Responding to Mutual Aid Request

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Renewable Water Resources
Critical Infrastructure - "systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters."

Essential Services
Backbone of our economy, security and health

- Water & Wastewater
- Power
- Transportation
- Communication
Mutual Aid Agreements

- SCWARN
- National Fire Service
- American Public Power Association
Emergency Operations Manual

Priority

- Must have an Emergency Operations Manual (EOM)
  - Protocols, Procedures
  - Inventories
  - Contact Information
- Annual Update
NIMS & ICS

Presidential directive (HSPD-5) that requires all utilities and public works agencies to comply with NIMS and ICS structure during emergency operations

- Allows interoperability between all responding agencies in an emergency (police, fire, utilities, public works, etc.) ***All on same page***
- Requirement for receiving any federal funds, grants, etc.
- DHS / FEMA training required
SC Water/Wastewater Agency Response Network (SCWARN) is a network of utilities helping utilities to:

- Share personnel and other resources statewide
- Prepare for the next natural or man-made emergency
- National program

Past disaster response tells us that:

- Water and WW Utility operations are specialized
- Utilities must be self-sufficient and fill the gap between disaster onset and arrival of other government aid
SCWARN Stats
- Formed in 2007
- 94 utility members
- Includes public and private utility members
- 65% population covered
- www.scwarn.org
- Has an operational plan
- SCWARN has activated

South Carolina

• Coordinates through “utility to utility” contact via the interactive website, phone call or email
• In addition to member utilities, the Steering Committee includes a representative from the South Carolina Department of Health and Environmental Control, Emergency Management Division, Rural Water Association, American Water Works Association and the Water Environment Association of South Carolina
• Represented at the state Emergency Operations Center
• Successfully activated in 2013, 2015, 2016 and 2017
• Held multiple workshop and tabletop exercise’s
• Participated in the U.S. EPA Region 4 EMAC workshop
• On going goals:
  o Increasing the number of member utilities
  o Strengthening the relationship with response partners

WARN Chair: Jill Miller, South Carolina Rural Water Association
Contact info: 864-238-0505; jill@scrwa.org

WARN Vice Chair: Mark Forrester, Gilbert Summit Rural Water District
Contact info: 803-892-5544; mwforrester@comporium.net

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Photo: October 2015 Columbia Flooding
The average per year cost of natural disasters is **$52 billion** and **480 lives lost**.

**Costliest U.S. Disasters**
- 1988 drought; $40 billion & 10,000 deaths
- 1993 Midwest floods; $21 billion & 48 deaths
- 2005 Hurricanes Katrina & Rita; $85 billion & 1,843 deaths
- 9/11/01 Terrorism attacks; $40 billion & 2,751 deaths
- 10/8/16 Hurricane Matthew; $6 billion & 43 deaths in US
Matthew made one official U.S. landfall on Oct. 8 at 10:45am southeast of McClellanville, South Carolina, as a Category 1 hurricane with 75 mph winds.

- The hurricane claimed the lives of an estimated 1,000 people in Haiti.
- The hurricane has claimed 43 lives in the U.S.
- The confirmed deaths include: 26 in North Carolina; 12 in Florida; 4 in South Carolina; 3 in Georgia; and 1 in Virginia.
- Rain fall amounts in SC: Beaufort 14.04”; Hilton Head 11”; Charleston 10.48”
- Most rain fall amounts: Savannah 17.49”; Goldsboro, NC 15.24”; Fayetteville 14.82”
- North Carolina had over 2,333 water rescues
SCWARN Mutual Aid

10/7/16 Town of Awendaw
- Requested one 50 kW generator - North Charleston Provided

10/9/16 Beaufort Jasper Water and Sewer
- Requested Four 80 kW & one 125 kW generator – ReWa Provided Five (two 80, two 150, one 110 kW)
- Requested one 250 kW generator – Greenwood Metro provided
- Requested chain saws & miscellaneous equipment – Rewa Provided
10/10/16 South Island
- Requested six 20 kW generators – Mt. Pleasant & North Charleston Provided

10/10/16 Beaufort Jasper Water and Sewer - #2
- Requested ten 4” centrifugal pumps – Mt. Pleasant, ReWa, Anderson County, Charleston Water and City of Camden Provided
10/10/16 Hilton Head PSD
- Requested two 6” centrifugal pumps w/hoses – Lexington & James Island Provided
- Requested one 4” centrifugal pumps w/hoses – James Island Provided
- Requested three 3” centrifugal pumps w/hoses – ReWa Provided

10/12/16 Fripp Island
- Requested one 200 kW generator – Beaufort Jasper/ReWa Provided
- Requested one 100 kW generator – Beaufort Jasper/ReWa Provided
- Requested two 3” mud hogs – Beaufort Jasper/ReWa Provided
- Requested three WW Collections Operator – Beaufort Jasper/ReWa Provided
The Battery in Charleston SC the day before and the day of Hurricane Matthew
South Carolina Natural Disasters

- 10/8/16 – Hurricane Matthew
- 9/6/16 – Tropical storm Hermine
- 5/30/16 – Tropical storm Bonnie
- 10/5/15 – Severe storms and flooding
- 2/1/14 – Severe winter storms
- 1/20/06 – Severe ice storm
- 10/7/04 – Tropical storm Frances
- 9/15/04 – Tropical storm Gaston
- 9/1/04 – Hurricane Charley
- 2/13/04 – Severe ice storm
- 1/8/03 – Severe ice storm

- 1/31/00 – Winter storms
- 9/21/99 – Hurricane Floyd
- 9/4/98 – Hurricane Bonnie
- 9/30/96 – Hurricane Fran
- 10/22/90 – Flooding, severe storm
- 9/22/89 – Hurricane Hugo
- 3/30/84 – Severe storms, tornadoes
- 8/20/55 – Hurricanes
- 10/17/54 – Hurricane
Pinnacle Mountain Fire

- Began on November 9th 2016
- Burned 10,623 acres as of December 5th
- Estimated cost of $4.8 million
- Threaten the Greenville Watershed
SCWARN Mutual Aid

Pinnacle Mountain Fire - Greenville Water/Forestry Commission

- Requested 4x4 trucks with water tanks, pumps, hoses – ReWa Provided

ReWa sent 5 employees and two trucks for multiple days. These trucks were sewer cleaner trucks, but they are very similar to rough-country heavy brush fire trucks. Responded as far north as Brevard.
Hurricane Irma Response
Lessons Learned

- Be prepared no matter what EMAC states
- Always inspect tires on equipment
  - Take spare tires
- Relationships Prior to Emergencies
- All vehicles and equipment checked and certified roadworthy and safe before departure.
- Method of funding for local purchases (fuel, repair parts, food, hotel rooms, etc.)
- Take sleeping bags, cots, etc.
- Whether equipment is to be left in the care of the requesting utility or staffed by ReWa.
- Top off trucks, generators and other equipment with fuel & fluids before departing ReWa compound.
- Confirm refueling stations along route, including hours, accessibility, & fuel availability.
- Obtain appropriate state DOT clearance for convoy by-pass of weigh stations.
- Identify & arrange for any markings, credentials, documents, or escorts required for passage through roadblocks or into restricted areas.
- Put all equipment through an operational check before departing.
- Verify responding vehicles have inflated spare tire & working jack, tire plug kit, and “fix-a-flat” can (flat tires are common and frequent in structural disaster areas).
- At least one vehicle to carry a portable air compressor or full air tank.
- Based on equipment being sent and availability of local maintenance services, does a vehicle/equipment mechanic and maintenance truck need to accompany the group?
- Responding employees aware of 24-hour duty status and pay policy.
- Expected times for in-charge person to call in to ReWa with status reports.
- Availability of telecommunications for in-charge person to call in to ReWa with status reports.
- Forms on board for tracking mileage, labor, task assignments, and runtimes for billing purposes and FEMA cost recovery.
- All crews aware of requirement to document mileage, labor, task assignments, and runtimes on a continuous basis.
- Directions and contact information placed in each vehicle in case of separation from group.
- Regrouping points identified along route in case one or more vehicles are separated.
- Crews briefed on convoy safety and importance of maintaining distance while not losing the vehicle behind them, how to signal vehicle ahead they need to stop, etc.
The Good

1. EMAC worked

Needs Improvement

1. Needs to be a standardized MRP cost estimate spreadsheet – it looks like different states are using their own format – SC’s excel spreadsheet is somewhat difficult to fill out with many line items that is not needed (IMO)
2. I think it would be good to have a flow diagram on the EMAC process. (Requesting utility contacts their state EMD EMAC Coordinator which starts the EMAC process. Then does the EMAC coordinator send the EMAC to the WARN chair/contacts? Then the WARN’s send it out to their states utility members?) This was our process here in SC.
3. As far as the EMAC from Florida, it stated that housing would be provided in utility buildings with generator power, which did not happen. They were not prepared for us to mobilize on the date listed on the EMAC. I know this is more about training instead the EMAC itself.