ANNUAL REPORT
FY 2013

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

October 31, 2013

TABLE OF CONTENTS

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.

As part of both agreements, HRSD is required to perform, among other things, the following tasks:

- Implement a flow, pressure, and rainfall monitoring program;
- Cooperate 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;
- Coordinate with the Localities to develop a Regional Wet Weather Management Plan;
- 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 and Item 7 of Appendix A to the SOC. 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 and the SOC. Specifically, this annual report summarizes the work and activities undertaken by HRSD from July 1, 2012, through June 30, 2013, and the resulting benefits to the sanitary sewer system. While there are a few requirements unique to the Consent Decree and SOC (e.g., a Short Term Wet Weather Operational Plan is required in the Consent Decree but not the SOC) that are not expressly mentioned in the other document, in the interest of efficiency, a single report has been prepared herein that satisfies the information called for in both documents.

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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 and unreliable data has been flagged in the system. In FY 2013, HRSD has replaced a force main flow meter at Copeland Park Pump Station (PS) [MMPS-011] with a gravity flow meter and added a rain gauge (MMPS-235) at the York River Treatment Plant. In addition, the pressure meter at Cedar Road and Dominion Blvd [MMPS-211] has been temporarily relocated to MMPS-283 at Cedar Road and Grassfield Road due to construction in the area. As reported in the July Quarterly Briefing, the flow meter at Bloxoms Corner (MMPS-118) has been removed. Also, the shallow well at Arctic Avenue PS has been removed due to construction in the area.

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 Regional Hydraulic Model and Hydraulic Assessment

2.2.1 Regional Hydraulic Model Report

The report to document the development, calibration, and verification of the Regional Hydraulic Model (RHM) was completed and submitted to the EPA and DEQ on July 29, 2011. After receipt of comments from the EPA/DEQ and an HRSD response on February 22, 2012, the EPA/DEQ notified HRSD that they had no further comments on July 24, 2012.

2.3 Condition Assessment Plan

2.3.1 Implementation of the Condition Assessment Plan

2.3.1.1 Condition Assessment Field Activities

As required by the schedule contained within the Condition Assessment Plan and the Preliminary Condition Assessment Report (PCAR), HRSD has continued with the Condition Assessment Field Activities and has identified those inspections completed by August 15, 2012. These inspections were reported in the February 2013 Final Condition Assessment Report. Some force main inspections remain to be completed by the October 2013 due date. See Section 4 of this report for details on the Condition Assessment Field Activities.

2.3.1.2 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 (as defined in the approved Condition Assessment Plan). 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 contractors continues to be reviewed to make that assessment. See Section 4 of this report for details on the Condition Assessment Program Prompt Repair status.

2.3.2 Final Condition Assessment Report and Action Plan

HRSD expended significant effort during this reporting period on development of the Final Condition Assessment Report and the Rehabilitation Action Plan. These documents were submitted, per the Consent Decree and schedule in the Preliminary Condition Assessment Report, on February 12, 2013. The documentation focused on all field activities completed through August 15, 2012. HRSD received comments from the EPA/DEQ regarding this report on June 10, 2013. HRSD replied with a letter on June 24 stating that the effort to reply to the comments would require additional time. A response to these comments was discussed and will be provided in FY 2014.

A subsequent report will be made in FY 2014 for the remainder of the field activities.

2.4 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). HRSD has each of these projects scheduled as part of its Capital Improvement Program with completion prior to February 23, 2018. A number of these projects are underway with several in construction during this fiscal year. As required by Paragraph 32 of the Consent Decree, HRSD will provide a certification by a Professional Engineer that each of these projects was completed satisfactorily and in conformance with the scope as originally provided to the EPA and DEQ. HRSD is on schedule to meet the milestone, and four projects were completed during this period:

- Reference Number 8 (VIP-120: South Trunk Sewer Section F 20-inch, Section H 8-inch, and Section H 12-inch Interceptor Force Main Replacement and Gravity Sewer Chesterfield Blvd. Replacement)
- Reference Number 11 (VIP-105: North Trunk Sewer Section R 6-inch Interceptor Force Main and 10-inch Gravity Replacement)
- Reference Number 12 (VIP-104: North Trunk Sewer Section D Interceptor Force Main Replacement)
- Reference Number 17 (VIP-133: Sanitary Sewer System Portsmouth VA Contract A Clifford Street Force Main)

The certification form is attached to the end of this report in Appendix A.

In addition, HRSD submitted a letter to the EPA/DEQ in May 2013 proposing the concept that Interim PRS construction be considered as acceptable for compliance with the requirements of the Interim System Improvement for those locations and does not constitute a change in scope per the Consent Decree. EPA/DEQ has indicated their agreement with this issue.

2.5 Management, Operations, and Maintenance Program

2.5.1 Implementation of MOM Program

HRSD continues to implement its MOM Program. This includes details pertaining to management, operations, and maintenance of nearly all aspects of HRSD's 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 2013.

2.5.1.1 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 2013, HRSD has continued to support the Localities as they implement FOG reduction efforts. HRSD has also supported the region through various training workshops and an education effort to make food service establishments (FSEs) aware of the requirements.

2.5.2 Quantitative Performance Measures

The revised MOM Program, approved on September 27, 2011, included 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 measures were achieved in FY 2013. The details of HRSD's performance are provided in Section 5 of this report.

2.6 Regional Wet Weather Management Plan

As part of the RWWMP, a Preliminary Capacity Assessment Report was completed and submitted to the EPA/DEQ on July 31, 2012. Comments were received from the EPA/DEQ on December 3 and a response was submitted by HRSD to the EPA/DEQ on January 31, 2013. A second set of comments was received on March 25, and HRSD replied to those comments on April 24.

Following completion of that submittal, the focus of the Localities and HRSD was on the Regionalization Study which was completed just after the end of FY 2013. HRSD actively participated in the Regionalization Study through the Steering Team and provided necessary information to the study consultant managed by the Hampton Roads Planning District Commission (HRPDC).

An amendment to HRSD's Consent Decree with the EPA and DEQ extended the deadline of the RWWMP past the original November 2013 due date until either February 2015, October 2015, or October 2016, depending on the results of the Regionalization Study. Because of the modification to the Special Order by Consent which tied the Rehabilitation Plan and RWWMP deadlines to HRSD's RWWMP deadline, this extension applies to the SOC as well.

HRSD held a technical workshop for the EPA and DEQ in December 2012, where information was provided on the progress of the system modeling and Capacity Assessment, along with other compliance program activities.

2.6.1 Comparative Analysis

As part of the Regionalization Study, HRSD has performed a Comparative Analysis which identifies the impact of regionalization on the costs of rehabilitation and wet weather management plan improvements. This analysis was performed for the non-regionalized and the regionalized scenarios. For the non-regionalized scenario, the Localities provided preliminary peak flow estimates (PPFEs) on November 26, 2012, based on their draft Rehabilitation Plans, and these flows were incorporated into the Comparative Analysis. This work was completed in July 2013, and incorporated into the Regionalization Study which was submitted to the EPA and DEQ on August 26, 2013.

2.6.2 Private Property I/I Abatement Program

HRSD has continued to work with Locality representatives through FY 2013 to develop a regional program that will reduce infiltration/inflow (I/I) from private sources over the long term. Work in FY 2013 largely consisted of developing a prototype program for use in the Comparative Analysis. This included obtaining data from the Localities on their sewer system networks and rehabilitation plans, and then developing private property I/I reduction estimates using these data.

In FY 2013, HRSD continued implementation of a set of pilot projects to evaluate the effectiveness of a private property I/I abatement program. The pilot project at Harton Circle in Virginia Beach was completed in April 2013 and identified a number of laterals that could potentially contribute I/I to the system. These laterals were repaired and HRSD will be monitoring the sewer basin flows for any impacts of the work. A third pilot program was developed and bid for the Campostella area in Norfolk. The majority of this work will be conducted in FY 2014.

2.7 SSO Emergency Response Plan

On December 14, 2012, HRSD submitted an annual update of the approved Sanitary Sewer Overflow (SSO) Response Plan to the EPA and DEQ. This updated plan was approved by the EPA and DEQ on January 22, 2013, and has been implemented by HRSD. A copy of the approved plan was posted to the www.HRSD.com website.

2.8 Coordination with Localities

There was a wide variety of coordination activities in FY 2013 amongst the regional parties to the SOC. These activities included:

- Numerous meetings of the Capacity Team to discuss SOC and Consent Decree issues, development of Regional Technical Standards (RTS) Interpretations, and providing guidance to the region on RTS issues;
- Meetings of the Model Users Group to discuss issues related to modeling;
- Briefings of the Directors' of Utilities Committee to share progress on compliance with the SOC and Consent Decree;
- HRSD provided an annual update to the Localities of the capacity-related SSOs that occurred in HRSD' system;
- A regional SharePoint website continues to be updated to collaborate with and provide documents to the regional Locality Team and Capacity Team; and
- Copies of the Preliminary Capacity Assessment Report, Final Condition Assessment Report, Annual Report, and Semi-Annual Report were provided from HRSD to the Localities.

2.9 Public Participation

HRSD conducted an annual information meeting regarding the progress of the Consent Decree on January 22, 2013. In addition, HRSD published a newsletter in February 2013, 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.

2.10 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.

2.11 Reporting

2.11.1 Annual Report

HRSD completed an FY 2012 Annual Report as required by both the SOC and Consent Decree, and submitted it to the EPA and DEQ on October 31, 2012. This report covered SOC and Consent Decree activities from July 1, 2011, through June 30, 2012. HRSD received comments from the EPA and DEQ on February 25, 2013, and HRSD submitted a response to comments on March 21, 2013.

2.11.2 Semi-Annual Report

HRSD completed a FY 2013 Semi-Annual Report as required by the Consent Decree, and submitted it to the EPA and DEQ on May 1, 2013. This report covered Consent Decree activities from July 1, 2012, through December 31, 2012. Comments were received on the Semi-Annual Report on May 20, 2013, with response provided by HRSD on June 19, 2013.

2.11.3 Quarterly Briefing

Quarterly briefings were held per Paragraph 90 of the Consent Decree, on July 24, 2012, and January 22, 2013, with attendance by HRSD, the EPA, and the DEQ. Representatives from Localities also attended the briefings. HRSD provided a summary for each of the briefings.

2.11.4 Technical Calls and Workshops

A teleconference to discuss the technical details of the work was held with DEQ, EPA and HRSD in March 2013. This call reviewed the progress of activities under the Consent Decree.

2.11.5 Sanitary Sewer Overflows

On October 29, 2012, HRSD submitted a letter to the EPA/DEQ claiming force majeure for sanitary sewer overflows (SSOs) which occurred as a result of the significant wet weather events in July and August 2012.

HRSD received a letter from the EPA/DEQ on December 5, 2012, requesting information regarding the force main failure on Wilroy Road during Hurricane Sandy. This response was submitted in January 2013 with a follow-up letter in March 2013.

2.12 Summary of Submittals

Table 1 summarizes the status of the documentation that HRSD has submitted to the DEQ under the SOC in FY 2013.

Table 1. Summary of SOC Submittals	
SOC Submittal	Submittal Date
SSO Response Plan Annual Update	December 14, 2012
Annual Report	November 1, 2012
Rehabilitation Action Plan	February 12, 2013

Table 2 summarizes the status of the documentation that HRSD has submitted to the EPA and DEQ under the Consent Decree in FY 2013.

Table 2. Summary of Consent Decree Submittals	
Consent Decree Submittal	Submittal Date
Quarterly Briefing	July 24, 2012
Preliminary Capacity Assessment Report	July 31, 2012
Annual Report	November 1, 2012
SSO Response Plan Annual Update	December 14, 2012
Quarterly Briefing	January 22, 2013
Final Condition Assessment Report and Rehabilitation Action Plan	February 12, 2013
Annual Newsletter	February 21, 2013
Semi-Annual Report	May 1, 2013

3. COMPLIANCE DEADLINES AND MILESTONES

In FY 2013, HRSD expended considerable resources in both time and money to achieve the compliance goals of the SOC and Consent Decree. All deliverables were submitted on or before their due dates, including those with short timeframes for response. The table below provides a general summary of the major Consent Decree deadlines and the status of each.

Table 3. 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	Ongoing
26	Preliminary Condition Assessment Report	Complete
27	Final Condition Assessment Report (FY 2013)	Complete
27	Final Condition Assessment Report (FY 2014)	Ongoing
29	Interim System Improvements	Ongoing
33	Management, Operations, and Maintenance Program	Complete
39	Preliminary Capacity Assessment Report	Complete
40	Comparative Analysis	Ongoing
40	Regional Wet Weather Management Plan	Ongoing
60	Short Term Wet Weather Operational Plan	Complete
69	Sanitary Sewer Overflow (SSO) Response Plan	Complete
71	Annual Updates to SSO Response Plan	Ongoing
77	Annual Informational Newsletters	Ongoing
78	Annual Public Meetings	Ongoing
87	Annual Reports	Ongoing
88	Semi-Annual Reports	Ongoing
90	Quarterly Briefings	Ongoing

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4. CONDITION ASSESSMENT ACTIVITIES DURING FY 2013

HRSD has continued with its Condition Assessment Program in FY 2013 with significant progress made in many aspects of the program. The following subsections describe the progress made in each aspect.

4.1 Force Main

As of June 30, 2013, all Level 1 inspections for Group 1, Group 2, and Reservoir segments have been completed (see Condition Assessment Plan for details on inspection approaches). For the October 15, 2013, milestone, only Level 2 inspection of Ferrous segments remains and HRSD is on track to meet the completion date. Through June 30, 2013, approximately 86,000 linear feet (LF) have been completed with 4,000 LF remaining to complete in FY 2014.

4.2 Prompt Repairs

As part of the Condition Assessment Program, HRSD has identified 50 defects in the HRSD sanitary sewer system (primarily gravity sewer pipe and manholes) which have been deemed to be Prompt Repairs through June 30, 2013. These 50 defects have been grouped into 28 repair work orders and are currently in various stages of planning, design, construction or are complete. Of the 50 defects, 34 have been repaired through June 30, 2013. The following Table 4 provides details on all the Prompt Repairs identified to date.

Table 4. Summary of Prompt Repairs

Name	Location	Jurisdiction	Line Number	Summary of defect	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	Complete
Beach Road	West side of Beach Road opposite intersection with Wade Road between MH NG-088-0 and NG-088-155.	Hampton	NG-088	Pipe connection at manhole needs repair	Complete
	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	
	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	North King St.	Hampton	NG-063	Manhole defects	Complete

Table 4. Summary of Prompt Repairs					
Name	Location	Jurisdiction	Line Number	Summary of defect	Status
Manholes	North King St.	Hampton	NG-078	Manhole defects	
	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 Street and 41st Street	Newport News	NG-114	Mainline pipe defects	Complete
	Jefferson Ave between 39th and 40th Street	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	
	Newtown Rd. approx. 415 ft. north of Princess Anne Rd.	Virginia Beach	SG-113	Manhole defects	Complete
	Newtown Rd. at Elam Ave.	Virginia Beach	SG-113	Manhole defects	
Mercury Blvd	West Mercury Blvd	Hampton	NG-057	Mainline pipe defects	
	West Mercury Blvd; near Beechwood Rd.	Hampton	NG-057	Mainline pipe defects	Developing Work Order
	West Mercury Blvd	Hampton	NG-057	Mainline pipe defects	
Various Repairs	North Hope Street	Hampton	NG-160	Pipe lining failure	
	Old Atlantic Avenue; near intersection with Liberty Street	Chesapeake	SG-148	Pipe lining failure	Complete
	South of Steamboat Creek Pump Station	Norfolk	SG-102	Manhole defects	
Witchduck	South Witchduck Road	Virginia Beach	SF-141	Corroded FM bolts	Complete
Pin Oak Rd	Pin Oak Road; Residential neighborhood	Newport News	NG-175	Mainline Pipe Defects	Complete
Bainbridge Blvd	Bainbridge Blvd near I-464	Norfolk	SG-145	Mainline Pipe Defects	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	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	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	Complete
Wythe Lagoon	Chesapeake Ave at Wythe Lagoon	Hampton	NG-151	Siphon defects	Complete
Shipyard Sewer	31st Street	Newport News	31st connector	Mainline Pipe Defects	Developing Work Order
	33rd Street	Newport News	33rd Connector	Mainline Pipe Defects	
	38th Street	Newport News	38th Connector	Mainline Pipe Defects	

Table 4. Summary of Prompt Repairs					
Name	Location	Jurisdiction	Line Number	Summary of defect	Status
Pump Station Hatches	Ingleside Road Pump Station	Norfolk	PS#148	Wet Well Hatch	In Construction
Pump Station Wet Wells	Rodman Ave Pump Station Wet Well	Portsmouth	PS#145	Wet Well Defects	Developing Work Order
Chesterfield Blvd	Pipeline section near Chesterfield Blvd PS	Norfolk	SG-207	Mainline Pipe Defects	Complete
Luxemburg Ave	Influent line to Luxemburg Avenue pump station.	Norfolk	SPS-113	Defect at manhole connection	Complete
Gowrie and Farragut	Manhole near creek at end of Gowrie Avenue	Norfolk	SG-068	Manhole defects	Developing Work Order
	Manhole near creek at end of Farragut Avenue	Norfolk	SG-068	Manhole defects	
State Street FM	Replace section of force main	Norfolk	SF-097	Thin pipe wall discovered	Complete
Berkley Ave	Manhole rehab	Norfolk	SG-098	Wall defects	Developing Work Order
	Manhole rehab	Norfolk	SG-098	Wall defects	
Newmarket Creek	Manhole upstream of Newmarket Creek PS north of creek	Newport News	NG-127	Wall defects	Developing Work Order
	Orcutt Ave and Paul Street	Newport News	NG-127	Corroded pipe	
	Orcutt Ave and Paul Street	Newport News	NG-127	Old repair needs correction	
Laskin Road	Replace section of force main	Virginia Beach	SF-135	Pipe damaged by contractor	Complete
Elizabeth River	Replace section of force main	Chesapeake	SF-143	Corroded pipe	In Construction
14th Street	Replace manhole	Newport News	MH-NG-130X-9601	Manhole defects	Developing Work Order
Mercury and Orcutt	Repair pipe and manhole	Hampton	MH-NG-127-3791 NG-127	Manhole and pipe defects	Complete
Army Base	Pipe repair	Norfolk	SG-003-13950	Pipe deteriorated	Developing Work Order

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5. MOM PERFORMANCE MEASURES FOR FY 2013

HRSD has implemented its MOM Program activities in conjunction with the requirements of the Condition Assessment Program and other aspects of the Consent Decree and SOC programs. Table 5 below provides a status update on the specific Performance Measures listed in Paragraph 34 of the Consent Decree.

Table 5. MOM Performance Measures

Consent Decree Paragraph	Section	Goal	Performance Measure	Target	FY 2013 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	98,185 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	3,274 ARV PMs	Performance exceeded target	2.8
34.c.	Gravity Sewer Cleaning	Obstructions in Gravity Sewer systems are a primary cause of SSOs in these systems, and the systematic cleaning of the system is necessary to remove debris and accumulations of solids from all sources and reduce SSOs.	Perform cleaning of HRSD gravity sewers to remove debris. Linear feet cleaned per year	26,400 linear feet cleaned per year	207,724 LF Cleaned	Performance exceeded target	2.9
34.d.	Pump Station Annual PMs (Mechanical)	Maintain the pump stations to protect the public safety, to protect the environment, reduce SSOs and to achieve the maximum service life from the pump stations.	All pump stations are to receive the Annual Inspection as described in the Interceptor Systems Preventive Maintenance Manual.	81 pump stations inspected per year	83 (102%)	Performance exceeded target	2.7

Table 5. MOM Performance Measures							
Consent Decree Paragraph	Section	Goal	Performance Measure	Target	FY 2013 Actual Performance	Comment	MOM Program Section No.
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.	81 pump stations inspected per year	82 (101%)	Performance exceeded 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 back up generator is to receive an annual preventive maintenance inspection.	55 generators to receive PM per year	81 (147%)	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	2,800 LF Inspected	Performance exceeded target	2.8

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

6. SYSTEM PERFORMANCE DURING FY 2013

6.1 Modifications to HRSD Operating Pressures

HRSD has made no changes to its current Pressure Policy as detailed in the most recent version of "Development Plan 2000."

6.2 STP Performance

The HRSD system experienced several significant wet weather events in FY 2013 that led to flow increases at the treatment facilities. In addition, construction related to the nutrient control program was ongoing at several of the treatment plants with minor operational events that contributed to discharges from the facilities. Table 6 (below) provides details on the twenty-four (24) discharges from July 1, 2012, to June 30, 2013. The majority of these occurrences were fully treated effluent. This is an extraordinary record for such a large system with nine major treatment plants particularly given the ongoing construction and weather events which we experienced during the period and a number of upset events to our system and related systems such as those of our power provider.

6.3 Conveyance System Performance

For the reporting period of July 1, 2012, through June 30, 2013, HRSD experienced 45 sanitary sewer overflows (SSOs) from its system. Thirty-four (34) of the 45 SSOs were capacity-related and can be divided as follows:

- June 20 – Intense rainfall event with approximately 4 inches of rain in just over 3 hours accounted for 1 of the 34 capacity-related SSOs;
- August 11 - Intense rainfall event with approximately 2.63 inches of rain in 2 hours (and 3.22 inches total) accounted for 2 of the 34 capacity-related SSOs;
- August 25 to 28 - Accounted for 16 of the 34 capacity-related SSOs and was localized in a band across the central portion of the HRSD system (Suffolk, Portsmouth, southern Newport News, Hampton, and Norfolk) included total rainfall of up to 7 inches with rainfall recurrence intervals that in some cases exceeded 100-years;
- October 27 to 29 - Hurricane Sandy accounted for 10 of the 34 capacity-related SSOs;
- February 8 – Heavy rain totaling between 2 and 2.5 inches led to 3 of the 34 capacity-related SSOs;
- May 23 – Intense rain event in Williamsburg area with more than 4-inches of rain in less than three hours accounted for 1 of the 34 capacity-related SSOs; and
- June 7 – Tropical Storm Andrea accounted for 1 of the 34 capacity-related SSOs;

All of these events are detailed in the Sanitary Sewer Overflow Reporting System (SSORS). Details on these events are available in Table 7.

6.4 LOP Status

As listed in Appendix 1 of the Consent Decree, seventeen (17) Locality Overflow Points (LOPs) have been identified in the Regional Sanitary Sewer System. Prior to the Preliminary Capacity Assessment Report,

HRSD and the specific Locality coordinate any time an LOP activates to review the cause and circumstance of the SSO.

In this reporting period, HRSD has coordinated with the applicable Localities regarding the handful of activations from their LOPs, which are described in more detail below.

6.4.1 City of Chesapeake: LOP No. 22

The City of Chesapeake experienced an SSO from their LOP No. 22 at City PS 107 (743 Providence Road) during this reporting period during Hurricane Sandy on October 29, 2012. This LOP activated with 6.32 inches of rain being recorded at a nearby HRSD rainfall gauge during a 72-hour period, translating into an 5-year event for the 72-hour period. The wet weather event produced conditions that exceeded the capabilities of the City PS 107. The City has implemented an SSES Program as well as a Find and Fix Program to reduce I/I in the collection system. Wastewater facilities in this area are being evaluated as part of the RWWMP to identify possible capacity improvements.

6.4.2 City of Williamsburg: LOP No. 30

The City of Williamsburg experienced an SSO from their LOP No. 30 during this reporting period on May 24 and June 9, 2013. This LOP activated during significant rainfall events in the Williamsburg Treatment Plant service area which produced more than 4 inches of rain for the May 23-24 event and another 7 to 10 inches during Tropical Storm Andrea on June 7-9. These wet weather events produced conditions that exceeded the capabilities of the wastewater facilities. The City is implementing an SSES Program as well as a Find and Fix Program to reduce I/I in the collection system, and HRSD is addressing pumping capacity as part of the Regional Wet Weather Management Plan. These rainfall events were above a level of service that is feasible to attain, and therefore, no additional steps are appropriate.

6.4.3 City of Portsmouth: LOP No. 35

LOP No. 35 is at South Street and Rose Avenue in Portsmouth. During the Hurricane Sandy wet weather event of October 29, 2012, this LOP activated with 5.47 inches of rain being recorded at a nearby HRSD rainfall gauge during a 72-hour period. The City is currently implementing projects to address the LOP, including the sewer rehabilitation projects and performing SSES in the system. Wastewater facilities in this area are being evaluated as part of the RWWMP to identify possible capacity improvements.

6.4.4 James City Service Authority: LOP No. 49

JCSA experienced SSOs from their LOP No. 49 at LS3-3 during this reporting period on October 29, 2012 (Hurricane Sandy), May 24, 2013, and June 7, 2013. The LOP activation on October 29 resulted from more than 4.4 inches of rain during the hurricane from October 27 to 29. This LOP also activated during significant rainfall events in the Williamsburg Treatment Plant service area which produced more than 4 inches of rain for the May 23-24 event and another 7 to 10 inches during Tropical Storm Andrea on June 7-9.

These wet weather events produced conditions that exceeded the capabilities of the LS3-3. JCSA is implementing an SSES Program as well as a Find and Fix Program to reduce I/I in the collection system. Wastewater facilities in this area are being evaluated as part of the RWWMP to identify possible capacity improvements.

6.4.5 James City Service Authority: LOP No. 57

JCSA experienced an SSOs from their LOP No. 57 at LS4-2 during this reporting period on May 24, 2013. This LOP activated with more than 4 inches of rain being recorded at a nearby HRSD rainfall gauge. The wet weather event produced conditions that exceeded the capabilities of the LS4-2. JCSA is implementing an

SSES Program as well as a Find and Fix Program to reduce I/I in the collection system. This rainfall event was above a level of service that is feasible to attain, and therefore, no additional steps are appropriate.

6.4.6 City of Hampton: LOP No. 76

The City of Hampton experienced SSOs from their LOP No. 76 during this reporting period on August 28, 2012, and February 8, 2013. In August 2012, this LOP activated with 6.9 inches of rain measured at an adjacent gauge in less than 6 hours which exceeds to a 100-year recurrence interval. The February activation resulted from more than 2.5-inches of rain in 12 hours.

These wet weather events produced conditions that exceeded the capabilities of the wastewater facilities. The City is implementing an SSES Program as well as a Find and Fix Program to reduce I/I in the collection system, and the City and HRSD are addressing capacity along this corridor with improvements to the City's Pump Station 23 and a reroute of its force main directly to HRSD's Langley Circle PS which bypasses this LOP location. These rainfall events were above a level of service that is feasible to attain, and therefore, no additional steps are appropriate.

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Table 6. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2012, to June 30, 2013)

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
7/11/2012	VIP	Final effluent sample pipe was leaking at the junction box. The line carries flow from the final effluent sampling point in the junction box to the sampling sink in the pipe gallery. The plant effluent rate peaked at 75 MGD due to rainfall in the area coinciding with high tide in the Elizabeth River. This caused the level in the junction box to rise. The sealed connection of the final effluent sample pipe failed due to the pressure from the increased water level in the junction box. Fully treated, chlorinated and dechlorinated final effluent leaked from the connection. It flowed down the side of the junction box and into the canal leading to the Elizabeth River. There was no environmental impact.	240	The leaking connection pipe was sandbagged to temporarily contain the leak. The leak stopped when the water level in the junction box dropped. The fittings were replaced and the line was back in service by July 13.	480	480	NPW*	Elizabeth River	
8/8/2012	Army Base	Contractor doing the plant upgrade broke a 6" NPW line while excavating the area.	30	Plant staff closed the isolation valve to secure flow to the pipe to stop the spill. Most of the spill was recovered and pumped back into the plant system. Contractor replaced the broken fitting and the line was placed back in service.	1300	300	NPW*	Elizabeth River	
8/9/2012	York River	Fitting on hypochlorite solution feed line failed. Solution leaked into bottom of manhole for four days before discovery. The plant staff noticed that the hypochlorite solution feed rate to the chlorine contact tank was elevated. Plant reviewed other data to determine if there had been an increase in chlorine demand due to treatment process issues. After eliminating potential sources of increased demand, the chemical manhole system was inspected. Hypochlorite solution is fed through ½ inch tubing. The tubing is housed inside of 2 inch PVC pipe. The manholes are locations where tubing connections are made to provide maintenance access. At approximately 11:00 am on August 9, 2012, the plant discovered a cracked chemical tubing connector (barbed fitting) in the manhole closest to the chlorine contact tank.	5970	The plant switched to an alternate feed system to maintain disinfection to the effluent and stopped the leak at 11:30 am. Approximately 50 gallons of solution was pumped from the manhole and returned to the plant system. The manhole has a gravel bottom and therefore, the remainder of the solution soaked into the ground below the manhole. The cracked fitting was replaced. After a post-incident review of the plant records, it is estimated that the leak started about 8:00 am on August 5, 2012.	1200	1150	12.5% hypochlorite solution	Elizabeth River	
8/12/2012	Nansemond	The carbon feed facility fire suppression system was activated due to an electrical malfunction in a pull box. The fire suppression system pumped foam and water into one of the tanks containing the carbon source Micro C-3000 causing the tank to empty its contents into the containment area.	133	Operator confirmed that there was no actual fire and then secured the water valve at the fire suppression system to stop the flow. Additional water was pumped into the containment area to dilute the Micro C-3000, water and foam to a nonflammable mixture. Mixture was then pumped into an empty aeration basin so it could be slowly fed back into the plant system for treatment.	7497	0	Micro C-3000 carbon source	not applicable	
8/25/2012	James River	Primary clarifiers overflowed from underneath the tank covers due to high plant flows during a major wet weather event. Plant rain gauge recorded seven inches of rain for the day.	300	Around 10:00 am, the flow was reduced going to this train by partially closing the grit influent gate, forcing more flow to go into the other preliminary/primary train. Spill stopped when plant influent flow decreased. Area was cleaned. Most of spill flowed into plant drain system and went back to head of plant. Rest of spill soaked into the ground.	6,000	2000	wastewater	ground	

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Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
8/28/2012	Boat Harbor	Influent manholes overflowed due to high plant flows during a major wet weather event. Plant flow meter maxed out at 66 MGD. HRSD Copeland Park Pump Station rain gauge recorded 7.21" of rainfall from 4:45 pm to 10:15 pm.	155	Put all available tanks in service. Overflow stopped when plant flow rate decreased.	77,500	77,500	wastewater	ground/James River	
8/31/2012	Atlantic	Landscape contractor ran over a cleanout and tore off the blind flange of the digested solids transfer line. Digested solids overflowed onto the ground, sidewalk, and adjacent street.	13	Plant staff secured all transfer pumping, closed isolating valves and covered all adjacent stormwater manholes. Recovered spilled solids by squeegee and pumping. Inserted plug in cleanout riser and made repairs to the flange. Recovered as much of liquid as possible.	1050	50	wastewater	ground	
9/9/2012	York River	Plant lost utility power and went on emergency generator power. Control panel indicated that utility power was available so operator initiated switch from generators back to utility power. One of the three phases of power was still out so transfer failed. Operator could not get plant back to emergency generator power due to being locked out by breakers. Contact tanks overflowed due to no power to effluent pumps.	20	Electrician reset breakers and manually transferred power to emergency generators. Overflow stopped once effluent pumps were restarted. Operator had set up temporary generator to continue hypochlorite solution feed to the tank.	148148	148148	NPW*	ground/Back Creek	
10/17/2012	Atlantic	The 1.5 inch threaded nipple connection on the NPW line used for flushing grit tank discharge failed due to corrosion. Spill went onto floor of primary treatment building. Most of spill went into floor drains leading into plant system but small amount flowed out the door of the facility and soaked into the ground.	6	Operator secured valves to stop flow in line. The connection was replaced. Affected area inside of building was cleaned. Remainder soaked into ground outside of building and could not be recovered.	5000	50	grit/NPW*	ground	
10/29/2012	VIP	Heavy rainfall, high tide levels, and northwest wind direction due to hurricane Sandy caused plant flows to increase in excess of 84 MGD. As designed, a portion of the fully treated, chlorinated and dechlorinated final effluent went over the short outfall weir and discharged via permitted outfall 002 in addition to discharging via outfall 001.	722	Plant flow decreased as storm passed and discharge from outfall 002 ceased.	3950000	3950000	NPW*	canal to Elizabeth River	
10/29/2012	Boat Harbor	Return activated solids chamber for secondary clarifier foamed up and spilled over the wall of the tank. Overflow went onto the grass and down the storm drain. Operator did not observe the overflow but found evidence of it. The overflow was discovered as plant flows were beginning to peak above 50 MGD, during the worst of Hurricane Sandy. There is a chance that the increased foam causing the overflow was a result of elevated influent flows and increased turbulence in the aeration tanks. No environmental impact as this minor release occurred during Hurricane Sandy.	1	Cleaned up all of the foam that could be recovered and washed the surface area of the chamber into the clarifier. Knocked down the foam that was building up within the chamber with a high pressure hose to prevent future problems.	50	45	wastewater	James River	

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Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
11/8/2012	Boat Harbor	A slow leak of approximately 1 gpm was discovered bubbling up to the surface of the ground at the secondary clarifier effluent chamber, above the 54-inch pipe. The 54-inch pipe carries flow from the secondary clarifier effluent chamber to the chlorine contact tank. Plant staff changed the location of the hypochlorite solution feed point upon discovery of the leak.	unknown	A sump was dug beside the chamber and a pump installed to pump flow back to the plant system. It took two attempts over the following week to dewater the pipe and chamber to allow an inspection to determine the source of the leak. Once it was determined that the chamber was the source of the leak and not the pipe, the sump was dug deeper to capture more of the flow from the leak. Foam was injected into the chamber on 12/7/2013 to seal the leak. After the repair was made and the chamber was placed back in service, another very small leak was observed. A half inch hole was discovered in the chamber wall. A plug was installed temporarily until foam could be injected as a final repair.	unknown	unknown	secondary clarifier effluent	ground	
11/13/2012	Boat Harbor	A 4-inch NPW valve flange cracked, allowing water to spray out the door of the contact tank valve room. The line is used when the plant is feed hypochlorite solution to the diffusers. Disinfection was not affected because plant was able to switch hypochlorite feed to the secondary clarifier chamber.	5	Operator secured the NPW pump to stop flow and closed a valve upstream of the broken valve. Room is very small and door opens to grassy area beside the street. Water flowed down the street and into the storm drain before it could be contained and recovered. The flange was replaced.	900	900	NPW*	ground/James River	Operator had checked room at 2:00 am and everything was working properly. Operator discovered leak at 2:30 am so spill estimate is based on worst case scenario of flange failing immediately after 2:00 am and leaking until secured at 2:35 am.
11/13/2012	Boat Harbor	A 4-inch NPW line to the contact tank diffusers failed when a maintenance operator was shutting the valve. The line was cracked and repaired earlier in the day. The repair failed because the glue had not completely set. Operator was attempting to place the line back in service to restore hypochlorite solution feed to the diffusers.	20	Maintenance operator immediately shut off flow to the blown line and covered the storm drains. He opened the manholes to the plant drain system so the majority of spill went back to the plant headworks. It took approximately 20 minutes for line to finish draining. The line was repaired and glue was allowed to set overnight before line was placed back in service.	1000	100	NPW*	ground	
11/21/2012	Nansemond	A coupling failure on one of the sanitary pumps caused the wet well level to rise . The remaining pump was not able to keep up with the inflow to the wet well and it overflowed from the eyewash drain pipe. The drain inlet at the eyewash station overflow and the spill went down the roadway to the storm drain inlet leading to the stormwater pond.	5	Plant operator opened the cross-connect valve between the sanitary and plant drain wet wells to reduce the sanitary wet well level to stop the overflow. The sanitary pump coupling was replaced and the pump put back into service. The overflow on the roadway was washed down to the stormwater pond. The stormwater pond level was well below the discharge weir. The entire contents of the stormwater pond was pumped back into the plant drain system.	16000	0	wastewater	NA	
11/29/2012	James River	The bubbler level control system in the drain pump station wet well failed causing the drain pump station pumps to not come on as needed. This resulted in the plant drain system backing up and overflowing out one of the manholes.	5	The plant reset the bubbler level control system. The drain pumps started and stopped the overflow. Plant personnel installed containment around the two affected storm drains and pumped the contained spill water back into the plant system. Plant recovered approximately one-half of the overflow with the remainder entering the storm drain.	200	100	wastewater	Flax Mill Creek to Warwick River	

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11/30/2012	Atlantic	Due to failure of the makeup water flow meter, the plant operator manually set the NPW scrubber dilution flow rate higher than normal. This caused the odor control scrubber pump to overflow into the intake plenum. The diluted makeup water drained onto the ground from the open condensate drain on the intake duct.	60	Operator secured the water flow to allow the scrubber to drain and the overflow stopped. The flow meter was examined and a loose wire was found. The wire was tightened and the meter placed back in service.	75	75	NPW*	ground	
12/26/2012	Nansemond	The service area received heavy rainfall which resulted in high flows at the plant. Primary clarifiers #1 and #2 became hydraulically overloaded. Clarifiers #3 and 4 were out of service for maintenance and repair. The increased plant flow overflowed the hatch covers in the distribution box for clarifiers 3 and 4.	15	Operator opened the influent gate to the clarifier #3 to allow flow into the empty clarifier. This reduced the level in the distribution box and stopped the overflow.	8900	8900	wastewater	Streeter Creek	
2/11/2013	Army Base	Underground 2" PVC pipe used to feed 12% ferric chloride solution failed causing solution to leak into ground/pea gravel surrounding the pipe. Pipe is located under roadway pavement and was broken at the coupling. It is suspected that pipe broke due to heavy equipment and trucks travelling in the area.	unknown	The plant staff secured chemical feed and repaired the broken 2" PVC pipe on 2/11/13. At this time the spill was estimated at less than 20 gallons which had been recovered completely. The affected soil was dug up, neutralized, and sent to a landfill. When the plant staff returned on 2/12/13 to backfill the excavation, they discovered more solution had seeped into the pit from the surrounding soil. Pea gravel had been used to backfill pipe during initial installation. Plant staff removed additional gravel and soil to ensure all of the solution had been recovered. Based on the amount of soil excavated, it is estimated that total amount of spill was 100 gallons.	100	0	ferric chloride solution	ground	
2/12/2013	Army Base	Hose in barscreen was improperly angled toward the garage door and nonpotable water (NPW) was running out underneath the door into the ground outside of barscreen building. The hose is used to spray to the barscreen. NPW is fully treated and chlorinated final effluent.	5	Moved hose back to proper position and secured NPW flow from specified hose.	40	40	NPW*	ground	
2/12/2013	Boat Harbor	Total loss of power occurred around 3:35 pm on 2-11-13. The plant went to backup generators due to loss of utility power. Dominion Power crews responded to the outage and determined that there was a blown fuse on their offsite transformer. Dominion Power replaced the fuse and notified HRSD that the plant could return to utility power due to reading that power was available. However, when HRSD attempted to transfer to utility power at 12:45 am there was no available power and the transfer failed. At 12:47 am the plant attempted to go back on generator power. The generators came on and assumed plant load but the generator breaker did not close due to seeing false available power and the electric radiator fans did not run. The generator radiators are programmed to start when the generator breaker closes, and as a result the generators shut down on high temperature. At 1:38 am, the raw influent began to overflow from the manhole at the NW corner of the headworks building (west RWI chamber) as well as out of two manholes (MH-	10	The generator building louvers were opened to cool the engines. The radiator breaker was manually reset and at 1:45 am, Generator #1 was restarted and assumed plant load. The raw influent pumps were restarted and the manhole overflows stopped at 1:48 am. Approximately 10% of the spill was recovered by the plant drain system returning the overflow to the plant headworks. The west RWI chamber open manhole served as a 24" drain back into the plant system for the standing water when the raw influent pumps restarted. Interceptor crews recovered all standing wastewater on Terminal Avenue. HRSD staff spread powdered lime on the affected gravel parking surfaces and grassy areas north of the plant on city property. The plant remained on generator power until Dominion Power could make repairs.	173611	156250	wastewater	Small Boat Harbor	It was concluded that the main Dominion Power transformer located on plant site had failed even though it showed readings of voltage adequate to run the plant. Dominion Power replaced the transformer and the plant returned to utility power at 12:24 pm without incident. HRSD had a contractor review the programmable logic control (PLC) system for the generator due to the issue with the radiator

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Date	Location	Description/Cause	Duration of Event (minutes)	Corrective Action	Estimated Quantity Discharged (gallons)	Estimated Quantity to State Waters (gallons)	Type of Overflow	Receiving Water	Comments
		NG-1241-1307 and MH-NG-125-1167) located just north of the plant fence on city property. A portion of the overflow went back into the plant drain system but the rest of the flow went into the storm drains leading to Small Boat Harbor.							breaker. The contractor found that the backup PLC was corrupted during the power issues and re-programmed it.
4/11/2013	York River	Plant operator found a puddle at the south end of the chlorine contact tank around a nonpotable water (NPW) hydrant. Operator shut the valve on the hydrant to stop the leak and took measurements to estimate the spill volume. The puddle measurements were 8ft x 7ft x .25ft so spill was estimated to be 105 gallons of NPW.	1	Operator closed the NPW hydrant valve to stop the leak. The hydrant did not require repairs. The valve only needed to be tightened so it would close completely. The puddle soaked into the ground before it could be recovered.	105	105	NPW*	ground	
4/12/2013	Boat Harbor	A 4" nonpotable water (NPW) pipe coupling separated allowing water to leak onto the ground. The coupling was excavated and the leak was being controlled by pumping NPW back into the plant system. The coupling was scheduled to be repaired during the day shift. Operator checked the pump at 1:05 am and there was no problem at the time. The pump locked up sometime between 1:05 am and 3:45 am allowing water to fill the excavation and overflow the curb to the roadway. The NPW entered a storm drain leading to Small Boat Harbor.	<160	Operator replaced the sump pump and stopped the overflow. The coupling was cut out and replaced with flanges and a spool piece on April 12 as a permanent repair to the problem.	564	564	NPW*	Small Boat Harbor	Flow estimate based on the worst case scenario of pump failing immediately after being checked at 1:05 am.
5/9/2013	VIP	During excavation by contractor, the drain pipe valve of the #4 secondary clarifier tank broke loose from the pipe, causing the contents of the secondary clarifier to flow out of the tank. Due to construction work on the drain pipe, the valve was no longer restrained with concrete supports. This resulted in the valve breaking loose from the drain pipe during the excavation.	260	The influent flow to the secondary clarifier was secured by plant staff. Containment ponds were immediately created by the contractor in the area surrounding the break and additional flow was contained in the plant's pipe gallery. Plant recycle pumps were utilized to empty a large portion of the secondary clarifier tank. Temporary pumps were mobilized and recovered the majority of the water contained in the ponds created by the contractor and pumped back into the plant process. A small portion of water overflowed the ponds and entered the ditch on the south side of the plant leading to the Elizabeth River. Plant staff began feeding hypochlorite solution to the contents of the secondary clarifier within one of hour of the start of the problem.	1410000	80000 to 100000	wastewater	Elizabeth River	

*NPW – Non-potable water (treated effluent)

Table 7. Detailed Listing of HRSD SSDs (July 1, 2012 to June 30, 2013)

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**	Amount Reaching State Waters**	DEQ IR	Occurred in previous five years at same location
7/20/2012 21:52	540 S. England Street	Williamsburg Pump Station	ground	Williamsburg	Capacity-Weather Related	Heavy rain due to storm in area produced high flows which caused wetwell at station to overflow. Rain gauge recorded 3.97" of rain in 3.25 hours.	2 hour(s) 11 minute(s)	Checked pump station to ensure pumps were operating properly. Cleaned and limed area.	45,850	45,850	SSORS#2013-T-103429	Yes
8/11/2012 14:34	223 River Road	Hilton School Pump Station	James River	Newport News	Capacity-Weather Related	High flows from rain storms caused manhole outside of station to overflow. Rain gauge at Hampton PS154 recorded 2.63" of rain in two hours with a total of 3.22" recorded over an eight-hour period.	1 hour(s) 33 minute(s)	Checked station to ensure pumps were operating properly. Final release amount adjusted slightly from initial estimate.	1,590	1,590	SSORS#2013-T-103452	No
8/11/2012 14:44	315 Center Avenue	Center Avenue Pump Station	Government Ditch to James River	Newport News	Capacity-Weather Related	High flows from rain storms caused station to overflow at weir structure outside station. Rain gauge at Morrison Pump Station recorded 2.09" of rain in two hours.	4 hour(s) 46 minute(s)	Checked station to ensure 12-inch auxiliary pump was operating properly. Flow estimate calculated using weir meter.	353,508	353,508	SSORS#2013-T-103453	Yes
8/25/2012 6:32	315 Center Avenue	Center Avenue Pump Station	James River	Newport News	Capacity-Weather Related	Storms with heavy rain caused station to overflow. Rain gauge at Morrison Pump Station recorded 6.15" of rainfall from 5:30 am to 7:15 am. A total of 7.63" of rain was recorded for a 9-hour period.	14 hour(s) 8 minute(s)	Checked pump station to ensure pumps were operating properly. Overflow estimate calculated using weir meter.	1,053,571	1,053,571	SSORS#2013-T-103459	Yes
8/25/2012 6:09	223 River Road	Hilton School Pump Station	James River	Newport News	Capacity-Weather Related	Storms with heavy rain cause station wet well and manhole to overflow. Rain gauge at Morrison Pump Station recorded 6:15" of rainfall from 5:30 am to 7:15 am. A total of 7.63" of rain was recorded during a 9-hour period.	2 hour(s) 46 minute(s)	Checked station to ensure pumps were operating properly. Start and stop times were modified slightly from initial notification but duration of problem remained the same.	16,600	16,600	SSORS#2013-T-103460	Yes
8/25/2012 7:59	215 G. Avenue	Patrick Henry Pump Station	Ditch to Lucas Creek	Newport News	Capacity-Weather Related	Storms with heavy rain caused pump station to overflow at flume outside of station. Rain gauge at Lucas Creek Pump Station recorded 5.32" of rain from 5:30 am to 8:00 am. A total of 6.39" of rain was recorded for an 8-hour period.	7 hour(s) 58 minute(s)	Checked station to ensure pumps were operating properly. Area was flooded so amount could not be estimated. Start and stop times modified slightly from initial modification but duration of problem remained the same.	-1	-1	SSORS#2013-T-103461	Yes
8/26/2012 17:39	315 Center Avenue	Center Avenue Pump Station	James River	Newport News	Capacity-Weather Related	Pump station overflowed at the weir structure due to high flows from rainfall. Rain gauge at Morrison Pump Station recorded 1.24" of rainfall in two and a half hours. This was in addition to the large amount of rain received on August 25. Rain gauge at Morrison recorded a total of 9.16" of rainfall from August 25 5:30 am to August 26 6:30 pm.	5 hour(s) 10 minute(s)	Checked pump station to ensure pumps were operating properly. Overflow estimate calculated using weir meter.	190,282	190,282	SSORS#2013-T-103484	Yes
8/28/2012 17:27	315 Center Avenue	Center Avenue Pump Station	James River	Newport News	Capacity-Weather Related	Heavy rain from severe storm caused pump station to overflow at the weir structure outside of station. The rain gauge at Copeland Park Pump Station recorded 7.21" of rain in 5.5 hours.	9 hour(s) 54 minute(s)	Checked station to ensure pumps were operating properly. Overflow estimate calculated using weir meter.	657,953	657,953	SSORS#2013-T-103497	Yes
8/28/2012 17:32	223 River Road	Hilton School Pump Station	James River	Newport News	Capacity-Weather Related	Heavy rain from severe storm caused pump station to overflow from both the wetwell and the manhole outside the station. The rain gauge at Copeland Park Pump Station recorded 7.21" of rain within 5.5 hours.	2 hour(s) 44 minute(s)	Checked pump station to ensure pumps were operating properly.	4,920	4,920	SSORS#2013-T-103498	Yes

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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**	Amount Reaching State Waters**	DEQ IR	Occurred in previous five years at same location
8/28/2012 20:43	5734 Chesapeake Boulevard	Chesapeake Boulevard Pump Station	Wayne Creek	Norfolk	Capacity-Weather Related	Heavy rain within a short duration of time caused flows to increase and pump station to overflow. Rain gauge at Luxembourg Avenue Pump Station recorded 2.20" of rain within four hours.	2 hour(s) 32 minute(s)	Checked station to ensure pumps were operating properly.	16,920	16,920	SSORS#2013-T-103499	Yes
8/28/2012 22:12	858 Jamestown Crescent	Jamestown Crescent Pump Station	Lafayette River	Norfolk	Capacity-Weather Related	Heavy rain within a short duration of time caused flows to increase and pump station to overflow. Rain gauge at Luxembourg Avenue Pump Station recorded 2.20" of rain within four hours.	9 hour(s) 40 minute(s)	Checked station to ensure pumps were operating properly. Overflow stopped briefly when system was re-valved into gravity main at Monroe Place PS. However, this caused Monroe PS to overflow so system was restored to original configuration. Flow was valved back to Monroe after well at Monroe dropped to the point where it could accept additional flow. Part of spill was recovered during cleanup operations.	14,850	14,650	SSORS#2013-T-103500	Yes
8/28/2012 20:32	900 Hanover Avenue	Hanover Pump Station	Lafayette River	Norfolk	Capacity-Weather Related	Heavy rain within a short duration of time caused flows to increase and pump station to overflow. Rain gauge at Luxembourg Avenue Pump Station recorded 2.20" of rain within four hours.	11 hour(s) 13 minute(s)	Checked station to ensure pumps were operating properly. Overflow stopped briefly when system was revalved into gravity main at Monroe Place Pump Station. However, this caused Monroe PS to overflow so system was restored to original configuration. Flow was valved back to Monroe after well at Monroe dropped to point where it could accept additional flow. Crew recovered part of spill during cleanup operations.	595	475	SSORS#2012-T-103501	Yes
8/28/2012 21:45	5808 Monroe Place	Monroe Place Pump Station manholes	Lafayette River	Norfolk	Capacity-Weather Related	Area received heavy rain within a short duration of time causing overflows within system. Rain gauge at Luxembourg Avenue Pump Station recorded 2.20" of rain within four hours. Crew revalved system in an attempt to stop overflow at another HRSD station but it caused the two manholes beside Monroe to overflow briefly.	0 hour(s) 9 minute(s)	System was restored to original configuration as soon as it was determined it would not stop all overflows. The two manholes were underwater from flooding in the area so a flow estimate could not be made.	-1	-1	SSORS#2013-T-103502	Yes
8/28/2012 21:14	3904 Chesapeake Avenue	Manhole	James River	Hampton	Capacity-Weather Related	Heavy rain from severe storm caused system to back up and overflow manhole. Rain gauge at Freeman Pump Station recorded 6.9" of rain within 4.5 hours. Over two inches of rain fell within 30 minutes.	1 hour(s) 51 minute(s)	Checked Claremont Pump Station to ensure pumps were operating properly.	5,550	5,550	SSORS#2013-T-103503	Yes
8/28/2012 20:50	N. King Street & MacAlva Drive	Manhole	Back River	Hampton	Capacity-Weather Related	Heavy rain from severe storm caused system to back up and overflow manhole. Rain gauge at Freeman Pump Station recorded 6.9" of rain within 4.5 hours. Over two inches of rain fell within 30 minutes.	4 hour(s) 2 minute(s)	Checked Langley Circle Pump Station to ensure pumps were operating properly.	16,330	16,330	SSORS#2013-T-103507	Yes
8/28/2012 18:12	4701 Victoria Boulevard	Bridge Street Pump Station tide gate	Salters Creek	Hampton	Capacity-Weather Related	Heavy rain from severe storm caused pump station to overflow at tide gate. Rain gauge at Bayshore Pump Station recorded 3.8" of rain within 4 hours. Freeman Pump Station rain gauge recorded 6.9" of rain in 4.5 hours.	10 hour(s) 35 minute(s)	Checked pump station to ensure pumps were operating properly. Tide gate was under water so flow estimate could not be determined.	-1	-1	SSORS#2013-T-103509	Yes

Table 7. Detailed Listing of HRSD SSDs (July 1, 2012 to June 30, 2013)

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**	Amount Reaching State Waters**	DEQ IR	Occurred in previous five years at same location
8/28/2012 20:50	1275 North King Street	Manhole	Back River	Hampton	Capacity-Weather Related	Heavy rain from severe storm caused system to back up and overflow manhole. Rain gauge at Freeman Pump Station recorded 6.9" of rain within 4.5 hours. Over two inches of rain fell within 30 minutes.	6 hour(s) 1 minute(s)	Checked Langley Circle Pump Station to ensure pumps were operating properly.	7,505	7,505	SSORS#2013-T-103511	Yes
8/29/2012 8:00	North King & Donald Street	Manhole	Back River	Hampton	Capacity-Weather Related	Overnight heavy rain surcharged the gravity system going to Langley Circle Pump Station. The typical diurnal increase in flow the following morning caused the manhole to overflow. Rain gauge at Freeman Pump Station recorded 6.9" of rain within 4.5 hours during the previous evening. Over two inches of rain fell within 30 minutes.	0 hour(s) 30 minute(s)	Checked Langley Circle Pump Station to ensure pumps were operating properly.	1,500	1,500	SSORS#2013-T-103512	Yes
8/28/2012 18:45	300 Terminal Avenue	Manhole	James River	Newport News	Capacity-Weather Related	Heavy rains from severe storm caused system going into Boat Harbor STP to back up and overflow manhole outside of plant. Rain gauge at Copeland Park Pump Station recorded 7.21" of rain within 5.5 hours.	2 hour(s) 35 minute(s)	Flow amount could not be determined because area was flooded according to reports from plant personnel. Interceptor personnel cleaned up area after water receded. Information regarding event was discovered on August 30 during post-storm review.	-1	-1	SSORS#2013-T-103516	No
9/13/2012 13:30	Woods approx. 90' north of Route 199 & 840' west of S. Henry Street	air vent	College Creek	Williamsburg	Infrastructure	Failure of air vent. Contractor was replacing air vent as part of vent replacement project. During the removal of the coupling, the corporation stop began to wobble and then blew out of the pipe.	3 hour(s) 0 minute(s)	Installed riser pipe, corporation stop and ball valve in the force main. Crew had to install air vent while keeping force main in service. Examination of failed corporation stop indicates that the stop was improperly installed with only two to three threads holding it in place. Monitoring of the receiving waters on September 14 found pH and dissolved oxygen levels within normal range. No visible signs of adverse environmental impact.	95,400	95,400	SSORS#2013-T-103523	No
10/29/2012 9:00	Wine Street and Settlers Landing Road	manhole	Hampton River	Hampton	Capacity-Weather Related	Manhole overflowed at initial estimated rate of 200 gpm. Flow rate dropped to 50 gpm at 11:50 am Overflows are due to high flows and tidal flooding from hurricane Sandy. Rain gauge at Bayshore Pump Station recorded 6.72" of rain during October 28-29 with 4.42" of rain falling on October 29. Original notification contained rainfall information from Freeman Pump Station but a review of the records indicates its rain gauge provided inaccurate data.	3 hour(s) 45 minute(s)	Checked Bridge Street pump station to ensure all pumps are operating properly. Initial notification listed two manholes overflowing but further investigation indicates only one manhole overflowed. The first manhole is located above the second manhole. The flow from the manhole combined with the rainwater in the street gave the appearance that the second manhole was overflowing. Error was corrected on final report.	36,750	36,750	SSORS#2013-T-103542	No
10/29/2012 7:45	King Street and Donald Street	manhole	Back River	Hampton	Capacity-Weather Related	Manhole overflowing at estimated rate of 20 gpm due to high flows and tidal flooding from hurricane Sandy. Overflow rate increased throughout the day due to rainfall and tidal conditions. Rain gauge at Bayshore Pump Station recorded 6.72" of rain during October 28-29 with 4.42" of rain falling on October 29. Original notification contained rainfall information from Freeman Pump Station but a review of the records indicates its rain gauge provided inaccurate data.	32 hour(s) 15 minute(s)	Checked Langley Circle Pump Station to ensure pumps were operating properly. Initial notification stated start time was 6:42 am. The correct start time is 7:45 am.	164,475	164,475	SSORS#2013-T-103543	Yes

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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**	Amount Reaching State Waters**	DEQ IR	Occurred in previous five years at same location
10/29/2012 9:45	King Street and MacAlva Drive	manhole	Back River	Hampton	Capacity-Weather Related	Manhole overflowing at estimated rate of 100 gpm due to high flows and tidal flooding from hurricane Sandy. Rain gauge at Bayshore Pump Station recorded 6.72" of rain during October 28-29 with 4.42" of rain falling on October 29. Original notification contained rainfall information from Freeman Pump Station but a review of the records indicates its rain gauge provided inaccurate data.	17 hour(s) 50 minute(s)	Checked pump station to ensure pumps are operating properly. Initial notification contained a start time of 8:45 am. Final notification has correct start time of 9:45 am.	105,435	105,435	SSORS#2013-T-103544	Yes
10/29/2012 11:02	Eaton and Queen Street	Manhole	Hampton River	Hampton	Capacity-Weather Related	Manhole overflowing at an initial estimated rate of 200 gpm due to high flows and tidal flooding from hurricane Sandy. Rain gauge at Bayshore Pump Station recorded 6.72" of rain during October 28-29 with 4.42" of rain falling on October 29. Original notification contained rainfall information from Freeman Pump Station but a review of the records indicates its rain gauge provided inaccurate data.	8 hour(s) 18 minute(s)	Checked pump station to ensure pumps are operating properly. Final amount will be reported when overflow stops.	58,764	58,764	SSORS#2013-T-103545	No
10/29/2012 12:29	540 S. England Street	Williamsburg Pump Station	College Creek	Williamsburg	Capacity-Weather Related	Heavy rain from hurricane Sandy caused pump station wet well to overflow at estimated rate of 25 gpm. Rain gauge at station recorded 5.11" of rain during October 28-29.	2 hour(s) 53 minute(s)	Checked station to ensure pumps were operating properly. Final amount will be reported when overflow stops.	4,325	4,325	SSORS#2013-T-103546	Yes
10/29/2012 12:56	315 Center Avenue	Center Avenue Pump Station	James River	Newport News	Capacity-Weather Related	High flows from hurricane Sandy caused pump station to overflow at weir structure. Rain gauge at Morrison Pump Station recorded 7.17" of rain during October 28-29.	9 hour(s) 21 minute(s)	Checked station to ensure pumps were operating properly. Final amount will be reported when overflow stops.	355,786	355,786	SSORS#2013-T-103547	Yes
10/29/2012 11:29	5734 Chesapeake Blvd	Chesapeake Boulevard Pump Station	Wayne Creek	Norfolk	Capacity-Weather Related	High flows from hurricane Sandy caused pump station to overflow. High tides in the area were approximately 3-4 feet higher than normal tides. Rain gauge at Virginia Beach Blvd PS recorded 3.59" of rain for 10/29.	12 hour(s) 13 minute(s)	Checked station to ensure pumps are operating properly. Flow estimate based on time where Telog recorded the wet well level was higher than the tide gate. Due to computer glitch, this report was duplicated with SSOR ID 103548. Notification has been sent to DEQ to remove 103548 from database.	567,124	567,124	SSORS#2013-T-103549	Yes
10/29/2012 10:44	2812 Bainbridge Boulevard	Ferebee Avenue Pump Station	Elizabeth River	Chesapeake	Capacity-Weather Related	High flows from hurricane Sandy caused pump station to overflow at estimated rate of 15 gpm. The overflow stopped at 5:23 pm but restarted at 8:29 pm during high tide and heavy rain. The rain gauge at the station recorded over 8 inches of rain during October 28-29.	11 hour(s) 12 minute(s)	Checked station to ensure pumps are operating properly. The two pumps were cleared of rags one at a time during the second overflow and afterwards the station was able to maintain capacity.	6,420	6,420	SSORS#2013-T-103550	Yes

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10/29/2012 12:15	875 Wilroy Road	Force main	Shingle Creek	Suffolk	Infrastructure	Failure of 30-inch force main. Hole in the crown of pipe at the elbow where it rises out of the ground to cross the creek. Spill was contained on 11/8/2012 at 5:00 am.	232 hour(s) 45 minute(s)	Pipe is located beside roadway. In order to reduce danger of road being washed out, flow at the HRSD Suffolk Pump Station was pumped into Shingle Creek. Creek is being monitored. Damaged section of pipe was replaced and repairs completed on 11/19/2012. The condition of the pipe at the other end of the creek crossing was assessed and found in good condition. Road will be repaired. Correction made to final amount of material released. Original reported total of 18,285,000 gallons was incorrect due to math error found during review of calculations. Correct amount is 18,352,500 gallons.	18,352,500	18,352,500	SSORS#2013-T-103551	No
10/29/2012 12:00	4701 Victoria Blvd	Bridge Street Pump Station	Hampton River	Hampton	Capacity-Weather Related	Heavy rain and tidal flooding from hurricane Sandy caused pump station to overflow at tide gate. Rain gauge at Bayshore Pump Station recorded 6.72" of rain during October 28-29 with 4.42" of rain falling on October 29. Original notification contained rainfall information from Freeman Pump Station but a review of the records indicates its rain gauge provided inaccurate data.	27 hour(s) 46 minute(s)	Checked station to ensure pumps were operating properly. Initial notification stated start time was at 3:45 pm but a review of tide gate level sensor records indicate start time was 12:00 pm. Area was flooded and HRSD staff could not get to tide gate until 3:45 pm. Flow rate of 200 gpm reported in initial notification was an error. Tide gate was under water and flow estimates could not be made.	-1	-1	SSORS#2013-T-103568	Yes
10/30/2012 14:06	720 Bayshore Lane	Bayshore Pump Station	Chesapeake Bay	Hampton	Capacity-Weather Related	Heavy rains and tidal flooding from hurricane Sandy caused pump station to overflow at manhole outside of station. The station was checked numerous times on October 29 but no overflow was observed as the area was flooded. When the station was checked again on October 30, the flood waters had receded and staff found manhole cover was dislodged and there was evidence of a spill. Rain gauge at station recorded 6.72" of rain during October 28-29.	0 hour(s) 1 minute(s)	Checked station to ensure pumps were operating properly. Cleaned area around manhole and reseated manhole cover. Date/time of incident is the time of discovery by HRSD.	-1	-1	SSORS#2013-T-103570	No
10/31/2012 11:30	1510 1/2 North Shore Road	Force main	Lafayette River	Norfolk	Infrastructure	Force main leaking when pump station operates. Tree located on top of pipe caused crack in circumference of cast iron pipe.	0 hour(s) 48 minute(s)	Stopped spill by digging sump and pumping leak back into system. Removed the tree and stump. Repaired pipe with full circle clamp.	75	75	SSORS#2013-T-103591	No
10/31/2012 21:15	Right of Way between Longhill Connector Road & Carlton Court	force main	unnamed tributary to Chisel Run	Williamsburg	Infrastructure	Hole in the crown of a 24-inch prestressed concrete cylinder pipe immediately upstream of an air vent. The air vent is approximately 88 feet upstream of a city pump station. Pipe is located in wooded area between Longhill Connector Road and Carlton Court.	7 hour(s) 45 minute(s)	HRSD opened pressure control valves and shut off two pump stations to reduce flow. Wooden Damage Control Plug was inserted in the hole using the boom of an excavator. Shims were placed around plug to seal the hole. Permanent repairs will be completed at a later date by contractor. Start time and location were modified from initial notification report.	139,500	139,500	SSORS#2013-T-103592	No

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11/13/2012 11:20	41st Street and Killam Avenue	Air Vent	Lafayette River	Norfolk	Third Party Action	Contractor blew compressed air into abandoned force main causing wastewater to escape from open air vent. This was part of project to fill abandoned pipe with flowable fill.	0 hour(s) 20 minute(s)	Spill entered storm drain. Contractor opened storm drain cover and pumped out contents but it is unknown how much of spill was recovered because it was raining at the time and spill was mixed with rainwater.	400	400	SSORS#2013-T-103602	No
12/30/2012 10:00	Robin Hood Road and E. Bonner Drive	force main	Lafayette River	Norfolk	Infrastructure	Force main leaking at an estimated rate of 30 gpm. Spill is going into storm drain. Leak caused by circumference crack on bottom half of 12-inch cast iron pipe.	2 hour(s) 30 minute(s)	Leak contained using mudhog and Vaccon truck. Pipe was excavated and repaired with full circle clamp. Area and roadways were cleaned.	4,500	4,500	SSORS#2013-T-103630	No
1/16/2013 15:15	2513 George Washington Memorial Highway Hayes, VA	branch valve	Heywood Creek-Severn River	Gloucester	Infrastructure	Corroded bonnet bolts on a 4-inch branch valve caused wastewater to leak from pipe.	1 hour(s) 15 minute(s)	The valve was closed and the Vaccon truck was used to contain the leak and pump it back into system while repairs were made. Bolts on the valve were replaced and the valve returned to service. Most of spill contained in ditch and was recovered.	5,625	281	SSORS#2013-T-103640	No
2/8/2013 9:47	315 Center Avenue	Center Avenue Pump Station	James River	Newport News	Capacity-Weather Related	Heavy rain caused pump station to overflow at weir structure outside of station. The rain gauge at Hilton School Pump Station recorded 2.46" of rain within sixteen hours.	1 hour(s) 42 minute(s)	Checked pump station to ensure pumps were operating properly. Flow estimate based on weir meter.	19,628	19,628	SSORS#2013-T-103660	Yes
2/8/2013 8:53	4701 Victoria Boulevard	Bridge Street Pump Station	Hampton River	Hampton	Capacity-Weather Related	Heavy rain caused pump station to overflow at tide gate into Hampton River. Rain gauge at Bridge Street Pump Station recorded 2.4 inches of rain within sixteen hours.	3 hour(s) 53 minute(s)	Checked pump station to ensure pumps were operating properly. Flow estimate could not be made because tide gate was under water.	-1	-1	SSORS#2013-T-103661	Yes
2/8/2013 8:01	2320 E. Washington Street	manhole	Shingle Creek	Suffolk	Capacity-Weather Related	Heavy rain caused manhole to overflow briefly on the west side of Carver Memorial Park Cemetery. Rain gauge at Suffolk Pump Station recorded 1.99" of rainfall.	0 hour(s) 9 minute(s)	Checked Suffolk Pump Station to ensure pumps were operating properly. Flow estimate cannot be made because the manhole was not overflowing when HRSD crew got to the site. There was evidence of a spill around the manhole. Start and stop times are based on alarm system of the pump station. Originally reported as spill at pump station due to miscommunication. Spill location was corrected to the address of Carver Memorial Park.	-1	-1	SSORS#2013-T-103662	No
2/21/2013 14:30	W. Francis Street & S. Nassau Street	air vent	Paper Mill Creek	Williamsburg	Infrastructure	Air vent was leaking at ball valve at an estimated rate of 10 gpm.	0 hour(s) 20 minute(s)	Sandbagged area and installed pump to divert flow to sanitary manhole to contain the leak. Flushed ball valve seating surface so it would seat properly and installed new cap. Area was cleaned.	200	200	SSORS#2013-T-103672	No

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5/8/2013 10:15	Silver Isles Boulevard	force main	Harris River	Hampton	Infrastructure	Crack in top of 12-inch force main on discharge side of pump station. Pipe leaks when pump station operates. Initial notification stated location as Old Buckroe Road and Fox Hill Road. Silver Isles Blvd is part of this intersection and best describes the location of the failed pipe.	2 hour(s) 15 minute(s)	Pumping wastewater into nearby sanitary manhole to contain flow while making preparations for repairs. -----May 8, 2013 02:22 PM----- Coordinated with the city to shut down pump stations. Force main was excavated. Damaged section was cut out and a section of ductile pipe was sleeved into the pipe. This allowed city to stop pump and haul operation of pump station. A final repair will be designed and implemented.	7,750	5,000	SSORS#2013-T-103718	No
5/17/2013 9:00	5 Beach Road	Bloxoms Corner Pump Station	Ground/Harris River	Hampton	Other	Crew was switching out a hose for 4-inch Godwin pump when the pump unexpectedly started.	0 hour(s) 1 minute(s)	Pump was shut off within 30 seconds to stop flow. Vaccon was brought on site to clean up standing water. Lime was spread after area was cleaned. Approximately 25% of the spill was recovered with the Vaccon. The rest of the spill soaked into the ground and a very small portion (~10%) entered the river. -----May 17, 2013 10:07 AM-----	250	188	SSORS#2013-T-103720	No
5/23/2013 16:09	540 S. England Street	Williamsburg Pump Station	Paper Mill Creek	Williamsburg	Capacity-Weather Related	Area received storms with heavy rainfall. Flows increased and caused station wet well to overflow. Rain gauge at station recorded 4.17" of rain within 5 hours.	5 hour(s) 17 minute(s)	Checked station to ensure pumps were operating properly. -----May 24, 2013 07:07 AM----- Cleaned and limed area. -----May 24, 2013 12:04 PM-----	183,156	183,156	SSORS#2013-T-103727	Yes
6/7/2013 10:56	540 S. England Street	Williamsburg Pump Station	Paper Mill Creek	Williamsburg	Capacity-Weather Related	Pump Station overflowed briefly from 10:56 am to 11:16 am due to high flows caused by rainfall from Tropical Storm Andrea. Pump station started overflowing again at 4:47 pm as rainfall increased. Station cleared at 11:08 pm. Rain gauge at pump station recorded 9.55" of rainfall in less than 24 hours.	12 hour(s) 12 minute(s)	Checked station to ensure pumps are operating properly. -----June 7, 2013 02:54 PM----- -----June 7, 2013 08:36 PM----- NOTE: It was determined that the Williamsburg PS rain gauge was not operating properly during the storm. Rain gauge at nearby Greensprings Pump Station recorded 6.74" of rain in less than 24 hours. This data has been reviewed and verified. -----June 17, 2013 01:04 PM-----	382,000	382,000	SSORS#2013-T-103755	Yes
6/13/2013 17:52	540 S. England Street	Williamsburg Pump Station	Paper Mill Creek	Williamsburg	Power Outages (Storm Event)	Rain and high winds from a severe storm in the area caused power outages in service area which increased pressures in the interceptor system and overflowed station wet well.	1 hour(s) 18 minute(s)	Checked station to ensure pumps were operating properly. Cleaned affected area and put down lime. -----June 14, 2013 08:55 AM-----	97,500	97,500	SSORS#2013-T-103780	Yes

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

7. PLANNED ACTIVITIES FOR FY 2014

HRSD will be continuing the overall program outlined in the Consent Decree and SOC in FY 2014. 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 2014, 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 2014, HRSD will modify the network and delete and/or relocate some monitoring points.

7.1.2 LOP Status

In FY 2014, HRSD will continue to coordinate with Localities following activation of an LOP in the Localities system. This will include meeting with the Locality to review the occurrence, assist with evaluation of the problem, and help the Locality with interim or final solutions to mitigate the LOP. This information will be documented in the upcoming annual reports.

7.2 Regional Hydraulic Model and Hydraulic Assessment

Meetings of the Model Users Group, facilitated by HRSD and attended by the Localities may continue to be held as needed.

7.3 Condition Assessment Plan

7.3.1 Implementation of the Condition Assessment Plan

7.3.1.1 Condition Assessment Field Activities

The remaining force main Condition Assessment Field Activities will be completed in FY 2014. The targeted completion date for these field activities is October 15, 2013.

7.3.1.2 Prompt Repairs

As the Condition Assessment Field Activities are performed, HRSD will continue to review the data for issues that meet the criteria set forth in the CAP and SOC for Prompt Repair. Once a defect is identified as requiring Prompt Repair, HRSD will implement an action plan to make the repairs necessary.

7.3.2 Final Condition Assessment Report and Action Plan

HRSD will complete the final documentation of the Condition Assessment Program (work through October 2013) and submit the updated Final Condition Assessment Report along with the updated Rehabilitation Action Plan to the EPA and DEQ in February 2014.

7.4 Interim System Improvements

HRSD will continue to design and construct the projects listed in Appendix 5 of the Consent Decree that are required to be completed within 8 years of the Date of Entry. The Verification of Completion for these projects will be included in upcoming Annual Reports as the projects are completed.

7.5 Management, Operations, and Maintenance Program

7.5.1 Implementation of MOM Program

HRSD will continue to implement its MOM Program per the approved submittal.

7.5.2 Quantitative Performance Measures

In FY 2014, 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.

7.6 Regional Wet Weather Management Plan

The Regionalization Study and its Comparative Analysis will be completed in the first part of FY 2014 and submitted to the EPA and DEQ. Based on the results of the Regionalization Study (see Section 8 of this report) and the decisions made by HRSD and the Localities, the deadline for the remainder of the RWWMP will be established. In the meantime, HRSD will be working to prepare the RHM and technical resources needed to complete the RWWMP in the event that regionalization does not move forward. In that case, HRSD will begin in earnest to develop the RWWMP in FY 2014.

7.6.1.1 Private Property I/I Abatement Program

In FY 2014, HRSD continues to develop a Private Property I/I Abatement Program through pilot programs. HRSD will continue to perform pilot work to test the feasibility and effectiveness of a private property I/I abatement program. Implementation of a full-scale program is dependent upon approval by the HRSD Commission.

7.7 Short Term Wet Weather Operational Plan

HRSD will continue to implement the approved plan.

7.8 SSO Emergency Response Plan

HRSD will continue to implement its approved SSO Response Plan. An annual update to the plan will be submitted in the second quarter of FY 2014.

7.9 Coordination with Localities

HRSD will continue to actively participate and facilitate a wide variety of coordination activities in FY 2014 amongst the regional parties to the SOC. These activities include:

- Meetings of the Capacity Team to discuss SOC issues, develop Regional Technical Standards Interpretations, and provide guidance to the region on RTS and Consent Decree issues;
- Meetings of the Model Users Group to discuss issues related to modeling;
- Periodic briefings of the Directors' of Utilities Committee to share progress on compliance with the Consent Decree and SOC; and

- Maintain a regional SharePoint website to collaborate with and provide documents to the regional Locality Team and Capacity Team.

7.10 Public Participation

HRSD will have an annual information meeting and publish a newsletter by the next anniversary of the Date of Entry, February 23, 2014. Information and approved plans continue to be posted to HRSD's website which is accessible to the public.

7.11 Reporting

HRSD will prepare a Semi-Annual Report in addition to this Annual Report in FY 2014. Quarterly Briefings will be held with the EPA and DEQ in July and January of FY 2014.

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8. FORESEEABLE ISSUES RELATED TO UPCOMING COMPLIANCE DEADLINES AND MILESTONES

8.1 Regionalization Study and Schedule Revision

During FY 2013, the deliverable schedule for the Consent Decree was impacted by the Regionalization Study to analyze the impact of merging the wastewater utilities across the Hampton Roads into a single entity. The proposal was formalized in documents submitted to the EPA and DEQ in 2012, and the Localities governing bodies approved resolutions to support the study. In general, the study (implemented by the HRPDC with an outside consultant) had a 12-month evaluation period (beginning August 2012), followed by 6 months for Localities and HRSD to decide on how to proceed, and then 12 months to develop the necessary documents to merge the utilities. HRSD and the Localities requested that the EPA and DEQ provide schedule relief from the SOC and Consent Decree so that the study could be performed. This would extend the submittal dates for the Localities' Rehabilitation Plans and the RWWMP. Because the SOC amendment tied the Rehabilitation Plans and the RWWMP submission to the Consent Decree schedule, the DEQ has stated that no further modification to the SOC is required.

In a letter dated July 31, 2012, the EPA proposed that the extension explicitly provided for in the Consent Decree (without court action or public comment) be used initially to extend the RWWMP deadline to July 31, 2014, while the remaining Consent Decree modifications can be negotiated. This stipulation to the Consent Decree was approved January 24, 2013. Additionally, a Consent Decree amendment which includes the full schedule relief for the Regionalization Study has been approved following a lodging date of April 2013.

Meanwhile, the Regionalization Study consultant was selected by the HRPDC and Steering Team, and their work was completed in August 2013. This Regionalization Study and the timeliness of decisions made by the Localities following the study may have a significant impact on HRSD meeting its Consent Decree schedule deadlines.

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

Depending on the outcome of the Regionalization Study and alternatives considered, the Consent Decree may need further modification based on the outcome of the Study or alternative concepts.

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10. SUMMARY OF SYSTEM BENEFITS FOR PREVIOUS FISCAL YEAR

As reported in the earlier sections of this report, HRSD continues to make important strides in the process of preparing a Regional Wet Weather Management Plan and overall system improvement. Some of the major milestones include:

- Maintenance of a web portal to allow Localities access to HRSD flow, pressure, and rainfall data;
- Implementation of multiple contracts for inspection of HRSD's gravity sewers, manholes, and force mains;
- Completion of the condition assessment of HRSD's pumping stations, gravity sewers, manholes, and force main inspection program;
- Completion of more than 34 Prompt Repair defects throughout the system;
- Completion and submission of the Final Condition Assessment Report and Rehabilitation Action Plan;
- Completion of a number of Interim System Improvements as required by the Consent Decree;
- Implementation of an approved MOM Program;
- Implementation of an approved SSO Response Plan;
- Submission of a Preliminary Capacity Assessment Report;
- Ongoing use of a web portal to share information between HRSD and the Localities;
- Submission of an Annual Report and Semi-Annual Report;
- Facilitation of an annual public informational meeting and newsletter;
- Quarterly Briefings with the EPA and DEQ;
- Technical call with EPA and DEQ (March 2013);
- Technical workshop with EPA and DEQ (December 2012);
- Periodic Capacity Team meetings to foster cooperation and coordination in the region; and
- Ongoing development of a regional Private Property I/I Abatement Program.

HRSD will continue in FY 2014 with implementation of the Consent Decree and SOC Program to develop a Regional Wet Weather Management Plan in coordination with the Localities for overall system benefit.

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APPENDIX A. INTERIM SYSTEM IMPROVEMENTS

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HRSD
Cleaning wastewater every day for a better Bay.

Interim System Improvements
Verification of Completion

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

Through June 30, 2013, the following projects have been completed satisfactorily and consistent with the scope provided to the EPA and DEQ in the Consent Decree:

Ref No.	CIP No.	Project Name	Project Cost	Completion Date
8	VIP-120	South Trunk Sewer Section F 20-Inch, Section H 8-Inch, and Section H 12-Inch Interceptor Force Main Replacement and Gravity Sewer Chesterfield Blvd. Replacement	$6,385,291	June 19, 2013
11	VIP-105	North Trunk Sewer Section R 6-Inch Interceptor Force Main and 10-Inch Gravity Replacement	$2,752,584	April 2, 2013
12	VIP-104	North Trunk Sewer Section D 24-Inch Interceptor Force Main Replacement	$ 5,796,148	April 1, 2013
17	VIP-133	Sanitary Sewer System Portsmouth VA Contract A Clifford Street Force Main	$ 1,168,052	May 16, 2013

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Hereby verified by

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