Storm Preparation Guide

Guide Overview

In preparation of extreme weather events, this quick guide has been developed to assist wastewater facility personnel in taking precautionary measures to safeguard their infrastructure. The guide is organized by time period, starting with pre-storm planning and ending with post-storm assessment and repair. In addition, the guide includes a supplemental Wastewater Treatment Plant Storm Checklist. The checklist is geared towards assisting the wastewater facility personnel on storm preparedness actions. **Note:** This is not an all-inclusive storm preparation guide.

Responsibility

Wastewater operators, policy makers, and state and local agencies are tasked with preparing for these extreme weather events. A wastewater treatment facility must be able to operate under all conditions. Failure to operate can lead to raw or partially treated sewage being discharged into rivers, oceans, and other bodies of water; or backing up into streets, homes, and businesses. The threat that hurricanes and other storms pose to wastewater treatment facilities is therefore a direct threat to the environment and public health. As a result, most wastewater utilities have emergency response (ER) plans in place to remain in service even under extreme conditions and emergencies.

Planning

Preparing for extreme weather events begins in advance of a forecasted storm. Development of management plans are good practice for guidance when preparing for adverse weather events. These plans should include, but not limited to, ER plans, flood hazard plans, and wet-weather plans. These planning efforts rely on four key components: Communication, development of plans and procedures, training, and assessments.

Communication

Open discussions among staff is integral to ensuring a safe and effective response to the storm event. A few practices have been identified below to aid in facilitating effective communication:

- Ensure all personnel are listed on the community's emergency response contact list
    - Become a part of your municipality's incident command structure
- Ensure that responsible staff have access to the Department's StormTracker web-site to report operational status following significant storm events
    - Facility operational status is used to assess storm damage and efficiently mobilize resources and distribute aid
    - If unable to access the website, the utility can update their facility's status by calling (1-866-742-0481)
- Investigate other means of communication when phones, power, and/or internet are not operational such as Amateur (Ham), Statewide Law Enforcement Radio System (SLERS) or Government Emergency Telecommunications Service (GETS) radios
- Know who to contact for assistance prior, during, and after an event
    - Florida's Water/Wastewater Agency Response Network (FlaWARN) is the formalized system of "utilities helping utilities" to address mutual aid during emergency situations
    - Wastewater incidents or spills are required to be reported to the Department within 24 hours. For spills, greater than 1,000 gallons and/or affecting surface waters must notify

the State Watch Office (1-800-320-0519) and in accordance with the pollution notification law. All other spills can be reported to the nearest district office

Development of Plans and Procedures

Establishing an emergency hierarchy to develop plans to protect the municipality's infrastructure is essential. The hierarchy should strive to implement measures that will promote the utilities resiliency when faced with adverse weather. Staff members should be aware and have access to all plans and know the procedures in place when preparing for a major storm event.

Plans

- Emergency Response plans should be developed to describe the actions the facility will take to respond to various major events
- Have a plan for communicating if landline and cell phones are down (Two-way radios for personnel to communicate, HAM, SLERS, and GETS radios)
- Develop Flood Hazard Plans to determine what infrastructures are at risk of flooding and which infrastructures may be inaccessible during the flooding periods
- Have a plan for electrical control shut-off in the event of inundation
- Update standard Operating Procedures (SOPs) – all ER plans should be an evolving document to address lessons learned after each event
- Wet-weather plans should be developed to detail the protocols when responding to high flows, activating pumps, monitoring effluent quality, and if needed, steps to following for bypassing a process for long term viability
- Each plan update should be reviewed and approved by management and consider input from the appropriate local emergency responders
- Have a backup NELAP-Certified Laboratory contract initiated in case current contracted laboratory is not operational

Procedures

- Ensure all emergency generators are fully fueled and tested
- Check all pump systems and level indicators
- Clear facilities of all loose items
- Remove hazardous materials from flood prone areas
- Clear preliminary treatment systems, such as screens and grinders at head works
- Check all inlet and outlet gates and valves for operational function
- Initiate pre-event communication and operational procedures with staff, local emergency responders, and appropriate state officials
- Empty reject tanks/ponds prior to storm event, if possible
- Ensure adequate supply of treatment chemicals for processes (extra lime, HTH, etc. for disinfection)
- Ensure essential spare parts are stocked onsite or nearby
- Inspect lift stations

Training

Emergency response training is essential. The purpose of the training program is to inform employees of what is expected of them during an emergency situation. The level of training on an ER

plan directly affects how well a utility's employees can respond to an emergency.

- Maintain organizational charts for reference to implement during emergencies
- Procedures for emergency events should be distributed throughout the facility for easy access
- Routine training for staff on emergency responses
- Routine functional drills to simulate an event
- Regular safety meetings

Assessments

It is critical to have a process in place for evaluating the susceptibility of critical assets to potential threats and identifying corrective actions that can be taken to prevent, reduce, or mitigate the risk of serious consequences associated with these threats.

- Review necessary infiltration-and-inflow repairs within the collection system
- Identify and map the system's components to include wastewater collection systems, pumping stations, force mains, treatment plans, electrical power requirements and power supply
- Determine level of reliability for these systems
- Evaluate potential effects on various types of equipment

Preparation

Once an extreme weather event is in the forecast, there are several preparation steps that should be implemented. Staff coordination, generator use and availability, fuel, and staging areas are four key components of preparing for inclement weather.

Staff Coordination

Before every extreme weather event, the staff should meet as early as possible and establish a series of meetings over the days leading up to the storm.

- Discuss hierarchy of focus
- Responsibilities and contingency plans
- Anticipate potential problems
- Ensure equipment and personnel availability
- Storing accommodations (food, cots, etc.)

Generators

Standby power should be available for critical pump stations and facility performance should be evaluated under emergency power.

- Generators should be exercised for sufficient durations and checked for fuel as appropriate (weekly, monthly, etc.)
- Generators should be available for most facilities and tested weekly under load during hurricane season
- Evaluate what areas of the facility lack emergency power and identify potential sources of portable generators prior to an event

Fuel

Operators should make sure all fuel tanks (generators, vehicles, on-site fuel storage, etc.) are filled and generators tested before the storm. It is important to evaluate how long your facility will be able to operate with your generators and available fuel supply.

- Be prepared for potential fuel distributors not to reach your facility before, during or after the storm
- Have additional fuel storage on site

- Reduce energy consumption while using generators to make most of the available fuel

Staging

Evaluate other areas of the plant or community (higher-ground, open spaces, etc.) that could be utilized for storage of equipment, vehicles, and materials.

- Place materials on pallets to be easily handled and moved
- Important paper documents and plans should be in a place that will not be flooded
- Relocate computers, other electronics, and hazardous chemicals out of vulnerable areas

Action

During an extreme weather event and immediately afterwards there are many potential disruptions that must be considered. Personnel safety, staffing and communication are key areas of need when faced with extreme weather.

Safety

Protecting the health and safety of everyone in the facility should be the first priority during a storm event. If needed, medical assistance must be available, and identify who will administer. If evacuation is necessary, have evacuation plan in place, as well as, how to account for all employees after a storm event.

Staffing

Ensure you have enough staff to handle an emergency. This should include time for staff to rotate in/out as needed to attend to their own personal needs.

Communication

Emergency communication plans must consider contingencies for internet and telephone service interruptions during and after a storm.

Recovery

Once a storm has passed, it is very important to return to normal operations as soon as possible. An individual or team should be designated to manage the recovery efforts. However, there may be many unforeseen storm-related consequences to address first. Facility access, evaluating damage, coordination, restoration of services and identifying areas for improvement are tasks that should be addressed in the recovery phase.

Access

Coordinate access to storm impacted areas with local and regional law-enforcement agencies, via the state or regional emergency management agencies. Access to the facility may become difficult or impossible.

- Downed trees and utility poles may interrupt access to facilities
- Floodwaters from rain can wash out roads

Damage Evaluation

A detailed evaluation of all affected areas and components in addition to determining priorities for repair, reconstruction or replacement must be completed.

Coordination

Organized coordination efforts are essential to successfully recovering from a storm. Below are noted actions that will help facilitate the effort.

- **Update your facility status on the Department's StormTracker web-site ASAP**
- Coordinate all vendor and contractor activities

- Coordinate the completion of emergency repairs and schedule permanent repairs
- Notify agencies of emergency repair status and the scheduled completion of system repairs
- Document all recovery activities including labor, equipment and materials expenses for potential disaster assistance from the state or federal government

Restoration

Ensure that restoration of all telecommunications, data processing and similar services are fully operational.

Areas for Improvement

Assess vulnerability by discussing the event after the storm. As new situations arise, incorporate any new activities and planning into the community's planning and preparation process.

Resources

Below you will find several resources that provide helpful information when preparing for a storm event.

Websites

- Florida Division of Emergency Management: http://www.floridadisaster.org/index.asp
- StormTracker: https://stormtracker.dep.state.fl.us/login.asp
- Public Notice of Pollution: http://www.dep.state.fl.us/pollutionnotice/
- County EOC: http://www.floridadisaster.org/County_EM/county_list.htm
- FlaWARN: http://www.flawarn.org/
- State Watch Office: http://floridadisaster.org/Response/Operations/swp.htm
- Federal Emergency Management Agency: http://www.fema.gov/
- National Hurricane Center: http://www.nhc.noaa.gov/
- Florida Rural Water Association: http://www.frwa.net/

Phone Contacts

- State Watch Office: 1-800-320-0519
- Florida Hotline: 1-866-742-0481

Florida Department of Environmental Protection		
District Office	**Location**	**Phone Number**
Southeast District	West Palm Beach	561-681-6600
South District	Ft. Myers	239-344-5600
Southwest District	Tampa	813-470-5700
Central District	Orlando	407-897-4100
Northeast District	Jacksonville	904-256-1700
Northwest District	Pensacola	850-595-8300
Panama City Branch Office	Panama City	850-872-4375
Tallahassee Branch Office	Tallahassee	850-245-2984

WASTEWATER TREATMENT PLANT

STORM CHECKLIST

	NO.	Storm Preparedness Actions	YES	NO
PLANNING		**Plan**		
	1.	Have the Emergency Response (ER) plans been developed to describe the actions the facility will take to respond to various major events?	☐	☐
	2.	Is there a plan for communicating in the event that landline and cell phones are down?	☐	☐
	3.	Are there two-way radios other methods (Ham, SLERS, and GETS radios) available for personnel to communicate?	☐	☐
	4.	Have Flood Hazard Plans been developed to determine what infrastructures are at risk of flooding and which infrastructures may be inaccessible during the flooding periods?	☐	☐
	5.	Is there a plan for electrical shut-off in the event of inundation?	☐	☐
	6.	Update standard Operating Procedures (SOPs) – are all ER plans evolving documents that address lessons learned after each event?	☐	☐
	7.	Have wet-weather plans been developed to detail the protocols when responding to high flows, activating pumps, monitoring effluent quality, and if needed, steps to following for bypassing a process for long term viability?	☐	☐
	8.	Is each plan update reviewed and approved by management?	☐	☐
	9.	Was input from the appropriate local emergency responders considered?	☐	☐
	10.	Have Emergency Response (ER) plans been developed to describe the actions the facility will take to respond to various major events?	☐	☐
	11.	Is there a backup contract initiated in case currently contracted laboratory is not operational?	☐	☐
		Procedures		
	12.	Are all emergency generators fully fueled?	☐	☐
	13.	Have all pump systems and level indicators been checked?	☐	☐
	14.	Have facilities been cleared of all loose items, and have hazardous materials been removed from flood prone areas?	☐	☐
	15.	Have preliminary treatment systems, such as screens and grinders at head works, been cleared?	☐	☐
	16.	Have all inlet and outlet gates and valves been checked for operational function?	☐	☐
	17.	Have pre-event communications and operational procedures with staff, local emergency responders, and appropriate state officials been initiated?	☐	☐
	18.	Have the reject tanks/ponds been empty prior to the storm event?	☐	☐
	19.	Do you have adequate supply of treatment chemicals for processes (extra lime, HTH, etc. for disinfection)?	☐	☐

	20.	Are there essential spare parts stocked onsite or nearby?	☐	☐
	21.	Have the lift stations been inspected?	☐	☐
PLANNING		**Training**		
	22.	Are organizational charts for reference to implement during emergencies maintained?	☐	☐
	23.	Are the procedures for emergency events distributed throughout the facility for easy access?	☐	☐
	24.	Does routine training for staff on emergency responses occur?	☐	☐
	25.	Do routine functional drills to simulate an event occur?	☐	☐
	26.	Are there regular safety meetings?	☐	☐
	27.	Are the organizational charts for reference to implement during emergencies updated?	☐	☐
		Assessment		
	28.	Have the necessary infiltration-and-inflow repairs within the collection system been reviewed?	☐	☐
	29.	Have the system's components including wastewater collection systems, pumping stations, force mains, treatment plans, electrical power requirements and power supply been mapped and identified?	☐	☐
	30.	Has the level of reliability for these systems been determined?	☐	☐
	31.	Have the potential effects on various types of equipment been evaluated?	☐	☐
PREPARATION		**Staff Coordination**		
	32.	Has the hierarchy of focus been discussed?	☐	☐
	33.	Are the responsibilities and contingency plans established?	☐	☐
	34.	Have potential problems been anticipated?	☐	☐
	35.	Has equipment and personnel-availability been ensured?	☐	☐
	36.	Are there storing accommodations (food, cots, etc.)?	☐	☐
		Generators		
	37.	Have generators been exercised and checked for fuel as appropriate (weekly, monthly, etc.)?	☐	☐
	38.	Are generators available at most facilities and tested weekly under load?	☐	☐
	39.	Have areas of the facility that lack emergency power been evaluated?	☐	☐
	40.	Have potential sources of portable generators been identified?	☐	☐
		Fuel		
	41.	Are there preparations if potential fuel distributors not to reach your facility before, during or after the storm?	☐	☐
	42.	Is there additional fuel storage on site or have plan to have it available?	☐	☐
	43.	Has energy consumption been reduced while using generators to make most of the available fuel?	☐	☐
		Staging		
	44.	Are materials placed on pallets to be easily handled and moved?	☐	☐

	45.	Are important paper documents and plans in a place that will not be flooded?	☐	☐
	46.	Have computers, other electronics, and hazardous chemicals been relocated out of vulnerable areas?	☐	☐
ACTION		**Safety**		
	47.	Protecting the health and safety of everyone in the facility should be the first priority during a storm event. Is medical assistance available if needed?	☐	☐
	48.	Have medical administers been identified?	☐	☐
	49.	Is there an evacuation plan in place if evacuation is needed?	☐	☐
	50.	Is there a plan in place to account for all employees after a storm event?	☐	☐
		Staffing		
	51.	Is there enough staff to handle an emergency and to keep running the plant?	☐	☐
		Communication		
	52.	Do emergency communication plans consider contingencies for internet and telephone service interruptions during and after a storm?	☐	☐
RECOVERY		**Access**		
	53.	Are there any downed trees and utility poles that may interrupt access to facilities?	☐	☐
	54.	Have floodwaters from rain washed out roads?	☐	☐
		Coordination		
	55.	Has the facility status on the Department's StormTracker web-site been updated ASAP?	☐	☐
	56.	Have all vendor and contractor activities been coordinated?	☐	☐
	57.	Have completion of emergency repairs and the scheduling of permanent repairs been coordinated?	☐	☐
	58.	Have agencies been notified of emergency repair status and the scheduled completion of system repairs?	☐	☐
	59.	Have all recovery activities been documented (including labor, vehicles, equipment and materials expenses) for potential disaster assistance from the state or federal government?	☐	☐
	60.	Restoration of all telecommunications, data processing and similar services are fully operational?	☐	☐
	61.	As new situations arise, incorporate any new activities and planning into the community's planning and preparation process. Have areas of improvement/vulnerability been assessed by discussing the event after the storm?	☐	☐