(5) "Significant hazard potential dam" means a dam located in an area where its failure may cause damage limited to isolated inhabited homes, agricultural buildings, structures, secondary highways, short line railroads, or public utilities, where environmental degradation may be significant, or where danger to individuals exists.

(6) "Spillway" means a waterway in or about a dam designed for the discharge of water.

(7) "Spillway capacity" means the maximum rate of discharge that will pass through a spillway at design flood elevation.

(8) "Two-hundred year flood" means a flood that has a 0.5% chance of being equaled or exceeded in any given year.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31506 Jurisdiction of dams and impoundments; exemptions.

Sec. 31506. (1) Except as otherwise provided in subsections (2) and (3), dams and impoundments in the

state are under the jurisdiction of the department.

(2) The following are exempt from this part:

(a) Projects licensed, projects that have preliminary permits, or projects for which an application for licensure has been filed under the federal power act, chapter 285, 41 Stat. 1063, 16 U.S.C. 791a to 793, 796 to 797, 798 to 818, 820 to 824a, and 824b to 825r, if federal dam safety inspection provisions apply during the license period and the inspection reports are provided to the department.

(b) Projects located on boundary waters under the jurisdiction and supervision of the United States army corps of engineers.

(c) Impoundments licensed pursuant to part 115 that contain or are designed to contain type III wastes as defined in rules promulgated under that part.

(3) Until January 1, 1998, a permit shall not be required under this part for the repair, reconstruction, or improvement of a dam, a portion of which is at least 75 years old, was damaged or destroyed by an act of God and is located in a county that has a per capita income of less than \$8,500.00. However, a person who is performing a project for the repair, reconstruction, or improvement of a dam that is exempt from obtaining a permit under this subsection shall submit to the department and the joint capital outlay committee plans and specifications for the project. These plans and specifications shall be prepared by a licensed professional engineer and shall meet acceptable standards in the industry in order for a dam to be repaired, reconstructed, or improved. In reviewing plans and specifications for the project, the joint capital outlay committee may recommend environmental considerations to protect water quality such as underspill devices, minimum flow releases and removal of contaminated sediments that may be resuspended in the water column upon impoundment. Such contaminated sediments shall be disposed of in accordance with state law.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995;—Am. 1995, Act 100, Imd. Eff. June 22, 1995.

Popular name: Act 451

Popular name: NREPA

324.31507 Prohibited conduct; exception.

Sec. 31507. (1) A person shall not construct, enlarge, repair, reconstruct, alter, remove, or abandon any dam except in a manner provided for in this part.

(2) This section does not apply to maintenance performed on a dam that does not affect the structural integrity of the dam.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31508 Preparation of plans and specifications; licensed professional engineer required; exceptions.

Sec. 31508. (1) Except as otherwise provided in subsection (2), a licensed professional engineer shall prepare all plans and specifications, except for minor projects undertaken pursuant to section 31513.

(2) A person who is not a licensed professional engineer may prepare plans and specifications only for repairs or alterations to a dam where the application is made by a nonprofit organization under the following circumstances:

(a) The nonprofit organization has assets of less than \$30,000.00, is exempt from taxation under section 501(c)(3) of the internal revenue code of 1986, 26 U.S.C. 501, and is not composed primarily of the owners of property adjacent to or contiguous to an impoundment.

(b) The proposed repairs or alterations have a projected total cost of less than \$25,000.00.

(c) The impoundment is open to the public and a notice of public access is posted.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31509 Activities requiring permit; application for permit; fees; waiver and disposition of fees.

Sec. 31509. (1) Except as otherwise provided in this part or as authorized by a permit issued by the department pursuant to part 13, a person shall not undertake any of the following activities:

(a) Construction of a new dam.

(b) Enlargement of a dam or an impoundment.

(c) Repair of a dam.

- (d) Alteration of a dam.
- (e) Removal of a dam.
- (f) Abandonment of a dam.
- (g) Reconstruction of a failed dam.

(2) An application for a permit shall include information that the department determines is necessary for the administration of this part. If a project includes activities at multiple locations, 1 application may be filed for the combined activities.

(3) An application for a permit for construction of a new dam, reconstruction of a failed dam, or enlargement of a dam shall be accompanied by the following fees:

- (a) For a dam with a height of 6 feet or more but less than 10 feet, \$500.00.
- (b) For a dam with a height of 10 feet or more but less than 20 feet, \$1,000.00.
- (c) For a dam with a height of 20 feet or more, \$3,000.00.

(4) An application for a permit for the repair, alteration, removal, or abandonment of a dam shall be accompanied by a fee of \$200.00, and an application for a permit for a minor project pursuant to section 31513(1) shall be accompanied by a fee of \$100.00.

(5) The department shall waive the fees under this section for applications from state agencies, department sponsored projects located on public lands, and organizations of the type described in section 31508(2)(a) through (c).

(6) The department shall forward fees collected under this section to the state treasurer for deposit in the land and water management permit fee fund created in section 30113.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995;—Am. 2004, Act 325, Imd. Eff. Sept. 10, 2004.

Popular name: Act 451

Popular name: NREPA

324.31510 Request for notification of pending applications for permits; annual fee; biweekly list of applications; copies; contents.

Sec. 31510. (1) A person who wants to be notified of pending applications for permits issued under this part may make a written request to the department, accompanied by an annual fee of \$25.00. The fee shall be deposited in the state treasury and credited to the general fund.

(2) The department shall prepare a biweekly list of the applications made during the previous biweekly period and shall promptly mail copies of the list for the remainder of the calendar year to the persons who have requested notice and paid the fee under this section.

(3) The biweekly list shall state the name and address of each applicant, the legal description of the lands included in the applicant's project, and a summary statement of the purpose of the project.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31511 Copies of application and statement; submission; public hearing; notice.

Sec. 31511. (1) Upon receipt of an application for a permit under this part, the department shall submit copies of the application accompanied by a statement indicating that the department may act upon the application without a public hearing unless a written request is filed with the department within 20 days after the submission for review. The department shall submit copies of the application to all of the following:

- (a) The local unit of government where the project is to be located.
- (b) The adjacent riparian owners.
- (c) Any person considered appropriate by the department.
- (d) Any person who requests copies.
- (e) A watershed council, organized pursuant to part 311, of the watershed within which the project is located or is to be located.

(2) The department may hold a public hearing upon the written request of any of the following:

- (a) An applicant.
- (b) A riparian owner.
- (c) A person or local unit of government that is entitled to receive a copy of the application pursuant to subsection (1).

(3) A public hearing held pursuant to this section shall be held in compliance with the open meetings act, Act No. 267 of the Public Acts of 1976, being sections 15.261 to 15.275 of the Michigan Compiled Laws. Public notice of the time, date, and place of the hearing shall be given in the manner provided by that act.

Additionally, the department shall mail copies of the public notice to the persons who have requested the biweekly list pursuant to section 31510, the person requesting the hearing, and the persons and local units of government that are entitled to receive a copy of the application pursuant to subsection (1).

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31512 Necessity for immediate action; emergency conditions; application for permit to reconstruct failed dam.

Sec. 31512. (1) When immediate action is necessary to protect the structural integrity of a dam, the department may issue a permit before the expiration of the 20-day period referred to in section 31511(1). This subsection does not prohibit an owner from taking action necessary to mitigate emergency conditions if imminent danger of failure exists.

(2) A person applying for a permit to reconstruct a failed dam shall file a complete application not less than 1 year after the date of the failure. If such an application is filed more than 1 year after the date of the failure, the department shall consider the application to be an application to construct a new dam.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995;—Am. 2004, Act 325, Imd. Eff. Sept. 10, 2004.

Popular name: Act 451

Popular name: NREPA

324.31513 Minor project categories; rules.

Sec. 31513. (1) The department shall promulgate rules to establish minor project categories for alterations and repairs that have minimal effect on the structural integrity of a dam. The department may act upon an application and grant a permit for an activity or project within a minor project category, after an on-site inspection of the dam, without providing public notice.

(2) All other provisions of this part shall be applicable to minor projects, except that a final inspection by the department or certification of the project by a licensed professional engineer shall not be required for a project completed under a permit granted pursuant to subsection (1).

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31514 Effect of proposed activity on public health, safety, welfare, property, or natural resources.

Sec. 31514. The department shall not issue a permit to construct a new dam, reconstruct a failed dam for which a complete application to reconstruct has been submitted more than 1 year after the date of the failure, or enlarge the surface area of an impoundment by more than 10% unless it determines, after a review of the application submitted, that the proposed activity for which a permit is requested will not have a significant adverse effect on public health, safety, welfare, property, or natural resources or the public trust in those natural resources.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31515 Approval of plans and specifications; completion of permitted activity; time; extension; approval of changes; duration and renewal of permit; terms and conditions; mitigating measures; recommendations; performance bond; suspension, revocation, annulment, withdrawal, recall, cancellation, or amendment of permit; hearings.

Sec. 31515. (1) Except as otherwise provided in this section, a permit issued by the department under this part shall require that plans and specifications be approved by the department before construction begins. The department shall approve or reject complete plans and specifications within 60 days after their receipt. The permitted activity shall be completed within a specified time not to exceed 2 years after the date of issuance of the permit. Upon the written application of the permittee, and for good cause shown, the department may extend the time for completing construction. The permittee shall notify the department at least 10 days before beginning construction and shall otherwise notify the department as the department may require.

(2) A change in approved plans and specifications shall not be implemented unless the department gives its prior approval. The department shall approve or reject changes in plans and specifications within 30 days after

the request for the changes.

(3) A permit is effective for the length of time specified in the permit unless it is revoked pursuant to this part. The department may renew a permit.

(4) A permit to alter, repair, or construct a new dam, reconstruct a failed dam, or enlarge the surface area of an impoundment by more than 10% may specify the terms and conditions including, but not limited to, requirements for minimum flows, cold water release, impoundment fluctuations, portage, contingency plans, and conditions under which the work is to be performed. The terms and conditions of a permit shall be effective for the life of the project. The department may consider, in issuing a permit, any mitigating measures in conjunction with the permitted activities and may make recommendations as to fish passage that may be required by part 483.

(5) A permit to construct a new dam or reconstruct a failed dam may require a performance bond to assure completion of the project or to provide for complete or partial restoration of the project site, as determined by the department in rules promulgated by the department.

(6) A permit may be suspended, revoked, annulled, withdrawn, recalled, canceled, or amended after a hearing for a violation of any of its provisions, a violation of this part, a violation of a rule promulgated under this part, or any misrepresentation contained in the application. Hearings shall be conducted by the department in accordance with the provisions for contested cases in the administrative procedures act of 1969.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31516 Spillway capacity; minimum criteria; freeboard; auxiliary spillway; duty of owner.

Sec. 31516. (1) Spillway capacity shall meet the following minimum criteria:

(a) Low hazard potential dams shall be capable of passing the 100-year flood, or the flood of record, whichever is greater.

(b) Significant hazard potential dams shall be capable of passing the 200-year flood, or the flood of record, whichever is greater.

(c) High hazard potential dams, less than 40 feet in height, as measured from the 200-year design flood elevation to the lowest downstream toe elevation, shall be capable of passing the 200-year flood, or the flood of record, whichever is greater.

(d) High hazard potential dams, 40 feet or greater in height, as measured from the 200-year design flood elevation to the lowest downstream toe elevation, shall be capable of passing the half probable maximum flood. The half probable maximum flood criterion may be reduced to not less than the 200-year flood, with proper documentation evidencing a failure of a dam under half probable maximum flood conditions will not cause additional flood damage or loss of life.

(e) Spillway design capacity shall not be less than the flood of record.

(2) Freeboard shall be considered when determining spillway capacity.

(3) If a dam cannot pass the design flood, an auxiliary spillway must be provided. The owner must document, to the satisfaction of the department, that the dam has sufficient spillway capacity, and that proper means are available to operate the spillway or spillways during the design flood.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31517 Duties of owner; inspection; notice of final approval; notice of project not completed in accordance with plans, specifications, or conditions; enforcement action.

Sec. 31517. (1) Except for minor projects authorized pursuant to section 31513, the owner shall do both of the following:

(a) Within 10 days after the completion of a new, reconstructed, enlarged, repaired, or altered dam, notify the department of its completion.

(b) Within 20 days after submitting the notice of completion, file with the department as-built plans and a statement signed by a licensed professional engineer certifying that the project was constructed in conformance with plans and specifications approved by the department.

(2) The department shall inspect the project and shall provide the owner with written notice of final approval if the project is determined to have been completed in accordance with approved plans, specifications, and permit conditions.

(3) If the project is determined not to be completed in accordance with plans and specifications approved by the department and permit conditions, the department shall provide notice to the permittee as to the

specific reasons the department determines the project not to be completed in accordance with those plans, specifications, or conditions. The department may then take enforcement action as provided in this part.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31518 Inspection reports; determination of hazard potential classification; inspection schedule; notice; additional inspection reports; contents of inspection report; visual inspection and report; detailed investigation or evaluation; life or property threatened by breach of dam; cause of action; ordering actions to alleviate danger.

Sec. 31518. (1) An owner shall submit to the department inspection reports prepared by a licensed professional engineer that evaluate the condition of the dam. The inspection report shall be submitted as follows:

- (a) Not less than once every 3 years for high hazard potential dams.
- (b) Not less than once every 4 years for significant hazard potential dams.
- (c) Not less than once every 5 years for low hazard potential dams.

(2) The department shall determine the hazard potential classification of all dams and shall establish an inspection schedule. The inspection schedule shall require annual submission of inspection reports for approximately 1/3 of all high hazard potential dams, 1/4 of all significant hazard potential dams, and 1/5 of all low hazard potential dams. The department shall notify owners in writing when inspection reports are due. The department may order additional inspection reports following an event or change in condition that could threaten a dam.

(3) An inspection report required by this section shall include, at a minimum, all of the following:

- (a) An evaluation of the dam's condition, spillway capacity, operational adequacy, and structural integrity.
- (b) A determination of whether deficiencies exist that could lead to the failure of the dam.
- (c) Recommendations for maintenance, repair, and alterations of a dam as are necessary to eliminate any deficiencies.

(4) Instead of engaging a licensed professional engineer to prepare an inspection report, local units of government or an organization of the type described in section 31508(2)(a) through (c) may request the department to conduct a visual inspection of a dam owned by that local unit of government and prepare a report on the condition of the dam in accordance with subsection (3). The department shall notify a requesting local unit of government as to when the inspection is to occur.

(5) If an inspection report discloses the need for a more detailed investigation or evaluation of certain dam features for the purpose of determining the condition of the dam, the department may order the completion and submission of that detailed investigation or evaluation at the expense of the owner. An investigation or evaluation required under this subsection shall be conducted under the supervision of a licensed professional engineer.

(6) If an owner does not submit an inspection report as required by subsection (1) or conduct additional investigations if required by subsection (5), the department or any person who would have life or property threatened by a breach of the dam may have a report prepared and recover the costs of preparing the report in a civil action commenced in a court of competent jurisdiction. This subsection does not limit the right of any person to bring a cause of action in a court of proper jurisdiction to compel an owner to comply with the requirements of this part.

(7) If, based on the findings and recommendations of the inspection report and an inspection by the department, the department finds that a condition exists which endangers a dam, it shall order the owner to take actions that the department considers necessary to alleviate the danger.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31519 Order to limit dam operations; order to remove dam; hearing.

Sec. 31519. (1) Where significant damage to the public health, safety, welfare, property, and natural resources or the public trust in those natural resources or damage to persons or property occurs or is anticipated to occur due to the operation of a dam, the department may order the owner to limit dam operations. These orders may include, but are not limited to, cold water release, minimum flow releases from dams, impoundment fluctuation restrictions, or requirements for run-of-the-river operation. In issuing these orders, the department shall take into account social, economic, and public trust values.

(2) Where significant damage to persons, property, or natural resources or the public trust in those natural resources occurs as a result of the condition or existence of a dam, the department may order the removal of the dam following a determination by the department that, due to the continued condition or existence of the dam, the dam is likely to continue to cause significant damage. In issuing a removal order, the department shall take into account social and economic values, the natural resources, and the public trust in those natural resources and shall not issue a removal order when those factors exceed adverse impacts on natural resources or present danger to persons or property. The department shall not issue a removal order involving a dam subject to the regulatory authority of the Michigan public service commission or the federal energy regulatory commission unless that commission has concurred in writing with the order.

(3) Prior to finalizing an order under this section, the department shall provide an owner an opportunity for a hearing pursuant to the administrative procedures act of 1969.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31520 Sudden or unprecedented flood; unusual or alarming circumstance or occurrence; emergency drawdowns, repairs, breaching, or other action; notice.

Sec. 31520. (1) The owner or his or her agent shall advise the department and the affected off-site public authorities and safety agencies of any sudden or unprecedented flood or unusual or alarming circumstance or occurrence existing or anticipated that may affect the safety of the dam within 24 hours of the flood, circumstance, or occurrence.

(2) The owner shall notify the department as soon as possible of any necessary emergency drawdowns, repairs, breaching, or other action being taken in response to an emergency condition.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31521 Emergency orders.

Sec. 31521. (1) The department may issue emergency orders as provided in this section. The department may, by written notice, order an owner to immediately repair, draw down, breach, or cease operation of a dam where a dam is in imminent danger of failure and is causing or threatening to cause harm to public health, safety, welfare, property, or the natural resources or the public trust in those natural resources. If an owner fails to comply with an order, or is unavailable or unable to be contacted, then the department may undertake immediate repair, drawdown, breaching, or cessation of operation, as may be necessary to alleviate the danger, and may recover from the owner the costs incurred in a civil action commenced in a court of competent jurisdiction. The department may terminate an emergency order upon a determination in writing that all necessary emergency actions have been complied with by the owner and that an emergency no longer exists.

(2) When ordering emergency actions under subsection (1), the department may specify maximum drawdown level and discharge rates and require sediment surveys, water quality sampling, monitoring, or any other action determined necessary by the department to ensure adequate protection of the public health, safety, welfare, property, or natural resources or the public trust in those natural resources. The department may modify the requirements of an emergency order if, during the conduct of ordered actions, it determines that the modification is necessary to protect the public health, safety, welfare, property, or natural resources or the public trust in those natural resources.

(3) Upon the issuance of an emergency order, the department shall provide the owner with an opportunity for a hearing pursuant to the administrative procedures act of 1969 within 15 days of the date of its issuance. At the hearing, the department shall determine, based on information and fact, if the emergency order shall be continued, modified, or suspended as necessary to protect public health, safety, welfare, property, or natural resources or the public trust in those natural resources.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31522 Structural integrity and operation of dam; investigations and studies.

Sec. 31522. The department may make, or cause to be made, hydrologic or other investigations and studies as may be required to facilitate its decisions regarding the structural integrity and operation of a dam.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31523 Emergency action plans; submissions; review; consistency with other plans; contents of plans.

Sec. 31523. (1) An owner shall prepare, and keep current, emergency action plans for all high and significant hazard potential dams owned by that person.

(2) Emergency action plans shall be submitted to the department.

(3) The applicable county or local emergency management coordinators shall review for consistency emergency action plans with the county or local emergency operations plan prior to submission of those plans to the department.

(4) An emergency action plan shall be consistent with the applicable provisions of the affected county or local emergency operations plans and the Michigan emergency preparedness plan as developed pursuant to the emergency preparedness act, Act No. 390 of the Public Acts of 1976, being sections 30.401 to 30.420 of the Michigan Compiled Laws.

(5) Emergency action plans shall include, but not be limited to, the name, address, and telephone number of the person, and of an alternate person, responsible for operation of the dam; the name and telephone number of local emergency management coordinators; and a listing of occupied facilities, buildings, and residences that may be threatened with flooding due to a failure of the dam.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31524 Violation; order; suspension, modification, or revocation of permit; remedies cumulative; civil action.

Sec. 31524. (1) If the department determines that a person is in violation of this part, a rule promulgated under this part, or a condition set forth in a permit issued under this part, the department may issue an order requiring the person to comply with the conditions or to restore the site affected by the violation as nearly as practicable to its original condition. Restoration may include, but is not limited to, removing fill material deposited or replacing soil, sand, or minerals.

(2) An order shall state the nature of the violation and the required remedial action, and shall specify a time for compliance that the department determines is reasonable, taking into account the seriousness of the violation and the nature of any threat to public health, safety, welfare, property, or natural resources, or the public trust in those natural resources, that may be involved.

(3) If the department determines that a person is in violation of this part, a rule promulgated under this part, an order issued by the department, or a permit, the department, after notice and opportunity for hearing pursuant to the administrative procedures act of 1969, may suspend, modify, or revoke a permit. The remedies under this section and section 31525 are cumulative and do not prevent the department from imposing other penalties available under this part, a rule promulgated under this part, or an order of the department.

(4) If the department determines that a person is in violation of this part, a rule promulgated under this part, an order issued by the department pursuant to this part, or a permit issued pursuant to this part, the department may bring a civil action in the circuit court.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31525 Commencement of civil action; request; place; civil fine; contempt; willful or reckless violation as misdemeanor; penalty; subsequent violations; fine for failure to obtain permit; restoration of site; schedule of administrative monetary penalties for minor violations.

Sec. 31525. (1) The attorney general may commence a civil action for appropriate relief, including injunctive relief, upon request of the department under section 31524.

(2) Any civil action under this section may be brought in the circuit court for the county of Ingham or for the county in which the dam is located.

(3) In addition to any other relief granted under this section, the court may impose a civil fine of not more than \$10,000.00 for each day of violation of this part, a rule promulgated under this part, or a permit issued under this part.

(4) A person found guilty of contempt of court for the violation of an order of the court shall be subject to a civil fine not to exceed \$10,000.00 for each day of violation.

(5) A person who willfully or recklessly violates this part, a rule promulgated under this part, an order issued by the department, or a condition in a permit issued under this part, which violation places or may place a person in imminent danger of death or serious bodily injury or may cause serious property damage or serious damage to natural resources, or a person who has knowledge of or is responsible for such a violation, is guilty of a misdemeanor, punishable by imprisonment for not more than 1 year or a fine of not less than \$2,500.00 or more than \$25,000.00 for each day of violation, or both. A person who violates this section a second or subsequent time is guilty of a felony, punishable by imprisonment for not more than 2 years or a fine of not less than \$10,000.00 for each day of violation, or both.

(6) A person required to obtain a permit for activity regulated under this part who does not obtain that permit shall be fined not less than twice the fee charged for the appropriate permit application.

(7) In addition to the orders of compliance and penalties provided under this part, the court may order a person who violates this part, a rule promulgated under this part, or a permit issued under this part to restore the site affected by the violation as nearly as practicable to its original condition. Restoration may include, but is not limited to, removing fill material deposited or replacing soil, sand, or minerals.

(8) The department may establish, by rule, a schedule of administrative monetary penalties for minor violations of this part, a rule promulgated under this part, a permit issued pursuant to this part, or an order issued by the department pursuant to this part.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31526 Person aggrieved by action or inaction of department; hearing; determination; judicial review.

Sec. 31526. (1) A person aggrieved by any action or inaction of the department under this part or rules promulgated under this part may request a hearing on the matter involved. The hearing shall be conducted by the department in accordance with the provisions for contested cases in the administrative procedures act of 1969.

(2) A determination of action or inaction by the department following the hearing may be subject to judicial review as provided in the administrative procedures act of 1969.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31527 Entering private or public property; time; purpose.

Sec. 31527. The department may enter in or upon any private or public property anytime where the public safety may be in danger and at all reasonable times, after attempting to contact the owner before entering the site and having shown proper identification, for the purpose of inspecting or investigating conditions relating to the construction, operation, or safety of a dam and for the purpose of determining compliance with the terms, conditions, and requirements of permits, orders, or notices of approval issued under this part and rules promulgated under this part.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31528 Rules.

Sec. 31528. The department shall promulgate rules as necessary to implement and enforce this part.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.31529 Construction of part.

Sec. 31529. (1) This part does not abrogate requirements of parts 31, 91, 301, 303, 305, 307, and 483 or other applicable law.

(2) This part does not relieve an owner of any legal duty, obligation, or liability incident to the ownership or operation of a dam or impoundment.

(3) This part does not deprive an owner of any legal remedy to which he or she may be entitled under the

laws of this state.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

APPENDIX F

ACT 451 OF 1994

PART 307

INLAND LAKE LEVELS

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (EXCERPT)
Act 451 of 1994

PART 307
INLAND LAKE LEVELS

324.30701 Definitions.

Sec. 30701. As used in this part:

(a) "Commissioner" means the county drain commissioner or the county road commission in counties not having a drain commissioner, and, if more than 1 county is involved, each of the drain commissioners or drain commissioner and road commission in counties having no drain commissioner.

(b) "County board" means the county board of commissioners, and if more than 1 county is involved, the boards of commissioners of each of those counties.

(c) "Court" means a circuit court, and if more than 1 judicial circuit is involved, the circuit court designated by the county board or otherwise authorized by law to preside over an action.

(d) "Dam" means an artificial barrier, structure, or facility, and appurtenant works, used to regulate or maintain the level of an inland lake.

(e) "Delegated authority" means the county drain commissioner or any other person designated by the county board to perform duties required under this part.

(f) "Inland lake" means a natural or artificial lake, pond, impoundment, or a part of 1 of those bodies of water. Inland lake does not include the Great Lakes or Lake St. Clair.

(g) "Interested person" means the department and a person who has a record interest in the title to, right of ingress to, or reversionary right to land that would be affected by a permanent change in the natural or normal level of an inland lake.

(h) "Normal level" means the level or levels of the water of an inland lake that provide the most benefit to the public; that best protect the public health, safety, and welfare; that best preserve the natural resources of the state; and that best preserve and protect the value of property around the lake. A normal level shall be measured and described as an elevation based on national geodetic vertical datum.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Compiler's note: For transfer of authority, powers, duties, functions, and responsibilities of the Land and Water Management Division, with the exception of the farmland and open space preservation program, natural rivers program, and Michigan information resource inventory system, to the Director of the Michigan Department of Environmental Quality, see E.R.O. No. 1995-16, compiled at MCL 324.99901 of the Michigan Compiled Laws.

Popular name: Act 451

Popular name: NREPA

324.30702 Determination of normal inland lake level; motion or petition to initiate action; delegation of powers and duties by county board; maintenance.

Sec. 30702. (1) The county board of a county in which an inland lake is located may upon the board's own motion, or shall within 45 days following receipt of a petition to the board of 2/3 of the owners of lands abutting the inland lake, initiate action to take the necessary steps to cause to be determined the normal level of the inland lake.

(2) Unless required to act by resolution as provided in this part, the county board may delegate powers and duties under this part to that county's commissioner, road commission, or other delegated authority.

(3) If a court-determined normal level is established pursuant to this part, the delegated authority of the county or counties in which the lake is located shall maintain that normal level.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Compiler's note: For transfer of authority, powers, duties, functions, and responsibilities of the Land and Water Management Division, with the exception of the farmland and open space preservation program, natural rivers program, and Michigan information resource inventory system, to the Director of the Michigan Department of Environmental Quality, see E.R.O. No. 1995-16, compiled at MCL 324.99901 of the Michigan Compiled Laws.

Popular name: Act 451

Popular name: NREPA

324.30703 Preliminary study; costs; contents of study.

Sec. 30703. (1) Before proceeding on a motion made or a petition filed under section 30702, the county board may require that a preliminary study be conducted by a licensed professional engineer. The county board, by resolution, may require a cash payment from the petitioners sufficient to cover the actual preliminary study costs or of \$10,000.00, whichever is less.

- (2) A preliminary study shall include all of the following:
- (a) The feasibility of a project to establish and maintain a normal level of the inland lake.
 - (b) The expediency of the normal level project.
 - (c) Feasible and prudent alternative methods and designs for controlling the normal level.
 - (d) The estimated costs of construction and maintenance of the normal level project.
 - (e) A method of financing initial costs.
 - (f) The necessity of a special assessment district and the tentative boundaries if a district is necessary.
 - (g) Other information that the county board resolves is necessary.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30704 Initiating proceeding for determining normal inland lake level and establishing special assessment district; required finding; multicounty lake; joinder permitted.

Sec. 30704. (1) If the county board, based on the preliminary study, finds it expedient to have and resolves to have determined and established the normal level of an inland lake, the county board shall direct the prosecuting attorney or other legal counsel of the county to initiate a proceeding by proper petition in the court of that county for determination of the normal level for that inland lake and for establishing a special assessment district if the county board determines by resolution that one is necessary as provided in section 30711.

(2) If the waters of an inland lake are located in 2 or more counties, the normal level of the lake may be determined in the same manner if the county boards of all counties involved, by resolution, direct the prosecuting attorney or other legal counsel of 1 or more of the counties to institute proceedings. All counties may make a single preliminary study.

(3) The department may join a proceeding initiated under this section.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30705 Special assessment bonds; lake level orders; proceedings; issuance of notes; full faith and credit.

Sec. 30705. (1) The special assessment district may issue bonds or lake level orders in anticipation of special assessments. All proceedings relating to the making, levying, and collection of special assessments authorized by this part and the issuance of bonds or lake level orders in anticipation of the collection of bonds or orders shall conform as nearly as possible to the proceedings for levying special assessments and issuing special assessment bonds or lake level orders as set forth in the drain code of 1956, 1956 PA 40, MCL 280.1 to 280.630.

(2) The special assessment district may issue notes in anticipation of special assessments made against lands in the special assessment district or public corporation at large. The final maturity of the notes shall be not later than 10 years from their date. The notes are subject to the revised municipal finance act, 2001 PA 34, MCL 141.2101 to 141.2821.

(3) A county board by a vote of 2/3 of its members may pledge the full faith and credit of a county for payment of bonds or notes issued by a special assessment district.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995;—Am. 2002, Act 215, Imd. Eff. Apr. 29, 2002.

Popular name: Act 451

Popular name: NREPA

324.30706 Initiation of proceedings by director of department.

Sec. 30706. If the department finds it expedient to have the normal level of an inland lake determined, the department may initiate by civil action on behalf of the state, in the court of any county in which the lake is located, a proceeding for determination of the normal level.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30707 Hearing; notice; service; powers and duties of court.

Sec. 30707. (1) Upon filing of a civil action under this part, the court shall set a day for a hearing. The

prosecuting attorney or other legal counsel of the county or counties or the department shall give notice of the hearing by publication in 1 or more newspapers of general circulation in the county and, if the waters of the inland lake are situated in 2 or more counties, in 1 or more newspapers of general circulation in each of the counties in which the inland lake is located. The notice shall be published at least once each week for 3 successive weeks before the date set for the hearing.

(2) The commissioner shall serve a copy of the published notice of hearing by first-class mail at least 3 weeks prior to the date set for the hearing to each person whose name appears upon the latest city or township tax assessment roll as owning land within a tentative special assessment district at the address shown on the roll; to the governing body of each political subdivision of the state in which the lake is located; and to the governing body of each affected political subdivision of the state. If an address does not appear on the roll, then a notice need not be mailed to the person. The commissioner shall make an affidavit of mailing. The failure to receive a notice properly mailed shall not constitute a jurisdictional defect invalidating proceedings under this part.

(3) The prosecuting attorney or the legal counsel of the county shall serve notice on the department at least 21 days prior to the date of the hearing.

(4) In a determination of the normal level of an inland lake, the court shall consider all of the following:

- (a) Past lake level records, including the ordinary high-water mark and seasonal fluctuations.
- (b) The location of septic tanks, drain fields, sea walls, docks, and other pertinent physical features.
- (c) Government surveys and reports.
- (d) The hydrology of the watershed.
- (e) Downstream flow requirements and impacts on downstream riparians.
- (f) Fisheries and wildlife habitat protection and enhancement.
- (g) Upstream drainage.
- (h) Rights of riparians.
- (i) Testimony and evidence offered by all interested persons.
- (j) Other pertinent facts and circumstances.

(5) The court shall determine the normal level to be established and maintained, shall have continuing jurisdiction, and may provide for departure from the normal level as necessary to accomplish the purposes of this part. The court shall confirm the special assessment district boundaries within 60 days following the lake level determination. The court may determine that the normal level shall vary seasonally.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30708 Maintenance of normal level; acquisition by gift, grant, purchase, or condemnation; contract for operation and maintenance of existing dam; dam in adjoining county; operation of pumps and wells.

Sec. 30708. (1) After the court determines the normal level of an inland lake in a proceeding initiated by the county, the delegated authority of any county or counties in which the inland lake is located shall provide for and maintain that normal level.

(2) A county may acquire, in the name of the county, by gift, grant, purchase, or condemnation proceedings, an existing dam that may affect the normal level of the inland lake, sites for dams, or rights in land needed or convenient in order to implement this part. A county may enter into a contract for operation and maintenance of an existing dam. The county may construct and maintain a dam that is determined by the delegated authority to be necessary for the purpose of maintaining the normal level. A dam may be acquired, constructed, or maintained in a county adjoining the county in which the lake is located.

(3) For the purpose of maintaining the normal level, a delegated authority may drill wells or pump water from another source to supply an inland lake with additional water, may lower the level of the lake by pumping water from the lake, and may purchase power to operate pumps, wells, or other devices installed as part of a normal level project.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30709 Powers of department.

Sec. 30709. (1) After the court determines the normal level of an inland lake in a proceeding initiated by the department, the department may provide for and maintain that normal level.

(2) In a proceeding initiated by the department, the department has the same powers in connection with a normal level project as a county has under sections 30708, 30713, and 30718.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30710 Condemnation of private property.

Sec. 30710. If the department or the delegated authority determines that it is necessary to condemn private property for the purpose of this part, the department or county may condemn the property in accordance with the uniform condemnation procedures act, Act No. 87 of the Public Acts of 1980, being sections 213.51 to 213.77 of the Michigan Compiled Laws.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30711 Defraying project costs by special assessment; special assessment roll; reassessment.

Sec. 30711. (1) The county board may determine by resolution that the whole or a part of the cost of a project to establish and maintain a normal level for an inland lake shall be defrayed by special assessments against the following that are benefited by the project: privately owned parcels of land, political subdivisions of the state, and state owned lands under the jurisdiction and control of the department. If the county board determines that a special assessment district is to be established, the delegated authority shall compute the cost of the project and prepare a special assessment roll.

(2) If the revenues raised pursuant to the special assessment are insufficient to meet the computation of cost included in section 30712, or if these revenues are insufficient to meet bond obligations, the special assessment district may be reassessed without hearing using the same apportioned percentage used for the original assessment.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30712 Computation of project costs.

Sec. 30712. (1) Computation of the cost of a normal level project shall include the cost of all of the following:

- (a) The preliminary study.
 - (b) Surveys.
 - (c) Establishing a special assessment district, including preparation of assessment rolls and levying assessments.
 - (d) Acquiring land and other property.
 - (e) Locating, constructing, operating, repairing, and maintaining a dam or works of improvement necessary for maintaining the normal level.
 - (f) Legal fees, including estimated costs of appeals if assessments are not upheld.
 - (g) Court costs.
 - (h) Interest on bonds and other financing costs for the first year, if the project is so financed.
 - (i) Any other costs necessary for the project which can be specifically itemized.
- (2) The delegated authority may add as a cost not more than 15% of the sum calculated under subsection (1) to cover contingent expenses.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30713 Contract with agency or corporation; provisions.

Sec. 30713. The delegated authority of a county in which an inland lake is located may contract with a state or federal government agency or a public or private corporation in connection with a project for the establishment and maintenance of a normal level. The contract may specify that the agency or corporation will pay the whole or a part of the cost of the project or will perform the whole or a part of the work connected with the project. The contract may provide that payment made or work done relieves the agency or corporation in whole or in part from assessment for the cost of establishment and construction of the project.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30714 Special assessment roll; public hearing; notice; approval; appeal.

Sec. 30714. (1) A special assessment roll shall describe the parcels of land to be assessed, the name of the owner of each parcel, if known, and the dollar amount of the assessment against each parcel.

(2) The delegated authority shall set a time and place for a public hearing or hearings on the project cost and the special assessment roll. Notice of a hearing shall be by both of the following:

(a) By publication of notice at least twice prior to the hearing in a newspaper that circulates in the special assessment district, the first publication to be at least 10 days before the hearing.

(b) As provided in Act No. 162 of the Public Acts of 1962, being sections 211.741 to 211.746 of the Michigan Compiled Laws.

(3) At or after a public hearing, the delegated authority may approve or revise the cost of the project or the special assessment roll. Before construction of a project is begun, the county board shall approve the cost and the special assessment roll by resolution.

(4) The special assessment roll with the assessments listed shall be final and conclusive unless appealed in a court within 15 days after county board approval.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30715 Assessment payments; installments; amount; interest, penalty, and collection; lien; preliminary study payment credited.

Sec. 30715. (1) The county board may provide that assessments under this part are payable in installments.

(2) Assessment payments shall be sufficient to meet bond and note obligations of the special assessment district.

(3) Special assessments under this part shall be spread upon the county tax rolls, and shall be subject to the same interest and penalty charges and shall be collected in the same manner as county taxes.

(4) From the date of approval of the special assessment roll by the county board, a special assessment under this part shall constitute a lien on the parcel assessed. The lien shall be of the same character and effect as a lien created for county taxes.

(5) A payment for the cost of the preliminary study under section 30703 shall be credited against an assessment for the amount of the payment made by the person assessed.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30716 Bonds and notes; issuance.

Sec. 30716. With approval of the county board and subject to the revised municipal finance act, 2001 PA 34, MCL 141.2101 to 141.2821, the district may issue bonds or notes that shall be payable by special assessments under this part. Bonds or notes shall not be issued exceeding the cost of the lake level project that is being financed.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995;—Am. 2002, Act 216, Imd. Eff. Apr. 29, 2002.

Popular name: Act 451

Popular name: NREPA

324.30717 Acceptance and repayment of advance.

Sec. 30717. The delegated authority may accept the advance of work, material, or money in connection with a normal level project. The obligation to repay an advance out of special assessments under this part may be evidenced by a note or contract. Notes and contracts issued under this section are subject to the revised municipal finance act, 2001 PA 34, MCL 141.2101 to 141.2821.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995;—Am. 2002, Act 217, Imd. Eff. Apr. 29, 2002.

Popular name: Act 451

Popular name: NREPA

324.30718 Dam construction or maintenance; plans and specifications; approval by department; bids; work relief project.

Sec. 30718. Plans and specifications for a dam constructed or maintained under this part shall be prepared by a licensed professional engineer under the direction of the delegated authority. The plans and specifications shall be approved by the department before construction begins. The department shall review and approve or reject the plans and specifications within 30 days after they are received by the department. If the plans and specifications are rejected, the department shall propose changes in the plans and specifications that would result in their approval by the department. Bids for doing the work may be advertised in the manner the delegated authority directs. The contract shall be let to the lowest responsible bidder giving adequate security for the performance of the contract, but the delegated authority may reserve the right to reject any and all bids. The county may erect and maintain a dam as a work relief project in accordance with the law applicable to a work relief project.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30719 Dam construction; underspill device; fish ladder.

Sec. 30719. (1) The department may require that a new dam that is proposed to be constructed be equipped with an underspill device for the release of cold bottom waters for the protection of downstream fish habitats.

(2) The department may require the installation of a fish ladder or other device to permit the free passage of fish.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30720 Unauthorized change of level; penalty.

Sec. 30720. A person who is not authorized by a delegated authority or the department to operate a dam or other normal level control facility and who changes, or causes to change, the level of an inland lake, the normal level of which has been established under this part or any previous act governing lake levels, and for which the delegated authority or the department has taken steps to maintain the normal level, is guilty of a misdemeanor punishable by a fine of not more than \$1,000.00 or imprisonment for not more than 1 year, or both, and shall be required to pay the actual cost of restoration or replacement of the dam and any other property including any natural resource that is damaged or destroyed as a result of the violation.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30721 Establishment of normal inland lake level prohibited in certain cases.

Sec. 30721. A normal level shall not be established for an inland lake in either of the following cases:

(a) The inland lake is used as a reservoir for a municipal water supply system, unless a normal level determination is petitioned for by the governing body of the municipality.

(b) The state has title, flowage rights, or easements to all riparian land surrounding the inland lake, unless a normal level determination is petitioned for by the department.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30722 Inspection; report; repairs; penalty; expenditure.

Sec. 30722. (1) The delegated authority of a county shall cause an inspection to be made of each dam on an inland lake within the county which has a normal level established under this part or under any previous act governing lake levels. The inspection shall be conducted by a licensed professional engineer. The inspection shall take place every third year from the date of completion of a new dam or every third year from the determination of a normal level for an existing dam. An inspection report shall be submitted promptly to the department in the form and manner the department prescribes.

(2) If a report discloses a need for repairs or a change in condition of the dam that relates to the dam's safety or danger to natural resources, the department shall conduct an inspection to confirm the report. If the report is confirmed and the public safety or natural resources are endangered by the risk of failure of the dam, the department may require the county either to repair or to replace the dam. Plans and specifications for the repairs or replacement shall be prepared by a licensed professional engineer under the direction of the delegated authority. The plans and specifications shall be approved by the department before construction

begins. The department shall review and approve or reject the plans and specifications within 30 days after they are received by the department. If the plans and specifications are rejected, the department shall propose changes in the plans and specifications that would result in their approval by the department. If the dam is in imminent danger of failure, the department may order an immediate lowering of the lake level until necessary repair or replacement is complete.

(3) A person failing to comply with this section, or falsely representing dam conditions, is guilty of misconduct in office.

(4) If an inspection discloses the necessity for maintenance or repair, the delegated authority, without approval of the county board, may spend not more than \$10,000.00 annually for maintenance and repair of each lake level project. An expenditure of more than \$10,000.00 annually shall be approved by resolution of the county board.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

324.30723 Other requirements not abrogated.

Sec. 30723. This part does not abrogate the requirements of other state statutes.

History: Add. 1995, Act 59, Imd. Eff. May 24, 1995.

Popular name: Act 451

Popular name: NREPA

APPENDIX G

ACT 451 OF 1994

PART 13

PERMITS

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (EXCERPT)
Act 451 of 1994

PART 13
PERMITS

324.1301 Definitions.

Sec. 1301. As used in this part:

(a) "Application period" means the period beginning when an application for a permit is received by the state and ending when the application is considered to be administratively complete under section 1305 and any applicable fee has been paid.

(b) "Department" means the department, agency, or officer authorized by this act to approve or deny an application for a particular permit. As used in sections 1315 to 1317, "department" means the department of environmental quality.

(c) "Director" means the director of the state department authorized under this act to approve or deny an application for a particular permit or the director's designee. As used in sections 1313 to 1317, "director" means the director of the department of environmental quality.

(d) "Environmental permit review commission" or "commission" means the environmental permit review commission established under section 1313(1).

(e) "Environmental permit panel" or "panel" means a panel of the environmental permit review commission, appointed under section 1315(2).

(f) "Permit", except as provided in subdivision (g), means a permit, operating license, or registration required by any of the following sections or by rules promulgated thereunder, or, in the case of section 9112, by an ordinance referred to in that section:

(i) Section 3104, floodplain alteration permit.

(ii) Section 3503, permit for use of water in mining iron ore.

(iii) Section 4105, sewerage system construction permit.

(iv) Section 6516, vehicle testing license.

(v) Section 6521, motor vehicle fleet testing permit.

(vi) Section 8310, restricted use pesticide dealer license.

(vii) Section 8310a, agricultural pesticide dealer license.

(viii) Section 8504, license to manufacture or distribute fertilizer.

(ix) Section 9112, local soil erosion and sedimentation control permit.

(x) Section 11509, solid waste disposal area construction permit.

(xi) Section 11512, solid waste disposal area operating license.

(xii) Section 11542, municipal solid waste incinerator ash landfill operating license amendment.

(xiii) Section 11702, septage waste servicing license or septage waste vehicle license.

(xiv) Section 11709, septage waste site permit.

(xv) Section 30104, inland lakes and streams project permit.

(xvi) Section 30304, state permit for dredging, filling, or other activity in wetland. Permit includes an authorization for a specific project to proceed under a general permit issued under section 30312.

(xvii) Section 31509, dam construction, repair, or removal permit.

(xviii) Section 32312, flood risk, high risk, or environmental area permit.

(xix) Section 32512, permit for dredging and filling bottomland.

(xx) Section 32603, permit for submerged log removal from Great Lakes bottomlands.

(xxi) Section 35304, department permit for critical dune area use.

(xxii) Section 36505, endangered species permit.

(xxiii) Section 41329, nonnative aquatic species sales registration.

(xxiv) Section 41702, game bird hunting preserve license.

(xxv) Section 42101, dog training area permit.

(xxvi) Section 42501, fur dealer's license.

(xxvii) Section 42702, game dealer's license.

(xxviii) Section 44513, charter boat operating permit under reciprocal agreement.

(xxix) Section 44516, boat livery operating permit.

(xxx) Section 45902, game fish propagation license.

(xxxi) Section 45906, game fish import license.

(xxxii) Section 48705, permit to take amphibians and reptiles for scientific or educational use.

(xxxiii) Section 61525, oil or gas well drilling permit.

(xxxiv) Section 62509, brine, storage, or waste disposal well drilling or conversion permit or test well drilling permit.

(xxxv) Section 63103a, ferrous mineral mining permit.

(xxxvi) Section 63514 or 63525, surface coal mining and reclamation permit or revision of the permit, respectively.

(xxxvii) Section 63704, sand dune mining permit.

(xxxviii) Section 72108, use permits for a Pure Michigan Trail.

(xxxix) Section 76109, sunken aircraft or watercraft abandoned property recovery permit.

(xxxx) Section 76504, Mackinac Island motor vehicle and land use permits.

(xxxxi) Section 80159, buoy or beacon permit.

(g) "Permit", as used in sections 1313 to 1317, means any permit or operating license that meets both of the following conditions:

(i) The applicant for the permit or operating license is not this state or a political subdivision of this state.

(ii) The permit or operating license is issued by the department of environmental quality under this act or the rules promulgated under this act.

(h) "Processing deadline" means the last day of the processing period.

(i) "Processing period", subject to section 1307(2) and (3), means the following time period after the close of the application period, for the following permit, as applicable:

(i) Twenty days for a permit under section 61525 or 62509.

(ii) Thirty days for a permit under section 9112 or 44516.

(iii) Thirty days after the department consults with the underwater salvage and preserve committee created under section 76103, for a permit under section 76109.

(iv) Sixty days, for a permit under section 30104 for a minor project established under section 30105(7) or 32512a(1), or an authorization for a specific project to proceed under a general permit issued under section 30105(8) or 32512a(2), or for a permit under section 32312 or 41329.

(v) Sixty days or, if a hearing is held, 90 days for a permit under section 35304.

(vi) Sixty days or, if a hearing is held, 120 days for a permit under section 30104, other than a permit or authorization described in subparagraph (ii) or (iv), or for a permit under section 31509.

(vii) Ninety days for a permit under section 11512, a revision of a surface coal mining and reclamation permit under section 63525, or a permit under section 72108.

(viii) Ninety days or, if a hearing is held, 150 days for a permit under section 3104 or 30304, or a permit under section 32512 other than a permit described in subparagraph (iv).

(ix) Ninety days after the close of the review or comment period under section 32604, or if a public hearing is held, 90 days after the date of the public hearing for a permit under section 32603.

(x) One hundred twenty days for a permit under section 11509, 11542, 63103a, 63514, or 63704.

(xi) One hundred fifty days for a permit under section 36505. However, if a site inspection or federal approval is required, the 150-day period is tolled pending completion of the inspection or receipt of the federal approval.

(xii) For any other permit, 150 days or, if a hearing is held, 90 days after the hearing, whichever is later.

History: Add. 2004, Act 325, Imd. Eff. Sept. 10, 2004;—Am. 2004, Act 381, Imd. Eff. Oct. 12, 2004;—Am. 2008, Act 18, Imd. Eff. Feb. 29, 2008;—Am. 2009, Act 120, Eff. Nov. 6, 2009;—Am. 2011, Act 214, Imd. Eff. Nov. 8, 2011;—Am. 2011, Act 218, Imd. Eff. Nov. 10, 2011;—Am. 2012, Act 247, Imd. Eff. July 2, 2012;—Am. 2012, Act 249, Imd. Eff. July 2, 2012;—Am. 2013, Act 87, Imd. Eff. June 28, 2013;—Am. 2014, Act 215, Eff. Sept. 25, 2014;—Am. 2018, Act 36, Imd. Eff. Feb. 21, 2018;—Am. 2018, Act 268, Imd. Eff. June 29, 2018;—Am. 2018, Act 451, Eff. Mar. 21, 2019.

Popular name: Act 451

Popular name: NREPA

324.1303 Permit application; format; documents.

Sec. 1303. (1) An application for a permit shall be submitted to the department in a format to be developed by the department, except as provided in section 30307 with respect to a state wetland permit.

(2) The department shall, upon request and without charge, provide a person a copy of all of the following:

(a) A list that specifies in detail the information required to complete the permit application.

(b) A blank permit application form.

(c) In concise form, any instructions necessary to complete the application.

(d) A complete, yet concise, explanation of the permit review process.

(3) The department shall post the documents described in subsection (2) on its website.

History: Add. 2004, Act 325, Imd. Eff. Sept. 10, 2004;—Am. 2011, Act 246, Imd. Eff. Dec. 8, 2011.

Popular name: Act 451

Popular name: NREPA

324.1305 Receipt of permit application; notice of incomplete application; time period; request for new or additional information.

Sec. 1305. (1) After a department receives an application for a permit, the department shall determine whether the application is administratively complete. Unless the department proceeds as provided under subsection (2), the application shall be considered to be administratively complete when the department makes that determination or 30 days after the state receives the application, whichever is first.

(2) If, before the expiration of the 30-day period under subsection (1), the department notifies the applicant that the application is not administratively complete, specifying the information necessary to make the application administratively complete, or notifies the applicant that a fee required to accompany the application has not been paid, specifying the amount due, the running of the 30-day period under subsection (1) is tolled until the applicant submits to the department the specified information or fee amount due. The notice shall be given in writing or by electronic notification.

(3) Subject to subsection (4), after an application for a permit is considered to be administratively complete under this section, the department shall not request from the applicant any new or additional information that is not specified in the list required under section 1303(2)(a) unless the request includes a detailed explanation of why the information is needed. The applicant is not required to provide the requested information as a condition for approval of the permit.

(4) After an application for a permit is considered to be administratively complete under this section, the department may request the applicant to clarify, amplify, or correct the information required for the application. The applicant shall provide the requested information.

History: Add. 2004, Act 325, Imd. Eff. Sept. 10, 2004;—Am. 2011, Act 246, Imd. Eff. Dec. 8, 2011.

Popular name: Act 451

Popular name: NREPA

324.1307 Approval or denial of permit application; extension of processing period; tolling of processing period; explanation of reasons for permit denial; failure of department to satisfy requirements of subsection (1); effect; notification to legislative committees.

Sec. 1307. (1) By the processing deadline, the department shall approve or deny an application for a permit.

(2) If requested by the permit applicant, the department shall extend the processing period for a permit by not more than 120 days, as specified by the applicant. If requested by the permit applicant, the department may extend the processing period beyond the additional 120 days. However, a processing period shall not be extended under this subsection to a date later than 1 year after the application period ends.

(3) A processing period is tolled from the date that a permit applicant submits a petition under section 1315(1) until the date that a decision of the director is made under section 1315(6). If a permit applicant submits a petition under section 1315(1), the department shall not approve or deny the application for the permit under subsection (1) until after the director issues a decision under section 1315(6).

(4) The approval or denial of an application for a permit shall be in writing and shall be based upon evidence that would meet the standards in section 75 of the administrative procedures act of 1969, 1969 PA 306, MCL 24.275.

(5) Approval of an application for a permit may be granted with conditions or modifications necessary to achieve compliance with the part or parts of this act under which the permit is issued.

(6) A denial of an application for a permit or, for a permit under part 301 or 303, an approval with modification of an application for a permit shall document, and any review upholding the denial or modification shall determine, to the extent practical, all of the following:

(a) That the decision is based on specifically cited provisions of this act or rules promulgated under this act.

(b) That the decision is based upon sufficient facts or data, which are recorded in the file.

(c) To the extent applicable, all of the following:

(i) That the decision is the product of reliable scientific principles and methods.

(ii) That the decision has applied the principles and methods reliably to the facts.

(d) In the case of denial of an application for a permit under part 301 or 303, suggestions on changes to allow the permit to be approved.

(7) Except for permits described in subsection (8), if the department fails to satisfy the requirements of subsection (1) with respect to an application for a permit, the department shall pay the applicant an amount

equal to 15% of the greater of the following, as applicable:

(a) The amount of the application fee for that permit.

(b) If an assessment or other fee is charged on an annual or other periodic basis by the department to a person holding the permit for which the application was submitted, the amount of the first periodic charge of that assessment or other fee for that permit.

(8) If the department fails to satisfy the requirements of subsection (1) with respect to a permit required by section 11509, 11512, 30304, or 32603, the application shall be considered to be approved and the department shall be considered to have made any determination required for approval.

(9) The failure of the department to satisfy the requirements of subsection (1) or the fact that the department is required to make a payment under subsection (7) or is considered to have approved a permit under subsection (8) shall not be used by the department as the basis for discriminating against the applicant. If the department is required to make a payment under subsection (7), the application shall be processed in sequence with other applications for the same type of permit, based on the date on which the processing period began, unless the director determines on an application-by-application basis that the public interest is best served by processing in a different order.

(10) If the department fails to satisfy the requirements of subsection (1) with respect to 10% or more of the applications for a particular type of permit received during a quarter of the state fiscal year, the department shall immediately devote resources from that program to eliminate any backlog and satisfy the requirements of subsection (1) with respect to new applications for that type of permit within the next fiscal quarter.

(11) If the department fails to satisfy the requirements of subsection (1), the director shall notify the appropriations committees of the senate and house of representatives of the failure. The notification shall be in writing and shall include both of the following:

(a) An explanation of the reason for the failure.

(b) A statement of the amount the department was required to pay the applicant under subsection (7) or a statement that the department was required to consider the application to be approved under subsection (8), as applicable.

History: Add. 2004, Act 325, Imd. Eff. Sept. 10, 2004;—Am. 2011, Act 218, Imd. Eff. Nov. 10, 2011;—Am. 2011, Act 236, Imd. Eff. Dec. 1, 2011;—Am. 2012, Act 164, Imd. Eff. June 14, 2012;—Am. 2013, Act 98, Imd. Eff. July 2, 2013;—Am. 2018, Act 268, Imd. Eff. June 29, 2018;—Am. 2018, Act 631, Eff. Mar. 29, 2019.

Popular name: Act 451

Popular name: NREPA

324.1309 Submissions of applications for more than 1 type of permit.

Sec. 1309. If a person submits applications for more than 1 type of permit for a particular development or project, the department or departments shall process the applications in a coordinated fashion to the extent feasible given procedural requirements applicable to individual permits and, at the request of an applicant, appoint a primary contact person to assist in communications with the department or departments.

History: Add. 2004, Act 325, Imd. Eff. Sept. 10, 2004.

Popular name: Act 451

Popular name: NREPA

324.1311 Report; information.

Sec. 1311. By December 1 each year, the director shall submit a report to the standing committees and appropriations subcommittees of the senate and house of representatives with primary responsibility for issues under the jurisdiction of that department. The department shall post the current report on its website. The report shall include all of the following information for each type of permit for the preceding fiscal year:

(a) The number of applications for permits the department received.

(b) The number of applications approved, the number of applications approved by the processing deadline, the number of applications approved after the processing deadline, and the average times for the department to determine administrative completeness and to approve or disapprove applications.

(c) The number of applications denied, the number of applications denied by the processing deadline, and the number of applications denied after the processing deadline.

(d) The number of applications approved or denied after the processing deadline that, based on the director's determination of the public interest, were not processed in sequence as otherwise required by section 1307(9).

(e) The number of applications that were not administratively complete when received.

(f) The amount of money refunded and discounts granted under section 1307.

(g) The number of applications processed as provided in section 1309.

(h) If a department failed to satisfy the requirements of section 1307(1) with respect to 10% or more of the applications for a particular type of permit received during a quarter of the state fiscal year, the type of permit and percentage of applications for which the requirements were not met, how the department attempted to eliminate any backlog and satisfy the requirements of section 1307(1) with respect to new applications for that type of permit within the next fiscal quarter, and whether the department was successful.

History: Add. 2004, Act 325, Imd. Eff. Sept. 10, 2004;—Am. 2011, Act 246, Imd. Eff. Dec. 8, 2011;—Am. 2013, Act 98, Imd. Eff. July 2, 2013;—Am. 2018, Act 268, Imd. Eff. June 29, 2018.

Popular name: Act 451

Popular name: NREPA

324.1313 Environmental permit review commission; membership; limitations; term; removal; public meeting.

Sec. 1313. (1) The environmental permit review commission is established in the department of environmental quality. The commission shall advise the director on disputes related to permits and permit applications.

(2) The commission shall consist of 15 individuals, appointed by the governor. The governor shall appoint the first commission within 60 days after the effective date of the amendatory act that added this section. Each member of the commission shall meet 1 or more of the following:

(a) Have the equivalent of 6 years of full-time relevant experience as a practicing engineer, geologist, hydrologist, or hydrogeologist.

(b) Have a master's degree from an accredited institution of higher education in a discipline of engineering or science related to air or water and the equivalent of 8 years of full-time relevant experience.

(3) An individual is not eligible to be a member of the commission if any of the following apply:

(a) The individual is a current employee of any office, department, or agency of this state.

(b) The individual is a party to 1 or more contracts with the department of environmental quality and the compensation paid under those contracts in any of the preceding 3 years represented more than 5% of the individual's annual gross income in that preceding year.

(c) The individual is employed by an entity that is a party to 1 or more contracts with the department of environmental quality and the compensation paid to the individual's employer under those contracts in any of the preceding 3 years represented more than 5% of the employer's annual gross revenue in that preceding year.

(d) The individual was employed by the department of environmental quality within the preceding 3 years.

(4) An individual appointed to the commission shall serve for a term of 4 years, except as provided in this subsection, and may be reappointed. However, after serving 2 consecutive terms on the commission, the individual is not eligible to serve on the commission for 2 years. The terms for members first appointed shall be staggered so that 5 expire in 2 years, 5 expire in 3 years, and 5 expire in 4 years. A vacancy on the commission shall be filled in the same manner as the original appointment.

(5) The governor may remove a member of the commission for incompetence, dereliction of duty, malfeasance, misfeasance, or nonfeasance in office, or any other good cause.

(6) Individuals appointed to the commission shall serve without compensation. However, members of the commission may be reimbursed for their actual and necessary expenses incurred in the performance of their official duties as members of the commission.

(7) The business that the commission may perform shall be conducted at a public meeting of the commission held in compliance with the open meetings act, 1976 PA 267, MCL 15.261 to 15.275.

History: Add. 2018, Act 268, Imd. Eff. June 29, 2018.

Popular name: Act 451

Popular name: NREPA

324.1315 Petition for permit review; panel meeting; written recommendation; director's decision; appeal; conflict of interest.

Sec. 1315. (1) A permit applicant may seek review by a panel by submitting a petition to the director before the permit has been approved or denied. The petition shall include the issues in dispute, the relevant facts, and any data, analysis, opinion, and supporting documentation for the petitioner's position. If the director believes that the dispute may be resolved without convening a panel, the director may contact the petitioner regarding the issues in dispute and may negotiate, for a period not to exceed 45 days, a resolution of the dispute.

(2) Unless the dispute is resolved pursuant to subsection (1), the director shall convene a meeting of a

panel. The meeting shall be held within 45 days after the director received the petition. The panel shall consist of 3 members of the commission selected by the director on the basis of their relevant expertise. The director may select a replacement for a member who is unable to participate in the review process. To serve as a panel member, a commission member must submit to the director on a form provided by the department an agreement not to accept employment from the petitioner before 1 year after a decision is rendered on the matter if gross income from the employment would exceed 5% of the member's gross income from all sources in any of the preceding 3 years.

(3) The members of the panel shall elect a chairperson. Two members of the panel constitute a quorum. A majority of the votes cast are required for official action of the panel. The business that the panel may perform shall be conducted at a public meeting of the panel held in compliance with the open meetings act, 1976 PA 267, MCL 15.261 to 15.275.

(4) The director shall provide the panel with a copy of the petition and its supporting documentation and a copy of all supporting documentation from the department. At the meeting of the panel, representatives of the petitioner and the department shall each be given an opportunity to present their positions.

(5) Within 45 days after hearing the petition, the panel shall make a recommendation regarding the petition and provide written notice of the recommendation to the director and the petitioner. The written recommendation shall include the specific rationale for the recommendation. The recommendation may be to adopt, modify, or reverse, in whole or in part, the department's position or decision on the dispute that is the subject of the petition.

(6) Within 60 days after receiving written notice of the panel's recommendation, the director shall issue a decision, in writing, regarding the petition. If the director agrees with the recommendation, the department shall incorporate the recommendation into the terms of the permit. If the director does not agree with the recommendation, the director shall include in the written decision the specific rationale for rejecting the recommendation. If the director fails to make a decision within the time period provided for in this subsection, the recommendation of the panel shall be considered the decision of the director. The decision of the director under this subsection regarding a dispute related to a permit or permit application is not subject to review under this act, the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328, or section 631 of the revised judicature act of 1961, 1961 PA 236, MCL 600.631. However, the decision of the director under this subsection may be included in an appeal to a final permit action. If a permit applicant declines to submit a petition for review under this section, the decision of the department regarding the approval or denial of a permit is final permit action for purposes of any judicial review or other review allowed under this act, the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328, and section 631 of the revised judicature act of 1961, 1961 PA 236, MCL 600.631.

(7) A member of the commission shall not participate in a petition review if the member has a conflict of interest. A member has a conflict of interest if any of the following apply:

(a) The applicant has hired that member or the member's employer on any environmental matter within the preceding 3 years.

(b) The member has been an employee of the applicant within the preceding 3 years.

(c) The member has more than a 1% ownership interest in the applicant.

(8) The director shall select a member of the commission to participate in a petition review in place of a member disqualified under subsection (7).

History: Add. 2018, Act 268, Imd. Eff. June 29, 2018.

Popular name: Act 451

Popular name: NREPA

324.1317 Contested case for permit; petition for review; environmental permit panel; staffing; written opinion; final decision and order.

Sec. 1317. (1) In a contested case regarding a permit, an administrative law judge shall preside, make the final decision, and issue the final decision and order for the department. Any party to the contested case, including the department, may, within 21 days after receiving the final decision and order, seek review of the final decision and order by an environmental permit panel by submitting a request to the director and a notice to the hearing officer.

(2) On petition for review of a final decision under subsection (1), the director shall convene an environmental permit panel in the same manner as provided under section 1315(2), except that the director shall not select as a member of the panel an individual who was a member of a panel that previously reviewed any dispute regarding the permit. The panel shall meet and conduct business in the same manner as provided under section 1315(2) and (3). The panel's review of the final decision must be limited to the record established by the administrative law judge.

(3) After an environmental permit panel is convened under subsection (2), a member of the panel shall not communicate, directly or indirectly, in connection with any issue of fact, with any party or other person, or, in connection with any issue of law, with any party or the party's representative, except on notice and opportunity for all parties to participate.

(4) An environmental permit panel may adopt, remand, modify, or reverse, in whole or in part, a final decision and order described in subsection (1). The panel shall issue an opinion that becomes the final decision of the department and is subject to judicial review as provided under the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328, and other applicable law.

(5) The Michigan administrative hearing system shall provide an environmental permit panel with all staff necessary for the panel to perform its duties under this section.

(6) An opinion issued by an environmental permit panel must be in writing and clearly define the legal and technical principles being applied.

(7) If no party timely appeals a final decision and order described in subsection (1) to an environmental permit panel, the final decision and order is the final agency action for purposes of any applicable judicial review.

History: Add. 2018, Act 268, Imd. Eff. June 29, 2018.

Popular name: Act 451

Popular name: NREPA

APPENDIX H

DAM SAFETY ADMINISTRATIVE CODE RULE 1 – RULE 13

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

DEPARTMENT OF ENVIRONMENTAL QUALITY

LAND AND WATER MANAGEMENT

DAM SAFETY

(By authority conferred on the department of natural resources by section 57 of Act No. 300 of the Public Acts of 1989, being §281.1357 of the Michigan Compiled Laws)

R 281.1301 Definitions.

Rule 1. (1) As used in these rules, "Act" means Act No. 300 of the Public Acts of 1989, being §281.1301 et seq. of the Michigan Compiled Laws.

(2) Terms defined in the act have the same meanings when used in these rules.

History: 1993 AACSL.

R 281.1302 Permit applications and procedures.

Rule 2. (1) An application for a permit for a proposed project shall be made on a form that is prescribed and provided by the department. The application form shall be the same form that is used for other department-administered statutes that require permits at the land-water interface. Application forms may be obtained from the land and water management division or from any district or regional office of the department.

(2) An application fee for a permit to repair, alter, remove, or abandon a dam shall be submitted with the application form. Submission of an application fee for a permit to construct, reconstruct, or enlarge a dam may be deferred until plans and specifications are submitted. The fee for enlargement of a dam that is part of a mine tailings basin system shall be based on the height of the new embankment section as measured by the vertical distance from the lowest point of the embankment crest to the lowest tailings foundation elevation. The fee shall be paid by check, money order, or draft made payable to: "State of Michigan".

(3) When the proposed project includes related multiple impoundments, an applicant may apply for a single permit, but an appropriate fee shall be required for each impoundment.

(4) An application for a permit to construct a new dam, enlarge an existing dam, or reconstruct a failed dam shall be reviewed by the department in a 2-step process. The first step shall be a review of the conceptual plans to determine if the proposed project may have a significant adverse effect on public health, safety, welfare, property, or natural resources or the public trust in those natural resources. The second step shall be the review of plans and specifications to determine if the engineering design is acceptable.

(5) An application for a permit to construct a new dam, enlarge an existing dam, or reconstruct a failed dam shall include all of the following:

(a) A description and evaluation of the loss of natural resources that are associated with the project.

(b) A description of the natural resources that are associated with or created by the impoundment and how they offset the natural resources lost by the creation of the impoundment.

(c) The project assessment required pursuant to the provisions of R 281.1304. However, an assessment is not required for a permit to enlarge an existing dam when the purpose of the impoundment will remain the same as the original impoundment and the surface area of the impoundment will be increased by 10% or less.

(d) Conceptual plans that are adequate to evaluate the project's impacts on public health, safety, welfare, property, or natural resources or the public trust in those natural resources. Conceptual plans shall include, at a minimum, all of the following:

(i) A site plan that shows all of the following:

(A) The location of the dam.

(B) The existing stream channel.

(C) The normal shoreline of the proposed impoundment.

(D) Property lines.

(E) Dimensions or proper scale.

(ii) Transverse and longitudinal cross-sections through the dam that show all of the following:

(A) The spillway or spillways.

(B) Upstream and downstream water levels.

(C) The stream channel bottom.

(iii) The location of all occupied dwellings within 1/4 of a mile of the proposed impoundment if the dam is new or if the impoundment elevation is changed. Projects that do not propose an impoundment elevation change are excluded from this requirement.

(iv) Ingress and egress routes for construction activities.

(6) The first step of the review shall commence once the department has received all of the following:

(a) The application form with all necessary information filled in.

(b) All additional information requested by the department that is required to evaluate the proposed activity's effects on the public health, safety, welfare, property, or natural resources or the public trust in those natural resources. Requests by the department for additional information shall be made in writing.

(c) All appropriate application fees, except as noted in subrule (2) of this rule.

(d) The assessment described in R 281.1304 when required pursuant to the provisions of subrules (5) and (7) of this rule.

(e) Conceptual plans for the project as described in this subrule and subrules (5), (7), and (8) of this rule.

Engineering plans and specifications are not required for the department to complete the first step of the review.

(7) An application for a permit to abandon or remove a dam shall include all of the following:

(a) A site plan that shows all of the following:

(i) The location of the dam.

- (ii) The impoundment.
- (iii) The existing stream channel.
- (iv) The proposed location of the stream channel.
- (b) A description of the method to be employed in removing or abandoning the dam.
- (c) An evaluation of the capacity of the remaining structure to pass flood flows after the proposed work is completed, including hydraulic computations to support the evaluation.
- (d) An evaluation of the quantity and quality characteristics of the sediments that have accumulated in the dam impoundment.
- (e) A description of the methods to be employed to control sediments during and after removing or abandoning the dam.
- (f) The project assessment required pursuant to the provisions of R 281.1304.
- (8) An application for a permit to repair or alter a dam shall include both of the following:
 - (a) A description of the proposed work, including the volumes of materials to be dredged or filled.
 - (b) Engineering plans and specifications for the proposed work.
- (9) After receipt of an application, the department may request, in writing, from the applicant, such additional information, assessment, design calculations, records, or documents as are determined to be necessary to evaluate the proposed project.
- (10) Based in part on the information provided by the applicant and in part on comments received by the department during the 20-day comment period as provided by section 23 of the act, the department shall conduct the first step of the review to determine the effects of the proposed project on public health, safety, welfare, property, or natural resources or the public trust in those natural resources and riparian rights. The department shall make 1 of the following determinations:
 - (a) The proposed activity is permissible as submitted.
 - (b) The proposed activity is permissible if certain described modifications are made.
 - (c) The proposed activity is not permissible and cannot be modified to result in the granting of a permit.
- (11) An application for a permit shall not be considered complete until the assessment required in R 281.1304 has been completed and the department has received all of the following:
 - (a) All information that is requested on the application form.
 - (b) Any other information that is required by written notice from the department.
 - (c) The application fee, unless the fee is deferrable pursuant to the provisions of subrule (2) of this rule.
 - (d) Acceptable conceptual plans and specifications. The department shall grant or deny a permit within 60 days after the submission of a complete application or within 120 days after the submission of a complete application if a public hearing is held.
- (12) An application shall be considered to be withdrawn and the file for the application shall be closed if an applicant fails to respond to any written inquiry or request from the department within 30 days of the request. If the applicant cannot provide the specific information that the department requests within the 30-day period, the applicant may keep the application open by advising the department, in writing, within the 30-day period, of when the information can be submitted. The applicant's

proposed deadline shall be reasonable. If the information is not provided by the applicant's deadline, the application shall then be closed.

(13) The department shall advise an applicant of its determination. If an activity is permitable as submitted or is permitable if modified, the department shall then review engineering plans and specifications. If the department has not yet received required application fees or engineering plans and specifications, the department shall request the fees or plans and specifications at the time an applicant is advised of the department's determination.

(14) When the department determines that engineering plans and specifications are acceptable, a permit shall be issued or, if a permit has already been issued, the applicant shall be notified, in writing, that plans and specifications are acceptable and the project may commence. If the engineering plans and specifications are determined to be unacceptable, the department shall advise the applicant of why the plans and specifications are unacceptable and provide a concise written statement explaining how the plans and specifications may be corrected.

History: 1993 AACCS.

R 281.1303 Permit conditions.

Rule 3. (1) A permit shall provide that the work authorized by the permit shall be completed within a specified time period, which shall not be more than 2 years after the date that the permit is issued. Extensions of time of up to 2 years each may be granted by the department for good cause shown by the applicant. An administrative fee shall not be required for an application for extensions of time.

(2) A permit does not obviate the necessity of receiving approval from the United States army corps of engineers, when applicable, the state department of public health, or a local unit of government, when applicable, including a local unit of government that is responsible for administering the provisions of Act No. 245 of the Public Acts of 1970, as amended, being §281.631 et seq. of the Michigan Compiled Laws, and Act No.347 of the Public Acts of 1972, as amended, being §282.101 et seq. of the Michigan Compiled Laws.

(3) The department shall not issue a permit, except for a permit pursuant to the provisions of section 25(2) of the act or a permit under a minor project category, until 20 days after the mailing of the list to each eligible subscriber as provided for in sections 21(1) to (3) and 23(1) of the act.

(4) Upon request, the department shall provide any person with a copy of a permit application and supporting documents pursuant to the provisions of Act No. 442 of the Public Acts of 1976, as amended, being §15.231 et seq. of the Michigan Compiled Laws.

(5) If the mitigation proposed in a mitigation plan that is submitted by an applicant is approved by the department, the department may incorporate the mitigation actions as permit conditions for the improvement of the existing resources or the creation of a new resource to offset resource losses that result from the proposed project.

(6) A temporary emergency action plan may be required by permit condition which would be effective during, and applicable to, the construction period.

History: 1993 AACCS.

R 281.1304 Project assessment.

Rule 4. (1) In each application for a permit as required pursuant to the provisions of R 281.1302, (5) and (7), an assessment of all known existing and potential adverse effects within the scope of the project shall be provided by the applicant and reviewed by the department to determine whether the project will have a significant adverse effect on public health, safety, welfare, property, or natural resources or the public trust in those resources. This assessment shall include evaluations of both positive and negative impacts of the project commensurate with the scope of the project and mitigating measures to minimize impacts on all of the following:

- (a) Wetlands.
- (b) Fisheries.
- (c) Wildlife.
- (d) Threatened and endangered species.
- (e) Water quality.
- (f) Streamflows.
- (g) Sediment transport.
- (h) Turbidity.
- (i) Water chemistry.
- (j) Water temperature.
- (k) Riparian rights. The assessment shall include impacts of the impoundment on the stream below the impoundment and shall address impacts both during construction and after completion of the project.

(2) If the department determines that more detailed study is needed, it may require the applicant to provide the additional information or cause such a study to be made. The department shall state, with specificity, in writing, the requirements or criteria for such additional information or study. All available data shall be evaluated by the department in its review of an application for a permit.

History: 1993 AACCS.

R 281.1305 Engineering plans and specifications.

Rule 5. (1) Engineering plans and specifications for the construction of new dams, the reconstruction of failed dams, or the enlargement of dams shall be prepared by a licensed professional engineer, be submitted to the department, be approved by the department before the commencement of construction, and include, at a minimum, all of the following:

- (a) A map that shows the location of the project and a topographic map of the dam site and impoundment area. Mapping shall show all of the following:
 - (i) Maximum flood storage elevations of the impoundment.
 - (ii) Property boundaries of the site, including flowage easements.
 - (iii) Borrow area or areas.
 - (iv) Ingress and egress routes.
 - (v) Work limits.

- (b) Detailed design plans that show all of the following:
 - (i) A profile along the centerline of the embankment and the spillway or spillways.
 - (ii) Cross-sections of the dam at representative locations that show suitable detail of the upstream and downstream slopes and crest.
 - (iii) The findings of investigations and analyses of embankment and foundation materials, including the locations of soil borings, soil boring logs, and proposed foundation treatment.
 - (iv) Other drawings that are necessary to fully depict the project as determined by the department upon consultation with the applicant.
 - (v) Other analyses that are necessary to document the adequacy of the design of the structure and protection of natural resources, public safety, and public trust as determined by the department upon consultation with the applicant.
- (c) An operation plan that describes how the streamflows will be maintained under various conditions.
- (d) Technical specifications related to the scope of work for the dam and appurtenant structures. Specifications shall reference nationally recognized and acceptable engineering specifications.
- (2) Engineering plans and specifications for the repair, alteration, removal, or abandonment of a dam, with the exception of minor alteration or repair projects, shall be prepared by a licensed professional engineer, be submitted to the department, and be approved by the department before commencement of construction. Plans and specifications for repair and alteration shall include sufficient detail and analyses for the department to determine whether the proposed activity adequately protects the structural integrity of the dam. Plans and specifications for removal and abandonment of a dam shall include sufficient detail and analyses for the department to determine whether the proposed activity adequately protects natural resources, public safety, and the public trust.
- (3) The hazard potential classification and spillway design flood determination of a dam site shall be determined by the department. The department may require the applicant to provide additional information for the department's use in these determinations. Spillway capacity requirements are fulfilled if the specified design flood is stored in the impoundment, attenuated in the impoundment system, or passed through the spillway.
- (4) When mitigation for the loss of natural resources is required for a proposed activity, plans and specifications for the mitigation may be required.

History: 1993 AACCS.

R 281.1306 Minor project categories.

Rule 6. (1) The department shall grant or deny an application for a minor project after all of the following steps have been completed:

- (a) Submission of a complete application.
- (b) An on-site inspection by a department representative.
- (c) A review of all appropriate information by the department.
- (2) A review of a minor project does not require any of the following:

(a) Submission of the application materials by the department to any of the individuals or agencies listed in section 23(1) of the act.

(b) A 20-day comment period as provided for in section 23 of the act.

(c) A public hearing.

(3) Required plans and specifications for a minor project do not need to be prepared by a licensed professional engineer.

(4) The following alterations and repairs shall be considered minor projects pursuant to section 27 of the act if the activity involves a temporary drawdown of 2 feet or less or involves a temporary drawdown where the dam owner is the sole riparian to the lands surrounding the impoundment:

(a) Dredging or filling of more than 25 cubic yards, but less than 300 cubic yards, as a single and complete project. For dredging projects, the project will not be considered minor unless evidence is provided with the application that the materials to be dredged are not contaminated pursuant to the provisions of Act No. 64 of the Public Acts of 1979, as amended, being §299.501 et seq. of the Michigan Compiled Laws.

(b) Erosion protection measures that fulfill an identifiable need for erosion protection, bank stabilization, or the protection or improvement of the dam and its inlet and outlet channels. The fill material that is associated with erosion protection measures shall be in compliance with any of the following provisions:

(i) It shall have a volume of more than 25 cubic yards, but shall not have a volume of more than 300 cubic yards.

(ii) It shall not have a surface area of more than 10,000 square feet.

(iii) There shall not be more than 2 cubic yards per lineal foot.

(c) Other repairs and alterations that have a minimal effect on the structural integrity of the dam.

(5) Dredging or filling in volumes of less than 25 cubic yards shall be considered maintenance and does not require a permit pursuant to the provisions of the act.

History: 1993 AACCS.

R 281.1307 Performance bonds.

Rule 7. (1) As authorized by the provisions of section 31(5) of the act, a permit to construct a new dam or reconstruct a failed dam may require a performance bond. A performance bond may be in the form of any of the following:

(a) A surety bond.

(b) A secured trust fund.

(c) A letter of credit.

(d) Insurance.

(e) A financial test.

(f) A corporate guarantee.

(g) Another suitable instrument or mechanism.

(h) A combination of the items listed in subdivisions (a) to (g) of this subrule as approved by the department. The department shall consider an applicant's past performance in determining if a performance bond shall be required.

(2) The performance bond shall be secured and documentation shall be submitted to the department before the commencement of construction. The bond, instrument,

mechanism, or fund or combination of these methods of assurance shall be in the amount equal to a reasonable estimate of the cost, adjusted for inflation, that is required to adequately complete a project or remove a completed or partially completed dam and to provide for complete or partial restoration of a project site. Performance bonds may be required in the following instances if there is a reasonable possibility that the permittee may not complete the project:

(a) Where total project completion is essential for the protection of public health, welfare, or safety or to protect natural resources and the public trust in those natural resources.

(b) For temporary dams or dams that are constructed or reconstructed for a specific purpose and period of time after which removal is planned.

(c) For phased construction projects where dam construction or reconstruction is an integral and necessary part of the total project and is to be phased in over a number of years.

(d) Projects to be constructed in the future to mitigate the loss of natural resources or environmental degradation.

History: 1993 AACCS.

R 281.1308 Project completion explained.

Rule 8. Pursuant to the provisions of section 35(1)(a) of the act, completion of a new, reconstructed, enlarged, repaired, or altered dam occurs when all the work depicted on all approved drawings and all specification requirements have been accomplished and all permit conditions have been implemented before the expiration of a permit.

History: 1993 AACCS.

R 281.1309 Inspection schedule.

Rule 9. Inspection reports that are prepared pursuant to the provisions of R 281.1310 are due on a calendar year basis. The department shall notify the dam owner of the due date, by certified mail, not later than January 31 of the year in which the inspection report is due. In establishing an inspection schedule, as authorized pursuant to the provisions of section 37(2) of the act, the department shall compile an alphabetical listing of dams in each hazard potential classification of high, significant, and low. The inspection schedule shall be established based on the following provisions:

(a) For high hazard potential dams, every third dam in the alphabetical listing of these dams shall be inspected each year as follows:

(i) The first, fourth, seventh, tenth, and so on dam in the alphabetical listing will be due for inspection the first year.

(ii) The second, fifth, eighth, eleventh, and so on dam in the alphabetical listing will be due for inspection the second year.

(iii) The third, sixth, ninth, twelfth, and so on dam in the alphabetical listing will be due for inspection the third year.

- (iv) The cycle shall be repeated every 3 years.
- (b) For significant hazard potential dams, every fourth dam in the alphabetical listing of these dams shall be inspected each year as follows:
 - (i) The first, fifth, ninth, thirteenth, and so on dam in the alphabetical listing shall be due for inspection the first year.
 - (ii) The second, sixth, tenth, fourteenth, and so on dam in the alphabetical listing shall be due for inspection the second year.
 - (iii) The third, seventh, eleventh, fifteenth, and so on dam in the alphabetical listing shall be due for inspection the third year.
 - (iv) The fourth, eighth, twelfth, sixteenth, and so on dam in the alphabetical listing shall be due for inspection the fourth year.
 - (v) The cycle shall be repeated every 4 years.
- (c) For low hazard potential dams, every fifth dam in the alphabetical listing of these dams shall be inspected each year as follows:
 - (i) The first, sixth, eleventh, sixteenth, and so on dam in the alphabetical listing shall be due for inspection the first year.
 - (ii) The second, seventh, twelfth, seventeenth, and so on dam in the alphabetical listing shall be due for inspection the second year.
 - (iii) The third, eighth, thirteenth, eighteenth, and so on dam in the alphabetical listing shall be due for inspection the third year.
 - (iv) The fourth, ninth, fourteenth, nineteenth, and so on dam in the alphabetical listing shall be due for inspection the fourth year.
 - (v) The fifth, tenth, fifteenth, twentieth, and so on dam in the alphabetical listing shall be due for inspection the fifth year.
 - (vi) The cycle shall be repeated every 5 years.
- (d) Depending on its hazard potential classification, a new, reconstructed, or enlarged dam shall be scheduled for inspection 3, 4, or 5 years after the date of written notice of final project approval as required pursuant to the provisions of section 35(2) of the act or 3, 4, or 5 years after the expiration date of the permit if final approval cannot be granted. The cycle shall be repeated every 3, 4, or 5 years according to the dam's hazard potential classification.
- (e) If the hazard potential classification of a dam changes, its next inspection shall be scheduled based on the date of its previous inspection and the cycle of inspections required for the new hazard potential rating.
- (f) If an existing dam is discovered that falls under the authority of the act, it shall be added to the end of the appropriate alphabetical listing, and its first inspection shall be scheduled based on the system described in subdivisions (a) to (c) of this rule. If the department determines that a condition may exist that endangers the dam, an inspection shall be required immediately.
- (g) The department may alter the inspection schedule in consideration of the dates of recent inspections and department-permitted and approved repairs and alterations.
- (h) Owners of more than 1 dam may request that the department schedule their inspection reports to be due the same year if the dams have the same hazard potential classification.

History: 1993 AACCS.

R 281.1310 Inspection reports.

Rule 10. (1) Inspection reports shall include all of the information required in section 37(3) of the act.

(2) An inspection report shall include all of the following parts:

(a) A title sheet that includes all of the following information:

(i) The name of the dam.

(ii) The inventory identification number.

(iii) The county and river or stream where the dam is located.

(iv) The owner's and operator's names, addresses, and telephone numbers.

(v) The hazard potential classification.

(vi) The names of inspectors.

(vii) The date of inspection.

(viii) The name, address, registration number, and signature of the licensed professional engineer who is in charge of the inspection report.

(b) A conclusions and recommendations section that includes all of the following information:

(i) An evaluation of the dam's overall condition and a summary of the findings of the field inspection and analyses contained in the report.

(ii) Identification of any deficiencies that, if left uncorrected, could lead to the failure of the dam.

(iii) Prioritization of recommendations to correct observed deficiencies or operation and maintenance items for the dam.

(iv) Recommendations for further detailed studies or investigations, including an assessment of the adequacy of the current hazard potential classification if appropriate.

(c) A project information section that includes all of the following information:

(i) A description of the dam, outlet, spillway, and other principal features, together with pertinent data.

(ii) The purpose of the dam.

(iii) A summary of available design, geotechnical, maintenance, construction, repair, and alteration information and operating history.

(iv) A reference to past inspection reports.

(v) The date of construction, if known.

(d) A field inspection section that briefly describes the physical condition of the principal features of the dam and appurtenant structures, including the impoundment level, as they were observed during the field inspection.

(e) A structural stability section that includes a visual assessment of the stability of the dam on the basis of available data, together with the observations of the field inspection and the results of any calculations performed.

(f) A hydrologic and hydraulic section that includes an evaluation of spillway adequacy, including a description of pertinent available information, such as any of the following:

(i) Hydrologic design data provided by the department.

(ii) Drainage area.

(iii) Floods of record.

- (iv) Previous evaluations.
- (g) An operation and maintenance section that includes all of the following:
 - (i) An assessment of operating equipment and procedures.
 - (ii) Evaluation of the current maintenance plan.
- (h) Appendices that include all of the following:
 - (i) A map that shows the location of the dam.
 - (ii) Engineering plans of the dam, if available, or sketches of the dam and its principal parts, including a plan view and cross sectional views of pertinent features. If there have been changes to the dam since the submittal of previous plans or sketches, supplemental plans or sketches that depict the changes shall be submitted. If engineering plans or sketches have been submitted in a previous inspection report and if there have been no changes to the dam, it is not necessary to submit duplicate plans or sketches in subsequent reports.
 - (iii) Photographs of the dam, downstream channel, and deficiencies cited in the report.

History: 1993 AACCS.

R 281.1311 Emergency action plans.

Rule 11. (1) An emergency action plan for a high or significant hazard potential dam shall be submitted to the county or local emergency management coordinator for review for consistency with county or local emergency operations plans and the Michigan emergency preparedness plan. An emergency action plan for an existing dam shall be submitted to the department with documentation that the plan has been submitted to the county or local emergency management coordinator not later than the time that the first inspection report for the dam is due or at another time agreed to by the department. An emergency action plan for a newly constructed dam shall be submitted to the department with documentation that the plan has been submitted to the county or local emergency management coordinator not later than the date of expiration of the permit for construction of the dam, including any extensions of time for completion.

(2) At the time subsequent inspection reports are due, the owner shall determine if the plan is up to date. The owner shall advise the department of the findings of this review and shall submit any revisions to the department and to the county or local emergency management coordinator.

(3) The emergency action plan shall include a description of the circumstances under which it shall be activated, what actions shall be taken, and who shall be responsible to take those actions when the plan is activated.

(4) The emergency action plan shall include the name, address, and telephone number of all of the following entities:

- (a) The person who is responsible for the operation of the dam.
- (b) The alternate person who is responsible for the operation of the dam.
- (c) The local emergency management coordinator or coordinators.

(5) The emergency action plan shall include either of the following:

(a) A listing of occupied facilities, buildings, and residences that may be threatened with flooding due to the failure of the dam.

(b) Mapping that is adequate to clearly delineate the areas of potential inundation resulting from a failure of the dam. The degree of detail for mapping or listings shall be determined through consultations between the dam owner and the appropriate emergency services agencies that are responsible for implementing the emergency action plan.

History: 1993 AACCS.

R 281.1312 Administrative monetary penalties.

Rule 12. (1) As authorized pursuant to the provisions of section 51(8) of the act, an administrative penalty of not more than \$500.00 per day may be assessed to a person as set forth in the schedule in subrule (2) of this rule for any of the following reasons:

(a) Violation of any or all of the conditions of a minor project permit that is issued pursuant to the provisions of section 27 of the act.

(b) Failure to submit an inspection report as required pursuant to the provisions of section 37 of the act.

(c) Failure to provide a more detailed investigation or evaluation of certain dam features as required by section 37(5) of the act.

(d) Failure to comply with a first department order to limit dam operations as authorized pursuant to the provisions of section 39(1) of the act where significant impairment of resources has not resulted.

(e) Failure to notify the department and affected off-site public authorities and safety agencies, pursuant to the provisions of section 41(1) of the act, of any flood or unusual circumstance or occurrence, within 24 hours of the circumstance or occurrence, that endangers the safety of a dam, but where significant damage to property or natural resources does not occur.

(f) Failure to notify the department of actions taken in response to emergency conditions pursuant to the provisions of section 41(2) of the act.

(g) Failure to comply with the provisions of an emergency order that relates to any of the following as authorized pursuant to the provisions of section 43(2) of the act:

(i) Maximum drawdown levels and discharge rates.

(ii) Conducting required sediment surveys, water quality sampling, or monitoring.

(iii) Any other requirement where significant impairment of resources has not resulted.

(h) Failure to prepare, keep current, and submit to the department an emergency action plan as required pursuant to the provisions of section 47 of the act.

(i) Failure to comply with a first order to comply with permit conditions or to restore the site affected to its original condition pursuant to the provisions of section 49(1) of the act.

(j) Violation of any of the following permit conditions:

(i) Failure to supply data or information.

(ii) Failure to provide required minimum flow releases where significant impairment of resources has not resulted.

(iii) Violation of any permit condition where significant impairment of resources has not occurred.

APPENDIX I

ACT 302 OF 1945 EMERGENCY POWERS OF THE GOVERNOR

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

EMERGENCY POWERS OF GOVERNOR

Act 302 of 1945

AN ACT authorizing the governor to proclaim a state of emergency, and to prescribe the powers and duties of the governor with respect thereto; and to prescribe penalties.

History: 1945, Act 302, Imd. Eff. May 25, 1945.

The People of the State of Michigan enact:

10.31 Proclamation of state of emergency; promulgation of orders, rules, and regulations; seizure of firearms, ammunition, or other weapons.

Sec. 1. (1) During times of great public crisis, disaster, rioting, catastrophe, or similar public emergency within the state, or reasonable apprehension of immediate danger of a public emergency of that kind, when public safety is imperiled, either upon application of the mayor of a city, sheriff of a county, or the commissioner of the Michigan state police or upon his or her own volition, the governor may proclaim a state of emergency and designate the area involved. After making the proclamation or declaration, the governor may promulgate reasonable orders, rules, and regulations as he or she considers necessary to protect life and property or to bring the emergency situation within the affected area under control. Those orders, rules, and regulations may include, but are not limited to, providing for the control of traffic, including public and private transportation, within the area or any section of the area; designation of specific zones within the area in which occupancy and use of buildings and ingress and egress of persons and vehicles may be prohibited or regulated; control of places of amusement and assembly and of persons on public streets and thoroughfares; establishment of a curfew; control of the sale, transportation, and use of alcoholic beverages and liquors; and control of the storage, use, and transportation of explosives or inflammable materials or liquids deemed to be dangerous to public safety.

(2) The orders, rules, and regulations promulgated under subsection (1) are effective from the date and in the manner prescribed in the orders, rules, and regulations and shall be made public as provided in the orders, rules, and regulations. The orders, rules, and regulations may be amended, modified, or rescinded, in the manner in which they were promulgated, from time to time by the governor during the pendency of the emergency, but shall cease to be in effect upon declaration by the governor that the emergency no longer exists.

(3) Subsection (1) does not authorize the seizure, taking, or confiscation of lawfully possessed firearms, ammunition, or other weapons.

History: 1945, Act 302, Imd. Eff. May 25, 1945;—CL 1948, 10.31;—Am. 2006, Act 546, Imd. Eff. Dec. 29, 2006.

10.32 Construction of act.

Sec. 2. It is hereby declared to be the legislative intent to invest the governor with sufficiently broad power of action in the exercise of the police power of the state to provide adequate control over persons and conditions during such periods of impending or actual public crisis or disaster. The provisions of this act shall be broadly construed to effectuate this purpose.

History: 1945, Act 302, Imd. Eff. May 25, 1945;—CL 1948, 10.32.

10.33 Violation; misdemeanor.

Sec. 3. The violation of any such orders, rules and regulations made in conformity with this act shall be punishable as a misdemeanor, where such order, rule or regulation states that the violation thereof shall constitute a misdemeanor.

History: 1945, Act 302, Imd. Eff. May 25, 1945;—CL 1948, 10.33.

APPENDIX J

ACT 390 OF 1976 EMERGENCY MANAGEMENT ACT

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

EMERGENCY MANAGEMENT ACT

Act 390 of 1976

AN ACT to provide for planning, mitigation, response, and recovery from natural and human-made disaster within and outside this state; to create the Michigan emergency management advisory council and prescribe its powers and duties; to prescribe the powers and duties of certain state and local agencies and officials; to prescribe immunities and liabilities; to provide for the acceptance of gifts; and to repeal acts and parts of acts.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2006, Act 267, Imd. Eff. July 7, 2006.

The People of the State of Michigan enact:

30.401 Short title.

Sec. 1. This act shall be known and may be cited as the “emergency management act”.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990.

Compiler's note: For transfer of authority, powers, duties, functions, and responsibilities of the Michigan Emergency Management Advisory Council from the Department of State Police to the Director of State Police, as head of the Department of State Police, and the abolishment of the Michigan Emergency Management Advisory Council, see E.R.O. No. 1993-15, compiled at MCL 28.702 of the Michigan Compiled Laws.

30.402 Definitions.

Sec. 2. As used in this act:

- (a) “Chief executive official” means:
 - (i) In the case of a county with an elected county executive, the county executive.
 - (ii) In the case of a county without an elected county executive, the chairperson of the county board of commissioners, or the appointed administrator designated by appropriate enabling legislation.
 - (iii) In the case of a city, the mayor or the individual specifically identified in the municipal charter.
 - (iv) In the case of a township, the township supervisor.
 - (v) In the case of a village, the village president or the individual specifically identified in the village charter.
- (b) “Council” means the Michigan emergency management advisory council.
- (c) “Department” means the department of state police.
- (d) “Director” or “state director of emergency management” means the director of the department of state police or his or her designee.
- (e) “Disaster” means an occurrence or threat of widespread or severe damage, injury, or loss of life or property resulting from a natural or human-made cause, including, but not limited to, fire, flood, snowstorm, ice storm, tornado, windstorm, wave action, oil spill, water contamination, utility failure, hazardous peacetime radiological incident, major transportation accident, hazardous materials incident, epidemic, air contamination, blight, drought, infestation, explosion, or hostile military action or paramilitary action, or similar occurrences resulting from terrorist activities, riots, or civil disorders.
- (f) “Disaster relief forces” means all agencies of state, county, and municipal government, private and volunteer personnel, public officers and employees, and all other persons or groups of persons having duties or responsibilities under this act or pursuant to a lawful order or directive authorized by this act.
- (g) “District coordinator” means the state police emergency management division district coordinator.
- (h) “Emergency” means any occasion or instance in which the governor determines state assistance is needed to supplement local efforts and capabilities to save lives, protect property and the public health and safety, or to lessen or avert the threat of a catastrophe in any part of the state.
- (i) “Emergency management coordinator” means a person appointed pursuant to section 9 to coordinate emergency management within the county or municipality. Emergency management coordinator includes a civil defense director, civil defense coordinator, emergency services coordinator, emergency program manager, or other person with a similar title and duties.
- (j) “Local state of emergency” means a proclamation or declaration that activates the response and recovery aspects of any and all applicable local or interjurisdictional emergency operations plans and authorizes the furnishing of aid, assistance, and directives under those plans.
- (k) “Michigan emergency management plan” means the plan prepared and maintained by the emergency management division of the department and signed by the governor.
- (l) “Municipality” means a city, village, or township.

(m) "Person" means an individual, partnership, corporation, association, governmental entity, or any other entity.

(n) "Political subdivision" means a county, municipality, school district, or any other governmental unit, agency, body, board, or commission which is not a state department, board, commission, or agency of state government.

(o) "Rule" means a rule promulgated pursuant to the administrative procedures act of 1969, Act No. 306 of the Public Acts of 1969, being sections 24.201 to 24.328 of the Michigan Compiled Laws.

(p) "State of disaster" means an executive order or proclamation that activates the disaster response and recovery aspects of the state, local, and interjurisdictional emergency operations plans applicable to the counties or municipalities affected.

(q) "State of emergency" means an executive order or proclamation that activates the emergency response and recovery aspects of the state, local, and interjurisdictional emergency operations plans applicable to the counties or municipalities affected.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990.

30.403 Responsibility of governor; executive orders, proclamations, and directives; declaration, duration, and termination of state of disaster or state of emergency; contents and dissemination of executive order or proclamation.

Sec. 3. (1) The governor is responsible for coping with dangers to this state or the people of this state presented by a disaster or emergency.

(2) The governor may issue executive orders, proclamations, and directives having the force and effect of law to implement this act. Except as provided in section 7(2), an executive order, proclamation, or directive may be amended or rescinded by the governor.

(3) The governor shall, by executive order or proclamation, declare a state of disaster if he or she finds a disaster has occurred or the threat of a disaster exists. The state of disaster shall continue until the governor finds that the threat or danger has passed, the disaster has been dealt with to the extent that disaster conditions no longer exist, or until the declared state of disaster has been in effect for 28 days. After 28 days, the governor shall issue an executive order or proclamation declaring the state of disaster terminated, unless a request by the governor for an extension of the state of disaster for a specific number of days is approved by resolution of both houses of the legislature. An executive order or proclamation issued pursuant to this subsection shall indicate the nature of the disaster, the area or areas threatened, the conditions causing the disaster, and the conditions permitting the termination of the state of disaster. An executive order or proclamation shall be disseminated promptly by means calculated to bring its contents to the attention of the general public and shall be promptly filed with the emergency management division of the department and the secretary of state, unless circumstances attendant upon the disaster prevent or impede its prompt filing.

(4) The governor shall, by executive order or proclamation, declare a state of emergency if he or she finds that an emergency has occurred or that the threat of an emergency exists. The state of emergency shall continue until the governor finds that the threat or danger has passed, the emergency has been dealt with to the extent that emergency conditions no longer exist, or until the declared state of emergency has been in effect for 28 days. After 28 days, the governor shall issue an executive order or proclamation declaring the state of emergency terminated, unless a request by the governor for an extension of the state of emergency for a specific number of days is approved by resolution of both houses of the legislature. An executive order or proclamation issued pursuant to this subsection shall indicate the nature of the emergency, the area or areas threatened, the conditions causing the emergency, and the conditions permitting the termination of the state of emergency. An executive order or proclamation shall be disseminated promptly by means calculated to bring its contents to the attention of the general public and shall be promptly filed with the emergency management division of the department and the secretary of state, unless circumstances attendant upon the emergency prevent or impede its prompt filing.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2002, Act 132, Eff. May 1, 2002

30.404 Effect of executive order or proclamation of state of disaster or state of emergency; federal assistance; reciprocal aid agreement or compact; appropriation.

Sec. 4. (1) An executive order or proclamation of a state of disaster or a state of emergency shall serve to authorize the deployment and use of any forces to which the plan or plans apply and the use or distribution of supplies, equipment, materials, or facilities assembled or stockpiled pursuant to this act.

(2) Upon declaring a state of disaster or a state of emergency, the governor may seek and accept assistance, either financial or otherwise, from the federal government, pursuant to federal law or regulation.

(3) The governor may, with the approval of the state administrative board, enter into a reciprocal aid agreement or compact with another state, the federal government, or a neighboring state or province of a foreign country. A reciprocal aid agreement shall be limited to the furnishing or exchange of food, clothing, medicine, and other supplies; engineering services; emergency housing; police services; the services of the national guard when not mobilized for federal service or state defense force as authorized by the Michigan military act, Act No. 150 of the Public Acts of 1967, as amended, being sections 32.501 to 32.851 of the Michigan Compiled Laws, and subject to federal limitations on the crossing of national boundaries by organized military forces; health, medical, and related services; fire fighting, rescue, transportation, and construction services and equipment; personnel necessary to provide or conduct these services; and other necessary equipment, facilities, and services. A reciprocal aid agreement shall specify terms for the reimbursement of costs and expenses and conditions necessary for activating the agreement. The legislature shall appropriate funds to implement a reciprocal aid agreement.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990.

30.405 Additional powers of governor; prohibition; disobeying or interfering with rule, order, or directive as misdemeanor.

Sec. 5. (1) In addition to the general authority granted to the governor by this act, the governor may, upon the declaration of a state of disaster or a state of emergency do 1 or more of the following:

(a) Suspend a regulatory statute, order, or rule prescribing the procedures for conduct of state business, when strict compliance with the statute, order, or rule would prevent, hinder, or delay necessary action in coping with the disaster or emergency. This power does not extend to the suspension of criminal process and procedures.

(b) Utilize the available resources of the state and its political subdivisions, and those of the federal government made available to the state, as are reasonably necessary to cope with the disaster or emergency.

(c) Transfer the direction, personnel, or functions of state departments, agencies, or units thereof for the purpose of performing or facilitating emergency management.

(d) Subject to appropriate compensation, as authorized by the legislature, commandeer or utilize private property necessary to cope with the disaster or emergency.

(e) Direct and compel the evacuation of all or part of the population from a stricken or threatened area within the state if necessary for the preservation of life or other mitigation, response, or recovery activities.

(f) Prescribe routes, modes, and destination of transportation in connection with an evacuation.

(g) Control ingress and egress to and from a stricken or threatened area, removal of persons within the area, and the occupancy of premises within the area.

(h) Suspend or limit the sale, dispensing, or transportation of alcoholic beverages, explosives, and combustibles.

(i) Provide for the availability and use of temporary emergency housing.

(j) Direct all other actions which are necessary and appropriate under the circumstances.

(2) Subsection (1) does not authorize the seizure, taking, or confiscation of lawfully possessed firearms or ammunition.

(3) A person who willfully disobeys or interferes with the implementation of a rule, order, or directive issued by the governor pursuant to this section is guilty of a misdemeanor.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2006, Act 545, Imd. Eff. Dec. 29, 2006.

30.406 Obligation of person within state; compensation for services or property; record; claims; exceptions.

Sec. 6. (1) All persons within this state shall conduct themselves and manage their affairs and property in ways that will reasonably assist and will not unreasonably detract from the ability of the state and the public to cope with the effects of a disaster or an emergency. This obligation includes appropriate personal service and the use or restriction of the use of property in time of a disaster or an emergency. This act neither increases nor decreases these obligations but recognizes their existence under the state constitution of 1963, the statutes, and the common law. Compensation for services or for the taking or use of property shall be paid only if obligations recognized herein are exceeded in a particular case and only if the claimant has not volunteered his or her services or property without compensation.

(2) Personal services may not be compensated by the state, or a subdivision or agency of the state, except pursuant to statute, local law, or ordinance.

(3) Compensation for property shall be paid only if the property is taken or otherwise used in coping with a disaster or emergency and its use or destruction is ordered by the governor or the director. A record of all

property taken or otherwise used under this act shall be made and promptly transmitted to the office of the governor.

(4) A person claiming compensation for the use, damage, loss, or destruction of property under this act shall file a claim with the emergency management division of the department in the form and manner prescribed by the division.

(5) If a claimant refuses to accept the amount of compensation offered by the state, a claim may be filed in the state court of claims which court shall have exclusive jurisdiction to determine the amount of compensation due the owner.

(6) This section does not apply to or authorize compensation for either of the following:

(a) The destruction or damaging of standing timber or other property to provide a firebreak.

(b) The release of waters or the breach of impoundments to reduce pressure or other danger from actual or threatened flood.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990.

30.407 Powers and duties of director.

Sec. 7. (1) The director shall implement the orders and directives of the governor in the event of a disaster or an emergency and shall coordinate all federal, state, county, and municipal disaster prevention, mitigation, relief, and recovery operations within this state. At the specific direction of the governor, the director shall assume complete command of all disaster relief, mitigation, and recovery forces, except the national guard or state defense force, if it appears that this action is absolutely necessary for an effective effort.

(2) If the governor has issued a proclamation, executive order, or directive under section 3 regarding state of disaster or state of emergency declarations, section 5 regarding actions directed by the governor, or section 21 regarding heightened state of alert, the director may, with the concurrence of the governor, amend the proclamation or directive by adding additional counties or municipalities or terminating the orders and restrictions as considered necessary.

(3) The director shall comply with the applicable provisions of the Michigan emergency management plan in the performance of the director's duties under this act.

(4) The director's powers and duties shall include the administration of state and federal disaster relief funds and money; the mobilization and direction of state disaster relief forces; the assignment of general missions to the national guard or state defense force activated for active state duty to assist the disaster relief operations; the receipt, screening, and investigation of requests for assistance from county and municipal governmental entities; making recommendations to the governor; and other appropriate actions within the general authority of the director.

(5) In carrying out the director's responsibilities under this act, the director may plan for and utilize the assistance of any volunteer group or person having a pertinent service to render.

(6) The director may issue a directive relieving the donor or supplier of voluntary or private assistance from liability for other than gross negligence in the performance of the assistance.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2002, Act 132, Eff. May 1, 2002

30.407a Emergency management division; establishment; purpose; employees; emergency management plan; grants; powers of division; definition.

Sec. 7a. (1) The department shall establish an emergency management division for the purpose of coordinating within this state the emergency management activities of county, municipal, state, and federal governments. The department shall provide the division with professional and support employees as necessary for the performance of its functions.

(2) The division shall prepare and maintain a Michigan emergency management plan that is a comprehensive plan that encompasses mitigation, preparedness, response, and recovery for this state.

(3) The division shall receive available state and federal emergency management and disaster related grants-in-aid and shall administer and apportion the grants according to appropriately established guidelines to the agencies of this state and local political subdivisions.

(4) The division may do 1 or more of the following:

(a) Promulgate rules that establish standards and requirements for the appointment, training, and professional development of emergency management coordinators.

(b) Promulgate rules that establish standards and requirements for local and interjurisdictional emergency management programs.

(c) Periodically review local and interjurisdictional emergency operations plans.

(d) Promulgate rules that establish standards and requirements for emergency training and exercising

programs and public information programs.

(e) Make surveys of industries, resources, and facilities within this state, both public and private, necessary to carry out the purposes of this act.

(f) Prepare, for issuance by the governor, executive orders, proclamations, and regulations as necessary or appropriate in coping with disasters and emergencies.

(g) Provide for 1 or more state emergency operations centers to provide for the coordination of emergency response and disaster recovery in this state.

(h) Provide for the coordination and cooperation of state agencies and departments with federal and local government agencies and departments in emergency management activities.

(i) Cooperate with the federal government and any public or private agency or entity in achieving any purpose of this act and in implementing programs for disaster mitigation, preparation, response, and recovery.

(j) Propose and administer statewide mutual aid compacts and agreements.

(k) Do other activities necessary, incidental, or appropriate for the implementation of this act.

(5) For purposes of this section, the judicial branch of this state is considered a department of state government.

(6) As used in this section, "division" means the emergency management division of the department.

History: Add. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2002, Act 132, Eff. May 1, 2002.

30.408 Emergency management coordinator; employment or appointment; duties; annexes to emergency management plan; cooperation of state agencies.

Sec. 8. (1) The director of each department of state government, and those agencies of state government required by the Michigan emergency management plan to provide an annex to that plan, shall serve as emergency management coordinator for their respective departments or agencies. Each director may appoint or employ a designated representative as emergency management coordinator, provided that the representative shall act for and at the direction of that director while functioning in the capacity of emergency management coordinator upon the activation of the state emergency operations center, or the declaration of a state of disaster or emergency. Each department or agency emergency management coordinator shall act as liaison between his or her department or agency and the emergency management division of the department in all matters of emergency management, including the activation of the Michigan emergency management plan. Each department or agency of state government specified in the Michigan emergency management plan shall prepare and continuously update an annex to the plan providing for the delivery of emergency management activities by that agency or the department. The annexes shall be in a form prescribed by the director. The emergency management coordinator shall represent the agency or department head in the drafting and updating of the respective agency's or the department's emergency management annex and in coordinating the agency's or department's emergency management efforts with those of the other state agencies as well as with county and municipal governments.

(2) Upon the declaration of a state of disaster or a state of emergency by the governor, each state agency shall cooperate to the fullest possible extent with the director in the performance of the services that it is suited to perform, and as described in the Michigan emergency management plan, in the prevention, mitigation, response to, or recovery from the disaster or emergency. For purposes of this section, the judicial branch of this state is considered a department of state government and the chief justice of the Michigan supreme court is considered the director of that department.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2002, Act 132, Eff. May 1, 2002.

30.409 Emergency management coordinator; appointment; duties; eligibility.

Sec. 9. (1) The county board of commissioners of each county shall appoint an emergency management coordinator. In the absence of an appointed person, the emergency management coordinator shall be the chairperson of the county board of commissioners. The emergency management coordinator shall act for, and at the direction of, the chairperson of the county board of commissioners in the coordination of all matters pertaining to emergency management in the county, including mitigation, preparedness, response, and recovery. In counties with an elected county executive, the county emergency management coordinator may act for and at the direction of the county executive. Pursuant to a resolution adopted by a county, the county boards of commissioners of not more than 3 adjoining counties may agree upon and appoint a coordinator to act for the multicounty area.

(2) A municipality with a population of 25,000 or more shall either appoint a municipal emergency management coordinator or appoint the coordinator of the county as the municipal emergency management coordinator pursuant to subsection (7). In the absence of an appointed person, the emergency management

coordinator shall be the chief executive official of that municipality. The coordinator of a municipality shall be appointed by the chief executive official in a manner provided in the municipal charter. The coordinator of a municipality with a population of 25,000 or more shall act for and at the direction of the chief executive official of the municipality or the official designated in the municipal charter in the coordination of all matters pertaining to emergency management, disaster preparedness, and recovery assistance within the municipality.

(3) A municipality with a population of 10,000 or more may appoint an emergency management coordinator for the municipality. The coordinator of a municipality shall be appointed by the chief executive official in a manner provided in the municipal charter. The coordinator of a municipality with a population of 10,000 or more shall act for and at the direction of the chief executive official or the official designated by the municipal charter in the coordination of all matters pertaining to emergency management, disaster preparedness, and recovery assistance within the municipality.

(4) A municipality having a population of less than 10,000 may appoint an emergency management coordinator who shall serve at the direction of the county emergency management coordinator.

(5) A public college or university with a combined average population of faculty, students, and staff of 25,000 or more, including its satellite campuses within this state, shall appoint an emergency management coordinator for the public college or university. Public colleges or universities with a combined average population of faculty, students, and staff of 10,000 or more, including its satellite campuses within this state, may appoint an emergency management coordinator for the public college or university.

(6) A person is not ineligible for appointment as an emergency management coordinator, or as a member of a county or municipal emergency services or emergency management agency or organization, because that person holds another public office or trust, and that person shall not forfeit the right to a public office or trust by reason of his or her appointment as an emergency management coordinator.

(7) A county coordinator may be appointed a municipal coordinator for any municipality within the county and a municipal coordinator may be appointed a county coordinator.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2002, Act 132, Eff. May 1, 2002

30.410 Powers of county and municipality; mutual aid or reciprocal aid agreements or compacts; assistance of emergency management coordinator.

Sec. 10. (1) Each county and municipality that has appointed an emergency management coordinator under section 9 may do 1 or more of the following:

(a) Direct and coordinate the development of emergency operations plans and programs in accordance with the policies and plans established by the appropriate federal and state agencies. Each department or agency of a county or municipality specified in the emergency operations plan to provide an annex to the plan shall prepare and continuously update the annex providing for emergency management activities, including mitigation, preparedness, response, and recovery, by the department or agency and those other emergency activities the department or agency is specified to coordinate. Emergency operations plans and programs developed under this subsection shall include provisions for the dissemination of public information and local broadcasters shall be consulted in developing such provisions. Emergency operations plans and programs developed under this subdivision shall include local courts.

(b) Declare a local state of emergency if circumstances within the county or municipality indicate that the occurrence or threat of widespread or severe damage, injury, or loss of life or property from a natural or human-made cause exists and, under a declaration of a local state of emergency, issue directives as to travel restrictions on county or local roads. This power shall be vested in the chief executive official of the county or municipality or the official designated by charter and shall not be continued or renewed for a period in excess of 7 days except with the consent of the governing body of the county or municipality. The declaration of a local state of emergency shall be promptly filed with the emergency management division of the department, unless circumstances attendant upon the disaster prevent or impede its prompt filing.

(c) Appropriate and expend funds, make contracts, and obtain and distribute equipment, materials, and supplies for disaster purposes.

(d) Provide for the health and safety of persons and property, including emergency assistance to the victims of a disaster.

(e) Direct and coordinate local multi-agency response to emergencies within the county or municipality.

(f) Appoint, employ, remove, or provide, with or without compensation, rescue teams, auxiliary fire and police personnel, and other disaster workers.

(g) Appoint a local emergency management advisory council.

(h) If a state of disaster or emergency is declared by the governor, assign and make available for duty the employees, property, or equipment of the county or municipality relating to fire fighting; engineering; rescue;

health, medical, and related services; police; transportation; construction; and similar items or service for disaster relief purposes within or without the physical limits of the county or municipality as ordered by the governor or the director.

(i) In the event of a foreign attack upon this state, waive procedures and formalities otherwise required by law pertaining to the performance of public work, entering into contracts, the incurring of obligations, the employment of permanent and temporary workers, the utilization of volunteer workers, the rental of equipment, the purchase and distribution with or without compensation of supplies, materials, and facilities, and the appropriation and expenditure of public funds.

(2) For the purpose of providing assistance during a disaster or emergency, municipalities and counties may enter into mutual aid or reciprocal aid agreements or compacts with other counties, municipalities, public agencies, federally recognized tribal nations, or private sector agencies, or all of these entities. A compact entered into pursuant to this subsection is limited to the exchange of personnel, equipment, and other resources in times of emergency, disaster, or other serious threats to public health and safety. The arrangements shall be consistent with the Michigan emergency management plan.

(3) The emergency management coordinator may assist in the development or negotiation, or both, of a mutual aid or reciprocal aid agreement or compact made pursuant to section 4(3) and shall carry out the agreement or compact.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2002, Act 132, Eff. May 1, 2002

30.411 Powers and duties of personnel of disaster relief forces; liability for personal injury or property damage; right to benefits or compensation; disaster relief workers; immunity; liability and legal obligation of persons owning or controlling real estate or other premises used for shelter; "gross negligence" defined.

Sec. 11. (1) Personnel of disaster relief forces while on duty are subject to all of the following provisions:

(a) If they are employees of this state, they have the powers, duties, rights, privileges, and immunities of and receive the compensation incidental to their employment.

(b) If they are employees of a political subdivision of this state, regardless of where serving, they have the powers, duties, rights, privileges, and immunities and receive the compensation incidental to their employment.

(c) If they are not employees of this state or a political subdivision of this state, they are entitled to the same rights and immunities as provided by law for the employees of this state. All personnel of disaster relief forces shall, while on duty, be subject to the operational control of the authority in charge of disaster relief activities in the area in which they are serving, and shall be reimbursed for all actual and necessary travel and subsistence expenses.

(2) This state, any political subdivision of this state, or the employees, agents, or representatives of this state or any political subdivision of this state are not liable for personal injury or property damage sustained by any person appointed or acting as a member of disaster relief forces. This act does not affect the right of a person to receive benefits or compensation to which he or she may otherwise be entitled to under the worker's disability compensation act of 1969, 1969 PA 317, MCL 418.101 to 418.941, any pension law, or any act of congress.

(3) This state or a political subdivision of this state engaged in disaster relief activity is not liable for the death of or injury to a person or persons, or for damage to property, as a result of that activity. The employees, agents, or representatives of this state or a political subdivision of this state and nongovernmental disaster relief force workers or private or volunteer personnel engaged in disaster relief activity are immune from tort liability to the extent provided under section 7 of 1964 PA 170, MCL 691.1407. As used in this section, "disaster relief activity" includes training for or responding to an actual, impending, mock, or practice disaster or emergency.

(4) A person licensed to practice medicine or osteopathic medicine and surgery or a licensed hospital, whether licensed in this or another state or by the federal government or a branch of the armed forces of the United States, or an individual listed in subsection (6), who renders services during a state of disaster declared by the governor and at the express or implied request of a state official or agency or county or local coordinator or executive body, is considered an authorized disaster relief worker or facility and is not liable for an injury sustained by a person by reason of those services, regardless of how or under what circumstances or by what cause those injuries are sustained. The immunity granted by this subsection does not apply in the event of an act or omission that is willful or gross negligence. If a civil action for malpractice is filed alleging an act or omission that is willful or gross negligence resulting in injuries, the services rendered that resulted in those injuries shall be judged according to the standards required of persons licensed in this state to perform

those services.

(5) An individual listed in subsection (6), during a state of disaster declared by the governor, may practice, in addition to the authority granted by other statutes of this state, the administration of anesthetics; minor surgery; intravenous, subcutaneous, or intramuscular procedure; or oral and topical medication; or a combination of these under the supervision of a member of the medical staff of a licensed hospital of this state, and may assist the staff member in other medical and surgical proceedings.

(6) Subsections (4) and (5) apply to all of the following individuals:

(a) Any of the following, if licensed in this or another state or by the federal government or a branch of the armed forces of the United States:

(i) A registered nurse.

(ii) A practical nurse.

(iii) A nursing student acting under the supervision of a licensed nurse.

(iv) A dentist.

(v) A veterinarian.

(vi) A pharmacist.

(vii) A pharmacist intern acting under the supervision of a licensed pharmacist.

(viii) A paramedic.

(b) A medical resident undergoing training in a licensed hospital in this or another state.

(7) A person owning or controlling real estate or other premises who voluntarily and without compensation grants to this state or a political subdivision of this state a license or privilege, or otherwise permits this state or a political subdivision of this state to inspect, designate, and use the whole or any part or parts of the real estate or other premises for the purpose of sheltering persons during an actual, impending, mock, or practice disaster, together with his or her successors in interest, if any, is not civilly liable for negligently causing the death of or injury to any person on or about the real estate or premises under the license, privilege, or permission or for loss or damage to the property of the person.

(8) A person owning or controlling real estate or other premises who has gratuitously granted the use of the real estate or other premises for the purposes stated in this section is legally obligated to make known to the licensee any hidden dangers or safety hazards that are known to the owner or occupant of the real estate or premises that might possibly result in the death or injury or loss of property to a person using the real estate or premises.

(9) As used in this section, "gross negligence" means conduct so reckless as to demonstrate a substantial lack of concern for whether an injury results.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2002, Act 132, Eff. May 1, 2002;—Am. 2005, Act 321, Imd. Eff. Dec. 27, 2005.

Administrative rules: R 30.1 et seq. of the Michigan Administrative Code.

30.411a Disaster or emergency relief assistance provided by state employee; unpaid leave of absence; leave of absence with pay; conditions; limitation.

Sec. 11a. (1) A state employee who is not in the state classified civil service and who is skilled in emergency relief assistance and certified as a disaster services volunteer by the American Red Cross may be granted an unpaid leave of absence from his or her state employment to provide disaster or emergency relief assistance in this state.

(2) A state employee in the state classified civil service who is skilled in emergency relief assistance and certified as a disaster services volunteer by the American Red Cross may be granted a leave of absence from his or her classified employment to provide disaster or emergency relief assistance in this state as authorized by the civil service commission.

(3) In addition to unpaid leave under subsection (1) or (2), an employee of an agency in any branch of state government who is skilled in emergency relief assistance and certified as a disaster services volunteer by the American Red Cross may be granted leave from work with pay for not more than 10 days in any 12-month period to participate in specialized disaster relief services within or outside of this state if all of the following circumstances are present:

(a) The governor or the president of the United States has declared the disaster.

(b) The American Red Cross has requested the services of the employee.

(c) The employee's department head has approved the leave.

(d) If the services are rendered outside the state by an employee in the executive branch, the governor has approved the leave.

(e) If the employee is in the state classified civil service, the civil service commission has approved the leave.

(4) Not more than 50 state employees shall be granted paid leave under subsection (3) during the fiscal year. The governor may increase the limit on the number of state employees who may be granted paid disaster leave during the fiscal year by executive order.

(5) This state shall not penalize or otherwise take adverse employment action against a state employee because the employee takes a leave of absence authorized under this section to provide disaster or emergency relief assistance. However, the state shall recover payment for paid disaster leave from an employee who is granted paid leave under subsection (3) if the employee does not use the leave time for the approved purpose.

History: Add. 2006, Act 267, Imd. Eff. July 7, 2006.

30.412 Disaster or emergency occurring in county or municipality; procedure; ordinances or rules.

Sec. 12. (1) If a disaster or an emergency occurs in a county or municipality and is beyond the control of local public or private agencies, the chief executive official of the county or municipality may request the governor to declare that a state of disaster or state of emergency exists in the county or municipality, utilizing the procedure set forth in section 14. The director may order the disaster relief forces of a county or municipality to aid the community. The chief executive official of the municipality or the governing body of the county shall comply with the order of the director and cooperate with the director in matters of emergency management.

(2) A county, municipality, or other agency designated or appointed by the governor may make, amend, and rescind ordinances or rules necessary for emergency management purposes and supplementary to a rule, order, or directive issued by the governor or a state agency exercising a power delegated to it by the governor. The ordinance or rule shall be temporary and, upon the governor's declaration that a state of disaster or state of emergency is terminated, shall no longer be in effect.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990.

30.413 Repealed. 1990, Act 50, Imd. Eff. Apr. 6, 1990.

Compiler's note: The repealed section pertained to foreign attack on state.

30.414 Assessment of disaster or emergency; findings and recommendations; notice; temporary assistance; action by governor.

Sec. 14. (1) In the event a disaster or emergency occurs that has not yet been declared to be a state of disaster or a state of emergency by the governor, and the disaster or emergency is considered by the chief executive official of the municipality or the governing body or the county in which it occurs to be beyond the control of the county or municipality, the emergency management coordinator shall immediately contact the district coordinator. The chief executive official of a county shall not request state assistance or a declaration of a state of disaster or a state of emergency for an emergency which has occurred or is occurring solely within the confines of a township, city, or village within the county unless requested to do so by the chief executive official of the affected township, city, or village. The district coordinator, in conjunction with the county or municipal coordinator, shall assess the nature and scope of the disaster or emergency, and they shall recommend the personnel, services, and equipment that will be required for its prevention, mitigation, or relief.

(2) Upon completing the assessment, the district coordinator shall forthwith notify the director of the findings and recommendations. The director shall immediately notify the governor. If the director determines that immediate action is essential to the preservation of life and property, the director may initiate temporary assistance to the affected area as necessary and compatible with the policies and procedures of the Michigan emergency management plan.

(3) The director shall advise the governor of the magnitude of the disaster or emergency. The governor may take the necessary action he or she considers appropriate to mitigate the disaster or emergency. This act shall not be construed to restrain the governor from exercising on his own initiative any of the powers set forth in this act.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990.

30.415 Repealed. 2002, Act 132, Eff. May 1, 2002.

Compiler's note: The repealed section pertained to Michigan emergency management advisory council.

30.416 Declaration of emergency or major disaster by president; federal grants; agreement pledging state's share.

Sec. 16. After the president of the United States declares an emergency or a major disaster, as defined in

the disaster relief act of 1974, Public Law 93-288, 88 Stat. 143, to exist in this state, the governor may apply for, accept, and disburse grants from the federal government pursuant to the disaster relief act of 1974. To implement and administer the grant program and to make financial grants, the governor may enter into an agreement with the federal government or any officer, or agency of the federal government, pledging the state's share for the financial grants.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990.

30.417 Construction of act.

Sec. 17. This act shall not be construed to do any of the following:

(a) Interfere with the course or conduct of a labor dispute. However, actions otherwise authorized by this act or other laws may be taken when necessary to forestall or mitigate imminent or existing danger to public health or safety.

(b) Interfere with the dissemination of news or comment on public affairs. However, any communications facility or organization, including radio and television stations, wire services, and newspapers, may be requested to transmit or print public service messages furnishing information or instructions in connection with a disaster or emergency.

(c) Affect the jurisdiction or responsibilities of law enforcement agencies, fire fighting forces, and units or personnel of the armed forces of the United States when on active duty. However, state, local, and interjurisdictional emergency operations plans shall place reliance upon the forces available for performance of functions related to disasters or emergencies.

(d) Limit, modify, or abridge the authority of the governor to proclaim a state of emergency pursuant to Act No. 302 of the Public Acts of 1945, being sections 10.31 to 10.33 of the Michigan Compiled Laws, or exercise any other powers vested in him or her under the state constitution of 1963, statutes, or common law of this state independent of, or in conjunction with, this act.

(e) Relieve any state or local official, department head, or agency of its normal responsibilities.

(f) Limit or abridge the power, duty, or responsibility of the chief executive official of a county or municipality to act in the event of a disaster or emergency except as expressly set forth in this act.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990.

30.418 Disaster and emergency contingency fund; creation; administration; accounting; appropriation; carrying forward unexpended and unencumbered funds; expenditures; reimbursement; declaration; investment.

Sec. 18. (1) A disaster and emergency contingency fund is created and shall be administered by the director. An annual accounting of expenditures under this act shall be made to the legislature and the legislature shall annually appropriate sufficient funds to maintain the fund at a level not to exceed \$10,000,000.00 and not less than \$2,500,000.00. Unexpended and unencumbered funds remaining in the disaster and emergency contingency fund at the end of the fiscal year shall not lapse to the general fund and shall be carried forward and be available for expenditure in subsequent fiscal years.

(2) The director may expend money from the disaster and emergency contingency fund upon appropriation for the purpose of paying necessary and reasonable overtime, travel, and subsistence expenses incurred by an employee of an agency of this state acting at the direction of the director in a disaster or emergency related operation, and, with the concurrence of the governor or the governor's designated representative, for other needs required for the mitigation of the effects of, or in response to, a disaster or emergency.

(3) The director may place directly in the disaster and emergency contingency fund a reimbursement for expenditures out of the fund received from the federal government, or another source.

(4) If a state of major disaster or emergency is declared by the President of the United States, and when authorized by the governor, an expenditure from the fund may be made by the director upon appropriation to pay the state's matching share of grants as provided by the disaster relief act of 1974, Public Law 93-288, 88 Stat 143.

(5) The state treasurer shall direct the investment of the disaster and emergency contingency fund. The state treasurer shall credit to the disaster and emergency contingency fund interest and earnings from fund investments.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2013, Act 109, Imd. Eff. Sept. 24, 2013;—Am. 2016, Act 220, Imd. Eff. June 23, 2016;—Am. 2018, Act 263, Imd. Eff. June 28, 2018.

30.419 Disaster and emergency contingency fund; expenditures when federal assistance unavailable; application for grant; resolution; rules.

Sec. 19. (1) Under extraordinary circumstances, upon the declaration of a state of disaster or a state of

emergency by the governor and subject to the requirements of this subsection, the governor may authorize an expenditure from the disaster and emergency contingency fund to provide state assistance to counties and municipalities when federal assistance is not available. If the governor proclaims a state of disaster or a state of emergency, the first recourse for disaster related expenses shall be to funds of the county or municipality. If the demands placed upon the funds of a county or municipality in coping with a particular disaster or emergency are unreasonably great, the governing body of the county or municipality may apply, by resolution of the local governing body, for a grant from the disaster and emergency contingency fund. The resolution shall certify that the affected county or municipality emergency operations plan was implemented in a timely manner. The resolution shall set forth the purpose for which the assistance is sought, the extent of damages sustained, and certify an exhaustion of local efforts. The assistance under this subsection is to provide grants, excluding reimbursement for capital outlay expenditures, in mitigation of the extraordinary burden of a county or municipality in relation to its available resources. Assistance grants under this section shall not exceed the following amounts or 10% of the total annual operating budget for the preceding fiscal year of the county or municipality, whichever is less:

(a) For a county or municipality with a population under 25,000 according to the most recent federal decennial census, \$250,000.00.

(b) For a county or municipality with a population of 25,000 or more and less than 75,000 according to the most recent federal decennial census, \$500,000.00.

(c) For a county or municipality with a population of 75,000 or more according to the most recent federal decennial census, \$1,000,000.00.

(2) The director shall promulgate rules governing the application and eligibility for the use of the state disaster and emergency contingency fund. Rules that have been promulgated prior to December 31, 1988 to implement this section shall remain in effect until revised or replaced. The rules shall include, but not be limited to, all of the following:

(a) Demonstration of exhaustion of local effort.

(b) Evidence that the applicant is a county that actively maintains an emergency management program, reviewed by and determined to be current and adequate by the emergency management division of the department, before the disaster or emergency for which assistance is being requested occurs. If the applicant is a municipality with a population of 10,000 or more, evidence that the municipality either maintains a separate emergency management program, reviewed by and determined to be current and adequate by the emergency management division of the department, before the disaster or emergency for which assistance is being requested or occurs, or the municipality is incorporated in the county emergency management program.

(c) Evidence that the applicable county or municipal emergency operations plan was implemented in a timely manner at the beginning of the disaster or emergency.

(d) Reimbursement for expenditures shall be limited to public damage and direct loss as a result of the disaster or emergency, or expenses incurred by the applicant for reimbursing employees for disaster or emergency related activities which were not performed as a part of their normal duties, or for other needs required specifically for the mitigation of the effects, or in response to the disaster or emergency.

(e) A disaster assessment team established by the emergency management division of the department has substantiated the damages claimed by the applicant. Damage estimates submitted by the applicant shall be based upon a disaster assessment carried out by the applicant according to standard procedures recommended by the emergency management division.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976;—Am. 1990, Act 50, Imd. Eff. Apr. 6, 1990;—Am. 2013, Act 110, Imd. Eff. Sept. 24, 2013;—Am. 2018, Act 264, Imd. Eff. June 28, 2018.

Administrative rules: R 30.1 et seq. of the Michigan Administrative Code.

30.420 Repeal of MCL 30.221 to 30.233.

Sec. 20. Act No. 154 of the Public Acts of 1953, as amended, being sections 30.221 to 30.233 of the Compiled Laws of 1970, and Act No. 14 of the Public Acts of 1973, are repealed.

History: 1976, Act 390, Imd. Eff. Dec. 30, 1976.

30.421 Heightened state of alert; cause; powers of governor; violation as misdemeanor; penalty; civil action; definitions.

Sec. 21. (1) If good cause exists to believe that terrorists or members of a terrorist organization are within this state or that acts of terrorism may be committed in this state or against a vital resource, the governor may by executive order or proclamation declare a heightened state of alert and subsequently exercise the authority provided in section 3(2) and section 5(1)(b), (c), (e), (f), (g), (h), (i), and (j) in an effort to safeguard the interests of this state or a vital resource, to prevent or respond to acts of terrorism, or to facilitate the

apprehension of terrorists or members of a terrorist organization and those acting in concert with them. However, in exercising the authority under section 5(1)(h), the governor shall not suspend or limit the sale, dispensing, or transportation of alcoholic beverages under this section. Within 7 days after declaring a heightened state of alert, the governor shall notify the majority leader and minority leader of the senate and the speaker and minority leader of the house of representatives of the declaration. The governor may utilize the services, facilities, and resources available under this act under a declared state of disaster or emergency. The exercise of those powers shall be consistent with the provisions of the state constitution of 1963 and the federal constitution and may continue until the heightened state of alert is no longer in effect. The heightened state of alert shall continue until the governor finds that the threat or danger has passed, the heightened state of alert has been dealt with to the extent that the heightened state of alert conditions no longer exist, or until the heightened state of alert has been in effect for 60 days. After 60 days, the governor shall terminate the heightened state of alert, unless a request by the governor for an extension of the heightened state of alert for a specific number of days is approved by resolution of both houses of the legislature.

(2) A person shall not willfully disobey or interfere with the implementation of a rule, order, or directive issued by the governor under this section. A person who violates this section is guilty of a misdemeanor punishable by imprisonment for not more than 90 days or a fine of not more than \$100.00, or both. Notwithstanding any provision in this section, a prosecuting agency shall not prosecute any person or seize any property for conduct presumptively protected by the first amendment to the constitution of the United States in a manner that violates any constitutional provision.

(3) The attorney general or a prosecuting attorney may bring a civil action for damages or equitable relief to enforce the provisions of this act and the orders, rules, or regulations made in conformity with this act.

(4) As used in this section:

(a) "Act of terrorism" and "terrorist" mean those terms as defined in section 543b of the Michigan penal code, 1931 PA 328, MCL 750.543b.

(b) "Terrorist organization" means that term as defined in section 543c of the Michigan penal code, 1931 PA 328, MCL 750.543c.

(c) "Vital resource" means a public or private building, facility, property, function, or location, the protection of which is considered necessary to the public health, safety, and welfare and which the governor has designated, in writing, as a vital resource of this state.

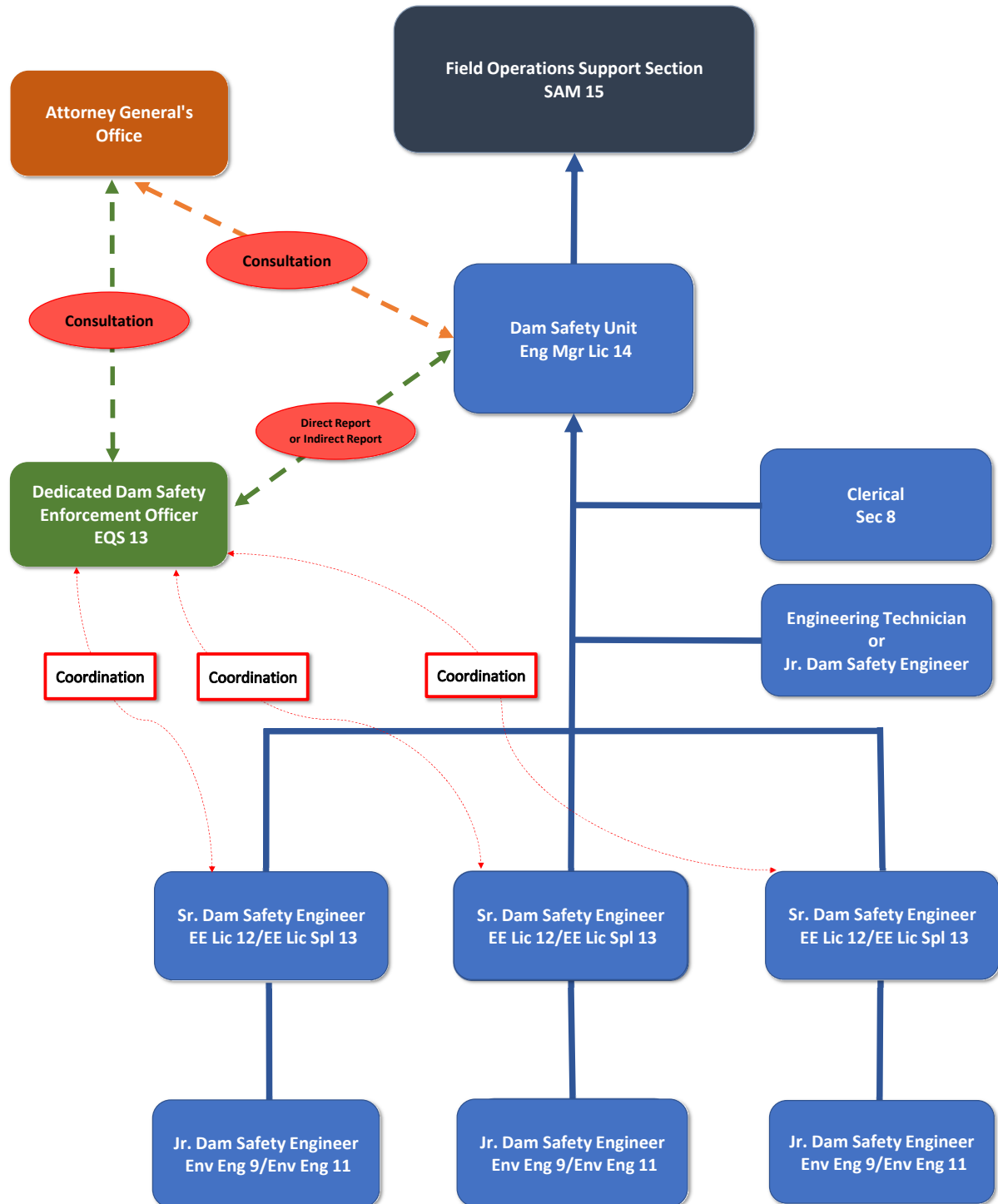
History: Add. 2002, Act 132, Eff. May 1, 2002.

APPENDIX K

PROPOSED DAM SAFETY UNIT ORGANIZATION CHART

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

**RECOMMENDED DAM SAFETY UNIT
ORGANIZATION CHART**



APPENDIX L

PROGRAM COMPARISON WITH OTHER STATES

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

APPENDIX L-1

PROGRAM COMPARISON WITH OTHER STATES

AUTHORITIES

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

Section 1 - Authorities							
STATE	Comment	1.1 Were there any changes in your state's dam safety statutes in 2018?		If yes, please describe the changes	1.2 Were there any changes in your state's dam safety regulations in 2018?		If yes, please describe the changes
		Answer	Comment		Answer	Comment	
ILLINOIS		No			No		
INDIANA		No			No		
IOWA		No			No		
MICHIGAN		No			No		
MINNESOTA		No			No		
							Summary of Rule Changes: •Change to Division name •Updated some definitions •Increased the permit filing fee and annual fee by approximately 15% •Clarified foundation investigations and construction materials for new dams •Restricted the use of corrugated plastic pipe •Make lake drains optional in certain circumstances and elevated them to allow for sediment accumulation. •Removed Class III levees from regulation •Increase inspection exemption to include dams and levees constructed or inspected by the USACE, and Class III dams with no hazard
OHIO		No			Yes		
PENNSYLVANIA		No			No		
WISCONSIN		No			No		
TOTAL		0 Yes, 8 No			1 Yes, 7 No		

APPENDIX L-2

PROGRAM COMPARISON WITH OTHER STATES INSPECTIONS

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

Section 2 - Inspections								
		2.1 Inspection Frequency	2.1.1		2.1.2		2.1.3	
		Provide your state's inspection frequency in years by statute/regulation for the following (note - inspection means state inspection or owner-responsible inspection).	High Hazard Potential Dams		Significant Hazard Potential Dams		Low Hazard Potential Dams	
STATE	Comment	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS			1		3		5	
INDIANA			2		3		5	
IOWA			2		5		0	
MICHIGAN			3		4		5	
MINNESOTA			1		4		8	
OHIO			5		5		5	
PENNSYLVANIA			1		2		5	
WISCONSIN			2		4		10	
TOTAL OR AVERAGE (MEAN)		AVERAGE (MEAN)	2.13	AVERAGE (MEAN)	3.75	AVERAGE (MEAN)	5.38	

2.2. Number of Inspections Performed							
STATE	Provide the total number of inspections performed during the calendar year 2018 reporting period (note – inspection means state inspection or owner-responsible inspection; it does not include construction inspections or follow-up inspections of the same dam in the reporting period).	2.2.1		2.2.2		2.2.3	
		High Hazard Potential Dams		Significant Hazard Potential Dams		Low Hazard Potential Dams	
	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS		230		84		194	
INDIANA		80		99		90	
IOWA		42		29		6	
MICHIGAN		23		22		109	
MINNESOTA		30		31		174	
OHIO		74		125		93	
PENNSYLVANIA		701		108		482	
WISCONSIN		41		14		26	
TOTAL OR AVERAGE (MEAN)	TOTAL	1221	TOTAL	512	TOTAL	1174	

|

2.3 Number of Inspections Due							
Provide the number of dams that were due for inspection during the reporting period (calendar year 2018) per the state's dam safety statute, regulation, or internal policy.		2.3.1		2.3.2		2.3.3	
		High Hazard Potential Dams		Significant Hazard Potential Dams		Low Hazard Potential Dams	
		Answer	Comment	Answer	Comment	Answer	Comment
STATE	Comment						
ILLINOIS		240		114		250	
INDIANA		106		99		123	
IOWA		42		28		3	
MICHIGAN		28		29		142	
MINNESOTA		24		39		217	
OHIO		74		125		93	
PENNSYLVANIA		744		152		614	
WISCONSIN		59		18		34	
TOTAL OR AVERAGE (MEAN)	TOTAL	1317	TOTAL	604	TOTAL	1476	

|

2.4 Inspection Type							
2.4 Inspection Type Indicate the type of inspection: informal, intermediate or formal; typically performed for each classification.		2.4.1		2.4.2		2.4.3	
		High Hazard Potential Dams		Significant Hazard Potential Dams		Low Hazard Potential Dams	
		Answer	Comment	Answer	Comment	Answer	Comment
STATE	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS		Formal Inspections		Formal Inspections		Intermediate Inspections	
INDIANA		Intermediate Inspections		Informal Inspections		Informal Inspections	
IOWA		Intermediate Inspections		Intermediate Inspections		Intermediate Inspections	
MICHIGAN		Formal Inspections		Formal Inspections		Formal Inspections	
MINNESOTA		Intermediate Inspections		Intermediate Inspections		Intermediate Inspections	
OHIO		Formal Inspections		Formal Inspections		Formal Inspections	
PENNSYLVANIA		Formal Inspections		Intermediate Inspections		Informal Inspections	
WISCONSIN		Formal Inspections		Formal Inspections		Formal Inspections	
TOTAL OR AVERAGE (MEAN)	TOTAL	0 Informal Inspections 3 Intermediate Inspections 5 Formal Inspections 0 Not Applicable	TOTAL	1 Informal Inspections 3 Intermediate Inspections 4 Formal Inspections 0 Not Applicable	TOTAL	2 Informal Inspections 3 Intermediate Inspections 3 Formal Inspections 0 Not Applicable	

APPENDIX L-3

PROGRAM COMPARISON WITH OTHER STATES

EMERGENCY ACTION PLANS

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

Section 3 - Emergency Action Plans							
		3.1		3.2		3.3	
		Does your state require a dam owner of a High Hazard Potential Dam to prepare an Emergency Action Plan?		Does your state require a dam owner of a Significant Hazard Potential Dam to prepare an Emergency Action Plan?		How many state regulated High Hazard Potential Dams have an existing (not necessarily current) EAP?	
STATE	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS		Yes		Yes		230	
INDIANA		No		No		136	
IOWA		No		No		26	This figure has dropped since our last report, as we were including federal dams which are non state regulated.
MICHIGAN		Yes		Yes		87	Two high hazard potential dams removed in 2018.
MINNESOTA	Does not include the non-federal FERC licensed dams, which we do not dually regulate	Yes		No		24	
OHIO		Yes		Yes		282	
PENNSYLVANIA		Yes		Yes		711	
WISCONSIN		Yes		Yes		133	
TOTAL		6 Yes, 2 No		5 Yes, 3 No		1629	

3.4			3.5 Number of Full EAPs by Classification				
How may state regulated Significant Hazard Potential Dams have an existing (not necessarily current) EAP?			Indicate the number of full EAPs for each classification. If your agency does not track this information, enter 0 and then enter "not tracked" in the comments.	3.5.1		3.5.2	
STATE	Answer	Comment		High Hazard Potential Dams		Significant Hazard Potential Dams	
	Answer	Comment	Comment	Answer	Comment	Answer	Comment
ILLINOIS	147			170		72	
INDIANA	10			136		10	
IOWA	2	This number has dropped since the last reporting as it included FERC regulated dams which are not state regulated.		26		2	
MICHIGAN	130			0		130	
MINNESOTA	7			24		3	
OHIO	297			228		209	
PENNSYLVANIA	196			709		191	
WISCONSIN	51			133		51	
TOTAL	840			1426		668	

3.6 Number of EAPs Updated					
Indicate the number of up-to-date EAPs for each classification. FEMA-64 provides the following guidance for maintaining an EAP, "The EAP should be updated promptly to address changes in personnel and contact information, significant changes to the facility, or emergency procedures. The EAP should be reviewed at least annually for adequacy and updated as needed." Each state should provide an answer for this question based on this guidance. If you do not have an exact number but can provide an estimate, please provide the estimate and indicate "estimate" in the comments. If your agency does not track this information and you cannot provide an estimate, enter 0 and then enter "not tracked" in the comments.		3.6.1		3.6.2	
		High Hazard Potential Dams:		Significant Hazard Potential Dams	
		Answer	Comment	Answer	Comment
STATE	Comments				
ILLINOIS		220	estimate	130	Estimate
INDIANA		21		0	
IOWA		1		0	
MICHIGAN		42		53	
MINNESOTA		7		0	
OHIO		154		138	
PENNSYLVANIA		277		65	
WISCONSIN		0		0	
TOTAL		722		386	

3.7 Number of EAPs Exercised

Enter the number of EAPs exercised during the past five years (up to date and exercised apply to all EAPs, not necessarily full). If your agency does not track this information, enter 0 and then enter “not tracked” in the comments.

3.7.1

High Hazard Potential Dams

3.7.2

Significant Hazard Potential Dams

STATE	Comment	Answer	Comment	Answer	Comment
ILLINOIS		50		15	
INDIANA		46		9	
IOWA		0		1	
MICHIGAN		0		0	
MINNESOTA		3		1	
OHIO		0		0	
PENNSYLVANIA		0	Not Tracked	0	Not Tracked
WISCONSIN		0		0	
TOTAL		99		26	

APPENDIX L-4

PROGRAM COMPARISON WITH OTHER STATES

REMEDATION

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

Section 4 - Remediation & Removal						
		4.1 Dams Remediated Number of state regulated dams that have been remediated (that is construction has been completed) this reporting period (calendar year 2018) because of dam safety deficiencies. (Note - this question lends itself to interpretation and potential confusion on what is a dam safety deficiency and whether a dam must meet all dam safety standards to be considered to have been remediated. It will be up to each state to answer it as they see fit. ASDSO is attempting to move away from this question and obtaining all remediation data from the NID Condition Assessment field in the future.)				
			High Hazard Potential Dams	Significant Hazard Potential Dams	Low Hazard Potential Dams	Total Dams
STATE	Comment	Comment	# Remediated	# Remediated	# Remediated	# Remediated
ILLINOIS			0	0	0	0
INDIANA			2	1	1	4
IOWA		Estimated.	0	2	0	2
MICHIGAN			3	4	10	17
MINNESOTA		Goedtke, Noordmans WMA, Collinwood, Big Pine, and Kings Lake	0	0	9	9
OHIO			7	5	4	16
PENNSYLVANIA			5	0	2	7
WISCONSIN			10	0	29	39
TOTAL			27	12	55	94

4.2 Dams Which Had Risk Reduction Measures

For the state regulated dams that have been identified as in need of remediation and construction has not been completed during this reporting period, how many dams have used other risk reduction measures? Examples of other risk reduction measures include reservoir restrictions, early warning systems, plans for emergency reservoir drawdown, lowering reservoir in advance of storm. Only include dams that have been identified as in need of remediation (poor or unsatisfactory NID condition assessment). If a dam had a reservoir restriction in 2017 and continued into 2018, include the dam. This number should include all state regulated dams (that have been identified as in need of remediation) with risk reduction measures currently in place.

4.2.1

4.2.2

4.2.3

High Hazard Potential Dams

Significant Hazard Potential Dams

Low Hazard Potential Dams

STATE	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS	not tracked unless a change in classification occurs	0		0		0	
INDIANA		0		0		0	
IOWA		0		0		0	
MICHIGAN		0		1		1	
MINNESOTA	Bronson, Lanesboro, Pelican Rapids	3		0		0	
OHIO		8		10		1	
PENNSYLVANIA		2		0		0	
WISCONSIN		2		2		9	
TOTAL		15		13		11	

4.3 State Dams Removed

Number of state regulated dams that have been removed from regulation this reporting period (calendar year 2018) for any reason.

4.3.1

High Hazard Potential Dams

4.3.2

Significant Hazard Potential Dams

4.3.3

Low Hazard Potential Dams

STATE	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS		0		2		2	
INDIANA		1		0		2	
IOWA	Estimated.	0		0		2	
MICHIGAN		2		0		5	
MINNESOTA		0		0		0	
OHIO		1		1		2	
PENNSYLVANIA		1		0		5	
WISCONSIN		0		0		4	
TOTAL		5		3		22	

APPENDIX L-5

PROGRAM COMPARISON WITH OTHER STATES

FAILURES AND INCIDENTS

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

Section 5 - Failures/Incidents			
		5.1 Did your state experience any failures or significant incidents during the reporting period (calendar year 2018)? If yes, ASDSO will contact you. (Note – <u>please report all failures regardless of jurisdiction/regulatory authority</u> and significant incident is defined as an incident when an EAP should have been implemented, whether it was or not.)	
STATE	Comment	Answer	Comment
ILLINOIS		No	
INDIANA		Yes	
IOWA		Yes	1 low hazard dam and one significant hazard dam.
MICHIGAN		Yes	
MINNESOTA		Yes	
OHIO		Yes	
PENNSYLVANIA		Yes	
WISCONSIN		Yes	
TOTAL		7 Yes, 1 No	

APPENDIX L-6

PROGRAM COMPARISON WITH OTHER STATES

ANNUAL BUDGET

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

Section 6 - Annual Budget						
		6.1	6.1.1		6.1.2	
		Indicate below your state's fiscal year 2019 dam safety program budget on an annual basis (provide figure for one year if it is a two-year budget). Do not include National Dam Safety Program (FEMA-administered) grants. (If your state does not separate dam safety expenditures from departmental budget, please provide the estimated dam safety costs as part of the comments.) Do not include capital (construction and repair) budget amounts.				
			Budget Cycle Begin Date		Budget Cycle End Date	
STATE	Comment	Comment	Answer	Comment	Answer	Comment
ILLINOIS			1-Jul-19		30-Jun-20	
INDIANA			1-Jul-18		30-Jun-19	
IOWA			1-Jul-18		30-Jun-19	
MICHIGAN			1-Oct-18		30-Sep-19	
MINNESOTA			1-Jul-18		30-Jun-19	
OHIO			1-Jul-17		30-Jun-18	
PENNSYLVANIA			1-Jul-18		30-Jun-19	
WISCONSIN			1-Jul-18		30-Jun-19	
TOTAL						

6.1.3			6.1.4			
Total Budget			Breakdown	Personnel	Consultant Services (i.e., funds the state uses to hire consultants to perform inspections, do plan reviews, etc.)	Other
STATE	Answer	Comment	Comment	Answer	Answer	Answer
ILLINOIS	\$ 430,000.00			\$ 265,000.00	\$ -	\$ 165,000.00
INDIANA	\$ 500,000.00			\$ 410,000.00	\$ 40,000.00	\$ 50,000.00
IOWA	\$ 125,000.00			\$ 125,000.00	\$ -	\$ -
MICHIGAN	\$ 397,215.00			\$ 352,686.00	\$ -	\$ 44,529.00
MINNESOTA	\$ 448,000.00		0.5 admin not included in budget	\$ 420,000.00	\$ 3,000.00	\$ 25,000.00
OHIO	\$ 1,822,986.00			\$ 1,544,457.00	\$ -	\$ 278,529.00
PENNSYLVANIA	\$ 2,833,832.00			\$ 2,603,832.00	\$ 40,000.00	\$ 190,000.00
WISCONSIN	\$ 752,000.00			\$ 690,000.00	\$ 40,000.00	\$ 22,000.00
TOTAL	\$ 7,309,033.00			\$ 6,410,975.00	\$ 123,000.00	\$ 775,058.00

APPENDIX L-7

PROGRAM COMPARISON WITH OTHER STATES

STAFFING

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

	Section 7 - Staffing	7.1 Staffing FTEs <
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7.2 Estimates											
7.2 Estimates		7.2.1		7.2.2		7.2.3		7.2.4		7.2.5	
		Inspection		Permitting/Design Reviews		Enforcement		Emergency Response/EAP Preparedness		Other	
STATE	Comments	Answer	Comments	Answer	Comments	Answer	Comments	Answer	Comments	Answer	Comments
ILLINOIS		35		20		10		30		5	
INDIANA		65		20		5		5		5	
IOWA		30		25		10		30		5	
MICHIGAN		67		20		7		3		3	
MINNESOTA		35		40		5		10		10	
MISSISSIPPI		40		20		10		20		10	
OHIO		40		25		18		12		5	
PENNSYLVANIA		40		40		10		10		0	
WISCONSIN		20		15		20		10		35	
TOTAL OR AVERAGE	AVERAGE (MEAN)	41.33333333	AVERAGE (MEAN)	25	AVERAGE (MEAN)	10.55555556	AVERAGE (MEAN)	14.4444	AVERAGE (MEAN)	8.66667	

APPENDIX L-8

PROGRAM COMPARISON WITH OTHER STATES

STATE STATISTICS

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

Section 8 - State Statistics								
STATE		Comment	8.1					
			8.1.1		8.1.2		8.1.3	
			High Hazard Potential Dams		Significant Hazard Potential Dams		Low Hazard Potential Dams	
			Answer	Comment	Answer	Comment	Answer	Comment
KENTUCKY			179		132		643	
LOUISIANA			41		66		437	
MICHIGAN			89		133		839	
MINNESOTA		Does not include FERC dams. We have authority, but don't dually regulate. We don't have most recent inspection, EAP, or condition assessment info in some cases.	24		112		875	
MISSISSIPPI			362		56		6423	
OHIO			366		552		560	
PENNSYLVANIA			744		292		2346	
WISCONSIN			143		66		616	
TOTAL			2786		2423		24564	

8.2								
8.2.1 Less than 50 feet tall								
Number of state regulated new dams that are being constructed this reporting period (i.e. have begun but not yet completed construction).			8.2.1.1		8.2.1.2		8.2.1.3	
			High Hazard Potential Dams		Significant Hazard Potential Dams		Low Hazard Potential Dams	
STATE	Comment	Comment	Answer	Comments	Answer	Comments	Answer	Comments
ILLINOIS			3		1		3	
INDIANA			0		0		0	
IOWA			0		2		27	
KANSAS			0		0		3	

8.2								
Number of state regulated new dams that are being constructed this reporting period (i.e. have begun but not yet completed construction).		8.2.1 Less than 50 feet tall						
		8.2.1.1		8.2.1.2		8.2.1.3		
		High Hazard Potential Dams		Significant Hazard Potential Dams		Low Hazard Potential Dams		
STATE	Comment	Comment	Answer	Comments	Answer	Comments	Answer	Comments
KENTUCKY			1	Scenic Lake Dam	0		1	KU Trimble
LOUISIANA			0		1		5	
MICHIGAN			0		0		0	
MINNESOTA			1	Essar reclaim pond	0		1	Lake Zumbro CDF
MISSISSIPPI			2		0		4	
OHIO			0		0		2	
PENNSYLVANIA			0		0		7	
WISCONSIN			0		0		6	
TOTAL			7		4		59	

8.2.2 - 50 to 100 feet tall								8.2.3 Dams Under Construction Greater than 100 feet tall							
		8.2.2.1		8.2.2.2		8.2.2.3				8.2.3.1		8.2.3.2		8.2.3.3	
		High Hazard Potential Dams		Significant Hazard Potential Dams		Low Hazard Potential Dams				High Hazard Potential Dams		Significant Hazard Potential Dams		Low Hazard Potential Dams	
STATE	Comment	Answer	Comment	Answer	Comments	Answer	Comments	Comments	Answer	Comments	Answer	Comments	Answer	Comments	
ILLINOIS		5		0		2			4		0		0		
INDIANA		0		0		0			0		0		0		
IOWA		0		0		0			0		0		0		
KANSAS		0		0		0			0		0		0		

8.2.2 - 50 to 100 feet tall														
8.2.2.1								8.2.3 Dams Under Construction Greater than 100 feet tall						
8.2.2.2								8.2.3.1			8.2.3.2		8.2.3.3	
High Hazard Potential Dams								High Hazard Potential Dams			Significant Hazard Potential Dams		Low Hazard Potential Dams	
STATE	Comment	Answer	Comment	Answer	Comments	Answer	Comments	Comments	Answer	Comments	Answer	Comments	Answer	Comments
KENTUCKY		0		0		0			0		0		0	
LOUISIANA		0		0		1			0		0		0	
MICHIGAN		0		0		0			1		0		0	
MINNESOTA		0		0		0			0		0		0	
MISSISSIPPI		0		0		0			0		0		0	
OHIO		0		0		0			0		0		0	
PENNSYLVANIA		4		0		0			8		0		0	
WISCONSIN		0		0		0			0		0		0	
TOTAL		9		0		3			13		0		0	

8.3															
8.3		8.4													
Does the state have a dam rehabilitation/repair loan or grant program?		Indicate specific challenges to your state's dam safety program. (Select as many as apply and provide additional information in the Comments field.)		Sufficient funding for the program	Staff Training	Completing the state inventory of dams, i.e. - finding new dams not inventoried	Emergency Action Planning (insufficient authority to require them and/or insufficient cooperation/enforcement to get them completed)	Educating dam owners about their responsibilities	Staffing (retaining qualified staff, salary issues, and interest by incoming young engineers)	Insufficient authority to regulate all high, significant and low hazard potential dams in the state	Hazard creep - changing hazard class of dams due to downstream development	Creating current dambreak models	Dam security	Other (please list in the Comments field)	
STATE	Answer	Comments	Comments	Answer	Answer	Answer	Answer	Answer	Answer	Answer	Answer	Answer	Answer	Answer	Answer
ILLINOIS	No			Yes	No	No	No	No	Yes	No	No	No	No	No	No
INDIANA	No			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
IOWA	No			Yes	No	No	Yes	Yes	No	No	Yes	No	No	No	No
KANSAS	Yes	The grant program is administered by the Kansas Department of Agriculture, Division of Conservation.		Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No

STATE	8.3 Does the state have a dam rehabilitation/repair loan or grant program?		8.4 Indicate specific challenges to your state's dam safety program. (Select as many as apply and provide additional information in the Comments field.)	Sufficient funding for the program	Staff Training	Completing the state inventory of dams, i.e. - finding new dams not inventoried	Emergency Action Planning (insufficient authority to require them and/or insufficient cooperation/enforcement to get them completed)	Educating dam owners about their responsibilities	Staffing (retaining qualified staff, salary issues, and interest by incoming young engineers)	Insufficient authority to regulate all high, significant and low hazard potential dams in the state	Hazard creep - changing hazard class of dams due to downstream development	Creating current dambreak models	Dam security	Other (please list in the Comments field)
	Answer	Comments												
KENTUCKY	No			Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes
LOUISIANA	No			Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No
MICHIGAN	Yes			Yes	Yes	No	No	Yes	No	No	No	Yes	No	No
MINNESOTA	Yes		Review of both new and ongoing construction at tailings dams.	Yes	No	No	No	Yes	No	No	No	No	No	Yes
MISSISSIPPI	No			Yes	No	Yes	No	Yes	Yes	No	Yes	No	No	No
OHIO	Yes			Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
PENNSYLVANIA	Yes			Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No
WISCONSIN	Yes			No	Yes	Yes	No	No	Yes	No	No	No	No	No
TOTAL	6 Yes, 6 No			11 Yes, 1 No	5 Yes, 7 No	7 Yes, 5 No	6 Yes, 6 No	9 Yes, 3 No	9 Yes, 3 No	3 Yes, 9 No	7 Yes, 5 No	6 Yes, 6 No	2 Yes, 10 No	2 Yes, 10 No

8.5		
What kinds of projects are supported by state dam safety assistance grants?		
STATE	Answer	Comments
ILLINOIS	Inspections, workshops, training	
INDIANA	EAP and inundation map development & practice, staff training, owner / partner education and outreach	
IOWA	Project review/permitting. Public Outreach/Dam Owner Workshops Periodic Dam Safety Inspections Preparation of Emergency Action Plans/Inundation Maps	
KANSAS	Staff training, New computers or other equipment, Acquiring Lidar, EAP review, Developing breach inundation maps, Safety inspection review, Dam Safety Conference, public outreach..	Staff training, New computers or other equipment, Acquiring Lidar, EAP review, Developing breach inundation maps, Safety inspection review, Dam Safety Conference, public outreach.

8.5		
What kinds of projects are supported by state dam safety assistance grants?		
STATE	Answer	Comments
KENTUCKY	Periodic Dam Inspections. Dam enforcement and compliance Hydrologic & hydraulic modeling Staff Training Preparation of Emergency Action Plans/Inundation Maps Public Outreach	
LOUISIANA	It supplements state-funded dam safety inspection and EAP preparation contract, travel expenses for inspection, ASDSO training, FEMA-sponsored training, and inspection supplies and equipment as needed.	
MICHIGAN	Primarily Inspections, compliance activity, outreach.	
MINNESOTA	EAP related projects such as performing dam breach analyses, developing inundation maps, and updating the EAPs. Dam safety inspections. Training dam safety engineers and dam owners on current dam safety issues. Public outreach on the status of dam infrastructure and the dam safety program in Minnesota.	
MISSISSIPPI	New equipment / Staffing / Public outreach / periodic inspections / staff training / preparation of Emergency Action Plans and inundation maps	
OHIO	Preparation and Review of EAP's, Staff Training, Owner Education during inspections, and enforcement actions.	
PENNSYLVANIA	Public outreach and owner workshops Low hazard dam inspections Inundation map GIS development Staff training New equipment	
WISCONSIN	workshops, staff training, inspections, equipment updates for field engineers.	
TOTAL		

APPENDIX L-9

PROGRAM COMPARISON WITH OTHER STATES

SECURITY

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

STATE	Section 9 - Security (based on the Guidelines for State Dam Safety Office Implementation of a Dam Security Program)							
	Please indicate Yes or No if the State Dam Safety Program does each of the following.		9.1 Develop awareness of dam security issues and responsibilities					
			9.1.1		9.1.2		9.1.3	
			Conduct periodic security briefings to dam safety personnel?		Provide periodic security training to dam safety personnel?		Utilize the ASDSO's Security, Protection and Risk Mitigation for Critical Infrastructure Dams Website?	
Comment	Comment	Answer	Comment	Answer	Comment	Answer	Comment	
ILLINOIS			No		Yes		Yes	
INDIANA			No		No		No	
IOWA			No		No		No	
MICHIGAN			Yes		Yes		No	
MINNESOTA			No		No		No	
OHIO			No		No		No	
PENNSYLVANIA			Yes		Yes		Yes	
WISCONSIN			Yes		Yes		Yes	
TOTAL			3 Yes, 5 No		4 Yes, 4 No		3 Yes, 5 No	

9.1.4			9.1.6		9.1.7		9.1.8	
Utilize the Homeland Security Information Network - Critical Sector (HSIN-CS) Dams Portal?			Develop a consolidated reference library of dam security documents?		Encourage dam owner/operator and first responder awareness of dam security issues?		Encourage reporting of suspicious activities?	
STATE	Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS	No		No		Yes		Yes	
INDIANA	No		No		Yes		Yes	
IOWA	Yes		No		Yes		Yes	
MICHIGAN	No		Yes		Yes		Yes	
MINNESOTA	Yes		No		No		No	
OHIO	No		No		No		No	
PENNSYLVANIA	Yes		Yes		Yes		Yes	
WISCONSIN	Yes		No		Yes		Yes	
TOTAL	4 Yes, 4 No		2 Yes, 6 No		6 Yes, 2 No		6 Yes, 2 No	

9.2 Collaborate with state, federal and national organizations with dam security responsibilities													
		9.2.1		9.2.2		9.2.3		9.2.4		9.2.5		9.2.6	
		Coordinate and collaborate with state and local agencies?		Coordinate and collaborate with dam owners?		Coordinate and collaborate with state agency dam owners?		Participate in national dam security meetings and committees?		Support federal requests for information regarding dam security?		Meet and collaborate with DHS protective security advisors?	
STATE	Comment	Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS		Yes		Yes		Yes		No		Yes		No	
INDIANA		Yes		Yes		Yes		No		Yes		Yes	
IOWA		Yes		Yes		Yes		Yes		Yes		Yes	
MICHIGAN		Yes		Yes		Yes		No		Yes		No	
MINNESOTA		No		No		No		No		No		No	
OHIO		Yes		Yes		Yes		No		Yes		No	
PENNSYLVANIA		Yes		Yes		Yes		Yes		Yes		Yes	
WISCONSIN		Yes		Yes		Yes		Yes		Yes		Yes	
TOTAL		7 Yes, 1 No		7 Yes, 1 No		7 Yes, 1 No		3 Yes, 5 No		7 Yes, 1 No		4 Yes, 4 No	

9.3 Identify, prioritize, and evaluate security risks on state-regulated dams											
STATE	Comment	9.3.1 Conduct consequence-based prioritization of state-regulated dams to determine high-priority/critical dam infrastructure under state jurisdiction?		9.3.2 Complete security inspection?		9.3.3 Complete vulnerability assessments?		9.3.3.1 Physical?		9.3.3.2 Cyber?	
		Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS		Yes		No		No					
INDIANA		No		No		No					
IOWA		Yes		No		No					
MICHIGAN		No		No		No					
MINNESOTA		No		No		No					
OHIO		No		No		No					
PENNSYLVANIA		No		No		No					
WISCONSIN		Yes		No		Yes					
TOTAL		3 Yes, 5 No		0 Yes, 8 No		1 Yes, 7 No		0 Yes, 0 No		0 Yes, 0 No	

	9.3.4						9.3.5		9.3.6	
			9.3.4.1		9.3.4.2					
	Complete risk assessments?		Physical?		Cyber?		Develop a state dam security implementation plan?		Oversee the development of security plans for individual dams?	
STATE	Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS	No						No		No	
INDIANA	No						No		No	
IOWA	No						No		No	
MICHIGAN	No						No		No	
MINNESOTA	No						No		No	
OHIO	No						No		No	
PENNSYLVANIA	No						No		No	
WISCONSIN	No						Yes		No	
TOTAL	0 Yes, 8 No		0 Yes, 0 No		0 Yes, 0 No		1 Yes, 7 No		0 Yes, 8 No	

	9.3.7		9.3.8		9.3.9	
	Oversee implementation of protective measures on dams?		Monitor effectiveness of protective measures on dams?		Track general status/progress of dam security for state-regulated dams?	
STATE	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS	No		Yes		Yes	
INDIANA	No		No		No	
IOWA	No		No		No	
MICHIGAN	No		No		No	
MINNESOTA	No		No		No	
OHIO	No		No		No	
PENNSYLVANIA	No		No		No	
WISCONSIN	No		No		No	
TOTAL	0 Yes, 8 No		1 Yes, 7 No		1 Yes, 7 No	

9.4 Conduct security exercises and participate in related activities											
		9.4.1				9.4.2		9.4.3		9.5 Security Clearance	
		Encourage a periodic security exercise program for high-priority/critical state-regulated dams?				Utilize existing exercise-planning tools?		Participate in federal, cross-sector, or regional exercises and assessments?		9.5.1	
										How many members of the State Dam Safety Agency have a DHS-sponsored security clearance?	
STATE	Comment	Answer	Comment	Answer	Comment	Answer	Comment	Comment	Answer	Previous Answer	Comment
ILLINOIS		Yes		Yes		Yes			0	0	
INDIANA		Yes		No		Yes			0	0	
IOWA		No		No		No			1	1	
MICHIGAN		No		No		No			0	0	
MINNESOTA		No		No		No			0	0	
OHIO		No		No		No			0	0	
PENNSYLVANIA		Yes		Yes		Yes			2	1	
WISCONSIN		Yes		Yes		Yes			0	1	
TOTAL		4 Yes, 4 No		3 Yes, 5 No		4 Yes, 4 No			3	3	

APPENDIX L-10

PROGRAM COMPARISON WITH OTHER STATES

COMPLIANCE

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

Section 10 - Compliance with Basic Criteria found in Public Law 109-460, Dam Safety Act of 2006										
STATE	In order to qualify for State assistance from FEMA, a State must be working toward meeting the following criteria. Please indicate whether your State meets the following criteria authorized by State legislation.	10.1 The authority to review and approve plans and specifications for the following:								
			10.1.1		10.1.2		10.1.3		10.1.4	
			Dam Construction		Dam Enlargement		Dam Removal		Abandonment of Dams	
	Comment	Comment	Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS			Yes		Yes		Yes		Yes	Considered a modification, not abandonment. If contents of a reservoir are shown to be permanently solid, structure does not meet the state's definition of a dam and is no longer regulated.
INDIANA			Yes		Yes		Yes		Yes	
IOWA			Yes		Yes		Yes		Yes	
MICHIGAN			Yes		Yes		Yes		Yes	
MINNESOTA			Yes		Yes		Yes		Yes	
OHIO			Yes		Yes		Yes		Yes	
PENNSYLVANIA			Yes		Yes		Yes		Yes	
WISCONSIN			Yes		Yes		Yes		Yes	
TOTAL			8 Yes, 0 No		8 Yes, 0 No		8 Yes, 0 No		8 Yes, 0 No	

STATE	10.2 The authority to perform periodic inspections during dam construction to ensure compliance with approved plans and specifications.		10.3 A requirement that, on completion of dam construction, state approval must be given before operation of a Dam.		10.4 The authority to require or perform periodic evaluations of all dams and reservoirs to determine the extent of the threat to human life and property in case of failure.		10.5 The authority to require or perform the inspection, at least once every five years, of all Dams and reservoirs that would pose a significant threat to human life and property in case of failure to determine the continued safety of the Dams and reservoirs.		10.5.1 A procedure for more detailed and frequent safety inspections.	
	Answer	Comments	Answer	Comments	Answer	Comments	Answer	Comments	Answer	Comments
ILLINOIS	Yes		Yes		Yes		Yes		Yes	
INDIANA	Yes		No		Yes		Yes		Yes	
IOWA	Yes		Yes		Yes		Yes		Yes	
MICHIGAN	Yes		Yes		Yes		Yes		Yes	
MINNESOTA	Yes		Yes		Yes		Yes		Yes	
OHIO	Yes		Yes		Yes		Yes		Yes	
PENNSYLVANIA	Yes		Yes		Yes		Yes		Yes	
WISCONSIN	Yes		Yes		Yes		Yes		Yes	
TOTAL	8 Yes, 0 No		7 Yes, 1 No		8 Yes, 0 No		8 Yes, 0 No		8 Yes, 0 No	

	10.6		10.7 The authority to issue notices, when applicable, to require owners of Dams to:								
	A requirement that all inspections be performed under the supervision of a state- registered professional engineer with related experience in dam design and construction.			10.7.1		10.7.2		10.7.3		10.7.4	
				Perform necessary maintenance or remedial work		Install and monitor instrumentation		Improve security		Revise operating procedures, or take other actions including breaching dams when necessary	
STATE	Answer	Comments	Comment	Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS	Yes			Yes		Yes		Yes		Yes	
INDIANA	No	Indiana only has authority for this requirement for high hazard dams.		Yes		Yes		No		Yes	
IOWA	No			Yes		Yes		No		Yes	
MICHIGAN	Yes			Yes		Yes		No		Yes	
MINNESOTA	Yes			Yes		Yes		No	No specific authority, but it could be implied authority for corrective actions relating to operation.	Yes	
OHIO	Yes			Yes		Yes		No		Yes	
PENNSYLVANIA	Yes			Yes		Yes		No		Yes	
WISCONSIN	Yes			Yes		Yes		Yes		Yes	
TOTAL	6 Yes, 2 No			8 Yes, 0 No		8 Yes, 0 No		2 Yes, 6 No		8 Yes, 0 No	

	10.8		10.9 Provisions for necessary funding		10.9				10.10	
	Regulations for carrying out the legislation of the State described in Questions 10.1-10.7				10.9.1		10.9.2			
					To ensure timely repairs or other changes to, or removal of, a Dam in order to protect human life and property		If the owner of the Dam does not take action described above, to take action as expeditiously as practicable		A system of emergency procedures to be used if a dam or the failure of the dam is imminent.	
STATE	Answer	Comments	Answer	Comment	Answer	Comment	Answer	Comment	Answer	Comments
ILLINOIS	Yes		Yes		Yes		Yes		Yes	
INDIANA	Yes		Yes		Yes		Yes		Yes	
IOWA	Yes		No		No		No		Yes	
MICHIGAN	Yes		Yes		Yes		Yes		Yes	
MINNESOTA	Yes		Yes		Yes		Yes		Yes	
OHIO	Yes		No		Yes		Yes		Yes	
PENNSYLVANIA	Yes		Yes		Yes		Yes		Yes	
WISCONSIN	Yes		Yes		Yes		Yes		Yes	
TOTAL	8 Yes, 0 No		6 Yes, 2 No		7 Yes, 1 No		7 Yes, 1 No		8 Yes, 0 No	

10.11 An identification of:							
STATE	Comment	10.11.1		10.11.2		10.11.3	
		Answer	Comment	Answer	Comment	Answer	Comment
ILLINOIS		Yes		Yes		Yes	
INDIANA		No		No		No	
IOWA		No		No		No	
MICHIGAN		Yes		Yes		No	
MINNESOTA		Yes		Yes		Yes	
OHIO		Yes		Yes		Yes	
PENNSYLVANIA		Yes		Yes		Yes	
WISCONSIN		Yes		Yes		Yes	
TOTAL		6 Yes, 2 No		6 Yes, 2 No		5 Yes, 3 No	

APPENDIX L-11

PROGRAM COMPARISON WITH OTHER STATES

COMMUNITY RATING SYSTEM

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

Section 11 - Community Rating System					
For purposes of determining the risk communication and public awareness (RC/PA) credit for your state, please answer the following questions.		11.1 In calendar year 2018, how many seminars, courses, or workshops related to dam safety did the State sponsor for dam owners? If exact number is unknown, please provide estimate. This can include direct meetings with dam owners to discuss issues with operation and maintenance, emergency preparedness, etc. In the Comments, provide an explanation of the number. These comments will be included in ASDSO State Program Performance Report, available from the ASDSO web site.		11.2 How many current manuals that address aspects of dam safety (e.g., dam design or emergency action plans) does the State have available to the public? Publishing the dam safety statute or regulations does not count. Manuals can include technical documents from other sources such as ASDSO, FEMA, USACE, NRCS, other states, etc. and they can be provided in hard copy or downloadable versions (including providing links to these documents from your website).	
STATE	Comment	Answer	Comments	Answer	Comments
ILLINOIS		15	estimate	2	
INDIANA		10	3 EAP workshops, the "2018 DIRT Seminar" (dam information resources and training), several one on one training sessions with dam owners	3	
IOWA		50	Primarily through meetings with owners during dam inspections.	7	
MICHIGAN		20	This number is an estimate. It includes seminars, courses, and workshops that were sponsored by the state program and/or where state dam safety staff participated as a speaker. The number also includes direct meetings/contact with dam owners to discuss issues with O&M and emergency preparedness.	100	
MINNESOTA		24	Direct meetings with dam owners estimated at 2 per month.	3	
OHIO		0		8	
PENNSYLVANIA		10	Estimated - We are providing workshops throughout the state for electronic EAP submittals.	2	
WISCONSIN		3	Dam Safety workshops for dam owners and consultants	7	
TOTAL		132		132	

11.3		11.4		11.4.1	
When the State identifies a high-hazard potential dam to be in either poor or unsatisfactory condition (i.e. deficient), does the State coordinate with State and local emergency management officials and local decision makers of communities potentially impacted by the dam by notifying them of the dam's condition?		Does the state dam safety program make information on the downstream hazard potential classification, available to the public? This can be either through a published list or provided upon request		How is downstream hazard potential classification made available to the public?	
STATE	Answer	Comments	Answer	Comments	Answer
ILLINOIS	Yes		Yes		By published public notice during the permitting process and by request thereafter.
INDIANA	No		Yes		Provided upon request
IOWA	Yes		Yes		Online database, Published GIS coverage and upon request.
MICHIGAN	Yes		No		
MINNESOTA	Yes		Yes		Upon request.
OHIO	Yes		No		
PENNSYLVANIA	Yes		Yes		Through public Posting Notices that the dam owner must place at public locations (municipal building, post office, police barracks, fire departments, grocery store, etc) within the potential inundation area of the dam. EAPs are available for public review at our office and emergency management official locations through the state.
WISCONSIN	Yes		Yes		Through the requirement of local zoning authorities to adopt the dam failure floodplain into their local zoning ordinance.
TOTAL	7 Yes, 1 No		6 Yes, 2 No		

11.5				
Does the state dam safety program make information on dams identified as unsafe or assigned a NID condition assessment rating of either poor or unsatisfactory, based on the State dam safety inspector's assessment, available to the public? This can be either through a published list or provided upon request.		11.5.1		
		How is the condition assessment made available to the public?		
STATE	Answer	Comments	Answer	Comments
ILLINOIS	No			
INDIANA	Yes		Provided upon rquest	
IOWA	Yes		Online database.	
MICHIGAN	Yes		The information is available to the public through the State Freedom of Information Act.	
MINNESOTA	Yes		Upon request.	
OHIO	Yes		By request	
PENNSYLVANIA	Yes		This information is provided upon request and is subject to the state's right-to-know law and homeland security scrutiny when appropriate.	
WISCONSIN	No			
TOTAL	6 Yes, 2 No			

APPENDIX M

ESTIMATION OF FTE's NEEDED

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

Estimation of FTE's Required for Michigan (Owner Inspection Model with Engineering Services Contract)

BRIEF DESCRIPTION OF THIS ESTIMATE:

The estimated FTE requirements for the Michigan DSP will be dependent on any revisions to the current legislation and rules, as well as other changes resulting from the Peer Review Recommendations.

Currently the legislation has established an inspection frequency as follows: every 3 years for high hazard dams; every four years for significant hazard dams; and, every 5 years for low hazard dams.

The Manual and MDSP recommend annual inspections of high hazard dams and biennial inspections of significant hazard dams. Inspections of low hazard dams every 5 years is sufficient. Chapter VI of the MDSP discusses the staffing requirements for a state dam safety program to be effective and accountable and for personnel levels to be adequate to satisfy the statutory mandates.

Adjustments of 30% (Clerical/Administrator) are applied to technical staff time to account for the Dam Safety Unit Clerical Position and Supervisor. Using the guidance in the MDSP, the Team has estimated the recommended staffing level for the DSP based on the following criteria developed from information provided by the DSP:

- Michigan continues to administer an owner inspection model (i.e., inspections of dams are required to be completed by the owner).
- Michigan will require inspections of their inventory at the following frequency:
 - 93 High Hazard Dams Annual
 - 133 Significant Hazard Dams Biennial
 - 843 Low Hazard Dams Quinquennial
- Michigan DSP staff will continue to perform approximately 35-40 annual inspections for state owned dams and select municipally owned dams.
- Michigan will perform approximately 327 quality reviews of owner performed inspections based on the 1-2-5 model.
- Michigan will perform follow up on 10% of the dam inspections for questions and dam safety deficiency issues.
- Michigan will perform follow up on 10% of the dam inspections for questions and dam safety deficiency issues.
- Michigan will perform reviews of 50 EAP's per year.
- Michigan will review one permit application for a new dam each year.
- Michigan will review 30 permit applications for dam rehabilitations per year.
- Michigan will perform reviews of 5 dam removals per year.

Estimation of FTE's Required for Michigan (Owner Inspection Model with Engineering Services Contract)

- Michigan will issue approximately 20 NOV's per year to non-compliant dam owners.
- Michigan will require re-evaluations of high hazard dams every ten years and will begin that program with 9 re-evaluations per year
- Michigan will issue a 4-year Engineering Services Contract to a consultant for on call services to perform certain tasks for the DSP including:
 - Review of all significant and low hazard dam inspections each year (234/yr)
 - Perform inspections of all state and selected municipally owned dams each year (30/yr)
 - Perform review of half of the periodic re-evaluations performed each year (4/yr)
 - Perform construction assurance reviews of dam removals each year (5/yr)

ESTIMATED DSP FTEs

ESTIMATED PERSON DAYS

Average Owner Inspections review		
HH	93 dams x 2 days =	186 person days
SH	131 dams/2 x 1 day = Performed by Engineering Services Contract	66 person days
LH	843 dams/5 x 1 day = Performed by Engineering Services Contract	169 person days
Subtotal Inspections (DSP Staff)		186 person days
Other full annual Inspections of state and municipally owned dams		
	30 dams x 4 days = Performed by Engineering Services Contract	120 person days
Follow-up Deficiencies after Inspections		
	10% x 328 inspections x 2 days (DSP Staff) =	65 person days
Periodic Re-evaluations of High Hazard Dams (Review only, Re-evaluation by Owner)		
	5 dams each year x 10 days = (DSP Staff)	50 person days
	4 dams each year x 10 days = Performed by Engineering Services Contract	40 person days
Average Application & EAP Approvals		
	1 new dam application x 25 days =	25 person days
	35 dam rehabilitations x 10 days =	350 person days
	100 EAP's x 2 days =	200 person days
Subtotal Application Approvals (DSP Staff)		575 person days

Estimation of FTE's Required for Michigan (Owner Inspection Model with Engineering Services Contract)

Enforcement (50 person days per action)	
30 NOV's x 3 days (DSP staff) =	90 person days
30 NOV's x 15 days (Enforcement Staff) =	450 person days
Subtotal Enforcement (DSP Staff)	90 person days

Construction Assurance	
1 new dam x 2 days x 15 visits =	30 person days
35 dam rehabilitations x 2 days x 8 visits =	560 person days
5 dam removals x 1 day x 5 visits = Performed by Eng. Services Contract	25 person days
Subtotal Construction Assurance (DSP Staff)	590 person days

SUBTOTAL (DSP Staff)	1556 person days
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Training and Professional Development	
5% of DSP staff time	78 person days
Holidays and Annual Leave	
10% of DSP staff time	156 person days

TOTAL DAM SAFETY UNIT	1790 person days
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ESTIMATED DSP FTE's

Dam Safety Unit

Total DSP FTE's = 1790 person days / 260 days per year =	6.9 FTE
Clerical/Administrative Support at 30% = 0.3 x 6.9 =	2.1 FTE
Recommend: Clerical	1.0 FTE
Recommend: Dam Safety Unit Supervisor	1.0 FTE

TOTAL DAM SAFETY UNIT	Recommend: * 9 FTE
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Enforcement Unit

Dedicated DSP Enforcement Officers = (450pd's / 260dpy)	1.75 FTE
Training, Professional Development, Holidays and Annual Leave @15%	0.25 FTE
**Clerical/Administrative Support at 0% =	0.0 FTE

TOTAL ENFORCEMENT UNIT - DAM SAFETY	Recommend: *** 2 FTE
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*Includes 7 technical/engineering positions, 1 Supervisor, and 1 Clerical

**Use 0% since Enforcement Unit already has a Supervisor and Clerical

*** Includes 2 dedicated DSP Enforcement Officers. This does not include AG Staff time.

Estimation of FTE's Required for Michigan (Owner Inspection Model with Engineering Services Contract)

Engineering Services Contract

Average Owner Inspections review

SH 131 dams/2 x 1 day = Performed by Engineering Services Contract 66 person days

LH 843 dams/5 x 1 day = Performed by Engineering Services Contract 169 person days

Subtotal Inspections (DSP Staff) 235 person days

Other full annual Inspections of state and municipally owned dams

30 dams x 4 days = Performed by Engineering Services Contract 120 person days

Construction Assurance

5 dam removals x 1 day x 5 visits = Performed by Eng. Services Contract 25 person days

Subtotal Construction Assurance (DSP Staff) 25 person days

TOTAL ENGINEERING CONTRACT SERVICES 380 person days

TOTAL ENGINEERING CONTRACT SERVICES =

380 person days / 260 days per year = 1.5 FTEs

Training, Professional Development, Holidays and Annual Leave @15% 0.25 FTE

TOTAL ENGINEERING CONTRACT SERVICES 1.75 FTE

APPENDIX N

RECOMMENDATIONS

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

APPENDIX N-1

RECOMMENDATIONS

BY

DSP COMPONENT

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

RECOMMENDATIONS

BY DSP COMPONENT

Note: Red font followed by an asterisk (*) denote recommendations likely to require changes in legislation or rules.

MI DSP 2020-01: Legislation and Authority

- **MI DSP 2020-01-a***: The Revision or adoption of laws and/or rules to:
 - Provide liability disclaimer statement for the state agencies' personnel.
 - 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.
 - Require owners to maintain dam operation, monitoring, and maintenance records.
 - 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 assure for the continued safe operation and maintenance of their dam and to assure that funding is available for the DSP to mitigate any hazard presented during a dam incident or emergency, should the Owner fails to do so.
 - Require inspection of construction by DSP staff and the Owner's design engineer.
 - Require the Owner to submit a first-filling plan, including a monitoring schedule, developed by the design engineer, for DSP review and approval.
 - Require periodic exercising of EAPs as discussed further in **MI DSP 2020-15-e**.
 - Meet MDSP recommendations for design floods.
 - Meet MDSP recommendations for inspection frequency as discussed further in **MI DSP 2020-12-a**.
- **MI DSP 2020-01-b***: 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***: The DSP 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 FERC to see if a system-wide simplification of this problem of information transfer can be developed and implemented.
- **MI DSP 2020-01-d***: To provide for future inflation, it is recommended that the value of any dam safety related fees, fines, and penalties be established in the regulations, with the concurrence of the proper EGLE oversight entity.

MI DSP 2020-02: Organizational Management

- **MI DSP 2020-02-a**: EGLE add public safety to its Mission Statement.

MI DSP 2020-03: Program Management

- **MI DSP 2020-03-a**: The DSP manager position description should be revised to include:
 - o Technical experience in the design, construction, operation, and maintenance of dams.
 - o Overall program management.
 - o Mentoring subordinate staff.
 - o Developing a portfolio risk assessment of regulated dams to determine the DSPs priorities.
 - o Prepare a DSP Annual Report for Executive Management.
 - o Perform performance reviews of staff.
 - o Administer a Dam Safety Awareness within the Department and for outside stakeholders. See **MI DSP 2020-17b** and **MI DSP 2020-17c**.
 - o Develop an annual budget request for the DSP.
 - o Track required inspections.
 - o Planning and tracking training for staff.
 - o Ensuring enforcement actions are performed for DSP compliance.

- o Performing QA and assuring QC is practiced.
 - o 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**.
 - o Developing Dam Safety Policies and Procedures Manual.
 - o Leading Dam Safety Initiatives to enhance the protection of the public, the environment and property.
 - o Participating in professional societies such as ASDSO, to remain current, and maintain professional development credits.
 - o Developing a recommendation for a revolving loan program to provide funding for rehabilitation of high hazard publicly owned dams.
- **MI DSP 2020-03-b:** Scheduling routinely scheduled periodic DSP meetings to discuss program issues.
 - **MI DSP 2020-03-c:** Providing a DSP Annual Report to convey the importance and benefits of the program to executive management.
 - **MI DSP 2020-03-d:** 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:** 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 assure consistency in the reviews conducted by various staff.
 - **MI DSP 2020-03-f:** Developing a DSP policy and procedures manual to provide for consistent quality of performance.
 - **MI DSP 2020-03-g:** Developing a recommendation for a revolving loan program to provide funding for rehabilitation of high hazard, publicly owned dams.

MI DSP 2020-04: Resources Allocation

- **MI DSP 2020-04-a:** 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:** Establishing the DSP in a stand-alone Unit under the Field Operations Support Section.
- **MI DSP 2020-04-c:** 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 Michigan DSP Peer Review Report.
- **MI DSP 2020-04-d:** Dedicating two qualified Dam Safety Enforcement Officers for the DSP.

MI DSP 2020-05: Funding and Budgeting

- **MI DSP 2020-05-a:** Restricting the use of FEMA Dam Safety Grant funds solely for DSP enhancements, not DSP salaries.
- **MI DSP 2020-05-b:** Considering detailed input from the DSP Manager when establishing the budget.
- **MI DSP 2020-05-c:** Michigan dam-owner agencies should strive to lead by example, regarding responsible dam ownership. This could start with an inventory-wide assessment of State-owned dams, and then setting financial and project goals to providing adequate yearly routine budget resources and yearly life-cycle budget resources to perform deferred maintenance and rehabilitate any safety deficiencies.
- **MI DSP 2020-05-d*:** 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 fails 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 towards DSP salaries.

MI DSP 2020-06: Policies and Procedures

- **MI DSP 2020-06-a:** 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:** 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.

MI DSP 2020-07: Human Resources

- **MI DSP 2020-07-a:** Executive management develop a DSP Succession Plan to provide for continuity of practice.
- **MI DSP 2020-07-b:** Development of an annual training plan and budget to ensure technical and professional growth of staff.
- **MI DSP 2020-07-c:** Development of a technical engineering career path for several technical/engineering position.
- **MI DSP 2020-07-d:** Revising the qualifications of the DSP Manager to include significant experience in the design, construction, operation, and maintenance of dams.
- **MIDSP 2020-07-e:** 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:** Following reorganization recommended in **MI DSP 2020-04-b**, **MI DSP 2020-04-c** and **MI DSP 2020-04-d**, begin developing work plans to assign staff to the most appropriate projects and provide varied opportunities for staff.
- **MI DSP 2020-07-g:** 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:** Developing a mentoring program for all staff within the DSP.

- **MI DSP 2020-07-i:** Maintaining competitive compensation and benefits to sustain the quality of staff in the DSP.
- **MI DSP 2020-07-j:** 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.

MI DSP 2020-08: Inventory

- **MI DSP 2020-08-a:** Adding missing parameters from the National Inventory of Dams (NID) to the Michigan Inventory of Dams.
- **MI DSP 2020-08-b:** Adding tracking capability to the Michigan Inventory for such things as due dates for inspection reports, responses to NOV/Orders and EAP updates and adding capability to generate reminders of these due dates for staff.

MI DSP 2020-09: Permitting

- **MI DSP 2020-09-a*:** 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*:** 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*:** 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 on-going operation and maintenance of the dam for the lifetime of the facility.

MI DSP 2020-10: Design Reviews

- **MI DSP 2020-10-a:** Consider periodically (i.e., every 4 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 (10-year) detailed dam re-evaluations.
- **MI DSP 2020-10-b*:** Require the Owner of proposed complex projects to provide an independent Board of Review to affirm the Owner's design.
- **MI DSP 2020-10-c:** Develop 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.

MI DSP 2020-11: Re-Evaluations

- **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.

MI DSP 2020-12: Inspections

- **MI DSP 2020-12-a*:** Amending inspection frequencies to annual for high hazard dams and to biennial for significant hazard dams.
- **MI DSP 2020-12-b*:** Establishing a construction inspection requirement for the design engineer and for DSP staff.

- **MI DSP 2020-12-c:** 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:** Frequent inspections by DSP staff during dam construction, alteration, repair and the first filling.

MI DSP 2020-13: 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.

MI DSP 2020-14: Compliance and Enforcement

- **MI DSP 2020-14-a:** Establishing a senior management led priority for portfolio-wide compliance enforcement.
- **MI DSP 2020-14b:** Development of a compliance and enforcement priority list, with 10 or 20 of the most problematic dams initially identified for focused follow up.
- **MI DSP 2020-14-c:** 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-e**), 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:** 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:** 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:** Creation and implementation of Dam Safety 101 and Enforcement Cross Training.
- **MI DSP 2020-14-h*:** 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**).

MI DSP 2020-15: Emergency Response/Emergency Action Plans

- **MI DSP 2020-15-a:** Development of a General Dam Emergency Response Plan designed specifically for dam hazard emergencies, coordinated with the EGLE Emergency Response Manager, the DSP, 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 by the DSP to mitigate any hazard presented by a dam, should the Owner fail to do so..
- **MI DSP 2020-15-b*:** EAPs should be annually checked:
 - for accurate contact information in the notification chart, and
 - for changes in population and facilities at risk as a result of Hazard Creep.
- **MI DSP 2020-15-c*:** 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:** 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*:** 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.

MI DSP 2020-16: Files and Records

- **MI DSP 2020-16-a:** 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:** The DSP should consider storing all paper copies of EAPs in one area to avoid confusion during emergency events.
- **MI DSP 2020-16-c:** The DSP is encouraged to continue their efforts towards moving their inventory to a GIS-based data system.

MI DSP 2020-17: OUTREACH AND AWARENESS

- **MI DSP 2020-17a:** Adding a clear icon link to the DSP.
- **MI DSP 2020-17b:** Providing periodic Dam Safety 101 Awareness Seminars to other appropriate EGLE support staff, PIOs, attorneys, or specific Units and Sections outlining the DSP's mission to protect the environment and public safety.
- **MI DSP 2020-17c:** 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 2020-17d:** 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.

MI DSP 2020-18: Safety at Dams

- **MI DSP 2020-18a:** As a safety at dams 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:
 - Multi-disciplined members that have strong leadership and collaborative talents, public education skills (both youth and adult), graphic information, and database skills.
 - Members should include 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, and
- Finding local champions for safety at dams to advance education and voluntary removal initiatives.

MI DSP 2020-19: Security

- **MI DSP 2020-19a***: 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 dam; and conduct security exercises and participate in related dam security activities.

APPENDIX N-2

RECOMMENDATIONS

BY

CATEGORY AND

RANKING

PEER REVIEW

OF THE

MICHIGAN DAM SAFETY PROGRAM

ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT

**CATEGORY 1 RECOMMENDATIONS
RANKED BY PEER REVIEW TEAM**

CATEGORY 1 RECOMMENDATIONS	CATEGORY 1 RANK
MI DSP 2020-04-b: Establishing the DSP in a stand-alone Unit under the Field Operations Support Section.	1
MI DSP 2020-04-c: 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 Michigan DSP Peer Review Report.	2
MI DSP 2020-07-d: Revising the qualifications of the DSP Manager to include significant experience in the design, construction, operation, and maintenance of dams.	3
MI DSP 2020-04-d: Dedicating two qualified Dam Safety Enforcement Officers for the DSP.	4
MI DSP 2020-14-a: Establishing a senior management led priority for portfolio-wide compliance enforcement	5

CATEGORY 1 RECOMMENDATIONS RANKED BY PEER REVIEW TEAM

CATEGORY 1 RECOMMENDATIONS	CATEGORY 1 RANK
<p>MI DSP 2020-03-a: The DSP manager position description should be revised to include:</p> <ul style="list-style-type: none"> Technical experience in the design, construction, operation, and maintenance of dams. Overall program management. Mentoring subordinate staff. Developing a portfolio risk assessment of regulated dams to determine the DSPs priorities. Prepare a DSP Annual Report for Executive Management. Perform performance reviews of staff. Administer a Dam Safety Awareness within the Department and for outside stakeholders. See MI DSP 2020-17b and MI DSP 2020-17c Develop an annual budget request for the DSP. Track required inspections. Planning and tracking training for staff. Ensuring enforcement actions are performed for DSP compliance. Performing QA and assuring QC is practiced. 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. Developing Dam Safety Policies and Procedures Manual. Leading Dam Safety Initiatives to enhance the protection of the public, the environment and property. Participating in professional societies such as ASDSO, to remain current, and maintain professional development credits. Developing a recommendation for a revolving loan program to provide funding for rehabilitation of high hazard publicly owned dams. 	6
<p>MI DSP 2020-14-b: Development of a compliance and enforcement priority list, with 10 or 20 of the most problematic dams initially identified for focused follow up</p>	7
<p>MI DSP 2020-02-a: EGLE add public safety to its Mission Statement.</p>	8
<p>MI DSP 2020-14-d: Development, or adaptation, of a written policy for violation management and a standardized pathway for progressive enforcement, to apply to dams</p>	9
<p>MI DSP 2020-14-c: 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-e), and legal counsel, for the purpose of creating, following up on, and tracking dam specific strategies, for the above chosen most problematic structures</p>	10

**CATEGORY 1 RECOMMENDATIONS
RANKED BY PEER REVIEW TEAM**

CATEGORY 1 RECOMMENDATIONS	CATEGORY 1 RANK
MI DSP 2020-15-a: Development of a General Dam Emergency Response Plan designed specifically for dam hazard emergencies, coordinated with the EGLE Emergency Response Manager, the DSP, 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 by the DSP to mitigate any hazard presented by a dam, should the Owner fail to do so.	11
MI DSP 2020-14-e: 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	12
MI DSP 2020-03-b: Scheduling routinely scheduled periodic DSP meetings to discuss program issues.	13
MI DSP 2020-03-e: Developing a formal QA/QC program to document QA/QC practice for all work products prepared by the DSP, such as inspection reports, studies, calculations, reports, etc.	14
MI DSP 2020-03-c: Providing a DSP Annual Report to convey the importance and benefits of the program to executive management.	15
MI DSP 2020-06-b: 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.	16
MI DSP 2020-03-g: Developing a recommendation for a revolving loan program to provide funding for rehabilitation of high hazard, publicly owned dams.	17
MI DSP 2020-10-a: Consider periodically (i.e., every 4 years) awarding an Engineering Services Contract to a qualified consulting firm to be readily available should a complex design review or sudden increase in workload occur to assist the DSP in providing a thorough and/or timely engineering review.	18

**CATEGORY 1 RECOMMENDATIONS
RANKED BY PEER REVIEW TEAM**

CATEGORY 1 RECOMMENDATIONS	CATEGORY 1 RANK
MI DSP 2020-12-c: Developing an inspection checklist and/or standard inspection report form to assist dam owners in providing inspection documentation in a consistent manner.	19
MI DSP 2020-17-a: Adding a clear icon link to the DSP.	20
MI DSP 2020-10-c: Develop 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.	21
MI DSP 2020-14-g: Creation and implementation of Dam Safety 101 and Enforcement Cross Training.	22
MI DSP 2020-08-a: Adding missing parameters from the National Inventory of Dams (NID) to the Michigan Inventory of Dams.	23
MI DSP 2020-05-b: Considering input from the DSP Manager when establishing the budget.	24
MI DSP 2020-15-d: 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.	25
MI DSP 2020-16-a: 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.	26
MI DSP 2020-16-b: The DSP should consider storing all paper copies of EAPs in one area to avoid confusion during emergency events.	27
MI DSP 2020-17-b: Providing periodic Dam Safety 101 Awareness Seminars to other appropriate EGLE support staff, PIOs, attorneys, or specific Units and Sections outlining the DSP's mission to protect the environment and public safety.	28
MI DSP 2020-16-c: The DSP is encouraged to continue their efforts towards moving their inventory to a GIS-based data system.	29
MI DSP 2020-07-a: Executive management develop a DSP Succession Plan to provide for continuity of practice.	30
MI DSP 2020-07-h: Developing a mentoring program for all staff within the DSP.	31

**CATEGORY 1 RECOMMENDATIONS
RANKED BY PEER REVIEW TEAM**

CATEGORY 1 RECOMMENDATIONS	CATEGORY 1 RANK
MI DSP 2020-07-j: 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.	32
MI DSP 2020-07-b: Development of an annual training plan and budget to ensure technical and professional growth of staff.	33
MI DSP 2020-17-c: 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: <ul style="list-style-type: none"> - County Drain Commissions - County Emergency Management Officials - Dam Owners - Floodplain managers and residents - Legislators or Legislative Committees - Consulting firms 	34
MI DSP 2020-17d: 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.	35

CATEGORY 2 RECOMMENDATIONS RANKED BY PEER REVIEW TEAM

CATEGORY 2 RECOMMENDATIONS	CATEGORY 2 RANK
<p>MI DSP 2020-01-a*: The Revision or adoption of laws and/or rules to:</p> <ul style="list-style-type: none"> Provide liability disclaimer statement for the state agencies' personnel. 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. Require owners to maintain dam operation, monitoring, and maintenance records. 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 assure for the continued safe operation and maintenance of their dam and to assure that funding is available for the DSP to mitigate any hazard presented during a dam incident or emergency, should the Owner fail to do so. Require inspection of construction by DSP staff and the Owner's design engineer. Require the Owner to submit a first-filling plan, including a monitoring schedule, developed by the design engineer, for DSP review and approval. Require periodic exercising of EAPs as discussed further in MI DSP 2020-15-e. Meet MDSP recommendations for design floods. Meet MDSP recommendations for inspection frequency as discussed further in MI DSP 2020-12-a. 	1
<p>MI DSP 2020-01-b*: 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.</p>	2
<p>MI DSP 2020-12-a*: Amending inspection frequencies to annual for high hazard dams and to biennial for significant hazard dams.</p>	3
<p>MI DSP 2020-09-b*: 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)</p>	4

CATEGORY 2 RECOMMENDATIONS RANKED BY PEER REVIEW TEAM

CATEGORY 2 RECOMMENDATIONS	CATEGORY 2 RANK
MI DSP 2020-05-d*: 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 towards DSP salaries	5
MI DSP 2020-12-b*: Establishing a construction inspection requirement for the design engineer and for DSP staff.	6
MI DSP 2020-14-h: 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).	7
MI DSP 2020-15-b*: EAPs should be annually checked: - for accurate contact information in the notification chart, and - for changes in population and facilities at risk as a result of Hazard Creep.	8
MI DSP 2020-15-c*: 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.	9
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	10

CATEGORY 2 RECOMMENDATIONS RANKED BY PEER REVIEW TEAM

CATEGORY 2 RECOMMENDATIONS	CATEGORY 2 RANK
MI DSP 2020-15-e*: 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.	11
MI DSP 2020-10-b*: Require the Owner of proposed complex projects to provide an independent Board of Review to affirm the Owner's design.	12
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.	13
MI DSP 2020-09-c*: 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 on-going operation and maintenance of the dam for the lifetime of the facility acceptance of work completed under the Dam Construction Permit for the on-going operation and maintenance of the dam for the lifetime of the facility.	14
MI DSP 2020-08-b: Adding tracking capability to the Michigan Inventory for such things as due dates for inspection reports, responses to NOV/Orders and EAP updates and adding capability to generate reminders of these due dates for staff.	15
MI DSP 2020-09-a*: 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.	16
MI DSP 2020-06-a: 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.	17

CATEGORY 2 RECOMMENDATIONS RANKED BY PEER REVIEW TEAM

CATEGORY 2 RECOMMENDATIONS	CATEGORY 2 RANK
MI DSP 2020-03-d: 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	18
MI DSP 2020-01-c*: The DSP 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 FERC to see if a system-wide simplification of this problem of information transfer can be developed and implemented.	19
MI DSP 2020-05-c: Michigan dam-owner agencies should strive to lead by example, regarding responsible dam ownership. This could start with an inventory wide assessment of State-owned dams, and then setting financial and project goals to providing adequate yearly routine budget resources and yearly life-cycle budget resources to perform deferred maintenance and rehabilitate any safety deficiencies.	20
MI DSP 2020-07-c: Development of a technical engineering career path for several technical/engineering positions.	21
MI DSP 2020-04-a: 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.	22
MI DSP 2020-05-a: Restricting the use of FEMA Grant funds solely for DSP enhancements, not DSP salaries.	23
MIDSP 2020-07-e: 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.	24

**CATEGORY 2 RECOMMENDATIONS
RANKED BY PEER REVIEW TEAM**

CATEGORY 2 RECOMMENDATIONS	CATEGORY 2 RANK
MI DSP 2020-07-g: 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-d). A defined career path would also reduce undesirable staff turnover.	25
MI DSP 2020-07-f: Following reorganization recommended in MI DSP 2020-04-c, MI DSP 2020-04-d and MI DSP 2020-04-e, begin developing work plans to assign staff to the most appropriate projects and provide varied opportunities for staff.	26

CATEGORY 3 RECOMMENDATIONS RANKED BY PEER REVIEW TEAM

CATEGORY 3 RECOMMENDATIONS	CATEGORY 3 RANK
MI DSP 2020-12-d: Frequent inspections by DSP staff during dam construction, alteration, repair and the first filling.	1
MI DSP 2020-03-f: Developing a DSP policy and procedures manual to provide for consistent quality of performance.	2
<p>MI DSP 2020-18a: As a safety at dams 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:</p> <p>Multi-disciplined members that have strong leadership and collaborative talents, public education skills (both youth and adult), graphic information, and database skills.</p> <p>Members should include multiple stakeholder State Agencies and Divisions, the law enforcement community, emergency managers, safety incident first responders, recreation interest groups, and academia.</p> <p>The team should first focus on:</p> <ul style="list-style-type: none"> 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, and Finding local champions for safety at dams to advance education and voluntary removal initiatives. 	3
MI DSP 2020-07-i: Maintaining competitive compensation and benefits to sustain the quality of staff in the DSP.	4
<p>MI DSP 2020-19a*: Refer to ASDSO's <i>Guidelines for State Dam Safety Office Implementation of a Dam Security Program</i> (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 dam; and conduct security exercises and participate in related dam security activities.</p>	5

APPENDIX O

ACRONYMS AND DEFINITIONS

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

Acronyms and Definitions

Acronyms:

AG	Attorney General
ASCE	American Society of Civil Engineers
ASDSO	Association of State Dam Safety Officials
DNR	Michigan Department of Natural Resources
DSP	Dam Safety Program
DSSP	Dams-Sector Specific Plan
EAP	Emergency Action Plan
EGLE	Department of Environment, Great Lakes, & Energy
EMA	Emergency Management Agency
EMI	FEMA Emergency Management Institute, Emmitsburg, MD
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FOSS	Field Operations Support Section
HSDSU	Hydrologic Studies and Dam Safety Unit
ICODS	Interagency Committee on Dam Safety
MDEQ	Michigan Department of Environmental Quality (predecessor of EGLE)
MDSP	Model Dam Safety Program
MI	Michigan
NDSP	National Dam Safety Program
NDSPA	National Dam Safety Program Act
NDSRB	National Dam Safety Review Board
NID	National Inventory of Dams
NIPP	National Infrastructure Protection Plan for Critical Infrastructure Security and Resilience
NOV	Notice of Violation
NRCS	Natural Resources Conservation Service
SCADA	Supervisory Control and Data Acquisition
TEAM	Peer Review Team
USACE	United States Army Corps of Engineers

Acronyms and Definitions

Acronyms (cont.):

USBR	Unites States Bureau of Reclamation
WRD	Water Resources Division

Definitions:

High Hazard	High hazard potential dam means a dam located such that its failure may cause serious damage to inhabited homes, agricultural buildings, campgrounds, recreational facilities, industrial or commercial buildings, public utilities, main highways, or class I carrier railroads; or where environmental degradation would be significant; or where danger to individuals exists with the potential for loss of life.
Significant Hazard	Significant hazard potential dam means a dam located such that its failure may cause damage to isolated inhabited homes, agricultural buildings, structures, secondary highways, short line railroads, or public utilities; where environmental degradation would be significant; or where danger to individuals exists.
Low Hazard	Low hazard potential dam means a dam located such that its failure may cause damage to limited agriculture, uninhabited buildings, structures, or township or county roads; where environmental degradation would be minimal; and where danger to individuals is slight or nonexistent.

Acronyms and Definitions

Portfolio Risk Assessment

A portfolio risk assessment is a management process including a series of hierarchical activities that are used to assess, classify, and manage the risks associated with an organization's inventory of dams. The accompanying hierarchical documentation generated by the portfolio risk management process documents the organizations risk assessment and risk management decisions for each dam and facilitates risk communication. It is a valuable screening tool to communicate risks and prioritize funding and efforts to manage dam safety. A screening level risk analysis is typically performed for a portfolio of dams. The goal is to: (1) identify potential failure modes and (2) develop relative risk estimates for each dam in a way that enables the relative risk among the dams to be evaluated and priorities for further study or remediation to be established.

Hazard Creep

Hazard creep, also referred to as risk creep, is caused by changes in the watershed that may result in changes to a dam's hazard potential classification. New development constructed in the dam breach inundation zone downstream of a dam, or upstream development or deforestation that increases runoff from storms, can result in higher potential consequences if the dam were to release stored water in an uncontrolled manner or fail. This might result in a dam classified as a significant hazard dam to be reclassified as a high hazard dam.

Silver Jackets

Silver Jackets teams in states across the United States bring together multiple state, federal, and sometimes tribal and local agencies to learn from one another in reducing flood risk and other natural disasters. By applying their shared knowledge, the teams enhance response and recovery efforts when such events do occur.

Acronyms and Definitions

Dam Safety 101	Dam Safety 101 is an educational program for various stakeholders to inform those interests regarding the basics of dam design operation and maintenance
Department	Michigan Department of Environment, Great Lakes, and Energy (EGLE)
NDSRB	The National Dam Safety Review Board advises FEMA's Administrator in setting national dam safety priorities and considers the effects of national policy issues affecting dam safety. Review Board members include FEMA, the Chair of the Board and representatives from four federal agencies that serve on ICODS, five state dam safety officials, and one member from the private sector.
NDSPA	The National Dam Safety Program Act was signed into law on October 12, 1996 as part of the Water Resources Development Act of 1996. In summary the program was established to improve safety around dams by 1) providing assistance grants to state dam safety agencies to assist them in improving their regulatory programs; 2) funding research to enhance technical expertise as dams are built and rehabilitated; 3) establishing training programs for dam safety inspectors, and; 4) creating a National Inventory of Dams. Additionally, the act calls for FEMA to provide education to the public, to dam owners and others about the need for strong dam safety programs, nationally and locally, and to coordinate partnerships among all players within the dam safety community to enhance dam safety.
Manual	Peer Review Manual, ASDSO

APPENDIX P

SAMPLE FEE SCHEDULE PENNSYLVANIA

**PEER REVIEW
OF THE
MICHIGAN DAM SAFETY PROGRAM
ENVIRONMENT, GREAT LAKES AND ENERGY DEPARTMENT**

CHAPTER 105 FEE(S) CALCULATION WORKSHEET

Additional information can be found at [25 PA Code §105.13](#) (relating to regulated activities – information and fees), the General Permit Registration ([3150-PM-BWEW0500](#)), the Joint Permit Application ([3150-PM-BWEW0036](#)) and the Dam Permit Application ([3140-PM-BWEW0001](#))

Federal, State, county or municipal agencies or municipal authorities:

☐ EXEMPT from fees

These entities are exempt from these fees. If the applicant falls into one of these categories, please check the box above and provide only the first page of this worksheet with the project application or registration.

ALL OTHERS:

1. Please place an "X" in the box next to all authorizations that apply to the project and complete the fee information below those authorization(s). Projects may require multiple authorizations and fees, further clarification and examples are included below and at the end of this document.
2. Total each authorization, Section, and Part. Part One is for Water Obstructions and Encroachment authorizations, Part Two is for Dam Safety authorizations.
3. Please provide this completed worksheet (page 1 and page 2 and/or page 3, as is appropriate to the project) and a check for the applicable fee(s) with the project application or registration. The check should be made payable to the "**Commonwealth of Pennsylvania Clean Water Fund**" OR "**_____ Conservation District Clean Water Fund**", whichever is the reviewing entity.

NOTES:

Per 25 PA Code §105.13(c)(2)(iii) Disturbance review fees are calculated by individually adding all of the permanent and temporary impacts to waterways, floodways, floodplains and bodies of water including wetlands to the next highest tenth acre and multiplying the permanent and temporary impacts by the respective fees and then these amounts are added to the other applicable fees.

Entities proposing structures or activities to occupy a Submerged Lands of the Commonwealth must obtain a Submerged Lands License Agreement (SLLA) and pay the appropriate annual charge. The applicant will be contacted if this charge applies to the project.

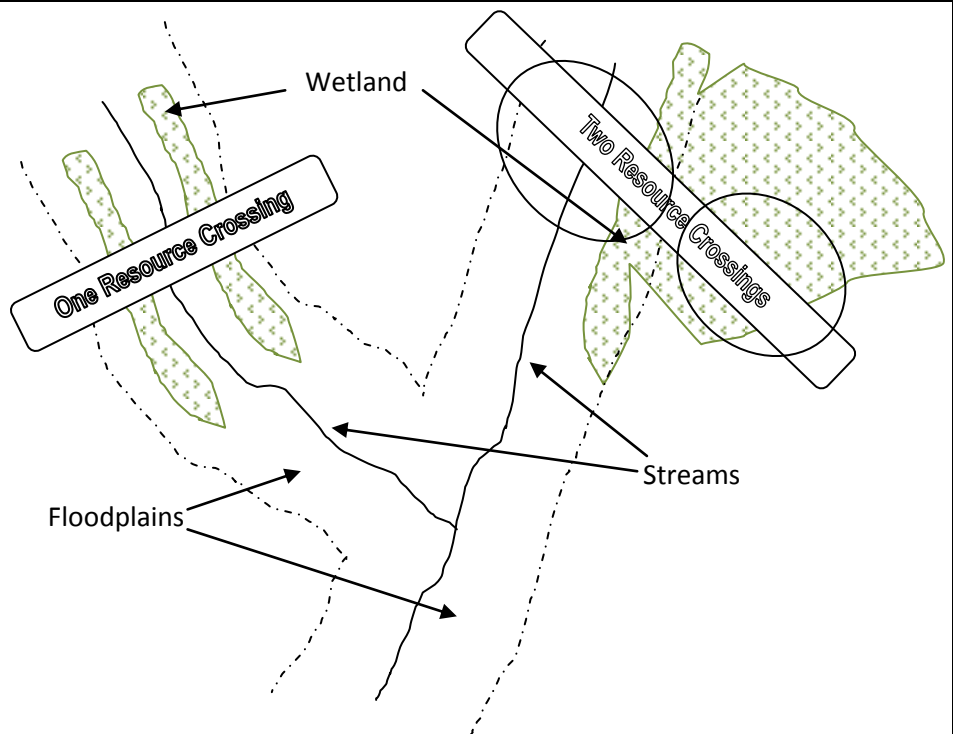
Floodway – The channel of the watercourse and portions of the adjoining floodplains which are reasonably required to carry and discharge the 100-year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year frequency floodway, it is assumed, absent evidence to the contrary, that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

Wetland and Stream Clarification:

¹ In many instances, wetlands are located within the floodplain of a stream. These resources for the purposes of calculating disturbance fees are considered co-located or overlapping and the area of disturbance would only be used once.

² In the case of GP-5, GP-7 and GP-8 fees are charged per structure per resource crossing and the following also applies to the disturbance fees:

- A crossing of the stream and the floodplain with wetlands present within the floodplain is considered one resource crossing.
- When the crossing traverses a stream and the floodplain and a wetland that is located outside of the floodplain or a wetland that extends out beyond the floodplain, it is considered two resource crossings.



PART ONE: WATER OBSTRUCTIONS AND ENCROACHMENTS**SECTION A. APPLICATION FEES**☐ **WATER OBSTRUCTION AND ENCROACHMENT PERMIT** (Joint Permit Application)

Some activities or structures within a project may also qualify for an accumulation of General Permit fees, please mark the box above indicating an Individual Water Obstruction and Encroachment Permit AND the corresponding fee(s) in the General Permit section below those. Activities or structures not qualifying for a General Permit fee must include a disturbance fee.

<input type="checkbox"/> Administrative Filing Fee ¹	\$ 1,750	+	
<input type="checkbox"/> Temporary Disturbance (\$400/0.1ac) acres x \$4,000 =	\$ _____	+	
<input type="checkbox"/> Permanent Disturbance (\$800/0.1ac) acres x \$8,000 =	\$ _____		= \$ _____
WO&E FEE subtotal (a)			\$ _____

☐ **GENERAL PERMIT(S)** (select activity/structure(s) below, see page 4 for “#” explanation)

Some activities or structures within a project requiring an Individual Water Obstruction and Encroachment Permit may qualify for an accumulation of General Permit fees, please mark the corresponding fee(s) below but not the box above indicating a General Permit.

<input type="checkbox"/> GP-1 Fish Habitat Enhancement Structures	\$ 50	= \$ _____
<input type="checkbox"/> GP-2 Small Docks and Boat Launching Ramps (#) X	\$ 175	= \$ _____
<input type="checkbox"/> GP-3 Bank Rehabilitation, Bank Protection and Gravel Bar Removal (#) X	\$ 250	= \$ _____
<input type="checkbox"/> GP-4 Intake and Outfall Structures (#) X	\$ 200	= \$ _____
<input type="checkbox"/> GP-5 Utility Line Stream Crossings ² (#) X	\$ 250	= \$ _____
<input type="checkbox"/> GP-6 Agricultural Crossings and Ramps (#) X	\$ 50	= \$ _____
<input type="checkbox"/> GP-7 Minor Road Crossings ² (#) X	\$ 350	= \$ _____
<input type="checkbox"/> GP-8 Temporary Road Crossings ² (#) X	\$ 175	= \$ _____
<input type="checkbox"/> GP-9 Agricultural Activities	\$ 50	= \$ _____
<input type="checkbox"/> GP-10 Abandoned Mine Reclamation	\$ 500	= \$ _____
<input type="checkbox"/> GP-11 Maintenance, Testing, Repair, Rehabilitation, or Replacement of Water Obstructions and Encroachments ¹	\$ 750	+
<input type="checkbox"/> Temporary Disturbance (\$400/0.1ac) acres x \$4,000 =	\$ _____	+
<input type="checkbox"/> Permanent Disturbance (\$800/0.1ac) acres x \$8,000 =	\$ _____	= \$ _____
<input type="checkbox"/> GP-15 Private Residential Construction in Wetlands ¹	\$ 750	+
<input type="checkbox"/> Temporary Disturbance (\$400/0.1ac) acres x \$4,000 =	\$ _____	+
<input type="checkbox"/> Permanent Disturbance (\$800/0.1ac) acres x \$8,000 =	\$ _____	= \$ _____
GP(s) FEE subtotal (b)		
\$ _____		

PART ONE: SECTION A. APPLICATION FEE(S) subtotal (a+b=c)

\$ _____

SECTION B. OTHER FEES

<input type="checkbox"/> Environmental Assessment for Waived Activities (§105.13(c)(2)(iv))	\$ 500	\$ _____
<input type="checkbox"/> Amendment to Water Obstruction and Encroachment Permit		
<input type="checkbox"/> Major Amendment ¹	\$ 500	+
<input type="checkbox"/> Temporary Disturbance acres x \$4,000 =	\$ _____	+
<input type="checkbox"/> Permanent Disturbance acres x \$8,000 =	\$ _____	= \$ _____
<input type="checkbox"/> Minor Amendment	\$ 250	\$ _____

Transfer of Water Obstruction and Encroachment Permit *does not require submission of this form;*
see [Application for Transfer of Permit / Submerged Lands License Agreement \(3150-PM-BWEW-0016\)](#)

PART ONE: SECTION B. OTHER FEE(S) subtotal (d)

\$ _____

PART ONE: FEE(S) TOTAL (c+d=e)

\$ _____

DEP USE ONLY

FEE TOTAL: _____
Correct Amount: _____
Check Amount: _____

Permit / Authorization Number (s): _____
Check #: _____
Payable to: _____

PART TWO: DAM SAFETY (USE ONE FEE SHEET PER DAM)**SECTION A. APPLICATION FEES**☐ **DAM PERMIT APPLICATION – NEW DAM**

<input type="checkbox"/> Size A	<input type="checkbox"/> Hazard 1 \$26,500	<input type="checkbox"/> Hazard 2 \$26,500	<input type="checkbox"/> Hazard 3 \$25,500	<input type="checkbox"/> Hazard 4 \$23,500	\$ _____
<input type="checkbox"/> Size B	<input type="checkbox"/> Hazard 1 \$19,000	<input type="checkbox"/> Hazard 2 \$19,000	<input type="checkbox"/> Hazard 3 \$18,500	<input type="checkbox"/> Hazard 4 \$17,000	\$ _____
<input type="checkbox"/> Size C	<input type="checkbox"/> Hazard 1 \$10,500	<input type="checkbox"/> Hazard 2 \$10,500	<input type="checkbox"/> Hazard 3 \$10,000	<input type="checkbox"/> Hazard 4 \$ 8,000	\$ _____

☐ **STAGED CONSTRUCTION**

NO. OF STAGES BEYOND INITIAL STAGE _____ X APPLICATION FEE _____ X 0.90 (90%) \$ _____

☐ **DAM PERMIT APPLICATION – MODIFICATION OF DAM**

<input type="checkbox"/> Size A	<input type="checkbox"/> Hazard 1 \$18,500	<input type="checkbox"/> Hazard 2 \$18,500	<input type="checkbox"/> Hazard 3 \$18,500	<input type="checkbox"/> Hazard 4 \$18,000	\$ _____
<input type="checkbox"/> Size B	<input type="checkbox"/> Hazard 1 \$12,000	<input type="checkbox"/> Hazard 2 \$12,000	<input type="checkbox"/> Hazard 3 \$12,000	<input type="checkbox"/> Hazard 4 \$11,500	\$ _____
<input type="checkbox"/> Size C	<input type="checkbox"/> Hazard 1 \$ 7,500	<input type="checkbox"/> Hazard 2 \$ 7,500	<input type="checkbox"/> Hazard 3 \$ 7,500	<input type="checkbox"/> Hazard 4 \$ 7,500	\$ _____

☐ **STAGED CONSTRUCTION**

NO. OF STAGES BEYOND INITIAL STAGE _____ X APPLICATION FEE _____ X 0.85 (85%) \$ _____

☐ **DAM PERMIT APPLICATION – OPERATION & MAINTANANCE OF EXISTING DAM**

<input type="checkbox"/> Size A	<input type="checkbox"/> Hazard 1 \$12,500	<input type="checkbox"/> Hazard 2 \$12,500	<input type="checkbox"/> Hazard 3 \$12,000	<input type="checkbox"/> Hazard 4 \$10,000	\$ _____
<input type="checkbox"/> Size B	<input type="checkbox"/> Hazard 1 \$10,000	<input type="checkbox"/> Hazard 2 \$10,000	<input type="checkbox"/> Hazard 3 \$ 9,500	<input type="checkbox"/> Hazard 4 \$ 8,500	\$ _____
<input type="checkbox"/> Size C	<input type="checkbox"/> Hazard 1 \$ 7,000	<input type="checkbox"/> Hazard 2 \$ 7,000	<input type="checkbox"/> Hazard 3 \$ 6,500	<input type="checkbox"/> Hazard 4 \$ 6,000	\$ _____

PART TWO: SECTION A. APPLICATION FEE(S) subtotal (a) \$ _____**SECTION B. OTHER FEES**☐ Letter of Amendment or Authorization☐ Major (≥\$250,000)

<input type="checkbox"/> Size A \$14,700	<input type="checkbox"/> Size B \$ 8,700	<input type="checkbox"/> Size C \$ 4,400	\$ _____
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☐ Minor (<\$250,000)

<input type="checkbox"/> Size A \$ 1,300	<input type="checkbox"/> Size B \$ 1,000	<input type="checkbox"/> Size C \$ 650	\$ _____
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☐ Major Dam Design Revision

<input type="checkbox"/> Size A \$ 4,700	<input type="checkbox"/> Size B \$ 3,200	<input type="checkbox"/> Size C \$ 1,700	\$ _____
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☐ Environmental Assessment☐ Environmental Assessment for Dam Removal (§105.12(a)(16)) \$ 500 \$ _____☐ Non-Jurisdictional Dams \$ 900 \$ _____☐ Letter of Amendment or Authorization

<input type="checkbox"/> Size A \$ 1,400	<input type="checkbox"/> Size B \$ 1,000	<input type="checkbox"/> Size C \$ 900	\$ _____
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☐ Transfer of Dam Permit

<input type="checkbox"/> No Proof of Financial Responsibility \$ 550	<input type="checkbox"/> Proof of Financial Responsibility \$300	\$ _____
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☐ Annual Registration

<input type="checkbox"/> Hazard 1 \$ 1,500	<input type="checkbox"/> Hazard 2 \$ 1,500	<input type="checkbox"/> Hazard 3 \$ 800	\$ _____
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PART TWO: SECTION B. OTHER FEE(S) subtotal (b) \$ _____**PART TWO: FEE(S) TOTAL (a+b=c)** \$ _____**DEP USE ONLY**

FEE TOTAL: _____	Permit / Authorization Number (s): _____
Correct Amount: _____	Check #: _____
Check amount: _____	Payable to: _____

GP Fee Explanation (#):

GP #	Description	Fee	Fee Explanation (#)
GP-1	Fish Habitat Enhancement Structures	\$ 50	Fee is assessed per project not per individual structure.
GP-2	Small Docks and Boat Launching Ramps	\$175	Fee is assessed per individual dock or boat ramp. The fee is the number of docks and ramps totaled times the fee.
GP-3	Bank Rehabilitation, Bank Protection and Gravel Bar Removal	\$250	Fee is assessed per project and not individual bank or gravel bar removal locations. Only one single and complete project along a continuous stream reach not exceeding 500 feet measured down centerline of stream. Additional projects or areas must be separately registered and the fee would apply to each registration.
GP-4	Intake and Outfall Structures	\$200	Fee is assessed per individual intake or outfall structure. The fee is the total number of structures times the fee.
GP-5 ²	Utility Line Stream Crossings ²	\$250	Fee is assessed per individual utility line or conduit crossing (a wetland and stream crossing may be separate crossings even if adjacent). The fee is the total number of utility lines times the number of resource crossings times the fee.
GP-6	Agricultural Crossings and Ramps	\$ 50	Fee is assessed per individual crossing or ramp structure. The fee is the total number of crossings and ramps times the fee.
GP-7 ²	Minor Road Crossings ²	\$350	Fee is assessed per individual minor road crossing (a wetland and stream crossing may be separate crossings even if adjacent). The fee is the total number of road crossings times the fee.
GP-8 ²	Temporary Road Crossings ²	\$175	Fee is assessed per individual temporary road crossing (a wetland and stream crossing may be separate crossings even if adjacent). The fee is the total number of temporary road crossings times the fee.
GP-9	Agricultural Activities	\$ 50	Fee is assessed per project not per individual structure or activity. Multiple projects can be registered under a single registration and as such the fee is applied to each project and then totaled.
GP-10	Abandoned Mine Reclamation	\$500	Fee is assessed per project not per individual activity. Multiple projects can be registered under a single registration and as such the fee is applied to each project and then totaled.
GP-11 ¹	Maintenance, Testing, Repair, Rehabilitation, or Replacement of Water Obstructions and Encroachments ¹	\$750	Fee is assessed for each registration package (can include multiple activities or structures) and is added to the permanent and temporary disturbance review fees calculated for each registration package respectively.
GP-15 ¹	Private Residential Construction in Wetlands ¹	\$750	Fee is assessed for each registration package (can include multiple activities or structures) and is added to the permanent and temporary disturbance review fees calculated for each registration package respectively.

Water Obstruction and Encroachment Examples:

1. **GP-7 Minor Road Crossing:** Minor road crossing of a stream that qualifies for BDWM GP-07.

☒ **GENERAL PERMIT(S)** (select activity/structure(s) below)

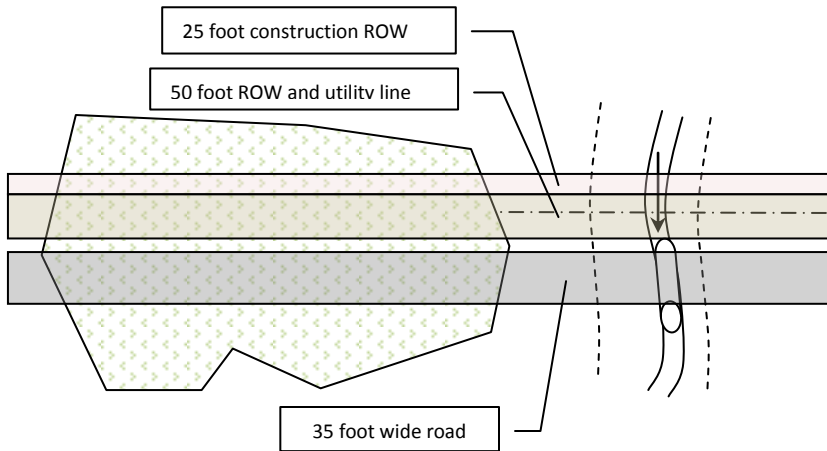
Some activities or structures within a project requiring an Individual Water Obstruction and Encroachment Permit may qualify for an accumulation of General Permit fees, please mark the corresponding fee(s) below but not the box above indicating a General Permit.

☒ GP-7 Minor Road Crossings 1 (#) x \$ 350 = \$ 350
GP(s) FEE subtotal (b) \$ 350

2. **Joint Permit Application for Individual Water Obstruction Encroachment Permit:** The project proposes to construct an access road requiring the placement of fill in 0.27 acres of wetlands as part of a residential subdivision.

☒ Administrative Filing Fee \$ 1,750 +
☐ Temporary Disturbance (\$400/0.1ac)..... 0.0 acres x \$4,000 = \$ 0 +
☒ Permanent Disturbance (\$800/0.1ac)..... 0.3 acres x \$8,000 = \$ 2,400 = \$ 4,150
WO&E FEE subtotal (a) \$ 4,150

- 3. Joint Permit Application for Individual Water Obstruction Encroachment Permit:** The project proposes to construct an access road and utility line through a wetland and stream. The road will require placement of fill in 0.28 acres of wetlands, placement of a 45 foot long x 36 inch CMP in the stream and placement of fill in the floodway for road approaches to the culvert (east approach 35 feet wide x 4 feet deep x 50 feet long and west approach 35 feet wide x 2 feet deep x 15 feet). The utility line is 30 inch diameter steel pipe carrying petroleum products. The utility line will be open trenched through the wetland with a permanent right of way of 50 feet x 350 feet and an additional construction right of way 25 feet x 350 feet. The utility line will be open trenched traversing through the entire floodway and stream with a permanent right of way totaling 50 feet x 68 feet (east floodway 50 feet x 50 feet, stream 50 feet x 3 feet and west floodway 50 feet x 15 feet) and an additional construction right of way 25 feet x 68 feet.



Impact Calculations and Summary

Resource/Impact Type	Permanent	Temporary
Wetland		
Road	0.28	0
Utility Const. ROW	0	0.2
Utility Perm. ROW	0.4	0
Floodway/Stream		
Road	0.05	0
Utility Const. ROW	0	0.04
Utility Perm. ROW	0.08	0
Totals:	0.81	0.24
Rounded Totals:	0.9	0.3

<input checked="" type="checkbox"/> Administrative Filing Fee	\$ 1,750	+	
<input checked="" type="checkbox"/> Temporary Disturbance (\$400/0.1ac).....	0.3 acres x \$4,000 =	\$ 1,200	+
<input checked="" type="checkbox"/> Permanent Disturbance (\$800/0.1ac).....	0.9 acres x \$8,000 =	\$ 7,200	= \$10,150
WO&E FEE subtotal (a)			\$10,150

- 4. Joint Permit Application for Individual Water Obstruction Encroachment Permit:** The project proposes to construct a building, two minor road crossings that qualify for BDWM GP-07 and place three separate utility lines through a wetland and a separate stream that qualify for BDWM GP-05. The building will require placement of fill in 0.17 acres of wetlands.

<input checked="" type="checkbox"/> Administrative Filing Fee	\$ 1,750	+	
<input type="checkbox"/> Temporary Disturbance (\$400/0.1ac).....	0.0 acres x \$4,000 =	\$ 0	+
<input checked="" type="checkbox"/> Permanent Disturbance (\$800/0.1ac).....	0.2 acres x \$8,000 =	\$ 1,600	= \$ 3,350
WO&E FEE subtotal (a)			\$ 3,350

☐ **GENERAL PERMIT(S)** (select activity/structure(s) below)

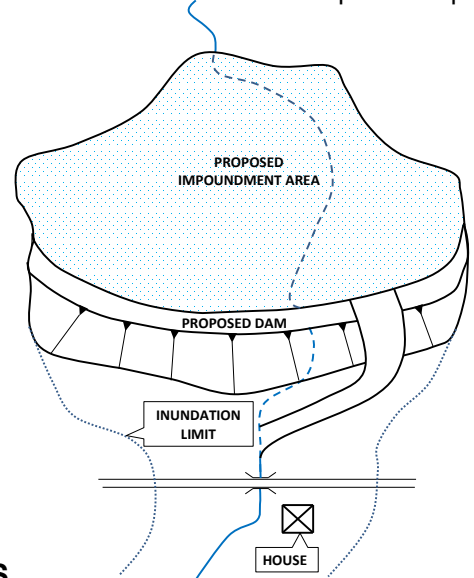
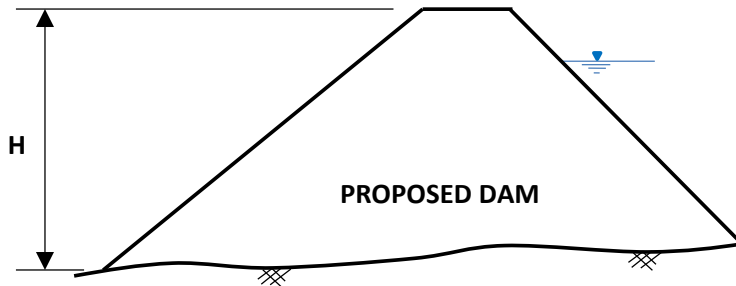
Some activities or structures within a project requiring an Individual Water Obstruction and Encroachment Permit may qualify for an accumulation of General Permit fees, please mark the corresponding fee(s) below but not the box above indicating a General Permit.

<input checked="" type="checkbox"/> GP-5 Utility Line Stream Crossings.....	6 (#) x	\$ 250	= \$ 1,500
<input checked="" type="checkbox"/> GP-7 Minor Road Crossings.....	2 (#) x	\$ 350	= \$ 700
GP(s) FEE subtotal (b)			\$ 2,200

PART ONE: SECTION A. APPLICATION FEE(S) subtotal (a+b=c) \$ 5,550

Dam Safety Examples:

- 5. New Dam Permit Application:** This project proposes to construct a 25-foot high dam that has a maximum storage of 500 acre-feet of water. This dam would be classified as a size category "C" dam per §105.91. There is one home and one roadway within the inundation area downstream of the dam. This dam would have a hazard classification of "2". All stream and wetland impacts are covered under the Dam Permit Application. An Environmental Assessment is required as part of the Dam Permit Application, but a separate fee is not required.

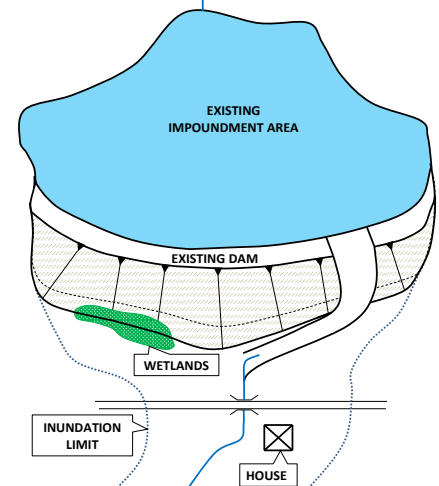
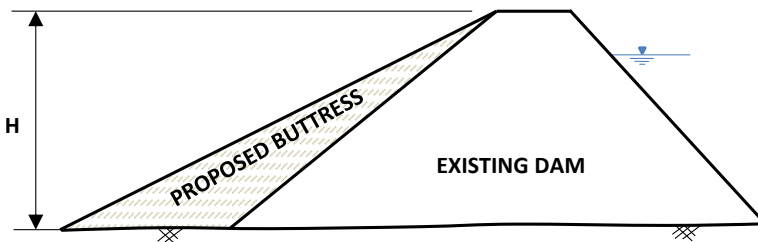


DAM SAFETY APPLICATION FEES (TO BE FILED WITH DAM SAFETY WITH THE DAM PERMIT APPLICATION)

☒ DAM PERMIT APPLICATION – NEW DAM

<input checked="" type="checkbox"/> Size C	<input type="checkbox"/> Hazard 1 \$10,500	<input checked="" type="checkbox"/> Hazard 2 \$10,500	<input type="checkbox"/> Hazard 3 \$10,000	<input type="checkbox"/> Hazard 4 \$8,000	<u>\$ 10,500</u>
DAM SAFETY FEE total					\$ 10,050

- 6. Letter of Authorization with Environmental Assessment:** This project proposes to modify a 25-foot high dam that has a maximum storage of 500 acre-feet of water. This dam would be classified as a size category "C" dam per §105.91. The proposed modification involves buttressing the downstream slope of the dam with soil to improve the stability. The total project cost will be \$100,000. A small wetland area will be impacted near the toe of the buttress. An Environmental Assessment will be required to assess the impacts to the wetland.



DAM SAFETY FEES

☒ Letter of Amendment or Authorization

☒ Minor (<\$250,000)

<input type="checkbox"/> Size A \$ 1,300	<input type="checkbox"/> Size B \$ 1,000
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☒ Environmental Assessment

☒ Letter of Amendment or Authorization

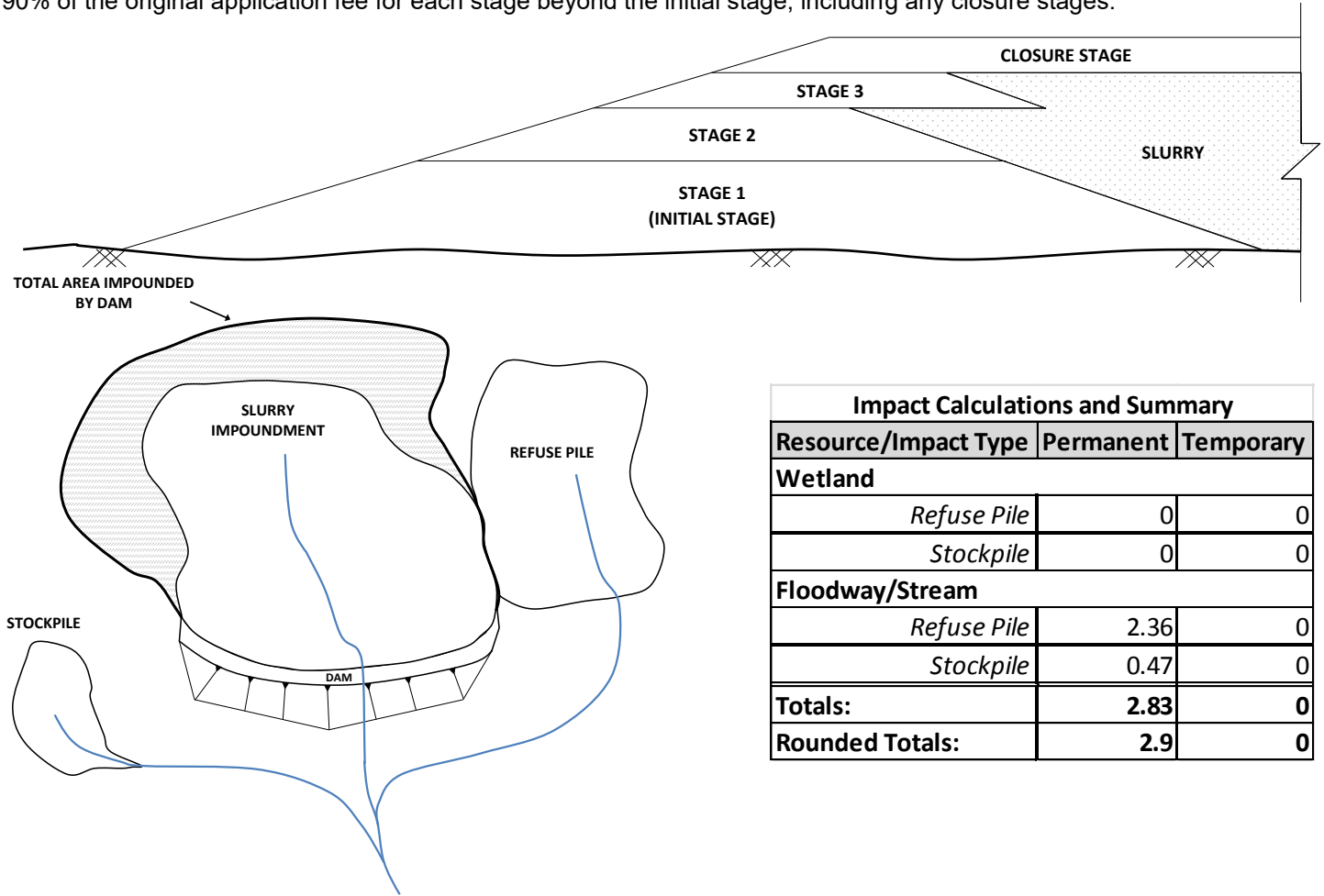
<input type="checkbox"/> Size A \$ 1,400	<input type="checkbox"/> Size B \$ 1,000
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<input checked="" type="checkbox"/> Size C	\$ 650	<u>\$ 650</u>
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<input checked="" type="checkbox"/> Size C	\$ 900	<u>\$ 900</u>
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DAM SAFETY FEE total	\$ 1,550
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- 7. New Dam Permit Application with Staged Construction and Disturbance Review Fees:** The project proposes to construct a staged construction, high hazard dam, to be utilized for containing a slurry impoundment. There will also be a refuse pile constructed adjacent to the slurry impoundment impacting 1000 linear feet of stream, causing a permanent disturbance to the 3-foot wide stream and 50 feet of floodway on either side of the stream [1000 x (50+3+50)]. A refuse stockpile will also impact 200 linear feet of stream, causing a permanent disturbance to the 3-foot wide stream and 50 feet of floodway on either side of the stream [200 x (50+3+50)]. The Dam Safety Application Fee will include the application fee for the applicable size and hazard classification of the dam. The Dam Safety Application Fee will also include a fee equal to 90% of the original application fee for each stage beyond the initial stage, including any closure stages.



Impact Calculations and Summary		
Resource/Impact Type	Permanent	Temporary
Wetland		
Refuse Pile	0	0
Stockpile	0	0
Floodway/Stream		
Refuse Pile	2.36	0
Stockpile	0.47	0
Totals:	2.83	0
Rounded Totals:	2.9	0

WATER OBSTRUCTION AND ENCROACHMENT FEES

(TO BE FILED WITH DEP REGIONAL OFFICE, COUNTY CONSERVATION OFFICE, OR DISTRICT MINING)

<input checked="" type="checkbox"/> Administrative Filing Fee		\$1,750
<input type="checkbox"/> Temporary Disturbance (\$400/0.1ac)	0.0 acres x \$4,000 =	
<input checked="" type="checkbox"/> Permanent Disturbance (\$800/0.1ac)	2.9 acres x \$8,000 =	\$23,200
WO&E FEE total		\$24,950

DAM SAFETY APPLICATION FEES

(TO BE FILED WITH DAM SAFETY WITH THE DAM PERMIT APPLICATION)

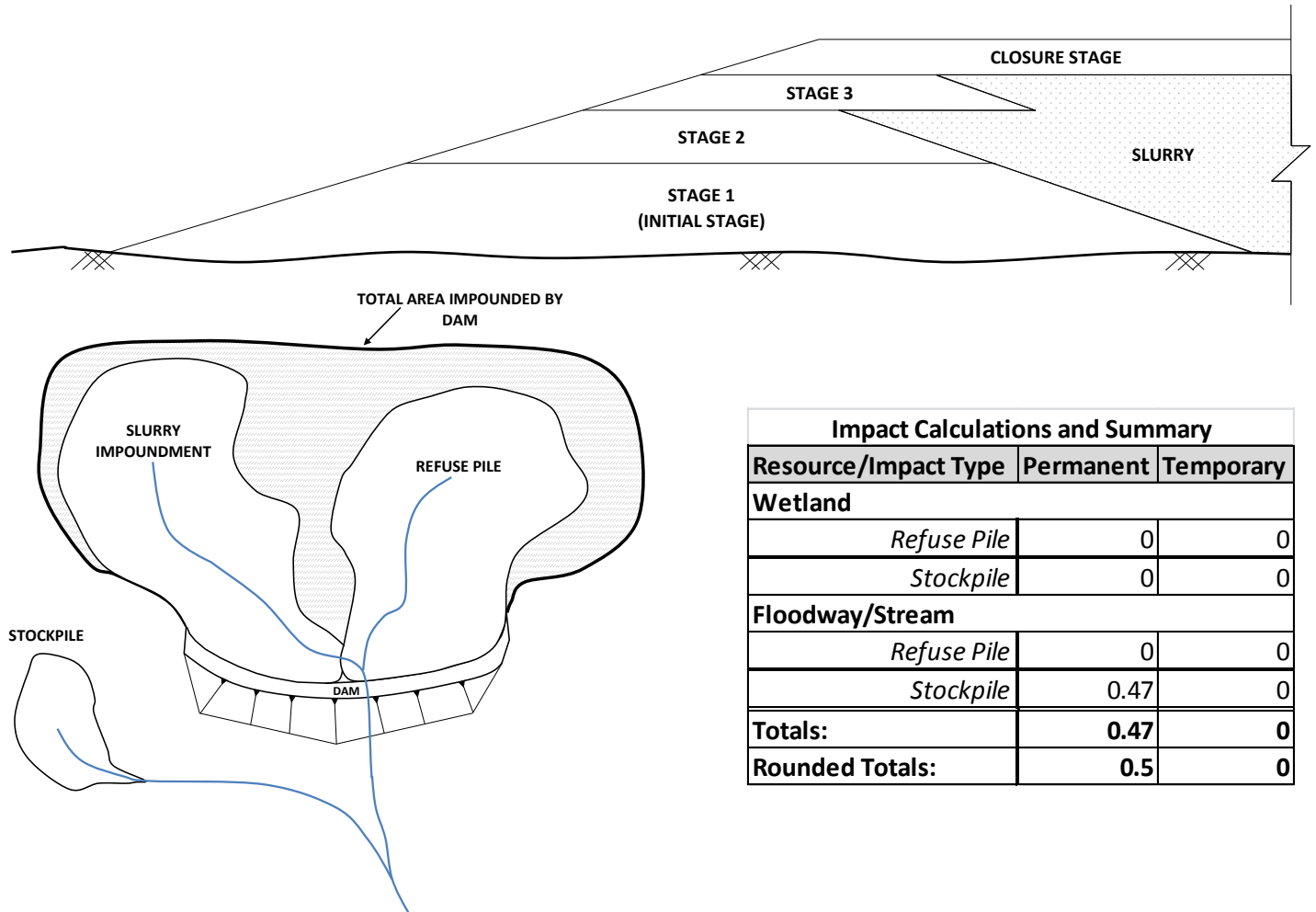
☒ DAM PERMIT APPLICATION – NEW DAM

<input checked="" type="checkbox"/> Size A	<input checked="" type="checkbox"/> Hazard 1 \$26,500	<input type="checkbox"/> Hazard 2 \$26,500	<input type="checkbox"/> Hazard 3 \$25,500	<input type="checkbox"/> Hazard 4 \$23,500	\$26,500
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☒ STAGED CONSTRUCTION

No. OF STAGES BEYOND INITIAL STAGE 3 X APPLICATION FEE \$26,500 X 0.90 (90%)	\$71,550
DAM SAFETY FEE total	\$98,050

- 8. New Dam Permit Application with Staged Construction:** The project proposes to construct a staged construction, high hazard dam, to be utilized for containing a slurry impoundment and refuse pile. A refuse stockpile will also impact 200 linear feet of stream, causing a permanent disturbance to the 3-foot wide stream and 50 feet of floodway on either side of the stream [200 x (50+3+50)]. The Dam Safety Application Fee will include the application fee for the applicable size and hazard classification of the dam. The Dam Safety Application Fee will also include a fee equal to 90% of the original application fee for each stage beyond the initial stage, including any closure stages.



Impact Calculations and Summary		
Resource/Impact Type	Permanent	Temporary
Wetland		
Refuse Pile	0	0
Stockpile	0	0
Floodway/Stream		
Refuse Pile	0	0
Stockpile	0.47	0
Totals:	0.47	0
Rounded Totals:	0.5	0

WATER OBSTRUCTION AND ENCROACHMENT FEES

(TO BE FILED WITH DEP REGIONAL OFFICE, COUNTY CONSERVATION OFFICE, OR DISTRICT MINING)

<input checked="" type="checkbox"/> Administrative Filing Fee		\$1,750
<input type="checkbox"/> Temporary Disturbance (\$400/0.1ac)	0.0 acres x \$4,000 =	
<input checked="" type="checkbox"/> Permanent Disturbance (\$800/0.1ac)	0.5 acres x \$8,000 =	\$4,000
WO&E FEE total		\$5,750

DAM SAFETY APPLICATION FEES

(TO BE FILED WITH DAM SAFETY WITH THE DAM PERMIT APPLICATION)

<input checked="" type="checkbox"/> DAM PERMIT APPLICATION – NEW DAM					
<input checked="" type="checkbox"/> Size A	<input checked="" type="checkbox"/> Hazard 1 \$26,500	<input type="checkbox"/> Hazard 2 \$26,500	<input type="checkbox"/> Hazard 3 \$25,500	<input type="checkbox"/> Hazard 4 \$23,500	\$ 26,500
<input checked="" type="checkbox"/> STAGED CONSTRUCTION					
No. OF STAGES BEYOND INITIAL STAGE <u>3</u> X APPLICATION FEE \$26,500 X 0.90 (90%)					\$ 71,550
DAM SAFETY FEE total					\$ 98,050

