LESSONS LEARNED

Technical Training - May 29, 2013

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WATER INFRASTRUCTURE IMPACTS

Drinking Water

- 427 community water systems (out of 604 community water systems total) lost power during Hurricane Sandy.
- Of the 427, 42 systems needed a generator at some point (about 10% of systems that that lost power didn't have sufficient generator resources for their needs).
- 35 systems were subject to a Boil Water Advisory

Wastewater

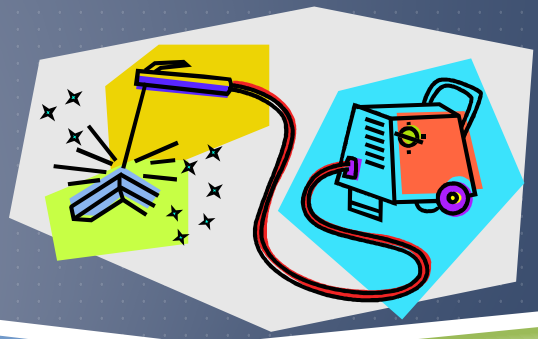
- 94 WWTPs in 21 counties
- Inadequate treatment, need for fuel or generators due to power outages, broken sewer mains, clogged or completely lost infrastructure, or other operational issues.
- Impacts were multiple extending beyond the treatment facility to pump stations and wastewater collection system

COMMUNICATION

- AEA calls, utility coordination meetings and prior relationships with JCP&L and EM coordinator were essential to success but:
  - Need pre planned regional communication efforts and drills to understand interagency roles, resource sharing (hardware, generators, fuel, equipment, etc.)
  - Communication should bridge sector gaps (AEA, NJWEA and NJ AWWA
  - Enhances use of NJWARN.
- Standardized reporting and just One DEP contact!
- Credentialing must be improved.
- Satellite phones

POWER

- Widespread effects
- Grid repair
- Communication and prioritization
  - Development of a database
  - Advance warning
- Evaluation of standards and enforcement of existing standards



RESOURCES

- Additional fuel / generator use and storage
  - Regulatory and practical limitations.
  - Enhanced standards and/or enforcement of existing standards
- Pre-planning, self-inventory and information sharing with local OEM increase success.
- Must include gasoline
- Sludge
  - On-site storage, alternative disposal, capital improvements; Statewide Plan

INFRASTRUCTURE

- Mobile wastewater pump stations
  - Essential to resiliency - local opposition to change
  - Utilities need support in the community from government to build for resiliency.
- Quick connects for power and bypass are essential to response time in an emergency.
- One size fits all standards for infrastructure are impractical and will not work.
- Level of service standards should be clearly established, disruptions are inevitable.
- Debris
  - Presented a challenge in identifying the condition of assets
  - Removal increased infrastructure damage.

WHAT WE LEARNED OVERALL

- Roles within DEP and with other agencies need to be redefined
- Partnerships were needed
- Better communication was needed
- Data and resource needs
  - Additional standards? and /or guidance

…….AND

RESILIENCY CAN NO LONGER BE IGNORED

- Essential to rebuilding
- Necessary to responsibly rebuild water infrastructure
- New standards / guidance and fiscal responsibility are critical
- Data collection (GIS mapping and other tools) are key
- Proper Operation and Maintenance is a large part
- Communication and partnerships are essential for strategic planning and emergency response

Long Term Actions

- Communication
- Resiliency
- Asset Management
- Sludge Management
- Financing
- Stormwater / I/I and CSOs
- Comprehensive Integrated Planning
- Emergency Response
- Industrial Discharges

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