

SUGGESTED PRE-EXTREME WEATHER PREPARATION ACTIVITIES FOR WASTEWATER FACILITIES

General:

1. Identify and schedule emergency operations and cleanup crews. This could consist of heavy equipment and extra personnel to assist in clean-ups after the storm.
2. Adjust work schedules and update contact information so that key staff members are onsite or can be reached to keep all services operational if the facility remains online or to shutdown and startup facilities if and when necessary.
3. Review your emergency response plan with personnel and make sure emergency contact information is current and readily available.
4. Notify, ahead of time, and set up clear lines of communication with local police and fire department, in case of an injury or other emergencies. Request that local law enforcement check on any staff that remain onsite at the wastewater system. If communication channels are down with these sites, this check needs to continue on a routine basis until communication channels are reestablished.
5. Make arrangements with the local power utility to be prepared to restore power to the wastewater system as a priority customer.
6. Pre-arrange to purchase materials and supplies and to borrow/lease heavy equipment needed to make repairs to the wastewater system. This could include piping, valves, chemical feed-line tubing, and hydrants.
7. Make arrangements to have materials and chemicals delivered to your location as soon as it is safe and you are ready for operation.
8. Stock up on first-aid supplies, batteries, flashlights, and cellular phones or other wireless communication devices. Check all normal and emergency communication equipment and charge or replace batteries.
9. Stock an adequate supply (one week) of non-perishable food and water for any essential persons that remain on site or are considered first responders to the wastewater system.
10. Establish alternative transportation strategies for rotating in core employees to the facility if high water or debris prevents travel. Personnel should bring a jump bag with them, which contains change of clothes, sleeping bag, flashlights, extra batteries, medications, and other essentials.
11. Make sure all essential personnel are trained to shut down and start up system in case of emergency.
12. Notify the Emergency Management Agency (EMA) and the wastewater primacy agency for your State if a plant is taken off-line or you are unable to operate the system. Be sure to obtain EMA and primacy locations before any potentially known disasters occur such as a hurricane.
13. Review conveyance system maps to ensure they are up-to-date. Extra copies may be necessary for staff working in the field.
14. Establish which media you will use for customers to access information and press advisories.

Grounds and Common Areas:

17. Inspect treatment facility for security concerns. Test backup lights and generators.
18. Move equipment or vehicles out of flood-prone areas to a secure location.
19. For all systems, check backup pumps and controls.

20. In addition to regular preventive maintenance, all systems (surface, ground and purchased) should check backup chemical feeders and all pumps and motors. Verify that spare pumps, motors and other necessary spare parts are available.
21. Check manual controls and oil levels.
22. Fuel and service vehicles. Stock service vehicles with equipment and supplies.
23. Have sufficient supplies of sand bags available and sandbag the entrances, the area around critical equipment, and other critical areas.
24. Ensure that emergency electrical generators are not located in flood-prone areas of the facility. Obtain extra fuel for generators. Ensure adequate number of generators for systems that require generators for pumping operations.
25. Board up all windows and doors to prevent wind damage, as necessary.

Administration and Laboratory Buildings: (relocation of movable assets may be necessary)

26. Secure important records in a well-protected location, including plant operations manual and conveyance (sewer) system mapping.
27. Remove all sensitive laboratory equipment from the flood zone, where possible. Remove portable electrical equipment and small motors from the flood zone.
28. Protect computers from potential damage.
29. Check bacteriological sampling materials -- be prepared for increased or special monitoring after the storm.
30. Remove or store furnishings in a safe place, when practical.
31. Disconnect electrical power to the water system building, workshops, or offices if possible.

Treatment Plant and Pumping Stations:

32. Run diagnostic tests on Supervisory Control and Data Acquisition (SCADA) and control systems.
33. Conduct manual operational drills in case the SCADA system is out of order.
34. Depending on the severity of the storm forecasted, consider going off the grid and use emergency generation capacity in anticipation of a power outage. This can prevent operational disruptions and protect sensitive equipment.
35. Determine the need for equipment protection due to undervoltage or overvoltage.
36. Plan for a "backup" to your backup power. One option is to reserve or rent a portable generator.
37. All pump stations should be in a well-drained area and be designed to remain in operation during flood events. If not, the pumps should be shut down and protected from electrical damage if they should become submerged.
38. Check that all chemical bulk storage tanks are properly labeled to include chlorine cylinders and chemical mix tanks. This will help in identification should these items be washed or wind-blown away.
39. Be sure all dry chemicals are stored off the floor in a dry room that is protected against flooding and water from floors, walls and ceilings.
40. Check chemical inventory. A storm event could cause a greater demand for disinfectant to address broken waterlines and increases in turbidity, so more disinfectant and coagulant chemicals may be required. Verify that the current supply of calcium hypochlorite (if used) is adequate for this potential increased use.

41. Remove or move chemicals to a safe area. If chemicals are removed from an underground or above ground tank, fill the tank with water, if possible, to prevent floating.
42. Remove fuel from underground storage tanks to prevent contamination and loss of the fuel. If possible move above ground fuel storage tanks to a safe, high area. Fuel will be needed for emergency and plant vehicles until new supplies arrive. Prepare for one week supply, if possible.
43. Remove electrical motors, where possible. If not, wrap the motors in plastic and seal as tight as possible, in order to protect the motor from silt, mud, and dirt. Any electrical motors that are submerged, should be cleaned and dried prior to start up to prevent damage.
44. Remove shop tools and electrical hand tools from wastewater system facilities.
45. Monitor tank levels. Fill elevated and ground storage tanks to full capacity. Storage tanks should be valved off from the distribution system immediately prior to the storm event to prevent loss of water during the storm.

Additional storm preparation materials can be accessed via the following websites:

A) Flood resilience- A basic Guide for Water and Wastewater utilities:

<http://water.epa.gov/infrastructure/watersecurity/emerplan/upload/epa817b14006.pdf>

B) Flood incident Action Checklist:

<http://water.epa.gov/infrastructure/watersecurity/emerplan/upload/epa817f15005.pdf>

C) Hurricane Incident Action Checklist:

<http://water.epa.gov/infrastructure/watersecurity/emerplan/upload/epa817f15006.pdf>

