Drinking Water Systems Emergency Response

LDH OPH Bureau of Engineering

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LDH OPH Bureau of Engineering

- Support the Governor's Office of Homeland Security and Emergency Response (GOHSEP) – Emergency Support Function (ESF) 12 – Utilities
  - **LDH – Drinking Water – some assistance with wastewater utilities**
  - LDEQ – Wastewater
  - PSC – Electric Utilities
  - LDNR – Oil and Gas Utilities and Generators
- Maintain data relative to water use advisories and water outages
  - Boil Advisories
  - Do Not Drink
  - Do Not Use
- Waterworks Warning Network
- Provide guidance regarding bulk water requests

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Activities

- Assess damage to water utilities (phone, email, and field assessments)
- Collect and analyze drinking water samples
  - Chemical
  - Bacteriological
- Provide guidance and assistance with acquisition, mobilization and employment of resources (bottle water, generators, fuel)
- Review water utility restoration plans & activities
- Lead response activities of water systems. Assist and coordinate with EPA & LDEQ on response activities for wastewater utilities
- Track and update water systems' statuses using Response Manager
- Assist and coordinate with LaWARN and volunteer agencies (LRWA)

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Extreme Weather Events

- Conduct phone calls and onsite assessments to determine if utility lost pressure, sustained damage, and document any needs the water system may have.
- Issue Water Safe to Drink and Water Not Safe to Drink advisories for all affected water systems.
- Provide guidance relative to bottled water, water hauling and emergency generator/fuel delivery
- Conduct bacteriological testing of public water systems
- Man GOHSEP ESF12 desk and coordinate efforts
- Generate maps and reports to support emergency field activities and update facility status
- Assist with recovery cost estimates for emergency assistance funding

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When is a Boil Advisory Issued?

- Incidents that require a Boil Advisory:
  - Critical treatment failure
  - Waterborne disease outbreak
  - Loss of pressure in the distribution system (DS)
  - Monitoring that reveals harmful microbial presence (E.coli)
  - Water main break that allowed dirt/debris into DS
  - Hazardous spills and insufficient treatment
  - Hurricane affected areas until system status is known
    - If LDH is not able to contact you after the event to determine your water system status – the water system will be on a boil advisory out of an abundance of caution.

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Safe and reliable drinking water is important to every community.

Emergency response planning is an essential part of managing a water system.

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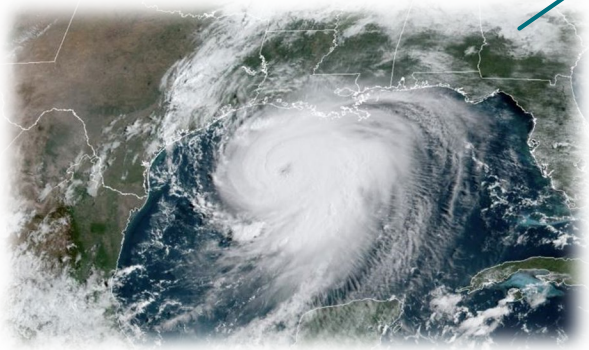
Recent examples



Hurricane Laura
August 27, 2020
Southwest LA

Winter Storm Uri/Viola
February 12 – 21, 2021
North/Central LA

Hurricane Ida
August 29, 2021
Southeast LA

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Hurricane Laura

Cameron #10 – Holly Beach

City of Lake Charles

Cameron #10 – Holly Beach

City of Lake Charles

LDH Staff – Holly Beach site visit

Storm Notes

- Water system damage
  - Severe infrastructure damage throughout storm area
  - Power issues / generator issues
- ~250 water systems impacted by the storm
- 103 systems at peak measure without water (INOP)
- 149 systems at peak measure with impaired service (BWA)
- LDH performed 92 field assessments in 8 parishes over 4 days

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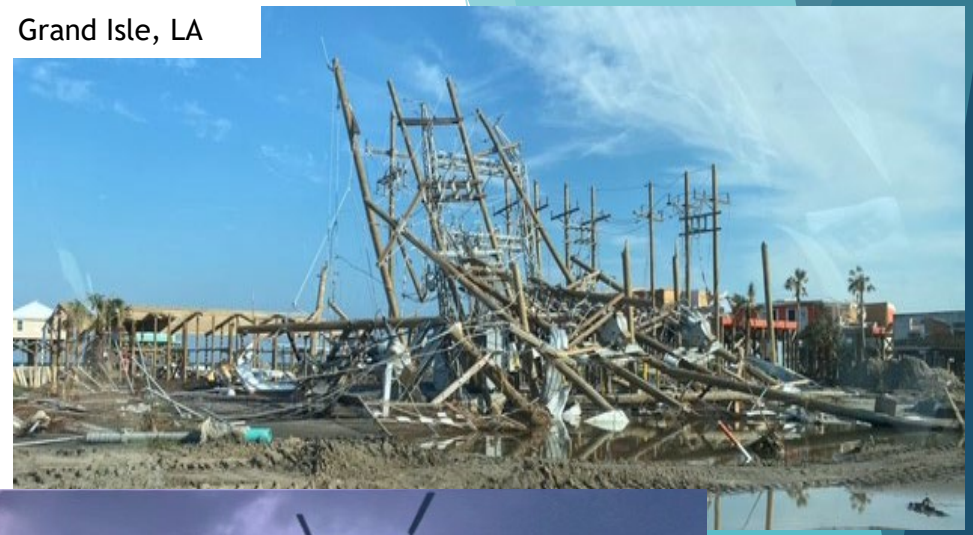
Hurricane Ida

Grand Isle, LA



Houma Area WS – Lower Terrebonne (Dulac)

St. John District #3 WS

IDA (2021)

ISAAC (2012)

Generator delivery to Port Sulphur in Plaquemines Parish

Storm Notes

- Water system damage
  - Severe communication disruption
  - Chemical Shortages and supply issues
  - Power issues / generator issues
  - Terrebonne EST
  - St. John flooding
  - Grand Isle water main break

- ~321 water systems impacted by the storm
- 228 systems at peak measure without water (INOP)
- 231 systems at peak measure with impaired service (BWA)
- LDH performed 104 field assessments in 5 parishes over 4 days

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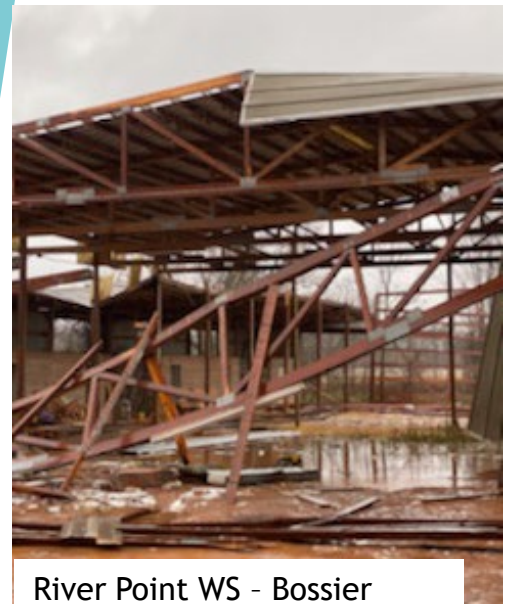
Winter Storm Uri/Viola



River Point WS – Bossier Parish

Tensas WD Assoc. – Tensas Parish

Shreveport Water System – Caddo Parish

Storm Notes

- Water system damage
  - Pressure loss due to leaks mainly on customer piping
  - Power issues / generator issues
- Shreveport Infrastructure issues and Critical Facilities
- ~400 water systems impacted by the storm
- 104 systems at peak measure without water (INOP)
- 313 systems at peak measure with impaired service (BWA)
- LDH performed over 9,000 assessments during the event

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Communications with LDH during an event

- STAFF ASSIGNMENTS WITH RELATIONSHIP BUILDING IN MIND
- Assessments are shifted within the event with high priority cases being handled by senior staff. Priority generally dictated by population.
- “How do you think I’m doing? A Category 5 hurricane just hit my water system.”
  - Managing contact without being a hindrance
- Battle Fatigue

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Calls, Calls…another call.

- District staff will call systems for updates to assessments. Number of assessments and timing set by reports required by the Governor.
- Texting is also used and very helpful.
- Email will be used to relay detailed information. Remember to look for these from the District Engineer or other District staff members.
  - Pay attention to the details
- If you need something = Call LDH.

New Reporting Software in our Future!!

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COMMUNICATION IS KEY!!

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Are you ready to sample?

- Additional measures and schedules (BTN)
- A minimum of five samples or half of the system's normal monthly samples
- Check sample bottles for expiration date
- Note on the Lab 8 form that it is for a Boil Advisory and what event
- Normal power must be restored.
  - Why can't I submit sample while I'm on a generator?
- LDH can help.

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Lets prepare….How can a water system strengthen its resiliency?

- Make sure all employees have the proper equipment for the conditions.
- Check supply inventory.
- Stock up on supplies in case employees need to stay overnight.
- Exercise valves.
- Weatherproof booster stations.
- Stock extra fuel and chemicals.
- Keep a current list of critical vendors and chemical suppliers.

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Customer Communication

- Communicating with customers is an important part of preparing.
- Communicating with customers helps to create a trustworthy relationship, especially during an emergency.
- Help make sure customers are prepared by sharing resources like information on how to winterize their homes and prevent frozen pipes.
- Draft water advisory messages ahead of time to ensure customers follow public information protocols and have appropriate distribution channels.

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Planning

- Identify priority customers (such as hospitals, medical facilities, prisons)
  - Obtain contact information
  - Map of locations
  - Develop a plan to restore these customers first
- Establish a plan to provide water in case of a water outage
  - Bulk water hauling
  - Bottled water pick up stations
- Establish mutual aid networks with other water systems
  - Personnel – boots on the ground to help with repairs
  - Supplies – water treatment chemicals, etc.

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Planning

- Interconnections between neighboring systems.
- Notify power company of critical needs – what facilities need power first?
- Start notifying the customers early of how to prevent breaks in their homes, what to do if a pipe breaks, how they can help prevent water outages.
- Make sure all system maps are up to date.
- Fuel for generators
- Vendors for treatment chemicals

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Generators

- Determine Backup Power Needs:
  - Critical need. Equipment essential to maintain public health protection
  - Secondary need. Equipment that would enhance operation, but is not critical (e.g., SCADA components).
  - Noncritical need. Equipment provided for convenience/comfort, but not essential (e.g., pumphouse lights).
  - Within the critical needs determine the required voltage, phase configuration, and horsepower/amperage requirements.
  - List all your critical electrical equipment and their starting order to determine required starting power.
    - At a minimum, generator(s) must have the capacity to supply the maximum starting power demands and the running demands of the connected equipment.

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Generators

- Fuel Type
- Hook-Up Method
- Location - Emergency generators must be able to withstand climate extremes and be able to operate under all conditions.
- Operation and Maintenance Tips
  - Exercise generators periodically under the actual electrical load required of the unit to keep it ready for use
  - Develop a “start and connect” checklist specific to each individual generator and keep it handy
  - Do not operate the generator in excess of its rated capacity
  - Be sure the generator is properly grounded
  - Perform scheduled maintenance as recommended by the generator manufacturer
  - Incorporate fuel management into the maintenance schedule to ensure availability of clean, reliable fuel
  - Keep the generator dry by keeping it elevated and away from possible flooding
  - Support electrical cords off the ground and do not let cords run through low-lying areas or puddles
  - Replace any cords with damaged insulation
  - Train all staff on how to operate the generator safely

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Resources

- https://ldh.la.gov/index.cfm/page/549/n/281
- https://www.epa.gov/waterutilityresponse
- https://www.epa.gov/sites/default/files/2016-03/documents/waterwastewatersystemgeneratorpreparedness.pdf
- https://www.epa.gov/system/files/documents/2021-10/incident-action-checklist-extremecold_508c-final.pdf
- https://www.epa.gov/region8-waterops/preparing-natural-disasters-drinking-water-systems-epa-region-8
- https://lrwa.org/wp-content/uploads/2017/10/LaWARN-Brochure.pdf
- https://lrwa.org/wp-content/uploads/2017/10/LaWarn-Mutual-Aid-Agreement.doc
- https://lrwa.org/wp-content/uploads/2017/10/Application-LaWARN.doc

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