

Dam Safety E-Newsletter



NJDEP BUREAU OF DAM SAFETY



Fall 2016

Welcome to the New Jersey Department of Environmental Protection's inaugural Dam Safety Newsletter. The Bureau of Dam Safety is looking to publish this electronic newsletter twice a year as a way to keep dam safety stakeholders up-to-date on the latest issues that may impact dams in the state.



In the Fall of 2015, the unprecedented rainfall events in South Carolina (up to 24" of rain in some locations) and the impact the rain had on dams in that state, served as a reminder that we, as dam owners, engineers, and regulators must continue our due diligence to upgrade and properly maintain and operate the dams in New Jersey. It wasn't long ago that New Jersey faced similar events such as Tropical Storm Irene and the Burlington County Flood of 2004, both of which wreaked havoc on dams. Although we have come a long way in upgrading high and significant hazard dams in the state, much more remains to be done. Additionally, as long as dams exist, adequate dam safety operation, maintenance, and inspection practices must be followed to assure that dams will operate and perform as designed.

Through this newsletter, the staff at the Bureau of Dam Safety will strive to provide valuable dam safety information for all stakeholders in the dam safety community.

For the dam owner, we will be looking to provide information on your responsibility as a dam owner under the State's Safe Dam Act and the New Jersey Dam Safety Standards. We will be providing articles on basic dam operation and maintenance issues. Additionally, we hope that this newsletter will serve as a reminder to dam owners of the obligations that must be met.

Number of Dams by Hazard in New Jersey

- HIGH HAZARD - 221
- SIGNIFICANT HAZARD - 337
- LOW HAZARD - 1,144

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Photo credit: Association of State Dam Safety Officials



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For dam safety engineers, we look to provide information on the technical matters of dam rehabilitation and design. We will share issues that the engineers in the Bureau of Dam Safety see through our inspections and field work that are either positive (a good design or construction method), or negative (a design or construction method that has implementation issues). We also hope to provide information on proper procedures for preparing dam safety analyses, inspection reports, design reports, etc., to help facilitate final approvals of projects when submitted to the Department.

For both dam owners and engineers, we will provide updates on available dam safety related training that we believe would be valuable to you. We will also outline our enforcement program, with particular attention to our objectives for compliance with the New Jersey Dam Safety Standards. Additionally, we will seek to provide information that may assist you in dealing with other DEP programs on issues related to your dams.

Unfortunately with dams, there comes the potential for emergency situations to develop. Whether it be a large storm event threatening to overtop the dam, a developing seepage condition, or a blocked spillway, emergency action planning for high and significant hazard dams is an important feature of dam safety. We will include articles to provide emergency planning information to dam owners and emergency management officials. Also, due to the present and ongoing security threats around the country, our newsletter will include articles with regard to security at dams.

Lastly, we hope that members of the general public who live or work downstream of dams and may potentially be impacted by the failure of a dam have the opportunity to peruse this newsletter and can become better educated about dam safety through its contents (*see also* www.livingneardams.org).

Dam Safety in New Jersey

In 1912, the legislature of the State of New Jersey instituted laws relating to the construction, repair, and inspection of existing and proposed dam structures. The law was amended in 1981 and became known as the Safe Dam Act. New Jersey's Dam Safety program is administered by DEP's Engineering & Construction, Division of Dam Safety & Flood Control, Bureau of Dam Safety (Bureau) under the rules and regulations promulgated in May 1985 known as the Dam Safety Standards. There are approximately 1,700 regulated dams statewide. The primary goal of the program is to ensure the safety and integrity of dams in New Jersey and, thereby, protect people and property from the consequences of dam failures. Of the approximately 1,700 regulated dams, 221 are considered to have High Hazard Potential (the failure of which may cause the probable loss of life or extensive property damage), and 337 are considered to have Significant Hazard Potential (the failure of which may cause significant damage to property and project operation, but loss of human life is not envisioned).

Both High and Significant Hazard structures are required to be inspected by a New Jersey licensed professional engineer every two years and an Emergency Action Plan must also be developed. The remaining dams in New Jersey are considered to have a Low Hazard Potential (the failure of which would cause loss of the dam itself but little or no additional damage to other property). Low Hazard dams must be inspected every four years and do not require an Emergency Action Plan. Please visit the Bureau's website at www.nj.gov/dep/damsafety for our rules and regulations as well as additional information about our program.

NJDEP Division of Dam Safety & Flood Control

In the event of a dam emergency:
Call our 24-hour hotline
1-877-WARNDEP

Phone: (609) 984-0859
www.nj.gov/dep/damsafety/
E-mail: damsafety@dep.nj.gov

The graphic is a blue rectangular box with white and yellow text. It features the NJDEP Dam Safety & Flood Control logo on the left side. The text provides emergency contact information, including a 24-hour hotline number (1-877-WARNDEP), a phone number (609) 984-0859, a website URL (www.nj.gov/dep/damsafety/), and an email address (damsafety@dep.nj.gov).

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Dam Owner Responsibilities

Dams are owned and operated by private individuals or organizations (almost 60% of all New Jersey dams) and government entities. Some of the many purposes for dams in New Jersey include: Irrigation, Hydro-electric, Flood Control/Stormwater Management, Water Supply, Recreation, Fish/Wildlife Habitat, Fire Protection, and Farm Ponds. All dam owners/operators in the State are required to operate and to maintain their dams in accordance with the Dam Safety Standards. Owners must retain licensed professional engineers with experience in the design and construction of dams to propose work, conduct studies, and perform inspections on dams. In the event of an emergency or unusual condition at a dam, owners are responsible for notifying their engineer, appropriate emergency management officials, and the Bureau. Owners are also responsible for initiating emergency actions in accordance with their emergency action plan and in coordination with the Bureau.



Union Lake Dam - Millville City, NJ

Dam Inspections



Bayberry Street Dam - Pemberton, NJ

Existing dams must be periodically inspected to assure that they are adequately maintained, and owners are directed to correct potential deficiencies. The regulations require that dam owners obtain a professional engineer experienced in the design and construction of dams to inspect their dams on a 1, 2, or 4-year basis and to prepare comprehensive reports. Inspections must be performed at dams without snow cover to ensure adequate visibility of the dam and all appurtenant structures. Informal inspections should be routinely conducted by the dam owner in between the regular inspections performed by the engineer.

Operation & Maintenance

A dam owner is required to develop an Operation & Maintenance Manual (O&M) for their dam which includes background information and history of the dam, as well as all necessary instructions for operations, maintenance, and a schedule for frequency of inspections. Please see the Bureau's website for an O&M template.

VISIT THE BUREAU
OF DAM SAFETY
[WEBSITE](#) TO LEARN
MORE ABOUT DAM
SAFETY STANDARDS

Permitting

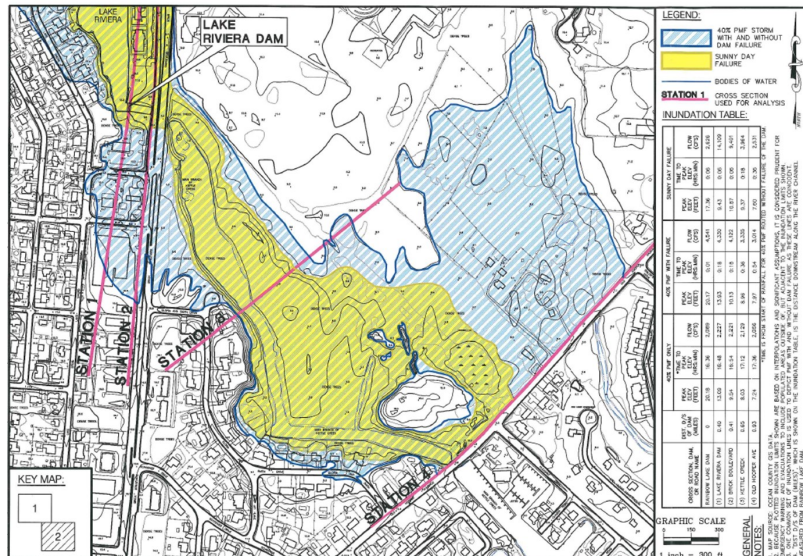
Bureau engineers review Dam Safety Permit Applications for the construction of new dams or for the alteration, repair, or removal of existing dams and must grant approval before the owner can proceed with construction. Engineers from the Bureau evaluate each project, investigate site conditions, and review plans, specifications, and calculations prior to issuing permits. There is no fee for a Dam Safety Permit. Please see the Bureau's website for more information regarding permit applications.

Loan Program

The Bureau is responsible for the administration of the New Jersey Dam Restoration and Inland Water Projects Loan Program. These loans assist any dam owners, including local government units, private lake associations, or similar organizations in the funding of a dam restoration project. Application periods are established from time to time based upon availability of funds in the program. Notification of application periods will be published in the *New Jersey Register* and on the Bureau web page.

Dam Safety Design Tips: Inundation Mapping

Significant and High Hazard dam owners in New Jersey must have an Emergency Action Plan for their dam which includes inundation maps. The inundation maps should be developed at a scale sufficient to be used for identifying downstream inhabited areas subject to possible danger. Potential inundation areas should be clearly identified on maps measuring 11" x 17" in size. Inundation areas should be clearly marked for sunny day failure and design storm with failure (design storm without failure is not necessary). Inundation maps should be developed by the dam owner in coordination with the appropriate State and local emergency management agencies. Since those agencies will rely heavily on the inundation maps during an emergency, it is important that they contain information required by those agencies. Inundation maps should be updated periodically to reflect changes in downstream areas and should include any pertinent information resulting from coordination with appropriate emergency management authorities. Please see the sample EAP form under Emergency Action Plan Guidelines on the Bureau's website for further information and details regarding inundation mapping (<http://www.nj.gov/dep/damsafety/docs/eapform.pdf>).





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Helpful Dam Safety Links

[Association of State Dam Safety Officials](#)

[Responsible Dam Ownership](#)

[Living With Dams](#)

[FEMA - National Dam Safety Program](#)

[Bureau of Reclamation - Dam Safety Program](#)

[U.S. Army Corps of Engineers](#)



Visit our website at www.nj.gov/dep/damsafety/



Lake Ashroe Dam - Sandyston, NJ
(recently reconstructed)