



EarthWatch Rhode Island



Topic: Dam Safety

Date: January 31, 2008; Location: Curran Lower Reservoir Dam, Cranston

Of the more than 600 dams in Rhode Island approximately 204 significant and high hazard dams hold the potential to cause loss of life or extensive property damage in the event of a failure. DEM has adopted new regulations that aim to make the state's dams safer and is proceeding with repairs and upgrades to DEM-owned dams. The state hopes to avoid situations such as those that occurred in Taunton, MA when a critical dam almost failed in 2005 and in South Kingstown when the California Jim's Dam breached and flooded the village of Peace Dale in 1998.

Dams provide great benefits to the citizens of the State. The waterbodies created by the dams provide drinking water, flood management, recreation, and scenic beauty. In addition, many are surrounded by valuable wetlands that sustain a wide variety of animal and plant species. However, many of these dams, both public and private, have not been properly maintained through the years and enormous growth in development in the state means that dams once classified as low hazard are now significant or high hazard. Many pose a significant threat to public safety and to the preservation of the State's natural and recreational resources.

DEM is responsible for ensuring that dams are managed and maintained in a safe condition. In December, the Department finalized new regulations that require more frequent and thorough inspections and require dam owners to take necessary action to return an unsafe dam to a safe condition.



The Curran Upper Reservoir Dam, located along the Clarke River in Cranston, is classified as high hazard dam and is slated for re-construction in 2009.

Specifically, the new regulations:

- Assign a hazard classification (high, significant, or low) to each dam in the state inventory;
- Require owners to register their dams and notify DEM when ownership is transferred;
- Set a schedule for visual inspections of high and significant hazard dams;
- Streamline the permitting process for repair of high and significant hazard dams;
- Provide a procedure for dam owners to take emergency actions for high and significant hazard dams; and
- Maintain the owner's responsibility for paying the repair cost to bring an unsafe dam to a safe condition.

Dam Classifications

High Hazard - will result in a probable loss of human life.

Significant hazard - 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.

Low hazard - no probable loss of human life and low economic losses.

Before the regulations, DEM administered its responsibilities under statute primarily by conducting inspections and issuing reports. However, with no regulations associated with the statute, it has been difficult to compel dam owners to follow proper procedures regarding maintenance and repair.

Under the new regulations, visual inspections of high and significant hazard dams will be required every two and five years, respectively, either by DEM or an engineer retained by the dam owners. Since DEM has just one dam inspector, it is likely that the department will require some dam owners to retain an engineer to perform the inspections, at an estimated cost of \$2,500 to \$3,000 per inspection. Repairs of such dams will be regulated under the dam safety regulations, rather than under the freshwater wetlands regulations as previously required, eliminating the permit application fee, and likely reducing the cost of professional evaluations and documentation required to support the application. Repairs to low hazard dams or modification or construction to high and significant hazard dams will still require a wetland permit.

A 2006 state law requires each city/town to complete an Emergency Action Plan (EAP) for each significant or high-hazard dam located within the city or town (whether they own the dam or not)



An artist rendering shows what the Upper Curran Reservoir Dam could look like once re-construction is complete.

and submit the plan to the state Emergency Management Agency by July 2008. 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.

In addition to these new requirements, the state has been aggressively repairing and upgrading state-owned

significant and high hazard dams. The effort began with significant upgrades and repairs to Olney Dam in Lincoln (completed in 1999), Bowdish Dam in Gloucester (completed in 2002), and Stillwater Dam in Smithfield (completed in 2005). The effort continues with major upgrades slated for the Curran Reservoir dams.

Curran Upper Reservoir and Curran Lower Reservoir Dams

The Curran Upper and Lower Reservoir Dams, located along the Clarke River in Cranston, are classified as high hazard dams. A 2006 engineering study of the Upper Curran and visual inspections of Lower Curran show that the dams are in poor condition with deteriorated spillways and discharge channels, inoperable low level outlet, areas of significant erosion, areas of significant seepage, and areas of large brush growth. Upper Curran design plans will be complete in Fall 2008 and construction will begin in Spring 2009. Lower Curran repairs will begin soon after.

Interviews:

- David E. Chopy, Supervising Sanitary Engineer, DEM's Office of Compliance and Inspection provided an overview of the dam safety program including the new regulations
- Paul W. Guglielmino, Senior Sanitary Engineer, DEM's Office of Compliance and Inspection, demonstrated the dam inspection process and point out areas of concern



DEM's Dave Chopy is interviewed by Channel 10 Reporter R.J. Heim for the EarthWatch segment on Dam Safety, which aired on February 1 & 3, 2008