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# CSO Program Stakeholder Workgroup: Meeting #4

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Newport City Hall – Council Chambers  
September 8, 2011



# Welcome & Introductions

- City Representatives
  - Julia Forgue – Director of Utilities
- CH2M HILL
  - Mike Domenica – Program Manager
  - Peter von Zweck – Project Manager
  - Becky Weig – Public Involvement
  - Bill McMillin – Water Quality
- Stakeholder Workgroup Participants

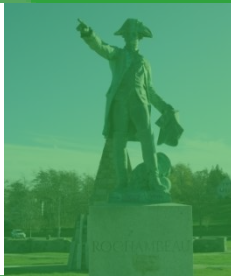
# Agenda

- Overview of the CSO Program Schedule
- Approval of Previous Minutes
- Parking Lot Follow-up Items
- Key Meeting Topics
  - Harbor Water Quality
  - CSO Volumes & Frequencies
- Future Meetings, Wrap-up & Questions



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# OVERVIEW OF THE STAKEHOLDER WORKGROUP

# Schedule of CSO Stakeholder Workgroup Meetings

	2011												2012											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Meeting #1 - Overview		●																						
CSO System Tours			●																					
Meeting #2 - Metering & Extraneous Flow Investigations				●																				
Meeting #3 - GIS, CMOM & WPCP							●																	
Meeting #4 - Harbor Water Quality								●																
Meeting #5 - Financing & Rates									●															
Meeting #6 - Decision Science Process										●				●										
Meeting #7 - Draft Collection System Capacity Assessment & SMP																	●							
Meeting #8 - Updated SMP																				●				
SMP - Final to EPA																							▲	

- Schedule developed to meet 2 key objectives:
  - Develop a collective understanding of the CSO Program (Meeting #s 1 – 4 & CSO System Tours)
  - Allow sufficient time for discussion and inclusion of Workgroup comments into the SMP (Meeting #s 5-8)

# CSO Program Stakeholder Workgroup Mission Statement

- To review proposed plans and projects for the CSO Program and provide recommendations to the City about the potential benefits and impacts of proposed plans and projects to all users of the system.
- To share CSO Program plans and project information with each stakeholder's organization to aid the City in its efforts to communicate CSO Program information.
- To support the CSO Program's public education efforts through participation in CSO Program public education activities.

# Purpose of the Stakeholder Workgroup

## Boundary Conditions – limits of the Workgroup’s activities

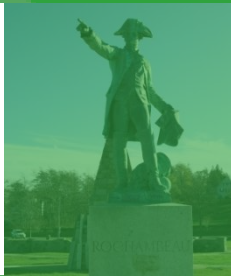
- The Workgroup may:
  - Ask questions about Program approach
  - Provide their perspective on Program approach & decision making
  - Review Program plans and projects & make recommendations
  - Disseminate Program information to their organizations
  - Propose Workgroup agenda topics
- The Workgroup may not:
  - Set City policies
  - Commit City funds





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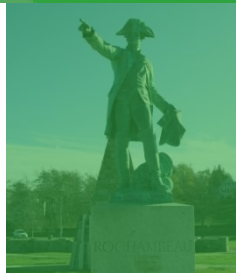
# PREVIOUS MEETING'S MINUTES





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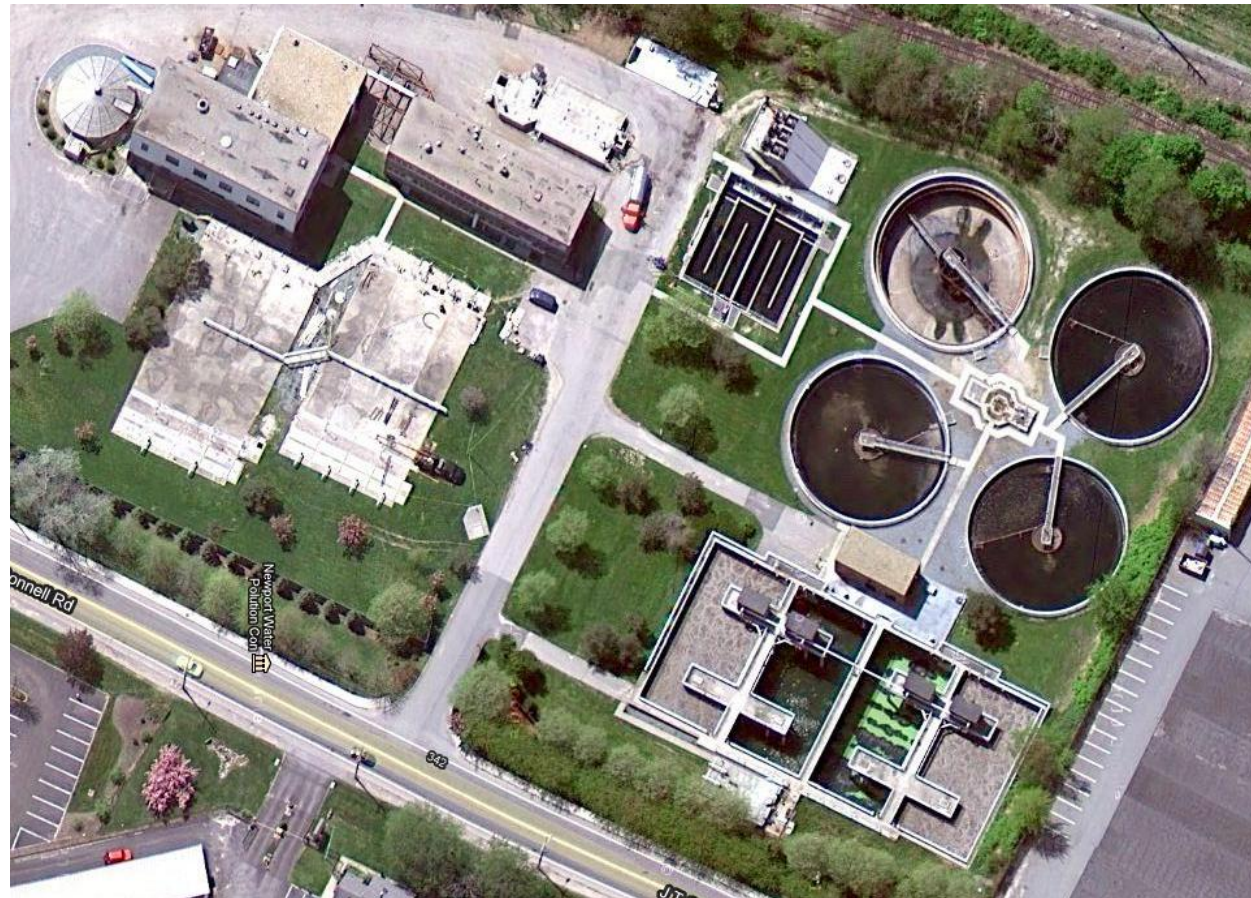
# PARKING LOT FOLLOW-UP ITEMS

# Parking Lot Question #1

- What percentage of interconnections between storm/sanitary systems are identified in GIS?
  - The GIS contains data for 2,892 catch basins
  - Field work (smoke tests and physical inspections) are being performed in catchments found to have the largest volumes of wet weather flows
    - Catchments where smoke tests have been performed - 9 of 13
  - Catch basin inspection statistics
    - Completed catch basin inspections - 947
      - CBs connected to the sanitary system – 43 (5%)
      - CBs connected to the storm system – 904 (95%)
    - CBs not verified – 1,945 (~ 67%)

# Parking Lot Question #2

- Are there storage options at the WPCP?
  - Nothing easy with current footprint
  - Will be evaluated in System Master Plan



# Parking Lot Question #3

- Are there options for reducing the amount of problem items entering the headworks?
  - Nothing that could eliminate the need to implement improvements
    - Public education could help, but would be limited by time and effectiveness
  - Headworks is too critical to treatment process train to not have it operating to remove problem items (rags, sticks, etc.)



# Parking Lot Question #4

- What are the performance benchmarks/metrics for a CSO control program?
- *The evaluation of CSO control alternatives can be a complex process:*
  - *No one methodology is appropriate for all CSO control programs.*
  - *Certain general considerations apply to most evaluation approaches.*
- *Evaluations focus on cost, performance, and non-monetary factors*
- *The challenge:*
  - *Assessing the relative importance of cost, performance, and non-monetary factors in selecting a preferred alternative.*

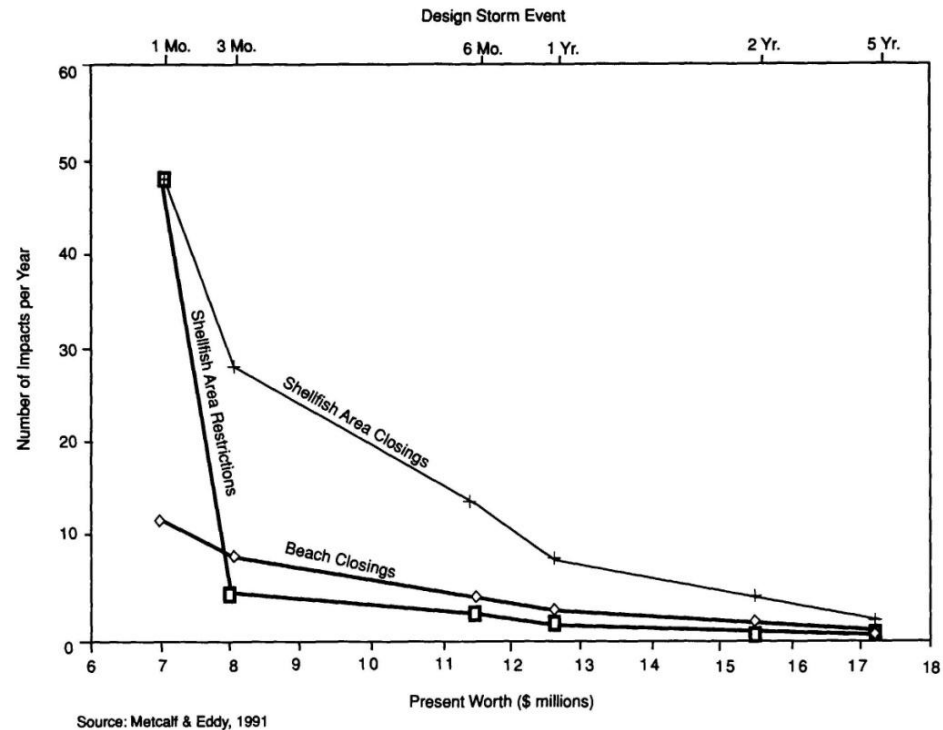
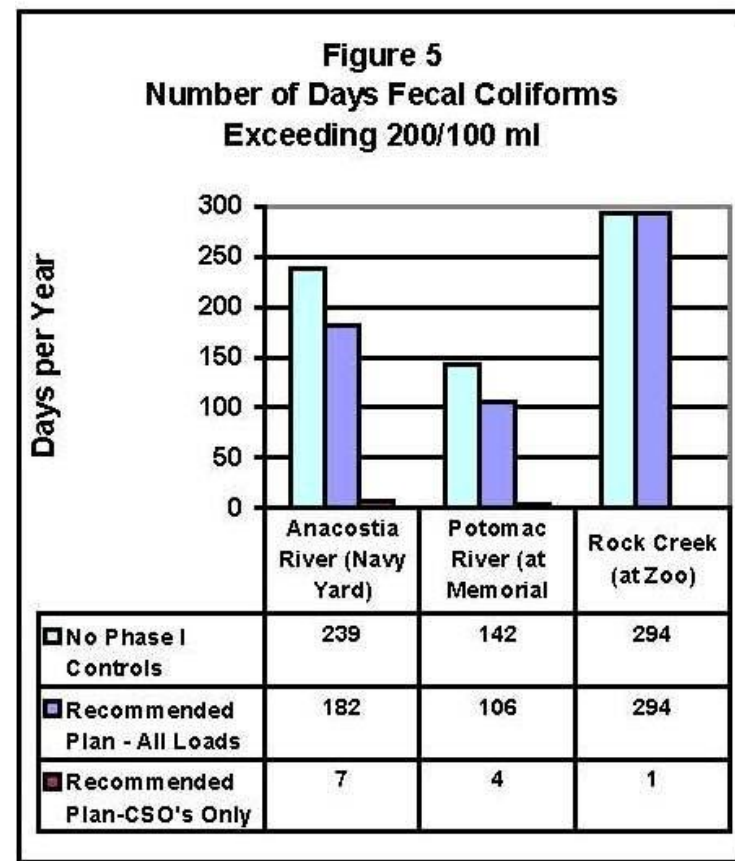


Exhibit 3-5. Example of Cost-Performance Curves Indicating Impacts on Critical Uses

Source: Combined Sewer Overflows-Guidance for Long-Term Control Plan. U.S. Environmental Protection Agency, Office of Water, Washington, DC. EPA 832-B-95-002. September 1995

# Parking Lot Question #4 (cont.)

- What are the performance benchmarks/metrics for a CSO control program?
  1. Regulatory compliance
    - a. Permits
    - b. Federal CSO Control Policy
    - c. Consent agreements
  2. Other metrics that have been used in other programs:
    - a. Reduction in water quality exceedances
    - b. Percent compliance
    - c. Number of overflows per year
    - d. \$/gallon CSO removed

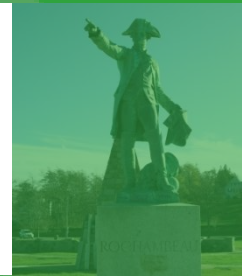


DCWASA LTCP for Washington, DC



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# KEY MEETING TOPICS

HARBOR WATER QUALITY  
CSO VOLUME & FREQUENCIES



# Topics to Cover

- Newport Harbor water quality goals
- CSO impacts on Newport Harbor water quality
- Newport Harbor water quality conditions
- How Water Quality Factors in to Long-Term Control Planning



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# WATER QUALITY STANDARDS AND GOALS FOR NEWPORT HARBOR

# Newport Harbor Water Quality Goals



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- Support Attainment of State Water Quality Standards
- Comply with EPA CSO Policy

# Rhode Island Water Quality Standards

- Water Use Designations
- Water Body Classifications
- Water Quality Criteria
- State 305(b) Assessments
- State 303(d) Reports of Impaired Waters

# Newport Harbor Waterbody Map

## Rhode Island Waterbodies and Classifications

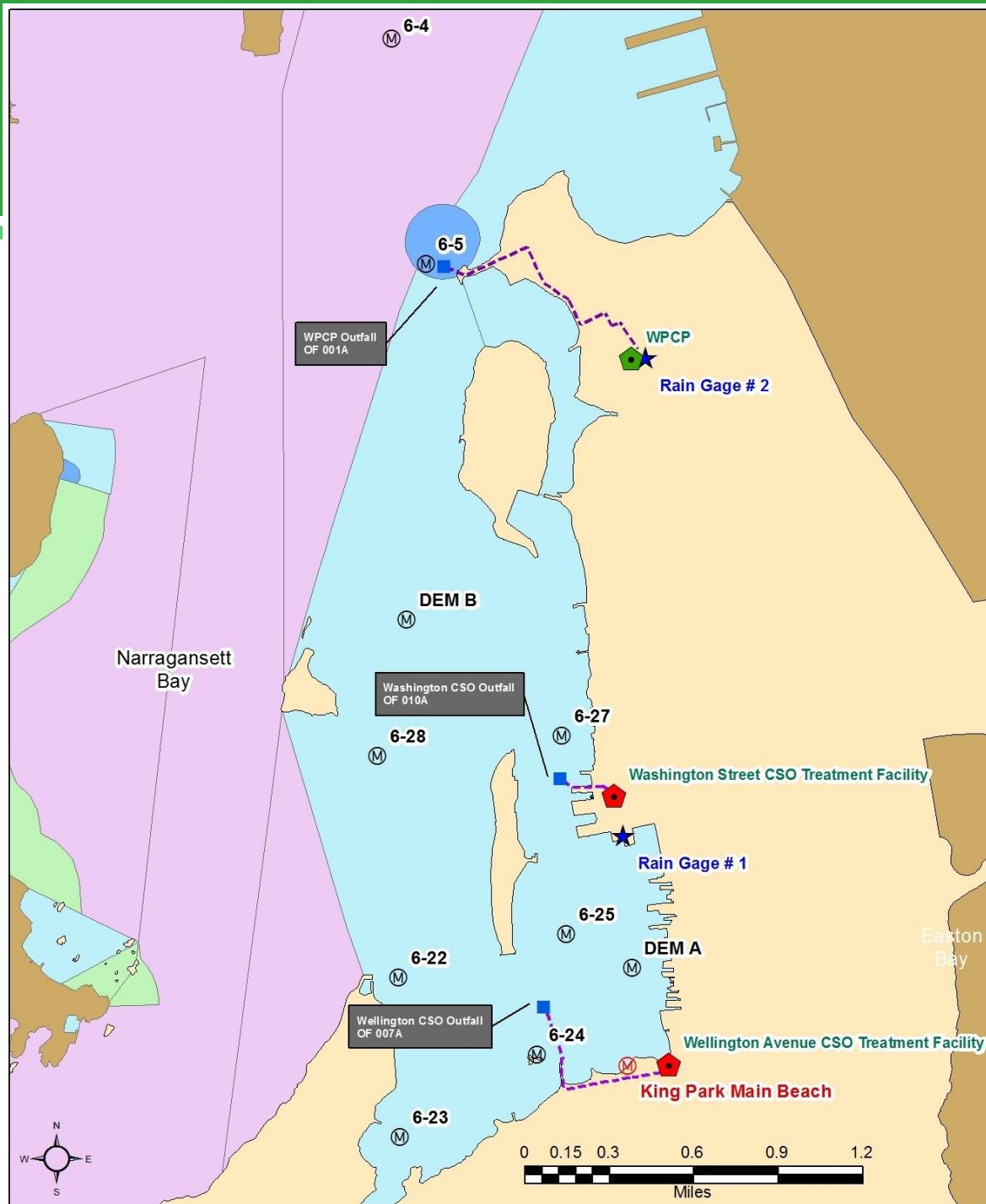


## Features:

- Newport Harbor Sampling Stations
- Newport CSO Facilities
- Newport WPCP
- Newport Sewer Metering Rain Gages

## Sensitive Areas:

- King Park Main Beach
- Shellfishing Sites



# RI Designated Uses

- "Designated uses"
  - Those uses specified in water quality standards for each waterbody or segment whether or not they are being attained.
  - In no case shall assimilation or transport of pollutants be considered a designated use.
- Water Use Classifications:<sup>\*</sup>
  - SA = Shellfish harvesting
  - SB = Primary and secondary contact recreation
  - SB1 = SB but may be impacted due to pathogens from approved wastewater discharges

\*Underlined apply to Newport Harbor/Coddington Cove

# Saline Water Quality Criteria

- Recreation Use Indicators:\*
  - Fecal Coliform
    - Shellfishing Criteria:
      - Geometric mean <14 MPN/100 mL
      - <10% of the samples > 49 MPN/100 mL
    - Primary Contact Recreational/Swimming Criteria
      - Geometric mean <50 MPN/100 mL
      - <10% of the samples > 400 MPN/100 mL, applied only when adequate enterococci data are not available.
  - Enterococci
    - Primary Contact/Swimming
      - Geometric Mean Density < 35 colonies/100 mL
      - **Single Sample Maximum < 104 CFU/100 mL**  
**(this is the standard used to determine beach closings)**

\*Chapter 42-35 pursuant to Chapters 46-12 and 42-17.1 of the Rhode Island General Laws of 1956, as amended.



# Designated Uses & Current Water Quality Status for Newport Harbor

- Section 305(b) of the Clean Water Act requires water quality assessments
- Section 303(d) requires listing impaired waters and calculating Total Maximum Daily Loads (TMDLs) to remove impairments
- TMDLs implemented via NPDES permitting

## Newport Harbor & Coddington Cove Designated Uses & Status <sup>1</sup>

Use Description	Use Status
Fish and Wildlife Habitat	Not Supporting (Coddington Cove sediments) <sup>2</sup>
Fish Consumption	Fully Supporting
Primary Contact Recreation	Fully Supporting
Secondary Contact Recreation	Fully Supporting
Shellfish Controlled Relay and Depuration	Fully Supporting

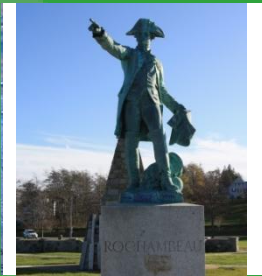
<sup>1</sup> Rhode Island July 2011 List of Impaired Waters

<sup>2</sup> Hazardous waste site remediation underway.



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# VOLUMES & FREQUENCIES OF WET WEATHER DISCHARGES

# CSO Effects on Newport Harbor Water Quality Introduction

- CSO Discharge and Effluent Monitoring
- CSO Effluent Water Quality Characteristics
- CSO Discharge Frequency
- CSO Discharges and Water Quality

# Newport CSO Control Program - History

- Untreated CSOs until late 1970s
- Planning and construction of Wellington Ave. CSO Treatment Facility in 1978
- Planning and construction of Washington St. CSO Treatment Facility in 1991
- Sewer separation in most of City in 1970s/80s
- Continued sewer separation in Wellington sewershed in 2000-2011
- Current system performance
  - No untreated CSOs
  - No chronic SSOs in collection system

# Both Newport CSOs are Treated

## Washington Street CSO Treatment Facility

- Constructed in 1991
- Treatment:
  - Screening
  - Storage (1,000,000 Gallons)
  - Solids Settling and removal
  - Disinfection



## Wellington Avenue CSO Treatment Facility

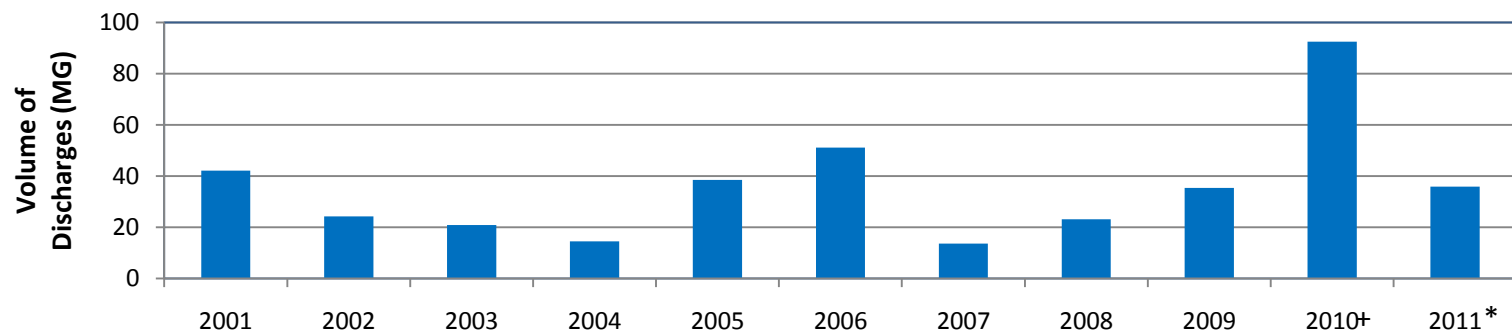
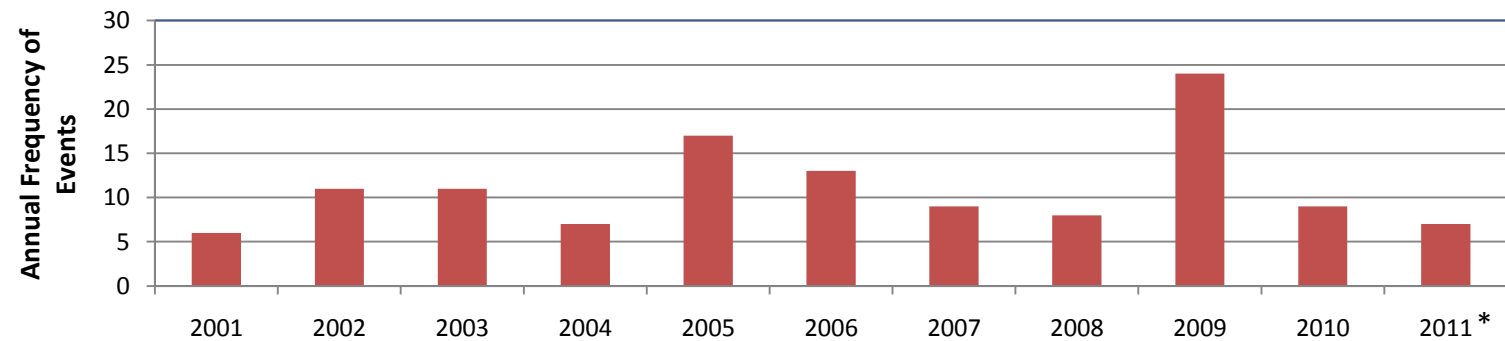
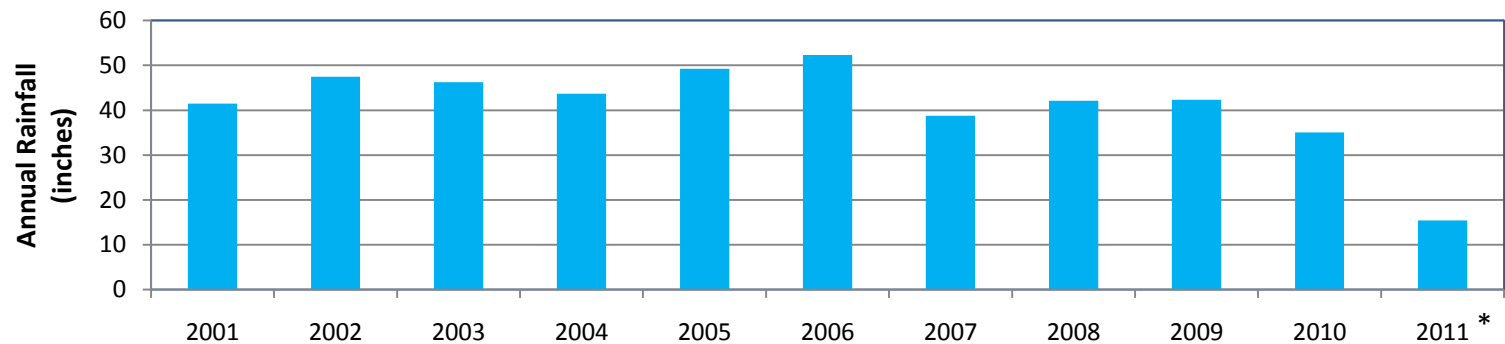
- Constructed in 1978 as microstrainer facility, converted to fine screens for improved solids removal in 2003
- Treatment:
  - Screening
  - Storage (77,000 gallons)
  - Solids trap and removal
  - Disinfection



# CSO Discharge Monitoring

- All CSO discharge volumes are recorded for both CSO treatment facilities – reported on City web site
- CSO discharge monitoring is performed according to permit requirements:
  - on 2 events per month
  - discharge event must be 15 minutes or longer
  - Influent and effluent at Washington St. CSO Treatment Facility
  - Effluent only at Wellington Ave. CSO Treatment Facility
- The following is measured:
  - Biochemical Oxygen Demand (BOD)
  - Total Suspended Solids (TSS)
  - Settleable Solids (SS)
  - Fecal Coliform
  - Residual Chlorine

# Washington Street CSO Treatment Facility - Performance

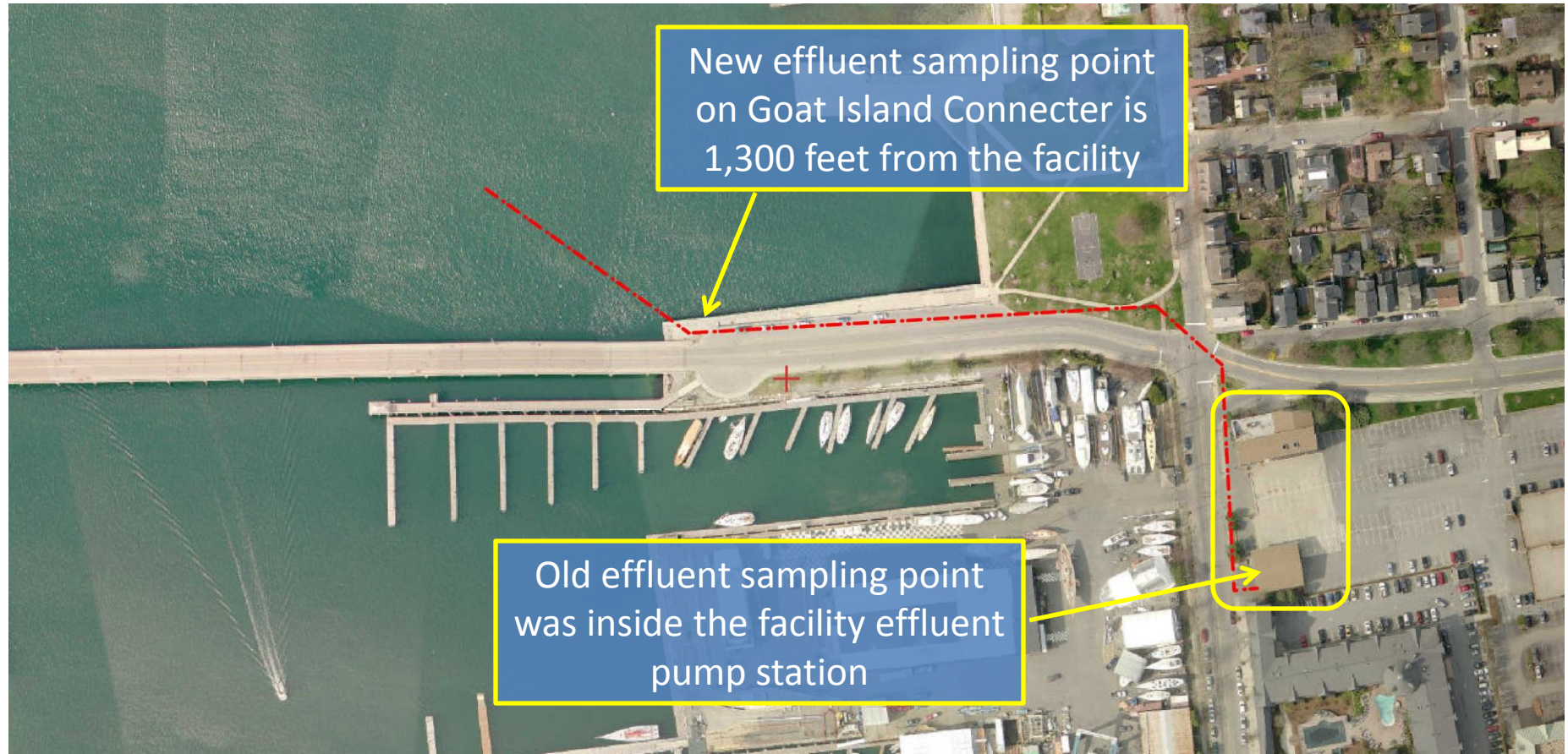


\* Through July 2011.

+ March 29, 2010 - 64.4 million gallons in one event.

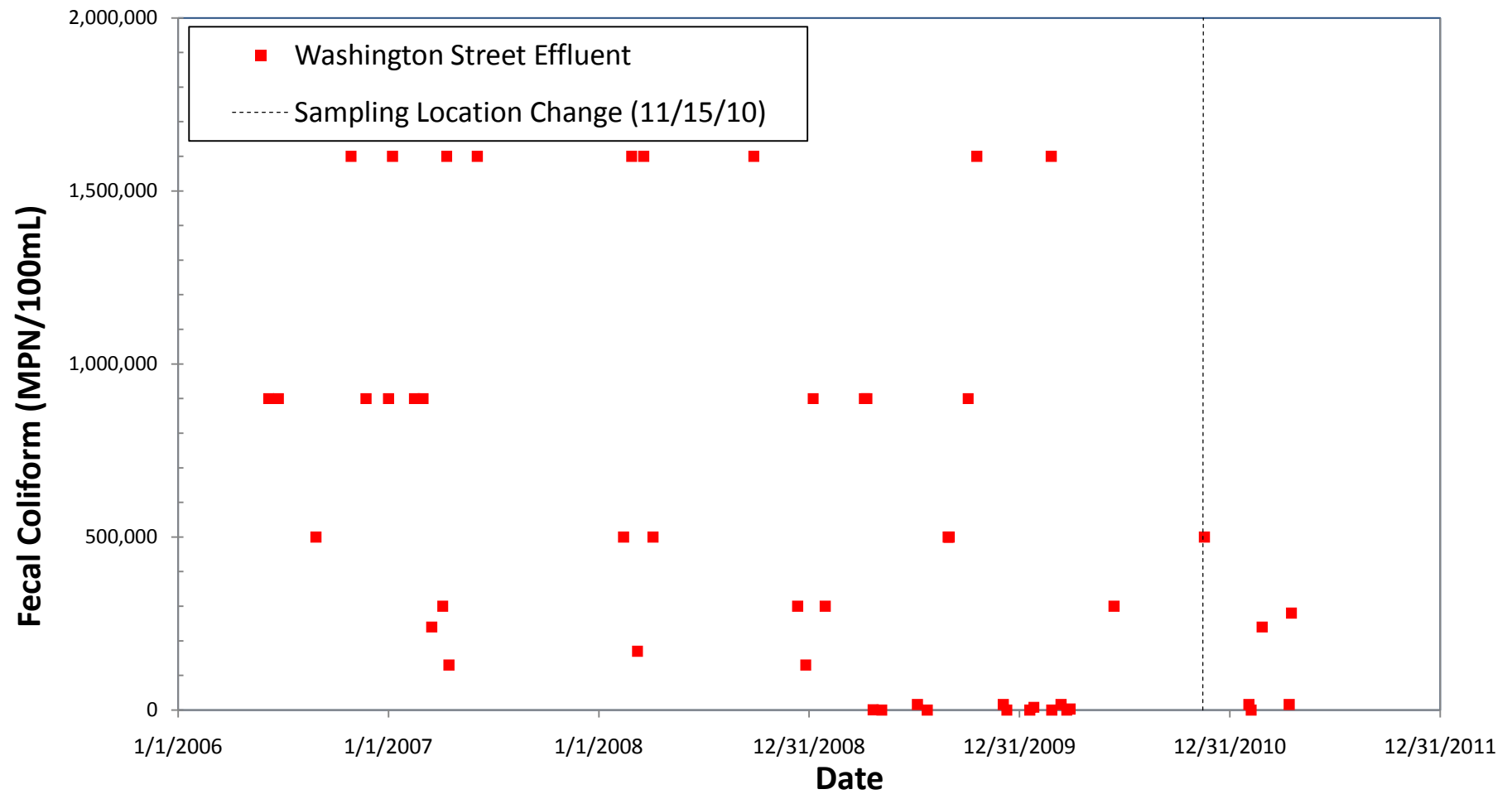


# Washington Street CSO Treatment Facility – Effluent Sampling

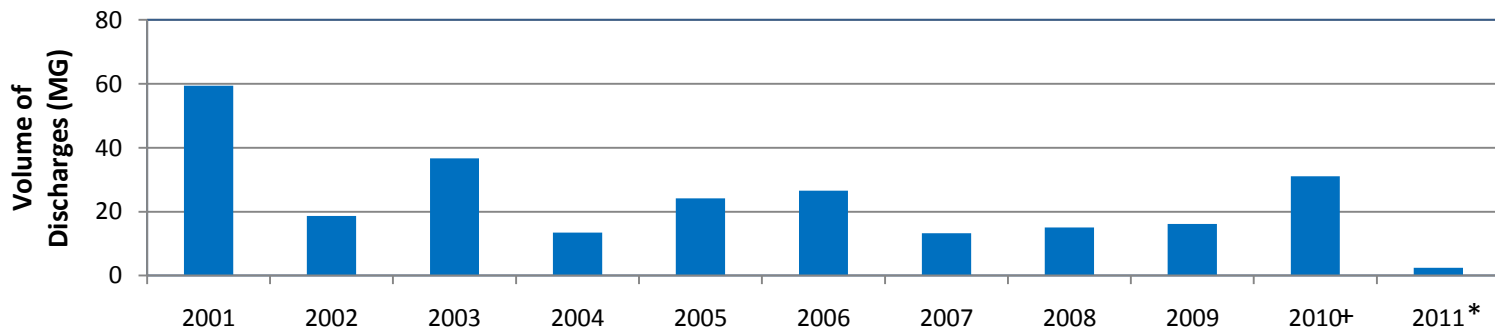
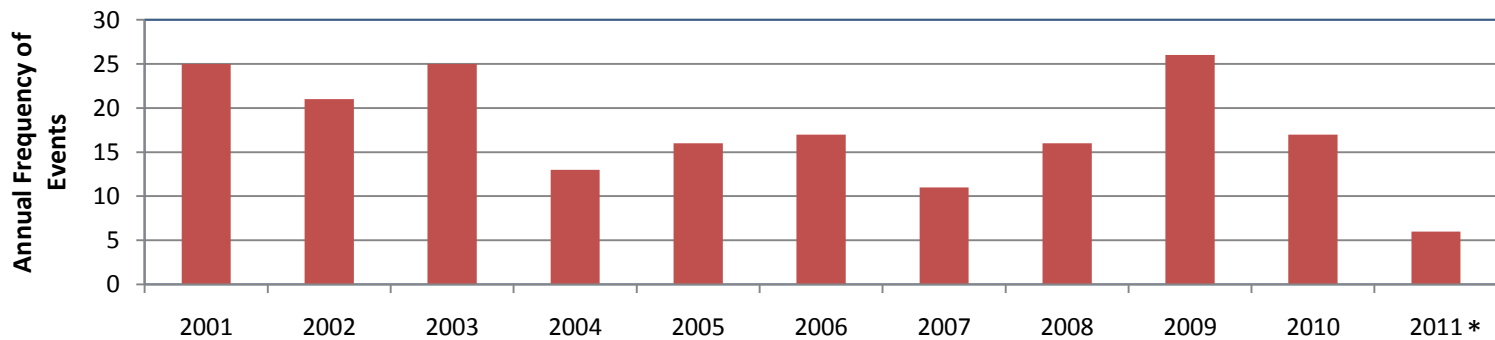
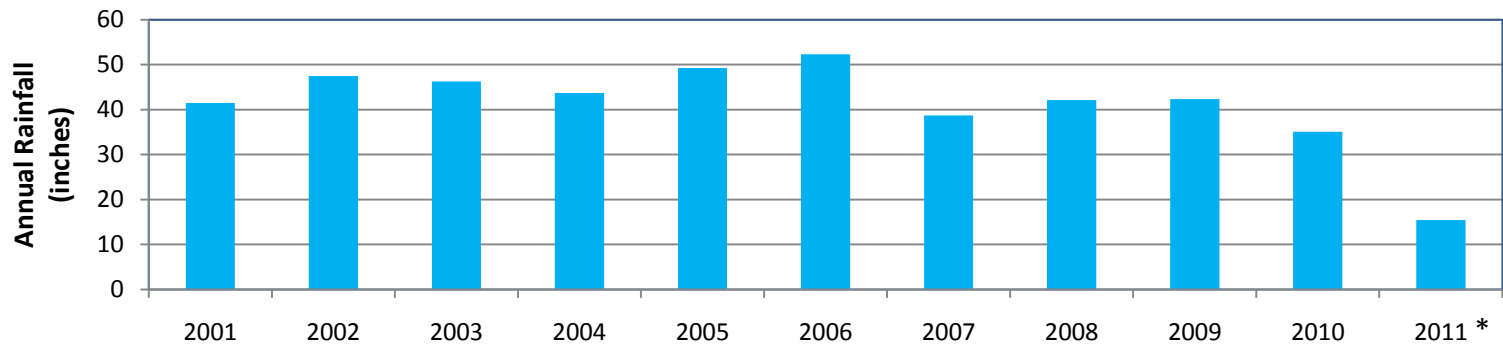


Effluent sampling point changed in November 2010

# Washington Discharge Quality



# Wellington Avenue CSO Treatment Facility - Performance

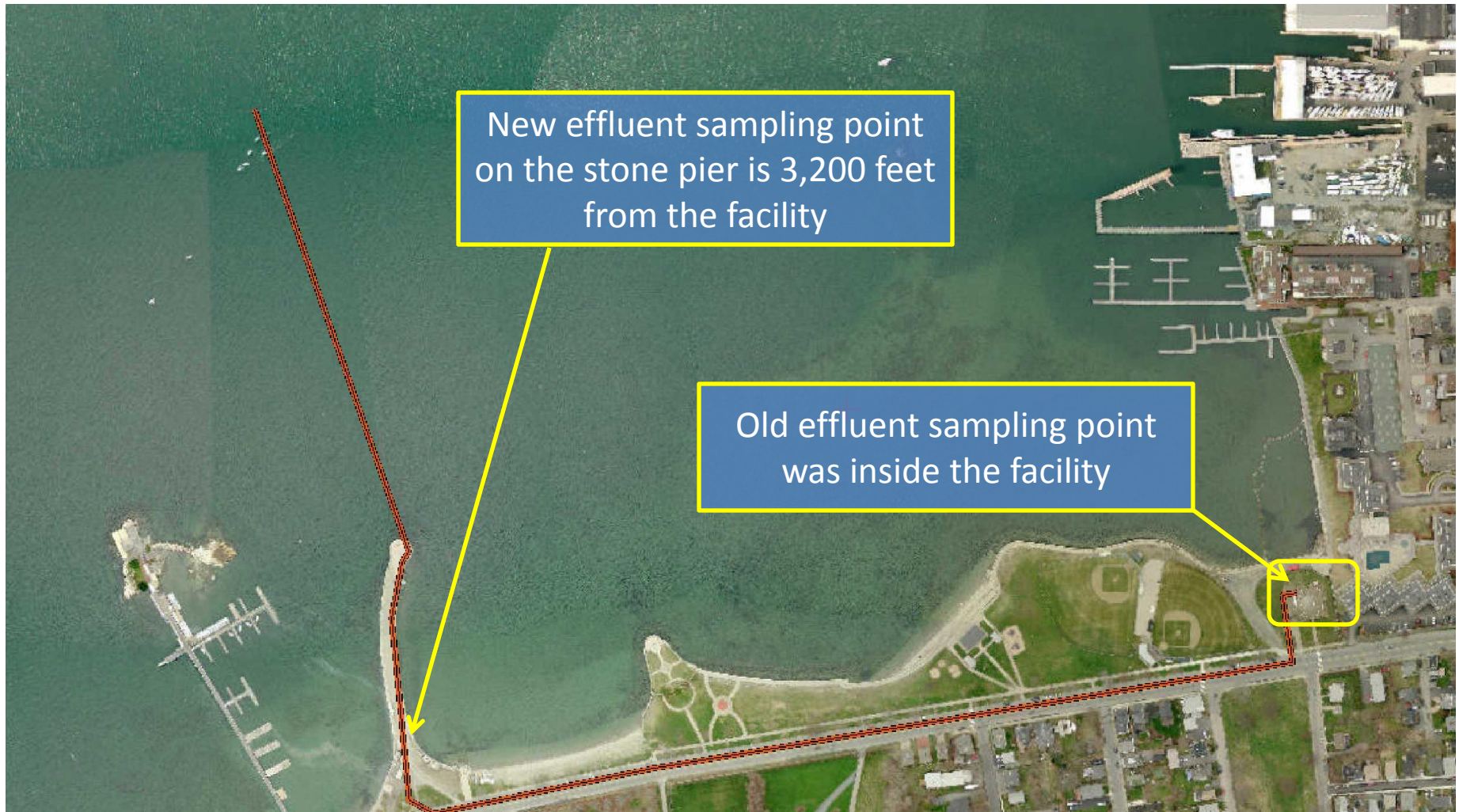


\* Through July 2011.

+March 29, 2010 – 14.3 million gallons in one event.

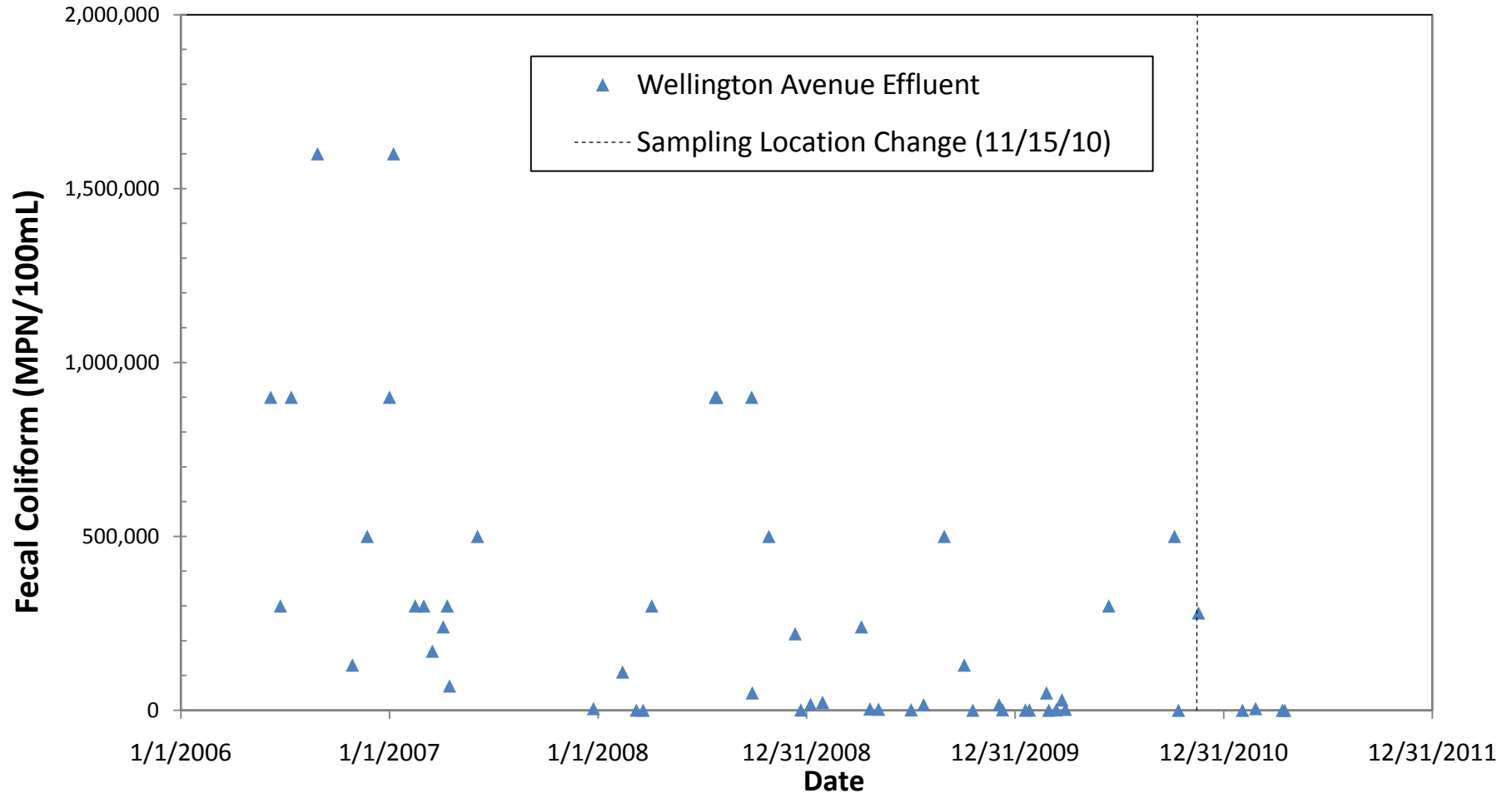


# Wellington Avenue CSO Treatment Facility – Effluent Sampling



Effluent sampling point changed in November 2010

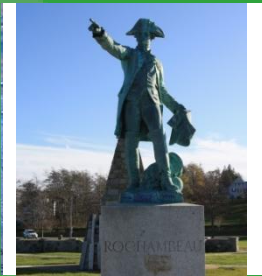
# Wellington Discharge Quality





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# OBSERVED WATER QUALITY IN NEWPORT HARBOR

# Newport Harbor Water Quality Conditions Introduction

- Water quality monitoring programs
- Bacteria conditions



- Who is Monitoring Water Quality?
  - City of Newport, since 2008 in conjunction with RIDEM, for the CSO Program
    - Weekly
    - During CSO discharge and 6 hours later – attempted 2x/yr
  - Rhode Island Department of Health Beach Program
    - At designated beaches from Memorial Day to Labor Day
    - 7-8 times per month at King Park Main Beach
  - Clean Ocean Access
    - Beaches & known swimming areas (some not designated)

# What is Monitored by the City of Newport?

- Water Temperature, pH, and salinity
- Fecal Coliform and Enterococci
- Biochemical Oxygen Demand
- Total Suspended Solids
- Total Kjeldahl Nitrogen (TKN)
  - organic nitrogen and ammonia

# Newport Harbor Waterbody Map

## Rhode Island Waterbodies and Classifications

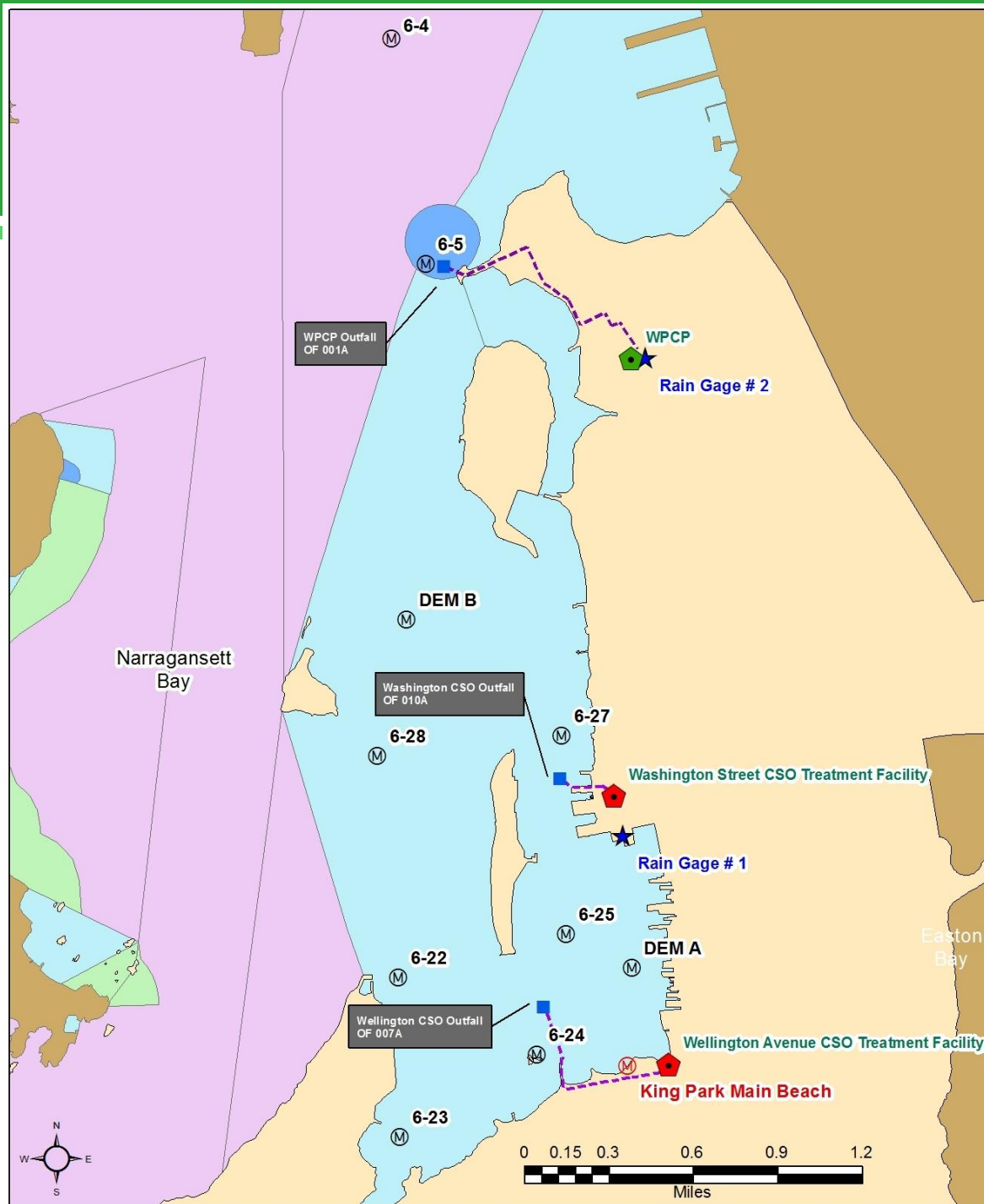


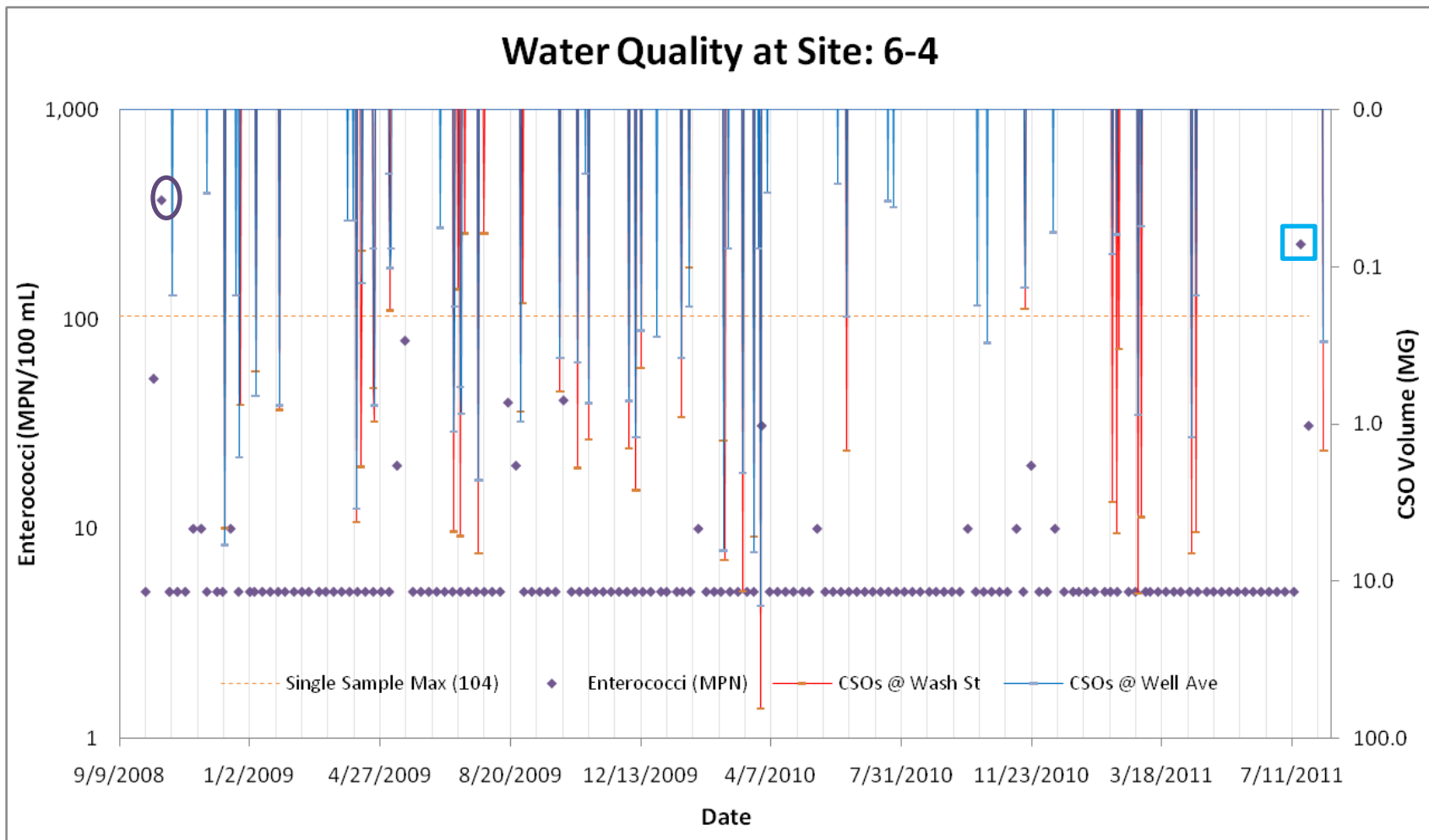
## Features:

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- Newport CSO Facilities
- Newport WPCP
- Newport Sewer Metering Rain Gages

## Sensitive Areas:

- King Park Main Beach
- Shellfishing Sites



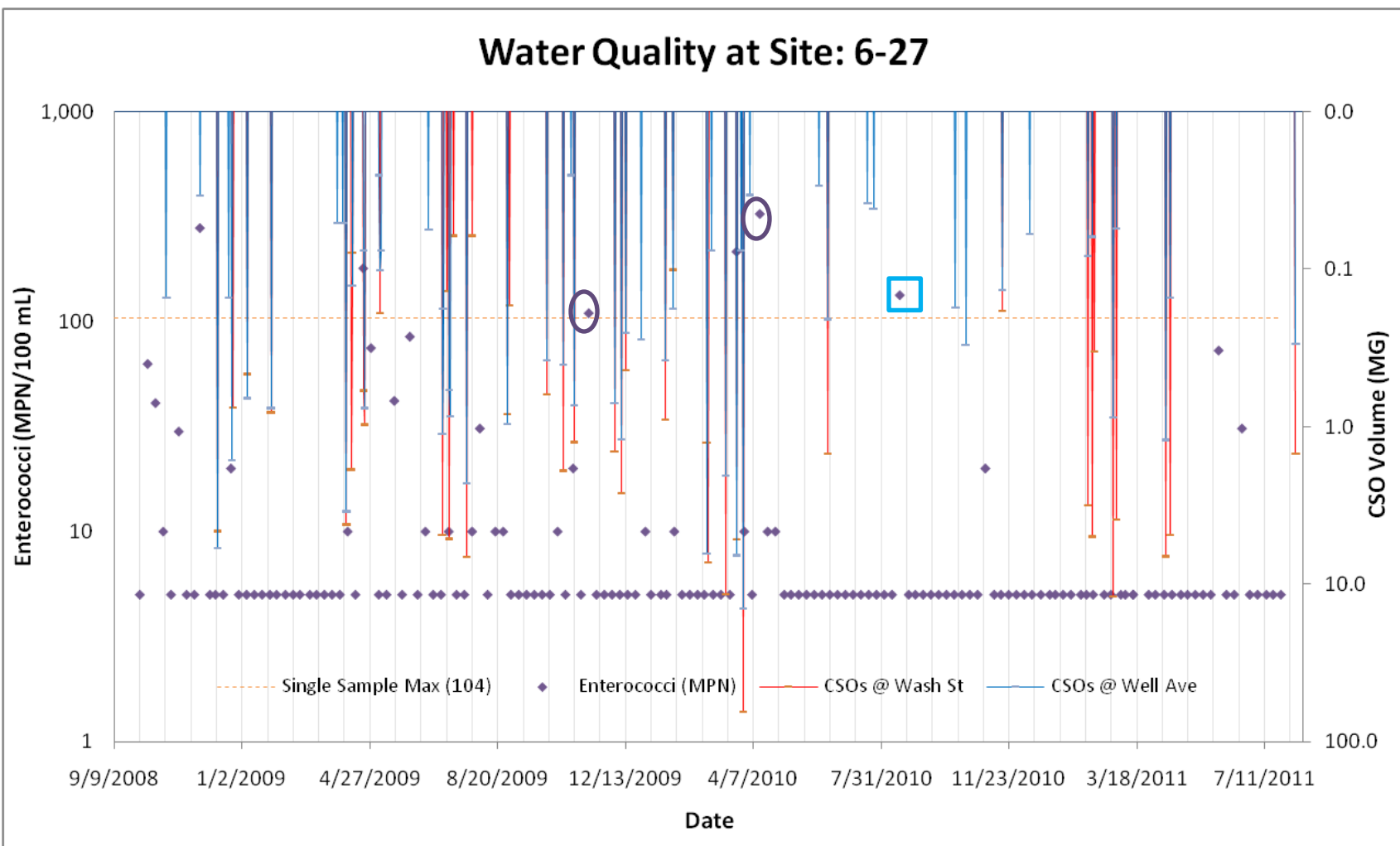


  Wet weather exceedance, no CSO

  Dry weather exceedance

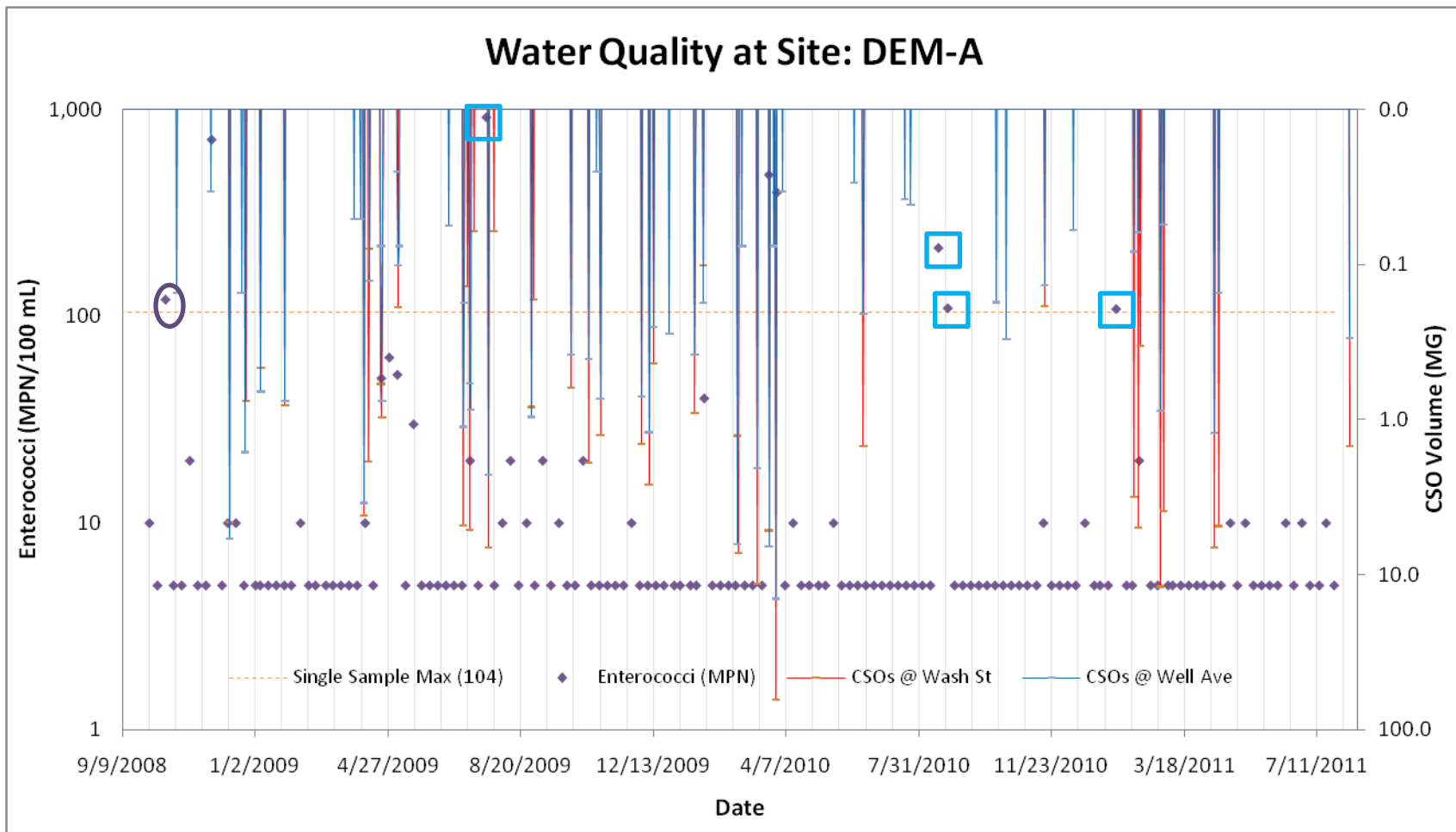


### Water Quality at Site: 6-27



Wet weather exceedance, no CSO

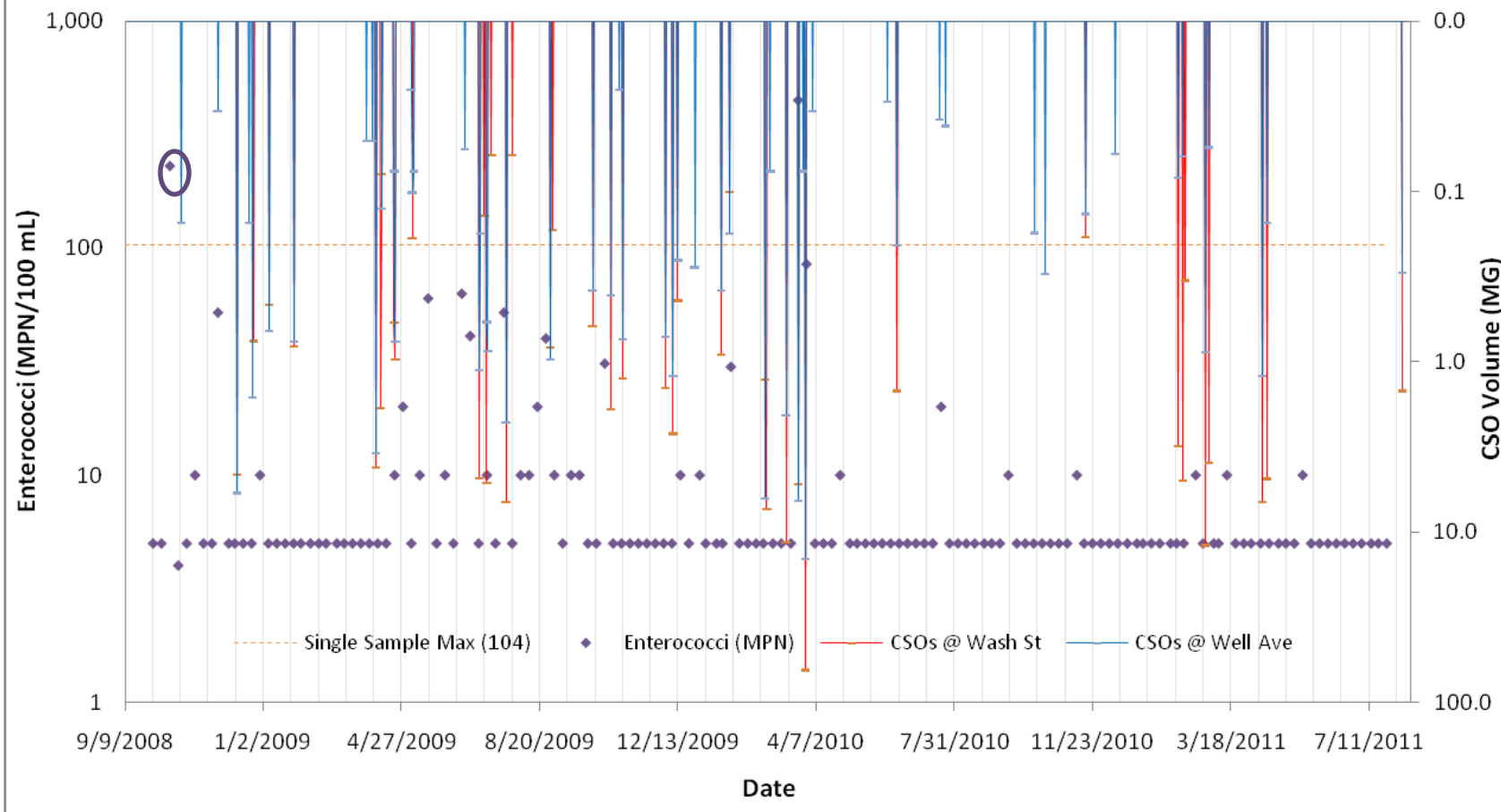
Dry weather exceedance





  Wet weather exceedance, no CSO

  Dry weather exceedance

## Water Quality at Site: 6-24



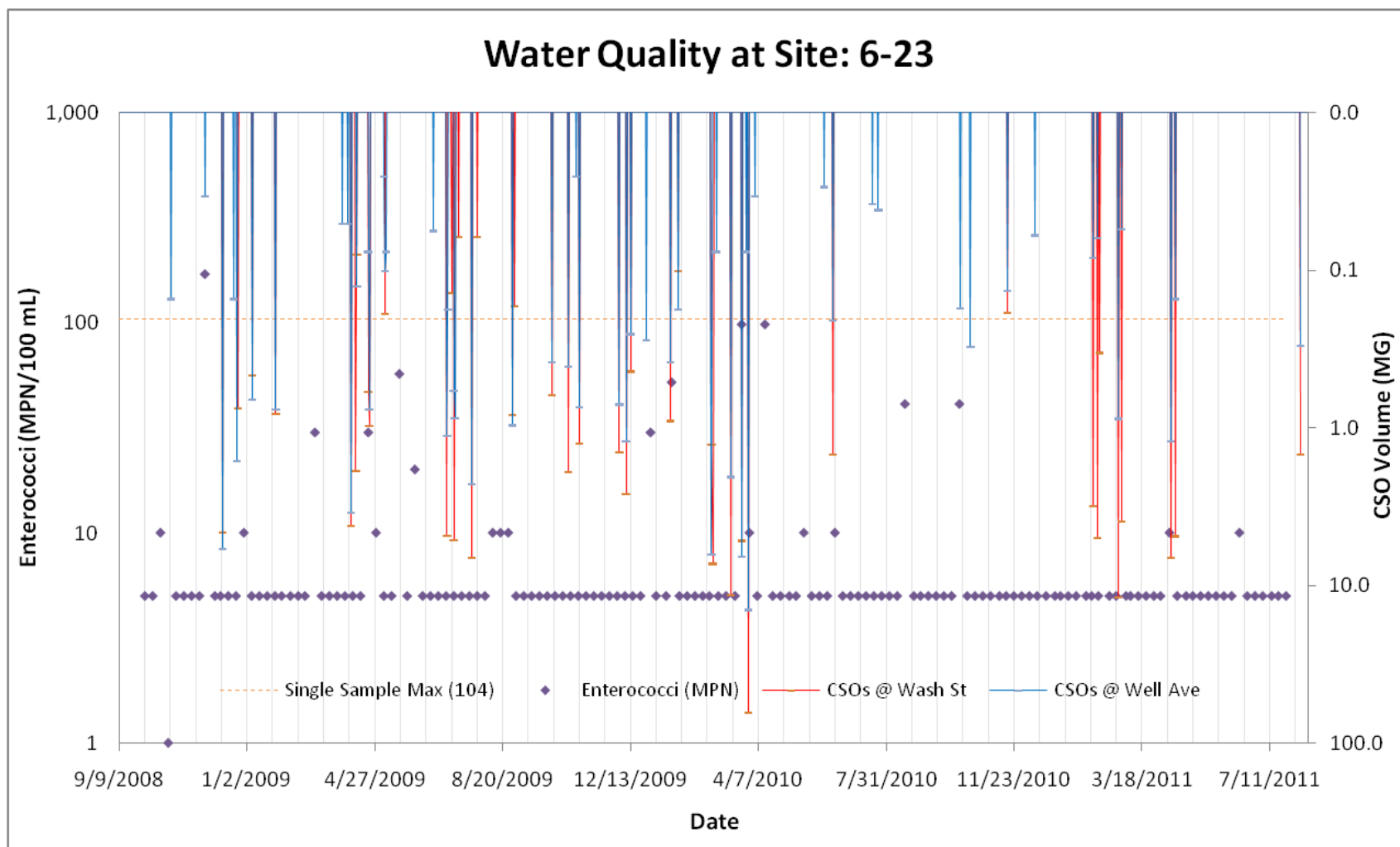
 Wet weather exceedance, no CSO

 Dry weather exceedance





### Water Quality at Site: 6-23

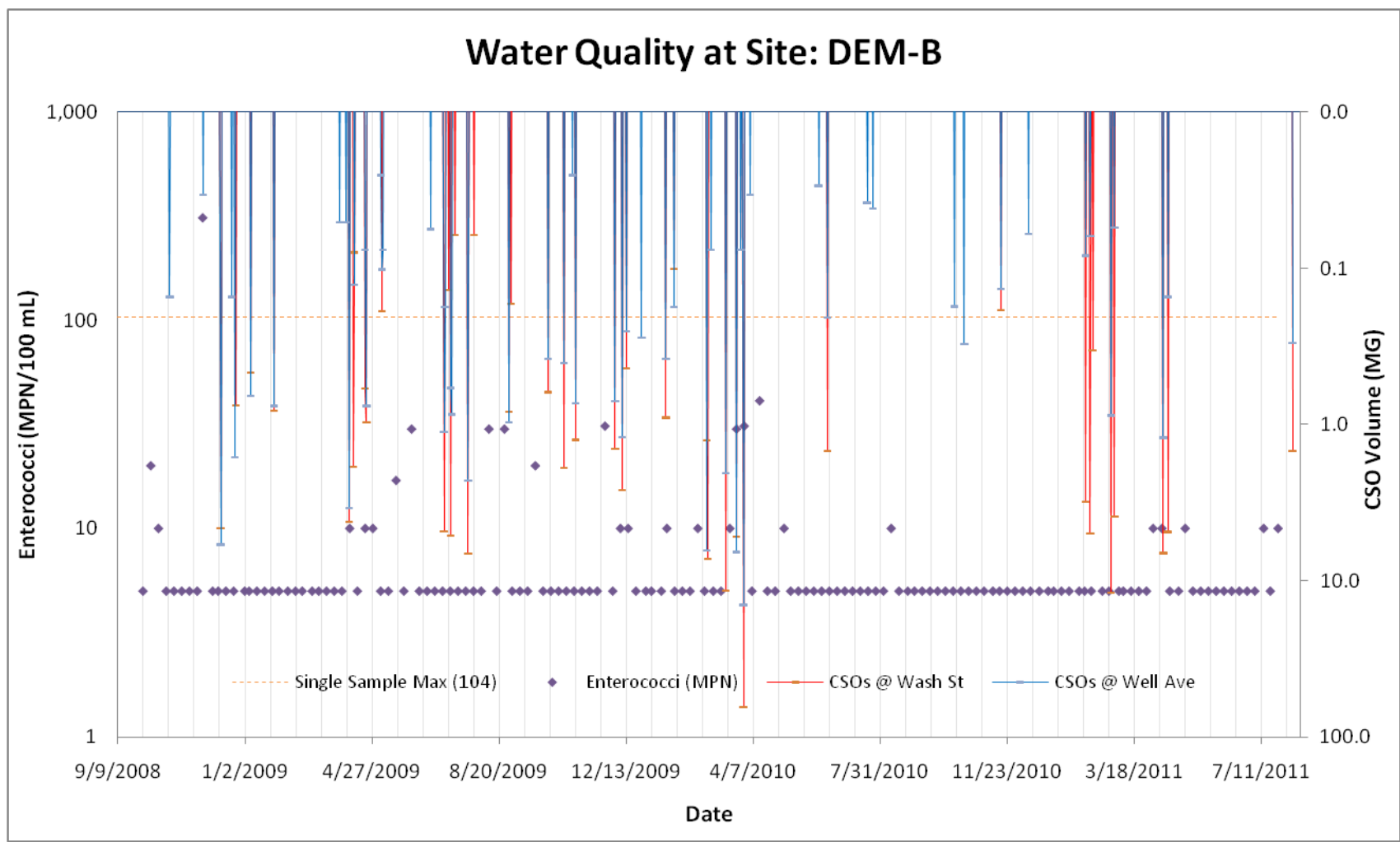



Wet weather exceedance, no CSO


Dry weather exceedance

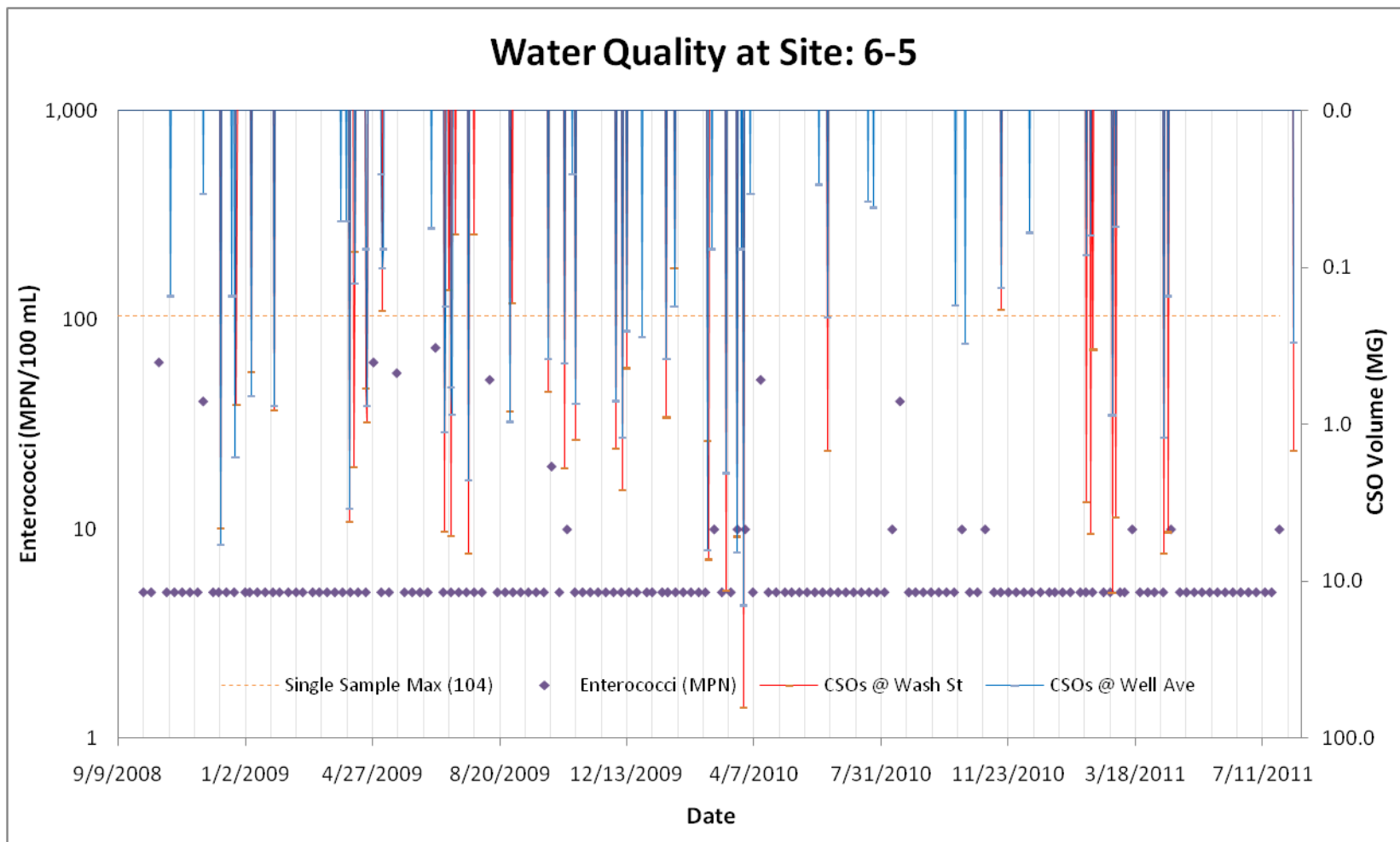



### Water Quality at Site: DEM-B




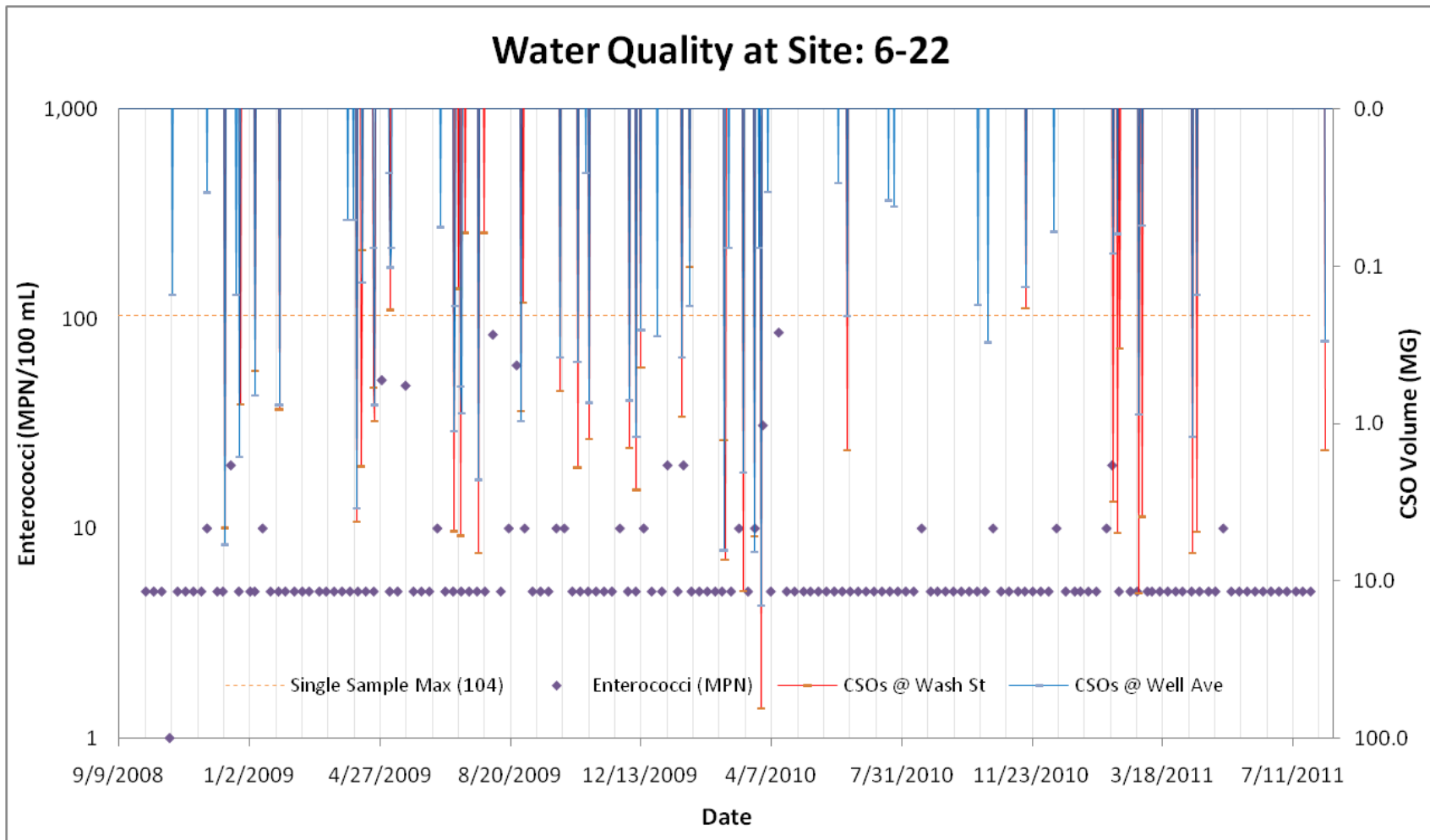
 Wet weather exceedance, no CSO

 Dry weather exceedance



 Wet weather exceedance, no CSO

 Dry weather exceedance

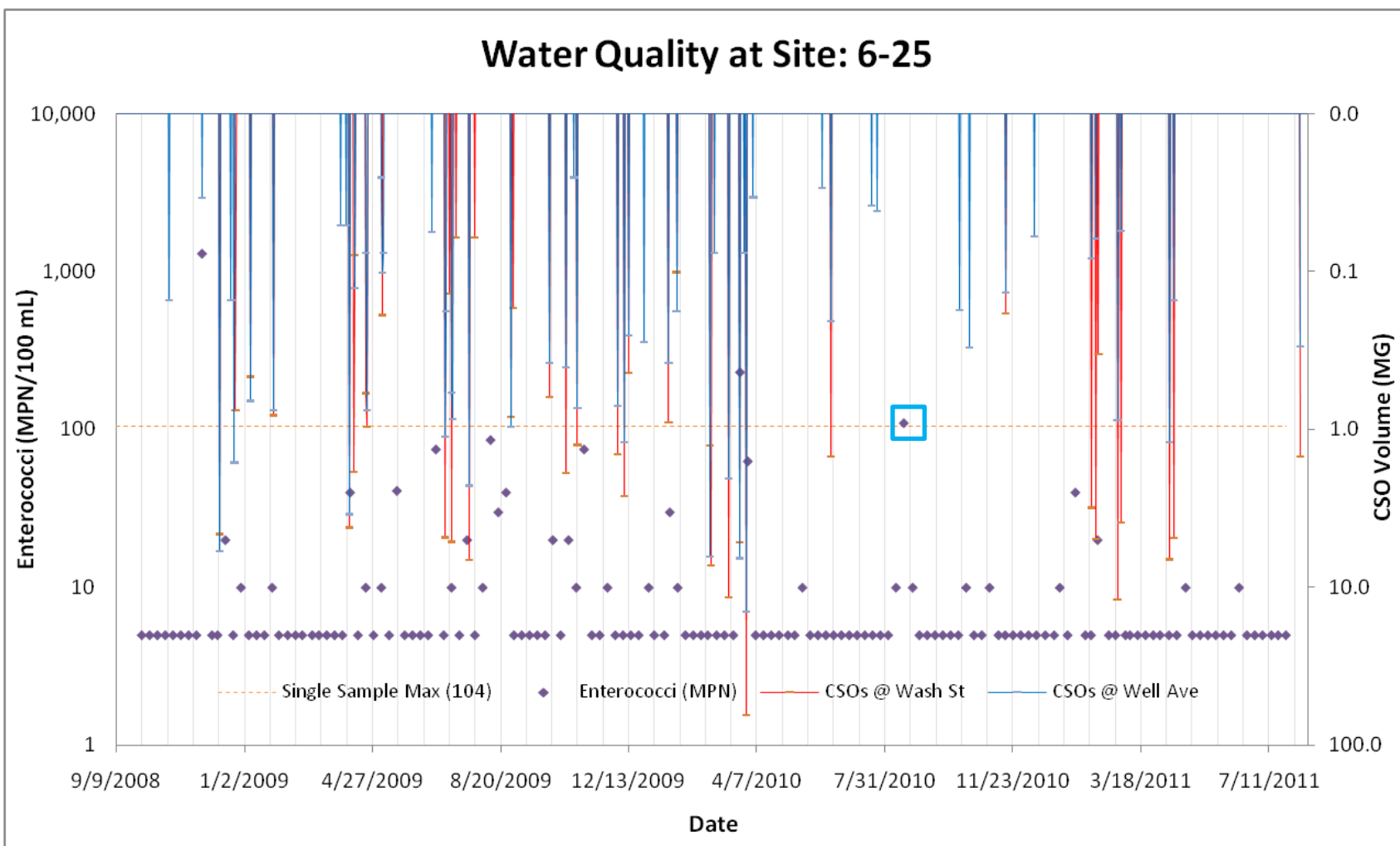



Wet weather exceedance, no CSO


Dry weather exceedance



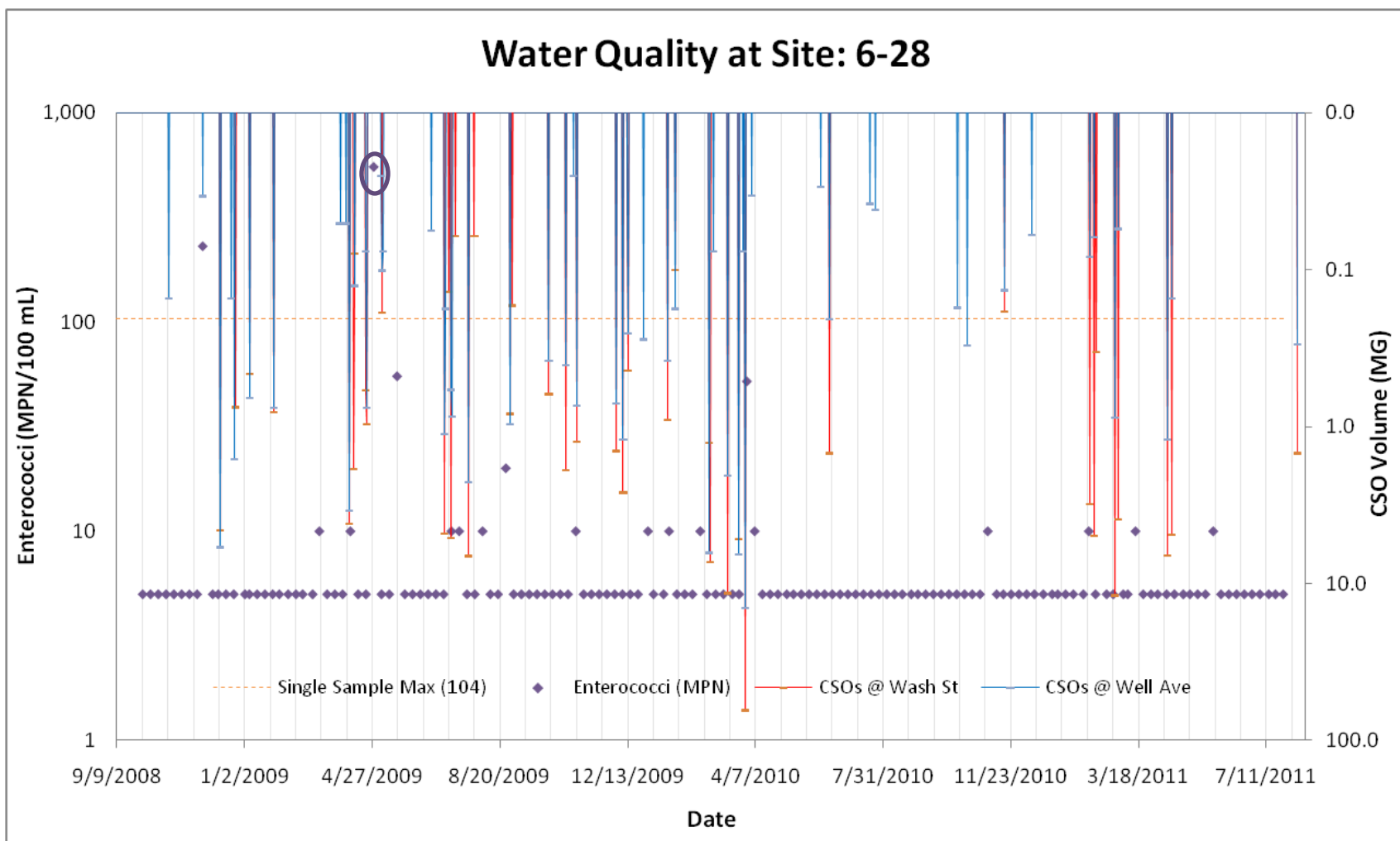
### Water Quality at Site: 6-25



 Wet weather exceedance, no CSO

 Dry weather exceedance

## Water Quality at Site: 6-28

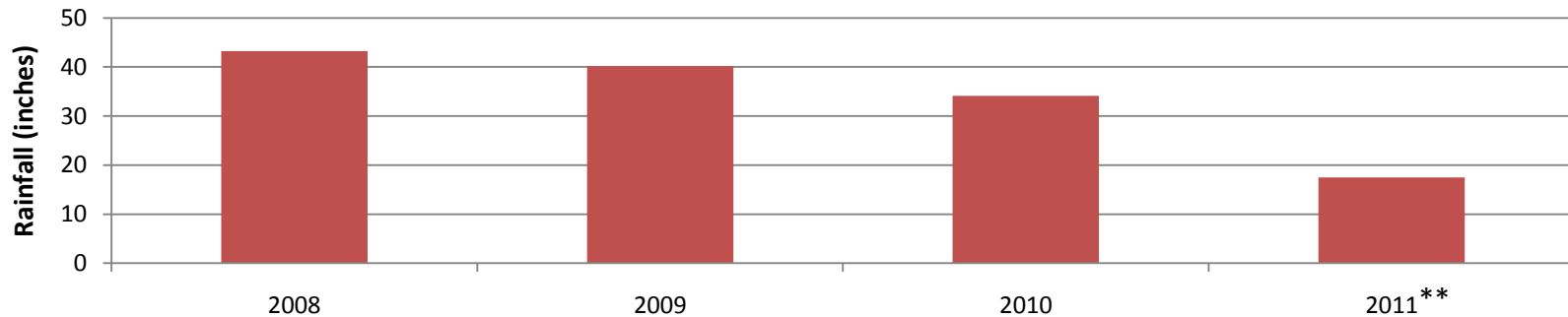


Wet weather exceedance, no CSO

Dry weather exceedance

# Harbor Water Quality Summary

## Annual Rainfall



## Harbor Enterococci Compliance



**Notes:**

\* 2008 is a partial data set beginning October 2008

\*\* 2011 is a partial data set representing data collected through July 19th.



# Harbor Water Quality Following Wet Weather

- From October 2008 through July 2011 there have been:
  - 148 sampling days
  - 1,480 samples collected
- From October 2008 through July 2011 Enterococci exceedances have been detected when:
  - CSOs have not occurred in preceding 2 days
  - Rain has not occurred in preceding 2 days

Year	Total Days Exceeding Enterococci <sup>+</sup>	CSO Occurred Within 2 Days	Rain Event, but No CSO	No Rainfall on or Day Before
2008*	2	1	0	1
2009	4	1	1	2
2010	5	2	2	1
2011*	2	0	2	0

\*2008 & 2011 are partial years.

<sup>+</sup> Enterococci was not exceeded at all 10 locations. For 7 of 13 days, Enterococci was exceeded at only 1 station.

# Newport Harbor Exceedances

## Rhode Island Waterbodies and Classifications



## Features:

- Newport Harbor Sampling Stations
- Newport CSO Facilities
- Newport WPCP
- Newport Sewer Metering Rain Gages

## Exceedances on March 23, 2010

**At:** 6-25, 6-27, DEM-A

**Rain?** 2.78 inches

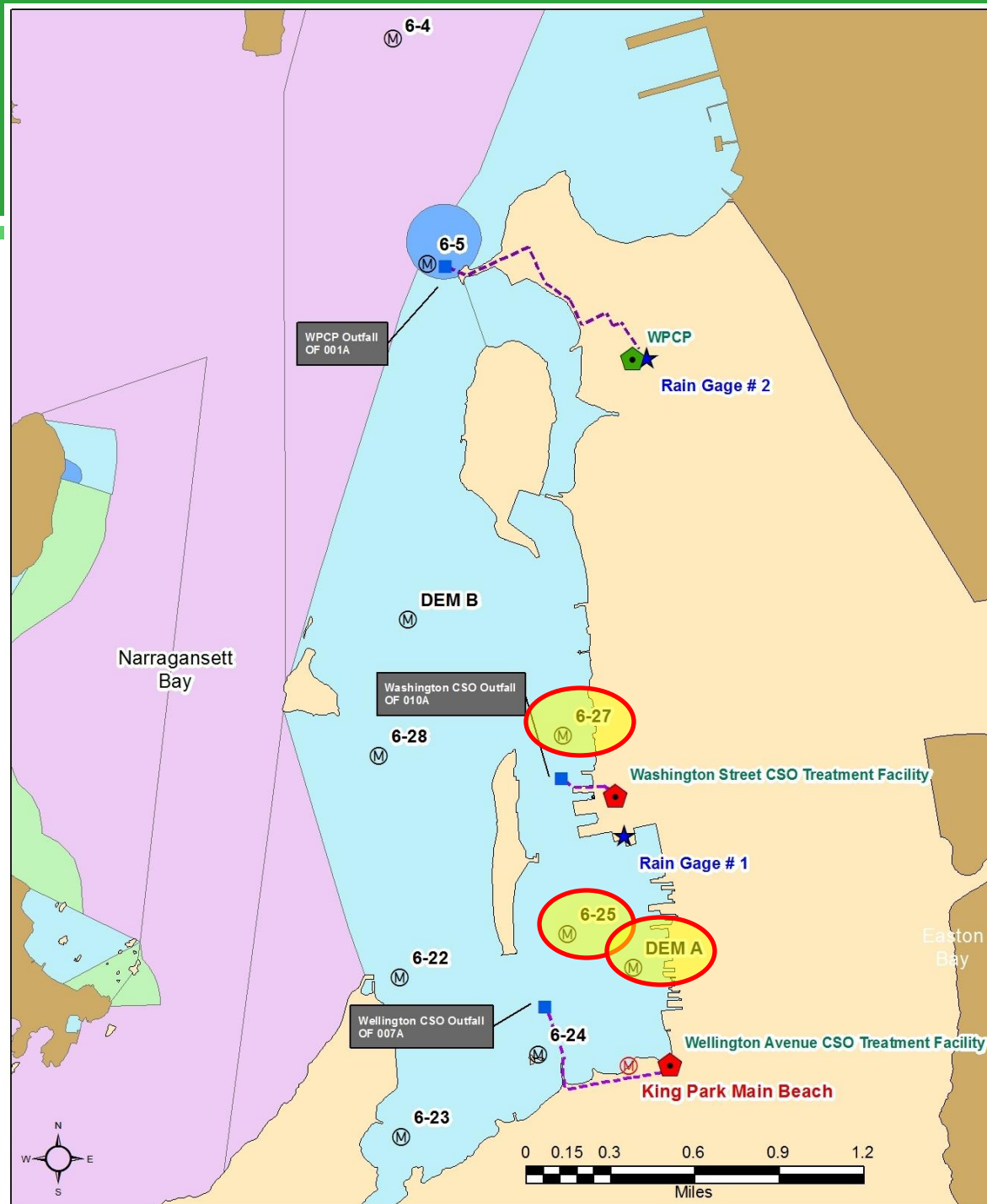
**CSO Discharges?** Yes

## Exceedances on August 17, 2010

**At:** 6-25, 6-27, DEM-A

**Rain?** 0.23 inches (two days)

**CSO Discharges?** No



# Newport Harbor Exceedances

## Rhode Island Waterbodies and Classifications



## Features:

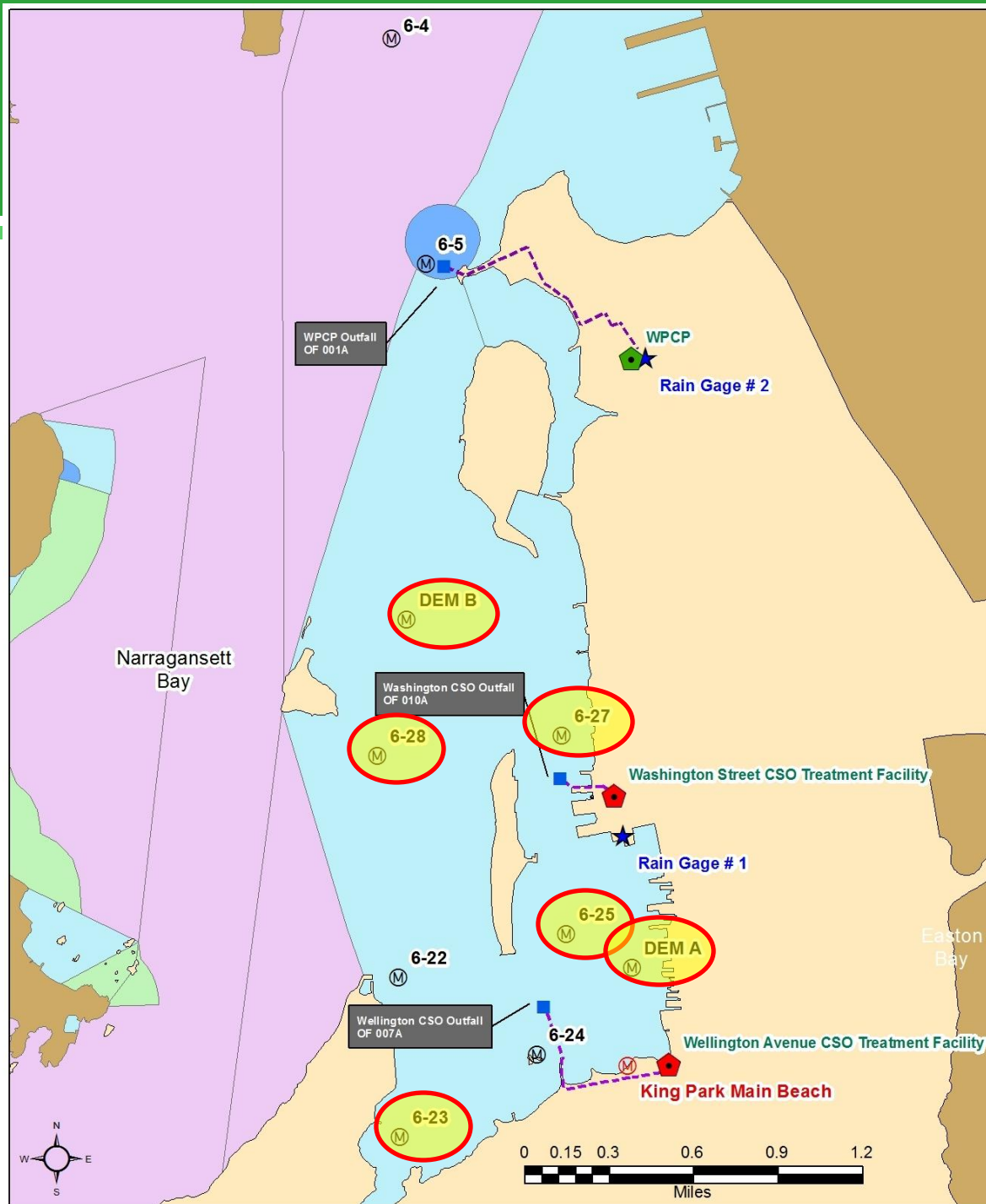
- Newport Harbor Sampling Stations
- Newport CSO Facilities
- Newport WPCP
- Newport Sewer Metering Rain Gages

## Exceedances on November 25, 2008

At: 6-23, 6-25, 6-27, 6-28, DEM-A, DEM-B

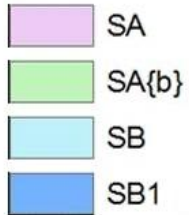
Rain? 0.61 inches (two days)

CSO Discharges? Wellington only



# Newport Harbor Exceedances

## Rhode Island Waterbodies and Classifications



## Features:

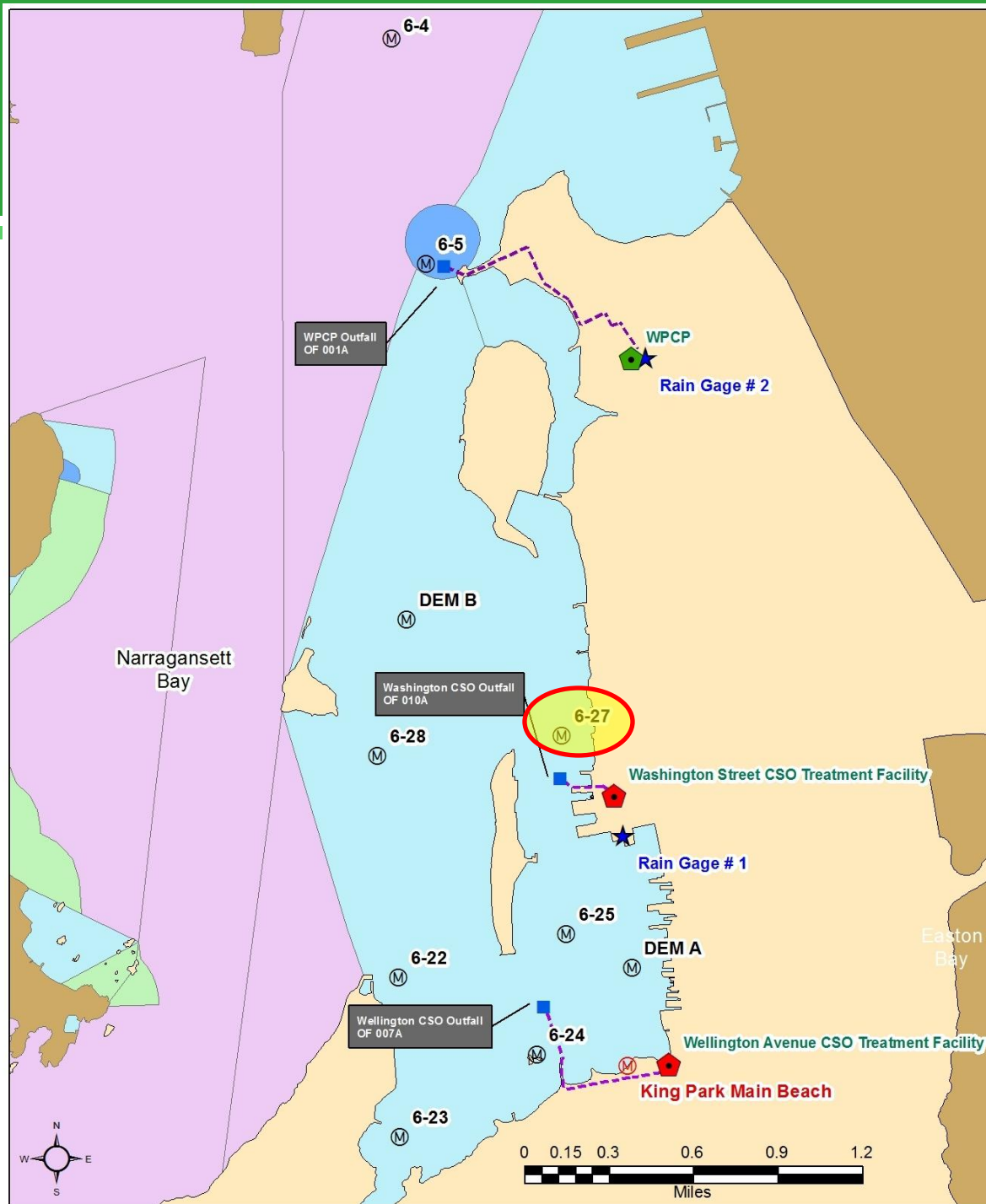
- Newport Harbor Sampling Stations
- Newport CSO Facilities
- Newport WPCP
- Newport Sewer Metering Rain Gages

## Exceedance on April 13, 2010

At: 6-27

Rain? No

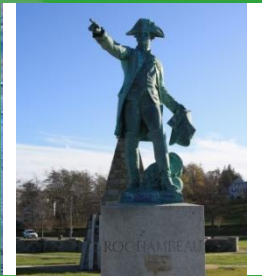
CSO Discharges? No





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# HOW WATER QUALITY AFFECTS CSO PLANNING



# Summary of Current Status

- No untreated discharges of raw sewage to Newport Harbor by the City of Newport
- Treated wet weather discharges occur only at 2 RIDEM-permitted CSO treatment facilities
- The designated uses for the Harbor are SB and SB1 fishable/swimmable
- State of Rhode Island reports that designated uses are “fully supported”<sup>1</sup> with the exception of a non-related contaminated sediments issue

<sup>1</sup> State of Rhode Island, 2010 303(d) List, List of Impaired Waters, Final July 2011

# How Does Water Quality Data Influence Decision Making?

- Next steps:
  1. Collection System Capacity Assessment
    - Identify portions of the collection system subject to capacity related surcharges or overflows
    - Evaluate effects of public and private infiltration/inflow removal programs
    - Identify structural measures required to prevent surcharges and overflows
    - Evaluate the City's ability to eliminate the Wellington and Washington outfalls

*If the outfalls will not be eliminated....*

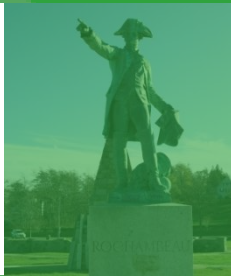
2. System Master Plan (SMP)
  - Identify additional measures to eliminate outfalls
    - WPCP upgrades – including CEPT
    - Off-line and In-line Storage
    - Tunnels
  - Schedule for Implementation – Based on Affordability
  - Compliant with EPA CSO Guidance documents





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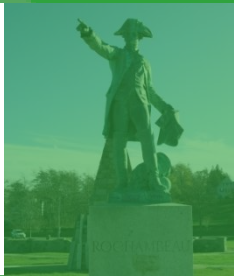


# WATER QUALITY - DISCUSSION, COMMENTS & QUESTIONS



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# FUTURE MEETINGS, WRAP- UP & QUESTIONS

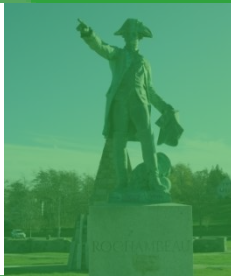
# Future Meetings

- Next Meeting
  - November 10, 2011
  - 3:00 PM
  - Council Chambers
  - Agenda Topics:
    - Financing & Rates
      - Current rates
      - Historic Affordability Analysis
      - Current Affordability Analysis



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QUESTIONS?