

DAM SAFETY NEWS

Welcome Back

It has been several years since the last Wisconsin Department of Natural Resources *Dam Safety News* has been sent to dam owners and other interested individuals. But now we are back! While there have been numerous changes in the Dam Safety Program since the last newsletter was issued in 1996, several things have remained constant - the state has **still** had no loss of life due to failures of dams in that time and the staff of the WI Dam Safety Program has continued to strive to provide service possible to dam owners and operators and the citizens of the state of Wisconsin. Our success at limiting the loss of life from dam failures in the state to zero is a result of dam owners and operators around the state who are safely maintaining, operating and repairing their dams and ensuring zoning is in place downstream.

What are the changes that have been made to the Dam Safety Program since 1996? Obviously, there have been staff changes. A current listing of contacts for state staff can be found on page 5. The other major change has been in the statutes regarding inspections. A quick review of these changes is below along with other information of interest to the dam community.

Inspection Requirements

As you have learned from us this year, the statutory requirements for large-dam inspections have changed. Owners are now responsible for hiring consulting engineers to do inspections of their large dams on a regular basis. The frequency of the inspections is based on the hazard rating of the dam: If a dam is a high hazard dam, inspections are required every two (2) years. If a dam is a significant hazard dam, inspections are required every three to four (3-4) years. If a dam is a low hazard dam, inspections are required every ten (10) years.

Hazard ratings definitions: High hazard dams are those dams that could cause loss of life if the dam failed. Significant hazard dams are those that would cause significant property damage should failure occur. Low hazard dams are not expected to cause much damage from failure.

Letters have been sent to owners of large dams with schedules that they are required to follow. DNR Dam Safety staff will still be conducting inspections of large High and Significant Hazard dams once every ten (10) years. DNR staff will not be inspecting Low Hazard large dams. We are in the process of updating our web pages so that owners will have access to information about their dams, how to hire an engineering consultant for inspections and other necessary procedures.



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Emergency Action Planning

All large dams are required to have an Emergency Action Plan (EAP). Ultimately, these plans must be based upon an inundation map developed as a result of a dam failure analysis (DFA). Prior to a full-blown DFA, large-dam owners must develop an interim EAP with estimated impacts to property and residents downstream. All large dams must have a DFA completed within the next 10 years, and appropriate zoning adopted downstream. A full EAP submittal is then required to be reviewed and approved by the Dam Safety staff. Updates to existing EAPs, including contacts and telephone numbers, should be sent to the Regional Dam Safety Engineer for the county in which the dam is located as well as Central Office staff in Madison. Please contact Bill Sturtevant, State Dam Safety Engineer at (608) 266 - 8033 or William.Sturtevant@wisconsin.gov if you have questions about Emergency Action Plan Requirements.

Dam Emergency – Who Do You Call?

If you have an emergency at your dam, the first thing to do is pull out your Emergency Action Plan and follow the steps outlined in that document. If you have time, open your gates, notify downstream dam owners and call the sheriff's department. ***If failure is imminent, call 911 first***, and then implement the steps for imminent failure in the plan.

The State Warning Center number is (800) 943-0043. They can contact the County Emergency Government Director for you and will also call the DNR Duty Officer, who in turn will contact the appropriate DNR Dam Safety Staff. The sheriff's department will call the warning center.

What constitutes an emergency? The most obvious emergencies are during or after heavy rains. If the dam can't be operated (you can't get the gates open or remove the stoplogs from the bays, e.g.), or if the dam is overtopping, leaking more than usual, rapidly eroding or showing other signs of imminent failure, this qualifies as an emergency and the appropriate steps should be taken. Call 911 and have the sheriff contact the State Warning Center, or call directly.

Dam Abandonment

In recent decades, Wisconsin has seen a large number of its dams aging and falling into disrepair. We have historically offered the dam owners two options: repair the dam to meet current standards, or abandon the permit for the dam and remove the dam from the waterway. The abandonment option has resulted in the removal of a number of dams over the past 20 years resulting in significant improvements in water quality, habitat and bio-diversity at many of these sites.

As our new inspection process is implemented, many dam owners may be considering dam abandonment as an alternative to hiring engineers for inspections, development of Emergency Action Plans and/or Inspection, Operation and Main-

tenance Plans, and ongoing maintenance and repairs to their dams.

In Wisconsin, three major factors drive the removal of dams:

- Dams, as a result of Ch. 31.19 safety inspections, are determined to be unsafe structures and the costs to bring the dams into compliance with safety standards are more than the owners are able or care to spend.
- Some dams are found to be “abandoned” under Chapter 31.187 dams when either no owner is found or the owner or owners are not able to fund repairs. These dams are then slated for removal.
- In some cases, dams have a significant environmental impact to the waterways and surrounding habitat, and a decision is made to reverse the damage caused by these structures by removing them. Many of these are on WDNR properties.

The Department’s involvement in these removals includes participating in public information meetings to explain the benefits of dam removal, coordinating input from resource managers to ensure the removal decisions are sound environmentally, and assisting with funding to buy out the owner’s interest in the dam.

Abandonment efforts can only be accomplished with a willing owner if an owner exists, and when no responsible party steps forward to take ownership of the dam and properly inspect, operate, maintain and repair the structure.

Over 125 dams have been removed from Wisconsin streams since 1967. Dams removed have ranged in size from small dams on trout streams, such as the Cartwright Dam on Shell Creek in Washburn County, medium size dams such as the Ontario Dam on the Kickapoo River in Vernon County, and fairly large dams on warm water streams such as the North Avenue Dam on the Milwaukee River in Milwaukee County.

Abandonment Decision-Making Process

The normal process in which a removal might be considered would involve an inspection of the dam by a certified engineer. The dam owner would then be contacted and notified of any problems found during the inspection. An official order may be issued, ordering the dam owner to perform the needed repairs or remove the structure - repair or removal is the owner’s choice.

If it is not economically feasible for the dam owner to repair the dam (dam removal generally costs 1/3rd of estimated reconstruction costs), or the owner is interested in pursuing removal for other reasons, an Environmental Assessment (EA) is sometimes necessary. A public information meeting is usually held in which the WDNR explains the situation and gains public input on the process and the EA. Once these steps are complete, a permit to abandon the dam will be issued with conditions for removal. If no owner of a dam can be found, the department may issue a notice declaring the dam abandoned and make arrangements to remove the dam.

Environmental Benefits

The most significant ecological benefits of dam removal include:

- Reconnection of important seasonal fish habitat
- Normalized temperature regimes;
- Improved water clarity (in most cases);
- Improved dissolved oxygen concentrations;
- Normalized sediment and energy transport; and
- Improved biological diversity.

An example of the improved biological diversity found after a dam removal is the replacement of warm water fish species with cool water species. In general, carp prefer the warm waters of an impoundment, yet when a dam is removed the cool water species such as trout and bass, generally preferred by anglers, can move back into the river and repopulate. The improved fishing can result in a boost to the local economy through increased interest in fishing.

Dam Fun Facts

The Hoover Dam (originally called Boulder Dam) was built by the Bureau of Reclamation in the 1930's. One of the most interesting facts about the Hoover Dam is that it contains more masonry than the Pyramid of Giza (4,360,000 cubic yards of concrete) and weighs over 6.6 million tons. For more information about Hoover Dam go to: <http://www.usbr.gov/lc/hooverdam/faqs/damfaqs.html>.



National Geographic reports that the weight of water in the impoundment behind China's Three Gorges Dam will affect the tilt of the earth's axis by 1 inch. When complete, the Three Gorges Dam will generate 18,000 megawatts of power—eight times that of the U.S.'s Hoover Dam on the Colorado River.



DAM Safety Staff

Who do you contact if you have a question relating to a dam? That depends on the county in which the dam is located. Below is the contact information for the WI DNR Dam Safety Regional Engineers with the counties for which each is responsible.

Northeast Region Dam Safety Staff

Miles Winkler: Brown, Door, Kewaunee, Marinette, Menominee, Oconto, Outagamie and Shawano Counties – (920) 662 – 5195 or *Miles.Winkler@wisconsin.gov*

Dave Stertz: Calumet, Fond du Lac, Green Lake, Manitowoc, Marquette, Waupaca, Waushara and Winnebago Counties – (920) 787 – 4686, ext. 3035 or *David.Stertz@wisconsin.gov*

Northern Region Dam Safety Staff

Terry Cummings: Florence, Forest, Iron, Langlade, Lincoln, Oneida, Price, Taylor, and Vilas Counties – (715) 365 – 8938 or *Terry.Cummings@wisconsin.gov*

Frank Dallam: Ashland, Barron, Bayfield, Burnett, Douglas, Polk, Rusk, Sawyer and Washburn Counties – (715) 635 – 4064 or *Frank.Dallam@wisconsin.gov*

Southeast Region Dam Safety Staff

Tanya Meyer: Kenosha, Milwaukee, Ozaukee and Racine Counties – (414) 263 – 8641 or *Tanya.Meyer@wisconsin.gov*

Michelle Schneider: Sheboygan, Walworth, Washington and Waukesha Counties – (262) 574 – 2127 or *Michelle.Schneider@wisconsin.gov*

South Central Region Dam Safety Staff

Rob Davis: Columbia, Dane, Dodge, Jefferson and Rock Counties – (608) 275 – 3316 or **Robert.Davis@wisconsin.gov**

Konstantin (Konny) Margovsky: Grant, Green, Iowa, Lafayette, Richland and Sauk Counties – (608) 935 – 1915 or *Konstantine.Margovsky@wisconsin.gov*

West Central Region Dam Safety Staff

Joe Behlen: Adams, Juneau, Marathon, Portage and Wood Counties – (715) 421 – 9940 or *Joseph.Behlen@wisconsin.gov*

Gary Lepak: Chippewa, Dunn, Eau Claire, Pepin, Pierce and St. Croix Counties – (715) 839 – 3761 or *Gary.Lepak@wisconsin.gov*

Mark Stephenson: Buffalo, Clark, Jackson and Trempeleau Counties – (715) 284 – 1418 or *Mark.Stephenson@wisconsin.gov*

Gordon Stinson: Crawford, La Crosse, Monroe and Vernon Counties – (608) 785 – 9977 or *Gordon.Stinson@wisconsin.gov*

WISCONSIN STATE WARNING CENTER – (608) 943 – 0043

Dam Safety Seminars – 2010 – Save the Dates

The Dam Safety Staff will be holding five seminars on dam safety between November 10 - 18, 2010 at various locations throughout the state. It has been over 5 years since the DNR last held any training for dam owners and With the implementation of the new dam inspection rules, the DNR wants to refresh dam owners knowledge about safe operation and maintenance.

The purpose of the seminars will be 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 will also be an opportunity to provide dam owners and operators with information on hiring consulting engineers and other issues related to dam safety.

All owners and operators of dams are urged to attend as well as anyone considering purchasing a dam. The seminars will be held in Beaver Dam (Dodge County), Bangor (La Crosse County), Rice Lake (Barron County), Merrill (Lincoln County) and Shawano (Shawano County) and will be from 8:30 am to 3:30 pm. Lunch will be provided with registration. Early registration is recommended due to limited seating. Walk-in registrations will not be accepted.

A fee of \$10.00 will be charged to cover the cost of facilities and lunch. Checks should be made out to the Association of State Dam Safety Officials (ASDSO) and must be mailed in with the registration form.

The DNR Dam Safety Program is conducting the seminars with support from the ASDSO Owner Education Program and the Federal Emergency Management Agency Dam Safety Program. For further information on the seminars, locations or registration, please contact: Linda Hyatt via e-mail at Linda.hyatt@wisconsin.gov or at 920-787-4686 x3010.

E-Mail Notification of Updates

Wisconsin *Dam Safety News* is soon to be an electronic-only newsletter highlighting news and updates for dam owners, consultants, and other interested parties. The DNR now uses GovDelivery, a new service for managing DNR information and newsletters. GovDelivery will help the DNR more efficiently manage our digital communications and offer more subscription options to our customers. To stay in touch with what's going on in the Dam Safety Program and to subscribe to Wisconsin *Dam Safety News* go to <http://dnr.wi.gov/org/water/wm/dsfm/dams/newsletters.html>.

For information about or to subscribe to other DNR newsletters go to <http://dnr.wi.gov/newsletters/>.

Dam Safety Seminar Registration Form

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Name _____ Title _____

Address _____

City _____ State _____ Zip _____

Phone (____) _____ Email _____

Other Attendees _____

Seminars will be from 8:30 am to 3:30 pm with lunch provided. Please indicate in the space provided which of the seminars you wish to attend and the number attending.

_____ # attending Beaver Dam – November 10, 2010
Old Hickory Country Club
W7596 State Road 33
Beaver Dam, WI 53916-9412
(920) 887-7179

_____ # attending LaCrosse – November 11, 2010
Town of Bangor Town Hall
N4400 State Road 162
Bangor, WI 54614

_____ # attending Rice Lake – November 16, 2010
Turtleback Country Club
107 W Coleman St,
Rice Lake, WI
(715) 234-1405

_____ # attending Merrill – November 17, 2010
Merrill Golf Club
1604 O Day St
Merrill, WI 54452-3425
(715) 536-2529

_____ # attending Shawano - November 18, 2010
Shawano Lake Country Club
W5714 N Lake Dr
Shawano, WI 54166
(715) 524-4890

Registration is \$10 per person. Registration deadline is November 1, 2010. Please reserve a spot now by mailing a completed registration form and check to:

Elly Lawry
WI DNR WT/3
PO Box 7921
Madison, WI 53707

Please make checks payable to ASDSO. Fee includes break snacks and lunch. Please contact Linda Hyatt via e-mail at: Linda.hyatt@wisconsin.gov or at 920-787-4686 x3010 with questions or to cancel a registration.

Wisconsin Department of Natural Resources
Bureau of Watershed Management
Box 7921
Madison, WI 53707-7921

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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.
