

## PRECAUTIONARY MEASURES FOR WATER SYSTEMS BEFORE, DURING, AND AFTER A MAJOR HURRICANE

### BEFORE THE HURRICANE: PREPAREDNESS CHECKLIST

#### General & Communications

- Review your Emergency Response Plan to establish familiarity with response protocols.
  - Verify internal and external emergency contact information is current.
  - Ensure all communication equipment is operational and charged (replace batteries if necessary).
  - Place operating/emergency response personnel on call and review emergency procedures.
  - Activate emergency repair/service crews.
  - Verify the operator on call has the up-to-date emergency contact lists.
  - Ensure all emergency response personnel possess appropriate credentials, i.e. company issued photo ID, in the event they are detained by law enforcement due to local/state travel restrictions.
  - Establish communication protocols with local authorities; Office of Emergency Management; Police Department; and Fire Department.
  - Make arrangements with your electrical power utility to be recognized as a priority restoration customer.
  - Verify that all vital records, such as as-built drawings, distribution maps, wiring diagrams, emergency operation & response plans are secured in safe areas and that appropriate personnel have copies as needed.
  - Stock up on first aid supplies, batteries and flashlights. Additionally consider a supply of non-perishable food for essential personnel who remain on-site or are considered first responders.
  - Establish alternative transportation for rotating in essential employees if roads are impassable at points. Advise personnel to bring extra clothes, sleeping bag, extra batteries, medications and other essentials to enable extended shifts.
  - Establish alternative means to communicate with staff and your consumers in the event that power is lost or other interruptions in communications occur.
  - Prepare Water Conservation messages and Boil Water Advisories for distribution, as needed. Resources: <http://www.nj.gov/dep/watersupply/> and [http://water.epa.gov/lawsregs/rulesregs/sdwa/publicnotification/compliancehelp\\_templates.cfm](http://water.epa.gov/lawsregs/rulesregs/sdwa/publicnotification/compliancehelp_templates.cfm)
  - Verify ability to electronically submit the Water Supply Emergency Incident Report Form and/or the Drinking Water Sector – Damage Assessment Form to NJDEP, Division of Water Supply & Geoscience ([wsemergency@dep.nj.gov](mailto:wsemergency@dep.nj.gov)). Forms available at <http://www.nj.gov/dep/watersupply/emergency.html>
  - Establish resource sharing capabilities for equipment, chemicals, personnel, etc. by being a member of NJWARN or establishing one-to-one agreements with neighboring utilities.
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## Facility Preparations

- Fuel all vehicles and emergency generators.
- Ensure that all supplies, including water treatment chemicals and fuels, are fully stocked and secured to the maximum extent possible. (Expect delivery delays of at least three days after the storm.)
- Inspect auxiliary power generators for proper servicing and test under load to ensure they are in good working order.
- Ensure emergency lighting is operational
- Run diagnostic tests on SCADA and other automated control systems to ensure all monitoring and alarm functions are operational.
- Ensure staff are familiar with the manual operation of processes in the event that SCADA controls are compromised.
- Sand-bag well houses and treatment buildings that may be subject to flood surge.
- Move essential equipment and vehicles to high ground – above expected flood crest.
- Verify all chemicals and supplies are off the floor in a dry room protected from flooding
- Verify all chemical bulk storage tanks are properly labeled including chlorine cylinders and chemical mix tanks (This will help with identification if they are swept away)
- Fill finished water storage tanks, especially elevated tanks, to the extent possible and maintain levels as much as possible during the hurricane event, this serves multiple purposes:
  - Assists in maintaining fully pressurized water mains during the storm.
  - For gravity feed areas, it makes water available in the event of power outages
  - Weighs down elevated tanks that may be affected by heavy winds and flooding.
- Consider removing from service transmission mains that are exposed pipes at river crossings.
- Prepare to isolate/valve-off portions of distribution system that are more prone to damage as a last measure. Coordinate this action with local Fire Department.
- Check operability of major two-way emergency interconnections, where applicable.
- For surface water systems:* Set criteria in which you may want to curtail production to meet turbidity standards and set criteria for the issuance of a Boil Water Advisory (based on turbidity levels in filtered water).

## DURING THE HURRICANE: CONTINUAL ACTIONS

Monitor all critical infrastructure components for signs of trouble.

Monitor *radio stations* serving your area for emergency public service announcements. Radio Station Listing available at [http://www.state.nj.us/dep/watersupply/dws\\_security.html](http://www.state.nj.us/dep/watersupply/dws_security.html)

Should a critical component of the system fail or produce water that could be of questionable quality, quickly decide whether it's safe for your customers to continue to use the water for potable purposes.

If uncertain about the appropriateness of issuing a Boil Water Advisory:

- Contact the NJDEP, Bureau of Water System Engineering or the Regional Office of Water Compliance and Assistance during working hours or the NJDEP hotline at 1-877-927-6337 (1-877-WARN DEP) during non-business hours.
- If you are unable to reach State personnel for consultation, you need to take timely action and declare a water emergency and inform your customers to be on a Boil Water Advisory consistent with Tier 1 Public Notice required under 40 CFR 141.201.
- If you declare a water emergency you need to immediately contact your local emergency management officer, and notify the Bureau of Water System Engineering at 609-292-2957 during business hours, and the NJDEP hotline at 1-877-927-6337 (1-877-WARN DEP).
- If your water system is regulated by the NJBPU, notify the BPU at their 24 hour emergency contact number.

If a non-critical component of your system fails or is threatened by flood and you are still capable of maintaining service, remove that component from service and report to the NJDEP the next business day.

## AFTER THE HURRICANE: ONGOING ACTIONS

Inspect water system infrastructure for damage, including flooded/submerged wellheads;

Report any service interruption or any significant problems (including flooded wellheads) that have or could have impacted water quality within 6 hours to the NJDEP hotline at 1-877-927-6337 (1-877-WARN DEP)

Submit an initial Damage Assessment using the NJDEP's approved form and the "Water Supply Emergency – Incident Report" following the emergency incident. Both forms are available on-line at the Division's Website <http://www.nj.gov/dep/watersupply/emergency.html> ). The forms should be submitted electronically to the Division's general email address at [wsemergency@dep.nj.gov](mailto:wsemergency@dep.nj.gov) .

Appropriate disinfection of flooded infrastructure, i.e. supply wells, treatment facilities, must be in accordance with AWWA standards. The effectiveness of disinfection procedures must be verified by performing microbiological testing of the water quality before reactivating the impacted infrastructure. If flooding of well heads was severe, consider testing for other parameters, such as VOCs & IOC's.

Collect additional microbiological samples from the distribution system to assess the potential for water quality compromises caused by an undetected problem.