



***Deer Island Power Outage
March 14, 2018***

March 21, 2018



March 14, 2018: Deer Island Power Outage

- **8:37 am: Eversource regional outage**
 - Fault at South Boston, Andrew Square
 - Affected all water and wastewater facilities in the area
 - Deer Island only facility to trip off line
- **9:00 am: First pumps on-line**
 - Flow ramped up over next hour
 - Close coordination with Chelsea OCC required
- **No SSOs, CSOs or any raw sewage releases as a result**





Complications from Outage

- **9:34 am - PICS communications failure**
 - Central Monitoring not available
 - Staff deployed to remote facilities to monitor/control locally

- **10:35 am – PICS restored to normal operation**



PICS: Deer Island Wastewater Overview

Deer Island Wastewater Treatment Plant

ROC

Process Flow Diagram

Site Map

Plant Flows

Sec Effluent 1 Sec Effluent 2

Plant Flow 438 MGD
Secondary Flow 449 MGD
% Treated by Sec 100 %
% Treated by Sec 100 C-hr TWA %
Secondary Capacity 700 MGD
Outfall Operation
DT Sampling of the Loop
Flow GPM (h-hr) 5
Temp, Deg F 54

DTP Weather Station

Wind Direction, deg (North=0) 90 E
Air Temperature, deg F 28.4
Barometric Pressure, mm Hg 29.3
Relative Humidity, % 44.2
Rainfall, inches 0.00
Tide Level at Ref. PT MDC 111.3
Harbor Water Temp, deg F -0.4

Running

Condition Monitoring

DTP Weather Station

Plant Flow 438 MGD
Secondary Flow 449 MGD

Pump Station Overview

NMPS Alarms 0

Condition Monitoring

North Main Pump Station

Generation

Demand

Power Plant

Generation 0 KW
Boilers / STO 0.23 3.04 MW 3.34

Demand 20,899 KW 16,252 KW
Bus A 3,227 KW 6,012 KW
Bus B 45,706 KW 46,240 KW

Site Photo

PRE-TREATMENT

PRIMARY TREATMENT

SECONDARY TREATMENT

CRYO

DISINFECTION/DECHLOR

HYDROOUTFALL

Odor Control

Generation

Demand

Power Plant

Condition Monitoring

DTP Weather Station

Plant Flow 438 MGD
Secondary Flow 449 MGD

Pump Station Overview

NMPS Alarms 0

Condition Monitoring

North Main Pump Station

Generation

Demand

Power Plant

Generation 0 KW
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Consequences of Outage

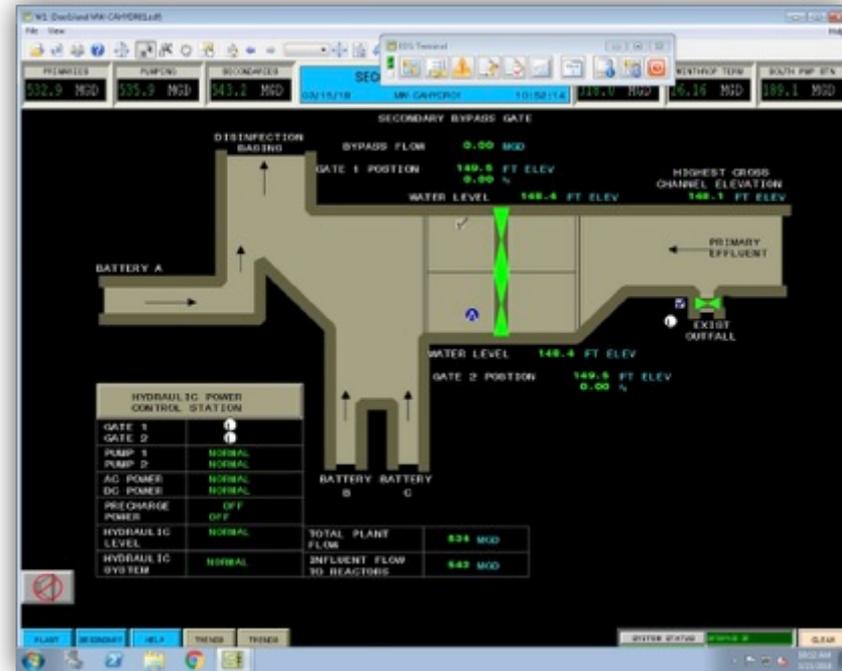
- **11:07 am – Flow control gate opens**
 - Resulting in a blending event
 - Reportable to regulatory agencies
- **11:38 am – All blending ceases**
- **2:52 pm – Free flow at all headworks in the North**
- **7:00 pm – Deer Island fully reconnected to utility power**



Reportable Event

Reportable event due to Blending / Bypass occurring at less than 700 MGD

- 9.74 Mgal out of 551 Mgal for Day
- Less than 2% of Total Plant Flow Blended or Bypassed
- All NPDES permit numerical standards met



Flow Control Gate (controls blended flow quantities)



Flow Control Gate

- HMI graphic revised
- Changed Authorization – only Shift Managers or Higher have authorization to adjust set points effective immediately
- Added alarms whenever gates are not in upright closed position
- Tool Box Talks conducted for all Operations Staff:
 - Importance of Gate
 - Impact to NPDES permit

PICS

- Revisit PICS battery replacement cycle

Plant

- Conduct more drills on manual operation of Plant

