STATE OF RHODE ISLAND

2012

Annual Report to the Governor
on the Activities of the

DAM SAFETY PROGRAM

Wash-out section of Glen Rock Reservoir Dam (No. 236) and adjacent state road in South Kingstown

Department of Environmental Management

Prepared by the Office of Compliance and Inspection

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STATUTORY AND REGULATORY AUTHORITY OF RHODE ISLAND'S DAM SAFETY PROGRAM

The Rhode Island dam inspection and inventory program had its inception in 1883, and was under the authority and responsibility of the Commissioner of Dams and Reservoirs. At that time, there were 86 dams included in the records; today, there are 668 inventoried dams.

A complete list of the inventoried dams, sorted by town and river, is attached.

STATUTES

As set forth in Rhode Island General Laws, Chapters 46-18 and 46-19, a dam owner has the responsibility for the safe operation of his/her dam, and is liable for the consequences of accidents or failures of the dam. In general, a dam owner is required to use *"reasonable care"* in the operation and maintenance of a dam. This responsibility includes the proper operation, maintenance, repair and rehabilitation of a dam, which are essential elements in preventing a dam failure.

The criteria governing the administration and enforcement of Rhode Island's Dam Safety Program are contained in the General Laws of Rhode Island, Chapter 46-19. The Department of Environmental Management (DEM) has the responsibility to cause to be inspected dams to determine their condition, to review and approve plans for construction or substantial alteration of a dam, to order the owner to make repairs or to take other necessary action to make a dam safe.

In 2001, Section 46-12.2-2 was amended, authorizing the Clean Water Finance Agency to issue loans for projects associated with dam safety.

In 2005, Chapter 45-62 (Dam Management Districts) was added, authorizing municipalities to create dam management districts for dam repairs, maintenance, management and/or removal.

In 2006 two amendments to Chapter 46-19 were enacted. Section 4 was amended to authorize DEM, in an emergency, to take necessary actions to mitigate an unsafe condition at a dam and to assess the costs of those actions against the dam owner. Section 9 was amended to require a city or town where a high or significant hazard dam is located, and to require a state agency that owns a high or significant hazard dam, to complete by July 1, 2008, an Emergency Action Plan (EAP) for the dam. Rhode Island's Emergency Management Agency is responsible for coordinating development of the EAPs and must give final approval for the EAP to be considered complete.

In 2012, Section 46-19-4 was amended by adding subsection (c). This change authorizes DEM to record an enforcement action for an unsafe dam, in the land evidence records of the city or town in which the dam is located. Upon satisfactory completion of the requirements of the enforcement action, DEM is also authorized to record such written notice in the land evidence records.

Federal Energy Regulatory Commission (FERC) Authority

In 2011, DEM became aware that for any dam in the state that has a Federal Energy Regulatory Commission (FERC) Permit or Exemption, DEM does not have any dam safety regulatory authority. In 2012, the following dams were under FERC Authority:

TOWN	DAM NO.	DAM NAME	HAZARD CLASS
Central Falls / Cumberland	063	Valley Falls Pond	Low
Central Falls / Pawtucket	064	Central Falls	Low
Hopkinton	254	Potter Hill	Low
North Smithfield	043	Slatersville Reservoir Upper	High
North Smithfield	045	Slatersville Upper Intermediate	Low
North Smithfield	393	Blackstone	Low
Pawtucket	066	Pawtucket Lower	Low
West Warwick	148	Arctic	High
West Warwick	147	Riverpoint Pond Upper	High
Woonsocket	056	Woonsocket Falls	Significant

Overgrown embankment at Bridlewood Upper Dam (#649) in Lincoln

DEM REGULATIONS

On December 20, 2007 DEM's *Rules and Regulations for Dam Safety* (Dam Safety Regulations) went into effect. The regulations, which are available on DEM's website at http://www.dem.ri.gov/pubs/regs/regs/compinsp/dams07.pdf, include the following:

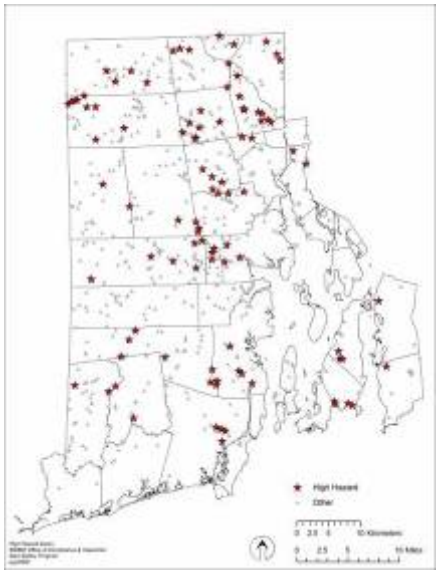
- Definitions of important terms including dam, hazard classifications, maintenance, repair and unsafe dam;
- Assignment of a hazard classification to each dam in the state inventory;
- Requirement that owners register their dams and notify DEM when ownership is transferred (no associated fee);
- A schedule for visual inspections of high and significant hazard dams;
- Procedure to streamline repair of high and significant hazard dams (no associated permit fee); and
- A procedure for dam owners to take emergency actions at high and significant hazard dams.

In June 2007, DEM's *Rules and Regulations for Governing the Administration and Enforcement of the Freshwater Wetlands Act* were amended to allow high hazard and significant hazard dam repair requests to be approved under the Dam Safety Regulations. The Dam Safety Program coordinates such requests with the Freshwater Wetlands Program.

HAZARD CLASSIFICATIONS

Inventoried dams are classified by size and hazard ratings. The size classification provides a relative description of small, medium or large, based on the storage capacity and height of the impounded water. The hazard classification relates to the probable consequences of failure or misoperation of the dam; it does not relate to the current condition or the likelihood of failure of the dam. The hazard classifications are defined in the Dam Safety Regulations, as follows:

High Hazard – means a dam where failure or misoperation will result in a probable loss of human life.



High Hazard Dams

Significant Hazard – means a dam where failure or misoperation results in no probable loss of human life but can cause major economic loss, disruption of lifeline facilities or impact other concerns detrimental to the public's health, safety or welfare. Examples of major economic loss include washout of a state or federal highway, washout of two or more municipal roads, loss of vehicular access to residences, (e.g. a dead end road whereby emergency personnel could no longer access residences beyond the washout area) or damage to a few structures.

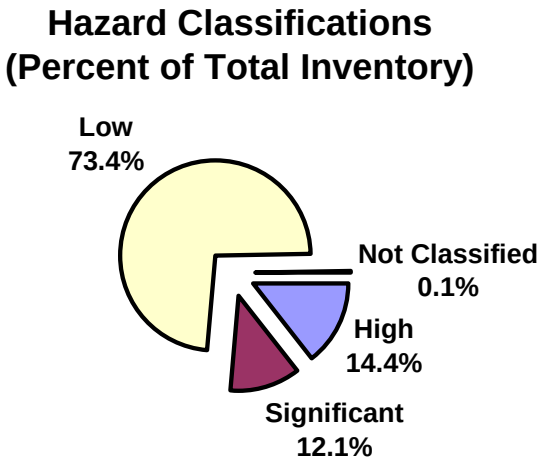
Significant Hazard Dams

Low Hazard – means a dam where failure or misoperation results in no probable loss of human life and low economic losses.

Low Hazard Dams

In 2011, there were 97 high hazard dams, 82 significant hazard dams, 488 low hazard dams and 1 dam not hazard classified, for a total inventory of 668 dams. In 2012, although the total inventory remained constant at 668 dams, the breakdown changed to 96 high hazard dams, 81 significant hazard dams, 490 low hazard dams and 1 dam not classified.

The following chart illustrates the 2012 percentage of dams in each classification:



The 2012 changes in hazard classifications are shown in the following table and summarized below:

TOWN	DAM NO.	DAM NAME	2011 STATUS	2012 STATUS
Burrillville	010	Mapleville Pond	High Hazard	Low Hazard (1)
Burrillville	035	Gilleran Pond	Significant Hazard	Low Hazard (1)
Coventry	151	Quidnick Pond Upper	Significant Hazard	Low Hazard
Exeter	382	Austin Upper Pond	High Hazard	Low Hazard
Glocester	442	Mann Pond	Low Hazard	Not Present
Johnston	316	Chapel Mill Pond	Low Hazard	Not Present
South Kingstown	236	Glen Rock Reservoir	Low Hazard	Significant Hazard
West Greenwich	768	Unnamed	Not Inventoried	Added To Inventory/Hazard Not Determined

(1) see *Unsafe Dams* on page 9 for explanation

Dam Number 151 (Quidnick Upper) in Coventry
In 2011, through the registration process, DEM notified the owner that the dam was classified as a significant hazard. The owner appealed the hazard classification and hired an engineer, who completed a more detailed analysis to demonstrate that the dam should be classified as a low hazard. In 2012, DEM agreed with the analysis and reclassified the dam.

Dam Number 382 (Austin Upper) in Exeter
In 2011, through the registration process, DEM notified the owner that the dam was classified as a high hazard, which the owner appealed. The only probable loss of human life associated with the hazard classification was at a building located on the dam that was under the control of the dam owner. In 2012, DEM and the owner entered a restrictive covenant agreement that was recorded in the Exeter land evidence records for the property. This agreement restricts the use of the building to occasional social guests. With this restriction, DEM reclassified the dam as a low hazard.

Embankment and downstream building of the Austin Upper Dam (#382) in Exeter.

Dam Number 236 (Glen Rock) in South Kingstown
The dam was reclassified from a low hazard to a significant hazard following failure of a section of the dam and the subsequent washout of an adjacent road during a severe rain storm in 2010. Although DEM was aware that the road was likely to wash out due to a dam failure, it was not aware that the road was state-owned. By definition, washout of at least one state-owned road due to a dam failure results in a significant hazard classification of the dam.

INSPECTION PROGRAM

In accordance with the Dam Safety Regulations, a dam's hazard classification determines the inspection frequency. Visual inspections of high hazard dams are required every two years (48 each year) and visual inspections of significant hazard dams are required every five years (16 each year). Low hazard dams are inspected every five years to determine whether downstream conditions have changed over time that warrant raising the hazard classification to significant or high. A high or significant hazard dam is also visually inspected upon request by any person who has cause to believe that an unsafe dam exists. In addition, a visual inspection will be performed whenever DEM has cause to believe that an unsafe dam exists, to determine if the dam is unsafe.

The visual inspections performed are conducted under a general inspection format based on guidelines established in 1976 by the United States Army Corps of Engineers for the National Program for the Inspection of (Non-Federal) Dams. A visual inspection may be performed by DEM or by an engineer hired by the dam owner.

As part of each visual inspection, the condition of the major components of the dam are subjectively rated as *good*, *fair* or *poor*. The major components of a dam are the embankment, the spillway and the low level outlet. *Good* is defined as meeting minimum guidelines, where no irregularities are observed and the component appears to be maintained properly. *Fair* is defined as a component that requires maintenance. *Poor* is defined as a component that has deteriorated beyond a maintenance issue and requires repair; the component no longer functions as it was originally intended.

A detailed investigation may be required if a visual inspection leads to a determination that a dam is or may be unsafe. A detailed investigation may include studies, investigations and analyses appropriate to evaluate the structural safety and hydraulic capacity of a dam or reservoir and appurtenant works, such as soil analysis, concrete or earth stability analysis, materials testing, foundation explorations, hydraulic and hydrologic analysis, including basin studies, flood potential, and an analysis of the dam's ability to pass flood waters.

Following a visual inspection performed by DEM, a dam inspection report is prepared, identifying specific deficiencies and, when warranted, recommending corrective measures. A copy of the report is forwarded to the owner, with the expectation that the deficiencies will be corrected. If a dam is determined to be unsafe, then DEM will order corrective action.

ACTIVITIES IN 2012

UNSAFE DAMS

One of DEM's primary responsibilities in the Dam Safety Program is to identify unsafe dams and take appropriate action to return the dams to a safe condition. An unsafe dam is a high or significant hazard dam whose condition is such that an unreasonable risk of failure exists.

Following a visual or detailed inspection of a dam, the owner is notified of any condition that DEM considers to be unsafe. Notification is in the form of a Notice of Violation and Order (NOV), which sets forth the unsafe condition/s and requires the owner to make the dam safe.

In 2012, DEM worked on addressing 37 unsafe dams. At the end of 2012, 6 of these dams were removed from the list. The list of unsafe dams, including the 6 dams no longer identified as unsafe (shaded in grey) is shown below:

TOWN	DAM NO.	DAM NAME	HAZARD CLASS	EMBANKMENT	SPILLWAY	LOW LEVEL OUTLET	OWNER
Burrillville	010	Mapleville	High	Fair to Poor	Fair to Poor	Poor	Mapleville Main, Inc.
Burrillville	027	Sucker	Significant	Fair to Poor	Fair to Poor	Poor	Bliss Golf Investors LLC
Burrillville	035	Gilleran	Low	Fair	Fair	Poor	Mapleville Main, Inc.
Coventry	187	Middle	Significant	Poor	Poor	Poor	Joan F. & Hubert G. Degregory
Coventry	371	Pearce	High	Fair to Poor	Fair to Poor	Poor	Nine Howard Development, LLC
Cranston	166	Curran Upper(1)	High	Poor	Poor	Poor	DEM
Cranston	198	Curran Lower(1)	High	Poor	Poor	Poor	DEM
Cranston	373	Clarke's Upper	High	Poor	Poor	Poor	Lois Labrie
Exeter	239	Slocum	High	Good To Poor	Good to Fair	Poor	American Baptist Churches of R.I.
Exeter	527	Metcalf	High	Fair to Poor	Fair	Poor	SCOBCO Associates
Glocester	555	Hawkins	High	Poor	Poor	Poor	Glocester Land Trust
Glocester	727	Bowdish Lower	High	Fair to Poor	Poor	Unknown	Lynda J. Schmidt
Hopkinton	225	Wincheck	Significant	Fair to Poor	Fair to Poor	Poor	Rhode Island Boy Scouts
Hopkinton	229	Blue	Significant	Breached	Fair	Poor	Ashville Corp.
Hopkinton	274	Harris	Significant	Fair to Poor	Fair	Not Present	Edward Carapezza
Hopkinton	285	Langworthy	Significant	Fair to Poor	Good	Not Present	Richard A. Mann
Johnston	168	Oak Swamp	High	Fair to Poor	Fair to Poor	Poor	Town of Johnston
Johnston	169	Almy	High	Poor	Poor	Poor	Town of Johnston
Johnston	170	Simmons Upper	High	Poor	Poor	Poor	Town of Johnston
Johnston	171	Simmons Lower	High	Poor	Poor	Poor	Town of Johnston
Lincoln	097	Butterfly	High	Fair to Poor	Fair to Poor	Poor	Town of Lincoln
Lincoln	104	Bleachery	High	Fair	Fair	Poor	Providence Casket Co.
Lincoln	295	Limerock	High	Poor	Fair	Poor	Town of Lincoln
Lincoln	391	Handy Upper	High	Poor	Fair	Not Present	Town of Lincoln
Lincoln	408	Bridlewood	High	Fair	Fair	Not Present	Lucy V Delisi, Per, Res, Tr
North Kingstown	615	Rodman Mill	High	Poor	Fair	Poor	Lafayette Mill Complex Associates
North Kingstown	710	Slocum Upper	High	Poor	Fair to Poor	Unknown	Maurice N. Klein & Kimberly Perry

TOWN	DAM NO.	DAM NAME	HAZARD CLASS	EMBANKMENT	SPILLWAY	LOW LEVEL OUTLET	OWNER
North Providence	084	Wenscott	High	Fair	Fair	Poor	Town of North Providence
North Smithfield	046	Slatersville Middle	High	Fair	Fair	Poor	Dudley Development Corp.
North Smithfield	067	Todd's	Significant	Poor	Fair to Poor	Poor	Paul R & Karen A. Hazard
Providence	093	Canada Upper	Significant	Fair to Poor	Fair to Poor	Poor	City of Providence
Smithfield	109	Stillwater	Significant	Poor	Fair	Poor	Breakwater Preservation Conservancy
Smithfield	120	Sprague Upper	High	Poor	Good	Poor	Greater Providence YMCA
Smithfield	121	Sprague Lower	High	Poor	Fair to Poor	Poor	Charles E. & Pauline Bates
Smithfield	126	Georgiaville(2)	High	Poor	Good to Poor	Unknown	Town of Smithfield/ Deborah A. Bliss
South Kingstown	425	Wakefield	High	Fair to Poor	Fair	Poor	Town of South Kingstown
Tiverton	742	Creamer	High	Fair to Poor	Good	Not Present	Manuel Laureanno & Laureanno Development Corp.

(1) This dam was mistakenly omitted from the Unsafe Dams list in the 2010 Annual Dam Safety Report

(2) This dam was mistakenly omitted from the Unsafe Dams list in the 2011 Annual Dam Safety Report

A summary of each dam follows:

Dam number 010 (Mapleville) in Burrillville
DEM's engineering consultant inspected the dam in May 2010 and forwarded the report to DEM in September 2010. The report stated that excessive vegetation prohibited a complete inspection of the dam, vegetation in the spillway channel could obstruct flow, the auxiliary spillway could not be located and operability of the low level outlet was not known. DEM issued an NOV to the owner (Mapleville Main, Inc.) in June 2011 to address these unsafe conditions. The owner requested a hearing on the NOV and settlement discussions revealed that the only probable loss of human life associated with the hazard classification was located on commercial property under the control of the dam owner and that property was currently vacant. In 2012, DEM and the dam owner entered a restrictive covenant agreement that was recorded in the Burrillville land evidence records for the property. This agreement restricts occupancy of the property. With this restriction, DEM reclassified the dam as a low hazard.

Dam number 027 (Sucker) in Burrillville
DEM's engineering consultant inspected the dam in May 2010 and forwarded the report to DEM in September 2010. The report indicated that excessive vegetation and deadfall prohibited a complete inspection of the dam, plywood was partially blocking the primary spillway, a former low level outlet was no longer present and the current auxiliary spillway conveys flow through a pipe. DEM issued an NOV to the owner (Bliss Golf Investors, L.L.C.) in May 2011 to address

these unsafe conditions. In 2012 the owner cleared the vegetation and deadfall, removed the plywood and hired an engineer to inspect the dam and complete a report, which was submitted to DEM. The low level outlet and spillway issues have not been addressed. Since the owner did not request a hearing on the NOV, the case has been forwarded to the DEM's Office of Legal Services for action in Superior Court.

Dam number 035 (Gilleran) in Burrillville
The dam was inspected by DEM's engineering consultant in May 2010 and the report was forwarded to DEM in September 2010. The report stated that the low level outlet was inoperable and DEM issued an NOV to the owner (Mapleville Main, Inc.) in May 2011 to address this unsafe condition. The owner requested a hearing on the NOV and during settlement discussions DEM realized that the significant hazard classification was not appropriately assigned to the dam. The classification was assigned due to washout of one municipal road, which does not rise to the level of a significant hazard dam. In 2012 the classification was lowered to a low hazard and the NOV was rescinded.

Dam number 187 (Middle) in Coventry
DEM's engineering consultant inspected the dam in May 2010 and forwarded the report to DEM in September 2010. The report indicated that excessive vegetation prohibited a complete inspection, a section of the embankment was sloughed and failed, and the primary and auxiliary spillways were improperly maintained. An NOV was issued to the owner (Joan F. & Hubert G. Degregory) in July 2012 to address these unsafe conditions. The owner requested a hearing on the NOV, which is before the DEM's Administrative Adjudication Division (AAD), and met with DEM in September 2012 to discuss settlement.

Dam number 371 (Pearce) in Coventry
DEM's engineering consultant inspected the dam in June 2010 and forwarded the report to DEM in September 2010. The report indicated that excessive vegetation prohibited a proper inspection, vegetation in the spillway may reduce the discharge capacity and the low level outlet was inoperable. An NOV was issued in July 2012 to the dam owner (Nine Howard Development, LLC) to address these unsafe conditions. A hearing request was not entered and the owner has not contacted DEM.

Dam number 166 (Curran Upper) in Cranston
In 2006, DEM (Planning & Development), as the owner of the dam, hired an engineering consultant to perform a complete evaluation of the dam as an initial step to a complete rehabilitation. In 2007, the engineering evaluation was completed. In 2008, an engineering consultant was selected to develop a final design for the rehabilitation project. Development of the final design continued through 2009. A major change in the design was to reconfigure the spillway discharge channel from the existing location along the base of the earthen embankment to a channel that directs flow away from the dam. The design required DEM to acquire additional property adjacent to the dam and in 2010 negotiations began with the adjacent property owner. In March 2010, DEM's Dam Safety Program inspected the dam in accordance with the Dam Safety Regulations promulgated in 2007 (see DEM Regulations on page 5), and determined it was unsafe due to excessive vegetation which prohibited a proper inspection and an inoperable low level outlet. In 2012, an agreement was reached between DEM and the adjacent property owner and the design was finalized. In October 2012, proposed repair plans were forwarded to the Dam Safety Program for review and a comment letter was issued in December 2012. It is expected that the work to repair the dam will go out to bid in 2013.

Dam number 198 (Curran Lower) in Cranston
In June 2010, DEM's engineering consultant inspected the dam and forwarded the report to DEM in September 2010. The report indicated heavy vegetation which prohibited a proper inspection of the embankment, overgrown vegetation in the spillway discharge channel that may inhibit flow and an inoperable low level outlet. DEM owns the dam and in March 2012, the section which oversees the dam was notified of these unsafe conditions. The unsafe conditions will be addressed following completion of the rehabilitation of the DEM-owned Curran Upper Dam discussed above.

Dam number 373 (Clarke's Upper) in Cranston
DEM's engineering consultant inspected the dam in October 2009 and forwarded the report to DEM in June 2010. The report indicated that leaves and yard debris prevented a complete inspection of the dam and the low level outlet was inoperable. An NOV was issued to the owner (Lois Labrie) in April 2011 to address these unsafe conditions. The owner requested a hearing on the NOV, which is before AAD. In 2012, the owner removed the vegetation debris and hired an engineer to inspect the dam and complete a report, which was submitted to DEM. The owner appears to be working toward repair of the low level outlet.

Dam number 239 (Slocum) in Exeter
DEM's engineering consultant inspected the dam in June 2010 and forwarded the report to DEM in September 2010. The report stated that heavy vegetation prevented a complete inspection of the dam and the low level outlet was inoperable. An NOV was issued to the owner (American Baptist Churches of Rhode Island) in May 2011 for these unsafe conditions. The owner did not request a hearing on the NOV. A Consent Agreement was entered between DEM and the owner in December 2011, which resolved the NOV and provided a schedule and plan by which the dam would be returned to a safe condition. In November 2012, DEM approved the owner's proposed engineering plan to place the low level outlet into proper operation.

Dam number 527 (Metcalf) in Exeter
The dam was inspected by DEM's engineering consultant in June 2010 and the report was forwarded to DEM in September 2010. The report indicated that excessive vegetation prohibited a complete inspection of the dam and the low level outlet was inoperable. An NOV was issued to the owners (SCOBCO Associates and Pauline C. Metcalf) to address these unsafe conditions. The owners requested a hearing on the NOV. The owners also negotiated with DEM and entered a Consent Agreement in October 2011 to resolve the NOV. The Consent Agreement includes a plan and schedule to return the dam to a safe condition. In 2012 the owner continued to work toward compliance with the Consent Agreement.

Dam number 555 (Hawkins) in Glocester
DEM's engineering consultant inspected the dam in October 2009 and forwarded the report to DEM in June 2010. The report stated that excessive vegetation inhibited a complete inspection of the dam and severe leakage in one of the outlet pipes posed unsafe conditions. DEM issued an NOV to the owner (Glocester Land Trust) in November 2010 to address the unsafe conditions. The owner requested a hearing on the NOV, which was before AAD. In 2011 the owner removed the vegetation and in June 2012 the owner submitted an engineering report to DEM that inspected the previously vegetated areas. In August 2012, DEM approved engineering plans to repair the leakage in the outlet pipe, and although not required, the owner proposed to install a valved lower level outlet. The work was completed in November 2012.

Dam number 727 (Bowdish Lower) in Glocester
DEM's engineering consultant inspected the dam in October 2009 and forwarded the report to DEM in June 2010. The report indicated excessive vegetation that inhibited a proper inspection, debris obstructing spillway flow and unknown operability of the low level outlet. DEM issued an NOV in April 2012 to the owner (Lynda J. Schmidt) to address these unsafe conditions. The owner requested a hearing on the NOV, which is before AAD.

Dam number 225 (Wincheck) in Hopkinton
DEM's engineering consultant inspected the dam in May 2010 and forwarded the report to DEM in September 2010. The report indicated excessive vegetation and debris that prevented a complete inspection of the dam, possible sediment transport through the dam, an inoperable low level outlet and the presence of sand bags to prevent overtopping of the dam. DEM issued an NOV to the owner (Rhode Island Boy Scouts) in June 2011 for these unsafe conditions. Although the owner requested a hearing on the NOV, they also continued to address the unsafe conditions at the dam. In May 2012 the owner's engineer submitted a report of an inspection that was completed after the vegetation was cleared. The report also included an assessment of the sediment transport. In June 2012, DEM approved the owner's engineering plans to repair the embankment and low level outlet and the work was completed in November 2012.

Sand-bagged section (foreground) and overgrown section (background) of the Wincheck Pond Dam (#225) in Hopkinton

Dam number 229 (Blue) in Hopkinton
DEM's engineering consultant inspected the dam to reassess its hazard classification (see *Grants To DEM* on page 30) and submitted a draft report dated March 2007 to DEM recommending the dam be classified as a significant hazard. In addition to the classification, the report advised DEM of a potential unsafe condition. That is, significant leakage at two locations along with other stability problems including the downstream masonry wall tipping slightly downstream, downward movement of the material on the upstream and downstream slopes, and sinkholes on the crest were observed. DEM issued an informal written notice to the owner in April 2007. The notice required the owner to temporarily lower the impoundment such that leakage no longer posed a safety threat, and to develop a report specifying how the dam would be returned to a safe condition. Due to the significant leakage and lack of precipitation, the water level dropped without further intervention.

In February 2008, DEM inspected the dam following heavy rains. The water level was 6 to 12 inches higher than it was during an inspection in November 2006 and was 6 to 12 inches below the crest of the spillway. The areas of significant leakage through the earthen embankment appeared unchanged. In March 2008, the owner submitted a freshwater wetlands permit application to DEM proposing to permanently lower the water level. The proposal included construction of a new spillway at an elevation about 7.5 feet lower than the existing spillway. In addition to the physical modifications, the owner applied to the DEM to lower the hazard classification from significant hazard to low hazard.

In January 2009, DEM forwarded comments to the owner's engineer, requesting additional information to support the request for the hazard classification change. In a subsequent telephone conversation, the engineer indicated that the freshwater wetlands permit issues would be addressed first. The dam safety issues would be addressed next, either by reclassifying the dam to a low hazard or by leaving the dam as a significant hazard, requiring that seepage along the length of the embankment be addressed.

In March 2010, during heavy rain and flooding conditions (see *Requested Inspections* on page 25), approximately 25 feet of the dam failed, suddenly releasing the impoundment, and likely contributing to the reports of downstream damage to private property and extensive damage to local roads. Fortunately, no injuries or loss of human life occurred. In August 2010, DEM issued an NOV to the owner for failure to maintain the dam in a safe condition and assessed a penalty of $59,747. The owner requested a hearing on the NOV, which is before AAD.

In 2011, DEM continued to negotiate with the owner to pay the penalty and resolve the NOV.

In March 2012, DEM and the owner entered a Consent Agreement that required the owner to pay a $40,000 penalty. The penalty was paid and the case closed. DEM must assess the hazard classification of the remaining portion of the dam to determine if the dam can be classified as a low hazard.

Dam number 274 (Harris) in Hopkinton
DEM inspected the dam in November 2010 and determined the dam was unsafe due to excessive vegetation that prohibited a proper inspection. An NOV was issued to the owner (Edward Carapezza) in May 2012 for the unsafe conditions. The owner did not request a hearing on the NOV.

Dam number 285 (Langworthy) in Hopkinton
DEM's engineering consultant inspected the dam in November 2011 and forwarded the report to DEM in May 2012. The report indicated that excessive vegetation prohibited a complete inspection and an NOV was issued to the owner (Richard A. Mann) for this unsafe condition in December 2012. The owner did not request a hearing on the NOV.

Dam number 168 (Oak Swamp) in Johnston
DEM inspected the dam in September 2008. An informal written notice was forwarded to the owner (Town of Johnston) in July 2009, which advised the town that a complete visual inspection of the dam could not be performed due to the presence of excessive vegetation on and adjacent to the dam. The notice required the town to remove sufficient vegetation to allow inspection. In August 2009, the town notified DEM that the vegetation was removed. DEM inspected the dam on June 4, 2010. The dam was determined unsafe due to an inoperable low level outlet and severe erosion on several areas of the embankment. An NOV was issued to

the town in October 2010 for the unsafe conditions. The town requested a hearing on the NOV, which is before AAD.

Dam number 169 (Almy) in Johnston
DEM inspected the dam in September 2008. An informal written notice was issued to the owner (Town of Johnston) in December 2008. The notice advised the town that a complete visual inspection could not be performed due to excessive vegetation on the dam, the low level outlet was inoperable and the spillway did not function as originally constructed. The notice required the town to cut sufficient vegetation to allow DEM to perform a complete visual inspection of the dam and to develop a reasonable schedule to address the other two unsafe conditions. In July 2009, the town stated that vegetation removal would commence following removal of vegetation from the Oak Swamp Dam (see paragraph above). DEM inspected the dam in July 2010 and determined the dam unsafe for the same reasons noted in the notice. An NOV was issued to the town in October 2010 for the unsafe conditions. The town requested a hearing on the NOV, which is before AAD.

Dam number 170 (Simmons Upper) in Johnston
DEM inspected the dam in September 2010. The dam was determined unsafe due to an inoperable low level outlet and excessive vegetation that prohibited a complete inspection. An NOV was issued in October 2010 to the owner (Town of Johnston) to address these conditions. The town requested a hearing on the NOV, which is before AAD.

Dam number 171 (Simmons Lower) in Johnston
DEM inspected the dam in September 2010 and determined it unsafe due to an inoperable low level outlet, a spillway that no longer functioned as originally constructed, severe erosion in the embankment and excessive vegetation that prohibited a thorough inspection. An NOV was issued in October 2010 to the owner (Town of Johnston) for the unsafe conditions. The town requested a hearing on the NOV, which is before AAD.

Dam number 097 (Butterfly) in Lincoln
DEM's engineering consultant inspected the dam in May 2010 and forwarded the report to DEM in September 2010. The report stated the low level outlet was inoperable and DEM issued an NOV to the owner (Town of Lincoln) in May 2011 to address this unsafe condition. The town requested a hearing on the NOV. In March 2012, DEM and the town entered a Consent Agreement to address unsafe conditions at two town-owned dams (this dam and dam number 391 below). The agreement requires the town to submit a repair application for the low level outlet by June 2013.

Dam number 104 (Bleachery) in Lincoln
The dam was inspected by DEM's engineering consultant in June 2010 and the report forwarded to DEM in September 2010. The report indicated the low level outlet was inoperable and DEM issued an NOV to the owner (Providence Casket Company) in June 2011 for this unsafe condition. The owner requested a hearing, which is before AAD.

Dam number 295 (Limerock) in Lincoln.
DEM's engineering consultant inspected the dam and advised DEM, in their hazard classification report dated January 2004, of conditions present at the dam which could lead to an unsafe condition. DEM inspected the dam in March 2004. The inspection revealed that the condition of the spillway was inadequate and the dam was unsafe. In April 2005, DEM issued an informal written notice to the owner (Town of Lincoln). The notice required that the town perform frequent inspections of the dam, lower the impoundment as a temporary measure and

retain an engineer to develop a plan that described how the dam would be made safe. In October 2005, the town submitted an engineering report to DEM that presented options for addressing both the short term and long term safety of the dam. In 2006, the town implemented the short term measures. The town and their engineer met with DEM in July 2007 to review progress and verify that the proposed direction of permanently lowering the water level was feasible. During 2007, the owner continued monitoring the dam on a regular basis and worked with partners collecting data to be used for the DEM permitting process.

In February 2008, DEM inspected the dam following heavy rain. The water level was 2 to 4 inches above the spillway crest and the water was flowing freely. Debris in the emergency spillway had been removed and it was available for use, although the water level was not high enough to flow through it. In July 2008, DEM issued an NOV to the town. The NOV required the town to make the dam safe and assessed a penalty of $1,000, which continued to accrue per day unless the town demonstrated that reasonable efforts were made to comply promptly with the NOV.

In March 2009, DEM and the town entered a Consent Agreement to resolve the NOV. As a result, the town paid a $500 penalty and in September 2009, submitted plans to DEM with proposed repairs to return the dam to a safe condition. DEM reviewed the plans and requested additional information in October 2009, and the approval process continued through the end of the year.

In June 2010, DEM approved the plans to repair the dam. The work included replacing the spillway, adding a new low level outlet to replace the inoperable ones and regrading the earthen embankment. The town received construction bids in July 2010 and began construction in September 2010. In 2011 construction was substantially complete and in March 2012 the work was completed.

Dam number 391 (Handy Upper) in Lincoln
DEM's engineering consultant inspected the dam in June 2010 and forwarded the report to DEM in September 2010. The report stated that excessive vegetation prohibited a complete inspection of the dam and there was possible sediment transport through the dam. An NOV was issued to the dam owner (Town of Lincoln) in May 2011 for these unsafe conditions. The town did not request a hearing on the NOV and in March 2012, DEM and the town entered a Consent Agreement to address unsafe conditions at two town-owned dams (this dam and dam number 097 above). In December 2012, the town submitted an engineering report indicating that the vegetation was removed and those areas, along with the area of possible sediment transport, were properly inspected. No unsafe conditions were found.

Dam number 408 (Bridlewood) in Lincoln
DEM's engineering consultant inspected the dam in June 2010 and forwarded the report to DEM in September 2010. The report indicated possible sediment transport through the dam and DEM issued the owner (Lucy V. DeLisi) an NOV in June 2011 to address this unsafe condition. The owner requested a hearing on the NOV. The owner also expeditiously addressed the unsafe condition and entered a Consent Agreement with DEM in December 2011 that included monitoring the seepage area for one year. A final monitoring report from the owner's engineer is expected in 2013.

Dam number 615 (Rodman Mill) in North Kingstown

The dam was inspected in May 2010 by DEM's engineering consultant and the report was forwarded to DEM in September 2010. It indicated excessive vegetation which prohibited a complete inspection of the dam and the lack of a low level outlet. DEM issued an NOV to the owner (Bakeford Properties, LLC) in May 2011 for these unsafe conditions. The owner requested a hearing on the NOV, which is before AAD. In March 2012, the owner's engineer submitted a report of a visual inspection performed in January 2012, following cutting of the vegetation. The only outstanding item is repair of the low level outlet.

Downstream side of main dam following vegetation cutting (Rodman Mill #615, North Kingstown).

Dam number 710 (Slocum Upper) in North Kingstown

DEM's engineering consultant inspected the dam in May 2010 and DEM received the inspection report in September 2010. The report indicated excessive vegetation inhibited inspection of the embankment, vegetation debris inhibited inspection of the spillway and the operability of the spillway stop logs in unknown. In April 2012, DEM issued an NOV to the owner (Maurice N. & Kimberly Perry Klein). The owner did not request a hearing on the NOV and the case has been forwarded to the DEM's Office of Legal Services for action in Superior Court.

Overgrown downstream slope of Slocum Road Upper Dam (#710) in North Kingstown

Dam number 084 (Wenscott) in North Providence
DEM's engineering consultant inspected the dam in November 2009 and submitted the inspection report to DEM in June 2010. The report indicated the low level outlet was inoperable and DEM issued an NOV to the owner (Town of North Providence) in November 2010 for this unsafe condition. The town requested a hearing on the NOV and continued to negotiate settlement with DEM. In October 2012, DEM and the town entered a Consent Agreement to resolve the NOV. The Consent Agreement requires that, in 2013, the town submit engineering plans to repair the low level outlet for DEM approval.

Dam number 046 (Slatersville Middle) in North Smithfield
The dam was inspected by DEM's engineering consultant in November 2009 and DEM received the report in June 2010. The report stated the low level outlet was inoperable and DEM issued an NOV to the owner (Dudley Development Corp.) in April 2011 for this unsafe condition. The owner requested a hearing on the NOV, which was held at AAD in October 2012. A decision is pending.

Dam number 067 (Todd's) in North Smithfield
DEM inspected the dam in October 2010 and discovered excessive vegetation that prohibited a proper inspection and an inoperable low level outlet. An NOV was issued to the owner (Paul R. & Karen A. Hazard) in May 2012 for these unsafe conditions. The owner requested a hearing on the NOV, which is before AAD. The owner and DEM are discussing settlement.

Dam number 093 (Canada Upper) in Providence
DEM's engineering consultant inspected the dam in December 2011 and forwarded the report to DEM in May 2012. The report indicated the low level outlet was inoperable and DEM issued an NOV to the owner (City of Providence) in November 2012 for this unsafe condition. The City requested a hearing on the NOV, which is before AAD.

Dam number 109 (Stillwater) in Smithfield
DEM's engineering consultant inspected the dam in May 2010 and forwarded the report to DEM in September 2010. The report indicated that the low level outlet was inoperable, overgrown vegetation and inadequate lighting in an adjacent building prohibited a complete inspection of the dam and vegetation in the spillway discharge channel inhibited flow. DEM issued an NOV to the owner (Breakwater Nature Conservancy) in March 2011 for these unsafe conditions. The owner did not request a hearing on the NOV and has made little progress toward resolution. The case has been forwarded to the DEM's Office of Legal Services for action in Superior Court.

Dam number 120 (Sprague Upper) in Smithfield
DEM's engineering consultant inspected the dam in November 2009 and forwarded the report to DEM in June 2010. The report revealed an inoperable low level outlet and excessive vegetation that prohibited a thorough inspection of the dam. DEM issued an NOV to the owner (Greater Providence YMCA) in November 2010 for these unsafe conditions. The owner requested a hearing on the NOV, which is before AAD. In December 2010, DEM determined that it previously authorized the owner to abandon the low level outlet; therefore, this is no longer an issue. The remaining items are expected to be completed in early 2013.

Dam number 121 (Sprague Lower) in Smithfield
DEM's engineering consultant inspected the dam in November 2009 and forwarded the report to DEM in June 2010. The report indicated heavy vegetation and vegetation debris that inhibited a proper inspection of the embankment and spillway, and unknown operability of the low level outlet. DEM issued an NOV to the dam owner (Charles E. & Pauline Bates) in November 2012 for these unsafe conditions. The owner requested a hearing on the NOV, which is before AAD. The owner and DEM met to discuss ownership.

Dam number 126 (Georgiaville) in Smithfield
DEM's engineering consultant inspected the dam in May 2010 and forwarded the report to DEM in September 2010. The report indicated heavy vegetation on the main dam and dike that prohibited a thorough inspection of the embankment, low level gates that were not operated during the inspection (although the operator indicated they were routinely operated) and a section of the dike that was lowered about six feet. The Town of Smithfield owns all of the dam except the approximately 80 foot long, lowered section of the dike, which is owned by Deborah Bliss.

DEM issued an NOV to the Town of Smithfield in April 2011 for the vegetation and low level gate findings. The town requested a hearing on the NOV. In December 2011, DEM and the town entered a Consent Agreement to resolve their NOV. The Consent Agreement included a schedule to return the dam to a safe condition. The town returned the dam to a safe condition and the Consent Agreement was closed in October 2012.

DEM issued an NOV to Deborah Bliss in August 2012 for the lowered section of the dike. The owner requested a hearing on the NOV, which is before AAD.

Dam number 425 (Wakefield) in South Kingstown
The dam was inspected by DEM's engineering consultant in June 2010 and the report was submitted to DEM in September 2010. The report indicated excessive vegetation that prohibited a complete inspection of the dam and an inoperable low level outlet. DEM issued an NOV to the dam owner (Town of South Kingstown) for these unsafe conditions in June 2011. The town requested a hearing on the NOV, which is before AAD. The town is working toward resolution of this issue.

Dam number 742 (Creamer) in Tiverton
DEM inspected the dam in September 2010 and discovered excessive vegetation which prohibited a complete inspection of the dam. DEM issued an NOV to the owners (Manuel Laureanno and Laureanno Development Corporation) in August 2011 for this unsafe condition. The owners did not request a hearing on the NOV. The case has been forwarded to the DEM's Office of Legal Services for action in Superior Court.

COMPLIANCE INSPECTIONS
The DEM Safety Regulations (see page 5) require visual inspection of high hazard dams every two years and significant hazard dams every five years.

High Hazard Dam Inspections

Twenty-one high hazard dams were inspected in 2012. The inspections were completed by DEM, by the dam owner's engineer or by an engineering consultant hired by DEM using a Federal Emergency Management Agency (FEMA) grant (see page 30).

TOWN	DAM NO.	DAM NAME	EMBANKMENT	SPILLWAY	LOW LEVEL OUTLET
Burrillville	008	Harrisville Pond	(1)	(1)	(1)
Coventry	167	Flat River Reservoir	Fair	Good	Good
Cumberland	074	Miscoe Lake	(1)	(1)	(1)
Cumberland	077	Diamond Hill Reservoir	(1)	(1)	(1)
Cumberland	078	Pawtucket Reservoir	(1)	(1)	(1)
East Providence	407	James V Turner Reservoir	(1)	(1)	(1)
Exeter	221	Browning Mill Pond	(1)	(1)	(1)
Foster	163	Westconnaug Reservoir	(1)	(1)	(1)
Glocester	018	Burlingame Reservoir Upper	Fair	Fair	Fair
Glocester	566	Bowdish Reservoir	(1)	(1)	(1)
Glocester / Smithfield	111	Waterman Lake	(1)	(1)	(1)
Lincoln	102	Olney Pond	Fair	Good	Good
Lincoln / North Smithfield	070	Woonsocket Reservoir # 1	(1)	(1)	(1)
North Kingstown	444	Silver Spring Lake	Fair	Fair	Not Present
North Kingstown	513	Carr Pond	(1)	(1)	(1)
North Smithfield / Smithfield	068	Woonsocket Reservoir # 3	(1)	(1)	(1)
Scituate	161	Gainer Memorial	(1)	(1)	(1)
Smithfield	108	Stillwater Reservoir	(1)	(1)	(1)
Warwick	462	Camp Warwick Pond	(1)	(1)	(1)
West Warwick	149	Centerville Pond	(1)	(1)	(1)
Woonsocket	073	Harris Pond Dam	(1)	(1)	(1)

(1) Inspection reports have not been received or have not been reviewed. The reports will be reviewed and the results will be reported in the 2013 Annual Report.

Eighteen high hazard dams were inspected in 2011. In 2012, six of the inspection reports were reviewed:

TOWN	DAM NO.	DAM NAME	EMBANKMENT	SPILLWAY	LOW LEVEL OUTLET
Exeter	382	Austin Upper Pond (1)	Fair to Poor	Poor	Not Present
Johnston	313	Hughesdale Pond Upper	Fair to Poor	Fair to Poor	Poor
Middletown	582	Nelson Pond	(2)	(2)	(2)
Middletown	583	Gardiner Pond	(2)	(2)	(2)
Middletown	584	Easton Pond North	(2)	(2)	(2)
Portsmouth	580	Sisson Pond	(2)	(2)	(2)

(1) Reclassified to a low hazard dam in 2012 (see *Hazard Classifications* on page 5)

(2) Reports were completed by an engineering consultant hired by the dam owner and were not sufficient to determine the condition of the dam. The dams will be properly inspected by DEM or its engineering consultant.

Nine reports require review from the inspections completed in 2011. These will be completed in 2013:

TOWN	DAM NO.	DAM NAME
Coventry	185	Black Rock Reservoir
Coventry	561	Arnold Pond
East Providence	446	Bucklin Point
Foster	349	Spear Pond
Hopkinton	226	Yawgoog Pond
Hopkinton / Richmond	216	Wyoming Upper
Lincoln	099	Moffett Pond
North Kingstown	693	Slocum Woods
South Kingstown	549	Asa Pond

Significant Hazard Dam Inspections

Twenty-five significant hazard dams were inspected in 2012. The inspections were completed by DEM or by an engineering consultant hired by DEM using a FEMA grant (see page 30).

TOWN	DAM NO.	DAM NAME	EMBANKMENT	SPILLWAY	LOW LEVEL OUT
Charlestown / Richmond	249	Horseshoe Falls	(1)	(1)	(1)
Coventry	175	Quidnick Reservoir	(1)	(1)	(1)
Coventry	498	Hopkins Farm Pond	(1)	(1)	(1)
Coventry	645	Center Of New England #1	(1)	(1)	(1)
Cranston	340	Meshanticut Park Pond	Fair	Good	Not Present
Cumberland	079	Rawson Pond	(1)	(1)	(1)
Cumberland	082	Happy Hollow Pond	(1)	(1)	(1)
Exeter	238	Edward's Pond	(1)	(1)	(1)
Glocester	023	Smith + Sayles Reservoir	(1)	(1)	(1)
Glocester	499	Durfee Hill Wildlife Marsh #2	(1)	(1)	(1)
Hopkinton / Richmond	247	Alton Pond	(1)	(1)	(1)
Jamestown	574	Jamestown Reservoir	(1)	(1)	(1)
Jamestown	575	Jamestown Lower Reservoir	(1)	(1)	(1)
Little Compton	474	Simmons Pond	(1)	(1)	(1)
New Shoreham	424	Block Island Rod & Gun Club Pond	(1)	(1)	(1)
New Shoreham	765	Mill	(1)	(1)	(1)
North Kingstown	553	Belleville Pond	(1)	(1)	(1)
Portsmouth	761	Melville #1	(1)	(1)	(1)
Scituate	162	Moswansicut Pond	(1)	(1)	(1)
Scituate	164	Barden Reservoir	(1)	(1)	(1)
Scituate	360	Horseshoe	(1)	(1)	(1)
South Kingstown	573	Indian Run	(1)	(1)	(1)
South Kingstown	579	Rocky Brook Reservoir	(1)	(1)	(1)
Warren	479	Warren Reservoir Lower	(1)	(1)	(1)
Warren	480	Warren Reservoir Upper	(1)	(1)	(1)

(1) Inspection reports have not been received or have not been reviewed. The reports will be reviewed and the results will be reported in the 2013 Annual Report.

Twenty-nine significant hazard dams were inspected in 2011. In 2012, eleven of the inspection reports were reviewed:

TOWN	DAM NO.	DAM NAME	EMBANKMENT	SPILLWAY	LOW LEVEL OUTLET
Hopkinton	227	Ashville Pond	Fair to Poor	Good	Not Present
Hopkinton	285	Langworthy Pond	Fair to Poor	Good	Not Present
Johnston	127	Belknap Pond	Fair to Poor	Poor	Not Present
Johnston	310	Pocasset Pond	Fair	Fair to Poor	Not Present
Johnston	504	Dexter Farm Pond	Fair to Poor	Fair to Poor	Not Inspected
North Kingstown	550	Hamilton Reservoir	Fair to Poor	Fair	Poor
Providence	093	Canada Upper Pond	Fair to Poor	Fair to Poor	Poor
Scituate	160	Hope	Fair to Poor	Fair	Not Present
Scituate	345	Jordan Pond	Fair to Poor	Fair	Poor
Scituate	361	Pine Swamp Reservoir #1	Poor	Poor	Not Present
West Warwick	455	Bouchar Farm Pond	Poor	Fair to Poor	Not Inspected

Eighteen reports require review from the inspections completed in 2011. These will be completed in 2013:

TOWN	DAM NO.	DAM NAME
Burrillville	015	Union Mill Pond
Burrillville	039	Spring Lake
Burrillville	565	Ross Pond
Coventry	152	Mill Pond
Coventry	186	Upper Pond
Foster	526	Gorham, N. Farm Pond
Glocester	021	Cherry Valley Pond
Glocester	032	Snakeskin Pond
Glocester	514	Lake Aldersgate
Glocester	594	David King Farm Pond
Hopkinton / Richmond	215	Barberville Pond
Johnston	323	Caesarville Pond
Johnston	346	Kimball Reservoir
North Kingstown	704	Secret Lake
North Smithfield	047	Slatersville Reservoir Lower
Richmond	273	Wood River Junction
Scituate	648	Shoestring Mill
Smithfield	123	Hawkins Pond

As indicated in *Inspection Program* (see page 8), the Dam Safety Regulations require visual inspection of 48 high hazard dams and 16 significant hazard dams each year. As indicated above, 21 high hazard dams and 25 significant hazard dams were inspected in 2012. For the high hazard dams, this is well below the required number. The reason for this is twofold. First, DEM does not have sufficient staff to complete all the inspections in-house or enough FEMA grant money to hire an engineering consultant to complete all the required inspections. Second, for dams that were determined to be unsafe during an initial inspection, that dam will not be inspected again until the owner corrects the unsafe condition.

Requested Inspections

DEM inspects any high or significant hazard dam upon request by any person who has cause to believe the dam is unsafe. In 2012, DEM received the following inspection request:

TOWN	DAM NO.	DAM NAME	HAZARD CLASS	REASON FOR INSPECTION	CONCLUSION
Coventry	187	Middle	Significant	Lowered water level	Unfounded

DEM received a complaint that the water level in the pond was lower than usual. An inspection revealed that water was flowing from the pond through the spillway pipes at the dam. Since the pond level was high enough to flow through the spillway, it was at its normal level and the complaint was unfounded.

Water flowing into spillway pipes at the Middle Pond Dam (#187) in Coventry

REPAIR APPROVALS

Repairs of the following high and significant hazard dams were approved by DEM in 2012:

TOWN	DAM NO.	DAM NAME	HAZARD CLASS	REPAIR
Exeter	239	Slocum Reservoir	High	Low Level Outlet
Glocester	555	Hawkins Pond	High	Low Level Outlet
Hopkinton	225	Wincheck Pond	Significant	Embankment, Low Level Outlet
Lincoln	101	Barney Pond	High	Embankment, Spillway, Low Level Outlet

A summary of the approvals follows:

Dam number 239 (Slocum Reservoir) in Exeter
In October 2012, the owner's engineering consultant submitted repair plans to DEM for the low level outlet. Work is scheduled for completion in 2013.

Dam number 555 (Hawkins) in Glocester
In August 2012, the owner's engineering consultant submitted plans to DEM to repair the dam. Repairs included installation of a low level outlet and proper abandonment of a penstock. Work was completed in October 2012.

Dam number 225 (Wincheck) in Hopkinton
In March 2012, the owner's engineering consultant submitted repair plans to DEM to complete tree removal, regrading and stabilization of the embankment, repair of the left low level outlet and proper abandonment of the right low level outlet. Work was completed in November 2012.

Dam number 101 (Barney) in Lincoln
In March 2012, the owner's engineering consultant submitted repair plans to DEM to, among other things, regrade the embankment, reconstruct of the spillway, repair a low level outlet and abandon the other low level outlet. Work began in June 2012 and will be completed in early 2013.

OWNER / CONTACT INFORMATION
DEM's records for the owners of dams that were previously classified as high hazard or significant hazard are fairly accurate; however, many dams that were previously classified as low hazard and were reclassified to significant or high hazard have questionable owner information. DEM legal counsel has been researching ownership of these dams as time allows.

Orphan Dams
DEM has identified 34 high hazard and significant hazard dams for which an owner has not been identified and formally notified of ownership through the registration process (see *Registration* of page 28). Most dams still require DEM research to identify owners, which is completed by DEM legal counsel, with the priority on unsafe dams as they are discovered. DEM refers to these dams as orphan dams.

TOWN	DAM NO.	DAM NAME	HAZARD CLASS
Burrillville	001	Wallum Lake	Significant
Burrillville	015	Union Mill Pond	Significant
Burrillville	039	Spring Lake	Significant
Burrillville	051	Nichols Pond	Significant
Charlestown	758	Cross Mills	Significant
Coventry	152	Mill Pond	Significant
Coventry	176	Coventry Reservoir	High
Coventry	185	Black Rock Reservoir	High
Coventry	186	Upper Pond	Significant
Cumberland	074	Miscoe Lake	High
East Greenwich	432	Gale Farm Pond Upper	Significant
Foster	349	Spear Pond	High
Foster	526	Gorham, N. Farm Pond	Significant
Glocester	021	Cherry Valley Pond	Significant
Glocester	032	Snakeskin Pond	Significant
Glocester	381	Sucker Brook Bridge Pond	Significant
Glocester	401	Lake Washington	High
Hopkinton	227	Ashville Pond	Significant
Johnston	323	Caesarville Pond	Significant
Johnston	504	Dexter Farm Pond	Significant
Lincoln	099	Moffett Pond	High
Little Compton	746	Adamsville Pond	Significant
New Shoreham	424	Block Island Rod & Gun Club Pond	Significant
North Kingstown	550	Hamilton Reservoir	Significant
North Kingstown	704	Secret Lake	Significant
North Providence	760	Louisquisset Flood Control	High
Richmond	273	Wood River Junction	Significant
Scituate	160	Hope	Significant
Smithfield	121	Sprague Lower Reservoir	High
South Kingstown	525	Hefler Farm	High (1)
Warwick	669	Daves Marketplace	Significant
Warwick	764	Grist Mill Apartments	High
Warwick/West Warwick	145	Natick Pond	High
West Warwick	455	Bouchar Farm Pond	Significant

(1) This dam has also been identified as unsafe. DEM will be notifying the town of South Kingstown and the property owners around the pond of the issues involving the dam and ask if the town or the property owners or both wish to take ownership and responsibility of the dam; otherwise, DEM will seek funds to remove the dam.

REMOVALS

There were no dam removals in 2012.

REGISTRATION

In 2008 DEM began registering dams. The process involves mailing a registration form to each owner of a high hazard or significant hazard dam and formally notifying the owner of the dam's hazard classification. The owner then has a specific time period to return a completed registration form or to appeal ownership and/or the hazard classification. There is no fee to register a dam and the main purpose of the registration form is to obtain up-to-date contact information on the dam owner.

DEM has mailed about 230 registration letters through 2012, with the remainder to be mailed as time allows and as the dam owners are determined (see *Owner/Contact Information* on page 26). DEM has received completed registration forms for the following 91 dams:

TOWN	DAM NO.	DAM NAME	HAZARD CLASS
Burrillville	003	Wilson Reservoir	High
Burrillville	008	Harrisville Pond	High
Burrillville	010	Mapleville Pond	Low
Burrillville	027	Sucker Pond	Significant
Burrillville	035	Gilleran Pond	Low
Burrillville	565	Ross Pond	Significant
Burrillville	572	Wilbur Pond	High
Burrillville	766	Ocean State Power	High
Coventry	151	Quidnick Pond Upper	Low
Coventry	167	Flat River Reservoir	High
Coventry	175	Quidnick Reservoir	Significant
Coventry	177	Tiogue Lake	High
Coventry	561	Arnold Pond	High
Cranston	172	Cranston Print Works Pond	High
Cranston	320	Stone Pond	High
Cranston	373	Clarke's Pond Upper	High
Cumberland	077	Diamond Hill Reservoir	High
Cumberland	078	Pawtucket Reservoir	High
Cumberland	079	Rawson Pond	Significant
Cumberland	081	Robin Hollow Pond	Significant
Cumberland	082	Happy Hollow Pond	Significant
East Greenwich	432	Gale Farm Pond Upper	Significant
East Providence	407	James V Turner Reservoir	High
East Providence	446	Bucklin Point	High
Exeter	219	Boone Lake	High
Exeter	239	Slocum Reservoir	High
Exeter	240	Yorker Mill Pond	High
Exeter	527	Metcalf Wildlife Marsh	High
Glocester	022	Keech Pond	High
Glocester	023	Smith + Sayles Reservoir	Significant
Glocester	514	Lake Aldersgate	Significant
Glocester	555	Hawkins Pond	High
Glocester	556	Clarkville Pond	High
Glocester	587	Wright, T. Farm Pond	Significant

TOWN	DAM NO.	DAM NAME	HAZARD CLASS
Hopkinton	225	Wincheck Pond	Significant
Hopkinton	226	Yawgoog Pond	High
Hopkinton	285	Langworthy Pond	Significant
Johnston	127	Belknap Pond	Significant
Johnston	168	Oak Swamp Reservoir	High
Johnston	169	Almy Reservoir	High
Johnston	170	Simmons Upper Reservoir	High
Johnston	171	Simmons Lower Reservoir	High
Johnston	313	Hughesdale Pond Upper	High
Lincoln	097	Butterfly Pond	High
Lincoln	101	Barney Pond	High
Lincoln	104	Bleachery Pond	High
Lincoln	295	Limerock Reservoir	High
Lincoln	391	Handy Pond Upper	High
Lincoln	408	Bridlewood Pond	High
Lincoln	649	Bridlewood Upper End	High
Lincoln / North Smithfield	070	Woonsocket Reservoir # 1	High
Little Compton	485	Watson, Harold E, Reservoir	High
Middletown	582	Nelson Pond	High
Middletown	583	Gardiner Pond	High
Middletown	584	Easton Pond North	High
Narragansett	733	Sprague Pond	Significant
New Shoreham	424	Block Island Rod & Gun Club Pond	Significant
Newport / Middletown	585	Easton Pond South	High
North Kingstown	513	Carr Pond	High
North Kingstown	553	Belleville Pond	Significant
North Kingstown	615	Rodman Mill	High
North Kingstown	693	Slocum Woods	High
North Kingstown	708	Shady Lea Mill	High
North Kingstown	710	Slocum Road Upper	High
North Providence	084	Wenscott Reservoir	High
North Smithfield	043	Slatersville Reservoir Upper	High
North Smithfield	046	Slatersville Reservoir Middle	High
North Smithfield	047	Slatersville Reservoir Lower	Significant
North Smithfield	067	Todd's Pond	Significant
North Smithfield / Smithfield	068	Woonsocket Reservoir # 3	High
Portsmouth	395	Lawton Valley Reservoir	High
Portsmouth	580	Sisson Pond	High
Portsmouth	581	St Marys Pond	High
Portsmouth	761	Melville #1	Significant
Providence	093	Canada Upper Pond	Significant
Providence	300	Cunliff Pond	Significant
Smithfield	109	Stillwater Pond	Significant
Smithfield	120	Sprague Upper Reservoir	High
Smithfield	126	Georgiaville Pond	High

TOWN	DAM NO.	DAM NAME	HAZARD CLASS
South Kingstown	425	Wakefield Pond	High
South Kingstown	549	Asa Pond	High
South Kingstown	573	Indian Run	Significant
South Kingstown	579	Rocky Brook Reservoir	Significant
Tiverton	396	Nonquit Pond	Significant
Warren	479	Warren Reservoir Lower	Significant
Warren	480	Warren Reservoir Upper	Significant
Warwick	462	Camp Warwick Pond	High
West Warwick	147	Riverpoint Pond Upper	High
West Warwick	148	Arctic	High
Woonsocket	073	Harris Pond Dam	High
Woonsocket	621	Holley Lane Pond	High

GRANTS TO DEM

From 2000 through 2012, DEM received grants totaling $565,065 from the Federal Emergency Management Agency (FEMA) National Dam Safety Program.

In the mid 2000's a substantial amount of the grant funds were used for engineering services to assess the hazard classification of about 200 dams throughout the state. A typical inundation map is shown below. The hypothetically failed Creamer Pond Dam is in the bottom right corner of the photo and the blue area indicates the expected path of the released water. This dam is classified as a high hazard.

Creamer Pond Dam (No. 742), Tiverton

The 2011 grant was awarded in September 2011 for $59,771 to fund the following projects:

- $40,479 engineering services to visually inspect high hazard and significant hazard dams and complete inspection reports
- $14,943 assist RIEMA in the development of emergency action plans for high hazard dams. [None of the funds were used].
- $2,500 training and associated travel
- $1,849 cell phone service for 3 phones for 1 year

The 2012 grant was awarded in September 2012 for $58,095 to fund the following projects:

- $48,716 engineering services to visually inspect high hazard and significant hazard dams and complete inspection reports
- $4,560 purchase 4 tablets for use during emergency dam inspections
- $2,728 send 4 employees to ASDSO's 2013 annual dam safety conference
- $2,016 cell phone service for 3 phones for 1 year
- $75 purchase 3 cell phone chargers

INTERAGENCY COORDINATION

Since 2010, DEM and the RIEMA have met on a semi-regular basis to improve communication and response to dam safety emergencies. Meetings also included a DEM review of sections of emergency action plans (see *Emergency Action Plans* on page 31) for which RIEMA requested assistance, such as a dam-specific condition that describes when the plan should go into effect.

MEETING/SEMINAR ATTENDANCE

DEM did not participate in any meetings in 2012.

DEM OWNED DAM REPAIRS

DEM continued to move forward under its Capital Development Projects program, undertaking the engineering evaluation, design and reconstruction at the following DEM owned dam:

TOWN	DAM NO.	DAM NAME	HAZARD CLASS
Cranston	166	Curran Upper	High

In 2008, an engineering consultant was selected to develop the final design for the reconstruction project. Development of the final design plans continued through 2009. In 2010 negotiations proceeded with an adjacent property owner to acquire property to allow reconfiguration of the downstream spillway channel. The current discharge channel places flow along the toe of the earthen embankment; the revised design will move flow away from the dam after it passes the spillway. Efforts to acquire the adjacent property continued through 2011. In October 2012, proposed repair plans were forwarded to the Dam Safety Program for review and a comment letter was issued in December 2012. It is expected that the work to repair the dam will go out to bid in 2013.

EMERGENCY ACTION PLANS

Rhode Island General Laws Section 46-19-9 requires a city or town in which a high hazard or significant hazard dam is located, and a state agency that owns a high hazard or significant hazard dam, to complete by July 1, 2008, an Emergency Action Plan (EAP) for the dam (see *Statutes* on page 3). An EAP is a formal document that identifies potential emergency conditions at a dam and specifies pre-planned actions to be followed to minimize loss of life and property damage. The law mandates that the Rhode Island Emergency Management Agency (RIEMA) coordinate development of the EAPs and give final approval for an EAP to be

considered complete. The law also requires DEM and the Rhode Island League of Cities and Towns to cooperate with RIEMA.

In October 2007, RIEMA presented a draft EAP template to DEM and the League of Cities and Towns for review. DEM provided comments to RIEMA which made changes to the template and finalized it.

The EAP template was presented to city and town officials in January 2008. The officials were informed that DEM would provide dam failure inundation maps for all high hazard and significant hazard dams, for use in completing the EAPs. As the inundation maps were finalized, DEM mailed them to the appropriate municipalities.

Through 2012, RIEMA received a total of 93 draft EAPs, none of which have been approved. No EAPs have been submitted by DEM for the 14 high and significant hazard dams it owns. A list of the DEM owned dams and the EAP status for each dam is shown below.

TOWN	DAM NO.	DAM NAME	HAZARD CLASS	EAP STATUS
Cranston	166	Curran Upper Reservoir	High	To be completed under current rehabilitation contract
Cranston	198	Curran Lower Reservoir	High	Draft ready to be submitted for RIEMA review
Cranston	340	Meshanticut Park Pond	Significant	Draft ready to be submitted for RIEMA review
Exeter	221	Browning Mill Pond	High	Draft ready to be submitted for RIEMA review
Glocester	018	Burlingame Reservoir Upper	High	Awaiting consultant proposal to address RIEMA comments on 1st draft
Glocester	499	Durfee Hill Wildlife Marsh #2	Significant	Draft ready to be submitted for RIEMA review
Glocester	566	Bowdish Reservoir	High	Awaiting consultant proposal to address RIEMA comments on 1st draft
Hopkinton / Richmond	215	Barberville	Significant	Draft ready to be submitted for RIEMA review
Hopkinton / Richmond	216	Wyoming Upper	High	Draft ready to be submitted for RIEMA review
Lincoln	102	Olney Pond	High	Awaiting consultant proposal to address RIEMA comments on 1st draft
Little Compton	474	Simmons Pond	Significant	Draft ready to be submitted for RIEMA review
North Kingstown	444	Silver Spring Lake	High	Draft ready to be submitted for RIEMA review
Richmond	261	White's Pond	High	Draft ready to be submitted for RIEMA review
Smithfield	108	Stillwater Reservoir	High	Awaiting consultant proposal to address RIEMA comments on 1st draft

DAM MANAGEMENT DISTRICTS

Rhode Island General Laws Chapter 45-62 authorizes cities and towns to create dam management districts for the maintenance and repair of dams within their boundaries. The following two districts are currently in operation:

TOWN	DAM NO.	DAM NAME	HAZARD CLASS
Burrillville	016	Pascoag Upper	High
Exeter	219	Boone	High

In 2008 by the Town of Exeter created a district for the *Boone Lake Dam (No. 219)*, which is a privately owned, high hazard dam.

In 2009 the Towns of Burrillville and Glocester created a district for the *Pascoag Reservoir Upper Dam (No. 16*). The dam is a privately owned, high hazard dam. The dam is located in Burrillville and the impoundment continues into Glocester.

PROFESSIONAL ASSOCIATIONS

Rhode Island has been a member of Association of State Dam Safety Officials (ASDSO) since its inception in Denver, Colorado in 1984. ASDSO membership consists of state representatives along with corporate and individual members representing dam owners and professional engineering firms. ASDSO was formed to serve these initial functions:

- Improve efficiency and effectiveness of state dam safety programs;
- Foster public awareness;
- Facilitate inter-organizational, intergovernmental and interstate cooperation;
- Assist the dam safety community and provide a forum for the exchange of information;
- Provide representation of dam safety interests before state legislatures and before Congress; and
- Manage the association effectively through internal policies and procedures.

ASDSO has helped to improve dam safety in Rhode Island mainly through its sponsorship of regional dam safety workshops and its national annual conferences.

PROGRAM LIMITATIONS

STAFFING

Currently, the Dam Safety Program has 1.6 full time equivalents (FTEs), consisting of 1.4 FTEs (engineers/inspectors), 0.1 FTE (management) and 0.1 FTE (administrative/clerical). To successfully meet the requirements of the current statute and the Dam Safety Regulations, DEM needs an additional 0.6 FTE (engineer/inspector).

The 0.4 FTE portion of the 1.4 FTEs (engineers/inspectors) above consists of an engineer who was previously assigned to perform other work. In 2009 and 2010, DEM trained this engineer and one other engineer to work in the program. This engineer has been assisting with day to day management of the program. The other engineer will perform inspections only during major storms.

FINANCIAL ASSISTANCE FOR REPAIRS

The Governor's Dam Safety and Maintenance Task Force concluded that repairs to bring all Rhode Island dams up to current safety standards could cost on average as much as $800,000 per dam. The Governor and General Assembly recognized the need for financial assistance and enacted legislation to assist owners with the cost of dam repair. In 2001 the Clean Water Finance Agency (CWFA) was authorized to issue loans for projects associated with dam safety. Unfortunately, the costs are so overwhelming that most owners are unable to afford to pay the principal, let alone the interest, on the loans from the CWFA. Recognizing this problem, in 2005 cities and towns were authorized to create dam management districts to collect funds for the maintenance and repair of dams.

INSPECTION LIMITATIONS

By law, DEM is required to cause to be inspected all the dams in the state. However, the visual inspections performed by the Dam Safety Program do not involve full engineering analyses of the structural integrity of dams. DEM does not have the staff or the financial resources to ensure that such detailed inspections are completed. Although a visual inspection can provide indicators of underlying problems, an engineering analysis is sometimes needed to more fully assess the condition of the dam. Also, climatologists are forecasting that the coming years will bring more intense storms. Since most of the high hazard and significant hazard dams were constructed from the early 1800's through the mid 1900's, the spillways are not designed for these types of intense storms. Many of these dams will have a spillway capacity that is not adequate to pass the runoff from these more intense storms and will result in an overtopping of the dam. As such, engineering analyses of spillway capacities will be needed to properly assess the safety of the dams.

TECHNICAL GUIDANCE DOCUMENTS

DEM has made available a technical guidance document titled, *Dam Safety – An Owner's Guidance Manual,* prepared by the Federal Emergency Management Agency (FEMA) and the State of Colorado. The document is available on DEM's website at http://www.dem.ri.gov/programs/benviron/compinsp/pdf/damguide.pdf. Although it is a useful document, DEM would like to develop technical guidance documents specific to Rhode Island. Such documents would better assist both dam owners and consultants in understanding requirements in the Dam Safety Regulations.

This completes the annual report on dam safety and the activities performed by DEM in 2012. For further information on the Dam Safety Program please contact David Chopy at (401) 222-1360, extension 7400.