

Exercising Emergency Action Plans for Dams (Part I)

By Paul Wessel, P.E. Dam Safety Unit, MDEQ

On May 14, 2003, an earthen section of the dam at the Silver Lake Basin in Marquette County failed, releasing nearly nine billion gallons of water to surge through Marquette County and the City of Marquette. Despite the nearly \$100 million in damage that resulted, there was no loss of life or major injuries. A major factor in the lack of fatalities or major injuries was the preparation and testing of an Emergency Action Plan (EAP) for the dam. According to Teresa Schwalbach, the Emergency Management Coordinator for Marquette County, "The emergency response was significantly improved because of the exercise (test) in 1998. Exercising your plan is a must. Don't let your plan collect dust on the shelf. By exercising or testing your plan, staff in your organization will know what they have to do. And, emergency response agencies will have better knowledge of what to expect from you, and you from them, if an event should occur."¹ She also noted "as an emergency management coordinator, I cannot stress enough the importance of planning ahead for an event. Don't assume that, since you live in a small community or don't have any major infrastructure, nothing will happen. It will."²

The Silver Lake incident emphasizes the importance of preparing, updating and exercising the EAP of a dam.

Part 315, Dam Safety, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, requires that owners of high and significant hazard potential dams in Michigan prepare and keep current EAPs for their dam. An EAP is defined as "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."

¹ "Planning for Emergencies: Lessons Learned from Silver Lake," Hydro Review, September 2004

² Ibid

The hazard potential rating is determined by the MDEQ Dam Safety Program and is based upon an assessment of 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. Hazard potential rating is not based upon the structural or hydraulic condition of the dam.

In Michigan, we have an excellent rate of compliance with the EAP requirement: Of the 217 high and significant hazard potential dams regulated by the state, 211 have approved EAPs, which amounts to a 97 percent compliance rate.

Once the EAP has been approved, however, the job is not done. Without periodic updating, the EAP will become outdated, lose its effectiveness, and will no longer be workable. If the plan is not exercised, those involved in its implementation may not be familiar with their roles and responsibilities.

Emergency incidents at dams and/or dam failures are not common events. Therefore, training and exercises are necessary to maintain operational readiness, timeliness, and responsiveness. The status of training and levels of readiness should be evaluated in non-threatening simulated periodic emergency exercises for key personnel of the dam owner.

The dam owner should exercise the EAP because it promotes emergency preparedness, mitigation, and response, and demonstrates how effective the EAP will be in an actual emergency situation. Periodic exercises will result in an improved EAP as lessons learned during the exercise can be incorporated into an updated EAP document.

On March 29, 2005, the MDEQ Dam Safety Program held a seminar entitled "Testing of Emergency Action Plans for Dams: Better Ensuring the Emergency Action Plan Will Work in a Time of Crisis." This seminar was held to train dam owners, consultants, and local

emergency management officials on the exercise of EAPs for dams. A total of 97 people attended the workshop, half of whom were dam owners, a quarter consultants, and a quarter local emergency management officials. In a survey of attendees, 81 percent of respondents stated the intent to take action at their facility as a result of this workshop.

MDEQ Dam Safety Program staff have also participated in EAP exercises conducted by hydroelectric dam owners regulated by the Federal Energy Regulatory Commission, as well as an exercise conducted by the Emergency Management Division of the Michigan State Police, which simulated the simultaneous failure of several dams.

MDEQ encourages all owners of high and significant hazard potential dams to take the steps to ensure that the EAP for their dams will be effectively implemented in the unlikely event of a dam incident. The local emergency

management coordinator is a good source of information regarding the exercising of emergency plans. It may be possible to merge an EAP exercise for an individual dam into a larger exercise to demonstrate county wide emergency preparedness. Dam owners may also wish to contact local hydroelectric dam owners to observe the EAP exercises that they are required to hold as part of their licensing requirements.

For further questions regarding Emergency Action Planning for dams, feel free to contact staff of the MDEQ Dam Safety Program: James Pawloski, P.E., at 989-705-3443, or pawloskj@michigan.gov; Paul Wessel, P.E., at 517-335-6748, wesselpt@michigan.gov; Byron Lane, P.E. at 517-241-9862, or laneb@michigan.gov; or visit our website at www.michigan.gov/deqdamsafety.

In Part II of this series we will discuss the various types of EAP exercises.

**Reminders – Reminders – Reminders
are
Good – Good – Good – Good!**

We as parents are always reminding members of the younger generations of things to do and not to do. Who reminds the adults? Well, my editor's prerogative respectfully extends the following reminders to all readers that mother nature never lets up and we are continuously exposed to her forces. It is springtime, and weather conditions, such as thunderstorms, tornados, and flooding, are the betting odds of the season. So, the following are reminders that we should all keep in mind and share with others because, as was recently demonstrated by the unfortunate weather in Kansas, Missouri, Illinois, Indiana, Ohio, and Tennessee, we and our neighbors may need to take action to save our lives.