

# DAM SAFETY NEWS

## Preparing for Spring Flooding

Spring can present special problems for dam owners. The warming temperatures can bring not only higher water levels from melting snow, but also ice floes as the ice on rivers and lakes breaks up.

DNR Dam Safety staff work year-round with dam owners to inspect dams and assure they have the proper Emergency Action Plans and Inspection, Operation and Maintenance Plans in place. Dam owners are reminded that with warmer temperatures on the way, it's time to get their dam ready for spring runoff and the potential for flooding.

Dam owners can prepare for the possibility of flooding by:

- locating and reviewing the Emergency Action Plan (EAP) for the dam;
- creating an EAP if a formal one is not currently in place;
- having emergency contact phone numbers handy such as for law enforcement, local emergency government, the Wisconsin Emergency Hotline (800-943-0003 x1), dam operators and their backup and the DNR Dam Safety Engineer for the county in which the dam is located;
- coordinating dam operation with upstream and downstream dam owners.
- confirming there are contingency plan procedures (back-up operations and emergency operations) in place. This should include contacting local resources like contractors, utilities, etc.;
- beginning to monitor ice flow and water levels early;
- beginning operation of the dam in a timely manner to reduce the risk of gate failure and/or damage;
- referring to dam safety and floodplain zoning maps for an estimate of lands that might be flood if a dam failure analysis map has not been created.

If flooding does occur, DNR Dam Engineers in the field and at the State Emergency Operations Center will coordinate efforts to evaluate dams and provide technical assistance to owners of dams stressed by the high water and debris.

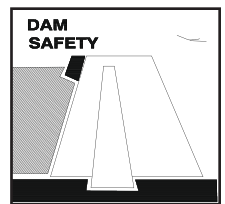
### Other Spring Safety Tips

Spring cleaning is not just for the house. Dam owners also need to do some "spring cleaning" to ensure their dam is ready for the new season. Some spring safety tips include:

- debris clean up – clean debris from the gates, spillways and other outlet structures. Debris accumulates all year, but it is very important to clear the branches, weeds and other accumulated debris from your dam before spring flooding. Debris in the spillway and gates severely reduces the capacity of the dam and often leads to overtopping during high flows.
- gate operation – Check your gate operators. If you have chains to lift gates, be sure they are in good condition and will not fail if you are faced with opening gates or pulling logs. Get the grease gun out and lubricate the motors and gate



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stems. Find your gate wheels, keys to the fences, pike poles and gaff hooks and put them in a place that is easily accessible during a flood event.

- structural inspection – Walk the dam and note problems that have developed during the winter months. Take pictures and document ice and freeze/thaw damage, scour, erosion, seepage or piping, and other changes that could affect how your dam operates, both under normal and flooding conditions. If you see serious problems, notify your consultant engineer now, before spring thaw.
- review IOM/EAP – Review the documents you have developed for Inspection, Operation and Maintenance, as well as Emergency Action. Revise telephone lists, if necessary, and your list of suppliers for emergency resources. Make sure that you let everyone on the sign-off know changes you have made.

## **Dam Emergency – Who Do You Call?**

If despite your best efforts at maintaining your dam, an emergency arises, the first thing to do is to open your Emergency Action Plan (EAP) and follow the steps outlined. If for some reason, you do not yet have an EAP for your dam and failure is imminent, then call 911 and be prepared to provide the following information to the 911 operator:

- name and title of the person reporting the incident;
- callback number of the person reporting the incident
- name/location of the dam including county, waterbody and nearest road; and
- present condition of the dam such as perceived problem, gate status, level of pond in relation to low point in the embankment.

***Under any circumstance, if failure is imminent, call 911 first!***

## **Change in Notification Procedure for EAPs**

We are trying to standardize the notification procedures to Wisconsin Emergency Management and the DNR in Emergency Action Plans (EAP) for dams statewide. The call process outlined will be a slight change for some EAPs. Every EAP for a dam in the state should have a call to the Wisconsin Emergency Hotline (often called the State Warning Center or Wisconsin Emergency Management). The recommended format for the notification flowchart is to call the Emergency Hotline at 1-800-943-0003 (24 hour) and then press "1" and ask for "DNR Duty Officer".

If you currently have an EAP, all contact information including telephone numbers must be reviewed and updated annually. The call process for the Emergency Hotline should be changed during your next annual update.

**Wisconsin Emergency Hotline  
1-800-943-0003 (24 hour)  
Press "1"  
Ask for "DNR Duty Officer"**

## 2011 Dam Inspection Schedules

If you are scheduled for an inspection in 2011, you will have received several letters from the Dam Safety program over the last 9 months. The most recent reminder that went out was in early February to those of you who are required to hire a consulting engineer in 2011 to perform a dam safety inspection.

The dam inspection schedule can be found on the DNR Dam safety website at [http://dnr.wi.gov/org/water/wm/dsfm/dams/inspect\\_sched.html](http://dnr.wi.gov/org/water/wm/dsfm/dams/inspect_sched.html). The inspection schedule can be determined for either an individual dam or by year. For information on the DNR Dam Inspection Program or to find information on conducting an inspection go to [http://dnr.wi.gov/org/water/wm/dsfm/dams/inspect\\_info.html](http://dnr.wi.gov/org/water/wm/dsfm/dams/inspect_info.html).

The first step is to have your consultant engineer research past inspections by reviewing the DNR files. Your engineer should contact the regional Dam Safety Engineer to locate the files. We are in the process of scanning files to electronic format to facilitate review, but not all have been scanned to date and may need to be reviewed at a DNR office. Contact information for DNR Regional Dam Safety Engineers can be found at <http://dnr.wi.gov/org/water/wm/dsfm/dams/staff.html>.

Once your consultant has inspected your dam, he/she has 90 days in which to produce a report listing all deficiencies and recommendations for addressing the deficiencies. The report should include photographs of the deficiencies noted, past efforts to bring the dam into compliance with safety standards, and any survey done as part of the inspection. It should also include a requirement for completing a dam failure analysis, and an Inspection Operation and Maintenance Plan as well as an Emergency Action Plan. The report must be submitted to the appropriate regional Dam Safety Engineer who will review and issue a concurrence letter to you. This will start the clock for you to make the repairs in the allotted timeframes (see our website for typical timeframes for repairs/maintenance/reconstruction).

Failure to do inspections during the scheduled years or failure to follow up with the needed safety repairs may necessitate enforcement action against owners. The DNR Dam Safety's goal is to ensure that all dams in the state are safe, and meet the objective to protect life, health and property. We hope you recognize your responsibility under Ch. 31 of the State Statutes to meet these safety goals and will work to avoid enforcement action on our part.

## Inspection, Operations and Maintenance Plans

There are nearly 4,000 dams in the State of Wisconsin. Many of these dams have the potential to cause the loss of life and considerable property damage if they were to fail. The best method of avoiding a dam emergency is proper inspection, operation and maintenance. An Inspection, Operation and Maintenance Plan (IOM) is an important step a dam owner can take to maintain the structural integrity and operational status of a dam as well as protect downstream lives and property, protect his/her investment and reduce potential liability.

Under Chapter NR 333, Wisconsin Administrative Code, Dam Design and Construction, owners of all large dams are required to develop an adequate IOM plan

for each dam they own. While ch. NR 333.07(3)(a) does not specify the components of an IOM, the Department is in the process of developing a guidebook and template to assist dam owners in writing a plan which meets an accepted minimum standard. The guidebook and template will provide a description of the various parts of an IOM along with sample checklists and forms. Each IOM must be tailored to site specific conditions and the requirements of the owner, agency or organization that operates or regulates the use of the dam.

When complete, the IOM guide and template will be available for download in PDF format from the DNR Dam Safety website. Copies in Word format will be available upon request.

## Emergency Action Planning

All large dams are required to have an Emergency Action Plan (EAP). However, it is a good idea for the owner of a dam of any size to develop a EAP for his dam. If you are interested in writing an EAP for your dam, the DNR publication *A Guide to Writing Emergency Action Plans* along with a template EAP can be downloaded in PDF format at <http://dnr.wi.gov/org/water/wm/dsfm/dams/owner.html>. If you would prefer the documents in Word format, contact Miriam Anderson, Planning Specialist at [dnrdamsafety@wisconsin.gov](mailto:dnrdamsafety@wisconsin.gov).

## What Is My Dam's Hazard Rating?

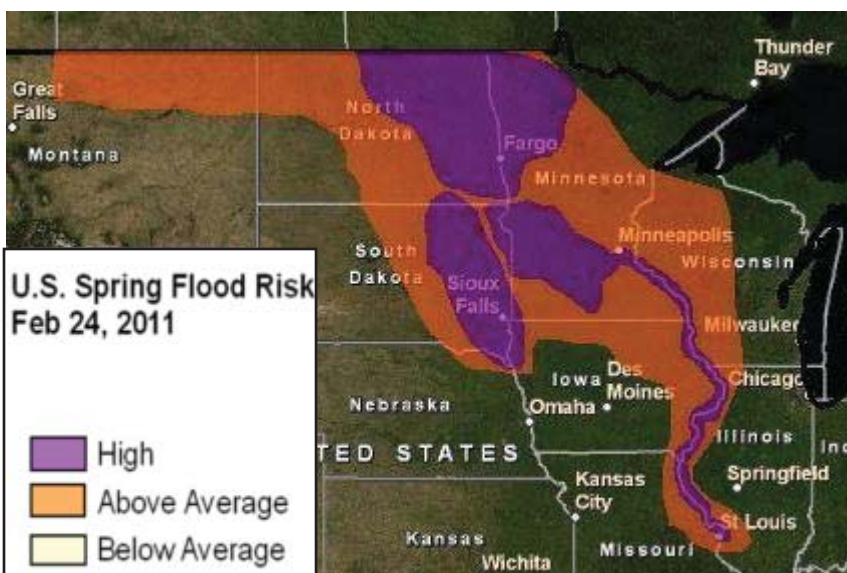
A hazard rating is a determination of the hazard that the dam creates downstream if the dam was to fail. It is NOT an indicator of the condition of the dam. Your dam may be in excellent physical shape and be compliant with all the safety standards and requirements and still be a high hazard dam.

A hazard rating is assigned based on the results of a dam failure analysis done by your consultant engineer. If a dam is likely to cause loss of life if it fails, it is considered a **high** hazard dam. If a dam failure will probably not cause loss of life, but will cause significant property damage, the dam is considered a **significant** hazard dam. A **low** hazard dam is not expected cause loss of life and only minimal damage downstream.

The requirements for a high hazard dam are more stringent than for a significant or low hazard dam. A high hazard dam must be able to store or pass a greater flood than a low hazard dam. If you do not know the hazard rating of your dam you can find that information in our database. By doing a search on the name of your dam, the field file number or the dam key sequence number, you can access the information that we have, including the hazard rating and the inspection schedule we have set. If your dam has not yet had a dam failure analysis, we have estimated the hazard of the dam based on existing land use downstream.

## Midwest Spring Flooding Outlook

The National Weather Service (NWS) is stressing that the outlook for spring flooding remains high. Extreme concern exists on the Mississippi, Minnesota and Red Rivers where flooding is occurring and expected to continue well into April.



- National Weather Service Flooding Outlook Feb. 24, 2011

The reasons for the extreme concern are:

- above average fall moisture
- above average winter precipitation
- above average water already in the rivers
- above average spring rains are occurring

A more detailed flooding report from the North Central River Forecast Center of NOAA's National Weather Service (NWS) River Forecast Office can be found at <http://www.weather.gov/oh/hic/nho/>. Wisconsin is included in the coverage of the North Central River Forecast Center (<http://www.crh.noaa.gov/ncrfc/>).

Southern Wisconsin has lost its snow cover, but everything is soggy so additional precipitation can cause high river flows as indicated by the rains over last week. The cutoff for melting in the western Wisconsin appears to have been the Black and Eau Claire River Basins east of Eau Claire. Both reached flood stage, but flows are now falling. Other streams such as the Kickapoo, Baraboo, Rock and Fox (southern) are reaching flood stage due to the recent rains, but are or will be going down.

In northern Wisconsin, the 'true melt' has not yet happened and the March 22-23 precipitation added to the snow cover in many areas. Rivers such as the Upper St. Croix, Upper Chippewa and Upper Wisconsin will be a "wait and see" in regards to flooding.

Cold temps will likely stabilize the flows across the State. Additional melting in the north may finally occur later next week or later and the precipitation outlook for the next week is light. What happens after that is anybody's guess! Temperatures are over-due to warm up and long range precipitation forecasts call for above normal amounts. There is better than a 50% chance many rivers will still have moderate flooding in 2 or 3 weeks.

## Tracking Weather and River Forecasts

For more information related to flooding and precipitation can be found at the websites listed below. When using these pages, be sure to "re-fresh" so you are



using the most up-to-date readings.

- The Precipitation Summary: <http://water.weather.gov/precip/>
- River Flows (NWS): <http://water.weather.gov/ahps/>
- USGS Water Watch Summary Information: <http://waterwatch.usgs.gov/new/index.php?r=wi&id=flood>

More information on Stream Flow can be obtained from the NWS Field Offices around the state at <http://water.weather.gov/ahps>. Once on the page, you can link to individual field offices throughout the country by scrolling slowly across the map and clicking when the office name you want appears. At the Individual NWS Office's Home Page, more detailed data such as updated radar with rainfall totals and intensities as it is occurring can be viewed.

NWS also has many "Partners" that provide the most up-to-date river information. Additional discussion on the Partners can be obtained at: [http://water.weather.gov/ahps/partners/nws\\_partners.php](http://water.weather.gov/ahps/partners/nws_partners.php). NWS also has a national link that gives a national summary of what most rivers are doing. <http://water.weather.gov/ahps/>

## Dam Safety Staff Changes

According to Confucius, a Chinese philosopher, "They must often change, who would be constant in happiness or wisdom.." Gary Lepak and Gordon Stinson, Regional Engineers in Dam Safety have taken Confucius' comment to heart and have moved on to find happiness and wisdom in new positions.

Joe Behlen will now be responsible for dam issues in Chippewa, Dunn, Eau Claire, Pepin, Pierce and St. Croix Counties. Joe can be contacted at (715) 421 – 9940 or [Joseph.Behlen@wisconsin.gov](mailto:Joseph.Behlen@wisconsin.gov).

Mark Stephenson will be responsible for dam issues in La Crosse, Monroe and Vernon Counties. Mark can be contacted at (715) 284-1418 [mark.stephenson@wisconsin.gov](mailto:mark.stephenson@wisconsin.gov).

Konny Margovsky will be responsible for dam issues in Crawford County. Konny can be contacted at (608) 935-1915 [konstantine.margovsky@wisconsin.gov](mailto:konstantine.margovsky@wisconsin.gov).

To find the Regional Engineer responsible for the county in which your dam is located in go to <http://dnr.wi.gov/org/water/wm/dsfm/dams/staff.html>.

Please note: for floodplain issues duties have been divided differently. To find the Regional Engineer responsible for floodplain issues in your county go to <http://dnr.wi.gov/org/water/wm/dsfm/dams/staff.html>.

## Dam Safety Seminars

In November 2010, DNR Dam Safety staff held five Dam Safety Seminars. The purpose of the seminars was to provide dam owners, dam operators, potential dam owners and others within the dam community with the latest information on state dam regulations, inspection procedures and emergency action plans. The seminars also provided dam owners and operators with information on hiring consulting engineers and other issues related to dam safety.

The seminars were attended by over 100 dam owners, operators and others from throughout the dam community. The evaluations provided the staff with great comments on both the seminars in general and the specific presentations.

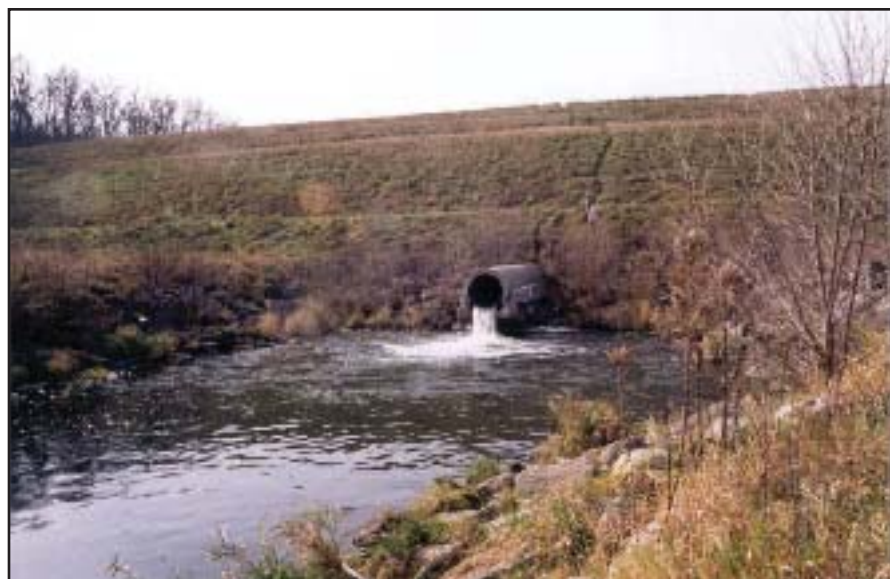
The overall response to the materials and information provided at the seminars was positive. A CD of dam related documents including a guidebook and template for emergency action plans, the various codes regulating dams, inspection checklists and information on choosing a consultant was greatly appreciated. The recommendations made regarding both the content of the presentations and overall length of the seminars have been reviewed and will be taken into consideration before the next round of seminars.

A number of attendees recommended that the seminars be held every two years. DNR Dam Safety staff is working to determine when and where the seminars can be offered again. Consideration is being given to conducting shorter seminars focused on one or two topics on a more frequent basis with the longer more inclusive seminars being offered every two to three years.

If you would like a copy of the CD presented at the seminars or have suggestions for seminar topics, please contact the Dam Safety staff at [dnrdamsafety@wisconsin.gov](mailto:dnr damsafety@wisconsin.gov).

## Email Notification of Updates

Wisconsin *Dam Safety News* is planning to be an electronic-only newsletter highlighting news and updates for dam owners, consultants, and other interested parties. In order to make this change successful, we need to develop a repository of email addresses for dam owners. We are asking that all dam owners with email addresses to provide us with this information by sending an email to [dnrdamsafety@wisconsin.gov](mailto:dnrdamsafety@wisconsin.gov). Please put your dam name and county in the subject line and then include your name and email address in the body of the email.



- Blackhawk Lake Dam, Iowa County

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For further information regarding the Wisconsin Dam Safety Program, please visit our website at: <http://dnr.wi.gov/org/water/wm/dsfm/dams/> or email: [dnrdamsafety@wisconsin.gov](mailto:dnrdamsafety@wisconsin.gov).

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