

ANNUAL REPORT FY 2022



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

October 28, 2022

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1. INTRODUCTION AND PURPOSE

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 amended five times by agreement of all parties in 2011, 2013, 2014, 2017, and 2022. The Fifth Amendment outlines the approved Integrated Plan, which was signed by the Hon. Arenda L. Wright Allen on February 8, 2022. In December 2014, the Special Order by Consent (SOC) with the DEQ and thirteen localities was modified and HRSD is no longer part of that order.

The approved Integrated Plan requires HRSD to perform, among other things, the following tasks:

- Implement a flow, pressure, and rainfall monitoring program;
- Coordinate 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 a Sanitary Sewer Overflow (SSO) Response Plan;
- Develop a Regional Wet Weather Management Plan in consultation with the Localities;
- Update and implement a Management, Operations and Maintenance (MOM) Program; and
- Prepare and submit a variety of periodic and event-driven reports
- Rehabilitation Action Plan projects
- High Priority Projects
- Aquifer Replenishment Program (ARP) also known as SWIFT
- Microbial Source Tracking

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, 2021, through June 30, 2022, 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 2022, HRSD has made various changes to its monitoring network. Table 2-1 below lists the significant changes in detail.

Table 2-1. FY 2022 Flow, Pressure, and Rainfall Monitoring Actions			
Site	Location	Measurement	Installed
MMPS-214	HRSD SF - Shore Dr at Jack Frost Rd	Rain Gauge	3/30/2022
MMPS-327	HRSD SP - Smithfield PRS	Flow	8/18/2021
MMPS-327	HRSD SP - Smithfield PRS	Pressure_Discharge	8/18/2021
MMPS-327	HRSD SP - Smithfield PRS	Pressure_Suction	8/18/2021
MMPS-332	HRSD SP - Elbow Rd PRS	Flow	4/4/2022
MMPS-332	HRSD SP - Elbow Rd PRS	Pressure_Discharge	4/4/2022
MMPS-332	HRSD SP - Elbow Rd PRS	Pressure_Suction	4/4/2022
Site	Location	Measurement	Removed
GFM-27A: MH-SG-193-7930	White Marsh Road	Flow	12/1/2021
MMPS-015_thru012522	IOW FM - Gatling Point_Isle of Wight	Flow	1/25/2022
MMPS-093	HRSD TP - Ches-Eliz Main Flow_Influent	Flow_Influent	1/21/2022
MMPS-093-2	HRSD TP - Ches-Eliz Weather	Rain Gauge	4/21/2022

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, 2022. 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	18	19	\$75,896,832	\$77,755,052
2	3	37	\$7,905,713	\$280,416,168

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

- None noted between January 1, 2022 and July 31, 2022
- Project certifications for BH-R1 and CE-R4 were submitted with the FY22 semiannual report.

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 related to 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 2022.

2.4.1.1 MOM Program Update

HRSD updated its MOM Program in July 2021 based on policy and procedure changes, as well as organizational changes. This plan is available for review on the www.hrsd.com website. The next major MOM Program update is anticipated in FY 2025.

2.4.1.2 HR FOG

Fats, Oils, and Grease (FOG) Education Committee is a coalition of local government staff members working together with HRSD to protect wastewater infrastructure, reduce sanitary sewer overflows, and improve local water quality. The Committee shares both technical resources and educational strategies to prevent improper disposal of fats, oils, and grease. The Hampton Roads Planning District Commission (HRPDC) coordinates this regional effort. In FY22 HRSD continued to participate in monthly committee meetings and support localities with their FOG control programs through a signed MOA – which three localities have signed thus far. In FY22 the committee evaluated modernizing the hrfog.com website, which was initially developed in 2012 and serves as a hub for food service employees and grease haulers to review training documents and complete certification exams to comply with local FOG ordinances. It also hosts helpful educational resources like signs and brochures and additional guidance documents for local FOG ordinances. The committee will continue its evaluation and review of more user-friendly platforms into FY23. The Committee also reached out to the Virginia Building Code Officials Association (VBCOA) to engage municipal professionals who participate in the building inspection process

and were able to submit an article for the VBCOA quarterly members newsletter. The article stressed the importance of FOG programs in protecting sanitary sewer infrastructure and encouraged partnerships between inspection professionals and local FOG programs. Several paid campaigns ran across social media, radio and TV that targeted residential homes with a message to keep FOG out of the drains.

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 2022 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 2022. The details of HRSD's performance are provided in Section 5 of this report.

2.5 Regional Wet Weather Management Plan

HRSD submitted an updated Regional Wet Weather Management Plan (RWWMP) on June 29, 2020. The fifth amendment to the Consent Decree, that incorporated the RWWMP, was approved by the court on February 8, 2022. The RWWMP features an Adaptive Regional Plan (ARP) comprising of four phases. Phase 1 includes the \$700 million that HRSD will spend by 2025 in Interim System Improvements, Rehab Action Plan projects, Condition Assessment (including prompt repairs), and planning associated with development of the RWWMP Plan. Phase 2 includes the \$208 million in Round 1 High-Priority Projects, and \$10 million Pathogen Source Tracking Program. Phase 3 consists of an additional \$202 million in Round 2 High-Priority Projects and \$10 million for the continued Pathogen Source Tracking Program. Phase 4 is a performance assessment upon completion of the work in Phases 2 and 3. This analysis will take place between 2040 and 2043 and will culminate in submittal of a Performance Assessment for the review and approval of EPA and DEQ by March 31, 2043. The High-Priority Projects will reduce SSO volume during the 5-year peak flow event by 69%. The fifth amendment includes the schedule for wastewater system improvements that accommodates the Aquifer Replenishment Program (ARP) program. HRSD is planning on investing over \$1.1 billion by 2032 on the ARP program. The RWWMP provides for the ARP to be implemented through 2032. Finally, the RWWMP provides that if HRSD truncates or abandons the ARP prior to 2032 then EPA

can require HRSD to accelerate spending on the RWWMP to offset the avoided investment in the ARP program. HRSD continues to evaluate the most optimal approach to implementing the ARP program given HRSD's financial constraints, evolving regulatory requirements, and the unprecedented inflationary pressures we are experiencing.

2.5.1 RWWMP Progress

Phase I progress is described in Table 2-2.

Phase II progress includes microbial source tracking efforts and the initiation of some Round 1 HPP projects.

Phase III progress includes the initiation of a Round 2 HPP project.

Phase IV is scheduled to commence in 2040.

The Aquifer Replenishment Program (ARP) consists of multiple HRSD Sustainable Water Initiative For Tomorrow (SWIFT) projects. HRSD approved a design build stipulated price, for the James River SWIFT Facility and James River Treatment Plant Advanced Nutrient Reduction Improvements project, on May 24, 2022, in the amount of \$534,098,839.

2.6 SSO Emergency Response Plan

On August 17, 2022 HRSD completed the annual update of the approved Sanitary Sewer Overflow (SSO) Response Plan. This plan continues to be implemented by HRSD. A copy of the most recent plan is posted to the www.hrsd.com website and is included as an attachment to this annual report.

2.7 Consultation with Localities

There were several consultation activities in FY 2022 with Localities. These activities included:

- Semi-Annual meetings of the Capacity Team to share progress on compliance with the Consent Decree (August 24, 2021, January 25, 2022, and April 28, 2022)
- HRSD.com continues to be updated to provide documents to the regional Capacity Team; and,
- Copies of the Quarterly Reports, Semi-Annual Report and Annual Report were provided from HRSD to the Localities on the HRSD.com website.
- Staff worked closely with each Locality in the past year to develop the Regional Wet Weather Capacity policy. Staff expects the policy to be approved by Director of Utilities and HRSD's Commission in early in FY2023.

2.8 Public Participation

HRSD conducted an annual information meeting regarding the progress of the Consent Decree on January 25, 2022. In addition, HRSD published a newsletter in February 2022, 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 2021 Annual Report and submitted it to the EPA and DEQ on October 28, 2021. This report covered Consent Decree activities from July 1, 2020, through June 30, 2021.

2.10.2 Semi-Annual Report

HRSD completed a FY 2022 Semi-Annual Report and submitted it to the EPA and DEQ on April 28, 2022. This report covered Consent Decree activities from July 1, 2021, through December 31, 2021.

2.10.3 Quarterly Reports

HRSD completed FY 2022 Quarterly Reports and submitted them to the EPA and DEQ on June 23, 2022 and September 28, 2022.

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 2022.

Consent Decree Submittal	Submittal Date
Annual Report	October 28, 2021
Annual Public Meeting	January 25, 2022
Annual Newsletter	February 2022
Semi-Annual Report	April 28, 2022
Quarterly Reports	June 23, 2022 and September 28, 2022

2.12 Stipulated Penalties

HRSD received a stipulated penalty demand letter on August 4, 2022 for the period January 2021 – December 2021 and responded on August 19, 2022. Communications on this matter are ongoing.

The quarterly report dated June 23, 2022 included undisputed stipulated penalties of \$1,500. HRSD made payment to the Commonwealth of Virginia on June 23, 2022, however HRSD has still not received EPA's instructions for paying the federal share.

The quarterly report submitted on September 28, 2022 included undisputed stipulated penalties of \$6700, HRSD made payment to the Commonwealth of Virginia and the U.S. Department of Justice on September 28, 2022, and October 11, 2022, respectively.

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3. COMPLIANCE DEADLINES AND MILESTONES

In FY 2022, 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	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
90.a	Quarterly Reports	Ongoing

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4. MOM PROGRAM CONDITION ASSESSMENT ACTIVITIES DURING FY 2022

HRSD has continued with its MOM-related Condition Assessment Field Activities in FY 2022. The following subsections describe the progress made in each aspect.

4.1 Gravity Main

HRSD completed 42,187 LF of gravity sewer inspections of its system in FY 2022. Approximately 110,200 LF of sewer main was cleaned.

4.2 Force Main

HRSD incorporated the results from the FY21 condition assessment activities into the risk model that analyzes the risk of our force mains and allows for the prioritization of condition assessment activities. We identified the top ten riskiest force mains, and in FY22 performed a condition assessment on the top eight that were not already programmed for replacement or reviewed in FY21. 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 began corrosivity studies in FY21 and continued this effort in FY22 along our ferrous force mains, feeding the data into our risk model as the work is completed.

In FY 22, 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 two force mains in Virginia Beach.

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 85 defects in the HRSD sanitary sewer system (primarily gravity sewer pipes and manholes) which have been deemed to be Prompt Repairs through June 30, 2022. These 85 defects have been grouped into repair work orders and are currently in various stages of planning, design, construction or are complete. Of the 85 defects, 81 have been repaired through June 30, 2022. The following Table 4-1 provides details on all the Prompt Repairs identified through FY 2022.

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-	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
	112-12175 and NG-112-11783					
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		

Table 4-1. Summary of Prompt Repairs

Name	Location	Jurisdiction	Line Number	Summary of defect	Number of Defects	Status
	Newtown Rd. at Elam Ave.	Virginia Beach	SG-113	Manhole defects		
Mercury Blvd	West Mercury Blvd	Hampton	NG-099	Mainline pipe defects	3	Complete
	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

Table 4-1. Summary of Prompt Repairs

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

Table 4-1. Summary of Prompt Repairs

Name	Location	Jurisdiction	Line Number	Summary of defect	Number of Defects	Status
Orcutt Avenue Liner	Orcutt Avenue and 79th 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
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 Design
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
Shingle Creek Siphon	Shingle Creek PS	Suffolk	SG-191-21795 to SG-191-21788	Pipe Defect	1	Complete
Western Branch Sewers – State Hwy	APM Terminals Blvd	Portsmouth	SF-038	Force Main blockage	1	Complete
Bainbridge Blvd Gravity Sewer	Bainbridge Blvd & Holly Avenue	Chesapeake	SG-149-4932 to SG-149-4897	Pipe Defect	1	Complete

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ANNUAL REPORT FY 2022

5. MOM PERFORMANCE MEASURES FOR FY 2022

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 2022 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	42,187 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	3,428 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	110,200 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	88 pump stations inspected	88 (100%)	Performance met target	2.7

Table 5-1. MOM Performance Measures

Consent Decree Paragraph	Section	Goal	Performance Measure	Target	FY 2022 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.	85 pump stations inspected per year	85 (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.	61 generators to receive PM per year	128	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 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. All stations that were online at the time of inspection received an annual PM.

6. SYSTEM PERFORMANCE DURING FY 2022

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, excessive rainfall, and operations related events in FY 2022 that led to unusual discharges from the facilities. Table 6-1 provides details on the twenty-three (23) unusual discharges from July 1, 2021, to June 30, 2022. Thirteen of these occurrences involved Non-Potable Water (NPW) or fully treated effluent, and three were the result of activities conducted by a third party.

6.3 Conveyance System Performance

For the reporting period of July 1, 2021, through June 30, 2022, HRSD experienced ten (10) sanitary sewer overflows (SSOs) from its system. Zero (0) of the 10 SSOs were capacity-related. This is truly incredible system performance.

All of these events are detailed in the Sanitary Sewer Overflow Reporting System (SSORS). Details on all the FY 2022 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, 2021 to June 30, 2022)

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
7/21/2021	Nansemond	Chemical truck struck Non-Potable Water (NPW) fire hydrant and broke the hydrant at the stem.	115	Was notified by plant staff around 1600 that a chemical truck had struck an NPW fire hydrant. Plant staff secured a shut off valve in ground to stop NPW flow.	8400	8400	Non-Potable Water (NPW)	ground	third party action
7/22/2021	Nansemond	While excavating the broken fire hydrant from spill on 07/21/21, the contractor accidentally dropped a piece of concrete breaking the shut off valve.	20	Contractor and plant staff secured an NPW valve up stream.	3480	3480	Non-Potable Water (NPW)	ground	third party action
8/29/2021	Nansemond	For some reason both drain pumps failed and stopped running at around 14:10. Biofilter effluent from BAF#2 was in filter to waste, hence it was pumping to the drain pump station at a rate of 200 gpm. Once the drain pump station was completely full it started overflowing. Because of the grading, all spilled water went into the grass area on the back of the SWIFT building. Biofilter effluent is Secondary Clarifier Effluent treated by flocculation/sedimentation, ozonation and biofiltration with a turbidity less than 0.15 NTU, with no added chemicals.	188	When the SWIFT intern was at plant site to collect the Sunday samples, the intern noticed that there was a high-level alarm at the trench indicating that there was a problem with the drain pump station. The intern then noticed that both drain pumps were not working and tried first to reset both pumps from the DCS station but was not successful. Immediately after that event, the intern contacted the plant operator on site, who went to the MCC room to reset the breaker. All pumps started working after resetting them with no further problems.	15000	15000	Biofilter Effluent	ground	
9/14/2021	Nansemond	Broken Non-Potable (NPW) line on the side of Aeration Tank #3. This line is in an empty area between two tanks and was not discovered immediately. An outside contractor had recently mowed the area and may have broken the line without realizing they had done so.	135	Plant staff secured the NPW cut off valve and will repair damaged section of the line.	28500	28500	Non-Potable Water (NPW)	ground	
9/15/2021	Nansemond	While draining an aeration tank for a maintenance repair, the nitrogen recycle pumps had to be used to drain the tank faster than planned. The pump configuration caused an unexpected flowrate increase through the plant which overflowed the final effluent channel.	6	The final effluent holding pond influent valve was opened to relieve flow off the effluent channel.	5000	5000	Final Effluent (FNE)	ground	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2021 to June 30, 2022)

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
9/29/2021	VIP	Operator found water flowing from between the VBR tank #1 and the primary effluent channel. There is a 6" void between the two tanks. This is a long narrow void between tanks with no access because of the narrow gap. Plant staff is attempting to isolate cause of the leak. The two tanks have a channel and gate connecting them and the channel will be isolated to determine if this is the problem.	96	Plant staff used sandbags and pumps to stop the flow from entering storm drains and then dug a hole to capture the flow and pump it to a plant drain for disposal. Staff will need to isolate the gate completely to make repairs. A plate was installed to isolate the gate on the Primary Effluent channel side. The #1 VBR tank was out of service at the time but contained Non-Potable Water (NPW). It was drained below the gate to stop leaking from the tank side. Plant staff is monitoring the pumping operation while repairs to the gate are made. 9/30-10/4 – The gate was isolated but the leak continued. Plant staff removed #4 Anaerobic/Anoxic Tank from service and drained the tank but the leak has not stopped or changed. Testing performed on the leak appear to confirm that the leak is Anaerobic/Anoxic sample. The leak is still contained. The next step secured the Anaerobic/Anoxic Influent Channel on 10/4/21.	108000	1050	Anaerobic/Anoxic Inf-E	storm drain to Elizabeth River	
11/22/2021	Nansemond	NPW line charged to check for leaks. Leak was found during the line test. In ground valve would not close and NPW soaked into the ground until valve could be closed.	55	Adjusted the valve handle to get a grip on the valve and closed it. Line was repaired and valve will be replaced.	500	500	Non-Potable Water (NPW)	ground	
11/24/2021	Nansemond	NPW hose filling a tank came out of the tank and NPW was released onto the ground.	10	Secured valve to NPW hose	10000	1000	Non-Potable Water (NPW)	Building sump, ground, drainage pond	
12/2/2021	James River	A temporary chemical feed line, feeding defoamant (Foam A Tac REL), shifted causing feed to go into the grass and a storm drain.	5	Oil dry was placed to remove residual chemical, the spilling chemical was stopped, and a more rigid piping system was put in place to ensure the chemical line was not shifted again.	20	10	Foam A Tac REL	storm drain	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2021 to June 30, 2022)

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
12/6/2021	Williamsburg	During a routine walk around the plant, a Lead Operator discovered water coming from the grass near a curb and traced it from an electrical manhole. After attempting to pump the manhole out we discovered excessive ground water entering several nearby manholes and entering the storm drain system. The source of the water was a Non-Potable Water (NPW) line that had been previously excavated when a new duct bank was installed.	3690	Isolation of this NPW line was not possible without significant disruption to plant processes. Plant staff blocked a storm drain manhole and lowered a pump into it to keep up with the flow. Though this pipe was blocked ground saturation occurred and water entered old underground stormwater piping. HRSD crews dug up the area to triangulate the location and Bridgeman Civil repaired the cracked 10", 10 ft deep NPW line.	9840	9840	Non-Potable Water (NPW)	Grove Creek	
1/4/2022	Williamsburg	At approximately 0720 a Maintenance Operator was passing by the south side of the Dewatering building and observed water coming up out of the asphalt. The water was traveling to the nearby storm drain resulting in an offsite discharge.	10	The Non-Potable Water (NPW) line was isolated and all unit processes that use NPW were shutdown. Contractors excavated the NPW line and located a circumferential crack. The damaged section of line was repaired.	3216	3216	Non-Potable Water (NPW)	Grove Creek	
1/8/2022	Williamsburg	At approximately 1410 a Plant Operator was performing his rounds on the north side of the #2 Intermediate Clarifier and observed water coming out of a NPW line next to the tank where the 2" ball valve failed. The water was traveling to the nearby storm drain resulting in an offsite discharge.	105	The NPW line was isolated for the intermediate process and capped.	41100	41100	Non-Potable Water (NPW)	James River	
1/31/2022	Nansemond	PVC NPW line on secondary clarifier broke and started spraying NPW into the air and some reached the ground.	150	Relief operator shut NPW valve at 0630am 01/31/2022	100	100	Non-Potable Water (NPW)	ground	
2/2/2022	Nansemond	A Non-Potable Water (NPW) line was isolated to repair a cracked valve. When repressurized, the NPW line leaked upline of the repair. The NPW line was secured and repaired.	120	Secured the NPW line and recovered 1,000gal of spilled NPW.	6000	5000	Non-Potable Water (NPW)	ground	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2021 to June 30, 2022)

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
2/4/2022	Atlantic	Due to flight failure, the operator on duty was taking Primary Clarifier #6 offline, and closed the influent gates to the clarifier, but mistakenly left the gate open at the distribution box. This caused a buildup of wastewater in the influent channel leading to the clarifier, which eventually overflowed up through the channel covers and down the sides of the channel to ground by OCS D and the blower/electric building.	30	After the overflow was detected, the distribution box gate was adjusted and secured to stop the overflow. Drain covers were placed over storm drains. Residual solids on the ground are being allowed to dry, so they can be manually removed to the storage pad. We were able to excavate roughly one third of the dried solids.	1000	800	Primary Clarifying Influent (PCI)	ground	
3/10/2022	Army Base	ABTP received word from Chris Carlough, P3 via email at 11:39 on 03-09-22 that an estimated 1,500 gallons of AFFF was released into the sanitary sewer. We monitored headworks and process tanks throughout the day and did not see any issues until C. Raleigh was notified by ABTP TPE on 03-09-22 at 15:28 of foam starting on the aeration tanks. On 03-10-22 at 07:40 foam was observed blowing off the secondaries onto the ground.	410	On 03-09-22 Dissolved oxygen levels on the aeration tanks were lowered from 2.25mg/l to 2.0mg/l to contain foam. On 03-10-22 as flows came up and foam became worse, dissolved oxygen levels were lowered again from 2.0mg/l to 1.5mg/l to help keep foam in the tanks. On 03-10-22 at 07:40 foam was observed on the ground. Dissolved oxygen levels were lowered again to 1.0mg/l to help with foam and all maintenance staff started spraying foam down with Non-Potable Water on the aeration tanks. Action was taken with defoaming agents throughout the day to minimize foam release. Plant inspection at 14:30 on 3-10-22 foam was under control. Wind was no longer blowing foam off the tanks onto the ground.	3	3	Foam from AFFF	Ground	third party action
3/14/2022	Nansemond	SWIFT went offline at 8:45AM for Dominion Power to relocate utility power feed. Once power was restored the SWIFT operator started the influent pumps and floc-sed process. Flow was going to off-spec after floc-sed to allow for chemical stabilization when the operator was made aware by the SWIFT maintenance operator of the drain pump station overflowing. The operator found the drain pump station pumps not in operation.	5	Once the SWIFT operator noticed the drain pump station pumps not running, he noticed they were in manual (most likely caused from the power outage) and returned them to automatic control. At this time the pumps started and pumped the level still and stopped the overflow.	200	200	Floc-Sed Effluent	Ground	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2021 to June 30, 2022)

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
3/20/2022	Nansemond	Critical valve on caustic tote left outside of SWIFT was slowly leaking and the hose connection to the critical valve was leaking as well. The critical valve leakage was caught by the containment, but the connection where it attached to the hose was outside the containment. We lost 275 gallons out of the tote. Half of the caustic was contained, the other half made its way across the road in between the back side of swift and the tree line.	0	Fixed the critical valve on the tote and the hose connection. Recovered most of the spill with our vac trailer and oil dry.	275	37.5	Caustic	Ground/Pavement	
5/4/2022	Nansemond	On 05/03/22 at ~15:25 a contractor shut down Non-Potable Water (NPW) to the Regional Residual Facility (RRF) for a tie in, the RRF self-priming wet well pumps lost prime when NPW was secured. When NPW was turned back on at ~17:00, the pumps did not prime properly, though the NPW for priming continued to run and flooded the pad overnight. The pad in front of the RRF was flooded, as well as part of the grease facility construction site, and the grass behind the RRF. An estimated maximum spill 64,380 gallons made it to the ground. ~40,000 gallons were recovered from the pad, and ~20,000 gallons recovered from the construction site and grass area. This leaves a maximum of 4,380 gallons discharged to the creek.	0	Plant Staff primed the wet well pumps and pumped the water that was on the pad back to the plant, plant staff and contractors recovered as much of the water that made it to ground as well.	64380	4380	NPW/Pump Station Waste	Ground, Streeter Creek	
5/20/2022	Nansemond	While contractors were performing work in the MCC room of the SWIFT Research Center, they accidentally bumped the power switch inside the interposing relay cabinet. This caused the drain pump station to trip. When flow was restarted to the SRC the drain pumps were in manual mode and not turned on, causing the drain pump station to overflow.	5	Drain pumps were restarted and pumped down the drain pump station. Staff are working with Emerson (programmers) to ensure pumps default to AUTO after a loss of power.	200	200	Floc-Sed Effluent	Ground	

Table 6-1. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2021 to June 30, 2022)

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
5/31/2022	VIP	On April 22 a Norfolk Southern employee reported a possible sewage spill south of the HRSD VIP Plant. Plant staff investigated and did not find a source of release. HRSD TSD staff performed HF183 testing and determined sewage was likely entering a Norfolk storm drain south of the plant draining to the Elizabeth River. After extensive investigation by HRSD and the City of Norfolk, the issue was found to be supernatant flow from the VIP primary clarifier scum concentrator. It was discovered that an old storm drain manhole had been converted to direct flow to the plant drain, and the plug preventing flow from entering the storm drain had failed.	275	Promptly after this discovery on May 31, the old plug was removed and replaced with a new brick and concrete plug. A stainless-steel plate coated with epoxy adhesive was also installed to prevent the possibility of accidental leakage. Approximately 10,000 gallons of primary scum supernatant entered a storm drain to the Elizabeth River between April 22 and May 31.	10000	10000	Primary Sum Supernatant	Elizabeth River	
6/10/2022	VIP	A small leak was found at a seam in the concrete flow conduit between the chlorine contact tank and Parshall flume. Flow was found seeping from the seam into the ground. A sample was taken, and a small amount of chlorine residual (0.06 mg/L) was present, so it was determined to be chlorinated plant effluent leaking from the conduit.	120	A trench was dug to contain the leakage and a submersible pump was installed to pump the leakage into the plant process drain. The leak was estimated at about 1-1.5 gallons per minute.	200	200	Plant Effluent	Ground	
6/14/2022	Nansemond	A PVC 2" NPW line was discovered spraying out of the contact tanks by a contractor, who then reported to HRSD staff.	5	Secured NPW cutoff valve in the street and the flow of NPW is secured. Once secured, HRSD staff was able to identify a glue joint had failed and slipped out of the PVC Tee. The joint was repaired.	200	200	Non-Potable Water (NPW)	Ground	

*NPW – Non-potable water (treated effluent)

Table 6-2. Detailed Listing of HRSD SSOs (July 1, 2021 to June 30, 2022)

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)	SSORS ID	Occurred in previous five years at same location
7/28/2021 11:30 AM	1500 Bainbridge Boulevard	SG-149-13597	Elizabeth River via Scuffletown Creek	Chesapeake	Infrastructure	Water quality monitoring results reported on July 8 suggested that there was a source of human pathogens (HF183) in the stormwater outfall of the lake at Lakeside Park. The nearby HRSD gravity sewer was dye tested but the results were inconclusive. On July 28 at 11AM, a portion of the gravity sewer near the stormwater outfall was bypassed and CCTV inspected and a hole in the bottom of the pipe was discovered at 11:30AM.	21 hour(s) 15 minute(s)	The temporary bypass setup was utilized until the hole and pipe was repaired. A plug was installed as part of the bypass effort but failed overnight on 7/28/21. A new plug was installed, the line was dewatered, and a speed patch plug was installed to patch the hole. An internal repair seal, a cured in place pipe (CIPP) liner, was installed and inspected on 7/30/21. -----August 2, 2021 11:30 AM-----	-1	-1	106017	No
8/2/2021 2:45 PM	2251 West Great Neck Road	SF-022-5000	Storm culvert to Broad Bay	Virginia Beach	Infrastructure	Sewage was observed coming up through the joint between the asphalt and concrete curb along West Great Neck Road.	3 hour(s) 20 minute(s)	A vactor was mobilized to capture as much sewage as possible before it entered the storm system. Five City pump stations were then pump and hauled, and valve CE5033-2 was closed to isolate the break. The broken pipe was repaired. -----August 5, 2021 12:44 PM-----	2,625	1,525	106030	No
8/14/2021 8:46 PM	1209 Tyler Avenue	NF-042-11138	Storm drain to Lake Maury	Newport News	Infrastructure	Full circle clamp used at joint failed.	13 hour(s) 14 minute(s)	Replaced failed full circle repair clamp and returned system to normal operation. -----August 17, 2021 08:38 AM-----	297,408	297,408	106035	Yes
8/31/2021 3:32 PM	800 Pearl Street	MH-SG-202-1000	Eastern Branch of the Elizabeth River	Chesapeake	Third Party Action	Sewage was observed coming from a manhole at the intersection of Pearl Street and Ligon Street.	1 hour(s) 58 minute(s)	Staff checked downstream gravity manholes between spill location and an existing contractor bypass setup near HRSD's State Street PS, and realized that the contractor's bypass pumps were not working. This caused the gravity sewer to back up and spill. HRSD managed to get one of their bypass pumps operating, which resolved the overflow. The contractor was notified and mobilized to the site to fix their bypass pumps. HRSD staff used a vactor to recover sewage that was ponded in the area near the spill location. -----August 31, 2021 09:32 PM-----	10,800	10,200	106042	No
10/6/2021 12:40 PM	2295 Harbor Road	FLWCTRL-NG-123-5766	Storm drain to James River	Newport News	Other	Manhole overflowing due to pump issues.	0 hour(s) 30 minute(s)	Staff checked 25th Street PS that was on bypass pumps for electrical and SCADA improvements. The LEAD Godwin pump was found air-locked and the LAG Godwin pump was found in OFF position. Staff washed down and cleaned up road and surrounding area. -----October 7, 2021 07:53 AM-----	1,000	500	106051	No

Table 6-2. Detailed Listing of HRSD SSOs (July 1, 2021 to June 30, 2022)

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)	SSORS ID	Occurred in previous five years at same location
12/23/2021 10:49 AM	5332 Shore Drive	SF-016-6808	Ditch leading to Chesapeake Bay	Virginia Beach	Infrastructure	A valve failed while operating it.	0 hour(s) 51 minute(s)	Staff utilized an existing excavation to contain the majority of the overflow. Soon after the valve broke, staff utilized portable pumps to pump sewage to the near clarifiers at the Chez-Liz Treatment Plant. After the excavation pit was pumped down, staff repaired the valve and fully closed it. This stopped any additional flow from entering the excavation. Staff treated the impacted area of the excavation and nearby ditch with lime. Sewage that was pumped to the nearby clarifiers will be pumped back into the interceptor system once site cleanup is completed. -----December 28, 2021 08:02 AM-----	311,000	6,000	106071	No
1/5/2022 5:00 AM	3612 Robin Hood Road	SF-069-16017	Lafayette River via Wayne's Creek	Norfolk	Infrastructure	Sewage was observed leaking through the pavement.	1 hour(s) 30 minute(s)	Staff saw cut and removed pavement and created a small excavation to capture and retain the sewage. Vactor was onsite by 6:30am and sewage leak to waterway was stopped. Leak was caused by a failed coupling, likely installed during original construction of pipeline in 1953. Fitting and a section of pipe was replaced. -----January 5, 2022, 12:56 PM-----	150	150	106080	Yes
1/30/2022 10:10 AM	858 Jamestown Crescent	SF-042-112778	Storm pipe leading to Lafayette River	Norfolk	Infrastructure	Sewage leaking up through grass/soil near pump station	1 hour(s) 25 minute(s)	Staff turned off the HRSD pump station and closed nearby valve to isolate the leak. Leak was caused by a circumferential crack in the pipe, which was repaired with a full circle clamp. -----February 2, 2022, 02:53 PM-----	300	300	106090	No
4/23/2022 1:51 AM	3025 Gum Court	SF-027-6674	Drum Point Creek to Western Branch of Elizabeth River	Chesapeake	Infrastructure	A failure occurred on a 36-in ductile iron pipe force main. This force main is just west of I-664. The failure was caused by external corrosion which resulted in graphitization on the exterior of the pipe.	27 hour(s) 3 minute(s)	HRSD onsite attempting to repair, and diversion options are being explored, but are limited. -----April 23, 2022 07:09 AM----- Update: HRSD staff and contractors excavated to the location of the failure and installed a full circle clamp. HRSD staff then cleaned and treated the impacted areas. Approximately 20,000 gallons of sewage was recovered during this process. -----April 27, 2022 02:16 PM-----	472,000	452,000	106121	No

Table 6-2. Detailed Listing of HRSD SSOs (July 1, 2021 to June 30, 2022)

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)	SSORS ID	Occurred in previous five years at same location
6/4/2022 2:00 PM	1140 Lawnes Neck Drive	LPT-1007- 02	Lawnes Creek to James River	Isle of Wight	Infrastructure	HRSD staff was on site checking system pressures in the Lawnes Point Service Area due to customer complaints of grinder stations not being able to pump into the system. Several air vents in the vicinity of the complaint have blow off stacks to check pressures and bleed off air. While one of the blow off stack was accessed, a bushing cracked below the ball valve and sprayed wastewater for several minutes.	0 hour(s) 4 minute(s)	System pressures dropped quickly and the spill was over in 4 minutes. A vacuum truck was sent in to recover much of the spilled volume and clean the area. Crews installed a DC plug and repaired the broken bushing and put the air vent back in service. -----June 8, 2022 11:14 AM-----	250	50	106135	Yes

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7. PLANNED ACTIVITIES FOR FY 2023

HRSD will be continuing the overall program outlined in the Consent Decree in FY 2023. 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 2023, 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 2023, 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 2023, 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 began implementation prior to the 5th Amendment being approved by the court on February 8, 2022.

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 is included as an attachment with this submittal.

7.8 Consultation with Localities

HRSD will continue to actively participate and facilitate a wide variety of consultation activities in FY 2023. 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 [EPA Consent Decree | HRSD.com](https://www.hrdsd.com/EPA-Consent-Decree) website to 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, 2023. Information and approved plans continue to be posted to HRSD's website which is accessible to the public.

7.10 Reporting

HRSD will prepare Quarterly Reports and a Semi-Annual Report in addition to this Annual Report in FY 2023. HRSD continues to publish post-storm analysis for qualifying storms and submit those reports to EPA/DEQ as part of the quarterly report submittal.

8. FORESEEABLE ISSUES RELATED TO UPCOMING COMPLIANCE DEADLINES AND MILESTONES

HRSD is experiencing significant economic headwinds, including historic inflation, unprecedented supply chain crisis, worker shortage, Covid 19 pandemic, the war in Ukraine, and an organization-wide ransomware attack, among other issues. We have even experienced one or no bids for several of our projects. Our challenges are also compounded by the fact that we need the timely cooperation and project approvals from a number of our customer communities to implement projects. Those communities are also struggling under the same set of headwinds, particularly with staffing shortages to review our projects, and their struggles have caused further delays for our projects.

HRSD sent a General Force Majeure Notice on March 25, 2020 identifying the potential for delays due to COVID-19. HRSD is currently preparing correspondence under separate cover to request adjustments to specific Rehab Action Plan project deadlines. The same document will also include requests for adjustments to other requirements of the Consent Decree and provides a summary of the associated justification for the proposed changes. HRSD believes that its requested changes constitute minor modifications.

HRSD has submitted quarterly reports that list undisputed stipulated penalties, but has not yet received instructions for remitting payment to EPA.

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

HRSD either has or will shortly propose a number of project changes (advancing certain projects and pushing others back as well as scope and design changes). The need for most of these changes are due to factors beyond HRSD's control as well as the need to properly sequence construction and other factors. Despite these changes, HRSD remains on track to achieve the requirements of the Consent Decree by the deadline for completion of the overall construction.

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APPENDIX A. PROJECT CERTIFICATION FORMS

None to report between January 1, 2022 and June 30, 2022

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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, 2021 to June 30, 2022)

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
7/8/2021 9:58 PM	115 Depot Street	Lift Station 6-8	James City	106011	Heavy Rain/High Intensity & Pressures - totaling 3.21 inches in 12 hours	Pump and Hauled. When the rain tapered off, pressures in the system dropped and extraneous flow reduced and the pumps were able to keep up with the flow. Inspected basin to find direct sources of inflow. - ----July 9, 2021 08:38 AM----	12,530	Tropical Storm Elsa covered the area with over 3 inches of rain
7/8/2021 10:15 PM	174 Forest Heights Road	Lift Station 6-2	James City	106012	Heavy Rain/High Intensity & Pressures - totaling 2.75 inches in 12 hours	When the rain tapered off, pressures in the system dropped and extraneous flow reduced and the pumps were able to keep up with the flow. -----July 9, 2021 08:55 AM-----	3,727	Tropical Storm Elsa covered the area with 2.75 inches of rain
8/1/2021 9:10 AM	806 East Riverview	Riverview	Suffolk	106029	PS 003 overflowed due to an capacity issue. The terminal station that it pumps to was having pumping issues due to high force main pressure. This resulted in an overflow at PS 003.	PS is back in normal operation. -----August 2, 2021 12:28 PM----	1,971	Significant wet weather event covering the area with over 3 inches of rain
8/1/2021 9:54 AM	Manning Road	Barrett Acres #1	Suffolk	106020	PS 023 failed to operate normal due to high force main pressures during a heavy rain event. Telog data indicates that an overflow occurred at MH 023-041 on Manning Rd. This overflow was not witness by our staff.	Staff utilized an emergency bypass pump to maintain PS 023 during this event. PS 023 force main pressure have returned back to normal and PS 023 is now back in normal operation. -----August 2, 2021 09:16 AM----- -----August 4, 2021 06:40 AM-----	8,091	Significant wet weather event covering the area with over 3 inches of rain
8/1/2021 10:33 AM	West Constance Road	Constance Road Sanitary Sewer	Suffolk	106024	PS 146 failed to operate normal due to high force main pressures during a heavy rain event. Telog data indicates that an overflow occurred at MH 146-078 on West Constance Rd. This overflow was not witness by our staff.	Staff utilized an emergency bypass pump to maintain PS 146. PS 146 force main pressures have returned back to normal and PS 146 is now back in normal operation. -----August 2, 2021 10:37 AM----- -----August 4, 2021 06:50 AM-----	15,696	Significant wet weather event covering the area with over 3 inches of rain
8/1/2021 10:34 AM	Turlington Road	Turlington Road	Suffolk	106025	PS 162 failed to operate normal due to high force main pressures during a heavy rain event. Telog data indicates that an overflow occurred at MH 162-002 on Turlington Rd. This overflow was not witness by our staff.	Staff utilized an emergency bypass pump to maintain PS 162. PS 162 force main pressures have returned back to normal and PS 162 is now back in normal operation. -----August 2, 2021 10:56 AM----- -----August 4, 2021 06:52 AM-----	30	Significant wet weather event covering the area with over 3 inches of rain
8/1/2021 11:02 AM	North Main Street	North Main Street	Suffolk	106027	PS 063 failed to operate normal due to high force main pressures during a heavy rain event. Telog data indicates that an overflow occurred at MH 063-017 on North Main St. This overflow was not witness by our staff.	Staff utilized an emergency bypass pump to maintain PS 063. PS 063 force main pressures have return back to normal and PS 063 is now back in normal operation. -----August 2, 2021 11:28 AM----- -----August 4, 2021 06:55 AM-----	1,060	Significant wet weather event covering the area with over 3 inches of rain

Table B-1. Regional SS System Capacity Related SSORs (July 1, 2021 to June 30, 2022)

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
8/1/2021 12:19 PM	116 Northgate Lane	PS 012	Suffolk	106019	PS 012 failed to operate normal due to high force main pressures during a heavy rain event. Telog data indicates that an overflow occurred at MH 012-033 on Northgate Ln. This overflow was not witness by our staff.	Staff utilized an emergency bypass pump to maintain PS 012 during this event. PS 012 force main conditions have returned back to normal and PS 012 is now back in normal operation. -----August 2, 2021 09:02 AM----- -----August 4, 2021 06:36 AM-----	30,406	Significant wet weather event covering the area with over 3 inches of rain
8/1/2021 12:41 PM	Keaton Way	Berkshire Meadows	Suffolk	106026	PS 037 failed to operate normal due to high force main pressures during a heavy rain event. Telog data indicates that an overflow occurred at MH 037-119 on Keaton Way. This overflow was not witness by our staff.	Staff utilized an emergency bypass pump to maintain PS 037. PS 037 force main pressures have returned back to normal and PS 037 is now back in normal operation. -----August 2, 2021 11:17 AM----- -----August 4, 2021 06:54 AM-----	7,662	Significant wet weather event covering the area with over 3 inches of rain
8/1/2021 1:33 PM	Sumner Avenue	Oak Ridge	Suffolk	106021	PS 024 failed to operate normal due to high force main pressures during a heavy rain event. Telog data indicates that an overflow occurred at MH 024-080. This overflow was not witness by our staff.	Staff utilized an emergency bypass pump to maintain PS 024 during this event. PS 024 force main pressures have return back to normal and PS 024 is now back in normal operation. -----August 2, 2021 10:02 AM----- -----August 4, 2021 06:41 AM-----	9,229	Significant wet weather event covering the area with over 3 inches of rain
8/12021 2:59 PM	Holland Road	Holland Heights	Suffolk	106023	PS 136 failed to operate normal due to high force main pressures during a heavy rain event. Telog data indicates that an overflow occurred at MH 136- 033 on Holland Rd. This overflow was not witness by our staff.	Staff utilized an emergency bypass pump to maintain PS 136. PS 136 force main pressures have returned back to normal and PS 136 is now back in normal operation. -----August 2, 2021 10:22 AM----- -----August 4, 2021 06:48 AM-----	1,034	Significant wet weather event covering the area with over 3 inches of rain
1/3/2022 6:24 AM	1090 Holland Road	Holland Heights	Suffolk	106076	PS 136 overflowed due to high force main head condition.	Staff utilized an emergency bypass pump to maintain PS 136. -----January 3, 2022 08:46 AM-----	781	
1/3/2022 9:30 AM	100 Tilden Avenue	Tilden Avenue	Chesapeake	106082	HRSD mainline pressures were to high to allow pumps to pump out and also due to capacity. Areas that the pump station services was flooded.	Had to Wait for the pressures to drop and for the flooding to go down. -----January 7, 2022 03:05 PM--- --	3,450	
1/3/2022 9:30 AM	Deepwater Road	Deepwater Road	Chesapeake	106083	Capacity. Whole area was flooded	Had to wait for Flooding to go down. -----January 7, 2022 03:23 PM-----	7,170	

Table B-1. Regional SS System Capacity Related SSOs (July 1, 2021 to June 30, 2022)

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
1/16/2022 9:39 PM	Western Avenue	Constance Road Sanitary Sewer	Suffolk	106088	PS 146 failed to operate normal due high force main pressure. This overflow was not observed by staff, but Telog data indicates that an overflow occurred.	PS 146 force main pressure has returned back to normal. PS 146 is back in normal operation. ----- January 18, 2022 03:16 PM-----	1,196	Wet weather event covering the area with over 1.5 inches of rain
3/12/2022 11:39 AM	1090 Holland Road	Holland Heights	Suffolk	106102	PS 136 was experiencing high force main conditions which resulted in MH 136-033 overflowing.	Staff utilized an emergency bypass pump to maintain PS 136. PS 136 is now back in normal operation. ----- March 14, 2022 07:47 AM-----	415	

**Comments have been added for the Annual Report that were not part of the SSORS original report
The remainder of the table is a subset of raw data extracted from SSORS*

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