NC AWWA-WEA 97th Annual Conference
November 13, 2017

Water Emergency
Lessons Learned by OWASA

Community owned utility providing water,
wastewater and reclaimed water services to
the Carrboro-Chapel Hill community.
Orange Water and Sewer Authority

Community owned utility providing water, sewer and reclaimed water services to the Carrboro-Chapel Hill community in North Carolina.
**Water Supply**
- Cane Creek Reservoir
- University Lake
- Quarry Reservoir
- Jordan Lake (backup supply via mutual aid)

Jones Ferry Road Water Treatment Plant 20 MGD

Reclaimed Water 2.0 MGD

**OWASA Emergency Interconnections**
- City of Durham
- Town of Hillsborough
- Chatham County
Breaking News...
February 3, 2017
North Carolina's game vs. Notre Dame moved to Sunday due to water emergency

The Irish and Tar Heels will play Sunday in Greensboro, North Carolina

Saturday's Notre Dame-North Carolina game originally scheduled for 6 p.m. ET has been postponed to Sunday due to an emergency water crisis in the Chapel Hill, North Carolina, area the school announced in a news release Friday.

A major water main break resulted in a state of emergency being declared in the area. WRAL reported that water in the area will not be safe for at least 24 hours.
Key Take-aways

• Be prepared locally and regionally for the “what-ifs”

• Interconnection of drinking water systems important for resiliency

• National Incident Management System (NIMS) and your local and regional partners are essential

• Communications – be open, honest and transparent

• After Action Reviews – powerful continuous improvement tool
May 2011, OWASA became the 9th water utility in US to receive the “Excellence in Water Treatment” award
February 2017 Water Emergency

- Normal Min. Storage
- Emergency Storage

Million Gallons of Storage

February 2
February 3
February 4
February 5
February 2017 Water Emergency

- Water Plant Shutdown
  Thu 3:22 PM

- Normal Min. Storage
- Emergency Storage

Million Gallons of Storage
February 2017 Water Emergency

Water Plant Shutdown Thu 3:22 PM

Primary Durham interconnect started Thu 5:09 PM

Normal Min. Storage

Emergency Storage

Million Gallons of Storage

February 2
February 3
February 4
February 5
February 2017 Water Emergency

Water Plant Shutdown Thu 3:22 PM
Primary Durham interconnect started Thu 5:09 PM
12" Main break Fri 10:13 AM
OWASA issues "Do Not Use, Do Not Drink" News Release Fri 11:30 AM
Orange County Health Department issues "Do Not Use, Do Not Drink" directive (Critical Care – Essential Use) Fri 2:00 PM

Normal Min. Storage

Emergency Storage

Million Gallons of Storage

February 2 | February 3 | February 4 | February 5
Water Plant Shutdown Thu 3:22 PM
Primary Durham interconnect started Thu 5:09 PM
12" Main break Fri 10:13 AM
Orange County Health Department issues "Do Not Use, Do Not Drink" directives Fri 2:00 PM
Orange County Health Department lifts “Do Not Use” “Do Not Drink” directive Sat 2:24 PM
Water Plant in Operation Sat 6:37 PM

February 2017 Water Emergency

Normal Min. Storage

Emergency Storage

Million Gallons of Storage

February 2
February 3
February 4
February 5
6:00 AM  10:00 AM  2:00 PM  6:00 PM
6:00 AM  10:00 AM  2:00 PM  6:00 PM
6:00 AM  10:00 AM  2:00 PM  6:00 PM
6:00 AM  10:00 AM  2:00 PM  6:00 PM
6:00 AM  10:00 AM  2:00 PM  6:00 PM
County Emergency Operations Center
(Orange County; Towns of Chapel Hill & Carrboro; UNC; Health Department; OWASA; Others)

• National Incident Management System (NIMS)
County Emergency Operations Center

- Coordinated and comprehensive response
- Distribution of bottled water and other community resources
- Communication Tools
  - OC Alerts (reverse 9-1-1)
  - News Releases/Media
  - Joint News Conferences
  - Call center, tweets, website
  - Non-English; special needs population
Communications

Be open, honest and transparent – to be trusted

- Share information quickly, openly and honestly
- Work with news media to get your message out
- Keep partners and employees fully informed; common message
- Routine updates for all stakeholders
- Invite feedback and review
- Independent review of fluoride overfeed and water main break
Accidental Fluoride Overfeed

CH2M Report (February 10, 2017)

• Primary Cause
  o Unintentional operator keystroke increased pump feed rate to higher than desired level
  o Subsequent adjustment made 12 seconds later, but pump did not respond as expected

• Secondary Cause
  o During subsequent routine inspection, operator failed to take timely corrective action

No water with higher than normal fluoride levels left the treatment plant
12-Inch Water Main Break – February 3, 2017
Water Main Break

AECOM Report (February 10, 2017)

“...it (the pipe) was set up to fail 44 years ago on the day of its installation”
ORANGE WATER AND SEWER AUTHORITY
A public, non-profit agency providing water, sewer & reclaimed water services to the Carrboro-Chapel Hill community.

ABOUT OWASA | CUSTOMER SERVICE | WHAT WE DO | CONSERVATION AND EDUCATION

MANAGE MY ACCOUNT
Pay your bill and check your water usage online.

START OR STOP SERVICE
Moving? Start and stop service online.

UPDATES ON WATER EVENT & RECOVERY
Learn More.

CARE TO SHARE
Donate to help families in need.

Our award-winning Jones Ferry Road Water Treatment Plant

www.owasa.org
After Action Review (AAR)

Powerful organizational learning tool

1. What did we set out to do?
2. What actually happened?
3. What went well?
4. What can be improved?
Approved Action Plans for Improvements:
(following public input)

- Related to water main break (March 23rd)
- Reliability and safety of fluoride feed system (April 13th)
- Strategic communication in OWASA-related emergencies (April 27th)
Customers Reduced Demand by ~37%

OWASA News Release, advising and requesting conservation Thu 6:00 PM

OWASA News Release, "Do Not Use" declared Fri 11:30 AM

Joint News Release "Do Not Use" lifted, continued conservation Sat 2:30 PM

Request for conservation lifted Sun 9:00 AM
Key Take-aways

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• Communications – be open, honest and transparent

• After Action Reviews – powerful continuous improvement tool
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Ed Kerwin
Executive Director
919-537-4211
ekerwin@owasa.org
www.owasa.org

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