



South Carolina Bar

2017 South Carolina Bar Convention

**Environment & Natural Resources Section/
Administrative & Regulatory Law
Committee Seminar**

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**South
Carolina
Bar**

Dam Safety in South Carolina

Michael S. Traynham
Columbia, SC



Dams in Post Flood South Carolina

Michael Traynham

Office of General Counsel

TraynhMS@dhec.sc.gov

South Carolina Department of Health and Environmental Control

Healthy People. **Healthy Communities.**



South Carolina Department of Health and Environmental Control
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Regulation of Dams In South Carolina



History

- S.C. Dams and Reservoir Safety Act enacted in 1977 (S.C. Code 49-11-110 through 49-11-260)
- Regulations promulgated (R. 72-1 to 72-9)
- Initially administered by South Carolina Land Resources Commission
- Transferred to DHEC during state government restructuring in 1996

Criteria for Regulation

- Dams which meet any of the following three criteria
 - 25' in height
 - Impounds 50 ac-ft or more
 - Dams whose potential failure may cause loss of human life



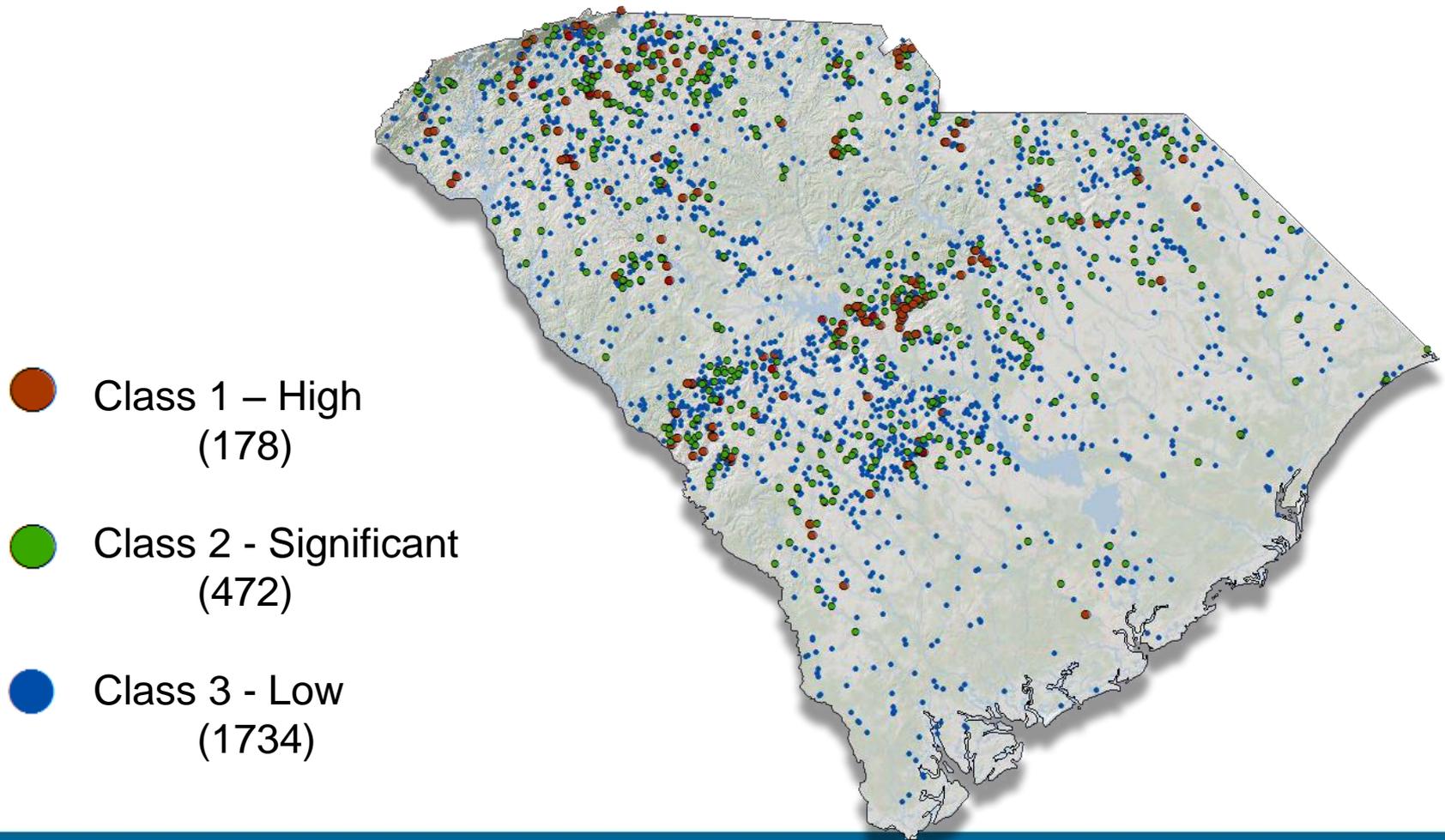


Classification of Regulated Dams

Class I	Class 2	Class 3
High Hazard	Significant Hazard	Low Hazard
Dams located where failure will likely cause loss of life or serious damage to home(s), industrial and commercial facilities, important public utilities, main highway(s) or railroads.	Dams located where failure will not likely cause loss of life but may damage home(s), industrial and commercial facilities, secondary highway(s) or railroad(s) or cause interruption of use or service of relatively important public utilities.	Dams located where failure may cause minimal property dam-(Class III) age to others. Loss of life is not expected.



South Carolina's Regulated Dams





Roles of Owner and Department

- “Owner...solely is responsible for maintaining the dam or reservoir in a safe condition throughout the life of the structure.” S.C. Code Ann. Section 49-11-150.
- Owner must obtain permits from Department for any repairs, alteration, or removal. 49-11-200 et seq.
- Department has the powers of inspection and certification. 49-11-140.
- Department may make orders to owners directing necessary maintenance, alteration, repair, or removal. 49-11-160.
- Department may make emergency orders, and remove dam 49-11-190.



Maintenance Vs. Repair

- ***Maintenance*** includes those activities performed on a routine basis by the owner to keep the dam in proper working order. No permit is needed for maintenance.
- ***Repair*** are those activities undertaken that may affect the safety of the dam. Permits are required before repairs are made to a dam.



Maintenance Examples

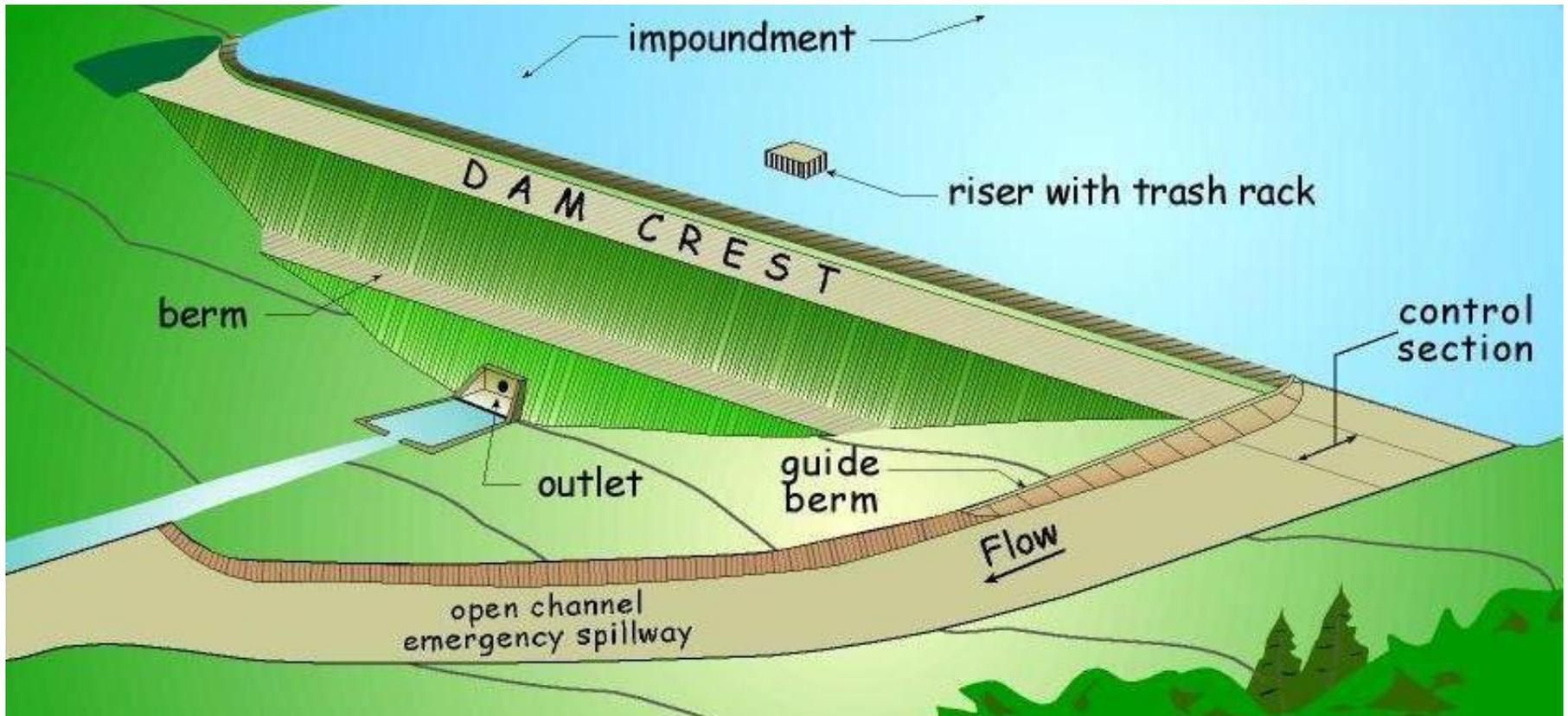
- Removing trash and debris from a spillway
- Mowing
- Trapping rodents and filling in rodent burrows
- Operating spillways
- Installation of stone or rip-rap for erosion protection (as long as no excavation occurs)



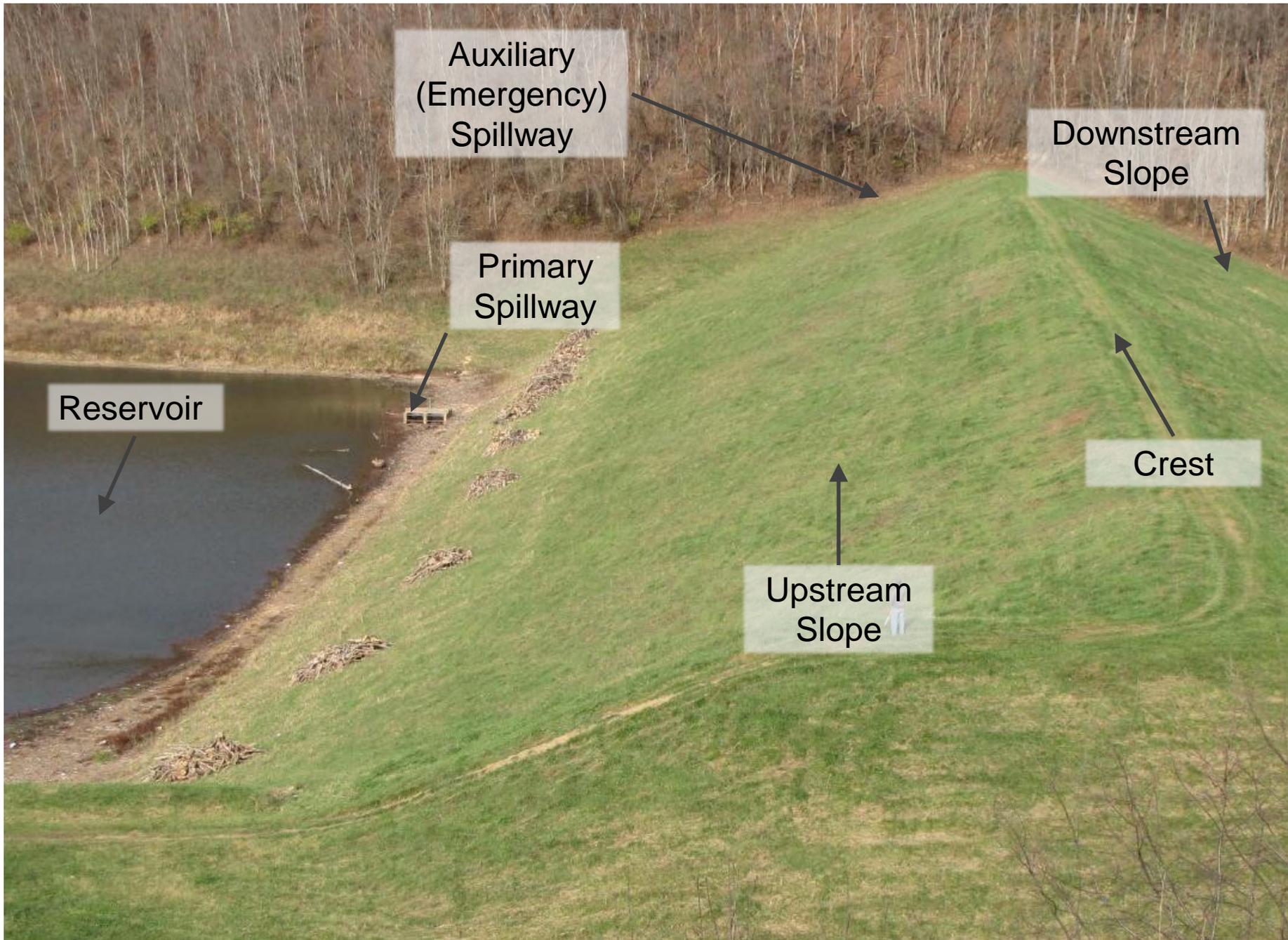
Repair Examples

- Replacement or work to spillway structures
- Grading and excavation of slopes, spillways, dam crest
- Removal of tree roots and stumps
- Installation of drainage controls (toe drains)

Parts of A Dam



Note: Not all dams have all of these parts



Reservoir

Auxiliary
(Emergency)
Spillway

Primary
Spillway

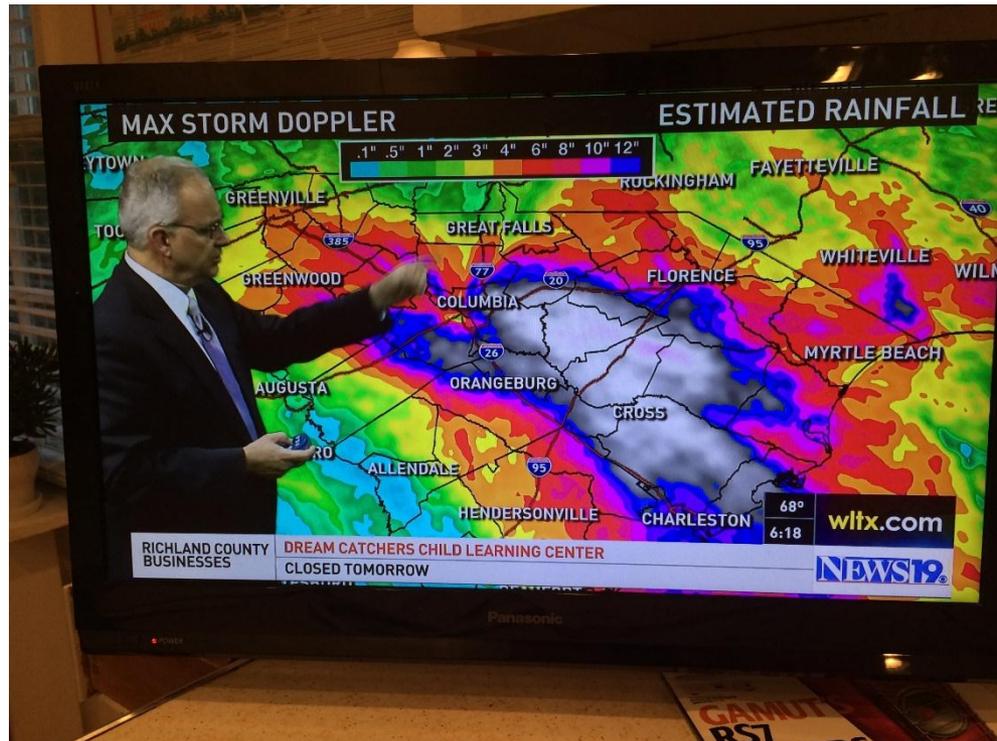
Upstream
Slope

Crest

Downstream
Slope



OCTOBER 4-5, 2015

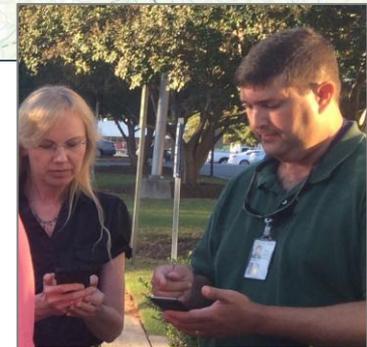
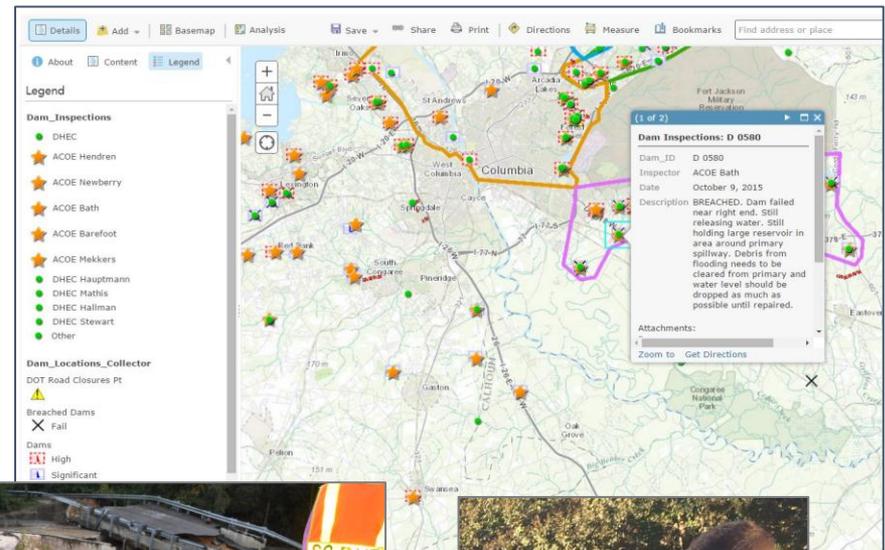


Post-Storm Actions



Post-Storm Assessments

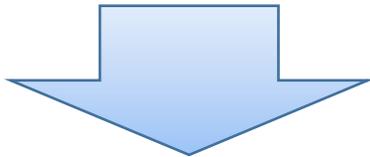
- FEMA requests USACOE provide engineers with expertise in dams to assist DHEC staff in assessing condition of all 652 High (C1) and Significant (C2) Hazard dams in state



Condition Criteria



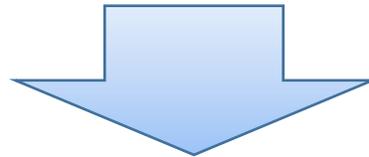
*Dam breached
or near failure*



Emergency
Order (75)



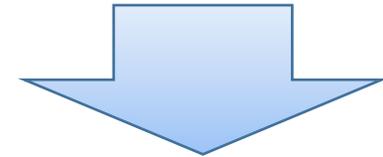
*Dam in need
of repair*



Directive Letter
(171)



*Dam in good
condition*



No Action



By the Numbers

- 75 - Dams under Emergency Order
- 191 - Dam directive letters (20 more sent after initial assessments)
- 51 - dams known to have breached as a result of 2015 flooding.
- 10 Counties with breached dams



Challenges

- Staffing
- Ownership Disputes
- Owner Resources



Program Responses

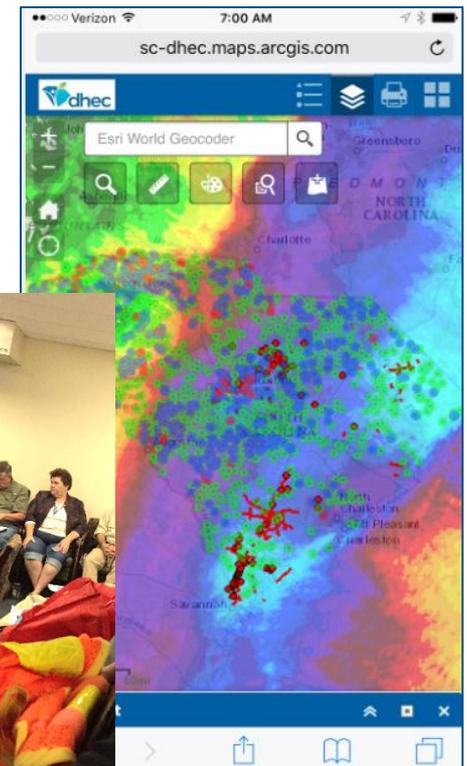
- Dam Safety Program Advisory Group
- CodeRED Alert System
- Engineering Support Contract
- FEMA Reimbursement
- FY 2017 budget request for 7 additional FTEs

And Then Came Matthew...

- Made land fall October 8, 2016 near McLellanville, SC
- Dumped more than 10 inches of rain on parts of the state.
- Caused significant property damage from storm surge, wind, and additional dam breaches.



Applying Lessons Learned from 2015



Hurricane Matthew

Numbers

- 469 dams assessed
- 25 dams breached (20 regulated)
- 2 dams were considered “failure imminent”
- 115 storm damaged (13 severe)
- 327 with no storm damage observed



Takeaways

- Dam Safety Program is working on improving communication and education for dam owners
- Communication is a two way street (particularly when a dam has a problem)
- Dam owners should familiarize themselves with available resources and decide before an emergency how to handle repairs and other costs.



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www.scdhec.gov

(803) 898-DHEC (3432)

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Chad N. Johnston
Columbia, SC

Vito M. Wicevic
Columbia



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**The Environmental Side of
Economic Development**

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Randolph R. “Randy” Lowell, Charleston

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