

Problem

An increase in severe weather events is causing a concerning number of power outages in the United States. This directly affects the proper treatment of sewage water. Extended outages in facilities can cause overflows or spills of untreated water which can negatively impact the community and the environment.

Goal

Assess backup power capacities and needs of municipal wastewater facilities in Massachusetts to develop informational resources for regulators and emergency planners.

Objectives and Methods

1. Characterize wastewater facilities' emergency power capabilities and emergency resource knowledge
 - Interview MassDEP staff, Deputy Regional Directors (DRDs) and Section Chiefs
2. Determine facility vulnerability and risks associated with power loss
 - Combined EPA and DEP survey data and attempted to do vulnerability assessments
3. Create informational tools to improve emergency preparedness in wastewater facilities
 - Used EPA map as a reference to create vulnerability map for wastewater utilities
 - Collected useful information for facility managers and showcased in a pamphlet



Touring the Blackstone wastewater facility to learn about backup power

Findings

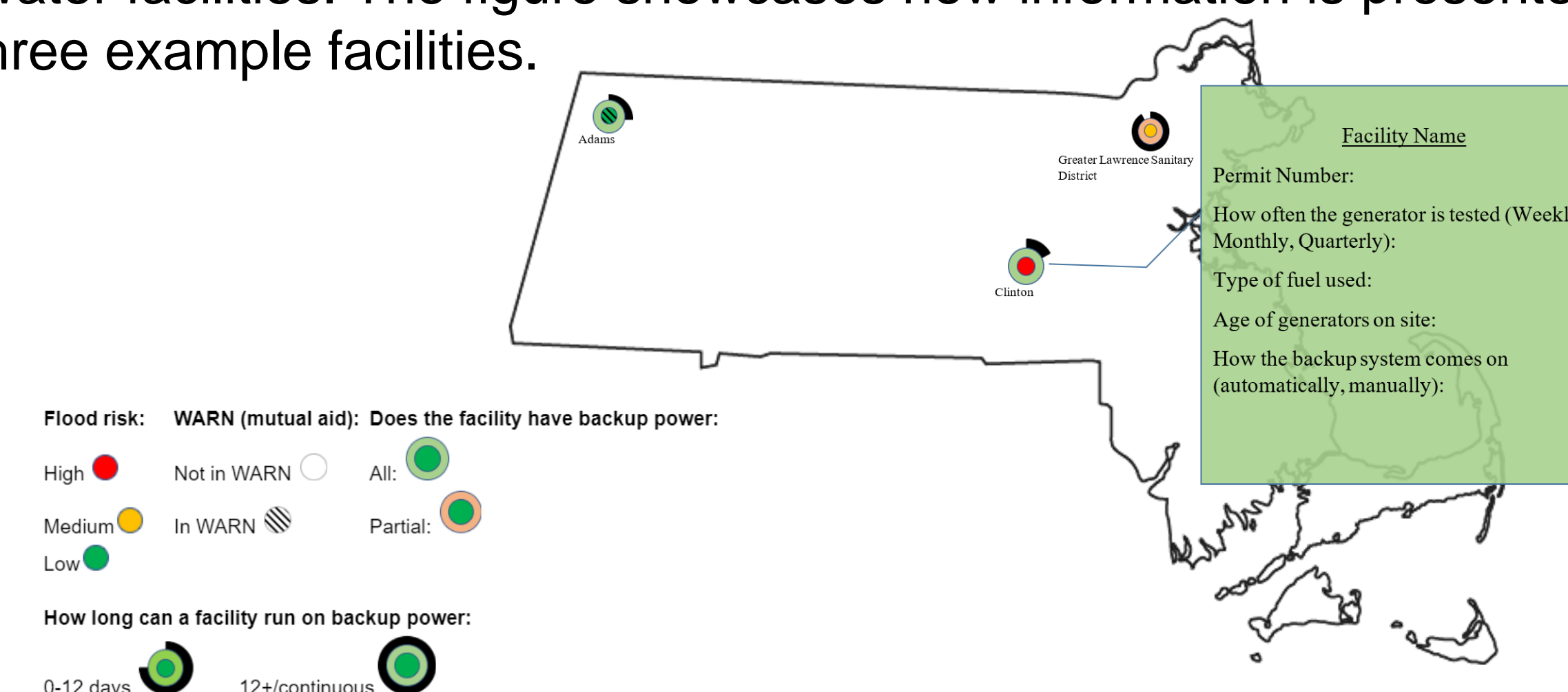
1. Data sets available to DEP are incomplete
2. Incomplete data hinders vulnerability assessments
3. Massachusetts is moving to cleaner energy options
4. Lack of funding impedes implementation of backup power for emergency preparation
5. Mutual aid enhances emergency response in wastewater facilities by sharing backup power
6. There is a need for additional information to inform decisions at all levels

Recommendations

1. MassDEP should implement a system for more reliable and accurate data gathering
 - Require information reporting to MassDEP through regulation
 - This ensures all facilities document their emergency power capacities
 - Gather complete information about facility capacities in case of an emergency
 - Conduct vulnerability assessments of facilities to allow responding agencies to prioritize help
2. MassDEP should test and encourage facility self-assessment of backup power systems' capacities and needs
3. MassDEP should complete the digital map of information about risks and vulnerabilities associated with power outages and backup power systems
 - Useful tool for facility managers and DEP to visually understand a facility's capabilities instead of digging through data
4. MassDEP should distribute information about financial assistance for implementing emergency power systems
 - A website of grant opportunities and how to apply could be useful to facility managers looking for financial assistance
5. MassDEP should extend analysis of emergency power capacities to drinking water systems

Map Prototype: A resource for regulators and managers

A digital map was developed to show information about risks and vulnerabilities associated with power outages and back-up power systems at waste water facilities. The figure showcases how information is presented using three example facilities.



Pamphlet

This deliverable contains information on resources available to facility managers:

- Emergency Planning Assistance
- Grant Programs
- Energy Options:
 - Generators
 - Solar energy
 - Combined Heat and Power Generation (CHP)

Acknowledgements

- EPA Region 1
- Upper Blackstone Water Pollution Abatement District
- Worcester Water Filtration Plant