

ANNUAL REPORT FY 2020



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

October 30, 2020

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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, 2019, through June 30, 2020, 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 2020, HRSD has made several changes to its monitoring network. Table 2-1 below lists the significant changes in detail.

Table 2-1. FY 2020 Flow, Pressure, and Rainfall Monitoring Actions	
Site Number	Action
MMPS-003	Removed one flow meter on 8/12/2019
MMPS-013	Removed one flow meter and one pressure sensor on 11/18/2019
MMPS-302	Removed one flow meter on 9/25/2019
MMPS-156	Two flow meters were removed on 6/15/20
MMPS-167	One flow/temporary bypass pump suction meter removed on 4/10/20
MMPS-318	One flow meter and one pressure meter installed (Replaces MMPS-013) on 2/4/20
MMPS-323	One pressure meter installed (replaces MMPS-276) on 6/2/20

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 approved Rehabilitation Action Plan contains 67 projects to be completed in three phases. Table 2-2 shows the status of the Plan phases through June 30, 2020. One project in Phase 1 (CE-R3) was cancelled with EPA/DEQ approval and reduces the total to 66 projects. Additionally, VIP-R6 was moved from Phase 1 to Phase 2 on April 7, 2020.

Table 2-2. Rehabilitation Action Plan Phase Status				
Phase	Number of Projects Completed	Total Number of Projects	Estimated Cost of Completed Projects	Estimated Total Cost of All Projects in Phase
0	10	10	\$28,178,596	\$28,178,596
1	8	20	\$27,405,529	\$81,517,237
2	2	36	\$7,358,840	\$214,214,388

Projects completed this period are included in Appendix A project certifications and are as follows:

- Phase 1
 - BH-R4 (BH-150) Orcutt Avenue and Mercury Blvd Gravity Sewer Improvements

2.3 Interim System Improvements

Appendix 5 to the 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 completed all of these projects.

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 2020.

2.4.1.1 MOM Program Update

HRSD updated its MOM Program in July 2018 based on policy and procedure changes, as well as organizational changes. The next major MOM Program update is anticipated in FY 2021.

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 2020, HRSD has continued to support the Localities with their FOG control programs. HRSD provides enforcement initiatives to the Localities for food service establishments (FSE) after such Locality has exhausted all enforcement avenues. HRSD supports the HRPDC effort to institute a regional grease initiative and continues to actively participate in the HRPDC FOG Committee. FY20 committee initiatives involved updating the HR (Hampton Roads) FOG Regional Training Program and Certification for FSE employees and grease haulers that focuses on best management practices for Grease Control Device (GCD) maintenance. FY21 committee initiatives involve updating the HR Model FOG Ordinance, originally drafted in 2008. It also involves updating the HR Regional Technical Standards for Grease Control Devices, a set of regionally recognized standards for the determination of proper sizing of GCDs.

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 2020 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 2020. The details of HRSD's performance are provided in Section 5 of this report.

2.5 Regional Wet Weather Management Plan

HRSD has agreed to a fifth amendment to the Consent Decree on June 29 and submitted an updated RWWMP consistent with the terms of the amendment at that time. That fifth amendment is expected to be lodged with the federal court by the end of 2020 and entered by the court in early 2021. The fifth amendment includes a schedule for wastewater system improvements that accommodates the SWIFT program. That schedule requires that HRSD implement \$200 million worth of sewer overflow control projects between 2020 and 2030 and then another \$200 million in sewer overflow control projects between 2030 and 2040. These two sets of projects reflect further priority system improvements that HRSD is to implement along with the Project. The fifth amendment gives HRSD until 2032 to complete the SWIFT program. Finally, the fifth amendment provides that if HRSD does not fully implement the Project or delays full implementation past 2032 then EPA can require HRSD to accelerate some or all of the second group (\$200 million worth) of sewer overflow control projects to offset the avoided investment in the SWIFT program.

2.5.1 Private Property I/I Abatement Program

HRSD has developed a regional program that will reduce infiltration/inflow (I/I) from private sources and included the approach in the Integrated Plan/RWWMP.

2.6 SSO Emergency Response Plan

On June 30, 2020, 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 were several consultation activities in FY 2020 with Localities. These activities included:

- Semi-Annual meetings of the Capacity Team to share progress on compliance with the Consent Decree;
- Periodic updates for the Directors of Utilities Committee;
- The regional SharePoint website continues to be updated to collaborate with and provide documents to the regional Capacity Team; and,

- Copies of the Semi-Annual Report and Annual Report were provided from HRSD to the Localities via the regional SharePoint website.

2.8 Public Participation

HRSD conducted an annual information meeting regarding the progress of the Consent Decree on January 28, 2020. In addition, HRSD published a newsletter in February 2020, 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 FY 2019 Annual Report and submitted it to the EPA and DEQ on October 28, 2019. This report covered Consent Decree activities from July 1, 2018, through June 30, 2019.

2.10.2 Semi-Annual Report

HRSD completed a FY 2020 Semi-Annual Report and submitted it to the EPA and DEQ on April 27, 2020. This report covered Consent Decree activities from July 1, 2019, through December 31, 2019.

2.10.3 Quarterly Briefing

Quarterly briefings per Paragraph 90 are no longer required.

2.11 Summary of Submittals

Table 2-3 summarizes the status of the documentation that HRSD has submitted to the EPA and DEQ under the Consent Decree in FY 2020.

Consent Decree Submittal	Submittal Date
Integrated Plan/RWWMP	September 28, 2017
Annual Report	October 28, 2019
Annual Public Meeting	January 28, 2020
Annual Newsletter	February 2020
Semi-Annual Report	April 27, 2020
Final RWWMP	June 29, 2020
SSO Response Plan Annual Update	June 30, 2020

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3. COMPLIANCE DEADLINES AND MILESTONES

In FY 2020, 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.

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	Complete
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	Complete

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4. MOM PROGRAM CONDITION ASSESSMENT ACTIVITIES DURING FY 2020

HRSD has continued with its MOM-related Condition Assessment Field Activities in FY 2020. The following subsections describe the progress made in each aspect.

4.1 Gravity Main

HRSD completed 45,459 LF of gravity sewer inspections of its system in FY 2020. Approximately 167,353 LF of sewer main was cleaned.

4.2 Force Main

HRSD completed the model that analyzes the risk of our force mains and allows us to prioritize them for condition assessment. We identified the top ten riskiest force mains, and in FY21 we will begin condition assessment on the top 6 – 7 that are not already programmed for replacement. Our plan is to continue condition assessment of all force mains based on this risk prioritization over the next few years.

External corrosivity has been identified as a high contributor to failure of our ferrous pipelines, so HRSD will begin corrosivity studies in FY21 along our ferrous force mains that will feed into our risk model.

In FY20, we continued to perform condition assessments on our force mains within 500 feet of drinking water reservoirs. We completed a total of 2,400 linear feet of inspections on a force main in Williamsburg.

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 82 defects in the HRSD sanitary sewer system (primarily gravity sewer pipes and manholes) which have been deemed to be Prompt Repairs through June 30, 2020. These 82 defects have been grouped into repair work orders and are currently in various stages of planning, design, construction or are complete. Of the 82 defects, 78 have been repaired through June 30, 2020. The following Table 4-1 provides details on all the Prompt Repairs identified through FY 2020.

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

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 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
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	Complete

Table 4-1. Summary of Prompt Repairs

Name	Location	Jurisdiction	Line Number	Summary of defect	Number of Defects	Status
	West Mercury Blvd	Hampton	NG-057	Mainline pipe defects		
	West Mercury Blvd; near Beechwood Rd.	Hampton	NG-057	Mainline pipe defects		
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	Complete
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	33 rd Street Repair Completed. The

Table 4-1. Summary of Prompt Repairs

Name	Location	Jurisdiction	Line Number	Summary of defect	Number of Defects	Status
	31 st Street	Newport News	31 st Street	Mainline pipe defects		two remaining projects are in Design-Construction.
	38 th Street	Newport News	38 th Street	Mainline pipe defects		
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	Complete
	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

Table 4-1. Summary of Prompt Repairs

Name	Location	Jurisdiction	Line Number	Summary of defect	Number of Defects	Status
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
Woodland Avenue	Woodland Avenue and Ballentine Blvd	Norfolk	SG-089	Manhole Defects	6	Complete
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	Complete
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	In PER
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
Mercury/Big Bethel Manhole	Intersection of Mercury Blvd. and Big Bethel Road	Hampton	NG-057	Manhole Defect	1	Complete
Berkley Trunk Sewer Section S	State Street	Norfolk	SG-202	Pipeline Defect	1	In Design
Copeland PS Discharge FM	Copeland Pump Station	Newport News	NF-113-2539, NF-113-93255 to vault	Corroded appurtenances on pipeline	1	Complete

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5. MOM PERFORMANCE MEASURES FOR FY 2020

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, gravity sewer cleaning, and air vent inspections.

Table 5-1. MOM Performance Measures

Consent Decree Paragraph	Section	Goal	Performance Measure	Target	FY 2020 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	45,459 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	3,856 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	39,600 linear feet cleaned per year	167,353 LF Cleaned	Performance exceeded target	2.9
34.d.	Pump Station Annual PMS	Maintain the pump stations to protect the public safety, to protect the environment,	All pump stations are to receive the Annual Inspection as	82 pump stations inspected	82 (100%)	Performance met target	2.7

Table 5-1. MOM Performance Measures

Consent Decree Paragraph	Section	Goal	Performance Measure	Target	FY 2020 Actual Performance	Comment	MOM Program Section No.
	(Mechanical)	reduce SSOs and to achieve the maximum service life from the pump stations.	described in the Interceptor Systems Preventive Maintenance Manual.	per year			
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.	83 pump stations inspected per year	83 (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	112 (203%)	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	2,400 LF Inspected	Performance met 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. All stations that were online at the time of inspection received an annual PM.

6. SYSTEM PERFORMANCE DURING FY 2020

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 2020 that led to unusual discharges from the facilities. Table 6-1 provides details on the twenty-seven (27) unusual discharges from July 1, 2019, to June 30, 2020. Sixteen of these occurrences involved treated effluent and five were the result of activities conducted by a third party.

6.3 Conveyance System Performance

For the reporting period of July 1, 2019, through June 30, 2020, HRSD experienced seventeen (17) sanitary sewer overflows (SSOs) from its system. Two (2) of the 17 SSOs were capacity-related.

All of these events are detailed in the Sanitary Sewer Overflow Reporting System (SSORS). Details on all the FY 2020 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.

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Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2019 to June 30, 2020)

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
7/20/2019	Nansemond	Digester mix pump seal failed releasing digester sludge onto the ground.	90	Valves on digester closed and pump secured. Sand bags placed around storm drain and used vac trailer to remove digester solids from impervious surface. Interceptors Dept. called in to remove any solids that entered the drain. Solids that entered the drain and were not recovered went to plant retention pond.	12000	2000	Digester Solids	Ground/Plant Retention Pond	
8/15/2019	Army Base	An onsite contractor used Non-Potable Water (NPW) in a vac truck to clean storm drains on the plant site between 10:30 and 11:00AM.	1	Plant staff noticed the incorrect hydrant was being used when the truck was refilled. The contractor was stopped from using NPW and shown where to get potable water to continue cleaning.	1500	300	NPW Chlorinated	Storm drain/ Elizabeth river	Third-Party Action
8/23/2019	Chesapeake Elizabeth	Septage pump failed to self prime	30	Manually primed septage pump	100	25	RWI	Storm drain to storm water pond	
9/10/2019	Army Base	Plant staff discovered manhole overflow with aeration effluent while the aeration tank was draining.	15	Plant staff closed drain valve to the aeration tank and the overflow subsided from the manhole.	5000	5000	Aeration Effluent	Storm drain/ Elizabeth river	
9/10/2019	Army Base	An onsite contractor was testing Non-Potable Water (NPW) hydrants when NPW went into storm drains.	5	The contractor was stopped and notified that only Potable hydrants were to be tested.	1000	1000	NPW	Storm drain/ Elizabeth river	Third-Party Action
9/17/2019	Army Base	Plant staff discovered a Non-Potable Water (NPW) hose fitting connecting the hose reel to the NPW faucet on the aeration tank came loose.	3	Plant staff secured NPW water source	2,000	2,000	NPW	Ground, Storm drain/ Elizabeth river	
10/7/2019	Chesapeake Elizabeth	NPW hydrant not fully closed resulting in stream coming out of hose into storm drain	1	Closed hydrant valve fully	65	65	NPW Chlorinated	Storm Drain	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2019 to June 30, 2020)

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
10/19/2019	Virginia Initiative	Ball check lid on primary scum pump not tightened properly and blew off causing Non-Potable Water (NPW) and scum to flood room and leak onto ground in surrounding area	10	Replaced ball check lid and tightened	200	50	Scum and NPW	Ground	
10/25/2019	Chesapeake Elizabeth	A contractors vac truck began leaking from rear dumping door after shutting down the vacuum system.	5	Restarted the vacuum system to hold remaining contents inside truck and the contractor is getting a second vac truck on site to remove remaining amount of liquid out of first vac truck.	300	200	RWI	Storm Drain	Third-Party Action
11/4/2019	Army Base	Following pump maintenance on 11/1/19, non-potable water (NPW) was left running into a floor drain. On 11/4/19 it was discovered that the floor drain filled a drain sump up to the level of a piping penetration.	1	Plant staff immediately secured the non-potable water and pumped down the drain sump. Following the incident, the plant management staff conducted refresher training on the drain system.	8500	8500	NPW Chlorinated	Ground	
11/5/2019	Virginia Initiative	Contractor was doing punchlist work at the equalization tank, repairing a drain valve. The tank was partially filled with NPW to test the valve. The tank developed a leak at one of the manway ports on the west side of the tank. Approximately 200 gallons of NPW was lost into the ground. The storm drains in the surrounding area were sand-bagged so none of the spilled material left the plant site.	330	Secured NPW to the PTF, opened the tank drain valve and sealed the manway port gasket.	200	200	NPW Chlorinated	Ground	Third-Party Action
11/19/2019	Nansemond	A two inch NPW line that feeds the spray water system on the secondary clarifiers split at a fitting underground.	5	NPW was secured, the line was excavated, repaired, and placed back into service.	10000	10000	NPW	Ground	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2019 to June 30, 2020)

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
12/5/2019	Chesapeake Elizabeth	A Non-Potable Water (NPW) Fire Hydrant Leaked	5	The in-ground supply valve was closed and a sign was placed on the valve. The leak was repaired.	100	100	NPW	stormwater drain to onsite stormwater holding pond	
12/6/2019	Nansemond	While trying to take apart a drain line from our SWIFT facility to our process tank there was a continual flow of water coming from the pipe onto the ground. While investigating the source, it was discovered that the Non-Potable Water (NPW) line from SWIFT also ties into the drain line.	90	Line was closed until the NPW source was secured	~1000	~1000	NPW	Ground	
12/17/2019	Boat Harbor	Preventative maintenance was being done to the submersible gasmaster mixer used to distribute hypochlorite to the secondary effluent flow. As the mixer was removed for inspection and repair it was laid on top of the tubing used to feed the hypo. The chemical was not switched to the bypass line. Due to the pressure build up from the mixer sitting on the tubing the tubing split and started feeding hypo half into the secondary well below and half down the wall and onto the ground. Approximately 8.5 gallons of hypo spilled down the secondary effluent chamber wall and onto the ground. Due to the rain some of this was unrecoverable.	5	Hypo was switched to use the bypass line. The mixer tubing is being repaired before it is placed back in service. Absorbent was used to pick up what hypo it could but due to the rain occurring at the time of the incident most of the spill was unrecoverable.	8.5	8.5	Hypochlorite	Ground	
1/8/2020	Williamsburg	An onsite contractor (REW) broke a 1-1/2" PVC NPW line at 2:03PM while digging.	4	The NPW supply valve was closed at 2:07PM and the line was repaired.	320	320	NPW	Ground & river	Third-Party Action

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2019 to June 30, 2020)

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
1/21/2020	Boat Harbor	No more than 1000 gallons of process flow from secondary clarifier #5 was found to be leaking on the backside of the clarifier which is near the southwest corner of BHTP. Upon further inspection it was found leaking near the seam between secondary clarifiers 1 and 2 as well.		Secondary #5 was taken out of service. North Shore interceptors were called in to help troubleshoot the situation. They created an excavation near the area around the drain valves to secondary #5 where most of the flow had accumulated and the initial leak was found. Once the excavation was created the tank was filled back up to help find the source of the leak. The leak started again after the tank was full but it was unsafe to excavate any further and the second leak was found in the connection seam to secondary 1 and 2. Secondary #5 was drained again and the leak stopped. The tank will be inspected for structure and coatings condition, and the drain line will be inspected to see if there are any cracks or holes.	1000	1000	SCE	Ground	
1/21/2020	Chesapeake Elizabeth	The sodium hydroxide (caustic) line between RAS #1 and Solids Handling developed a leak. This line is encased in PVC but the secondary containment was compromised.	1	The tygon tubing / caustic line will be replaced. We are currently using a backup line until the repair is complete.	25	25	Caustic	Ground	
2/1/2020	Nansemond	Pumps were running against a closed valve, causing an increase in pressure to a sodium hydroxide (caustic) transfer hose that feeds the day tank at the struvite facility. A 1" crack developed in the 2" transfer hose that was encased in 4" containment piping. The problem was discovered when a low level alarm sounded but a review of the tank usage indicates the event may have begun as early as 01/31/2020 at 12:30.	14	Upon discovery, the feed pump was secured. Caustic was found inside the containment piping and approximately 261 gallons were recovered. It is estimated that 416 gallons made it to the struvite facility and were used in the pH control process. Plant staff excavated low areas where caustic would have pooled but no standing caustic was located. Any damp soil that may have been contaminated was removed and placed in the Regional Residuals Facility for proper disposal. Soil pH was analyzed throughout the area in an attempt to locate the	2500	1823	Sodium Hydroxide	Ground	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2019 to June 30, 2020)

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
				remaining caustic. The solenoid valve was removed from the transfer hose to prevent this from occurring in the future. Caustic was fed manually until the line was repaired. As a precaution, the containment piping and transfer hose will be entirely replaced and any contaminated soil found during excavation will be properly disposed of.					
2/26/2020	Williamsburg	Motor Control Center (MCC) outage resulting in loss of power to outfall control valves.	20	Restored power to MCC	19000	19000	FNE	James River	
2/27/2020	Nansemond	Non-Potable Water (NPW) soaked into the ground when a NPW hydrant developed a leak near the valve under the concrete.	47	Closed in ground isolation valve to the hydrant	150	150	NPW	Ground	
3/2/2020	Chesapeake Elizabeth	An underground Non-Potable Water (NPW) line had hole in the pipe.	340	Secured the leaking NPW line, excavated the line, and repaired the line using a repair clamp.	1000	100	NPW	Ground	
3/29/2020	Army Base	#3 bandscreen got plugged up with a huge piece of grease and what looked to be a big piece of hard plastic	15	Closed influent gate to #3 bandscreen and removed grease and hard plastic and called in maintenance to unclog bandscreen	50	50	RWI	Storm Drain Elizabeth River	
5/21/2020	Williamsburg	The GBT thickened sludge pump had a mechanical joint failure on the discharge pipe in the basement. Sludge seeped through the back door of the basement and traveled downhill toward the marsh.	30	Sandbagged door to stop flow. Contacted NS Ops and Hepaco for Vac Truck support. Plant staff promptly began cleanup until Vac Trucks and crews could take over. Top soil and erosion blankets were applied at the top of the hill where sludge cleanup occurred. Hepaco provided site cleanup on hillside and at bottom of the hill.	4700	500	GBT thickened sludge	Ground / Grove Creek	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2019 to June 30, 2020)

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
6/5/2020	Nansemond	Sump pump in Struvite Recovery Facility was not pumping, floor drain overflowed.	5	Stopped harvest carrying water, cleaned out check valves on sump pumps, and used vac trailer to recover all NPW we were able to.	500	300	NPW	Ground	
6/23/2020	Army Base	Operator opened a tank drain valve on a tank filled with non-potable water (NPW). NPW leaked from the manhole in the road on plant site into the storm drain.	2	Operator secured draining of the NPW from the tank.	100	100	NPW	Storm Drain Elizabeth River	
6/25/2020	Army Base	Operator opened a tank drain valve on a tank filled with non-potable water. Non-potable water leaked from the manhole in the road on plant site into the storm drain.	15	Operator secured draining of the NPW from the tank	75	75	NPW	Storm Drain Elizabeth River	

*NPW – Non-potable water (treated effluent)

Table 6-2. Detailed Listing of HRSD SSOs (July 1, 2019 to June 30, 2020)

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
8/7/2019 18:35	1500 Bainbridge Boulevard	Quick T's Manhole Upstream of Park Ave PS	ditch leading to Scuffeltown Creek	Chesapeake	Capacity-Weather Related	Heavy rainfall in the area resulted in increased system flows exceeding system capacity. Overflow occurred from a manhole upstream of the Park Ave. PS. The manhole is located in the parking lot of a local business. The Ferebee Avenue Pump Station recorded 2.27" of rainfall over this event, with 2.14" falling within one hour.	2 hour(s) 0 minute(s)	HRSD staff verified Park Avenue Pump Station was operating properly. HRSD staff then cleaned the debris with a vactor truck and treated the impacted portion of the parking lot with lime. -----August 9, 2019 02:57 PM--- ---	13,000	13,000	SSORS#2020-T-105461	Yes
8/14/2019 13:35	288 E Little Creek Rd	Force Main 005	Mason Creek	Norfolk	Infrastructure	20-in ductile iron force main failed due to a 2-in diameter hole that developed on the bottom of the pipe.	1 hour(s) 55 minute(s)	Vactors were used to contain flow while Terminal Pressure Reducing Station was utilized to reduce the pressures within the force main thereby reducing the discharge from the break. Flow was diverted to an adjacent plant and pump and haul was utilized to isolate any remaining flow. The damaged portion of the pipe was removed and replaced. The impacted area cleaned and treated with lime. -----August 18, 2019 06:21 PM-----	20,300	20,300	SSORS#2020-T-105464	No
8/30/2019 9:05	2924 Virginia Beach Blvd	Force Main 129	Eastern Branch of Lynnhaven Bay	Virginia Beach	Damage By Others	Air vent located on a 24-in ductile iron force main was struck by a contractor. Sewage was initially contained within the excavation. Before the contractor was able to install a temporary plug the sewage overtopped the excavation resulting in an overflow.	0 hour(s) 20 minute(s)	Contractor installed a temporary plug to stop flow, vactors were deployed to contain further overflows, and Atlantic PRS was activated to reduce system pressures. -----September 4, 2019 07:48 AM-----	1,000	1,000	SSORS#2020-T-105474	No
9/21/2019 17:00	2924 Virginia Beach Blvd	Force Main 128	Eastern Branch of Lynnhaven Bay	Virginia Beach	Infrastructure	24-in flat bottom reinforced concrete pipe developed a slow leak (0.5 gpm) that percolated through the road surface and flowed into a nearby storm drain.	7 hour(s) 30 minute(s)	HRSD staff attempted to locate the leak by excavating to the pipe but were unsuccessful. Due to the low flow of the leak a temporary well point system was installed, the excavation backfilled, and the pavement restored. The nearby storm drains were also sandbagged. Flow collected from the well point system is being pump and hauled daily to the Chesapeake-Elizabeth STP. A permanent solution is currently being developed. -----September 26, 2019 03:55 PM----- Updated after SSORS report was finalized to include: A line stop and valve were then installed on 12/12/2019. Once installed, this valve was closed allowing the damaged section of force main to be isolated and pump and haul operations to stop. The damaged section of force main was ultimately found. The cause was attributed to a small fracture that developed near one of the joints. This failed joint was located near two potable water transmission mains. These transmission mains were over 70 years old and had a history of failing. As result, a new section of force main was constructed to minimize risk of impacting them. In all, 800-lf of 42-in ductile iron pipe was constructed. This allowed the failed section of the existing force main to be replaced as well as a large section that had minimal separation from the two transmission mains. Construction of the force main was completed and flow was reintroduced on 3/25/2020.	225	225	SSORS#2020-T-105500	No
10/4/2019 20:41	Intersection of Stillwater Drive and Kempsville Rd	SF-210	stormdrain to Local BMP pond/Intracoastal Waterway	Chesapeake	Infrastructure	Failure of restraints between abandoned valve and active force main connection.	14 hour(s) 19 minute(s)	Isolation of the damaged line and pump and haul utilized to contain the spill. Installation of new stainless steel restraints used to prevent issue from reoccurring. -----October 9, 2019 02:41 PM-----	106,200	106,200	SSORS#2020-T-105507	No

Table 6-2. Detailed Listing of HRSD SSOs (July 1, 2019 to June 30, 2020)

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
11/13/2019 7:11	1309 16th Street	MMPS-013, 16th St. @ Anderson Park	James River / Salter's Creek	Newport News	Infrastructure	The bottom straps on the tapping saddle within the meter vault corroded and broke causing the saddle and corporation stops to break away from the 34" Reinforced Concrete Pipe (RCP) and leak.	6 hour(s) 14 minute(s)	The tapping saddle and corporation stops were removed. Damage Control (DC) plugs were inserted into the holes that were originally drilled into the pipe for these taps and the leak stopped. The DC plugs were cut flush with the pipe and a full circle clamp was installed around the entire pipe for the final repair. The area was cleaned up of debris, washed down and limed. --- --November 15, 2019 01:09 PM----	52,000	40,000	SSORS#2020-T-105550	No
12/5/2019 7:10	7700 North Hampton Boulevard	Force Main 006	storm drain to Lafayette River	Norfolk	Third Party Action	A 10-in cast iron force main pipe developed a longitudinal crack along the spring line. The crack was caused by an unknown utility pipe being located directly on top of the force main with no clearance.	0 hour(s) 30 minute(s)	The spill was contained and pump and haul services were utilized to reduce the flow within the pipe. HRSD staff exposed the defect repaired the damaged portion of the pipe. -----December 10, 2019 08:30 AM----	500	500	SSORS#2020-T-105565	No
12/12/2019 10:24	1000 Cedar Rd	1000 Cedar Road	roadway / BMP	Chesapeake	Infrastructure	Circumferential crack developed on the ductile iron pipe, causing a force main failure	1 hour(s) 36 minute(s)	HRSD staff isolated the section of pipe by closing valve AT1159L-1. The opposing valve was a diversion point was therefore already closed. HRSD staff then installed a full circle repair clamp around the impacted section of pipe. Approximately (5) five City of Chesapeake pump stations were temporarily isolated to facilitate this repair. No pump and haul services were needed. -----December 16, 2019 03:07 PM----	96	96	SSORS#2020-T-105573	Yes*
2/10/2020 17:15	358 Wythe Creek Rd	NF-026	Ground/retention pond leading to Cedar Creek	Poquoson	Infrastructure	Internal crown corrosion resulted in pipe failure.	0 hour(s) 45 minute(s)	Isolated force main, removed stick of PCCP pipe and installed new stick of DI pipe. -----February 14, 2020 03:06 PM----	1,500	1,500	SSORS#2020-T-105603	No
2/11/2020 16:00	720 Bayshore Lane	Manhole @ Bayshore PS	Ground / Chesapeake Bay	Hampton	Capacity-Weather Related	Rain and elevated groundwater levels resulted in increased system flows. Bayshore Pump Station saw a maximum rainfall of 0.28in in 15 minutes, with a total of 0.46in falling in 1 hour. The total rainfall for the rain event was 1.86in.	4 hour(s) 9 minute(s)	Verified pump station operating properly. -----February 12, 2020 07:21 AM-- --	3,530	3,530	SSORS#2020-T-105604	Yes
3/8/2020 12:20	3620 Holly Rd	North Virginia Beach Interceptor Force Main	stormdrain leading to Atlantic Ocean	Virginia Beach	Infrastructure	A leak developed on a 16-in asbestos cement force main near an abandoned 4-in service connection. The leak was caused by external corrosion on an inactive 4x16 tapping saddle. The external corrosion caused a 0.5-in diameter hole to form on the throat of the tapping saddle.	0 hour(s) 25 minute(s)	Vactors were deployed to capture leaking sewage. HRSD staff excavated to the source of the leak, removed the failed tapping saddle and installed full circle clamp in its place. The area was then cleaned and treated with lime. -- ---March 13, 2020 09:49 AM----	6,200	1,200	SSORS#2020-T-105627	No
3/27/2020 15:00	14055 Turner Drive	Smithfield PRS Discharge FM	soaked into the ground	Smithfield	Third Party Action	The contractor (TA Sheets) completed the tie-in of the new HRSD force main for the Smithfield Pressure Reducing Station. The pipeline was successfully pressure tested but needed to have a visual inspection of the tie-in location under system pressure. Unknown to the crew performing the work, the previous crew that originally pressure tested the pipeline removed the test plug from the end of the force main and backfilled the pipe. When the force main was activated for the visual inspection, the end of the pipe that was not plugged spilled.	0 hour(s) 0 minute(s)	NS Interceptor Operations inspector Chris Everton was onsite to perform the visual inspection of the new pipeline. When the contractor saw wastewater coming out of the force main during the visual inspection, he notified Chris immediately. Chris closed the valve which stopped the leak instantly. The contractor cleaned up the spill by removing the standing water in the excavation and spreading lime to the affected area. -----April 1, 2020 01:07 PM----	7,275	7,175	SSORS#2020-T-105636	No

Table 6-2. Detailed Listing of HRSD SSOs (July 1, 2019 to June 30, 2020)

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
3/31/2020 16:45	22nd St and Wade St	South Trunk Sewer Section H	ground	Chesapeake	Damage By Others	Contractor had been installing a storm pipe under the HRSD sanitary force main as part of a large City roadway project. They had exposed and supported 6 ft of HRSD force main with nylon straps tied to I-beams that were supported on trench boxes on either side of the force main. While removing one of the trench boxes from the excavation, it swung into the side of the HRSD force main, causing a large dent and fracture in the pipe wall.	3 hour(s) 15 minute(s)	The contractor was able to capture all the sewage in their newly installed, but capped stormwater pipe installed beneath the HRSD pipe. As sewage leaked from the forcemain, it was collected within the same excavation, by gravity, in the stormwater pipe. A full circle clamp was installed over the broken section of HRSD pipe to stop the leak. Overnight, before the sewage could be removed from the storm pipe, the site was flooded by stormwater due to an extended wet weather period. All sewage appears to have remained on site, and was recovered by pumping the rain/sewage water into the nearby HRSD gravity sewer. -----April 3, 2020 12:50 PM-----	4,000	0	SSORS#2020-T-105641	No
4/6/2020 11:30	621 Little Neck Rd	Little Neck Interceptor Force Main	Western Branch, Lynnhaven River	Virginia Beach	Infrastructure	Force main failure due to corrosion of fasteners located on a full circle clamp at the joint of two sections of pipe.	6 hour(s) 30 minute(s)	Vactors were deployed to the site of the failure and captured a portion of the overflow before it was discharged to the storm sewer system. Other measures to reduce the flow within the pipe include deploying pump and haul trucks to provide support to the impacted City pump stations, HRSD staff performed valve operations to divert flow, and the Independence and Laskin pressure reducing stations were activated to convey flow away from the site of the failure. Tidewater Utility Construction replaced the failed full circle clamp with a new one. After which they restored the site. -----April 10, 2020 09:55 AM-----	139,750	77,250	SSORS#2020-T-105644	No
4/21/2020 10:00	3915 Cedar Lane	Cedar Lane Interceptor FM	Lilly Creek	Portsmouth	Infrastructure	Force main failure at drop connection into gravity discharge manhole. Sewage was slowly flowing out of sink hole in pavement whenever upstream City pump stations turn on.	1 hour(s) 32 minute(s)	Vactors were deployed to the site of the failure and captured a portion of the overflow before it was discharged to the storm sewer system. A pump was set up to pump sewage from the excavation into the nearby HRSD gravity manhole. Other measures to reduce the flow within the pipe included deploying pump and haul trucks to provide support to the impacted City pump stations. -----April 23, 2020 12:41 PM-----	3,750	3,750	SSORS#2020-T-105653	No
4/22/2020 13:11	1100 Cedar Road	Cedar RD IFM Ext	storm sewer leading to Intracoastal Waterway	Chesapeake	Infrastructure	A circumferential crack developed on a 16-in ductile iron force main causing it to fail. Sewage then leaked through the road surface into the local stormwater collection system.	0 hour(s) 19 minute(s)	Vactors were deployed to the site and captured most of the overflow before it discharged to the local storm sewer system. HRSD staff then excavated at the site of the leak. Upon exposing the failed section of force main, the amount of sewage leaking from it increased substantially. Vactors were able to capture all the sewage within the excavation without overflowing. Flow within the force main was then reduced by utilizing pump and haul at the impacted City pump stations and activating the HRSD Courthouse pressure reducing station. HRSD staff attempted to repair the force main by installing a full circle clamp around the circumferential crack. As it was being secured, the force main cracked adjacent to the clamp. A second attempt with another clamp was made with the same result. The clamps were then removed and a 3-ft section of the force main was removed and replaced. Once the repair was complete the site was restored, and the affected area treated with lime. -----April 24, 2020 03:13 PM-----	32,595	95	SSORS#2020-T-105654	Yes*
5/28/2020 2:00	1548 Buckingham Ave.	Powhatan Ave. Pump Station	ground / Elizabeth River	Norfolk	Other	Recent damage to electrical box at Powhatan PS required a bypass pump to be installed at the station. The discharge hose came undone, causing sewage to be pumped onto the ground. The issue was reported by a resident.	0 hour(s) 42 minute(s)	The pump was turned off and the hose was reconnected. A vactor was deployed to clean the nearby streets of any remaining sewage. Staff did not see sewage discharging from the pump or on the ground, nor did they smell sewage when they arrived onsite, but it had been raining. Amount released is an estimate based on pump capacity. -----June 1, 2020 01:00 PM-----	1,700	1,700	SSORS#2020-T-105677	No

*Two events within the same fiscal year without a previous history of failure.

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7. PLANNED ACTIVITIES FOR FY 2021

HRSD will be continuing the overall program outlined in the Consent Decree in FY 2021. 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 2021, 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 2021, HRSD may 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 completed all required Interim System Improvements as of November 1, 2018.

7.4 Management, Operations, and Maintenance Program

7.4.1 Implementation of MOM Program

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

7.4.2 Quantitative Performance Measures

In FY 2021, 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

HRSD will begin implementation when the 5th Amendment is entered by the court.

7.6 Short Term Wet Weather Operational Plan

HRSD will continue to implement the approved plan with periodic updates.

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 fourth quarter of FY 2021.

7.8 Consultation with Localities

HRSD will continue to actively participate and facilitate a wide variety of consultation activities in FY 2021. 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, 2021. 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 2021. HRSD continues to publish post-storm analysis for qualifying storms and submit those reports to EPA/DEQ within 15 days of finalization. Additionally, the annual SSO report is included as an attachment with this submittal.

8. FORESEEABLE ISSUES RELATED TO UPCOMING COMPLIANCE DEADLINES AND MILESTONES

HRSD continues to be concerned about potential challenges in meeting schedules that could be impacted by the COVID-19 pandemic. HRSD sent a General Force Majeure Notice on March 25, 2020 identifying the potential for delays due to COVID-19. At the time no specific compliance deadlines were in immediate risk of impact but the potential to complete all Rehab Action Plan projects by the established compliance dates has been identified as a probable impact. HRSD will provide specific notice for specific projects when and if there are specific force majeure assertions to be made.

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

None beyond the terms of the 5th Amendment and associated Final RWWMP pending final signatures, lodging and entry by the court.

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APPENDIX A. PROJECT CERTIFICATION FORMS

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September 15, 2020


Rehabilitation Action Plan Projects
Verification of Completion

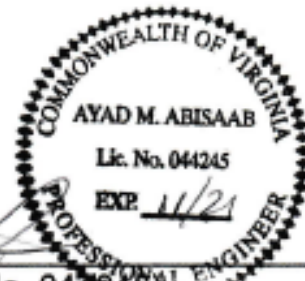
As required by Section VIII of the Third Amended Consent Decree dated May 30, 2015, a set of Rehabilitation Action Plan projects have been identified that must be completed according to the schedule in that document. For capital projects in excess of \$1,000,000, Paragraph 87a of the Consent Decree requires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

Through June 30, 2020 the following project has 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>
BH-R4	BH-150	Orcutt Avenue & Mercury Blvd. Gravity Sewer Improvements	\$9,452,686	April 29, 2020

Hereby verified by


Ayad M. Abisaab, PE (No. 044245)
Chief of Design and Construction, North Shore
Hampton Roads Sanitation District



APPENDIX B. REGIONAL SS SYSTEM CAPACITY RELATED SSOS

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Table B-1. Regional SS System Capacity Related SSOs (July 1, 2019 to June 30, 2020)

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
10/20/2019 11:00	76-z Carlton Ct	09-029	Williamsburg	105522	During heavy rain event high force main pressure did not allow the station to pump normally.	Additional by-pass pumping was set up in the attempt to over come FM pressures. Station still could not get into FM -----October 21, 2019 09:29 AM-----	38,500	Significant wet weather event covering the area with over 3.5 inches of rain
10/20/2019 11:00	99 Patrick Henry Dr	07-125	Williamsburg	105521	During heavy rain event high force main pressure did not allow the station to pump normally. Pressure reading at station was 43.8 psi	Personnel monitored station until normal operations resumed. -----October 21, 2019 09:23 AM-----	45,000	Significant wet weather event covering the area with over 3.5 inches of rain
10/20/2019 11:20	1594 Jamestown Road, Williamsburg VA	33039	James City	105541	Heavy rainfall : 3.5 inches 2 Year Event in 6th-hour. Resident called JCC dispatch to report sewage flowing out of the top of manhole 33039 & 33040. On call staff responded and reported to lift station service area. Staff saw no evidence of spill at the time of arrival. JCSA retrieved video from resident November 1st, the date of the initial spill report. JCSA estimated flow of 125 gpm based on the video.	JCSA flushed sewer main from lift station toward upstream reported overflowing manhole in case of a possible blockage. -----November 1, 2019 02:22 PM----- -----November 4, 2019 08:50 AM-----	16,250	Significant wet weather event covering the area with over 3.5 inches of rain
10/20/2019 11:30	115 Depot St, Toano VA	LS 6-8	James City	105525	Heavy Rain - 3.61 inches in 12 hours	Pump & Hauled from station. When the rain tapered off, pressures in the system dropped and extraneous flow reduced and at 3:50 PM the pumps were able to keep up with the flow. -----October 21, 2019 01:24 PM-----	20,000	Significant wet weather event covering the area with over 3.5 inches of rain
10/20/2019 11:30	5349 Rockingham Dr, Williamsburg VA	LS 6-1	James City	105527	Heavy Rain - 3.93 inches in 12 hours	Pump & Hauled from station. When the rain tapered off, pressures in the system dropped and extraneous flow reduced and at 3:54 PM the pumps were able to keep up with the flow. -----October 21, 2019 01:34 PM-----	10,500	Significant wet weather event covering the area with over 3.5 inches of rain
10/20/2019 11:35	8794 Six Mount Zion Road, Toano VA	LS 9-7	James City	105524	Heavy Rain - 3.56 inches in 12 hours	When the rain tapered off, pressures in the system dropped and extraneous flow reduced and at 5:50 PM the pumps were able to keep up with the flow. -----October 21, 2019 01:19 PM-----	18,000	Significant wet weather event covering the area with over 3.5 inches of rain
10/20/2019 11:52	174 Forest Heights Rd, Williamsburg VA	LS 6-2	James City	105526	Heavy Rain - 3.93 inches in 12 hours	When the rain tapered off, pressures in the system dropped and extraneous flow reduced and at 3:52 PM the pumps were able to keep up with the flow. -----October 21, 2019 01:29 PM-----	19,500	Significant wet weather event covering the area with over 3.5 inches of rain

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2019 to June 30, 2020)

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
10/20/2019 12:36	220A The Maine, Williamsburg Virginia	LS 1-8	James City	105523	Heavy Rain - 3.85 inches in 12 hours	When the rain tapered off, pressures in the system dropped and extraneous flow reduced and at 2:52 PM the pumps were able to keep up with the flow. -----October 21, 2019 01:14 PM-----	3,700	Significant wet weather event covering the area with over 3.5 inches of rain
10/20/2019 12:43	4817 Hickory Signpost Rd, Williamsburg VA	LS 3-6	James City	105528	Heavy Rain - 3.74 inches in 12 hours	When the rain tapered off, pressures in the system dropped and extraneous flow reduced and at 2:53 PM the pumps were able to keep up with the flow. -----October 21, 2019 01:39 PM-----	7,700	Significant wet weather event covering the area with over 3.5 inches of rain
2/7/2020 9:14	2419 Livesay Rd. Chesapeake, VA	DEEP CREEK	Chesapeake	105596	Sewage spilling out of inspection box at resident address. Two days of heavy sporadic downpours causing high pressures at PS-16 and surcharge of system. Storm water flooding mixed with spill.	Vac trucks pulled loads from adjacent manhole and spill stopped. Cleaned up area with HTH. -----February 7, 2020 02:12 PM-----	780	
2/11/2020 3:20	919 Coleen Dr. Newport News Va.	WCMH002177	Newport News	105606	PS 056 Experiencing high head conditions during rain event which contributed to high water in the station's wet well overflowing at manhole WCMH002177 located at 919 Coleen Drive.	Put PS 056 on bypass to assist in moving the high sewer flows. Review pump station capacity and flow data for rain event. SSO documented in Cityworks WO#390936. -----February 12, 2020 10:00 AM----- -----February 14, 2020 09:32 AM----- -----February 14, 2020 09:34 AM-----	12,000	Significant wet weather event covering the area with approximately 2 inches of rain
2/11/2020 15:30	125 Winder Rd, Yorktown VA 23693	MH 019101 PS 019KNGV	York	105605	Overflow at lowest manhole due to rain event and high head pressure	Pumped and hauled -----February 12, 2020 09:31 AM-----	22,500	Significant wet weather event covering the area with approximately 2 inches of rain
2/11/2020 19:00	26 W PRESTON	023-0286	Hampton	105608	HEAVY RAINS CAUSING FLOW AREA TO BACK UP PUMP STATION PUMPS UNABLE TO HANDLE HEAVY RAIN FALL	PUMP AND HAULED WITH VATCONS TO RELIEVE EXCESS FLOWS OFF OF PUMP STATION AND FROM FLOW AREA -----February 12, 2020 11:20 AM-----	27,000	Significant wet weather event covering the area with approximately 2 inches of rain
2/11/2020 20:00	98 SEMPLE FARM RD	PUMP STATION #147	Hampton	105607	HEAVY RAINS CAUSED FLOW AREA TO BACK UP AT PUMP STATION PUMPS UNABLE TO HANDLE HIGH FLOWS	PUMP AND HAULED WITH VATCONS TO RELIEVE FLOW INTO PUMP STATION -----February 12, 2020 11:12 AM-----	30,000	Significant wet weather event covering the area with approximately 2 inches of rain
6/20/2020 19:45	7242 Merrimac Trail	54200	James City	105690	Received call about manhole overflowing. Manhole was spilling about 5 gallons a minute for about 1 hour. 1.5 inches of rain.	Checked down stream manholes for a blockage. Manholes were surcharged but not spilling. Water level in manhole 54200 returned to normal before any corrective action could be taken. JCSA to CCTV sewer main from 54200 to 54201 to verify pipe does not have any flow restrictions. -----June 22, 2020 11:30 AM-----	300	

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