

Hurricane Preparedness for Domestic Wastewater Treatment Facilities



INTRODUCTION

This document provides a list of recommended precautionary measures for persons (i.e., operators) that are responsible for safeguarding domestic wastewater facilities.

Many wastewater utilities may have developed their own emergency procedures as a part of standard operation practice. However, it is hoped that utilities may benefit from this information.

These precautionary measures have been placed on the DEP's internet website at <http://www.dep.state.fl.us>. Other related web internet sites include:

Federal Emergency Management Agency
<http://www.fema.gov>

National Hurricane Center
<http://www.nhc.noaa.gov>

Florida Department of Community Affairs
<http://www.floridadisaster.org>



HURRICANE PREPAREDNESS FOR DOMESTIC WASTEWATER TREATMENT PLANTS

Before the Hurricane:

1. Establish partnerships with the local players in the Emergency Management Community; know your county Emergency Manager and the functions/services available from the department. Work to help establish partnership with local, regional, and statewide utilities to provide a network of mutual aid assistance designated to help facilitate rapid response to emergency needs. Brief the Emergency Management staff on system capabilities and specific needs your system may have in an emergency.
2. Ensure that updated copies of as built drawings of the facility and collection system including all lift stations are available. These may be invaluable in locating valves, electrical boxes, manholes, force mains, etc.
3. Maintain in good repair all mechanical equipment.
4. Familiarize personnel with hurricane procedures. Be sure that all staff are fully aware of and understand their responsibilities and emergency assignments as well as reporting protocols. Conduct training exercises.
5. Areas subject to flooding should be studied. Areas prone to flooding include pump wells, pipe galleries, outside open tanks, manholes and other similar areas. Any special equipment required when these areas are flooded should be purchased.
6. Prepare a list of key people and how they can be contacted. Maintain accurate employee lists, emergency contact lists and detailed

action protocols. Communication networks can be a real problem after a hurricane. Some type of communication other than the telephone is essential. Portable radios (CBs) or cellular/satellite phones are suggested. Make sure extra batteries are available. Develop protocols to follow if telephones fail and cell phones will not work.

7. Power outages may be common after a hurricane. Check all auxiliary and standby equipment. Correct any malfunctions. Battery charges and adequate fuel supplies (10 - 14 day period) to operate auxiliary equipment should be provided. Fill all fuel tanks.

8. Know the electrical requirements of the system that must be powered during an emergency so that you can specify portable generator needs. A general rule when sizing generators to meet minimum demand is to multiply the sum of horsepower ratings of the equipment you intend to operate by 1.34. This will yield your minimum kW's required. Experience suggests securing a larger kilowatt generator than required is economical in saving fuel, stretching manpower and the need for fuel deliveries. Maintain a list of both generator size needed and of electricians capable of safely wiring generators.

9. Check and stock critical spare parts.

10. Check and stock all essential chemical inventories (10 - 14 day period).

11. Check all vehicles for proper operation and fuel.

12. Designate personnel that will be on duty (unless unsafe) during the hurricane and allow time to make arrangements for the protection of their home and family. Make arrangements for the comfort and well-being of personnel to be on duty (coffee, cots, non-perishable food, potable water, emergency supplies, first aid kits, flashlights, etc.).

13. Board up windows and tie down or secure any supplies or materials to prevent them from becoming airborne during the hurricane.

14. Drain wastewater holding ponds as completely as practical after receiving hurricane warning.

15. Cease shipment of biosolids to a land application site that also is expected to be impacted by the storm until the storm is over.

16. Biosolids land application sites should ensure that any biosolids sent to a land application site prior to the storm have either been spread or are staged, stockpiled, or stored at the land application site in a secure manner so the biosolids will not washout and leave the land application site. Any storage should be at a high point of the site and away from water bodies.

17. Secure computers.

18. Large chlorine gas facilities may need to be turned off and secured for safety considerations. An alternative method to feed chlorine should be available.

19. Getting into and out of a facility after the storm has passed may be challenging. Make sure there is an adequate supply of chain saws (including gas and oil), axes, etc., for clearing debris.



Florida Rural Water Association (FRWA):

As a part of the contract between the Department and the Florida Rural Water Association (FRWA), the FRWA's circuit riders provide assistance in restoration efforts to water and wastewater systems during times of hurricanes or other disasters. This could include obtaining operator assistance or help in locating needed equipment. The FRWA phone number is (850) 668-2746.

Emergency Power for Critical Facilities

As part of their utility risk assessment process, each utility should determine the acceptable level of risk and requirements for continuing operations in the event of a power outage.

Based on this assessment, each utility should preferably install emergency generators at sites that must be maintained; or at the very least install manual transfer switches in advance of an event to permit the legal connection of a generator to the site.

In the event that after advance planning and contracting, emergency generators are still

required, site surveys will permit faster deployment of these assets.

The primary reason for a delay in installing emergency power, is that not enough information is known about the site, true surge power requirements, method of connection to the facility, access to the site and other critical factors.

A form "Emergency Generator Critical Facility Site Survey" has been developed by the State Emergency Response Team at the Florida Department of Community Affairs to survey each site for future power requests.

Contact your County Emergency Management Office to become familiar with the information required on the form.

After The Hurricane:

1. Survey and assess the damage. List repairs needed and estimate work time to correct the damage. Proceed on repairs according to a priority list.
2. Determine if power loss is local or areawide. If loss is local, check all electrical circuits for shorts or system overload. If loss is area-wide, contact power company and coordinate repair and start-up operations with them.
3. Shut off electrical current to damaged equipment and repair.
4. Flooding of wastewater or biosolids could expose personnel to hazards of waterborne diseases, areas or pockets of toxic and or explosive gases, oxygen deficient areas, or electrical shock. Electrical current to submerged lines or equipment should be shut off. Portable pumps should be provided to aid

in the dewatering process. Gas or oxygen deficiency in flooded areas should be checked. Do not enter closed areas alone and ventilate area. Do not use unprotected lights or electrical equipment during clean up operations. Special consideration should be given to preventing contamination of the potable water supply.

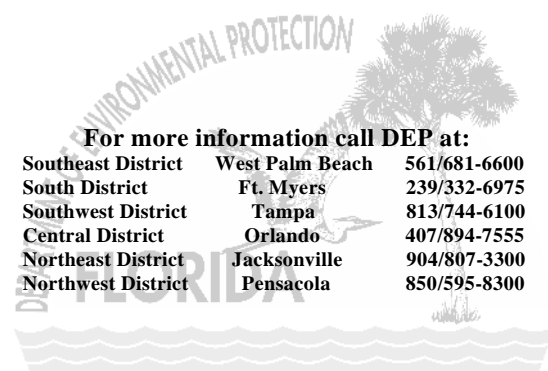
5. Coordinate with the local water utility and establish priorities for repairing lines and facilities after a hurricane. The water supply system may suffer major damage resulting in very little flow reaching the lift stations and wastewater treatment facility. Once water service is restored, lift stations and the wastewater treatment facility should be operational. If not, spills or discharge of raw or partially treated wastewater will result.

6. Maintain utility customers informed of facilities damage and advise them of associated potential public health or environmental concerns

7. Provide for lime application of spills.

8. Provide for disinfection of any discharges of raw, partially treated, and fully treated wastewater.

9. Any major damage to the wastewater system should be immediately reported to the local DEP office. Spills of 1,000 gallons or more need to be reported to the State Warning Point at 1-800-320-0519. Reports concerning any minor damage should be reported as soon as possible after the hurricane. Let the local DEP office know if assistance is needed. It would be helpful to let the DEP office know that you did not sustain damage and are operational so that resources could be directed elsewhere.



For more information call DEP at:

Southeast District	West Palm Beach	561/681-6600
South District	Ft. Myers	239/332-6975
Southwest District	Tampa	813/744-6100
Central District	Orlando	407/894-7555
Northeast District	Jacksonville	904/807-3300
Northwest District	Pensacola	850/595-8300