

ANNUAL REPORT FY 2017



Hampton Roads Sanitation District
1434 Air Rail Avenue
Virginia Beach, VA 23455

October 30, 2017

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1. INTRODUCTION AND PURPOSE

On September 26, 2007, the Hampton Roads Sanitation District (HRSD) entered into a Special Order by Consent (SOC) with the Virginia Department of Environmental Quality (DEQ) and thirteen (13) area Localities for the purpose of resolving certain alleged violations of environmental laws and regulations related to Sanitary Sewer Overflows (SSOs). On February 23, 2010, HRSD entered into an Amended Consent Decree (“Consent Decree”) with the United States of America and the Commonwealth of Virginia for the purpose of fulfilling the objectives of the Clean Water Act and the Virginia State Water Control Law. This Consent Decree has been modified four times by agreement of all parties in 2011, 2013, 2014, and 2017. In December 2014, the SOC was eliminated by DEQ and HRSD is no longer under state enforcement.

The Consent Decree requirements include the following major tasks:

- Implement a flow, pressure, and rainfall monitoring program;
- Consult with the Localities to develop a Regional Hydraulic Model;
- Prepare a plan for and conduct a condition assessment program;
- Construct specified interim system improvements;
- Develop and implement an SSO Response Plan;
- Develop a Regional Wet Weather Management Plan in consultation with Localities;
- Update and implement a Management, Operations and Maintenance (MOM) Program; and
- Prepare and submit a variety of periodic and event-driven reports.

This annual report is submitted pursuant to Section XVII of the Consent Decree. HRSD has prepared this annual report in accordance with the above requirements to apprise the EPA (representing the United States of America) and the DEQ (representing the Commonwealth of Virginia) of steps taken toward meeting the obligations of the Consent Decree. Specifically, this annual report summarizes the work and activities undertaken by HRSD from July 1, 2016, through June 30, 2017, and the resulting benefits to the sanitary sewer system.

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2. ACTIVITIES UNDERTAKEN PREVIOUS FISCAL YEAR

2.1 Flow, Pressure, and Rainfall Monitoring Program

2.1.1 Ongoing System Monitoring

Following completion of the 12-month flow, pressure, and rainfall monitoring period on March 11, 2011, HRSD continues to maintain a wide-scale monitoring network. Regular manual data review has been conducted to verify data reliability. In FY 2017, HRSD has made several changes to its monitoring network. Table 2-1 below lists the significant changes in detail.

Site Number	Name	Action
MMPS-301	City Center Blvd.	Installed flow meter on 7/6/16
MMPS-211	Cedar Rd. at Dominion Blvd.	Re-installed flow meter on 7/22/16
MMPS-033	Norchester PS	Re-installed flow meter on 7/28/16
MMPS-299	Courthouse Interim PRS	Installed flow meter on 10/26/16
MMPS-023	PCV at Williamsburg TP Influent	Temporarily removed flow meter 12/21/16
MMPS-033	Norchester PS	Installed meter on bypass 3/13/17
MMPS-003	VIP TP Main Flow	Additional flow meter installed 6/13/17
MMPS-308	Kingsmill PCV	Flow meter installed on 24 NF 007 on 6/28/17
MMPS-308	Kingsmill PCV	Flow meter installed on 36 NF 006 on 6/28/17
MMPS-301	City Center Blvd.	Pressure meter installed 7/6/16
MMPS-211	Cedar Rd. at Dominion Blvd.	Pressure meter re-installed 7/25/16
MMPS-283	Cedar Road near Grassfield Rd.	Pressure meter removed 4/17/17

A portal to allow access for the Localities to the HRSD flow, pressure, and rainfall data from the FPR sites (Telog server data) was developed and implemented in February 2009 and continues to be used and enhanced.

2.2 Condition Assessment Plan

2.2.1 Rehabilitation Action Plan Implementation

The Plan contains 67 projects to be completed in three phases. Table 2-2 shows the status of the Plan phases through FY 2017. One project in Phase 1 (CE-R3) was cancelled with EPA/DEQ approval and reduces the total to 66 projects.

Table 2-2. Rehabilitation Action Plan Phase Status

Phase	Number of Projects Completed	Total Number of Projects	Cost of Completed Projects	Total Cost of All Projects in Phase per Rehab Plan	Completion Milestone
0	9	10	\$26,985,988	\$27,328,000	May 5, 2018
1	3	21	\$7,769,420	\$60,321,000	May 5, 2021
2	1	35	\$7,342,840	\$95,702,000	May 5, 2025
Total	13	66	\$42,098,248	\$183,351,000	

The projects which have been completed in FY 2017 are listed below. Project certifications, as required under Paragraph 87 of the Consent Decree, are included in Appendix A.

- Phase 1
 - CE-R5 (CE-112) – Central Trunk Interceptor Force Main A & B Main Line Valves
 - GN-R12 (GN-136) – North Shore Pump Station Wet Well Rehabilitation
 - VIP-R13 (VIP-162) – South Trunk Section G 30 and 24-Inch Force Main
- Phase 2
 - JR-108-2 – Warwick Boulevard to James River Influent Force Main Section 2

Rehab Plan project VIP-R13 was completed as part of a single construction project along with Interim System Improvement project CD #29.

2.3 Interim System Improvements

Appendix 5 to the February 2010 Consent Decree lists thirty-three projects that are required to be completed within 8 years of the Date of Entry of the Consent Decree. The modification to the Consent Decree in FY 2013 has added eighteen (18) new projects for a total of fifty-one (51). Modification No. 3 which was entered by the court in August 2014 added two (2) projects and removed eight (8), leaving a total of forty-five (45) Interim System Improvement projects. HRSD has each of these projects scheduled as part of its Capital Improvement Program with completion prior to February 23, 2018, with the exception of the recent additions of projects at the VIP Sewage Treatment Plant (STP), which have a December 2018 deadline.

All projects are underway or complete with several in construction during this fiscal year. In total, 35 projects are complete and 10 are in construction. As required by Paragraph 32 of the Consent Decree, HRSD will provide a certification by a Professional Engineer that each of these projects was completed satisfactorily and in conformance with the scope as originally provided to the EPA and DEQ. HRSD is on schedule to meet the milestones, and eight projects were completed during this period, listed in Table 2-3.

HRSD wrote to EPA/DEQ on April 24, 2017 (copy attached in Appendix C) providing an update on HRSD's implementation of the SCADA Upgrades and Enhancement Project, which is one of HRSD's Interim System Improvements (CD #30). HRSD explained that it has exceeded the projected financial commitment for the SCADA upgrade project; however, HRSD continues to evaluate the SCADA technical approach with an eye toward achieving the greatest possible functionality using the latest optimal technology. HRSD has agreed to keep EPA and DEQ advised as it further enhances the SCADA program. EPA responded by electronic mail on May 3, 2017, agreeing that HRSD has satisfactorily completed this ISI project.

The projects which have been completed in FY 2017 are listed in Table 2-3. Project certifications as required are included in Appendix A.

Table 2-3. Interim System Improvement Projects Completed in FY 2017

CD Ref Number	CIP Number	Project Name	Consent Decree Project Cost	Actual Project Cost
15	WB-107	Williamsburg Interceptor Force Main Contract A Replacement	\$6,000,000	\$7,132,000
16	BH-100	33rd Street Pump Station Replacement/Rehabilitation	\$3,000,000	\$5,340,459
23	YR-101	Coliseum Drive Pressure Reducing Station	\$6,000,000	\$13,026,473 (includes storage tank not part of original scope)
25	VIP-130	Norchester St Pump Station Replacement/Rehabilitation	\$2,000,000	\$7,365,652
29	VIP-132	South Trunk Sewer Section G 36-Inch and 30-Inch Force Main Replacement	\$3,000,000	\$6,744,257
30	GN-128	Interceptor Systems Pump Station Control and SCADA Upgrades and Enhancements	\$10,000,000	\$14,900,000
44	JR-117-1	Jefferson Avenue Interceptor Force Main Replacement Phase I	\$4,500,000	\$6,662,022
50	AT-116-1	Courthouse Interim Pressure Reducing Station	\$1,500,000	\$2,840,627

2.4 Management, Operations, and Maintenance Program

2.4.1 Implementation of MOM Program

HRSD continues to implement its MOM Program. This includes details pertaining to management, operations, and maintenance of HRSD's conveyance system, including quantitative performance measures, implementation of continuous improvement initiatives, and special programs coordinated in the region such as the HR FOG. HRSD performed an annual performance assessment of its MOM Plan in accordance with Section 5 of the MOM Program following completion of FY 2017. HRSD previously completed an update of the MOM Program document in July 2015 (FY 2016).

2.4.1.1 MOM Program Update

During FY 2016, HRSD updated its MOM Program based on policy and procedure changes, as well as organizational changes. The next major MOM Program update is anticipated in FY 2019.

2.4.1.2 HR FOG

HR FOG is a regional effort aimed at fats, oils, and grease (FOG) in the sewer system and is coordinated by the Hampton Roads Planning District Commission that includes participation from HRSD and the Localities. In FY 2017, HRSD has continued to support the Localities as they implement FOG reduction efforts. HRSD has also supported the region through various training workshops and an education effort to make food service establishments (FSEs) aware of the requirements.

2.4.1.3 Ongoing Condition Assessment Activities

2.4.1.3.1 Field Activities

See Section 4 of this report for details on the MOM-related Condition Assessment Field Activities.

2.4.1.3.2 Prompt Repairs

HRSD continues to implement a program to identify and address collection system infrastructure deficiencies found during the course of condition assessment field activities that require prompt attention. Defects are evaluated to determine if they:

- Pose an immediate threat to the environment;
- Pose an imminent threat to the health and safety of the public;
- Create operational problems that may result in SSOs; or
- Contribute to substantial inflow to the system.

If such a defect is identified through the inspection process, it is assessed to determine the appropriate repair necessary. Data received from the condition assessment program is reviewed to make that determination. A list of completed prompt repairs up through FY 2017 is covered in Section 4.4 of this document.

2.4.2 Quantitative Performance Measures

The revised MOM Program includes many performance measures that HRSD uses to evaluate its progress. Paragraph 34 of the Consent Decree established a list of six measures that are subject to stipulated penalties, including: gravity sewer main inspection, air release valve preventative maintenance, gravity sewer cleaning, pumping station annual preventative maintenance, back-up generator annual preventative maintenance, and non-invasive force main inspection near drinking water supply reservoirs. Targets for all these six measures explicit in the Consent Decree were achieved in FY 2017. The details of HRSD's performance are provided in Section 5 of this report.

2.5 Regional Wet Weather Management Plan

HRSD has continued in FY 2017 to develop the RWWMP through updates to the Regional Hydraulic Model (RHM) and Locality Hydraulic Models (LHMs) and development of capacity solutions. The Alternatives Analysis Report (AAR) was completed in July 2016 and submitted to the EPA/DEQ. Comments were received from the EPA on April 11, 2017, and again on August 29, 2017.

Capacity solutions were optimized from the AAR to address modeled SSOs and surcharge criteria violations for the 5-year peak flow recurrence scenario. Cost estimates were prepared for the identified solutions to meet a 4-yr Level of Service (LOS) for the RWWMP. This information, along with schedule estimates, was compiled into the RWWMP, which was submitted to the EPA/DEQ by the October 1, 2017, deadline.

2.5.1 Private Property I/I Abatement Program

HRSD has continued to develop a regional program that will reduce infiltration/inflow (I/I) from private sources over the long term. Work in FY 2017 largely consisted of two main efforts: conducting pilot projects and incorporation of private property I/I reduction estimates into the RWWMP efforts described above.

In FY 2017, HRSD continued implementation of a set of pilot projects to evaluate the effectiveness of a private property I/I abatement program. Three pilot projects (in addition to the several already completed) were completed in Virginia Beach and Newport News to further refine the assumptions of the regional program, gain experience on multi-family apartment complexes and test a variety of contracting methods for

implementing individual rehabilitation projects. Post-rehabilitation flow monitoring was conducted in FY 2017.

2.6 SSO Emergency Response Plan

On April 28, 2017, HRSD submitted an annual update of the approved Sanitary Sewer Overflow (SSO) Response Plan to the EPA and DEQ. This plan continues to be implemented by HRSD. A copy of the most recently approved plan is posted to the www.hrsd.com website.

2.7 Consultation with Localities

There was a wide variety of consultation activities in FY 2017 with Localities. These activities included:

- Quarterly meetings of the Capacity Team to share progress on compliance with the Consent Decree;
- Periodic updates for the Directors of Utilities Committee;
- A regional SharePoint website continues to be updated to collaborate with and provide documents to the regional Capacity Team;
- Copies of the Semi-Annual Report and Annual Report were provided from HRSD to the Localities via the regional SharePoint website;
- Meetings were held with the Localities to review the final proposed capacity solutions to be incorporated in the RWWMP; and
- Individual meetings with each Locality to review I/I reduction and capacity enhancements in that Locality.

2.8 Public Participation

HRSD conducted an annual information meeting regarding the progress of the Consent Decree on January 24, 2017. In addition, HRSD published a newsletter in February 2017, which is available on the www.hrsd.com website. Information and approved plans continue to be posted to HRSD's website, which is accessible to the public.

2.9 Post-RWWMP Implementation Monitoring and Performance Assessment

No action has been performed for this item as it is a later requirement of the Consent Decree.

2.10 Reporting

2.10.1 Annual Report

HRSD completed an FY2016 Annual Report and submitted it to the EPA and DEQ on October 28, 2016. This report covered Consent Decree activities from July 1, 2015, through June 30, 2016.

2.10.2 Semi-Annual Report

HRSD completed a FY 2017 Semi-Annual Report and submitted it to the EPA and DEQ on April 28, 2017. This report covered Consent Decree activities from July 1, 2016, through December 31, 2016.

2.10.3 Quarterly Briefing

Quarterly briefings were held per Paragraph 90 of the Consent Decree, on September 20, 2016, and January 24, 2017, with attendance by HRSD, the EPA, and the DEQ. Representatives from Localities also attended the briefings. HRSD provided a summary for each of the briefings.

2.11 Summary of Submittals

Table 2-4 summarizes the status of the documentation that HRSD has submitted to the EPA and DEQ under the Consent Decree in FY 2017.

Consent Decree Submittal	Submittal Date
Alternatives Analysis Report	July 29, 2016
Quarterly Briefing	September 20, 2016
Annual Report	October 28, 2016
Quarterly Briefing	January 24, 2017
Annual Public Meeting	January 24, 2017
Annual Newsletter	February 2017
SSO Response Plan Annual Update	April 28, 2017
Semi-Annual Report	April 27, 2017

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3. COMPLIANCE DEADLINES AND MILESTONES

In FY 2017, HRSD expended considerable resources in both time and money to achieve the compliance goals of the Consent Decree. All deliverables were submitted on or before their due dates, including those with short timeframes for response. Table 3-1 below provides a general summary of the major Consent Decree deadlines and the status of each.

Table 3-1. Consent Decree Milestones		
Consent Decree Paragraph	Consent Decree Submittal	Status
13	Quality Assurance Program Plan	Complete
15	Flow, Pressure, and Rainfall (FPR) Monitoring Plan Implementation	Complete
16	Interim and Final FPR Monitoring Reports	Complete
22	Regional Hydraulic Model Plan Implementation	Complete
23	Regional Hydraulic Model Report	Complete
25	Condition Assessment Plan Implementation	Complete
26	Preliminary Condition Assessment Report	Complete
27	Final Condition Assessment Report (FY 2013)	Complete
27	Final Condition Assessment Report (FY 2015)	Complete
29	Interim System Improvements	Ongoing
33	Management, Operations, and Maintenance Program	Complete
39	Preliminary Capacity Assessment Report	Complete
40	Comparative Analysis	Complete
40	Alternatives Analysis Report	Complete
40	Regional Wet Weather Management Plan	Complete
60	Short Term Wet Weather Operational Plan	Complete
69	Sanitary Sewer Overflow (SSO) Response Plan	Complete
71	Annual Updates to SSO Response Plan	Ongoing
77	Annual Informational Newsletters	Ongoing
78	Annual Public Meetings	Ongoing
87	Annual Reports	Ongoing
88	Semi-Annual Reports	Ongoing
90	Quarterly Briefings	Ongoing

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4. MOM PROGRAM CONDITION ASSESSMENT ACTIVITIES DURING FY 2017

HRSD has continued with its MOM-related Condition Assessment Field Activities in FY 2017. The following subsections describe the progress made in each aspect.

4.1 Gravity Main

HRSD completed 94,009 LF of gravity sewer inspections of its system in FY 2017. Approximately 203,206 LF of sewer main was cleaned.

4.2 Force Main

HRSD inspected five sewer force main segments for a total of 83,550 LF in FY 2017 using a variety of approaches and technologies. This includes more than 6,375 LF of non-invasive force main inspections near drinking water reservoirs.

4.3 Pumping Facilities

Regular inspection and preventive maintenance of pumping facilities was performed by HRSD staff.

4.4 Prompt Repairs

As part of the Condition Assessment Program, HRSD has identified 79 defects in the HRSD sanitary sewer system (primarily gravity sewer pipes and manholes) which have been deemed to be Prompt Repairs through June 30, 2017. These 79 defects have been grouped into repair work orders and are currently in various stages of planning, design, construction or are complete. Of the 79 defects, 62 have been repaired through June 30, 2017. The following Table 4-1 provides details on all the Prompt Repairs identified through FY 2017.

Table 4-1. Summary of Prompt Repairs						
Name	Location	Jurisdiction	Line Number	Summary of defect	Number of Defects	Status
41st Street	41st Street east of intersection with Jefferson Ave; between MHs NG-112-12175 and NG-112-11783	Hampton	NG-112	Pipe lining failure	1	Complete
Beach Road	West side of Beach Road opposite intersection with Wade Road between MH NG-088-0 and NG-088-155.	Hampton	NG-088	Pipe connection at manhole needs repair	1	Complete

Table 4-1. Summary of Prompt Repairs

Name	Location	Jurisdiction	Line Number	Summary of defect	Number of Defects	Status
Beach Road	West side of Beach Rd. between intersection with Bonneville Dr. and Catalina Drive between MH NG-088-1654 and NG-088-1863	Hampton	NG-088	Lateral connection to mainline needs repair	4	Complete
	Approximately in front of 112 Beach Rd between MH NG-088-0636 and NG-088-0970	Hampton	NG-088	Mainline pipe defects		
	Beach Rd. approximately 170 ft. south of Wade Rd. intersection	Hampton	NG-088	Manhole defects		
	West side of Beach Road opposite intersection with Hall Road. Between MHs NG-088-1260 and NG-088-1316	Hampton	NG-088	Mainline punctured by another utility directional drilling		
Various Manholes	North King St.	Hampton	NG-078	Manhole defects	3	Complete
	E. Pembroke Ave. at Washington St.	Hampton	NG-084	Manhole defects		
	Bainbridge Blvd. between Beech St. and Wilton St.	Norfolk	SG-153	Manhole defects		
Jefferson Ave	Jefferson Ave. between 40th St and 41st St	Newport News	NG-114	Mainline pipe defects	2	Complete
	Jefferson Ave between 39th and 40th St	Newport News	NG-114	Mainline pipe defects		
Newtown Road	Newtown Rd. at Virginia Beach Blvd (ne corner of intersection)	Virginia Beach	SG-112	Manhole defects and mainline pipe defects	3	Complete
	Newtown Rd. approx. 415 ft. north of Princess Anne Rd.	Virginia Beach	SG-113	Manhole defects		
	Newtown Rd. at Elam Ave.	Virginia Beach	SG-113	Manhole defects		
Mercury Blvd	West Mercury Blvd	Hampton	NG-099	Mainline pipe defects	3	To be completed as part of CIP BH-150
	West Mercury Blvd	Hampton	NG-057	Mainline pipe defects		
	West Mercury Blvd; near Beechwood Rd.	Hampton	NG-057	Mainline pipe defects		

Table 4-1. Summary of Prompt Repairs

Name	Location	Jurisdiction	Line Number	Summary of defect	Number of Defects	Status
Various Repairs	North Hope Street	Hampton	NG-160	Pipe lining failure	3	Complete
	Old Atlantic Avenue; near intersection with Liberty Street	Chesapeake	SG-148	Pipe lining failure		
	South of Steamboat Creek PS	Norfolk	SG-102	Manhole defects		
Witchduck	South Witchduck Road	Virginia Beach	SF-141	Corroded FM bolts	1	Complete
Pin Oak Rd	Pin Oak Road; Residential neighborhood	Newport News	NG-175	Mainline Pipe Defects	1	Complete
Bainbridge Blvd	Bainbridge Blvd near I-464	Norfolk	SG-145	Mainline Pipe Defects	2	Complete
	Bainbridge Blvd near I-464 just upstream of PS	Norfolk	SG-145	Mainline Pipe Defects		
Shell Rd - Hampton	Shell Road	Hampton	NG-141	Mainline Pipe Defects	2	Complete
	Harris Creek Road	Hampton	NG-086	Mainline Pipe Defects		
Pearl Street	Pearl Street near Ligon Street near I-464/I-262 Interchange	Norfolk	SG-202	Mainline Pipe Defects	2	Complete
	Pearl Street near Ligon Street near I-464/I-262 Interchange	Norfolk	SG-202	Mainline Pipe Defects		
Deep Creek	Deep Creek force main on suction side of Deep Creek PRS	Chesapeake	SF-143	FM defects	1	Complete
Wythe Lagoon	Wythe Lagoon Siphon	Hampton	NG-151	Siphon defects	1	Complete
Pump Station Hatches	Ingleside Road Pump Station	Norfolk	PS#148	Wet Well Hatch	1	Complete
Pump Station Wet Wells	Rodman Ave Pump Station Wet Well	Portsmouth	PS#145	Wet Well Defects	1	To be completed as part of CIP VIP-173
Luxemburg Ave	Influent line to Luxemburg Avenue pump station.	Norfolk	SPS-113	Defect at manhole connection	1	Complete
Gowrie and Farragut	Manhole near creek at end of Gowrie Avenue	Norfolk	SG-068	Manhole defects	2	Complete
	Manhole near creek at end of Farragut Avenue	Norfolk	SG-068	Manhole defects		
Shipyard Sewer	Outside of 33 rd street Pump Station	Newport News	33 rd Street	Mainline pipe defects	3	Work order in development
	31 st Street	Newport News	31 st Street	Mainline pipe defects		
	38 th Street	Newport News	38 th Street	Mainline pipe defects		

Table 4-1. Summary of Prompt Repairs

Name	Location	Jurisdiction	Line Number	Summary of defect	Number of Defects	Status
Chesterfield Blvd	Gravity influent to Chesterfield PS	Norfolk	SG-207	Mainline pipe defects	2	Complete
	Gravity influent to Chesterfield PS	Norfolk	SG-207	Mainline pipe defects		
State Street FM	Force main at State St Pump Station	Norfolk	SF-097	Thin wall	1	Complete
Berkley Avenue	Manholes on Berkley Avenue	Norfolk	SG-098	Manhole defects	2	Complete
	Manholes on Berkley Avenue	Norfolk	SG-098	Manhole defects		
Newmarket Creek	Orcutt Avenue and Paul street at influent to Newmarket Creek PS	Newport News	NG-127	Manhole Defects	2	To be completed as part of CIP BH-150
	Orcutt Avenue and Paul street at influent to Newmarket Creek PS	Newport News	NG-127	Pipeline defects		
Laskin Road	Laskin Road Force Main	Virginia Beach	SF-135	Hit by third party	1	Complete
Elizabeth River	East side of Elizabeth River Crossing	Chesapeake	SF-143	Thin wall	1	Complete
14 th Street	Manhole at Jefferson Ave and 14 th street	Newport News	NG-130X	Manhole Defect	1	Complete
Army Base	Baker Street and Hampton Blvd	Norfolk	SF-003	Pipeline defect	1	Complete
Mercury and Orcutt Intersection	W Mercury Blvd	Hampton	NG-127	Manhole Defect	1	Complete
Claremont Avenue Discharge	Harbor Lane and 14 th Street	Newport News	NG-130	Pipeline Defect	1	Complete
Boat Harbor Outlet	Jefferson Avenue and 25 th Street	Newport News	NG-169	Pipeline Defect	1	Complete
Hickman Branch	Factory Street	Portsmouth	SG-193	Pipeline Defect	1	Complete
Terminal Avenue	Terminal Avenue	Newport News	NG-125	Pipeline Defect	1	Complete
Swannanoa and Summerset	Intersection of Swannanoa Drive and Summerset Drive	Portsmouth	SF-206	Pipeline Defect	1	Complete
Orcutt Avenue Liner	Orcutt Avenue and 79 th Street	Hampton / Newport News	NG-127	Pipeline Defect	1	Complete
Bay Shore Lane	Bay Shore Lane	Hampton	NG-095	Manhole Defects	7	Complete
Warwick Blvd	Warwick Blvd	Newport News	NG-130	Pipeline Defect	1	Complete
Warwick and Woodhaven	Warwick Blvd to Thorncliff Drive	Newport News	NF-015	Pipeline Defect	1	Complete

Table 4-1. Summary of Prompt Repairs

Name	Location	Jurisdiction	Line Number	Summary of defect	Number of Defects	Status
Woodland Avenue	Woodland Avenue and Ballentine Blvd	Norfolk	SG-089	Manhole Defects	6	Work Order in Construction
Indian River Road	Indian River Road near Campostella	Norfolk	SF-106	Pipeline Defect	1	Complete
Powhatan Ave	Powhatan Ave	Norfolk	SG-044	Manhole Defect	1	Work Order Issued for Construction
Euclid Road	Euclid Road and Southern Blvd	Virginia Beach	SF-197	Pipeline Defect	1	Complete
Dovercourt Road	Dovercourt Road	Norfolk	SPS-108	Manhole Defect	1	Complete
Beach Road South	Beach Road between Catalina Drive and Westlawn Drive	Hampton	NG-088	Pipeline Defect	1	Complete
Hampton Institute	Hampton Institute Pump Station	Hampton	NPS-211	Pipeline Defect	1	Developing Work Order
Portsmouth Blvd	Portsmouth Blvd	Newport News	NG-125	Pipeline Defect	1	Complete
Boat Harbor Influent	Terminal Avenue Junction Box	Newport News	NG-125	Pipeline Defect	1	Complete

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5. MOM PERFORMANCE MEASURES FOR FY 2017

HRSD has implemented its MOM Program activities in conjunction with the requirements of the Consent Decree. Table 5-1 below provides a status update on the specific Performance Measures listed in Paragraph 34 of the Consent Decree. HRSD has substantially outperformed key performance measures such as CCTV inspections (nearly twice the required footage), gravity sewer cleaning (approximately seven times the amount required) and air vent inspections (more than twice the required number).

Table 5-1. MOM Performance Measures

Consent Decree Paragraph	Section	Goal	Performance Measure	Target	FY 2017 Actual Performance	Comment	MOM Program Section No.
34.a.	Gravity System CCTV Inspections	Internal inspection of the Gravity System lines provides useful information to assess the condition of the lines allowing proactive measures to be taken to reduce infiltration and identify conditions that may lead to failure.	Perform internal inspection of HRSD gravity sewers, linear feet inspected per year	39,600 linear feet inspected per year	94,009 LF Inspected	Performance exceeded target	2.9
34.b.	Force Main PM - Air Venting	Force mains must periodically have air and gases vented to prevent loss of efficiency of pump stations and to prevent corrosion of piping due to hydrogen sulfide gas.	Perform air release valve PM, No. of PMs per year	1,550 ARVs vented per year	3,940 ARV PMs	Performance exceeded target	2.8
34.c.	Gravity Sewer Cleaning	Obstructions in Gravity Sewer systems are a primary cause of SSOs in these systems, and the systematic cleaning of the system is necessary to remove debris and accumulations of solids from all sources and reduce SSOs.	Perform cleaning of HRSD gravity sewers to remove debris. Linear feet cleaned per year	26,400 linear feet cleaned per year	203,206 LF Cleaned	Performance exceeded target	2.9

Table 5-1. MOM Performance Measures

Consent Decree Paragraph	Section	Goal	Performance Measure	Target	FY 2017 Actual Performance	Comment	MOM Program Section No.
34.d.	Pump Station Annual PMs (Mechanical)	Maintain the pump stations to protect the public safety, to protect the environment, reduce SSOs and to achieve the maximum service life from the pump stations.	All pump stations are to receive the Annual Inspection as described in the Interceptor Systems Preventive Maintenance Manual.	86 pump stations inspected per year	87 (101%)	Performance exceeded target	2.7
34.d.	Pump Station Annual PMs (Electrical)	Maintain the pump stations electrical equipment to protect the public safety, to protect the environment, reduce SSOs and to achieve the maximum service life from the pump stations.	All pump stations are to receive the Annual Electrical PM as described in the Interceptor Systems Preventive Maintenance Manual.	86 pump stations inspected per year	86 (100%)	Performance met target	2.7
34.e.	Annual PM for Back-up Generators	Preventive maintenance is performed on the emergency generators to protect the safety of the public, to protect the environment and reduce SSOs when electrical power to the pump motors from the public utility has been disrupted.	Each backup generator is to receive an annual preventive maintenance inspection.	55 generators to receive PM per year	121 (235%)	Performance exceeded target	2.7
34.f.	Non-Invasive FM Inspection Near Drinking Water Reservoirs	Inspect Force Mains Near Reservoirs to Identify Conditions that may lead to Problems Prior to Failure.	Perform non-invasive inspections of FMs to identify air pockets and leaks. No. of linear feet of FM inspected per year.	2,400 linear feet inspected per year	6,375 LF Inspected	Performance exceeded target	2.8

Annual Pump Station PM has been divided into two categories as seen in the fourth and fifth lines of the table. The Annual Mechanical PMs are performed by Interceptor Operations and Annual Electrical Pump Station PMs are performed by Facility Support.

6. SYSTEM PERFORMANCE DURING FY 2017

6.1 Modifications to HRSD Operating Pressures

HRSD revised its System Operating Pressure Policy with adoption by the HRSD Commission on December 16, 2014. It is based on the concept of a hydraulic grade line as opposed to the flat line of the previous policy. HRSD's interceptor system pressure is dynamic and varies based on the connection point and flow rate. HRSD will provide a range of pressures that a terminal pump station should expect to operate in. This range will be based on the RHM and available pressure meter data.

6.2 STP Performance

The HRSD system experienced construction and operations related events in FY 2017 that led to unusual discharges from the facilities. Table 6-1 provides details on the thirty-five (35) unusual discharges from July 1, 2016, to June 30, 2017. Nearly all of these occurrences involved fully treated effluent.

6.3 Conveyance System Performance

For the reporting period of July 1, 2016, through June 30, 2017, HRSD experienced forty-three (43) sanitary sewer overflows (SSOs) from its system. Thirty-three (33) of the 43 SSOs were capacity-related and occurred in response to significant wet weather events on September 21 to October 9 (Tropical Storm Julia and Hurricane Matthew), March 31, and June 5.

All of these events are detailed in the Sanitary Sewer Overflow Reporting System (SSORS). Details on all the FY 2017 SSOs for HRSD are available in Table 6-2.

6.4 Regional System Capacity Related SSOs

As required by Paragraph 88 of the Consent Decree, HRSD must report on wet weather or capacity related SSOs that occur in the Regional SS System. Table B-1 in Appendix B provides the listing of these SSOs along with a summary of cause and action being taken as reported by the applicable Locality in SSORS. HRSD has not independently verified these overflows. Many capacity-related SSOs occurred during events (Hurricane Matthew, Tropical Storm Julia, etc.) with a recurrence interval in excess of the Consent Decree service levels of interest. A few other SSOs were initially identified as capacity-related but were subsequently associated with other causes.

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Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2016 to June 30, 2017)

Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
7/1/2016	Army Base	A contractor opened a NPW valve to a disconnected 2".	10	An operator was out on their rounds and noticed water running from the pipe, and onto the ground/down the storm drain. Operator called for help and was able to trace the line back to the valve that was open, and secured the valve.	250	250	NPW	ground/storm drain	
7/13/2016	Williamsburg	A 2" Non-Potable Water (NPW) hose near the headworks building split, spraying NPW into the air and onto the ground surface.	29	Plant staff stopped the release by securing the 2" NPW supply valve. Flow that was in the containment area / headworks building went to the plant drain system, and was returned to the headworks. Approximately 725 gallons could not be recovered. The faulty hose was disposed of and will be replaced.	2,900	725	NPW	storm drain / James River	
8/20/2016	VIP	HRSD was notified on August 22, 2016 at a Contractors meeting at 07:30 of a Non-Potable water spill (NPW) that began at approximately 09:50 AM on August 20 and ended on August 21 at 7:30AM. A contractor working on plant site left a 4 inch NPW line running into a new process tank on Saturday August 20th and failed to secure the valve before leaving for the weekend. The process tank overflowed sometime between Saturday and Sunday morning August 21st. The spill resulted in NPW running from 9 each 2" pipes on the wall of the new process tank which will be connected to larger pipes in the future. A portion of the spill ran into an open excavation which is sheeted and has a concrete mat at the bottom, and was recovered.	see description	The valve was secured as soon as it was discovered by the contractors Sunday morning. The amount in the excavation was recovered. The total amount lost is an estimation.	15,600	6,250	NPW	ground / wetlands to south	

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Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
9/4/2016	Boat Harbor	The Furnace Non-Potable Water (NPW) line located along the split flow channel broke and resulted in NPW coming out of the ground along the curb. We think re-starting the furnace NPW pump after the storm passed caused a weak part of the line to break from the sudden water pressure.	6 HR	Plant operator noticed a puddle on the road at 01:00 am but thought it was from the recent rain event associated with the tropical cyclone. At 03:00 am the plant operator determined there was an underground leak and storm drain covers were installed and pumps were used to pump the captured water back into the treatment plant process. The leak recovery by pump setup completed at 04:30 am. The chlorine residual of leak at the time of discovery was 0.35 mg/L. A furnace burnout occurred starting at 05:15 am (to maintain MACT 129 compliance), and the furnace NPW was secured by plant staff once the burnout was complete at 07:00 am. After securing the flow, plant and interceptor staff excavated the break location for repairs and to determine the volume of NPW released to the ground and storm drain.	18,000	10,500	NPW	ground / James River	
9/21/2016	Army Base	Plant experienced an overflow spill from the primary clarifier influent channel. During tropical storm Julia, the facility experienced a maximum hourly rainfall amount of 1.60 inches, with a total rainfall of 8.76 inches over the storm event. The raw influent flow exceeded 36 MGD with only 2 primaries in service (each primary can handle approximately 12 MGD). This caused the influent channel covers to lift and wastewater to overflow out of the channel and into the nearest storm drain.	15 min	A third primary clarifier was immediately placed into service and the overflow subsided.	5,000	5,000	Primary Influent	storm drain	Tropical Storm Julia
9/21/2016	VIP	The VIP Plant experienced flows well above 80 MGD from the remnants of Tropical Storm Julia. The rain gauge at the facility read a maximum hourly rainfall amount of 1.3 inches, with a total rainfall of 7.8 inches over the storm event. Plant staff monitored influent water elevations at the plant site and at nearby manholes. To reduce the likelihood of overflows in residential areas, the plant was forced to bypass 53,600 gallons of chlorinated influent flow into the Elizabeth River. The influent water elevation was continuously monitored to minimize the bypassed volume. The total amount of bypassed flow was chlorinated.	60 min	Plant staff continuously monitored the influent water elevation to secure the bypass gate, minimizing the bypassed flow. The total bypass duration was 58 minutes.	53,600	53,600	Chlorinated Influent	canal leading to Elizabeth River	Tropical Storm Julia

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2016 to June 30, 2017)

Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
9/21/2016	VIP	Secondary clarifier effluent overflowed into the chlorine contact channel that is still under construction. The contractor left the influent gates of the unfinished contact channel open resulting in an overflow into the canal north of the plant. The overflow was due to high flows related to tropical Storm Julia. The rain gauge at the facility read a maximum hourly rainfall amount of 1.3 inches, with a total rainfall of 7.8 inches over the storm event.	13 min	The chlorine contact channel influent gate was closed shortly after the overflow was discovered by plant personnel. The contractor is dewatering the chlorine contact channel with a 6" pump. Gates will be locked out to prevent further problems.	217,000	217,000	Secondary Effluent	canal leading to Elizabeth River	Tropical Storm Julia
9/21/2016	VIP	Treated, chlorinated plant effluent overflowed from the effluent vault into the plant short outfall channel. The plant experienced high flows due to remnants of Tropical Storm Julia, starting on 9/21/16. The rain gauge at the facility read a maximum hourly rainfall amount of 1.3 inches, with a total rainfall of 7.8 inches. Flow above 80 MGD resulted in some effluent water going over the effluent vault weir to the short outfall channel.	7 HR 39 Min	The plant was designed for the use of the short outfall when plant effluent flows exceed 80 MGD. When flow subsided after the storm event, the overflow into the short outfall stopped.	undetermined	undetermined	Fully Treated Effluent	short outfall	Tropical Storm Julia
9/30/2016	York River	The Shift Assistant was filling the scum well at #2 Primary Clarifier with de-chlorinated NPW trying to clear a clogged pipe. He turned the hose on and walked away with the intention of coming back to it. This was about 0320. At 0450, the Shift Operator discovered that the hose came out of the well and was spraying on the ground. If we assume that the hose came out as soon as the Assistant walked away, we estimate 5400 gallons soaked into the ground at the surrounding area, but we have no way of knowing when the hose came out of the well. This was estimated after doing a fill test with the hose measuring about 60GPM, assuming it was running on the ground for 90 minutes.	see description, 90 min	The Operator turned off the hose as soon as the leak was discovered.	5,400	5,400	NPW	ground	

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Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
10/8/2016	CE	Unusually high flows from Hurricane Matthew resulted in a peak flow of 88.6 mgd. The facility experienced rainfall in the amount of 8.85 inches from this storm. During the storm, the long outfall vault flooded, causing the primary outfall to fail in the closed position. The short outfall was utilized, but it was designed to be supplementary to the primary outfall and could not pass the >80MGD flow it was receiving.	13.5 hr	Additional tanks were placed in service, and the facility opened the short outfall. The overflow ceased when influent flows came down.	8.35MG	8.35MG	NPW	drainage ditch to Little Creek Cove	Hurricane Matthew
10/8/2016	James River	Due to high flows in excess of 50 MGD from rainfall occurring during Hurricane Matthew, an estimated 10,000 gallons of raw influent spilled from the headworks and an estimated 200 gallons spilled from influent chamber of 1& 2 secondary clarifier. This storm produced rainfall amounts of 7.72 inches at the facility.	10 min	Headworks: Put #3 stepscreen in service to allow for additional flow. Placed #2 secondary clarifier in service; this clarifier was out of service for repair and inoperable.	10,200	10,200	Influent	ground / James River	Hurricane Matthew
10/8/2016	CE	Unusually high flows from Hurricane Matthew resulted in a peak flow of 88.6 mgd. The facility experienced rainfall in the amount of 8.85 inches from this storm.	13hr 51 min	Additional tanks were placed into service.	128.9MG	128.9MG	Fully Treated Effluent	short outfall	Hurricane Matthew
10/8-9/2016	VIP	With 9.26 inches of rainfall from Hurricane Matthew over two days, VIP Plant experienced flows well above 80 MGD. Plant staff monitored influent water elevations at plant site and at nearby manholes. To reduce the likelihood of overflows in residential areas, the plant was forced to bypass an estimated 9.3 Million gallons of chlorinated influent flow into the Elizabeth River. The influent water elevation was continuously monitored to minimize the bypassed volume. The total amount of bypassed flow was chlorinated. This Hurricane was preceded by Tropical Storm Julia, resulting in major flooding.	42 hr 8 min	Plant staff continuously monitored the influent water elevation to secure the bypass gate, minimizing the bypassed flow.	9.3 MG	9.3 MG	Fully Treated Effluent	short outfall	Hurricane Matthew

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2016 to June 30, 2017)

Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
10/21/2016	CE	Vac-Truck overfilled from removing debris from grit system. Overflow entered nearby storm drain.	15 min	Moved truck to unloading area and emptied truck. Informed the truck operator that no discharge water is permitted on the roadway or storm drain.	100	100	Influent	storm water receiving pond	
11/12/2016	CE	While gravity draining #1 gravity thickener the drain pump station became overwhelmed with flow and the system backed up and out of the road drain located near the contact scum building.	230 min	Closed gravity drain valve. Lime was put down on top of the ground in the spill area.	500	200	Unit Process - Gravity Thickener Solids	ground	
12/13/2016	CE	Short Outfall Operator that was damaged in Hurricane Matthew was repaired. The operation and calibration of the limit settings for the repaired valve was tested by opening and closing the valve locally and remotely.	15 min	Proper remote operation of the valve was confirmed. The valve was placed in its normal closed configuration.	97500	97500	Fully Treated Effluent	short outfall	
1/9/2017	Army Base	Due to cold weather, a 2 inch PVC pipe ruptured. The ruptured pipe discharged 1500 gallons of NPW into a nearby storm drain.	15	The ruptured pipe was isolated to stop the NPW discharge. This line was used temporarily during plant construction and was removed after this event.	1500	1500	NPW	Storm drain	
1/11/2017	Army Base	Due to cold weather, a 2 inch PVC pipe ruptured. The ruptured pipe discharged 1000 gallons of NPW into a nearby storm drain.	10	The ruptured pipe was isolated to stop the NPW discharge. This line was used temporarily during plant construction and was removed after this event.	1,000	1,000	NPW	Storm drain	

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Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
1/11/2017	Virginia Initiative	Non Potable Water (NPW) line break- Pipe and tee cracked at a hose connection causing spill. NPW is shut off until pipe is repaired. The liquid captured in an off load containment area drained to plant drain and was returned to the headworks. An estimated 100 gallons was released into a storm drain and could not be recovered.	100	The NPW was shut off, the process liquid was drained back into the plant drain system, and the pipe was repaired.	100	100	NPW	storm drain	
1/20/2017	Virginia Initiative	Construction company was testing new gate installation at short outfall box. Chlorinated and dechlorinated final effluent was used to fill chamber to check gate for leakage. Effluent was slowly released from the short outfall into canal leading to Elizabeth River	30	Effluent released slowly into canal.	25,000	25,000	Fully Treated Effluent	short outfall	
1/25/2017	Army Base	While removing a temporary NPW line the operator cut into line thinking it was secured but it was not.	15	Isolated the cut pipe to stop the NPW discharge and completed the removal of the NPW line.	100	100	NPW	Storm drain	
2/21/2017	Virginia Initiative	As part of construction, the new Contact Channel is required to be connected to the existing Effluent Chamber.	216	This is a complex task and requires effluent flow to be diverted to the permitted Short Outfall. Fully treated effluent flow was diverted to the Short outfall for 3hrs and 36 minutes. During that time a total of 1.85 Million Gallons were diverted to the Short Outfall. Under this configuration, the new contact channel could not be connected to the effluent box. Another method will be designed that allows the connection of the contact channel to the existing effluent Chamber.	1.85 Million	1.85 Million	Fully Treated Effluent	short outfall	
3/20/2017	Boat Harbor	NPW coming up from seam between asphalt and concrete plant drain vault. Drawings show a 6" NPW pipe running under that area. A sample was collected and analyzed for CL2 residual at 07:50, results = 0.66 mg/L. All flow that reached the ground surface, at 1 GPM, drained to the plant drain system and was recycled to the headworks.	1,185	Upon discovery, North Shore maintenance was contacted and scheduled to excavate the area the following day. During excavation on 3/21/17, a split in the 6" NPW line was located. The split was repaired with a 6" SS full circle clamp. At that time NPW released to the ground was determined to be approximately 10 GPM.	16,950	15,000	NPW	Ground	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2016 to June 30, 2017)

Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
4/10/2017	Virginia Initiative	Use of the Short Outfall was necessary to test a weir plate device that diverts flow away from the existing Contact Tank and into the new contact channel. Part of the ongoing construction project requires that the new contact channel be connected to the existing effluent chamber and flow must be diverted for this purpose.	277	This task requires effluent flow to be diverted to the permitted Short Outfall. Fully treated effluent flow was diverted to the Short Outfall for 4 hrs and 37 minutes. During that time a total of 4.36 Million Gallons were diverted to the Short Outfall. This diversion was a test of a configuration that allows connection of the contact channel to the existing effluent chamber.	4.36 Million	4.36 Million	Fully Treated Effluent	short outfall	
5/1/2017	Virginia Initiative	Aeration tank foam and wastewater overflowed onto the ground through a vault which had a 12" hole drilled into it by the upgrade project contractor. A total of 13,000 gallons overflowed, of which 1,000 gallons flowed into a storm drain between 0500 and 0630 May 2, 2017. The wastewater that entered the storm drain flowed to the wetlands south of the plant leading to the Elizabeth River.	600	The 12" hole was plugged and an empty aeration tank was placed in service to minimize the overflow. The overflow spread over a large area and will be recovered and remediated on site, then disposed of properly.	13,000	1,000	Aeration Tank Foam	storm drain	
5/5/2017	Nansemond	PVC Line carrying Ferric Chloride to the Secondary Clarifiers broke underground. The plant staff started feeding ferric chloride to the secondaries at 8:45 am, and the leak was discovered in the plant NRCY/CRCY return pump basement, coming out of an electrical conduit at 12:45. The pump to the secondaries was immediately secured. The plant staff is confident that most of the ferric was still fed to the secondary feed location. The line is nine feet underground and the plant had to excavate to locate the break.	30	The pump was secured and a new line was installed in a different location. All contaminated soil (approximately 11 yards, with 10 gallons of ferric chloride) was then removed and stored in an empty bay at the plant RRF (Regional Residuals Facility) until TSD can have the soil hauled off site as appropriate.	10	10	Ferric Chloride Solution/NPW	Ground	
5/9/2017	Nansemond	A PVC Line carrying Ferric Chloride to the Secondary Clarifier number 4, broke underground. The plant staff re-started feeding ferric chloride to the secondaries at 10 pm on Friday, and the leak was discovered coming out of the ground at 6:40 am on Tuesday, so the line broke sometime in between the two dates. The pump to the secondary was immediately secured. The plant staff is confident that most of the ferric was still fed to the secondary feed location.	1	The pump was secured and the ferric was fed from a different location. All contaminated soil (with roughly 100 gallons of ferric chloride) was then removed and stored in an empty bay at the plant RRF (Regional Residuals Facility). The soil will be hauled offsite by Potomac Environmental once analysis is completed on the soil by a contractor. The Nansemond Plant staff is working on developing a plan to replace all ferric feed lines to prevent future breaks. This work will take place in calendar year 2017.	100	100	Ferric Chloride Solution/NPW	Ground	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2016 to June 30, 2017)

Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
5/11/2017	York River	Treated effluent discharged from installed vent pipe system at bank of York River.	1	Engineering and Consultants to evaluate problem and develop solution.	50	50	Effluent	Ground	
5/16/2017	Army Base	Operator located a non-potable water (NPW) line break underground, beside a storm drain. NPW was transferred through the soil and into the storm drain below the ground surface, so sandbagging was not possible.	120	NPW lines in the area were isolated to stop the flow of NPW into the storm drain. The broken line was repaired. Approximately 6,000 gallons of NPW entered the storm drain and could not be recovered.	6,000	6,000	NPW	Storm drain	
5/23/2017	Army Base	An isolated NPW line under a paved plant drive was charged briefly to allow contractors to locate a leak and begin repairs. Approximately 200 gallons of NPW was released under the drive directly into a storm drain and could not be recovered.	10	Contractor will excavate drive, locate the leaking portion of pipe, and perform repairs to the NPW line.	200	200	NPW	Storm drain	
5/25/2017	Army Base	An isolated NPW line under a paved plant drive was charged briefly to aid a contractor in locating a leak prior to continued excavation. Approximately 100 gallons of NPW was released under the drive directly into a storm drain and could not be recovered.	5	Contractor will excavate drive, locate the leaking portion of pipe, and perform repairs to the NPW line.	100	100	NPW	Storm drain	
6/12/2017	Nansemond	A 3/4 inch line carrying NPW (non-potable water) burst inside a room next to the chlorine contact tank. The NPW left the room, and was released outside and onto a grassy area behind the building. The NPW was entirely contained to the grass on plant site and did not reach a storm drain.	25	The broken pipe was blocked off to stop the spill.	700	700	NPW	Ground	

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Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
6/15-6/29/2017	Virginia Initiative	Use of the Short Outfall was necessary to connect the new Contact Channel to the existing effluent chamber. The ongoing construction project required flow be diverted for about three weeks to the new contact channel and then to the short outfall.	<Not recorded>	This task required effluent flow to be diverted to the permitted Short Outfall until the new Contact Channel was connected to the existing effluent chamber. The connection was completed on 6/29/2017 08:00.	470.75Million	470.75Million	Fully Treated Effluent	short outfall	
6/30/2017	Army Base	Manholes overflowed due to plant drain system backing up. Found backwash strainer stuck in open position allowing water to rush into the drain system.	20	Closed automatic valve for backwash strainer manually. Allowed plant drain system to return to normal before placing backwash strainer back in automatic operations.	1,500	1,000	NPW	Storm Drain/ ground	

*NPW – Non-potable water (treated effluent)

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Table 6-2. Detailed Listing of HRSD SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Potential Receiving Waters	Spilled In Jurisdiction	SSO Classification	Description of Incident from SSORS	SSO Duration	Action Taken and Explanation of SSO*	Discharge Quantity (gallons)**	Amount Reaching State Waters (gallons)**	DEQ IR	Occurred in previous five years at same location
7/7/2016 10:00	4141 Dam Neck Rd, Virginia Beach, VA	Southern Loop IFM	Ground	Virginia Beach	Infrastructure	A HRSD Interceptor Chief Foreman received a call from the City of Virginia Beach. Once on site he noticed a leak of 5gpm. The vac truck was on site at 11:00am and was able to contain the leak. The section of pipe is completely isolated. Repairs are ongoing.	1 hour(s) 0 minute(s)	This section of pipe is very deep (about 16 feet) and will require a utility contractor to complete the repair. Flow did not enter any receiving waters, but some soaked into the ground was not recoverable. Vac-Con trucks were used to recover material and lime was applied to the site. -----July 11, 2016 03:43 PM-----	300	50	SSORS#2017-T-104581	No
7/27/2016 9:33	3703 Victoria Blvd, Hampton, VA	Air Vent at 3703 Victoria Blvd, Hampton, VA	storm drain / Hampton River	Hampton	Infrastructure	Failure of 2" air vent/corp. stop due to internal corrosion. Corp. stop was threaded directly into pipe.	0 hour(s) 10 minute(s)	Inserted a DC plug. Installed full circle repair clamp and a new 2" air vent. The area was cleaned. -----July 28, 2016 11:56 AM-----	1,000	1,000	SSORS#2017-T-104591	No
7/31/2016 19:58	5734 Chesapeake Blvd, Norfolk VA	Chesapeake Blvd Pump Station	Wayne Creek	Norfolk	Capacity-Weather Related	High flows from rainfall caused the pump station to go into alarm status for overflow. A visual inspection and estimate of discharge flow was not possible because the tide gate was completely submerged. This overflow was verified through a visual check at the manhole upstream from the overflow point, where flows above the overflow pipe were observed. The pump station was in alarm from 7:58 pm to 8:48 pm and then from 8:58 pm to 9:02 pm. The rain gauge at Luxembourg Pump Station recorded a maximum hourly rainfall of 2.10" occurring on 7/31/16 between 18:00 and 19:00 and a total of 2.46" over the course of the day (7/31/16 0:00 8/1/16 0:00).	1 hour(s) 4 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. The emergency pump was evaluated, repaired, and operational following the repair. The discharge flow was impossible to determine, as there was no way to differentiate what flow left the pump station via operating pumps, and what overflowed to the overflow point. -----August 4, 2016 11:37 AM-----	-1	-1	SSORS#2017-T-104596	Yes
9/9/2016 21:45	801 Battlefield Boulevard South, Chesapeake VA 23322	SF-184 Battlefield Blvd South	Coopers Ditch	Chesapeake	Infrastructure	HRSD on-call supervisor was notified by the answering service at 10:50PM. The problem was determined to be a sewer force main failure.	2 hour(s) 30 minute(s)	Isolated the break site and repaired force main. All ditches were cleaned using Vacor trucks; the area was cleaned and limed. -----September 14, 2016 06:15 AM-----	15000	14800	SSORS#2017-T-104627	No
9/19/2016 20:00	200 N. Battlefield Blvd, Chesapeake	200 N. Battlefield Blvd	stormwater catch basin leading to Elizabeth River	Chesapeake	Infrastructure	Raw Wastewater spill due to failure of valve on force main.	2 hour(s) 26 minute(s)	The force main was isolated by closing upstream and downstream mainline valves. Two city pump stations were managed by the City of Chesapeake. HRSD personnel were able to make the repair, clean up and open the road at 8AM the following day. -----September 24, 2016 08:56 PM-----	66,600	61,600	SSORS#2017-T-104633	No
9/21/2016 0:43	5734 Chesapeake Blvd., Norfolk	Chesapeake Blvd Pump Station	Wayne Creek	Norfolk	Capacity-Weather Related	With the remnants of tropical storm Julia, a max hourly rainfall of 1.10 inches and a total rainfall of 10.69 inches fell in the Chesapeake Blvd pump station service area, resulting in increased system pressures and flows. The overflow alarm came through at 12:43 AM. Initially the area was inundated with flood water and inaccessible.	70 hour(s) 48 minute(s)	Station was checked multiple times throughout the event and was running properly. Overflow occurred at the tide gate behind the station. For a majority of this event the overflow point was completely submerged and no visual flow estimate could be taken. -----September 26, 2016 12:53 PM-----	-1	-1	SSORS#2017-T-104641	Yes
9/21/2016 3:55	1444 Bainbridge Blvd., Chesapeake, VA	Manhole SG-149	Scuffeltown Creek	Chesapeake	Capacity-Weather Related	With the remnants of tropical storm Julia, a max hourly rainfall of 1.42 inches and a total rainfall of 12.79 inches fell in the Park Avenue PS service area, resulting in increased system pressures and flows. An upstream manhole overflowed due to the high station well level.	3 hour(s) 43 minute(s)	Verified pump station was operating properly. -----September 21, 2016 03:17 PM-----	5575	5575	SSORS#2017-T-104642	Yes

Table 6-2. Detailed Listing of HRSD SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Potential Receiving Waters	Spilled In Jurisdiction	SSO Classification	Description of Incident from SSORS	SSO Duration	Action Taken and Explanation of SSO*	Discharge Quantity (gallons)**	Amount Reaching State Waters (gallons)**	DEQ IR	Occurred in previous five years at same location
9/21/2016 4:29	800 Quail Avenue, Chesapeake	Quail Avenue PS	Elizabeth River	Chesapeake	Capacity-Weather Related	With the remnants of tropical storm Julia, a max hourly rainfall of 1.42 inches and a total rainfall of 12.79 inches fell, resulting in increased system pressures and flows.	2 hour(s) 30 minute(s)	Surrounding area was inundated and no overflow could be seen but station was in overflow alarm status. -----September 26, 2016 01:44 PM-----	-1	-1	SSORS#2017-T-104643	No
9/21/2016 5:05	4701 Victoria Blvd. Hampton, VA	Bridge Street Pump Station (Tide Gate)	Hampton River	Hampton	Capacity-Weather Related	Significant wet weather (5.1 inches of rain in 54 hours) combined with elevated tidal levels resulted in increased system flows.	3 hour(s) 25 minute(s)	Verified pump station operating properly. Operations personnel cleaned the area of all visible debris. -----September 26, 2016 01:50 PM-----	-1	-1	SSORS#2017-T-104635	Yes
9/21/2016 5:57	5808 Monroe Place, Norfolk	Monroe Pump Station manhole	Lafayette River	Norfolk	Capacity-Weather Related	With the remnants of tropical storm Julia, a max hourly rainfall of 1.30 inches and a total rainfall of 7.80 inches fell in the Monroe Place pump station service area, resulting in increased system pressures and flows. Manhole in pump station driveway overflowed due to high well level at the pump station.	3 hour(s) 39 minute(s)	Verified that the receiving pump station was working properly. -----September 26, 2016 01:09 PM-----	2,190	2,190	SSORS#2017-T-104646	Yes
9/21/2016 9:45	Hampton Blvd and 43rd Street, Norfolk	Manhole SG-049	Elizabeth River	Norfolk	Capacity-Weather Related	With the remnants of tropical storm Julia, a max hourly rainfall of 1.30 inches and a total rainfall of 7.80 inches fell, resulting in increased system flows and VIP treatment plant wet well level.	0 hour(s) 15 minute(s)	The VIP treatment plant bypassed and chlorinated influent flow to prevent wastewater overflows in residential areas. -----September 26, 2016 01:40 PM-----	150	150	SSORS#2017-T-104647	Yes
9/21/2016 9:45	1136 Saunders Drive, Suffolk, VA	Suffolk Pump Station	Shingle Creek	Suffolk	Capacity-Weather Related	With the remnants of tropical storm Julia, a max hourly rainfall of 1.10 inches and a total rainfall of 9.47 inches fell, resulting in increased system pressures and flows. The sealed lid on the siphon chamber directly upstream of the pump station came loose and overflowed when flows drastically increased over a short duration.	37 hour(s) 45 minute(s)	Station was checked multiple times throughout the event and was running properly. Repairs to the siphon chamber are ongoing. -----September 26, 2016 01:29 PM-----	583,050	583,050	SSORS#2017-T-104648	No
9/22/2016 3:30	4701 Victoria Blvd. Hampton, VA	Bridge Street Pump Station (Tide Gate)	Hampton River	Hampton	Capacity-Weather Related	Significant wet weather (7.1 inches of rain in 66 hours) combined with elevated tidal levels resulted in increased system flows.	10 hour(s) 11 minute(s)	Verified pump station operating properly. Operations personnel cleaned the area of all visible debris. -----September 26, 2016 01:48 PM-----	-1	-1	SSORS#2017-T-104662	Yes
9/23/2016 22:00	600 River Creek Road	Doziers Corner area force main	Newton Creek	Chesapeake	Infrastructure	Following the rain event associated with the remnants of tropical storm Julia, a 10" cast iron force main developed a longitudinal crack and started leaking. This force main serves the Doziers Corner Pump Station only.	16 hour(s) 27 minute(s)	Wastewater was pumped into the nearby HRSD gravity system. To perform repairs at the break site, the Doziers Corner pump station had to be isolated. By utilizing pump and haul trucks and HRSD Vactors trucks the spill rate at the stations overflow point were greatly reduced while repairs were made. Approximately 50 feet of pipe was replaced. -----September 26, 2016 01:16 PM-----	238,125	221,157	SSORS#2017-T-104715	No
10/8/2016 17:48	4701 Victoria Blvd	Bridge Street Pump Station (Tide Gate)	Hampton River	Hampton	Capacity-Weather Related	Significant wet weather from Hurricane Matthew (8.96 inches of rain at Bayshore PS) combined with elevated tidal levels resulted in increased system flows.	53 hour(s) 16 minute(s)	Verified pump station operating properly. Operations personnel cleaned the area of all visible debris. Tide gate was submerged due to tidal flooding preventing personnel from determining the overflow rate. -----October 13, 2016 03:50 PM-----	-1	-1	SSORS#2017-T-104777	Yes
10/8/2016 17:59	720 Bay Shore Lane	Bay Shore Lane Pump Station	Chesapeake Bay	Hampton	Capacity-Weather Related	Significant wet weather from Hurricane Matthew (8.96 inches of rain at Bayshore PS) combined with elevated tidal levels resulted in increased system flows.	18 hour(s) 2 minute(s)	Verified pump station operating properly. Cleaned area upon completion of tidal events. Manhole was submerged due to tidal flooding preventing personnel from determining the overflow rate. -----October 13, 2016 03:59 PM-----	-1	-1	SSORS#2017-T-104780	Yes

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10/8/2016 18:27	King Street at I-64	Manhole King Street and I-64	Ditch leading to Brights Creek	Hampton	Capacity-Weather Related	Significant wet weather from Hurricane Matthew (8.96 inches of rain at Bay Shore Lane PS) combined with elevated tidal levels resulted in increased system flows.	29 hour(s) 25 minute(s)	Verified pump station operating properly. Cleaned area upon completion of tidal events. Manholes were submerged due to tidal flooding preventing personnel from determining the overflow rate. -----October 13, 2016 03:57 PM-----	-1	-1	SSORS#2017-T-104779	No
10/8/2016 18:35	43rd Street at Hampton Blvd, Norfolk	Manhole SG049	Elizabeth River	Norfolk	Capacity-Weather Related	Manhole overflow due to heavy rain and tidal flooding from Hurricane Matthew. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate.	8 hour(s) 25 minute(s)	The VIP treatment plant bypassed and chlorinated influent flow to prevent wastewater overflows in residential areas. -----October 9, 2016 05:27 PM-----	-1	-1	SSORS#2017-T-104793	Yes
10/8/2016 18:35	Intersection of Bluestone Ave and W. 38th Street	Manhole Bluestone and 38th	Elizabeth River	Norfolk	Capacity-Weather Related	Manhole overflow due to heavy rain and tidal flooding from Hurricane Matthew. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate.	8 hour(s) 25 minute(s)	The VIP treatment plant bypassed and chlorinated influent flow to prevent wastewater overflows in residential areas. -----October 9, 2016 05:33 PM-----	-1	-1	SSORS#2017-T-104794	No
10/8/2016 18:39	5734 Chesapeake Blvd	Chesapeake Blvd PS	Wayne Creek	Norfolk	Capacity-Weather Related	Wet well overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.37-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	53 hour(s) 54 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ----October 13, 2016 04:11 PM-----	-1	-1	SSORS#2017-T-104782	Yes
10/8/2016 18:48	315 Center Ave.	Center Ave PS	Government Ditch / James River	Newport News	Capacity-Weather Related	Significant wet weather from Hurricane Matthew (9.99 inches of rain at Morrison PS) combined with elevated tidal levels resulting in increased system flows.	13 hour(s) 57 minute(s)	Checked station to ensure all pumps were operating properly. -----October 9, 2016 02:00 PM-----	104,240	104,240	SSORS#2017-T-104775	Yes
10/8/2016 19:00	King St. and Rudd Ln.	Manhole at King St. and Rudd Lane	Hampton River	Hampton	Capacity-Weather Related	Significant wet weather from Hurricane Matthew (8.96 inches of rain at Bayshore PS) combined with elevated tidal levels resulted in increased system flows.	36 hour(s) 15 minute(s)	Verified pump station operating properly. Cleaned area upon completion of tidal events. -----October 13, 2016 03:53 PM-----	685,725	685,725	SSORS#2017-T-104778	Yes
10/8/2016 19:10	3904 Chesapeake Ave	Manhole @ Chesapeake Ave. and Clyde	storm drain to James River	Hampton	Capacity-Weather Related	Significant wet weather from Hurricane Matthew (9.16 inches of rain at Copeland Park PS) combined with elevated tidal levels resulted in increased system flows.	23 hour(s) 50 minute(s)	Verified pump station operating properly. Upon completion of tide cycle, cleaned area. Hampton personnel placed sandbags on top of the manhole cover, stopping the overflow (verified by NS personnel at 7:00 PM on 10/09/2016). -----October 13, 2016 03:46 PM-----	277,125	277,125	SSORS#2017-T-104776	Yes
10/8/2016 19:11	Bainbridge Blvd. & Holly Ave.	Manhole	Scuffeltown Creek	Chesapeake	Capacity-Weather Related	Wet well overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.24-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	14 hour(s) 5 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ----October 13, 2016 04:17 PM-----	-1	-1	SSORS#2017-T-104783	Yes

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10/8/2016 19:25	5808 Monroe Place, Norfolk	Monroe Ave PS Manhole	Lafayette River	Norfolk	Capacity-Weather Related	Wet well overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 9.26-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	18 hour(s) 35 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ---October 13, 2016 04:20 PM----	-1	-1	SSORS#2017-T-104784	Yes
10/8/2016 19:47	948 Dovercourt Road, Norfolk	Dovercourt Pump Station	Mason Creek	Norfolk	Capacity-Weather Related	Wet well overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 10.28-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	16 hour(s) 58 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ---October 13, 2016 04:22 PM----	15,270	15,270	SSORS#2017-T-104785	No
10/8/2016 20:18	800 Quail Avenue, Chesapeake	Quail Ave. Pump Station	Elizabeth River	Chesapeake	Capacity-Weather Related	Wet well overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.88-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	10 hour(s) 13 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ---October 13, 2016 04:24 PM----	-1	-1	SSORS#2017-T-104786	Yes
10/8/2016 21:20	Halstead Lane, Chesapeake VA	Dozier Corner Pump Station	Newton Creek	Chesapeake	Capacity-Weather Related	Wet well overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.42-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	18 hour(s) 10 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ---October 13, 2016 04:26 PM----	-1	-1	SSORS#2017-T-104787	No
10/8/2016 21:30	3748 Chesapeake Avenue, Hampton	Chesapeake Ave manhole	James River	Hampton	Capacity-Weather Related	Significant wet weather from Hurricane Matthew (9.16 inches of rain at Copeland Park PS) combined with elevated tidal levels resulted in increased system flows.	24 hour(s) 45 minute(s)	Verified pump station operating properly. Upon completion of tide cycle, cleaned area. ----October 13, 2016 04:03 PM----	194,850	194,850	SSORS#2017-T-104797	Yes
10/8/2016 22:21	858 Jamestown Crescent Road, Norfolk	Jamestown Crescent Pump Station	Lafayette River	Norfolk	Capacity-Weather Related	Wet well overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 9.26-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	10 hour(s) 39 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ---October 13, 2016 04:29 PM----	-1	-1	SSORS#2017-T-104788	Yes

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10/8/2016 23:20	1900 E. Indian River Rd, Norfolk	Steamboat Creek PS	Steamboat Creek	Norfolk	Capacity-Weather Related	Wet well overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.88-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	5 hour(s) 12 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ----October 13, 2016 04:31 PM-----	-1	-1	SSORS#2017-T-104789	No
10/8/2016 23:22	300 Terminal Avenue, Newport News	Manhole Terminal Blvd	James River	Newport News	Capacity-Weather Related	Significant wet weather from Hurricane Matthew (9.16 inches of rain at Copeland Park PS) combined with elevated tidal levels resulting in increased system flows.	9 hour(s) 27 minute(s)	Verified treatment plant was operating properly. -----October 13, 2016 03:37 PM-----	155,925	155,925	SSORS#2017-T-104774	Yes
10/8/2016 23:39	1265 Laskin Rd	Atlantic Trunk Interceptor Force Main	Linkhorn Bay	Virginia Beach	Infrastructure	Hurricane Mathew interacted with a stalled out cold front over the Hampton Roads area Saturday October 8th. This event produced 12.83-inches of rain throughout the service area. This led to extremely high flows and pressures in the interceptor system. An area on the top of the 30 inch reinforced concrete pipe ruptured and caused the spill.	39 hour(s) 51 minute(s)	Downstream Pressure Reducing Stations were utilized to reduce pressures in the area of the leak and minimize the amount of wastewater spilling. Once system pressures and flows started dropping back down from the rain event a smaller 16 inch city of Virginia Beach force main was utilized and HRSD mainline valves were closed to divert flow away from the break site. An inspection was made with a CCTV camera inside the pipeline and it was discovered that there is approximately 65 feet of pipe that has some level of internal corrosion and needs to be replaced. TA Sheets is the general contract being utilized for the repair and will continue to replace the damaged pipeline through the weekend. Once repairs are made the diversion will end and the line will be put back into service. -----October 13, 2016 03:31 PM-----	2,139,000	2,139,000	SSORS#2017-T-104772	No
10/9/2016 0:38	Intersection of Beach Ave. and Ethel Ave., Norfolk	manhole City Park Pump Station	Lafayette River	Norfolk	Capacity-Weather Related	Manhole overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 9.26-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	8 hour(s) 47 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ----October 13, 2016 04:36 PM-----	-1	-1	SSORS#2017-T-104790	No
10/9/2016 1:51	2731 Chesterfield Blvd., Norfolk	Chesterfield Blvd Pump Station	Elizabeth River	Norfolk	Capacity-Weather Related	Wet well overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.37-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	3 hour(s) 5 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ----October 13, 2016 05:06 PM-----	-1	-1	SSORS#2017-T-104791	No

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10/9/2016 2:12	900 Hanover Avenue, Norfolk	Hanover Pump Station	Lafayette River	Norfolk	Capacity-Weather Related	Manhole overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 9.26-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	4 hour(s) 11 minute(s)	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. - ----October 13, 2016 04:42 PM----	-1	-1	SSORS#2017-T-104792	Yes
10/16/2016 11:22	Intersection of Independence Blvd and Columbus St.	Central Trunk Interceptor FM	storm drain to Thurston Branch	Virginia Beach	Infrastructure	Reportable incident number HMVA-21690 A leak caused by external corrosion was discovered coming from the center south bound lane of Independence Blvd. The leak was also visible in the sidewalk and curb joints of the intersection. The combined flow drained to an adjacent storm drain.	10 hour(s) 8 minute(s)	HRSD staff reduced pressure to the interceptor force main by diverting flow away from the intersection. A vactor truck was placed before the storm drain to recover flow. The repair was completed utilizing a repair clamp. ---- October 20, 2016 07:44 PM----	6,760	4,960	SSORS#2017-T-104924	No
11/18/2016 1:50	Intersection of Kempsville Rd and Walton Rd in Chesapeake	Kempsville Walton Rd	storm drain that ends up in Intracoastal Waterway	Chesapeake	Infrastructure	HRSD crews were making repairs to a valve in the intersection of Kempsville Rd and Walton Rd in Chesapeake and during the repairs a surge in pressure pushed the broken valve stem out of the top of the valve	0 hour(s) 50 minute(s)	Isolated system to stop spill, then repaired the valve ----November 18, 2016 08:40 AM----	5,000	5,000	SSORS#2016-T-104933	No
11/29/2016 13:40	40 Westminister Dr.	NF-072, across from Hampton PS #121	Newmarket Creek	Hampton	Infrastructure	Failure of 10" cast iron pipe due to a crack along the bottom of the pipe of approx. 76" in length.	1 hour(s) 13 minute(s)	Isolated force main through valving and diversion, and excavated to determine extent of failure. Repaired crack using 2-10" sleeves, approx. 7' of ductile iron pipe and a 10" gate valve. Vac-con trucks were used to recover flow and area was cleaned. ----December 2, 2016 04:19 PM----	85,750	79,750	SSORS#2016-T-104939	Yes
3/31/2017 20:45	Bainbridge Blvd.	Two Manholes at Creek Crossing	Scuffletown Creek	Chesapeake	Capacity-Weather Related	Elevated flows due to heavy rain. The rain gauge located at Ferebee Ave PS (MMPS-132) recorded a maximum hourly rainfall of 1.55" occurring between 17:45 and 18:45 and a total of 3.62" over the course of the event.	0 hour(s) 45 minute(s)	Verified upstream and downstream pump stations were operating properly. A total spill volume could not be estimated due to the manholes being submerged. ----April 5, 2017 02:26 PM----	-1	-1	SSORS#2017-T-104979	Yes
6/5/2017 17:06	King St. and Rudd Ln.	Manhole @ King St. and Rudd Lane	Hampton River	Hampton	Capacity-Weather Related	Significant rain (1.38" in 1.25 hours reported at Freeman PS) resulted in increased system flows.	1 hour(s) 24 minute(s)	Verified pumps operating properly. Cleaned area upon completion of rain event and drainage of stormwater. ----June 9, 2017 12:25 PM---- June 9, 2017 12:26 PM----	10,300	10,300	SSORS#2017-T-105004	Yes
6/5/2017 17:50	4 Rudd Lane	Manhole on Rudd Lane	Hampton River	Hampton	Capacity-Weather Related	Significant rain (1.38" in 1.25 hours reported at Freeman PS) resulted in increased system flows.	0 hour(s) 40 minute(s)	Verified pumps were operating properly. Cleaned area upon completion of rain event and drainage of stormwater. ----June 6, 2017 10:53 AM---- June 9, 2017 12:29 PM----	35	35	SSORS#2017-T-105006	Yes
6/15/2017 9:24	5823 Jefferson Avenue	Manhole in front of 5823 Jefferson Ave.	Birdella Lake	Newport News	Third Party Action	Failure of contractor equipment / bypass pump resulted in a spill onto the ground and roadway.	0 hour(s) 6 minute(s)	Pump was repaired by manufacturer. Affected areas were washed down and cleaned. ----June 16, 2017 11:55 AM----	19,500	18,900	SSORS#2017-T-105014	No

*Comments have been added for the Annual Report that were not part of SSORS original report.

7. PLANNED ACTIVITIES FOR FY 2018

HRSD will be continuing the overall program outlined in the Consent Decree in FY 2018. The following sub-sections provide specifics on this work.

7.1 Flow, Pressure, and Rainfall Monitoring Program

7.1.1 Implementation of the FPR Monitoring Plan

Although not required by the Consent Decree, HRSD intends to continue to collect data from flow, pressure, and rainfall sensors in FY 2018, and plans to continue to operate a portal to allow access for the Localities to the HRSD flow, pressure, and rainfall data from the FPR sites (Telog server data). In FY 2018, HRSD will modify the network and delete and/or relocate some monitoring points.

7.2 Condition Assessment Plan

HRSD will continue to implement the approved Rehabilitation Action Plan.

7.3 Interim System Improvements

HRSD will continue to design and construct the projects listed in Appendix 5 of the Consent Decree. The Verification of Completion for these projects will be included in upcoming Annual Reports as the projects are completed.

7.4 Management, Operations, and Maintenance Program

7.4.1 Implementation of MOM Program

HRSD will continue to implement its MOM Program per the approved submittal, including MOM-related Condition Assessment activities.

7.4.2 Quantitative Performance Measures

In FY 2018, HRSD will continue tracking the performance measures to assess the program. This will include the list of six measures that are subject to stipulated penalties per Paragraph 34 of the Consent Decree.

7.5 Regional Wet Weather Management Plan

In early FY 2018, HRSD spent significant effort to complete and submit the RWWMP by October 1, 2017, based on the Modification Nos. 3 and 4 to the Consent Decree.

7.6 Short Term Wet Weather Operational Plan

HRSD will continue to implement the approved plan.

7.7 SSO Emergency Response Plan

HRSD will continue to implement its approved SSO Response Plan. An annual update to the plan will be submitted in the second quarter of FY 2018.

7.8 Consultation with Localities

HRSD will continue to actively participate and facilitate a wide variety of consultation activities in FY 2018. These activities include:

- Periodic meetings of the Capacity Team to discuss RWWMP development and other Consent Decree issues;
- Periodic briefings of the Directors' of Utilities Committee to share progress on compliance with the Consent Decree and MOA; and
- Maintain a regional SharePoint website to collaborate with and provide documents to the regional Capacity Team.

7.9 Public Participation

HRSD will have an annual information meeting and publish a newsletter by the next anniversary of the Date of Entry, February 23, 2018. Information and approved plans continue to be posted to HRSD's website which is accessible to the public.

7.10 Reporting

HRSD will prepare a Semi-Annual Report in addition to this Annual Report in FY 2018.

8. FORESEEABLE ISSUES RELATED TO UPCOMING COMPLIANCE DEADLINES AND MILESTONES

HRSD is striving diligently to meet the Interim System Improvement milestone date of February 23, 2018; however, three projects may be challenged to be completed in time and one project needs further investigation.

The Bridge Street Pump Station replacement (ISI #28 – BH011600) is currently in construction with a scheduled completion date in early February 2018. If any weather delays or other unforeseen schedule impacts occur, then this project will be in jeopardy of missing the deadline.

The Pughsville PRS improvement (ISI #47 – NP012200) was delayed due to the question of improvements required for the RWWMP. Upon completion of modeling, it was determined that the existing pumping capacity will be sufficient and only yard piping changes are required. These improvements are in construction now but may not be completed by the February 2018 deadline.

The Sewerage System Improvements Division C (ISI #48 – VP011500) is currently complete with construction of the original scope of work but cannot be placed into service until another CIP project (VP011600) is finished. This project is scheduled for completion in February 2018.

The South Shore Interceptors Air Vent Rehabilitation project (ISI #39 – GN013900) has been underway and nearing completion. During field work for one of the few remaining valves, an unusual structure was found on the pipeline that is not a typical air release valve. HRSD will provide the EPA and DEQ with additional information regarding this valve in follow-up correspondence.

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9. SIGNIFICANT ISSUES THAT REQUIRE A CHANGE IN THE CONSENT DECREE REQUIREMENTS

As documented in the Alternatives Analysis Report (submitted July 29, 2016), HRSD has developed an Integrated Plan (submitted in September 2017) that drastically reduces nutrient and sediment discharges to the Chesapeake Bay, and limits sanitary sewer overflows. This is accomplished through implementation of the Adaptive Regional Plan which includes the Sustainable Water Initiative for Tomorrow (SWIFT) program to provide advanced treatment to effluent from up to seven of HRSD's wastewater treatment facilities and injection of drinking water quality product into the Potomac Aquifer. Upon completion in 2030, the SWIFT program will provide significantly more water quality benefits to the Chesapeake Bay with nutrients removed on a daily basis compared to the infrequent wet weather SSOs. In addition to SWIFT, HRSD has proposed implementation by 2030 of High Priority RWWMP Projects which will reduce wet weather SSOs substantially. HRSD will also continue its Pathogen Source Tracking Program to address bacteriological impairments in area streams related to wastewater. As part of the Adaptive Regional Plan, HRSD will assess regional environmental priorities starting in 2028 and submit a Final Remedial Measures Plan for EPA/DEQ review and approval in 2030. This provides the opportunity for the region to address the most pressing environmental issues at that time while assessing the effectiveness of previous work.

The Integrated Plan/RWWMP, submitted on September 28, 2017, will require approval and a major Consent Decree modification.

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10. SUMMARY OF SYSTEM BENEFITS FOR PREVIOUS FISCAL YEAR

As reported in the earlier sections of this report, HRSD continues to make important strides in compliance with the Consent Decree and overall system improvement. Some of the major milestones include:

- Maintenance of a Telog web portal to allow Localities access to HRSD flow, pressure, and rainfall data;
- Implementation of multiple contracts for inspection of HRSD's gravity sewers, manholes, and force mains;
- Condition assessment of HRSD's pumping stations, gravity sewers, manholes, and force main inspection program;
- Completion of more than 62 Prompt Repair defects throughout the system;
- Completion of the Alternatives Analysis Report with a selected Level of Service;
- Completion of multiple Interim System Improvements as required by the Consent Decree;
- Completion of Rehabilitation Action Plan projects;
- Collection of flow monitoring data from gravity flow meters throughout the HRSD and Localities' systems to improve the wet weather flow parameters;
- Implementation of an approved MOM Program and an update to the MOM Program;
- Implementation of an approved SSO Response Plan;
- Ongoing use of a "SharePoint" web portal to share information between HRSD and the Localities (www.hrsdlive.com);
- Submission of an Annual Report and Semi-Annual Report;
- Facilitation of an annual public informational meeting and newsletter;
- Quarterly Briefings with the EPA and DEQ;
- Periodic Capacity Team meetings to foster cooperation and coordination in the region;
- Ongoing development of a regional I/I Reduction Program; and,
- Completion of an Alternatives Analysis Report.

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APPENDIX A. PROJECT CERTIFICATION FORMS

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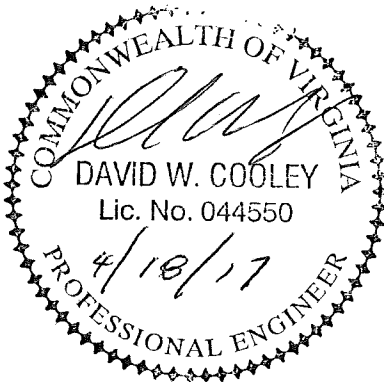
Interim System Improvements
Verification of Completion

As required by Section IX of the Amended Consent Decree dated February 23, 2010, a set of Interim System Improvements have been identified that must be completed within 8 years of the Date of Entry. Paragraph 32 of that section requires a written certification of completion of each project or group of projects. For capital projects in excess of \$1,000,000, Paragraph 87a of the Consent Decree requires that verification be made by a Professional Engineer that the project was completed satisfactorily.


Through April 17, 2017, the following projects have been completed satisfactorily and consistent with the scope provided to the EPA and DEQ in the Consent Decree:

<u>Ref No.</u>	<u>CIP No.</u>	<u>Project Name</u>	<u>Project Cost</u>	<u>Completion Date</u>
23	YR-101	Coliseum Drive Pressure Reducing Station	\$13,026,473*	June 22, 2016
44	JR-117-1	Jefferson Avenue Interceptor Force Main Replacement Phase I	\$6,662,022**	June 30, 2016

* Ref No. 23 includes \$3,470,405 which is the cost of a storage tank constructed with this project.
 ** Ref No. 44 was constructed under two separate construction contracts.



Hereby verified by



David Cooley, PE (No. 044550)
 Chief of Design and Construction, North Shore
 Hampton Roads Sanitation District



Interim System Improvements
Verification of Completion

As required by Section IX of the Amended Consent Decree dated February 23, 2010, a set of Interim System Improvements have been identified that must be completed within 8 years of the Date of Entry. Paragraph 32 of that section requires a written certification of completion of each project or group of projects. For capital projects in excess of \$1,000,000, Paragraph 87a of the Consent Decree requires that verification be made by a Professional Engineer that the project was completed satisfactorily.

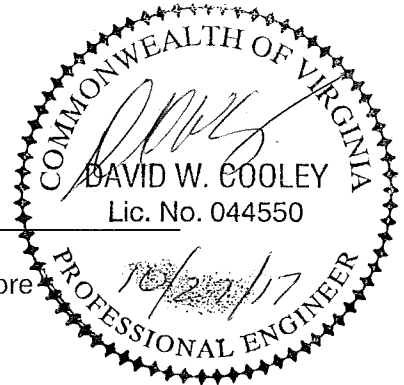
Through June 30, 2017, the following projects have been completed satisfactorily and consistent with the scope provided to the EPA and DEQ in the Consent Decree:

<u>Ref No.</u>	<u>CIP No.</u>	<u>Project Name</u>	<u>Project Cost</u>	<u>Completion Date</u>
16	BH-100	33 rd Street Pump Station Replacement / Rehabilitation	\$5,340,459.	05/04/2017
15	WB-107	Williamsburg Interceptor Force Main Contract A Replacement	\$7,132,000.	12/15/ 2016
30*	GN-128	Interceptor Systems Pump Station Control and SCADA Upgrades and Enhancements	\$14,900,000.	05/03/ 2017

*Per HRSD's letter to the EPA/DEQ on April 24, 2017 and the subsequent e-mail from the EPA on May 3, 2017, this project is complete.

Hereby verified by

David Cooley, PE (No. 044550)
Chief of Design and Construction, North Shore
Hampton Roads Sanitation District





Interim System Improvements
Verification of Completion

As required by Section IX of the Amended Consent Decree dated February 23, 2010, a set of Interim System Improvements have been identified that must be completed within 8 years of the Date of Entry. Paragraph 32 of that section requires a written certification of completion of each project or group of projects. For capital projects in excess of \$1,000,000, Paragraph 87a of the Consent Decree requires that verification be made by a Professional Engineer that the project was completed satisfactorily.

Between the periods of July 1, 2016 through December 31, 2016, the following projects have been completed satisfactorily and consistent with the scope provided to the EPA and DEQ in the Consent Decree:

<u>Ref No.</u>	<u>CIP No.</u>	<u>Project Name</u>	<u>Project Cost</u>	<u>Completion Date</u>
25	VP013000	Norchester Street Pump Station Replacement / Rehabilitation	\$7,365,652	July 30, 2016
50	AT011610	Courthouse Interim Pressure Reducing Station	\$2,840,627	September 28, 2016



Hereby verified by

Gary Hart, PE (No. 017583)
Chief of Design and Construction, South Shore
Hampton Roads Sanitation District

PO Box 5911, Virginia Beach, VA 23471-0911 • 757.460.2261 • Fax 757.363.7917



Interim System Improvements
Verification of Completion

As required by Section IX of the Amended Consent Decree dated February 23, 2010, a set of Interim System Improvements have been identified that must be completed within 8 years of the Date of Entry. Paragraph 32 of that section requires a written certification of completion of each project or group of projects. For capital projects in excess of \$1,000,000, Paragraph 87a of the Consent Decree requires that verification be made by a Professional Engineer that the project was completed satisfactorily.

Between the periods of January 1, 2017 through June 30, 2017, the following projects have been completed satisfactorily and consistent with the scope provided to the EPA and DEQ in the Consent Decree:

<u>Ref No.</u>	<u>CIP No.</u>	<u>Project Name</u>	<u>Project Cost</u>	<u>Completion Date</u>
29	VP013200	South Trunk Sewer Section G 36-inch and 30-inch Force Main Replacement	\$6,744,257	February 10, 2017

Hereby verified by

Gary Hart, PE (No. 017583)
Chief of Design and Construction, South Shore
Hampton Roads Sanitation District



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Rehabilitation Action Plan Projects
Verification of Completion

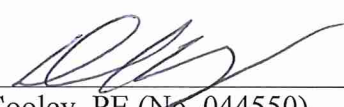
As required by Section VIII of the Third Amended Consent Decree dated May 30, 2015, a set of Rehabilitation Action Plan projects have been identified that must be completed according to the schedule in that document. For capital projects in excess of \$1,000,000, Paragraph 87a of the Consent Decree requires that verification be made by a Professional Engineer that the project was completed satisfactorily.

Through April 17, 2017, the following projects have been completed satisfactorily and consistent with the scope provided to the EPA and DEQ in the Consent Decree:

<u>Ref No.</u>	<u>CIP No.</u>	<u>Project Name</u>	<u>Project Cost</u>	<u>Completion Date</u>
GN-R12	GN013600	North Shore Pump Station Wet Well Rehabilitation	\$1,268,386.	April 4, 2016

Hereby verified by





David Cooley, PE (No. 044550)
Chief of Design and Construction, North Shore
Hampton Roads Sanitation District



Rehabilitation Action Plan Projects
Verification of Completion

As required by Section VIII of the Third Amended Consent Decree dated May 30, 2015, a set of Rehabilitation Action Plan projects have been identified that must be completed according to the schedule in that document. For capital projects in excess of \$1,000,000, Paragraph 87a of the Consent Decree requires that verification be made by a Professional Engineer that the project was completed satisfactorily.

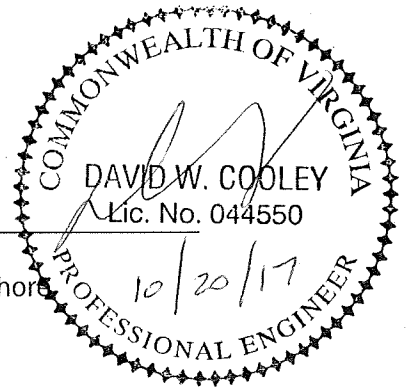
Through June 30, 2017, the following projects have been completed satisfactorily and consistent with the scope provided to the EPA and DEQ in the Consent Decree:

<u>Ref No.</u>	<u>CIP No.</u>	<u>Project Name</u>	<u>Project Cost</u>	<u>Completion Date</u>
FCAR Table D6	JR-108-2*	Warwick Boulevard to James River Influent Force Main Section 2	\$7,327,840	03/23/2017

*Project JR-108-2 addressed the replacement of three appurtenances identified in Table D-6 of the Final Condition Assessment Report (FCAR, November 2014): JR1004-1 (air vent), JR1004-5 (36-inch mainline valve) and JR1017-1 (8-inch branch valve). The Project Cost provided is for the entire JR-108-2 pipeline replacement which includes elimination of the three appurtenances identified.

Hereby verified by

David Cooley, PE (No. 044550)
Chief of Design and Construction, North Shore
Hampton Roads Sanitation District





Rehabilitation Action Plan Projects
Verification of Completion

As required by Section VIII of the Third Amended Consent Decree dated May 30, 2015, a set of Rehabilitation Action Plan projects have been identified that must be completed according to the schedule in that document. For capital projects in excess of \$1,000,000, Paragraph 87a of the Consent Decree requires that verification be made by a Professional Engineer that the project was completed satisfactorily.

Through December 31, 2016, the following projects have been completed satisfactorily and consistent with the scope provided to the EPA and DEQ in the Consent Decree:

<u>Ref No.</u>	<u>CIP No.</u>	<u>Project Name</u>	<u>Project Cost</u>	<u>Completion Date</u>
CE-R5	CE011200	Central Trunk Interceptor Force Main A & B Main Line Valves	\$1,765,339	August 5, 2016



Hereby verified by

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Rehabilitation Action Plan Projects
Verification of Completion

As required by Section VIII of the Third Amended Consent Decree dated May 30, 2015, a set of Rehabilitation Action Plan projects have been identified that must be completed according to the schedule in that document. For capital projects in excess of \$1,000,000, Paragraph 87a of the Consent Decree requires that verification be made by a Professional Engineer that the project was completed satisfactorily.

Through June 30, 2017, the following projects have been completed satisfactorily and consistent with the scope provided to the EPA and DEQ in the Consent Decree:

<u>Ref No.</u>	<u>CIP No.</u>	<u>Project Name</u>	<u>Project Cost</u>	<u>Completion Date</u>
VIP- R13	VP016200	South Trunk Section G 30 (SF-84) and 24 (SF- 83) Inch Force Main Replacement	\$4,735,695	February 10, 2017

Hereby verified by

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Hampton Roads Sanitation District



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APPENDIX B. REGIONAL SS SYSTEM CAPACITY RELATED SSOS

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Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
7/31/2016 19:25	Manning Rd	Barrett Acres:	Suffolk	SSORS#2017-T-104594	PS 023 had both pumps and the emergency pump operating during a heavy rain event. There was an increase in the force main pressure which resulted in the manhole on Manning Rd overflowing.	PS 023 is back in normal operation. The force main conditions have return back to normal operation level for PS 023. ----- August 1, 2016 09:30 AM-----	1,650	High Priority RWWMP Project will assist in lowering pressures in this area for future wet weather events.
7/31/2016 19:58	5734 Chesapeake Blvd, Norfolk VA	Chesapeake Blvd Pump Station	Norfolk	SSORS#2017-T-104596	High flows from rainfall caused the pump station to go into alarm status for overflow. A visual inspection and estimate of discharge flow was not possible because the tide gate was completely submerged. This overflow was verified through a visual check at the manhole upstream from the tide gate, where flows above the overflow pipe were observed. The pump station was in alarm from 7:58 pm to 8:48 pm and then from 8:58 pm to 9:02 pm. The rain gauge at Luxembourg Pump Station recorded a maximum hourly rainfall of 2.10" occurring on 7/31/16 between 18:00 and 19:00 and a total of 2.46" over the course of the day (7/31/16 0:00 to 8/1/16 0:00).	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. The emergency pump was evaluated, repaired, and operational following the repair. The discharge flow was impossible to determine, as there was no way to differentiate what flow left the pump station via operating pumps, and what overflowed to the tide gate. ----- August 4, 2016 11:37 AM-----	-1	CIP project in place to upgrade this pump station
9/19/2016 18:38	743 Providence Road	Pump Station 107	Chesapeake	SSORS#2017-T-104634	Public Utilities received complaint of sewer running out of station. This action occurred because there were high force main pressures in the area.	Bypass pump set up at pump station to assist with station. Site was treated with lime. Bypass pump was removed after system pressures returned to normal. ----- September 26, 2016 03:12 PM-----	10,000	PS being upgraded by the City
9/20/2016 5:00	651 Turlington Road	Turlington Rd.	Suffolk	SSORS#2017-T-104673	PS 162 failed to operate normal due to high head conditions during a rain event. The manhole on Turlington Rd overflow due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 162 during this rain event. PS 162 is now back in normal operation. ----- September 23, 2016 09:16 AM----- September 26, 2016 10:58 AM-----	3,000	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/20/2016 9:23	Lake Front Drive	Cove Point # 2:	Suffolk	SSORS#2017-T-104661	PS 072 failed to operate normal due to high head conditions during a rain event. The manhole on Lake Front Drive overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to help maintain the station during this rain event. PS 072 is now back in normal operation. ----- September 21, 2016 06:13 PM----- September 26, 2016 10:08 AM----	200	Tropical Storm Julia
9/20/2016 10:29	109 Lakefront Drive	MH 072-002	Suffolk	SSORS#2017-T-104686	PS 072 failed to operate normal due to high head conditions during a rain event. Telog data indicates that an overflow occurred, but it was not observed by staff. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 072 during this rain event. PS 071 is now back in normal operation. -----September 23, 2016 10:42 AM----- -----September 26, 2016 11:45 AM----	0	Tropical Storm Julia
9/20/2016 22:16	Garfield Ave.	Boston:	Suffolk	SSORS#2017-T-104656	PS 004 failed to operate normal due to high head conditions during a rain event. The manhole on Garfield Ave. overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump and pump n haul to help maintain the station during this rain event. PS 004 is now back in normal operation. -----September 21, 2016 05:39 PM----- -----September 26, 2016 09:34 AM-- --	5,500	Tropical Storm Julia
9/21/2016 0:43	5734 Chesapeake Blvd., Norfolk	Chesapeake Blvd Pump Station tide gate	Norfolk	SSORS#2017-T-104641	With the remnants of tropical storm Julia, a max hourly rainfall of 1.10 inches and a total rainfall of 10.69 inches fell in the Chesapeake Blvd pump station service area, resulting in increased system pressures and flows. The overflow alarm came through at 12:43 AM. Initially the area was inundated with flood water and inaccessible.	Station was checked multiple times throughout the event and was running properly. Overflow occurred at the tide gate behind the station. For a majority of this event the tidegate was completely submerged and no visual flow estimate could be taken. -----September 26, 2016 12:53 PM-----	-1	Tropical Storm Julia
9/21/2016 1:27	310 Washington St	Wash Out Box	Portsmouth	SSORS#2017-T-104748	Excessive rainfall and flooding caused the WOB to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 12:00 PM-----	-1	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 2:50	806A East Riverview Drive	Riverview #2:	Suffolk	SSORS#2017-T-104639	PS 003 failed to operate normal during a heavy rain event. The terminal PS that PS 003 pumps to was experiencing high head conditions during this rain event. The terminal station was unable to overcome the head condition and it caused PS 003 to surcharge its system. PS 003 overflow due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to help maintain the station during this rain event. PS 003 is now back in normal operation. ----- September 21, 2016 02:40 PM----- September 26, 2016 08:31 AM-----	2,500	Tropical Storm Julia
9/21/2016 3:06	West Constance Road	Constance Road Sanitary Sewer:	Suffolk	SSORS#2017-T-104655	PS 146 failed to operate normal due to high head conditions during a rain event. Telog data indicates that an overflow occurred, but it was not observed by staff. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to help maintain the station during this rain event. PS 146 is back in normal operation. ----- September 21, 2016 05:32 PM----- September 26, 2016 09:29 AM-----	0	Tropical Storm Julia
9/21/2016 3:15	1090 Holland Road	Holland Heights:	Suffolk	SSORS#2017-T-104654	PS 136 failed to operate normal due to high head conditions during a rain event. The manhole on Holland Road overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	staff used an emergency pump and a pump n haul truck to maintain the station during this rain event. PS 136 is back in normal operation. -----September 21, 2016 05:08 PM----- -----September 26, 2016 09:20 AM----- --	4,500	Tropical Storm Julia
9/21/2016 3:55	1444 Bainbrige Blvd., Chesapeake, VA	Manhole SG-149	Chesapeake	SSORS#2017-T-104642	With the remnants of tropical storm Julia, a max hourly rainfall of 1.42 inches and a total rainfall of 12.79 inches fell in the Park Avenue PS service area, resulting in increased system pressures and flows. An upstream manhole overflowed due to the high station well level.	Verified pump station was operating properly. -----September 21, 2016 03:17 PM-----	5,575	Tropical Storm Julia
9/21/2016 4:29	800 Quail Avenue, Chesapeake	Quail Avenue PS	Chesapeake	SSORS#2017-T-104643	With the remnants of tropical storm Julia, a max hourly rainfall of 1.42 inches and a total rainfall of 12.79 inches fell, resulting in increased system pressures and flows.	Surrounding area was inundated and no overflow could be seen but station was in overflow alarm status. -----September 26, 2016 01:44 PM-----	-1	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSORs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 4:58	White Herons Lane	Westhaven Lakes #1:	Suffolk	SSORS#2017-T-104652	PS 120 failed to operate normal due to high head conditions during a rain event. The manhole on White Heron Lane overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 120 during this rain event. PS 120 is back in normal operation. -----September 21, 2016 04:37 PM-----September 26, 2016 09:06 AM-----	8,500	Tropical Storm Julia
9/21/2016 5:05	4701 Victoria Blvd. Hampton, VA	Bridge Street Pump Station (Tide Gate)	Hampton	SSORS#2017-T-104635	Significant wet weather (5.1 inches of rain in 54 hours) combined with elevated tidal levels resulted in increased system flows.	Verified pump station operating properly. Operations personnel cleaned the area of all visible debris. -----September 26, 2016 01:50 PM-----	-1	Tropical Storm Julia
9/21/2016 5:08	806A East Riverview Drive	Riverview # 2:	Suffolk	SSORS#2017-T-104674	PS 003 failed to operate normal due to a capacity issue. The terminal pump station that PS 003 pumps into was experiencing high head condition during a rain event. The result of this issue caused PS 003 to overflow. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 003 during this rain event. PS 003 is now back in normal operation. -----September 23, 2016 09:31 AM-----September 26, 2016 11:08 AM-----	5,000	Tropical Storm Julia
9/21/2016 5:23	Northgate Lane	North Main Street # 2:	Suffolk	SSORS#2017-T-104649	PS 012 failed to operate normal due to high conditions during a heavy rain event. The result of these conditions caused the manhole on Northgate Lane to overflow.	Staff utilized a pump n haul truck an emergency pump. PS 012 is now back in normal operation. -----September 21, 2016 04:04 PM-----September 23, 2016 10:03 AM-----September 26, 2016 08:40 AM-----	6,500	Tropical Storm Julia
9/21/2016 5:57	5808 Monroe Place, Norfolk	Monroe Pump Station manhole	Norfolk	SSORS#2017-T-104646	With the remnants of tropical storm Julia, a max hourly rainfall of 1.30 inches and a total rainfall of 7.80 inches fell in the Monroe Place pump station service area, resulting in increased system pressures and flows. Manhole in pump station driveway overflowed due to high well level at the pump station.	Verified that the receiving pump station was working properly. -----September 26, 2016 01:09 PM-----	2,190	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 6:29	Huntersville Pl	Huntersville #1:	Suffolk	SSORS#2017-T-104659	PS 054 failed to operate normal due to high head conditions during a rain event. Telog data indicates that an overflow occurred, but it was not observed by staff. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain the station during this rain event. ---- September 21, 2016 06:00 PM----	1,000	Tropical Storm Julia
9/21/2016 6:30	424 South Main Street	MH 004-029	Suffolk	SSORS#2017-T-104640	Sewer overflow at manhole.	Vacuumed sewer water at manhole. ---- September 21, 2016 03:10 PM----- September 23, 2016 11:12 AM----	48,000	Tropical Storm Julia
9/21/2016 6:42	Mountainside Ave	Reid Crossing:	Suffolk	SSORS#2017-T-104653	PS 126 failed to operate normal due to high head conditions during a rain event. The manhole on Mountainside Ave overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to main PS 126 during this rain event. PS 126 is back in normal operation. ----September 21, 2016 05:00 PM----- September 26, 2016 09:16 AM----	3,500	Tropical Storm Julia
9/21/2016 6:43	2273 Wilroy Road	Wilroy Road:	Suffolk	SSORS#2017-T-104651	PS 031 failed to operate normal due to high head conditions during a rain event. The manhole on Wilroy Rd overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 031 during this rain event. PS 031 is now back in normal operation. ----September 21, 2016 04:27 PM----- September 26, 2016 08:55 AM----	4,500	Tropical Storm Julia
9/21/2016 6:49	133 Manning Road	Barrett Acres:	Suffolk	SSORS#2017-T-104650	PS 023 failed to operate normal due to high head conditions during a rain event. The result of this failure caused the manhole on Manning Road to overflow. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff utilized an emergency pump to maintain the station during this rain event. PS 023 is now back in normal operation. ---- September 21, 2016 04:15 PM----- September 26, 2016 08:46 AM----	500	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 6:49	133 Manning Road	Barrett Acres:	Suffolk	SSORS#2017-T-104657	PS 023 failed to operate normal due to high head conditions during a rain event. The manhole on Manning Road overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to help maintain the station during this rain event. --- --September 21, 2016 05:44 PM----	1,050	Tropical Storm Julia
9/21/2016 7:01	502-A Butterfly Drive Chesapeake, Va.	Pump station # 219	Chesapeake	SSORS#2017-T-104706	Public utilities received complaints of sewer spilling from M/H # 219-SMH-041, 219-SMH-068, 219-SMH-069. This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 36 hour. We roughly estimate the spill volume to be more than 10,000 gallons.	Site was treated with H.T.H. and lime. ----- September 24, 2016 02:18 PM----	10,000	Tropical Storm Julia
9/21/2016 7:14	115 Millwood Drive Chesapeake, Va.	Pump station # 62	Chesapeake	SSORS#2017-T-104701	Public utilities received complaints of sewer spilling from M/H # 062-SGM-040, 062-SMH-044, 062-SMH-129. This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 28 hours. We roughly estimate the spill volume to be more 10,000 gallons.	Site was treated with H.T.H. and lime. ----- September 24, 2016 10:59 AM----	-1	Tropical Storm Julia
9/21/2016 7:21	1602 Basie Crescent	Manhole	Portsmouth	SSORS#2017-T-104749	Excessive rainfall and flooding caused the manhole to over flow into the storm drain	Rainfall stopped and the system caught back up ----- October 4, 2016 12:08 PM----	-1	Tropical Storm Julia
9/21/2016 7:27	949 Johnstown Road Chesapeake, Va.	Pump Station # 187	Chesapeake	SSORS#2017-T-104702	Public utilities received complaints of sewer spilling from M/H # 187-smh-025. This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 27.5 hours. We roughly estimate the spill volume to be more than 10,000 gallons.	Site was treated with H.T.H. and lime. ----- September 24, 2016 11:31 AM----	-1	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 7:55	Keaton Way	Berkshire Meadows:	Suffolk	SSORS#2017-T-104658	PS 037 failed to operate normal due to high head conditions during a rain event. The manhole on Keaton Way overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to help maintain the station during this rain event. PS 037 is now back in normal operation. ---- September 21, 2016 05:49 PM---- September 26, 2016 09:49 AM----	8,550	Tropical Storm Julia
9/21/2016 7:56	22 Pennock St	Manhole	Portsmouth	SSORS#2017-T-104725	Excessive rainfall and flooding caused overflow from manhole into storm drain	Rainfall stopped System caught back up ---- October 4, 2016 09:13 AM----	-1	Tropical Storm Julia
9/21/2016 8:21	2800 Portsmouth Blvd	Manhole	Portsmouth	SSORS#2017-T-104726	Excessive rainfall and flooding caused overflow from manhole into storm drain	Rainfall stopped system caught back up ---- October 4, 2016 09:19 AM----	-1	Tropical Storm Julia
9/21/2016 8:26	205 Douglas Ave	Manhole & Clean Out	Portsmouth	SSORS#2017-T-104727	Excessive rainfall and flooding caused overflow from manhole & C/O into storm drain	Rainfall stopped system caught back up ---- October 4, 2016 09:37 AM----	-1	Tropical Storm Julia
9/21/2016 8:30	412 York Street	MH 004-288	Suffolk	SSORS#2017-T-104644	Overflow at manhole.	Vacuumed sewer water at manhole. ---- September 21, 2016 03:24 PM----	48,000	Tropical Storm Julia
9/21/2016 8:31	117 Wright Ave	Clean out	Portsmouth	SSORS#2017-T-104728	Excessive rainfall and flooding caused system to be up and overflow out of the C/O	Rainfall stopped system caught back up ---- October 4, 2016 09:42 AM----	-1	Tropical Storm Julia
9/21/2016 8:48	122 Baldwin Ave	Clean Out	Portsmouth	SSORS#2017-T-104729	Excessive rainfall and flooding caused system to be up and over flow out of C/O	Rainfall stopped and system caught back up ---- October 4, 2016 09:52 AM----	-1	Tropical Storm Julia
9/21/2016 8:48	4100 George Washington Hwy	Manhole	Portsmouth	SSORS#2017-T-104736	Excessive rain fall and flooding caused the manhole to over flow into the storm drain	Rainfall stopped and system caught back up ---- October 4, 2016 10:34 AM----	-1	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 8:52	1090 Holland Road	MH 136-033	Suffolk	SSORS#2017-T-104689	PS 136 failed to operate normal due to high head conditions during a rain event. The manhole on Holland Road overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump and a pump n haul truck to maintain PS 136. PS 136 is now back in normal operation. ---- September 23, 2016 11:25 AM----- September 26, 2016 11:59 AM----	50	Tropical Storm Julia
9/21/2016 8:53	24 Bainbridge Blvd	Manhole	Portsmouth	SSORS#2017-T-104730	Excessive rainfall and flooding Caused manhole to over flow into the storm drain	Rain fall stopped and system caught back up ----October 4, 2016 09:57 AM----	-1	Tropical Storm Julia
9/21/2016 8:59	419-429 Chautauqua Ave	4 Clean Outs	Portsmouth	SSORS#2017-T-104731	Excessive rain fall and flooding caused system to be up and over flow from the Clean Outs	Rainfall stopped and system caught back up ----October 4, 2016 10:03 AM----	-1	Tropical Storm Julia
9/21/2016 9:00	625-646 Douglas Ave	4 Clean outs	Portsmouth	SSORS#2017-T-104732	Excessive rain fall and flooding caused system to be up and overflow from the Clean outs	Rain fall stopped and system caught back up ----October 4, 2016 10:09 AM----	-1	Tropical Storm Julia
9/21/2016 9:00	701 Douglas Ave	Manhole	Portsmouth	SSORS#2017-T-104733	Excessive rain fall and flooding caused overflow from manhole into a storm drain	Rainfall stopped and system caught back up ----October 4, 2016 10:20 AM----	-1	Tropical Storm Julia
9/21/2016 9:00	656 Florida Ave	Manhole	Portsmouth	SSORS#2017-T-104734	Excessive rain fall and flooding caused manhole to over flow into a storm drain	Rainfall stopped and system caught back up ----October 4, 2016 10:26 AM----	-1	Tropical Storm Julia
9/21/2016 9:11	1900 Frederick Blvd	Manhole	Portsmouth	SSORS#2017-T-104735	Excessive rain fall and flooding caused manhole to over flow into the storm drain	Rain fall stopped and system caught back up ----October 4, 2016 10:30 AM----	-1	Tropical Storm Julia
9/21/2016 9:15	9443 Willow Terrace	Willow Terr	Norfolk	SSORS#2017-T-104694	Manhole overflowing	Reported to supervisor, system at 100% capacity ----September 23, 2016 03:03 PM-- ---	-1	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 9:23	4424 Queen Street	Pughsville # 1:	Suffolk	SSORS#2017-T-104660	PS 056 failed to operate normal due to high head conditions during a rain event. Telog data indicates that an overflow occurred, but it was not observed by staff. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used emergency pump to help maintain the station during this rain event. PS 056 is now back in normal operation. ----- September 21, 2016 06:06 PM----- September 26, 2016 10:01 AM-----	0	Tropical Storm Julia
9/21/2016 9:24	3108 Glen Ave	Glen Ave	Norfolk	SSORS#2017-T-104699	Square box overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 03:46 PM-----	-1	Tropical Storm Julia
9/21/2016 9:24	1557 Woodlake Drive Chesapeake, Va.	Pump station # 25	Chesapeake	SSORS#2017-T-104703	Public utilities received complaints of sewer spilling from M/H # 025-SMH-002 . This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 36.5 hours. We roughly estimate the spill volume to be more than 10,000 gallons.	Bypass pump was set up to assist with the station. Site was treated with H.T.H. and lime. -----September 24, 2016 12:23 PM-----	-1	Tropical Storm Julia
9/21/2016 9:33	20 Worden Place	Manhole	Portsmouth	SSORS#2017-T-104737	Excessive rain fall and flooding caused manhole to over flow into the storm drain	Rainfall stopped and system caught back up -----October 4, 2016 10:39 AM-----	-1	Tropical Storm Julia
9/21/2016 9:37	2-6 Cooper Dr	4 Clean outs	Portsmouth	SSORS#2017-T-104738	Excessive rain fall and flooding caused the Clean Outs to overflow into the storm drain	Rain fall stopped and system caught back up -----October 4, 2016 10:44 AM-----	-1	Tropical Storm Julia
9/21/2016 9:37	125 Reid St	Wash Out Box	Portsmouth	SSORS#2017-T-104739	Excessive rain fall and flooding caused the WOB to overflow into a storm drain	Rainfall stopped and system caught back up -----October 4, 2016 10:50 AM-----	-1	Tropical Storm Julia
9/21/2016 9:45	Hampton Blvd and 43rd Street, Norfolk	Manhole SG-049	Norfolk	SSORS#2017-T-104647	With the remnants of tropical storm Julia, a max hourly rainfall of 1.30 inches and a total rainfall of 7.80 inches fell, resulting in increased system flows and VIP treatment plant wetwell level.	The VIP treatment plant bypassed and chlorinated influent flow to prevent wastewater overflows in residential areas. --- --September 26, 2016 01:40 PM-----	150	Tropical Storm Julia
9/21/2016 9:45	1136 Saunders Drive, Suffolk, VA	Suffolk Pump Station	Suffolk	SSORS#2017-T-104648	With the remnants of tropical storm Julia, a max hourly rainfall of 1.10 inches and a total rainfall of 9.47 inches fell, resulting in increased system pressures and flows. The sealed lid on the siphon chamber directly upstream of the pump station came loose and overflowed when flows drastically increased over a short duration.	Station was checked multiple times throughout the event and was running properly. Repairs to the siphon chamber are ongoing. -----September 26, 2016 01:29 PM-----	583,050	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 9:46	8040 Buffalo Ave	Buffalo Ave	Norfolk	SSORS#2017-T-104697	Square box overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 03:33 PM-- ---	-1	Tropical Storm Julia
9/21/2016 9:50	729 Bold St	Wash Out Box	Portsmouth	SSORS#2017-T-104740	Excessive rainfall and flooding caused the WOB to over flow into the storm drain	Rain fall stopped and system caught back up -----October 4, 2016 10:57 AM-----	-1	Tropical Storm Julia
9/21/2016 9:51	1901 Rokeby Ave Chesapeake, Va.	Pump station # 201	Chesapeake	SSORS#2017-T-104713	Public utilities received complaints of sewer spilling from M/H # 201-SMH-001 . This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 24 hours. We roughly estimate the spill volume to be more than 100,000 gallons.	Site was treated with H.T.H. and lime. ----- September 24, 2016 05:23 PM-----	-1	Tropical Storm Julia
9/21/2016 9:55	401 Taft Dr	Man hole	Portsmouth	SSORS#2017-T-104741	Excessive rain fall and flooding caused the manhole to over flow into the storm drain	Rain fall stopped and the system caught back up -----October 4, 2016 11:01 AM-----	-1	Tropical Storm Julia
9/21/2016 9:57	177 Allard Rd	Wash Out Box	Portsmouth	SSORS#2017-T-104742	Excessive rain fall and flooding caused the WOB to overflow into the storm drain	Rain fall stopped and the system caught back up -----October 4, 2016 11:05 AM-----	-1	Tropical Storm Julia
9/21/2016 9:57	100 Allard Rd	Manhole	Portsmouth	SSORS#2017-T-104743	Excessive rain fall and flooding caused the manhole to overflow into the storm drain	Rain fall stopped and the system caught back up -----October 4, 2016 11:09 AM-----	-1	Tropical Storm Julia
9/21/2016 9:59	529 Akron Ave. Chesapeake, Va.	Pump station 195	Chesapeake	SSORS#2017-T-104707	Public utilities received complaints of sewer spilling from M/H # 197-SMH-059. This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 20.25 hours. We roughly estimate the spill volume to be more than 10,000 gallons.	Site was treated with H.T.H. and lime. ----- September 24, 2016 02:33 PM-----	-1	Tropical Storm Julia
9/21/2016 10:00	300 Dinwiddie St	Manhole	Portsmouth	SSORS#2017-T-104744	Excessive rain fall and flooding caused the manhole to over flow into the storm drain	Rain fall stopped and the system caught back up -----October 4, 2016 11:14 AM-----	-1	Tropical Storm Julia
9/21/2016 10:15	3524 Cedar Lane	Manhole	Portsmouth	SSORS#2017-T-104745	Excessive rain fall and flooding caused the HRSD sewer manhole to over flow into the storm drain	Rain fall stooped and the system caught back up -----October 4, 2016 11:20 AM-----	-1	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 10:32	1090 Holland Road	MH 136-033	Suffolk	SSORS#2017-T-104690	PS 136 failed to operate normal due to high head conditions during a rain event. The manhole on Holland Rd overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump and a pump n haul truck to help maintain PS 136 during the rain event. PS 136 is now back in normal operation. -----September 23, 2016 11:33 AM-----September 26, 2016 12:03 PM---	4,200	Tropical Storm Julia
9/21/2016 10:32	110 Independence Parkway Chesapeake, Va.	Pump station #110	Chesapeake	SSORS#2017-T-104705	Public utilities received complaints of sewer spilling from M/H # 110-SMH-117 . This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 25.5 hours. We roughly estimate the spill volume to be more than 100,000 gallons.	Bypass pump was set up to assist with the station. Site was treated with H.T.H. and lime. -----September 24, 2016 01:04 PM-----	-1	Tropical Storm Julia
9/21/2016 10:35	900 Darren Dr	Manhole	Portsmouth	SSORS#2017-T-104746	Excessive rainfall and flooding caused the manhole to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 11:24 AM-----	-1	Tropical Storm Julia
9/21/2016 10:45	806A East Riverview	Riverview #2:	Suffolk	SSORS#2017-T-104675	PS 003 failed to operate due to a capacity issue. The terminal pump that PS 003 pumps into was experiencing high head condition during a rain event. The result of this issue caused PS 003 system to surcharge and to overflow. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 003 during this rain event. PS 003 is back in normal operation. -----September 23, 2016 09:35 AM-----September 26, 2016 11:19 AM-----	1,200	Tropical Storm Julia
9/21/2016 10:50	4500 Westmoreland Terrace	Manhole	Portsmouth	SSORS#2017-T-104747	Excessive rainfall and flooding caused the man hole to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 11:48 AM-----	-1	Tropical Storm Julia
9/21/2016 11:00	10 Al Street	Al Street	Hampton	SSORS#2017-T-104663	Sanitary sewer coming from manhole in back yard	system is up due to heavy rain. Spill will be cleaned up as soon as system is down. -----September 22, 2016 08:10 AM----- Pumped and hauled until we stopped the overflow and the station caught up with the flow. -----September 23, 2016 11:15 AM-----	50,000	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSORs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 11:05	Mountainside Ave.	Reids Crossing:	Suffolk	SSORS#2017-T-104687	PS 126 failed to operate normal due to high head conditions during a rain event. The manhole on Mountainside Ave overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain the station during this rain event. PS 126 is now back in normal operation. ----- September 23, 2016 11:03 AM----- September 26, 2016 11:52 AM----	750	Tropical Storm Julia
9/21/2016 11:30	1050 Pretlow Street Franklin, Va. 23851	Jackson Street and Main Street	Franklin	SSORS#2017-T-104637	Sewer spill caused by surcharge of the Franklin Street Sewer Main due to heavy rains. SMH # 53-100 and SMH # 53-101	Monitor area until flows decreased and disinfected area. -----September 21, 2016 02:00 PM----	200	Tropical Storm Julia
9/21/2016 11:30	1050 Pretlow Street Franklin, Va.23851	115 South High Street SMH # 59- 945	Franklin	SSORS#2017-T-104638	Surcharge of Sewer Main lines due to heavy rains.	Monitor area until flows decreased and disinfected area. -----September 21, 2016 02:04 PM----	400	Tropical Storm Julia
9/21/2016 11:33	1512 Campostella Road Chesapeake, Va.	Pump station # 11	Chesapeake	SSORS#2017-T-104712	Public utilities received complaints of sewer spilling from M/H # 011-SGM-064 . This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia.	Site was treated with H.T.H. and lime. ----- September 24, 2016 04:14 PM----	100	Tropical Storm Julia
9/21/2016 12:52	2273 Wilroy Road	Wilroy Road:	Suffolk	SSORS#2017-T-104684	PS 031 failed to operate normal due to high head conditions during a rain event. Telog data indicates that an overflow occurred, but it was not observed by staff. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 031. -----September 23, 2016 10:33 AM-- ---	0	Tropical Storm Julia
9/21/2016 13:48	Cove Point Drive	Cove Point #1:	Suffolk	SSORS#2017-T-104669	PS 071 failed to operate normal due to high head conditions during a rain event. Telog data indicates that an overflow occurred, but it was not observed by staff. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency to help maintain the station during this rain event. PS 071 is back in normal operation. -----September 22, 2016 03:59 PM-----September 26, 2016 10:18 AM-----September 26, 2016 12:24 PM----	0	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 13:52	371 Johnstown Road Chesapeake, Va.	Pump station # 47	Chesapeake	SSORS#2017-T- 104709	Public utilities received complaints of sewer spilling from M/H # 047-SMH-027 . This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 33 hours. We roughly estimate the spill volume to be more than 10,000 gallons.	Site was treated with H.T.H. and lime. ----- September 24, 2016 03:07 PM-----	-1	Tropical Storm Julia
9/21/2016 14:29	501 Hillwell Road Chesapeake, Va.	Pump station 63	Chesapeake	SSORS#2017-T- 104708	Public utilities received complaints of sewer spilling from M/H # 063-SMH-038. This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 20.75 hours. We roughly estimate the spill volume to be more than 10,000 gallons.	Site was treated with H.T.H. and lime. ----- September 24, 2016 02:48 PM-----	-1	Tropical Storm Julia
9/21/2016 14:50	722 N. Battlefield Blvd. Chesapeake, Va.	Pump station # 117	Chesapeake	SSORS#2017-T- 104714	Public utilities received complaints of sewer spilling from M/H # 117-SMH-055 . This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. All 3 pumps vent lines had blockage that caused the pumps to over heat and shut down. Due to high system pressure, the service area was spilling for approximately 1.5 hours.	Remove blockage out vent lines so pumps would vent and pickup prime. Site was treated with H.T.H. and lime. -----September 24, 2016 05:49 PM-----	3,000	Tropical Storm Julia
9/21/2016 17:00	Jordan Circle	Elephant Fork:	Suffolk	SSORS#2017-T- 104672	PS 052 failed to operate normal due to high head conditions during a rain event. Telog data indicates that an overflow occurred, but it was not observed by staff. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 052 during this rain event. PS 052 is now back in normal operation. -----September 23, 2016 08:55 AM----- -----September 26, 2016 10:45 AM-----	0	Tropical Storm Julia
9/21/2016 19:03	Manning Road	MH 023-041	Suffolk	SSORS#2017-T- 104682	PS 023 failed to operate normal due to high head conditions during a rain event. The manhole on Manning Rd overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 023 during this rain event. PS 023 is now back in normal operation. -----September 23, 2016 10:23 AM----- -----September 26, 2016 11:40 AM-----	1,525	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/21/2016 19:32	1902 Kyle Court	MH 126-011	Suffolk	SSORS#2017-T-104688	PS 126 failed to operate normal due to high head conditions during a rain event. The manhole on Mountainside Ave overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to help maintain the station during this rain event. PS 126 is now back in normal operation. ----- September 23, 2016 11:10 AM----- September 26, 2016 11:56 AM-----	5,900	Tropical Storm Julia
9/21/2016 19:48	Northgate Ln	North Main St # 2:	Suffolk	SSORS#2017-T-104680	PS 012 failed to operate normal due to high head conditions during a rain event. The manhole on Northgate Lane overflowed due to these conditions. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump and a pump n haul truck to maintain PS o12 during this rain event. PS 012 is now back in normal operation. ----- September 23, 2016 10:16 AM----- September 26, 2016 11:37 AM-----	2,725	Tropical Storm Julia
9/21/2016 21:31	525 Spanish Moss Drive Chesapeake, Va.	Pump station # 263	Chesapeake	SSORS#2017-T-104711	Public utilities received complaints of sewer spilling from M/H # 263-SGM-062 . This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia.	Site was treated with H.T.H. and lime ----- September 24, 2016 03:57 PM-----	2,000	Tropical Storm Julia
9/21/2016 21:59	355 Las Gaviotas Blvd. Chesapeake, Va.	Pump station # 197	Chesapeake	SSORS#2017-T-104710	Public utilities received complaints of sewer spilling from M/H # 197-SMH-059 . This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 12.5 hours. We roughly estimate the spill volume to be more 10,000 gallons.	Site was treated with H.T.H. and lime. ----- September 24, 2016 03:37 PM-----	-1	Tropical Storm Julia
9/21/2016 22:52	1050 Pretlow Street Franklin, Va. 23851	N.High Street SMH # 51-112	Franklin	SSORS#2017-T-104667	Emergency Bypass was opened due to flooding in the Southampton Memorial Hospital Basement caused by heavy rains. The food service for Hospital is in the basement. Bypass was also opened due to excessive flows to the City wastewater treatment facility.	Disinfected spill will chlorine tablets. ----- September 22, 2016 02:57 PM-----	279,200	Tropical Storm Julia
9/22/2016 0:06	1145 Blair St	Manhole	Portsmouth	SSORS#2017-T-104761	Excessive rainfall and flooding caused the manhole to over flow and go into the storm drain	Rained fall stopped and the system caught back up ----- October 4, 2016 03:15 PM-----	-1	Tropical Storm Julia
9/22/2016 0:50	809 Virginia Ave	Manhole	Portsmouth	SSORS#2017-T-104762	Excessive rainfall and flooding caused the manhole to over flow into the storm drain	Rainfall stopped and the system caught back up ----- October 4, 2016 03:19 PM-----	-1	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSORS (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/22/2016 1:18	432 North St	Clean Out	Portsmouth	SSORS#2017-T-104763	Excessive rainfall and flooding caused the clean out to over flow and go into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 03:22 PM-----	-1	Tropical Storm Julia
9/22/2016 2:00	1037 Harrell St	Clean Out	Portsmouth	SSORS#2017-T-104764	Excessive rainfall and flooding caused the clean out to over flow and go into the storm drain	Rainfall stopped and the the system caught back up -----October 4, 2016 03:27 PM-----	-1	Tropical Storm Julia
9/22/2016 3:10	308 Beacon Rd	Wash Out Box	Portsmouth	SSORS#2017-T-104765	Excessive rainfall and flooding caused the WOB to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 03:32 PM-----	-1	Tropical Storm Julia
9/22/2016 3:25	1519 Stratford St	Clean Out	Portsmouth	SSORS#2017-T-104766	Excessive rainfall and flooding caused the clean out to overflow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 03:35 PM-----	-1	Tropical Storm Julia
9/22/2016 3:30	4701 Victoria Blvd. Hampton, VA	Bridge Street Pump Station (Tide Gate)	Hampton	SSORS#2017-T-104662	Significant wet weather (7.1 inches of rain in 66 hours) combined with elevated tidal levels resulted in increased system flows.	Verified pump station operating properly. Operations personnel cleaned the area of all visible debris. -----September 26, 2016 01:48 PM-----	-1	Tropical Storm Julia
9/22/2016 3:30	2915 Bayview Blvd	Manhole	Portsmouth	SSORS#2017-T-104767	Excessive rainfall and flooding caused the manhole to over flow and go into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 03:41 PM-----	-1	Tropical Storm Julia
9/22/2016 5:00	1050 Pretlow Street Franklin Va.23851	Jackson Street and Main Street	Franklin	SSORS#2017-T-104665	Sewer Spill caused by surcharge of the Franklin Street Sewer Main Trunk due to heavy rains. SMH # 53-100	Monitor area until flows decreased and disinfected area. -----September 22, 2016 02:33 PM-----	800	Tropical Storm Julia
9/22/2016 5:00	1050 Pretlow Street Franklin, Va 23851	115 South High Street SMH # 59-945	Franklin	SSORS#2017-T-104666	Surcharge of Sewer Main line due to heavy rains.	Monitor area until flows decreased and disinfected area. -----September 22, 2016 02:40 PM-----	1,600	Tropical Storm Julia
9/22/2016 5:40	806A East Riverview	Riverview #2:	Suffolk	SSORS#2017-T-104676	PS 003 overflowed due to a capacity issue. The terminal station that PS 003 pumps into was experiencing high head conditions. This resulted in PS 003 system being surcharged. This resulted in PS 003 overflowing. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 003 during this rain event. -----September 23, 2016 09:39 AM-----	2,775	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/22/2016 6:42	Marsh Landing Lane	Harbour View West Village # 1:	Suffolk	SSORS#2017-T-104670	PS 116 failed to operate normal due to high head conditions during a rain event. Telog data indicates that an overflow occurred, but it was not observed by staff. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 116 during this rain event. PS 116 is now back in normal operation. -----September 23, 2016 08:33 AM-----September 26, 2016 10:35 AM-----	0	Tropical Storm Julia
9/22/2016 7:50	83 Manly St	Manhole	Portsmouth	SSORS#2017-T-104750	Excessive rainfall and flooding caused the manhole to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 12:13 PM-----	-1	Tropical Storm Julia
9/22/2016 8:00	1023 W 38th St	w 38th St	Norfolk	SSORS#2017-T-104677	Manhole overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 09:59 AM-----	-1	Tropical Storm Julia
9/22/2016 8:13	8211 Carrene Dr	Carrene Dr	Norfolk	SSORS#2017-T-104698	Square box overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 03:42 PM-----	-1	Tropical Storm Julia
9/22/2016 8:30	2400 Columbus Ave	Manhole	Portsmouth	SSORS#2017-T-104751	Excessive rainfall and flooding caused the manhole to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 12:20 PM-----	-1	Tropical Storm Julia
9/22/2016 8:51	8520 Chapin St	Chapin St	Norfolk	SSORS#2017-T-104696	Clean out box overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 03:19 PM-----	-1	Tropical Storm Julia
9/22/2016 9:00	1050 Pretlow Street Franklin, Va.23851	1200 block of Armory Drive	Franklin	SSORS#2017-T-104668	Surcharge of gravity system on armory drive caused by heavy rains.	Monitor areas until flows decreased and disinfected area. -----September 22, 2016 03:04 PM-----	800	Tropical Storm Julia
9/22/2016 9:00	423-425 Fishermans Rd	Fishermans Rd	Norfolk	SSORS#2017-T-104678	Cleanout overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 10:06 AM-----	-1	Tropical Storm Julia
9/22/2016 9:06	2002 Ann St	Manhole	Portsmouth	SSORS#2017-T-104752	Excessive rainfall and flooding caused the manhole to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 12:25 PM-----	-1	Tropical Storm Julia
9/22/2016 9:18	112 Douglas Ave	Wash Out Box	Portsmouth	SSORS#2017-T-104755	Excessive rain fall and flooding caused the WOB to overflow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 12:41 PM-----	-1	Tropical Storm Julia
9/22/2016 10:05	3409 Deep Creek Blvd	Manhole	Portsmouth	SSORS#2017-T-104753	Excessive rain fall and flooding caused the manhole to over flow into the storm drain	Rain fall stopped and the system caught back up -----October 4, 2016 12:31 PM-----	-1	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/22/2016 10:20	3404 Deep Creek Blvd	Manhole	Portsmouth	SSORS#2017-T-104754	Excessive rain fall and flooding caused the manhole to over flow into the storm drain	Rain fall stopped and the system caught back up -----October 4, 2016 12:35 PM-----	-1	Tropical Storm Julia
9/22/2016 10:50	3134 Victory Blvd	Manhole	Portsmouth	SSORS#2017-T-104756	Excessive rainfall and flooding caused the manhole to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 01:08 PM-----	-1	Tropical Storm Julia
9/22/2016 10:50	800 Cavalier Blvd	Manhole	Portsmouth	SSORS#2017-T-104757	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 01:13 PM-----	-1	Tropical Storm Julia
9/22/2016 10:50	500 Florida Ave	Manhole	Portsmouth	SSORS#2017-T-104758	Excessive rain fall and flooding caused the manhole to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 01:21 PM-----	-1	Tropical Storm Julia
9/22/2016 11:14	1350 Eagle Ave	Eagle Ave	Norfolk	SSORS#2017-T-104691	Manhole overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 11:49 AM-----	-1	Tropical Storm Julia
9/22/2016 11:20	3808 Robin Hood Rd	Robin Hood Rd	Norfolk	SSORS#2017-T-104679	Manhole overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 10:12 AM-----	-1	Tropical Storm Julia
9/22/2016 11:20	542 Florida Ave	Wash Out Box	Portsmouth	SSORS#2017-T-104759	Excessive rainfall and flooding caused the WOB to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 03:08 PM-----	-1	Tropical Storm Julia
9/22/2016 11:41	3523 King St	Clean Out	Portsmouth	SSORS#2017-T-104760	Excessive rainfall and flooding caused the clean out to over flow into the storm drain	Rainfall stopped and the system caught back up -----October 4, 2016 03:12 PM-----	-1	Tropical Storm Julia
9/22/2016 11:59	1101 Freeman Ave. Chesapeake, Va.	Pump Station # 7	Chesapeake	SSORS#2017-T-104720	Public utilities received complaints of sewer spilling from M/H # 007-SMH-107, 007-SMH-106, 007-SMH-003 . This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 36.5 hours. We roughly estimate the spill volume to be more than 100,000 gallons.	Bypass pump was set up to assist with the station. Site was treated with H.T.H. and lime. -----September 28, 2016 10:48 AM-----	-1	Tropical Storm Julia
9/22/2016 12:00	1224 Butler Street Chesapeake, Va.	Pump station #18	Chesapeake	SSORS#2017-T-104700	Public utilities received complaints of sewer spilling from M/H # 018-SIB-142. This action occurred because there were high force main pressures in the area during heavy rain event from 2016-09-Julia Tropical Storm Julia. Due to high system pressure, the service area was spilling for approximately 9.5 hours. We roughly estimate the spill volume to be more than 10,000 gallons.	Monitor progress of station and treated site with treated with H.T.H and lime. -----September 23, 2016 07:54 PM-----	-1	Tropical Storm Julia

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
9/22/2016 12:30	733 Carolina Ave	Carolina Ave	Norfolk	SSORS#2017-T-104681	Square clean out box overflowing	Notified Supervisor, system at 100% capacity -----September 23, 2016 10:18 AM----	-1	Tropical Storm Julia
9/22/2016 12:55	6011 Upper Brandon Place	Upper Brandon	Norfolk	SSORS#2017-T-104695	Cleanout overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 03:12 PM----	-1	Tropical Storm Julia
9/22/2016 13:00	6805 Cedarwood Court	Cedarwood Ct	Norfolk	SSORS#2017-T-104683	Manhole overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 10:29 AM----	-1	Tropical Storm Julia
9/22/2016 13:58	Burbage Drive	Burbage Drive Extended:	Suffolk	SSORS#2017-T-104671	PS 151 failed to operate normal due to high head conditions during a rain event. Telog data indicates that an overflow occurred, but it was not observed by staff. The average rainfall amount as collected from 15 rain gauges throughout the City between 12:00 pm on 9/19/2016 and 12:00 pm on 9/22/2016 was 9.68". Based on the City of Suffolk rain data, the rain event is being identified as a 50-year event. The rain event that occurred from 9/19/2016 through 9/22/2016 was a remnant from a tropical depression system from Tropical Storm Julia.	Staff used an emergency pump to maintain PS 151 during this rain event. PS 151 is now back in normal operation. -----September 23, 2016 08:43 AM-----September 26, 2016 10:40 AM----	0	Tropical Storm Julia
9/23/2016 6:40	240 Louvick St (wrong address), should have been 270 Louvick St (correct address)	Louvick Street	Norfolk	SSORS#2017-T-104716	Manhole overflowing	Reported to supervisor, system at 100% capacity -----September 26, 2016 07:58 AM----	-1	Tropical Storm Julia
9/23/2016 8:30	8595 Tidewater Dr	Tidewater Dr @ Bayview Blvd	Norfolk	SSORS#2017-T-104685	Manhole overflowing	Reported to supervisor, system at 100% capacity -----September 23, 2016 10:34 AM----	-1	Tropical Storm Julia
9/23/2016 10:30	8580 Margaret Ave	Margaret Ave	Norfolk	SSORS#2017-T-104717	Clean out box overflowing	Reported to supervisor, system at 100% capacity -----September 26, 2016 08:03 AM----	-1	Tropical Storm Julia
10/8/2016 5:18	White Herons Lane	Westhaven Lakes # 1:	Suffolk	SSORS#2017-T-104847	Telog data indicates that PS 120 overflowed during a storm event. This overflow was not observed by staff.	PS 120 is now back in normal operation. -----October 11, 2016 01:23 PM----	0	Hurricane Matthew
10/8/2016 8:21	1901 Rokeby Ave Chesapeake, Va.	Pump Station # 201	Chesapeake	SSORS#2017-T-104909	Public utilities received complaints of sewer spilling from M/H # 201-SMH-019. This action occurred because there were high force main pressures and power outages in the area during heavy rain event from 2016/10-Matthew Hurricane Matthew. The service area was spilling for approximately 38.75 hours. We roughly estimate the spill volume to be more than 100,000 gallons.	Site was treated with H.T.H. and lime. -----October 14, 2016 04:36 PM----	-1	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/8/2016 15:55	133 Manning Road	Barrett Arces #1:	Suffolk	SSORS#2017-T-104860	Telog data indicates that PS 023 overflowed during a storm event. This overflow was not observed by staff.	PS 023 is now back in normal operation. ----- October 11, 2016 03:25 PM-----	0	Hurricane Matthew
10/8/2016 16:00	1050 Pretlow Street Franklin, Va. 23851	Citywide	Franklin	SSORS#2017-T-104771	Major citywide flooding of the city of franklin from Hurricane Matthew caused multiple spills that we can not give a total GPM. Franklin street main sewer trunk line, SMH # 51-112, and the armory drive corridor and the wastewater treatment plant. We have multiple manholes that are under flooded streams and can not see at this time. This is a initial report.	Continued efforts to reduce I/I. Waiting for flows to subside to investigate impacted areas. -----October 9, 2016 06:38 AM-----	-1	Hurricane Matthew
10/8/2016 16:56	Constance Road	Constantance Road Sanitary Sewer:	Suffolk	SSORS#2017-T-104874	Telog data indicates that PS 146 overflowed during a storm event. This overflow was not observed by staff.	PS 146 is now back in normal operation. ----- October 11, 2016 06:34 PM-----	0	Hurricane Matthew
10/8/2016 17:20	2273 Wilroy Rd (At Ciba)	Wilroy Rd:	Suffolk	SSORS#2017-T-104856	Telog data indicates that PS 031 overflowed during a storm event. This overflow was not observed by staff.	PS 031 is now back in normal operation. ----- October 11, 2016 02:57 PM-----	0	Hurricane Matthew
10/8/2016 17:44	806 A East Riverview Dr.	Riverview # 2:	Suffolk	SSORS#2017-T-104873	PS 003 loss normal power during a storm event. Staff had a rental stand by emergency pump on site. The emergency pump float control box faulted and it prevented the pump from working. The pump representative came out and made the necessary repairs to the float box. The result of these issues caused PS 003 to overflow.	PS 003 is now back in normal operation. ----- October 11, 2016 06:11 PM-----	1,050	Hurricane Matthew
10/8/2016 17:44	Bethlehem Street	North Jericho:	Suffolk	SSORS#2017-T-104878	Telog data indicates that PS 076 overflowed during a storm event. This overflow was not observed by staff.	PS 076 is now back in normal operation. ----- October 11, 2016 07:06 PM-----	0	Hurricane Matthew
10/8/2016 17:45	928 Kempsville Road Chesapeake, Va.	Pump Station #206	Chesapeake	SSORS#2017-T-104911	Public utilities received complaints of sewer spilling from M/H # 206-SMH-057, 206-SMH-056, 206-SMH-055, 206-SMH-054 This action occurred because there were high force main pressures and power outages in the service area during heavy rain event and was spilling for approximately 12.5 Hr. from 2016/10-Matthew Hurricane Matthew roughly estimate the spill volume to be more than 20,000 gallons.	Site was treated with H.T.H. and lime. ----- October 14, 2016 06:22 PM-----	-1	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/8/2016 17:48	4701 Victoria Blvd	Bridge Street Pump Station (Tide Gate)	Hampton	SSORS#2017-T-104777	Significant wet weather from Hurricane Matthew (8.96 inches of rain at Bayshore PS) combined with elevated tidal levels resulted in increased system flows.	Verified pump station operating properly. Operations personnel cleaned the area of all visible debris. Tide gate was submerged due to tidal flooding preventing personnel from determining the overflow rate. -----October 13, 2016 03:50 PM-----	-1	Hurricane Matthew
10/8/2016 17:48	8794 Six Mount Zion Rd Williamsburg Va	LS 9-7	James City	SSORS#2017-T-104852	Heavy Rain 4 to 5 inches (Hurricane Matthew)	Visited station pumps operating but unable to keep up with flow. Storm Passed -----October 11, 2016 02:15 PM-----	-1	Hurricane Matthew
10/8/2016 17:53	174 Forest Heights Road Williamsburg Va	LS 6-2	James City	SSORS#2017-T-104839	Heavy Rain 4 to 5 inches (Hurricane Matthew)	Visited station pumps operating but unable to keep up with flow. Pumped and Hauled Storm passed -----October 11, 2016 10:24 AM-----	-1	Hurricane Matthew
10/8/2016 17:57	Magnolia Drive	Wynnewood:	Suffolk	SSORS#2017-T-104881	Telog data indicates that PS 020 overflowed during a storm event. This overflow was not observed by staff.	PS 020 is now back in normal operation. -----October 11, 2016 07:38 PM-----	0	Hurricane Matthew
10/8/2016 17:59	720 Bay Shore Lane	Bayshore Pump Station	Hampton	SSORS#2017-T-104780	Significant wet weather from Hurricane Matthew (8.96 inches of rain at Bayshore PS) combined with elevated tidal levels resulted in increased system flows.	Verified pump station operating properly. Cleaned area upon completion of tidal events. Manhole was submerged due to tidal flooding preventing personnel from determining the overflow rate. -----October 13, 2016 03:59 PM-----	-1	Hurricane Matthew
10/8/2016 17:59	100 Berkshire Blvd.	Berkshire Meadows:	Suffolk	SSORS#2017-T-104845	Telog data indicates that PS 037 overflowed during a storm event. This overflow was not observed by staff.	PS 037 is now back in normal operation. -----October 11, 2016 01:08 PM-----	0	Hurricane Matthew
10/8/2016 18:00	Huntersville Place	Huntersville #1:	Suffolk	SSORS#2017-T-104879	Telog data indicates that PS 054 overflowed during a storm event. This overflow was not observed by staff.	PS 054 is now back in normal operation -----October 11, 2016 07:17 PM-----	0	Hurricane Matthew
10/8/2016 18:04	1404 1/2 Planters Drive	Kilby Shores:	Suffolk	SSORS#2017-T-104864	Telog data indicates that PS 017 overflowed during a storm event. This overflow was not observed by staff.	PS 017 is now back in normal operation. -----October 11, 2016 04:38 PM-----	0	Hurricane Matthew
10/8/2016 18:14	Ashley Ave.	Philadelphia:	Suffolk	SSORS#2017-T-104865	Telog data indicates that PS 022 overflowed during a storm event. This overflow was not observed by staff.	PS 022 is now back in normal operation. -----October 11, 2016 04:45 PM-----	0	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/8/2016 18:21	Pine Valley Drive	Pine Valley Point:	Suffolk	SSORS#2017-T-104848	PS 015 failed to operate normal during a storm event due to high force main pressure. The manhole on Pine Valley Drive overflowed due to this incident.	PS 015 is now back in normal operation. ----- October 11, 2016 01:38 PM-----	1,000	Hurricane Matthew
10/8/2016 18:27	King Street at I-64	Manhole King Street and I-64	Hampton	SSORS#2017-T-104779	Significant wet weather from Hurricane Matthew (8.96 inches of rain at Bayshore PS) combined with elevated tidal levels resulted in increased system flows.	Verified pump station operating properly. Cleaned area upon completion of tidal events. Manholes were submerged due to tidal flooding preventing personnel from determining the overflow rate. ----- October 13, 2016 03:57 PM-----	-1	Hurricane Matthew
10/8/2016 18:35	43rd Street at Hampton Blvd, Norfolk	Manhole SG049	Norfolk	SSORS#2017-T-104793	Manhole overflow due to heavy rain and tidal flooding from Hurricane Matthew. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate.	The VIP treatment plant bypassed and chlorinated influent flow to prevent wastewater overflows in residential areas. --- --October 9, 2016 05:27 PM-----	-1	Hurricane Matthew
10/8/2016 18:35	Intersection of Bluestone Ave and W. 38th Street	Manhole Bluestone and 38th	Norfolk	SSORS#2017-T-104794	Manhole overflow due to heavy rain and tidal flooding from Hurricane Matthew. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate.	The VIP treatment plant bypassed and chlorinated influent flow to prevent wastewater overflows in residential areas. --- --October 9, 2016 05:33 PM-----	-1	Hurricane Matthew
10/8/2016 18:39	5734 Chesapeake Blvd	Chesapeake Blvd PS	Norfolk	SSORS#2017-T-104782	Wet well overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.37-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. ----- October 13, 2016 04:11 PM-----	-1	Hurricane Matthew
10/8/2016 18:48	315 Center Ave.	Center Ave PS	Newport News	SSORS#2017-T-104775	Significant wet weather from Hurricane Matthew (9.99 inches of rain at Morrison PS) combined with elevated tidal levels resulting in increased system flows.	Checked station to ensure all pumps were operating properly. ----- October 9, 2016 02:00 PM-----	104,240	Hurricane Matthew
10/8/2016 18:50	Northgate Lane	North Main St #2:	Suffolk	SSORS#2017-T-104857	Telog data indicates that PS 012 overflowed during a storm event. This overflow was not observed by staff.	PS 012 is now back in normal operation. ----- October 11, 2016 03:13 PM-----	0	Hurricane Matthew
10/8/2016 19:00	King St. and Rudd Ln.	Manhole at King St. and Rudd Lane	Hampton	SSORS#2017-T-104778	Significant wet weather from Hurricane Matthew (8.96 inches of rain at Bayshore PS) combined with elevated tidal levels resulted in increased system flows.	Verified pump station operating properly. Cleaned area upon completion of tidal events. ----- October 13, 2016 03:53 PM-----	685,725	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/8/2016 19:04	Shoulders Hill Rd.	Bayberry Cove:	Suffolk	SSORS#2017-T-104869	Telog data indicates that PS 130 overflowed during a storm event. This overflow was not observed by staff.	PS 130 is now back in normal operation. ----- October 11, 2016 05:12 PM-----	0	Hurricane Matthew
10/8/2016 19:10	3904 Chesapeake Ave	Manhole @ Chesapeake Ave. and Clyde	Hampton	SSORS#2017-T-104776	Significant wet weather from Hurricane Matthew (9.16 inches of rain at Copeland Park PS) combined with elevated tidal levels resulted in increased system flows.	Verified pump station operating properly. Upon completion of tide cycle, cleaned area. Hampton personnel placed sandbags on top of the manhole cover, stopping the overflow (verified by NS personnel at 7:00 PM on 10/09/2016). -----October 13, 2016 03:46 PM-----	277,125	Hurricane Matthew
10/8/2016 19:11	Bainbridge Blvd. & Holly Ave.	Manhole	Chesapeake	SSORS#2017-T-104783	Wetwell overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.24-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. -----October 13, 2016 04:17 PM-----	-1	Hurricane Matthew
10/8/2016 19:25	5808 Monroe Place, Norfolk	Monroe Ave PS Manhole	Norfolk	SSORS#2017-T-104784	Wetwell overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 9.26-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. -----October 13, 2016 04:20 PM-----	-1	Hurricane Matthew
10/8/2016 19:34	115 Depot Street Toano Va	LS 6-8	James City	SSORS#2017-T-104838	Heavy Rain 4 to 5 inches (Hurricane Matthew)	Visited station pumps operating but unable to keep up with flow. Pumped and Hauled Storm passed -----October 11, 2016 10:19 AM-----	-1	Hurricane Matthew
10/8/2016 19:47	948 Dovercourt Road, Norfolk	Dovercourt Pump Station	Norfolk	SSORS#2017-T-104785	Wetwell overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 10.28-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. -----October 13, 2016 04:22 PM-----	15,270	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/8/2016 19:50	2415 Drum Creek Road Chesapeake, Va.	Pump Station # 84	Chesapeake	SSORS#2017-T-104908	Public utilities received complaints of sewer spilling from M/H # 084-SMH-058 and inside house at 2212 Bugle Drive. This action occurred because there were high force main pressures and power outages in the area during heavy rain event as it was spilling for approximately 5.5 Hr. from 2016/10-Matthew Hurricane Matthew roughly estimate the spill volume to be more than 10,000 gallons.	Manhole site was treated with H.T.H. and lime. -----October 14, 2016 12:37 PM-----	-1	Hurricane Matthew
10/8/2016 19:51	Mountainside Ave	Reid Crossing:	Suffolk	SSORS#2017-T-104849	Telog data indicates that PS 126 overflowed during a storm event. This overflow was not observed by staff.	PS 126 is now back in normal operation. -----October 11, 2016 01:51 PM-----	0	Hurricane Matthew
10/8/2016 20:00	651 Turlington Rd	Turlington Rd:	Suffolk	SSORS#2017-T-104863	Telog data indicates that PS 162 overflowed during a storm event. This overflow was not observed by staff.	PS 162 is now back in normal operation. -----October 11, 2016 04:28 PM-----	0	Hurricane Matthew
10/8/2016 20:18	800 Quail Avenue, Chesapeake	Quail Ave. Pump Station	Chesapeake	SSORS#2017-T-104786	Wetwell overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.88-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. -----October 13, 2016 04:24 PM-----	-1	Hurricane Matthew
10/8/2016 20:25	Larry Anne Drive	Wilroy Acres:	Suffolk	SSORS#2017-T-104868	Telog data indicates that PS 046 overflowed during a storm event. This overflow was not observed by staff.	PS 046 is now back in normal operation. -----October 11, 2016 05:03 PM-----	0	Hurricane Matthew
10/8/2016 20:35	76-Z Carlton Ct	PS 9	Williamsburg	SSORS#2017-T-104799	During sever weather force main pressures were to high to allow stations to pump	When normal operating pressure returned station returned to normal -----October 10, 2016 10:04 AM-----	-1	Hurricane Matthew
10/8/2016 20:42	179 Red Oak Landing Road Williamsburg Va	LS 4-8	James City	SSORS#2017-T-104827	Heavy Rain 4 to 5 inches (Hurricane Matthew)	Visited station pumps operating but unable to keep up with flow. Storm Passed -----October 11, 2016 09:03 AM-----	-1	Hurricane Matthew
10/8/2016 20:45	234 Cary St	James Street Pump Station	Smithfield	SSORS#2017-T-104773	High head pressure from heavy rain due to Hurricane. 55 to 60 pounds of head pressure.	Reset main pumps at station. -----October 9, 2016 11:36 AM-----	5,000	Hurricane Matthew
10/8/2016 20:49	Sumner Ave.	Oak Ridge:	Suffolk	SSORS#2017-T-104861	Telog data indicates that PS 024 overflowed during a storm event. This overflow was not observed by staff.	PS 024 is now back in normal operation -----October 11, 2016 03:39 PM-----	0	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/8/2016 21:07	99 Patrick Henry Dr	Ps 7	Williamsburg	SSORS#2017-T-104798	During sever weather force main pressures were to high to allow stations to pump	When normal operating pressure returned station returned to normal -----October 10, 2016 09:59 AM-----	-1	Hurricane Matthew
10/8/2016 21:20	Halstead Lane, Chesapeake VA	Dozier Corner Pump Station	Chesapeake	SSORS#2017-T-104787	Wetwell overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.42-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. -----October 13, 2016 04:26 PM-----	-1	Hurricane Matthew
10/8/2016 21:30	3748 Chesapeake Avenue, Hampton	Chesapeake Ave manhole	Hampton	SSORS#2017-T-104797	Significant wet weather from Hurricane Matthew (9.16 inches of rain at Copeland Park PS) combined with elevated tidal levels resulted in increased system flows.	Verified pump station operating properly. Upon completion of tide cycle, cleaned area. -----October 13, 2016 04:03 PM-----	194,850	Hurricane Matthew
10/8/2016 22:00	424 S. Main St	424 S. Main St	Suffolk	SSORS#2017-T-104902	Lateral overflowed, no structural defects found in lateral.	Spill site cleaned. Should be noted that this spill was not observed. Dates and times based on customer input and other observations as to possible Date under control information. Unable to determine released amounts. -----October 12, 2016 12:10 PM-----	-1	Hurricane Matthew
10/8/2016 22:00	111 Grayson Ct: Rear of property	111 Grayson Ct	Suffolk	SSORS#2017-T-104903	SSO at sewer manhole.	Spill site cleaned. Spill Dates start and under control are estimates based on storm duration and impacts. Spill was unobserved. Unable to determine Amount released. -----October 12, 2016 12:21 PM-----	-1	Hurricane Matthew
10/8/2016 22:21	858 Jamestown Crescent Road, Norfolk	Jamestown Crescent Pump Station	Norfolk	SSORS#2017-T-104788	Wetwell overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 9.26-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. -----October 13, 2016 04:29 PM-----	-1	Hurricane Matthew
10/8/2016 22:24	7247 Pocahontas Trail, Williamsburg Anex A Williamsburg Va	LS 1-7	James City	SSORS#2017-T-104895	Heavy Rain 4 to 5 inches (Hurricane Matthew)	Visited station pumps operating but unable to keep up with flow. Storm Passed -----October 12, 2016 10:18 AM-----	-1	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/8/2016 22:54	Lakefront Drive	Cove Point # 2:	Suffolk	SSORS#2017-T-104855	Telog data indicates that PS 072 overflowed during a storm event. This overflow was not observed by staff.	PS 072 is now back in normal operation. ----- October 11, 2016 02:44 PM-----	0	Hurricane Matthew
10/8/2016 23:20	1900 E. Indian River Rd, Norfolk	Steamboat Creek PS	Norfolk	SSORS#2017-T-104789	Wetwell overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.88-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. -----October 13, 2016 04:31 PM-----	-1	Hurricane Matthew
10/8/2016 23:22	300 Terminal Avenue, Newport News	Manhole Terminal Blvd	Newport News	SSORS#2017-T-104774	Significant wet weather from Hurricane Matthew (9.16 inches of rain at Copeland Park PS) combined with elevated tidal levels resulting in increased system flows.	Verified treatment plant was operating properly. -----October 13, 2016 03:37 PM-----	155,925	Hurricane Matthew
10/9/2016 0:23	Widgeon Ct.	Burnetts Mills # 2:	Suffolk	SSORS#2017-T-104867	Telog data indicates that PS 025 overflowed during a storm event. This overflow was not observed by staff.	PS 025 is now back in normal operation. ----- October 11, 2016 04:58 PM-----	0	Hurricane Matthew
10/9/2016 0:27	Darlington Court	Oak Lake:	Suffolk	SSORS#2017-T-104862	Telog data indicates that PS 033 overflowed during a storm event. This overflow was not observed by staff.	PS 033 is now back in normal operation. ----- October 11, 2016 04:03 PM-----	0	Hurricane Matthew
10/9/2016 0:38	Intersection of Beach Ave. and Ethel Ave., Norfolk	manhole City Park Pump Station	Norfolk	SSORS#2017-T-104790	Manhole overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The manhole was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 9.26-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. -----October 13, 2016 04:36 PM-----	-1	Hurricane Matthew
10/9/2016 0:50	220-A The Main Williamsburg Va	LS 1-8	James City	SSORS#2017-T-104825	Heavy Rain 4 to 5 1/2 inches (Hurricane Mathew)	Visited station pumps operating but unable to keep up with flow.Pumped and hauled, Storm Passed -----October 11, 2016 08:33 AM-----	-1	Hurricane Matthew
10/9/2016 1:14	4421 Vahalla DR	Manhole	Portsmouth	SSORS#2017-T-104896	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the pump station caught back up -----October 12, 2016 11:28 AM-----	-1	Hurricane Matthew
10/9/2016 1:26	Brians Lane	Brewers Meadow:	Suffolk	SSORS#2017-T-104872	Telog data indicates that PS 129 overflowed during a storm event. This overflow was not observed by staff.	PS 129 is now back in normal operation. ----- October 11, 2016 05:35 PM-----	0	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/9/2016 1:51	2731 Chesterfield Blvd., Norfolk	Chesterfield Blvd Pump Station	Norfolk	SSORS#2017-T-104791	Wetwell overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 11.37-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. -----October 13, 2016 05:06 PM-----	-1	Hurricane Matthew
10/9/2016 2:12	900 Hanover Avenue, Norfolk	Hanover Pump Station	Norfolk	SSORS#2017-T-104792	Manhole overflow due to heavy rain and tidal flooding from Hurricane Matthew caused the pump station to go into alarm status for overflow. The location was submerged due to tidal and storm flooding preventing personnel from determining the overflow rate. Local rain gauge recorded 9.26-inches of rain between 6:00AM 10/08/16 to 12:00PM 10/09/16.	HRSD staff verified that all pumps were operating properly. The overflow event ended as flow subsided, and the pumps were able to maintain flows. -----October 13, 2016 04:42 PM-----	-1	Hurricane Matthew
10/9/2016 2:23	713 North Main Street	North Main St #1:	Suffolk	SSORS#2017-T-104904	Telog data indicates that PS 063 overflowed during a storm event. Staff did not witness the actual overflow due to the site being submerged under water.	PS 063 is back in normal operation. -----October 12, 2016 03:57 PM-----	0	Hurricane Matthew
10/9/2016 3:08	4888 John Tyler Highway Williamsburg Va	LS 3-8	James City	SSORS#2017-T-104851	Heavy Rain 4 to 5 inches (Hurricane Matthew) Lost communication during storm unable to calculate sewage component. Inspections on 10/10/2016 indicated normal operating level no active spill. Above time are estimated	Visited station pumps operating but unable to keep up with flow. Storm Passed -----October 11, 2016 02:07 PM-----	-1	Hurricane Matthew
10/9/2016 3:21	300 WHITTAKERS TRACE	MANHOLE 2301304	York	SSORS#2017-T-104811	HRSD PUMP STATION ROLLING HILLS OVERFLOWED, CAUSING BACKUP INTO YORK COUNTY GRAVITY SYSTEM.	NONE BY YORK COUNTY, HRSD RESPONDED TO THEIR -1STATION -----October 10, 2016 01:11 PM-----	-1	Hurricane Matthew
10/9/2016 3:44	1090 Holland Road	Holland Heights:	Suffolk	SSORS#2017-T-104871	Telog data indicates that PS 136 overflowed during a storm event. This overflow was not observed by staff.	PS 136 is back in normal operation. -----October 11, 2016 05:25 PM-----	0	Hurricane Matthew
10/9/2016 4:31	4817 Hickory Signpost Road Williamsburg Va	LS 3-6	James City	SSORS#2017-T-104837	Heavy Rain 4 to 5 inches (Hurricane Matthew)	Visited station pumps operating but unable to keep up with flow. Storm Passed -----October 11, 2016 10:14 AM-----	-1	Hurricane Matthew
10/9/2016 5:23	3478 Fith Avenue Williamsburg Va	LS 1-6	James City	SSORS#2017-T-104884	Heavy Rain 4 to 5 inches (Hurricane Matthew)	Visited station pumps operating but unable to keep up with flow. Storm Passed -----October 12, 2016 07:57 AM-----	-1	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/9/2016 6:00	122 Watford Lane Williamsburg Va	LS 4-1	James City	SSORS#2017-T- 104854	Heavy Rain 4 to 5 inches (Hurricane Matthew)	Visited station pumps operating but unable to keep up with flow. Storm Passed ----- October 11, 2016 02:22 PM-----	-1	Hurricane Matthew
10/9/2016 6:30	Key Oak Dr. at Curson Court	Hurricane Matthew pump station 6	Poqouson	SSORS#2017-T- 104802	Manhole overflow due to high head pressure	Overflow stopped when head pressures were reduced -----October 10, 2016 10:51 AM-----	-1	Hurricane Matthew
10/9/2016 6:30	Manholes at 73 Lodge Rd. 123 Church St. and Church St at Jump point La.	Hurricane Matthew pump station 1	Poqouson	SSORS#2017-T- 104803	Manhole overflow due to high head pressure	Pump and haul to lower wet well level. Overflow stopped as head pressures were reduced -----October 10, 2016 11:07 AM-----	-1	Hurricane Matthew
10/9/2016 6:44	112 Cove Point	Cove Point #1:	Suffolk	SSORS#2017-T- 104850	Telog data indicates that PS 071 overflowed during a storm event. This overflow was not observed by staff.	PS 071 is now back in normal operation. ----- October 11, 2016 02:06 PM-----	0	Hurricane Matthew
10/9/2016 7:15	Queens Way & Eaton St	Downtown Hampton	Hampton	SSORS#2017-T- 104814	Sewer overflowing from manholes due to storm.	10" of rain in 10 hours due to Hurricane Matthew. Still spilling at this time. Pump and hauling at this time to assist with catching the system up. -----October 10, 2016 03:59 PM-----	350,000	Hurricane Matthew
10/9/2016 7:25	4501 Ericson Dr	Erricson & Porter	Hampton	SSORS#2017-T- 104813	Sewer overflowing from manhole	10" of rain in 10 hours - Overflow stopped as system caught back up. Cleaned up spill ----- October 10, 2016 03:53 PM-----	25200	Hurricane Matthew
10/9/2016 7:45	150 Lasalle Ave	Lasalle Ave	Hampton	SSORS#2017-T- 104815	Sewer overflowing from manhole due to Hurricane Matthew.	Waited for system to catch up. Pumped and hauled what we could, cleaned up after spill. -----October 10, 2016 04:04 PM-----	132,000	Hurricane Matthew
10/9/2016 7:56	5375 Discovery Park Blvd	LS 10-4	James City	SSORS#2017-T- 104885	Heavy Rain 4 to 5 inches (Hurricane Matthew)	Visited station pumps operating but unable to keep up with flow. Storm Passed ----- October 12, 2016 08:03 AM-----	-1	Hurricane Matthew
10/9/2016 8:00	63 Messick Rd.	Hurricane Matthew pump Station 10	Poqouson	SSORS#2017-T- 104804	Manhole overflow due to flooding	overflow stopped as flooding subsided ----- October 10, 2016 11:14 AM-----	-1	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/9/2016 8:00	63 Messick Rd.	Hurricane Matthew pump Station 10	Poquoson	SSORS#2017-T-104805	Manhole overflow due to flooding	overflow stopped as flooding subsided -----October 10, 2016 11:14 AM-----	-1	Hurricane Matthew
10/9/2016 8:30	638 Creasy Ave.	638 Creasy Ave.	Newport News	SSORS#2017-T-104800	Hurricane Matthew dumped excessive rain causing Pump Station #19 to be inundated requiring pump and haul. Work order #304498 was created.	Pump and haul operation to bypass station. -----October 10, 2016 10:41 AM-----	18,750	Hurricane Matthew
10/9/2016 8:30	400 CHURCH RD	Lackey Pump Station	York	SSORS#2017-T-104806	PRESSURE IN FORCE MAIN NOT ALLOWING STATION TO PUMP INTO HRSD RECEPTOR.	PUMP AND HAUL. -----October 10, 2016 11:40 AM-----	12,000	Hurricane Matthew
10/9/2016 8:30	133 Baker Farm Drive	Baker Farm	Hampton	SSORS#2017-T-104821	Overflowing from manhole due to heavy rains	System caught up, crews cleaned up spill. ---October 10, 2016 04:38 PM-----	102,000	Hurricane Matthew
10/9/2016 8:30	1756 Mathew Terrace	Manhole	Portsmouth	SSORS#2017-T-104886	Excessive rainfall and flooding Caused overflow from manhole into the storm drain	Rainfall stopped and Pump Stations caught back up -----October 12, 2016 08:31 AM-----	-1	Hurricane Matthew
10/9/2016 8:35	1533 Leckie St	Manhole	Portsmouth	SSORS#2017-T-104887	Excessive rainfall and flooding caused overflow from manhole into the storm drain	Rainfall stopped and pump station caught back up -----October 12, 2016 08:38 AM-----	-1	Hurricane Matthew
10/9/2016 9:00	Nickerson & Old Buckroe Ave	Nickerson & Old Buckroe	Hampton	SSORS#2017-T-104819	Overflowing from manhole due to heavy rains from Hurricane Matthew.	System caught back up from heavy rains. Cleaned up spill. -----October 10, 2016 04:30 PM-----	36,000	Hurricane Matthew
10/9/2016 9:00	1142 Blair St	Manhole	Portsmouth	SSORS#2017-T-104888	Excessive rainfall and flooding caused manhole to overflow into the storm drain	Rainfall stopped and pump station caught back up -----October 12, 2016 08:41 AM-----	-1	Hurricane Matthew
10/9/2016 9:00	4100 George Washington Hwy	Manhole	Portsmouth	SSORS#2017-T-104889	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and pump station caught back up -----October 12, 2016 08:45 AM-----	-1	Hurricane Matthew
10/9/2016 9:18	5349 Rockingham Drive Williamsburg	LS 6-1	James City	SSORS#2017-T-104835	Heavy Rain 4 to 5 inches (Hurricane Matthew)	Visited station pumps operating but unable to keep up with flow. Pump and Hauled Storm Passed -----October 11, 2016 10:02 AM-----	-1	Hurricane Matthew
10/9/2016 10:00	105A BLACKWOOD CT	WHISPERING WINDS PUMP STATION	York	SSORS#2017-T-104812	PRESSURE IN HRSD INTERCEPTOR REACHED 94 PSI, NOT ALLOWING STATION TO PUMP INTO IT.	SET UP BYPASS PUMP -----October 10, 2016 01:19 PM-----	-1	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/9/2016 10:00	91 Afton Pkwy	Manhole	Portsmouth	SSORS#2017-T-104890	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the pump station caught back up -----October 12, 2016 08:55 AM-----	-1	Hurricane Matthew
10/9/2016 10:00	259 Providence Road Chesapeake, Va.	Pump Station # 38	Chesapeake	SSORS#2017-T-104923	This action occurred because there were power outages in the service and was spilling for approximately .75 Hr. from 2016/10-Matthew Hurricane Matthew roughly estimate the spill volume to be 10,000 gallons.	Hook up portable generator to power station until power was restored. Site was treated with H.T.H. -----October 17, 2016 02:07 PM-- ---	10,000	Hurricane Matthew
10/9/2016 10:26	920-A Sharon Drive Chesapeake, Va.	Pump Station # 51	Chesapeake	SSORS#2017-T-104914	Public utilities received complaints of sewer spilling from M/H # 051-SMH-036. This action occurred because there were high force main pressures in the area during heavy rain event from 2016/10 Matthew Hurricane Matthew causing motor starters to trip out from running long periods of time.the service area was spilling for approximately 3.25 Hrs. We roughly estimate the spill volume to be more than 5,000 gallons.	Reset over loads to both starters. Site was treated with H.T.H. and lime. -----October 14, 2016 07:34 PM-----	5,000	Hurricane Matthew
10/9/2016 10:30	67 Scotland Rd	Pump Station 007	Hampton	SSORS#2017-T-104816	Sewer coming from manhole due to loss of power at the pump station and high rain fall.	Installed portable pump until power was restored. spill was cleaned up. -----October 10, 2016 04:12 PM-----	22,800	Hurricane Matthew
10/9/2016 10:30	2917 Kecoughtan Road	Kecoughtan Rd	Hampton	SSORS#2017-T-104818	sewer coming from manhole. System is full	System caught back up, crews cleaned up spill. -----October 10, 2016 04:19 PM-----	84,000	Hurricane Matthew
10/9/2016 10:35	111 Christopher Ln	Christopher Ln	Hampton	SSORS#2017-T-104820	Sewer coming from manhole	Pump station power restored, bypass pump installed. Spill cleaned up. -----October 10, 2016 04:35 PM-----	39,000	Hurricane Matthew
10/9/2016 10:36	6936 Main Street	Pump Station 13	Gloucester	SSORS#2017-T-104795	High pressures on H.R.S.D. force main due to licked out Gloucester County pump	Duty man on sight monitoring. -----October 9, 2016 07:48 PM-----	4,500	Hurricane Matthew
10/9/2016 10:46	Constance Road	Constance Road Sanitary Sewer:	Suffolk	SSORS#2017-T-104875	Telog data indicates that PS 146 overflowed during a storm event. This overflow was not observed by staff.	PS 146 is now back in normal operation. -----October 11, 2016 06:38 PM-----	0	Hurricane Matthew
10/9/2016 11:00	2111 Shell Road	Shell & Teach	Hampton	SSORS#2017-T-104822	Overflowing from manhole due to heavy rains from storm.	System caught back up and crews cleaned up spills. -----October 10, 2016 04:41 PM-----	54,000	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/9/2016 11:00	2111 Shell Road	Shell & Teach	Hampton	SSORS#2017-T-104823	Overflowing from manhole due to heavy rains from storm.	System caught back up and crews cleaned up spills. -----October 10, 2016 04:41 PM-----	54,000	Hurricane Matthew
10/9/2016 11:00	2111 Shell Road	Shell & Teach	Hampton	SSORS#2017-T-104824	Overflowing from manhole due to heavy rains from storm.	System caught back up and crews cleaned up spills. -----October 10, 2016 04:41 PM-----	54,000	Hurricane Matthew
10/9/2016 11:05	3404 Deep Creek Blvd	Manhole	Portsmouth	SSORS#2017-T-104891	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the pump station caught back up -----October 12, 2016 09:26 AM-----	-1	Hurricane Matthew
10/9/2016 11:05	4501 Duke St	Manhole	Portsmouth	SSORS#2017-T-104893	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the pump station caught back up -----October 12, 2016 09:55 AM-----	-1	Hurricane Matthew
10/9/2016 11:06	3328 Deep Creek Blvd	Manhole	Portsmouth	SSORS#2017-T-104892	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and pump station caught back up -----October 12, 2016 09:32 AM-----	-1	Hurricane Matthew
10/9/2016 12:26	248 East Westonia Road Chesapeake, Va.	Pump Station # 59	Chesapeake	SSORS#2017-T-104913	Public utilities received complaints of sewer spilling from M/H # 059-SMH-027. This action occurred because there were high force main pressures and power outages in the service area during heavy rain event and was spilling for approximately 13.25 Hr. from 2016/10-Matthew Hurricane Matthew roughly estimate the spill volume to be more than 10,000 gallons.	Site was treated with H.T.H. and lime. -----October 14, 2016 06:53 PM-----	-1	Hurricane Matthew
10/9/2016 12:30	Browns Neck Rd. At West Sandy Point Drive	Hurricane Matthew pump station 2	Poquoson	SSORS#2017-T-104801	Manhole overflow due to high head pressure	Overflow stopped when head pressures were reduced. -----October 10, 2016 10:44 AM-----	-1	Hurricane Matthew
10/9/2016 13:00	4124 Candlewood Drive	Candlewood Dr	Hampton	SSORS#2017-T-104817	Spill due to heavy rain fall from Hurricane Matthew.	System overwhelmed due to Hurricane Matthew. System caught back up and spill was cleaned up. -----October 10, 2016 04:15 PM-----	40,500	Hurricane Matthew
10/9/2016 13:15	4500 Westmoreland Ave	Manhole	Portsmouth	SSORS#2017-T-104894	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the pump station caught back up -----October 12, 2016 10:00 AM-----	-1	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/9/2016 13:30	4 Cooper Dr	Manhole	Portsmouth	SSORS#2017-T-104897	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the pump station caught back up -----October 12, 2016 11:32 AM-----	-1	Hurricane Matthew
10/9/2016 13:31	13 Kennedy Dr	Manhole	Portsmouth	SSORS#2017-T-104898	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the pump station caught back up -----October 12, 2016 11:36 AM-----	-1	Hurricane Matthew
10/9/2016 13:37	3904 Victory Blvd	Manhole	Portsmouth	SSORS#2017-T-104899	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the pump station caught back up -----October 12, 2016 11:39 AM-----	-1	Hurricane Matthew
10/9/2016 13:45	147 Tyler Crescent East	Manhole	Portsmouth	SSORS#2017-T-104900	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the pump station caught back up -----October 12, 2016 11:43 AM-----	-1	Hurricane Matthew
10/9/2016 15:15	317 Arizona Ave	Manhole	Portsmouth	SSORS#2017-T-104901	Excessive rainfall and flooding caused the manhole to overflow into the storm drain	Rainfall stopped and the pump station caught back up -----October 12, 2016 11:47 AM-----	-1	Hurricane Matthew
10/9/2016 16:15	Constance Road	Constance Road Sanitary Sewer:	Suffolk	SSORS#2017-T-104876	Telog data indicates that PS 146 overflowed during a storm event. This overflow was not observed by staff.	PS 146 is back in normal operation. -----October 11, 2016 06:43 PM-----	0	Hurricane Matthew
10/9/2016 19:07	Nansemond Parkway	Dayle Acres:	Suffolk	SSORS#2017-T-104880	Telog data indicates that PS 108 overflowed during a storm event. This overflow was not observed by staff.	PS 108 is now back in normal operation. -----October 11, 2016 07:30 PM----- -----October 14, 2016 10:56 AM-----	0	Hurricane Matthew
10/9/2016 19:10	743 Providence Road Chesapeake, Va.	Pump Station #107	Chesapeake	SSORS#2017-T-104915	Public utilities received complaints of sewer spilling from M/H # 107-SMH-004 and at the pump station wet well . This action occurred because there were high force main pressures and power outages in the service area during heavy rain event and was spilling for approximately 21.5 Hr. from 2016/10-Matthew Hurricane Matthew roughly estimate the spill volume to be more than 75,000 gallons.	Bypass pump was set up to assist with the station. Site was treated with H.T.H. and lime. -----October 14, 2016 08:02 PM-----	-1	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/9/2016 19:10	234 George Washington HWY South Chesapeake, Va.	Pump Station # 173	Chesapeake	SSORS#2017-T-104916	Public utilities received complaints of sewer spilling from M/H # 173-SMH-019. This action occurred because there were high force main pressures and power outages in the area during heavy rain event from 2016/10-Matthew Hurricane Matthew and was spilling for approximately 10 Hr. This station is a vary low flow station and we roughly estimate the spill volume to be 3,000 gallons.	Site was treated with H.T.H. and lime ----- October 14, 2016 08:32 PM-----	3,000	Hurricane Matthew
10/9/2016 20:00	PS-335 Diamond Lake Estates 1032 Norwich Ave	1033 Norwich Ave	Virginia Beach	SSORS#2017-T-104919	Sanitary overflow due to extreme weather event	As soon as possible secured site and got pump station pumping as best as possible. -- ---October 17, 2016 11:50 AM-----	-1	Hurricane Matthew
10/10/2016 0:00	PS-106 Birdneck Point South 928 Bobolink Dr	928 Bobolink Dr	Virginia Beach	SSORS#2017-T-104920	Pump station failure due to extreme weather event	Secured pump station and got pumping as soon as possible after the weather event ----- October 17, 2016 11:53 AM-----	-1	Hurricane Matthew
10/10/2016 1:12	Beechwood Ave.	Palmyra # 1:	Suffolk	SSORS#2017-T-104870	Telog data indicates that PS 137 overflowed during a storm event. This overflow was not observed by staff.	PS 137 is now back in normal operation. ----- October 11, 2016 05:20 PM-----	0	Hurricane Matthew
10/10/2016 10:00	428 Staten St.	Staten	Norfolk	SSORS#2017-T-104844	Manhole overflow due to pump station over capacity.	Have to wait for station to return to normal capacity. -----October 11, 2016 01:00 PM----- Station operating normal. -----October 13, 2016 10:31 AM-----	-1	Hurricane Matthew
10/10/2016 10:30	737 Pennsylvania Ave.	Pennsylvania	Norfolk	SSORS#2017-T-104841	Sewer system over capacity due to flooding.	Have to wait for flooding to subside. ----- October 11, 2016 12:16 PM----- Area back to normal. -----October 13, 2016 10:06 AM-----	-1	Hurricane Matthew
10/10/2016 11:15	6603 Catherine St.	Catherine	Norfolk	SSORS#2017-T-104840	Sewer system over capacity due to flooding	Have to wait for tide subside. -----October 11, 2016 11:56 AM----- Area back to normal - ----October 13, 2016 10:03 AM-----	-1	Hurricane Matthew
10/10/2016 11:15	6011 Upper Brandon Pl.	Upper Brandon	Norfolk	SSORS#2017-T-104843	Cleanout box overflow due to backup from HRSD pump station.	Notified HRSD. -----October 11, 2016 12:36 PM----- System back to normal. -----October 13, 2016 10:22 AM-----	-1	Hurricane Matthew

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
10/10/2016 11:40	Intersection of Walnut Hill and Sylvan St	Walnut Hill	Norfolk	SSORS#2017-T-104831	Sewer system over capacity due to area flooding.	Have to wait for the tide to subside ----- October 11, 2016 09:45 AM----- Area back to normal -----October 13, 2016 09:48 AM-----	-1	Hurricane Matthew
10/10/2016 12:05	4701 Powhatan Ave	Powhatan	Norfolk	SSORS#2017-T-104836	Sewer system over capacity due to flooding.	Have to wait for the flooding to subside. ----- October 11, 2016 10:06 AM----- Area back to normal -----October 13, 2016 09:52 AM-----	-1	Hurricane Matthew
10/10/2016 13:15	983 W. Ocean View Ave.	W. Ocean View Ave.	Norfolk	SSORS#2017-T-104828	Manhole overflow due to pump station over capacity	Waiting for pump station to catch up. ----- October 11, 2016 09:11 AM----- Station operating normal. -----October 13, 2016 09:43 AM-----	-1	Hurricane Matthew
10/10/2016 13:20	206 Birmingham Ave.	Birmingham	Norfolk	SSORS#2017-T-104846	Pump station wet well high due over capacity	Pump station returned to normal operations. ----- October 11, 2016 01:15 PM-----	-1	Hurricane Matthew
10/10/2016 14:12	Constance Road	Constance Road Sanitary Sewer:	Suffolk	SSORS#2017-T-104877	Telog data indicates that PS 146 overflowed during a storm event. This overflow was not observed by staff.	PS 146 is now back in normal operation. ----- October 11, 2016 06:51 PM-----	0	Hurricane Matthew
10/10/2016 14:30	1017 Little Bay Ave.	Little Bay	Norfolk	SSORS#2017-T-104833	Manhole overflow due to Pump station over capacity.	Pump station back to normal operation. ----- October 11, 2016 09:58 AM-----	-1	Hurricane Matthew
10/10/2016 15:00	846 Little Bay Ave.	Little Bay	Norfolk	SSORS#2017-T-104829	Manhole overflow due to pump station over capacity.	Pump Station is back to normal operation. --- --October 11, 2016 09:19 AM-----	-1	Hurricane Matthew
10/10/2016 17:00	406 Maryland Ave.	Maryland	Norfolk	SSORS#2017-T-104842	Sewer System over capacity due to flooding.	Have to wait for flooding to subside. ----- October 11, 2016 12:25 PM----- Area back to normal. -----October 13, 2016 10:18 AM-----	-1	Hurricane Matthew
10/13/2016 9:41	5656 Tidewater Dr.	Tidewater	Norfolk	SSORS#2017-T-104905	Manhole overflow due to bypass pump setup at city owned pump station #30 (located at 3524 Norway Place) failed.	Pump station personnel repaired bypass pump. -----October 13, 2016 02:10 PM-----	2,500	Hurricane Matthew
3/14/2017 6:26	Raleigh Square, Williamsburg	LS 4-8	James City	SSORS#2017-T-104969	Heavy rain 2.6 inches in 24 hours	Visited station, pumps pumping but unable to keep up with flow. Storm passed. -----March 15, 2017 10:09 AM-----	-1	High intensity rain event

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2016 to June 30, 2017)

Date and Time of Incident	Location	Sewer System Component	Jurisdiction	SSORS ID	Description of Incident from SSORS	Corrective Action from SSORS	Quantity from SSORS (gallons)	Comments and Response
3/31/2017 20:45	Bainbridge Blvd.	Two Manholes at Creek Crossing	Chesapeake	SSORS#2017-T-104979	Elevated flows due to heavy rain. The rain gauge located at Ferebee Ave PS (MMPS-132) recorded a maximum hourly rainfall of 1.55" occurring between 17:45 and 18:45 and a total of 3.62" over the course of the event.	Verified upstream and downstream pump stations were operating properly. A total spill volume could not be estimated due to the manholes being submerged. -----April 5, 2017 02:26 PM-----	-1	High Priority RWWMP Project will assist in lowering pressures in this area for future wet weather events.
5/5/2017 10:00	Oak & Highland	Manhole	Portsmouth	SSORS#2017-T-104993	Excessive rainfall and flooding caused the manhole to overflow into storm drain system.	Rainfall stop and pump station caught back up. -----May 5, 2017 12:39 PM-----	-1	High intensity rain event
5/5/2017 10:00	Blocks 2100-2200 Camden Ave	Manholes	Portsmouth	SSORS#2017-T-104994	Excessive rainfall and flooding caused the manholes to overflow into storm drain system.	Rainfall stop and pump station caught back up. -----May 5, 2017 01:26 PM-----	-1	High intensity rain event
6/5/2017 16:30	907 Coleen Dr. Newport News VA.	907 Coleen Dr PS#56	Newport News	SSORS#2017-T-105005	Responded to dry well high water from SCADA Alarm found manhole overflowing. Bypass pump was installed and turned on. City works WO#321962	Station put on bypass at 5:50 pm until the pressures dropped. CITYWORKS WO#322353 documents SSO and associated requirements. -----June 6, 2017 08:34 AM----- -----June 9, 2017 09:49 AM-----	4,000	High intensity rain event
6/5/2017 16:30	31 Williamson Park Dr	Pump Station #71	Newport News	SSORS#2017-T-105007	Severe rain event caused elevated head conditions and prohibited pump station from conveying sewage to the HRSD interceptor.	vactored manhole, set up bypass pump at station, treated affected area with lime (w/o# 321994). -----June 6, 2017 11:35 AM-----	3,000	High intensity rain event
6/5/2017 17:06	King St. and Rudd Ln.	Manhole @ King St. and Rudd Lane	Hampton	SSORS#2017-T-105004	Significant rain (1.38" in 1.25 hours reported at Freeman PS) resulted in increased system flows.	Verified pumps operating properly. Cleaned area upon completion of rain event and drainage of stormwater. -----June 9, 2017 12:25 PM----- -----June 9, 2017 12:26 PM-----	10,300	High intensity rain event
6/5/2017 17:50	4 Rudd Lane	Manhole on Rudd Lane	Hampton	SSORS#2017-T-105006	Significant rain (1.38" in 1.25 hours reported at Freeman PS) resulted in increased system flows.	Verified pumps were operating properly. Cleaned area upon completion of rain event and drainage of stormwater. -----June 6, 2017 10:53 AM----- -----June 9, 2017 12:29 PM-----	35	High intensity rain event

*Comments have been added for the Annual Report that were not part of the SSORS original report.

APPENDIX C. APRIL 24, 2017 LETTER TO EPA AND DEQ RE: SCADA
UPGRADES AND ENHANCEMENT PROJECT

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April 24, 2017

Transmitted by email: Zolandz.Mark@epamail.epa.gov

Mr. Mark Zolandz
NPDES Enforcement Branch, Water Protection
U.S. Environmental Protection Agency, Region III
1650 Arch Street (3WP42)
Philadelphia, PA 19103

Dear Mr. Zolandz:

A handwritten signature in black ink that reads 'MARK' in all caps. The signature is written over the 'Dear Mr. Zolandz:' text.

HRSD has delivered on its commitment to the Interim System Improvement (ISI) projects as contained in the Consent Decree (CD). Final spending is now projected to exceed \$375 million – well in excess of the commitment in the CD. During the Quarterly Briefing on January 24, 2017, we informed you that the Interceptor Systems Pump Station Control and SCADA Upgrades and Enhancements project was not likely to be complete before the February 23, 2018 compliance deadline. We have since conducted a more detailed review of the project and have determined it will not be complete prior to the deadline.

We have identified significant technical challenges that are complicated and time consuming to overcome. Radios for the SCADA system are not functioning as designed. The radios do not have enough bandwidth to support Supervisory Control per contract requirements. Because there are multiple parties (suppliers, contractors, programmers) involved in this issue, there are also significant contractual issues that will take time to untangle.

Additionally, since this issue arose, HRSD has discovered the availability of cellular spectrum that has the potential to eliminate the need for radio communications altogether and create a SCADA system with communications technologies not even imagined at the start of design of this project, more than seven years ago. The use of cellular technology combined with advancements in the internet of things (IoT), machine learning and neural networks will allow the deployment of “smart sewers” that could provide temporary increases in level of service in real-time to react to peak flows in highly localized portions of the Regional Sanitary Sewer System. We anticipate at least another 18 months will be required to resolve the contractual issues, fully evaluate changing the communication technology and complete the SCADA system installation.

HRSD currently has a data acquisition system at all pump stations that is fully functioning. Each pump station has multiple alarms for things such as high wet well, dry well flooding, power failures, wet well levels and other operational issues. We also have flow, pressure and rainfall sensors in many of our pumping facilities as well as at other facilities owned and operated by HRSD all fully functional and communicating with our existing data acquisition system.

PO Box 5911, Virginia Beach, VA 23471-0911 • 757.460.7003

Commissioners: Frederick N. Elofson, CPA, Chair • Maurice P. Lynch, PhD, Vice-Chair • Vishnu K. Lakdawala, PhD
Michael E. Glenn • Arthur C. Bredemeyer • Stephen C. Rodriguez • Willie Levenston, Jr. • Ann W. Templeman
www.hrsd.com

We have already spent more than \$14 million of the \$23.6 million authorized for this project. Given that we have already spent more than the \$10 million commitment in the Consent Decree, that we have a fully functioning data acquisition system and given the lack of a defined schedule for resolutions of the technical and contractual issues, we request that the agencies agree that we have satisfied this aspect of the Interim System Improvements, recording the spend to date (\$14.9 million) as the ISI final cost for this project. HRSD will continue to work through the challenges as well as opportunities with the SCADA upgrade and will keep the agencies apprised of our progress in our annual reports.

Sincerely,

A handwritten signature in black ink, appearing to read "Ted Henifin". The signature is stylized and includes a long horizontal flourish at the end.

Ted Henifin, P.E.

cc: Deane Bartlett, EPA
Nancy Flickinger, DOJ
Craig Nicol, DEQ

From: [Chris Wilson](#)
To: [Hee Jea Hall](#)
Subject: RE: Request to remove SCADA project from Interim System Improvements
Date: Monday, October 30, 2017 10:27:50 AM

From: Zolandz, Mark [<mailto:Zolandz.Mark@epa.gov>]
Sent: Wednesday, May 03, 2017 12:48 PM
To: Henifin, Ted
Cc: Cascio, Jennifer; Bartlett, Deane; 'craig.nicol@deq.virginia.gov'; Nancy Flickinger; Bufill, Lourdes; O'Connell, Kathleen (DEQ); Butler, Kimberly (DEQ); Hubbard, Phil
Subject: RE: Request to remove SCADA project from Interim System Improvements

Ted,

I received your letter regarding HRSD's SCADA Upgrades and Enhancements project, which HRSD agreed to complete under Section IX (Interim System Improvements) of the Consent Decree. I appreciate the explanation of the progress and investment that HRSD has made to date, as well as the challenges HRSD is facing to complete this project, which you explained in both your letter and at the January 24, 2017 Quarterly Briefing call.

After reviewing your letter, and consulting with DOJ and VADEQ, EPA agrees that HRSD may deem this project complete for the purposes of HRSD's Consent Decree commitment. Please submit written certification of completion of this project in your next semi-annual/annual report, per Paragraph 32, and thank you for agreeing to keep us apprised of your progress in future annual reports.

Thanks,

Mark Zolandz
NPDES Enforcement Branch
Water Protection Division
U.S. Environmental Protection Agency, Region III
1650 Arch Street (3WP42)
Philadelphia, PA 19103-2029
Tel: 215-814-2319

From: Cascio, Jennifer [<mailto:JCascio@HRSD.Com>]
Sent: Monday, April 24, 2017 9:04 AM
To: Zolandz, Mark <Zolandz.Mark@epa.gov>
Cc: Bartlett, Deane <Bartlett.Deane@epa.gov>; 'craig.nicol@deq.virginia.gov' <craig.nicol@deq.virginia.gov>; Nancy Flickinger <Nancy.Flickinger@usdoj.gov>; Henifin, Ted <EHenifin@hrsd.com>
Subject: Request to remove SCADA project from Interim System Improvements

Good morning Mr. Zolandz,

Mr. Henifin asked that I forward the attached letter to you. Please let me know if you are unable to open the attachment.

Thank you,
Jennifer

Jennifer Cascio

HRSD Commission & Executive Secretary

Office: 757.460.7003 | Mobile: 757.374.9234

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