



BACKGROUND

To effectively notify the public of dam safety-related dangers, both old and new communication tools are being used across multiple platforms to reach as much of the at-risk population as possible.

Some of these notification methods are detailed below, along with examples of their use in response to Hurricane Matthew.

Purpose and Intended Audience

This Fact Sheet shares examples of the successful use of notification methods for dam emergencies that occurred during Hurricane Matthew in 2016 to help stakeholders better understand notification methods that can be used during a dam-related incident. This Fact Sheet also provides information on coordinating notification messages.

The intended target audience for this Fact Sheet includes federal, state, territory, and local officials; tribal leaders; county and city engineers, planners, and emergency managers; dam owners and operators; building and property owners near or potentially affected by a dam failure; and other interested stakeholders.

MASS NOTIFICATION SYSTEMS



A mass notification system is a platform that can be used to directly notify the public in the event of an emergency and encourage appropriate action.

Prior to or during emergency events, mass notification systems can be used to send voice calls, text messages, and emails to notify residents of potential hazards in their area, such as flash flooding from imminent dam failure, and encourage appropriate action, such as evacuating or sheltering in place.

There are commercially available web-based systems that deliver messages via the internet and others that are linked to a database of telephone numbers and addresses that deliver emergency notifications to telephones. Some systems can be used to alert non-residents who are traveling through the area.

Refer to Fact Sheet 1 of this series for additional information on geospatially linked mass notification systems.

Examples of Actions Taken

At the time Hurricane Matthew made landfall, the Wake County Emergency Operations Center (EOC) used printed dam inundation zones to approximate areas for mass notification. Based on lessons learned from that event, Wake County loaded digital dam breach inundation zone geospatial maps into its new mass notification system the following March (2017), which better facilitated the

identification of areas for mass notification. In April 2017, Wake County experienced another threatened dam failure (Lewis Dam). Following this event, the areas used for mass notification were expanded to include all area within a land parcel, even if only a portion was in the inundation zone.

Officials from Moore County, NC, used an emergency notification system during Hurricane Mathew to notify downstream residents of potential dam failure. The system calls home phone numbers within its 911 database and also calls and texts the cell numbers of users that have subscribed to its free system.

PRESS RELEASES

National Weather Service Warning Issued for Dam Failure

The National Weather Service (NWS) issued the following Flash Flood Warning at 8:09pm, October 10, 2016 (ET):

THE NATIONAL WEATHER SERVICE IN RALEIGH HAS ISSUED A *FLASH FLOOD WARNING FOR... A DAM FAILURE IN... EAST CENTRAL MOORE COUNTY IN CENTRAL NORTH CAROLINA...

NORTH CENTRAL HOKE COUNTY IN CENTRAL NORTH CAROLINA... NORTHWESTERN CUMBERLAND COUNTY IN CENTRAL SOUTHEAST OF VASS IS IN RISK OF IMMINENT FAILURE. A FAILURE WOULD RESULT IN FLASH FLOODING DOWNSTREAM ON CRANE CREEK WITH FLOOD WATERS EVENTUALLY REACHING THE LITTLE RIVER. AUTHORITIES ARE BEGINNING EVACUATIONS. MOVE TO HIGHER GROUND NOW. LOCATIONS PARTICULARLY AT RISK

INCLUDE AREAS NEAR ROUTE 690 OR LOBELIA ROAD...CABINS CREEK ROAD AND MCPHERSON ROAD.

Press releases can be used by federal, state, territory, tribal, or local governments to communicate hazardous situations during emergencies. The press releases are then distributed by media outlets via a variety of mechanisms, including print, radio, and internet-based social media.

Examples of Actions Taken

During Hurricane Matthew, some communities published press releases to communicate hazardous situations as they unfolded. Moore County, NC, coordinated with the National Weather Service to release a flash flood warning for the area, which was quickly reproduced and distributed by media outlets.

SOCIAL MEDIA



Social media platforms, such as Twitter and Facebook, can be used to post information about unfolding situations that can be viewed by the public. In addition, social media platforms hosted

by state or local agencies can be used to receive tips, concerns, and other information posted by citizens. Posts to the social media platforms may also assist emergency responders in developing a common operating picture (COP).

A COP is a situational awareness application that supports all functions of a response using one spatial data platform. To be most effective, communities should encourage the public to subscribe to pertinent social media sites related to emergency messaging.

Examples of Actions Taken

Moore County, NC, used Facebook and Twitter to keep the public informed about developing situations. Dillon County, SC, also used Facebook to deliver messages to the public during Hurricane Matthew.

IN-PERSON NOTIFICATION



One way the local community can initiate notification that a disaster or threat is imminent or has occurred is through door-to-door notifications or roadblocks.

Examples of Actions Taken

When it became clear that Woodlake Dam might fail during Hurricane Mathew, Moore County, NC, quickly enacted its door-to-

door notification procedure, which is carried out by fire departments and law enforcement personnel. The county had adequate personnel and resources to implement the procedure.

The door-to-door notification procedure is also used by the county for other emergency situations such as hazardous materials incidents or missing persons.

Wake County, NC, implemented in-person public warning and notification using door-to-door and roadblock methods to alert the public that Lake Benson dam was at risk of failure.

FLYERS



After disasters, lack of electricity or damaged communications infrastructure can make it difficult to send and receive messages electronically. In these instances,

printed flyers posted in public places can be an effective method to get information to people in need of resources. Flyers in multiple languages should be distributed if pertinent to the community. FEMA and the U.S. Department of Health and Human Services have often used the U.S. Postal Service to deliver flyers containing public health messages to the general population following disasters.

Examples of Actions Taken

After Hurricane Matthew, Dillon County, SC, used flyers to provide information about the availability of donated food and shelter.

COORDINATED MESSAGING



Mass notification is best accomplished using a well-coordinated, layered approach—one in which multiple communication methods are used. Using multiple methods increases the likelihood the message will reach all affected parties.

In addition to messaging stakeholders who may be affected by a dam incident, coordinated messaging among stakeholders and responders is also critical.

Examples of Actions Taken

Wake County, NC, effectively used a layered approach to mass notification during Hurricane Matthew. The County used multiple communication methods, including a technology-based mass notification system, press releases, road blocks, and in-person door-to-door public warnings to

notify the public of potential issues with Lake Benson dam. Warning messages and activities were coordinated across platforms and public safety agencies by the Wake County EOC.

Dillon County, SC, used a combination of a Reverse 911 system, Facebook, and flyers to release coordinated messages about the availability of food and shelter. The EOC managed and coordinated all messaging with the Red Cross, South Carolina Department of Social Services, the sheriff's office, and fire departments.

Wake County, NC, successfully coordinated activities across platforms and public safety agencies through the Wake County EOC.

- The Wake County EOC Manager coordinated warning activities with Johnston County Emergency Management and Archer's Lodge Fire (downstream risk jurisdictions) via conference calls.
- Authorities having jurisdiction reached concurrence prior to initiating warning activities.

CONFERENCE CALLS



Conference calls can be used to coordinate and communicate before, during, or after an emergency event.

Examples of Actions Taken

During Hurricane Matthew, several counties in North Carolina held regularly scheduled conference calls to discuss the event and facilitate coordination and communication. Moore County, NC, held many conference calls with downstream counties to alleviate their concerns regarding a dam-related incident during the event.

REFERENCES AND RESOURCES

Resources

Covello, Vincent. 2007. *Effective Risk and Crisis Communication during Water Security Emergencies*. https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=165863

FEMA. *Effective Communication*. Emergency Management Institute Course IS-242.B. <https://emilms.fema.gov/IS0242b>

Joy Leong Consulting. 2011. *A Case Study of its Role in Katrina and its Emergency Preparedness Effort*. Prepared for the Postal Regulatory Commission, Washington D.C. https://www.prc.gov/sites/default/files/archived/Emergency_Prep_Report.pdf

Mileti, Dennis S. 1999. *Disasters by Design: A Reassessment of Natural Hazards in the United States*. Joseph Henry Press, Washington, DC.

U.S. Department of Homeland Security. 2013. *Innovative Uses of Social Media in Emergency Management*. https://www.dhs.gov/sites/default/files/publications/Social-Media-EM_0913-508_0.pdf

Useful Websites

FEMA, Social Media and Emergency Management (Video): <https://www.fema.gov/media-library/assets/videos/114314>

Integrated Public Alert Warning System (IPAWS): <https://www.fema.gov/integrated-public-alert-warning-system>

North Carolina Dam Safety Program: <https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-permits/dam-safety>

North Carolina Department of Public Safety, Emergency Management: <https://www.ncdps.gov/our-organization/emergency-management>

South Carolina Dam Safety Program: <http://www.scdhec.gov/Environment/WaterQuality/DamsReservoirs/DamsOverview>

South Carolina Emergency Management Division: <http://www.scemd.org>

Other Fact Sheets in this Dam Safety Series

Fact Sheet 1: Use of Emerging Technologies

Fact Sheet 3: Benefits of Pre-Event Exercises and Training

Fact Sheet 4: Proactive Actions

Fact Sheet 5: Benefits of Post-Event Data Collection for Dams

The National Dam Safety Program is a partnership of the states, federal agencies, and other stakeholders that encourages and promotes the establishment and maintenance of effective federal and state dam safety programs to reduce the risks to human life, property, and the environment from dam-related hazards.

Visit the National Dam Safety Program website at <https://www.fema.gov/national-dam-safety-program> or scan this QR code.



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