









Independent Review Committee

Christmas 2022 Water Outage Incident

City of Asheville

Committee Members

- Rob Brisley
- Dennis A. Fagnant
- Michael L. Holcombe
- Mike McGill
- John W. McLaughlin, PE
- Kim “Dirt” Murphy
- Carolyn Roy
- Ted Tyree, PE

Introduction

- Kick off Meeting February 20, 2023
- Divided into three subcommittees for efficiency
  - Water System / Operations
  - Communications (COMMS)
  - Emergency Response
- Each subcommittee has a chair / co-chair presenting the findings and recommendations from that subcommittee

Presenting the Final Report

- Report represents 3 months of hard work
- Numerous interviews
- More than 90 Requests for Information (RFI)
- The IRC wants to express its thanks to Jade Dundas, the City's liaison and all staff members who took the time to openly answer questions and respond to RFIs

Water System / Operations

Subcommittee Members

- **Ted B. Tyree, P.E., Co-Chair**
  Engineer, *Knoxville Utilities Board (TN)*
- **John W. McLaughlin, P.E., Co-Chair**
  Director of Internal Development, *Highfill Infrastructure*
- **Michael L. Holcombe, Sr., Co-Chair**
  Former Director, *Water Resources Department*
- **Mike McGill**
  President, WaterPIO
- **Kim “Dirt” Murphy**
  Co-owner / Farm Manager, *Rainbow Path Wellness, LLC*
- **Carolyn Roy**
  Owner, *Biscuit Head Restaurant*

Water System / Operations

Our Directives

1. Review the outage and provide a comprehensive account of the event
2. Assess City's operational response
3. Make recommendations that will maximize prevention of future events

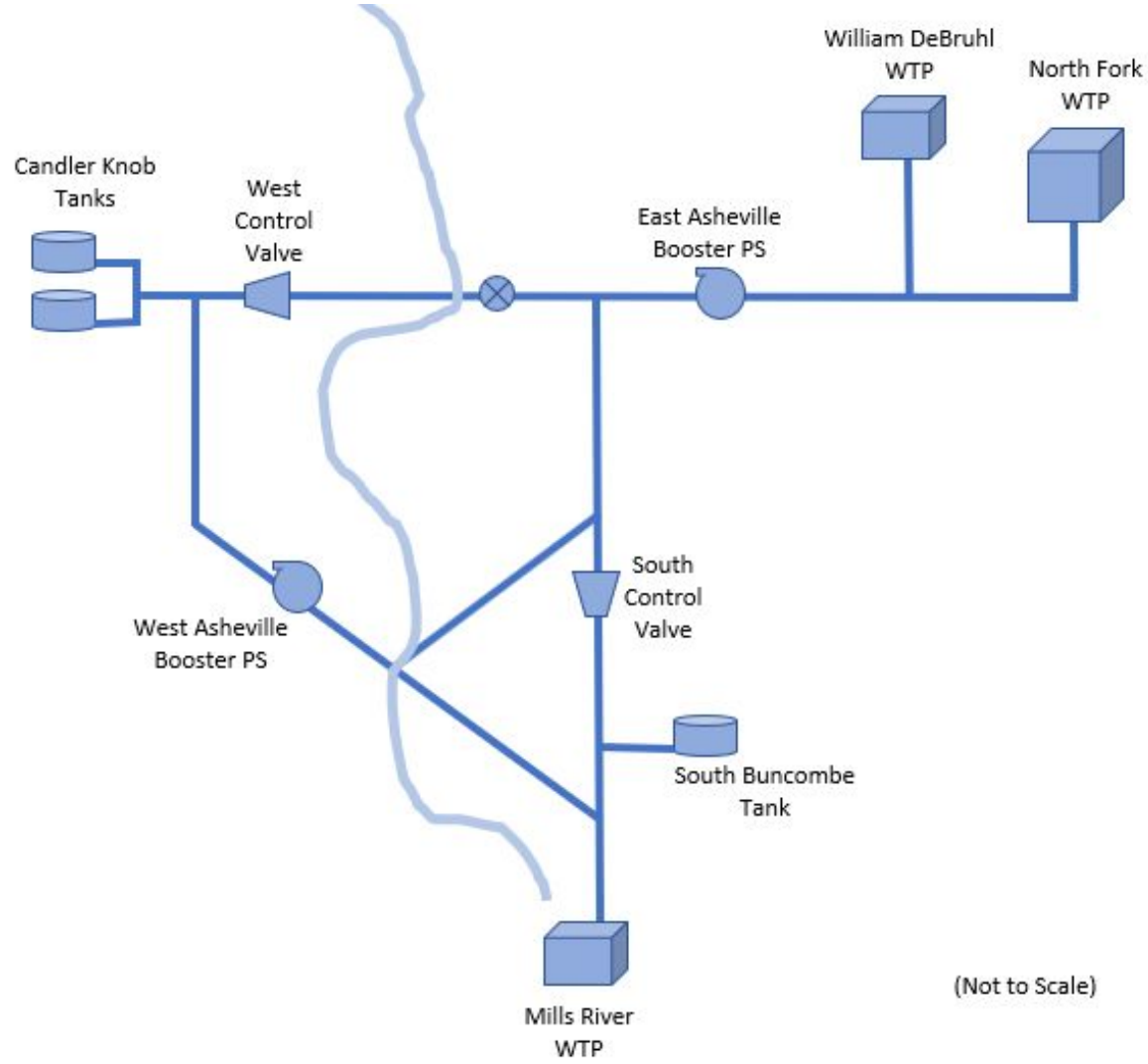
Water System / Operations

Water System Overview

- 60,000 water connections
- 3 Water treatment plants

Facility	Rated Capacity (MGD)
North Fork WTP	31
William DeBruhl WTP	5
Mills River WTP	7.5
TOTAL	**43.5**

- 1,700+ miles of pipe, ranging from 2” – 36” diameter
- ~20,000 valves
- Avg Daily Demand = 21.5 MGD



Water System / Operations

What Happened?

- Coldest weather conditions to hit Asheville since January 2014
- Unprecedented water system demand, exceeded 31-32 MGD
  - Total of 27 water main breaks throughout system
  - High customer consumption
    - Letting faucets drip / run
    - On-premise leaks / breaks due to cold
- Mills River WTP taken off-line due to cold-induced treatment issues
  - Off-line from 8:00 AM Saturday, Dec. 24th to 10:00 AM Wednesday, Dec. 28th
- North Fork and William DeBruhl WTPs remained in service (gravity inputs)
  - 36 MGD combined capacity
  - Both plants located in far northeast sector of the system
  - Water must be conveyed West and South

Water System / Operations

What Happened?

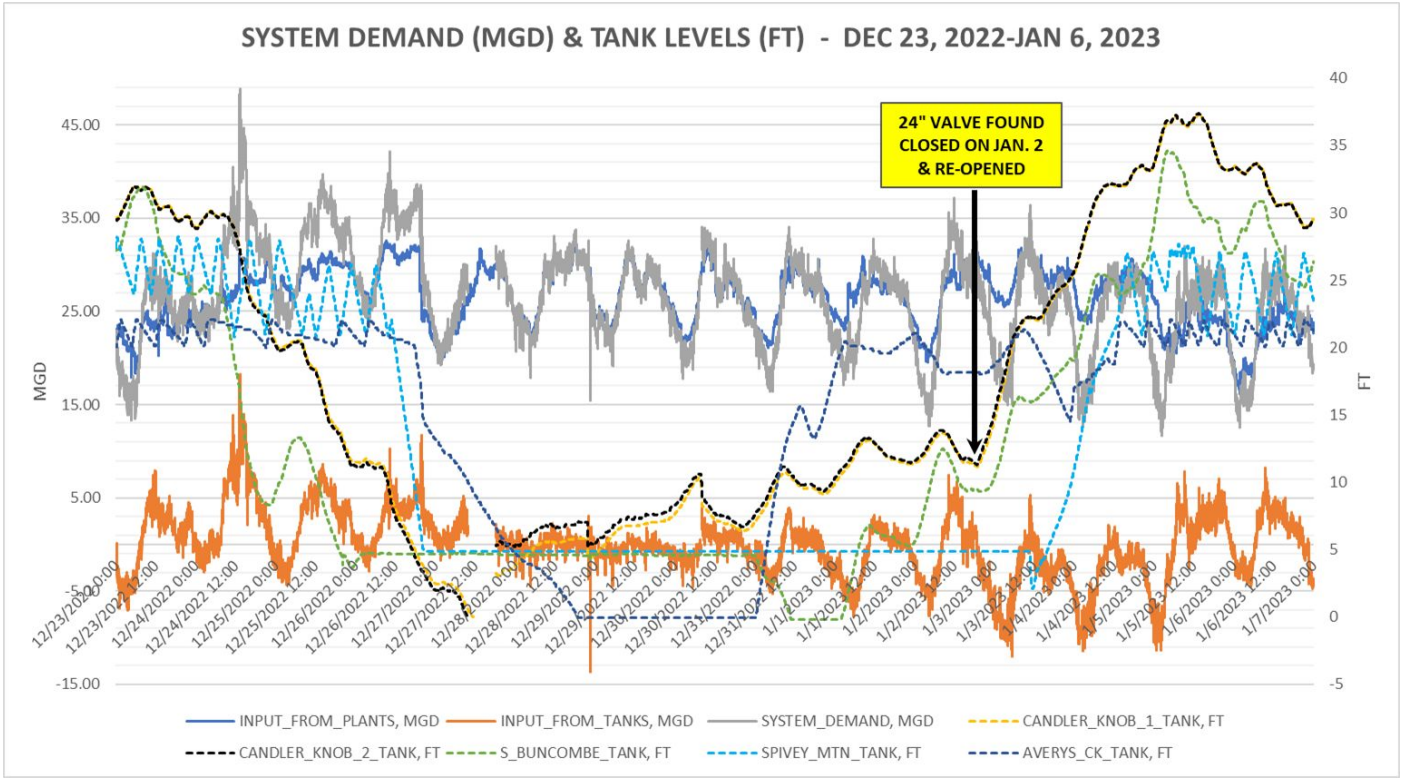
- Low pressures and no water experienced in parts of South and West
- Thousands of customers in the South and West with no water service
- Isolated most of South system at 7:00 PM on Monday, Dec. 26th
- Portable pumps deployed near Candler Knob tanks
- Key storage tanks rapidly depleted and were valved off
- Eventual system recovery was slow
- CLOSED 24” transmission valve found at 6:45 PM on Monday, Jan. 2nd
    - When opened, tanks began to fill more quickly
- Final Boil Water Advisory lifted on Wednesday, Jan. 4th
- City Council created IRC on Jan. 10th

Water System / Operations

Data Analysis

- 1-minute data from Supervisory Control & Data Acquisition (SCADA) System enabled detailed analysis

- Major storage tanks in west and south rapidly drained once Mills River WTP taken off-line
- Virtually NO refilling of tanks during off-peak periods (overnight)
- Excess capacity (36 MGD) available, but still couldn't meet demand
- Hazen modeling scenarios



Water System / Operations

Findings

Underlying cause = inability to supply enough water to meet high demands

- Closed 24” transmission valve in River Arts District (feeds Western portion)
  - WRD learned on Jan 10, 2022 from Hazen of probability of a closed 24” valve in RAD
  - WRD staff looked for but did not find closed valve (until Jan 2, 2023 during event)
- Hazen identified another 24” valve was only open 10% (feeds Southern portion)
  - Configured in SCADA to only open to 10% (“100% Open” = 10% Open)
- Need for greater system resilience
  - East Asheville Booster Pump Station unavailable for use since ~2010
- Other factors indirectly contributed to the event, its scope and duration

Bottom Line: Magnitude and duration of event was largely avoidable and preventable.

Water System / Operations

Immediate Recommendations

1. Conduct an independent *Valve Assessment* of all large transmission mains
2. Enable *SCADA control of South Control Valve* for full range of flow

Short-Term and Long-Term Recommendations

3. Evaluate existing pumps; generate *EABPS Preliminary Engineering Report*
4. Within the SCADA Historian, derive *Total_Daily_Demand*

Water System / Operations

Short-Term and Long-Term Recommendations
(continued)

5. Expedite implementation of *Advanced Metering Infrastructure (AMI)* system-wide
6. Re-evaluate the role of *WRD's Engineering Division*
7. Conduct a *Knowledge Retention* assessment within WRD; identify "gaps"
8. Plan and conduct targeted *Table-Top Exercises* at least semi-annually, both internal to WRD and with external agencies
9. Accelerate the installation of *District or Zone Meters*
10. Consider the creation of a *Water Utility Advisory Panel*

Communications (COMMS)

Subcommittee Members

- **Mike McGill**
  President, *WaterPIO*
  - Firm handles customer & crisis COMMS for water utilities nationwide. Conducted similar report for Austin, TX post-Winter Storm Uri.
- **Rob Brisley**
  Co-Chair, *North Carolina Incident Management Team*
- **Kim "Dirt" Murphy**
  Co-owner, *Rainbow Path Wellness*

Special thanks to Jade Dundas, appreciation for all City staff tasked with making the discovery / RFI process run smoothly.

Process involved more than 50 hours of one-on-one interviews with:

- City staff
- Elected officials
- News media
- Community leaders
- Business leaders
- Impacted customers

Process also involved document review, including COMMS and emergency response plans.

Communications (COMMS) - SITREP at Start

SITREP needed to provide fair review of initial response.

Holiday timing. Staff and public at home enjoying the holiday weekend or out of town.

Belief took shape that a few breaks were the main cause. Led to guarded COMMS.

Mills River going offline not a major concern. "Operational COMMS approach" begins.

Unfair to treat decision-makers as if this event happened during a typical work week.

Holiday timing played into the initial COMMS decisions.

"Hope" by water staff could address situation without alarming public on Christmas. Belief main break repairs could end incident drove initial COMMS. (Ex. 1st AVL Alert.)

"Operational approach" to public COMMS leads response; Water team leads COMMS. Can work for minor events. Creates problems during major events.

COMMS staff, while asking right questions, strictly in a "producer" role.
Not in lead for COMMS decisions. Lack of knowledge of the system.

Communications (COMMS) – First 72 Hours

KEY FINDING: "Operational Approach" to Public Communications used.

- Prioritizes operational objectives - finding & fixing problems - over public information. Often used. Holds difficult COMMS that should be made hoping they won't be necessary. If issues are quickly found & fixed, works well. If not, instant COMMS trouble.
- "Operational approach" kept Water Team in charge of COMMS. COMMS on-call staffer followed procedures but not experienced with water system. Couldn't fully advise Water Team but asked proper questions. Produced the information as provided.
- Water Team internally declared a "major emergency" on Christmas Day. COMMS didn't relay level of concern. Water Team believed emergency could be solved with break repair(s). Experience with loss of plant led to restrained COMMS.
- "Emergency" definition kept Water Team in control of the response, including COMMS.
- Loss of plant should've triggered widespread public COMMS. Best practice: Inform about changes in water source. Water Team stated composition change was minor.
- Unnecessary DHS concern caused confusing COMMS re: Mills River. MR not named.

Communications (COMMS) – First 72 Hours

KEY FINDING: Lack of a proper crisis COMMS plan, structure, and process.

- National Incident Management System (NIMS) / Incident Command System (ICS) was not used for public information decisions and process. Public Information Officer was not placed in the proper role or given the appropriate level of responsibility.
- Under NIMS / ICS, PIO only reports to the Incident Commander.
  Able to determine COMMS with limited interference.
- With the lack of a strong, outlined structure, COMMS adversely impacted overall response. Never achieved COMMS rhythm. Getting into a constant, consistent public information process is essential to crisis COMMS.
- Lack of an established COMMS process led to subject matter and COMMS staff recommendations being overridden by politicians.
- Distrust of news media factored into COMMS process.
  Mass media is #1 outlet for crisis COMMS but was not properly used.
- Press conferences supplement regular release of information. Not well executed.

Communications (COMMS) – First 72 Hours

KEY FINDING: Lack of a proper crisis COMMS plan, structure, and process.

- Water Team control over AVL Alert usage led to using AVL Alerts as a primary vehicle for public notifications.
- Notification systems should not be the primary vehicle for emergency alerts.
- AVL subscription number falsely given as an outage estimate. “About 38,000.” Inappropriate attempt to give scope. However, it OVERestimated outage numbers.
- City Manager involved early in the response. Contrary to coverage, CM carried out proper response role, especially re: COMMS. CM does not serve in a COMMS role during a crisis. Facilitator for overall response.
- One area for acknowledged improvement from CM was failure to manage elected officials’ involvement in crisis response and COMMS process/messaging.

Communications (COMMS) – First 72 Hours

KEY FINDING: Lack of crisis COMMS & water system training kept COMMS staff from fully serving in a COMMS leadership role.

- Largely reduced to "producers," creating/delivering content as directed from multiple leaders.
- Without NIMS/ICS in place, quality control/final approval processes overrun by multiple players, resulting in significant delays that created information gaps.
  Info gaps cause major public problems during crisis situations.
- Political leaders directly involved in COMMS decisions & messaging.
  Not a best practice, especially in crises. Answer politician questions? Yes.
  Direct COMMS involvement, including final decisions? No.
- "All hands" led to harmful delays. Resulted in "kitchen sink" press releases that included every possible detail, overwhelming key facts. Messaging for pressers changed on the fly.
- Asheville's infrastructure limitations harmed the ability to arrive at - and release - important information. "Electric outage" map not possible. (Common in water.)
- "Radio read" meters can't deliver the information key stakeholders & the public expect.

Communications (COMMS) – “24 to 48 Hours”

Second major focus of the report: The decision to tell the public that service would be restored in 24 to 48 hours on December 27th when there was little chance service would be restored by that timeframe (tanks had not started refilling).

- *Why? Not a message Water or COMMS staff would use because of possible impacts on public health. Different public choices are made when it’s “1 or 2 days" v. “3 to 5 days" (or longer.)*
- Frustration from elected officials understandable. Couldn't provide information that seemed basic to provide. However, pressure was put on staff to provide information that shouldn't have been given. Placed public health at risk.
- Multiple staff from multiple departments, including the Mayor, confirmed Mayor placed direct pressure on Water Team and COMMS staff to release a "restoration” timeframe. Water and COMMS staff strongly objected. No timeframe could be confirmed as true.
- "Job-threatening" levels of pressure brought by Mayor. Led Melton to say: "I guess we can say we have a goal of 24 to 48 hours.” Became public message. Expectations set with public. When missed, all public trust lost. No other COMMS mattered.

Communications (COMMS) – Recommendations

The "operational COMMS approach" needs to be replaced with a system where COMMS professionals are elevated in importance. Not just influence, but direct oversight of the crisis communications planning and implementation.

***This can be accomplished in several ways*:**

1. The hiring of a Public Information Officer dedicated to the WRD (already in motion).
2. Crisis COMMS training for ALL CAPE staff, based on the Incident Command training program, to provide redundancy and ICS shift flexibility.
3. The institution of the COMMS portion of the Incident Command System under the National Incident Management System. This can be used by COMMS, even if Asheville does not incorporate NIMS and ICS into emergency response plans (all indications are these steps are being recommended by other committees).
4. Using the COMMS portion of ICS places the COMMS responsibility with the Incident Commander and the Public Information Officer. No one else is responsible for leadership over COMMS decisions or staffing.

Communications (COMMS) – Recommendations

The "operational COMMS approach" needs to be replaced with a system where COMMS professionals are elevated in importance. Not just influence, but direct oversight of the crisis communications planning and implementation.

***This can be accomplished in several ways*:**

5.
6. Media training for all COMMS-related staff and department leaders.
7. NIMS / ICS training and certifications for City staff responsible for crisis COMMS. Certifications include NIMS/ICS 29, 42, 100, 200, 700, 800, and FEMA Basic PIO L105 (FEMA class is already being given with numerous COA and Buncombe County members participating).
8. Regular engagement with Buncombe County COMMS staff.

Emergency Response

Subcommittee Members

- **Dennis A. Fagnant, Jr., CFO**
  Fire Chief, *West Buncombe Fire Department*

- **Rob Brisley**
  Co-Chair, *North Carolina Incident Management Team*

- **Kim “Dirt” Murphy**
  Co-owner, *Rainbow Path Wellness*

Emergency Response

The Emergency Response Sub Committee has established five major findings:

- The use of the Incident Command System was not implemented as outlined in the National Incident Management System guide and as directed by Homeland Security Presidential Directive 5.
- Inconsistent or complete lack of training for elected officials, city management, and operational staff surrounding emergency management/response.
- There was no consideration for the implementation of a Unified Command although the incident extended beyond the municipal borders of Asheville.
- Emergency Response approach was appropriately guided by FEMA Community Lifelines but failed to acknowledge the community perception and reaction to the crisis. Communications with community partners was either absent, lacked consistency, and/or was inaccurate.
- Outdated and vague Emergency Operations and Continuity of Operations Plans.

Emergency Response

Recommendations (Incident Command System)

- Implement, train, and exercise one Incident Command System.
- Preplan (train and exercise) who will fill command staff and general staff positions.

Emergency Response

Recommendations (Emergency Response Training)

- Establish minimum training for elected, city management, and senior leaders, and supervisors (customer forward centers) within the City of Asheville.
- Establish training surround the Emergency Operations Plan and Continuity of Operations Plan.
- Establish and implement an exercise schedule to include the opening of an EOC and Unified Command/Multi Agency Coordination Group.

Emergency Response

Recommendations (Unified Command)

- Ensure community stakeholders have a voice when incidents spill outside municipal boundaries.
- Buncombe County should take an active roll to ensure inclusion in such events.
- Form a joint Incident Management Overhead team between the City of Asheville and Buncombe County.

Emergency Response

Recommendations (Communications / Response)

- Pulse of the community.
- Training to operate within an Incident Command System.
- Activation of an EOC to monitor and plan for crisis response.
- Information pushed to the community needs to be timely and accurate.

Emergency Response

Recommendations (EOP / COOP)

- Both plans are in the process of being revised. The sub-committee urges a commitment to remain within the established 5-year revision cycle.

- Vague wording [throughout] requires attention. The current EOP calls for the mayor to:

“monitor the emergency response during disaster situations and provide direction where appropriate.”

Without training, what does this mean and what are those duties?



Thank You!

Questions and Comments