QUARTERLY REPORT

July 1 – September 30, 2024



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

December 2, 2024

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1. Introduction and Purpose

On September 26, 2007, the Hampton Roads Sanitation District (HRSD) entered into a Special Order by Consent (SOC) with the Virginia Department of Environmental Quality (DEQ) and thirteen (13) area Localities for the purpose of resolving certain alleged violations of environmental laws and regulations related to Sanitary Sewer Overflows (SSOs). On February 23, 2010, HRSD entered into an Amended Consent Decree ("Consent Decree") with the United States of America and the Commonwealth of Virginia for the purpose of fulfilling the objectives of the Clean Water Act and the Virginia State Water Control Law. This Consent Decree has been modified six times by agreement of all parties in 2011, 2013, 2014, 2017, 2022, and 2024. In December 2014, the SOC was eliminated by DEQ and HRSD is no longer under state enforcement. On February 8, 2022, the Fifth Amendment to the Consent Decree was entered.

The Fifth Amendment to the Consent Decree requires:

"HRSD will submit quarterly SSO reports to VADEQ and EPA, in which HRSD will identify all SSOs, SSDs, Prohibited Bypasses, or unauthorized discharges from the HRSD SS System or the HRSD STPs. HRSD will identify those SSOs, SSDs, Prohibited Bypasses, or unauthorized discharges for which it asserts a claim of force majeure. If HRSD asserts a force majeure claim, it shall document the basis for such claim in the quarterly SSO reports. It will pay the associated undisputed stipulated penalties for all SSOs, SSDs, Prohibited Bypasses, or unauthorized discharges for which it did not assert a claim of force majeure within 90 days of the close of each calendar quarter. In addition, HRSD will submit all of HRSD's post-storm synopses reports for rain events during the quarterly reporting period to VADEQ and EPA as part of the quarterly reports for rain events that satisfy HRSD's current criteria for publishing a post-storm analysis, i.e.: (a.) one or more rain gauge sites meet a two-year or greater rainfall recurrence interval and at least 50% of sites in any treatment plant service area receive one inch of rainfall or greater; (b.) a rain gauge meets a five-year or greater rainfall recurrence; or (c.) a weatherrelated SSO occurs."

This quarterly report is submitted pursuant to Section XVII.D of the Consent Decree. HRSD has prepared this quarterly report in accordance with the above requirements to apprise the EPA (representing the United States of America) and the DEQ (representing the Commonwealth of Virginia) of steps taken toward meeting the obligations of the Consent Decree. Specifically, this quarterly report summarizes all Sanitary Sewer Overflows (SSOs), Sanitary Sewer Discharges (SSDs), Prohibited Bypasses, or unauthorized discharges from the HRSD Sanitary Sewer System or the HRSD Sewage Treatment Plants from April 1, 2024, through June 30, 2024, the associated post-storm synopses reports, claims of force majeure, and undisputed stipulated penalties.

During the reporting period, there were a total of nine (9) SSOs, SSDs, Prohibited Bypasses, and unauthorized discharges from the HRSD SS System or the HRSD STPs. These are summarized in Tables 1 & 2.

2. Claim of Force Majeure

2.1. Sanitary Sewer Overflow

There were three (3) SSOs from the HRSD SS System during the 3-month reporting period. HRSD asserts a force majeure claim for one (1) of the SSOs.

2.1.1. Basis of Claim

A description of the circumstances supporting a claim of force majeure is included in Table 1.

2.2. Unusual Discharges (Sanitary Sewer Discharge, Prohibited Bypasses, Unauthorized Discharge)

There were six (6) unusual discharges from the HRSD SS System or the HRSD STPs during the 3month reporting period. HRSD asserts a force majeure claim for three (3) Unusual Discharges that were non potable water or final effluent.

2.2.1. Basis of Claim

A description of the circumstances supporting a claim of force majeure is included in Table 2.

3. Undisputed Stipulated Penalties

3.1. Sanitary Sewer Overflow

There were three (3) SSOs from the HRSD SS System during the 3-month reporting period. HRSD will pay undisputed stipulated penalties in the amount of \$1,350 for two (2) of the SSOs.

3.1.1. Basis of Undisputed Stipulated Penalties

Calculation of undisputed stipulated penalties is outlined in Section XX "Stipulated Penalties" paragraph 110 of the Consent Decree. The calculated stipulated penalties are shown in Table 1.

Penalty	<u>r from the date of entry</u>
\$	100
\$	750
\$	1,250
\$	4,700
\$	10,000
\$	15,000
	<u>Penalty</u> \$ \$ \$ \$ \$ \$

3.2. Unusual Discharges (Sanitary Sewer Discharge, Prohibited Bypasses, Unauthorized Discharge)

There were six (6) unusual discharges from the HRSD SS System or the HRSD STPs during the 3month reporting period. HRSD will pay undisputed stipulated penalties in the amount of \$1,600 for three (3) Unusual Discharges.

3.2.1. Basis of Undisputed Stipulated Penalties

Calculation of undisputed stipulated penalties is outlined in Section XX "Stipulated Penalties" paragraph 110 of the Consent Decree. The calculated stipulated penalties are shown in Table 2.

Volume of the SSD or Prohibited Bypass	Pena	ity from the date of entry
Less than 100 gallons	\$	100
100 to 2,499 gallons	\$	750
2,500 to 9,999 gallons	\$	1,250
10,000 to 99,999 gallons	\$	4,700
100,000 to 999,999 gallons	\$	10,000
1,000,000 gallons or greater	\$	15,000

4. Post-Storm Synopses Reports

Post-Storm Synopses Reports are generated when:

- One or more rain gauge sites meets a two year or greater rainfall recurrence interval and 50% of sites receive one inch or greater rainfall
- A rain gauge meets a five-year or greater rainfall recurrence interval or
- A capacity related wet weather SSO occurs

There were five (5) Post-Storm Synopses Reports for the 3-month reporting period.

	Table 1. Detailed Listing of HRSD SSOs											
	(July 1, 2024 to September 30, 2024)											
Date and Time of Incident	Location	Sewer System Component	Potential Receiving Waters	Spilled In Jurisdiction	SSO Classification	Description of Incident from SSORS	SSO Duration	Action Taken and Explanation of SSO	Discharge Quantity (gallons)**	Amount Reaching State Waters (gallons)**	DEQ IR	Force Majeure Rationale or Stipulated Penalty
8/6/2024 3:00:00 PM	79 East College Place	NF-133-887	Ground to Hampton River	Hampton	Infrastructure	During a site visit HRSD staff noticed a sinkhole in the ground. After further investigation it was determine that the sink hole was over top of HRSD's 30-inch Reinforced Concrete Cylinder Pipe and there was missing pipe wall on the top of the pipe observed. There was evidence on the ground around the sinkhole of a past spill but not one during or recent to the site visit. The amount released can not be quantified.	0 hour(s) 0 minute(s)	Constructed a temporary containment system and pumped flow into a manhole near the failure. HRSD has active construction activities via CIP projects in the area to remove this line from service.	Quantity could not be estimated as it was not an active spill	Quantity could not be estimated as it was not an active spill	SSORS#2025-T- 106463	\$100 It was not an active spill but just evidence of a potential spill in the past.
9/19/2024 1:16:00 PM	3711 Big Bethel Road	NF-024- 2400	Ground / Ditch	York	Damage By Others	Contractor was performing conduit install via boring when they struck the HRSD force main (FM) and punctured the side of HRSD's pipe. The contractor did not take the necessary excavation precautions as required by VA 811 law.	10 hour(s) 4 minute(s)	Isolated the force main and diverted flow from YRTP to JRTP to perform repair. A 30x12 saddle was installed over the 1" hole, which was then backfilled and paved. The site was cleaned up, and lime was applied to areas contaminated with wastewater.	15,100	750	SSORS#2025-T- 106478	Force Majeure. A contractor struck pipeline with a bore.
9/26/2024 10:49:00 AM	9373 Guinea Road	NF-184- 2088	Ground / Ditch to Thorntons Creek	Gloucester	Damage By Others	Bridgeman Civil (BC) was performing work at YR6617 in preparation for planned valve replacement work. A piece of heavy equipment ran over the 2" vent pipe connected to YR6617-3 resulting in a failure.	8 hour(s) 1 minute(s)	Bridgeman Civil (BC) utilized pump and haul trucks to contain sewage and completed repair. The site was cleaned.	5,052	505	SSORS#2025-T- 106481	\$1,250 An HRSD contractor struck air vent with heavy equipment.

QUARTERLY REPORT JULY 1 - SEPTEMBER 30, 2024

	Table 2. Detailed Listing of HRSD Treatment Plant Unusual Discharges (July 1, 2024 to September 30, 2024)								
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	Force Majeure Rationale Or Stipulated Penalty
8/5/2024	Nansemond	2 inch non potable water line broke due to heavy equipment being rolled over top of pipe. While digging to repair that line an NPW line next to the broken one got hit and broke.	238	Contractors used a temporary plug to stop the flow until the line was fixed.	2500	200	Non-Potable Water (NPW)	Ground	NPW
8/12/2024	James River	While excavating, a contractor hit the gravity thickener (GT) supernatant line. HRSD staff immediately shut down the primary pumps and chlorinated effluent pump to stop the flow to the GT. A sump pump was then placed in the excavation, and the contents were pumped back into the treatment plants flow via primary clarifier #4. An estimated 2,000 gallons of GT supernatant spilled into the excavation. An estimated 1,900 gallons was recovered.	10	Contractor fused the high-density polyethylene (HDPE) line back together to repair.	2000	100	GT Supernatant	Ground	\$750
8/15/2024	Williamsburg	Operator was making rounds and noticed Sodium Hypochlorite inside the chemical containment area at Odor Station B. The Operator walked around the containment area where the chemical feed line traveled up the wall on the outside. The Operator found the hose from the tank fill line separated from the transfer pipe and immediately secured the pump. At that point the chemical had already soaked into the soil. On call staff was notified and promptly removed the contaminated soil from the area.	5	Approximately 13 cubic feet of contaminated soil was removed from the site and placed in a storage container to be picked up by Potomac Environmental.	20	1	Sodium Hypochlorite	Ground	\$100
8/20/2024	Nansemond	Contractors left vent line on plant drain cleanout open so when drain on #1 primary clarifier was opened it overflowed onto the ground and entered storm drain.	4	Drain line was closed. Vac truck vacuumed up approximately 1500 gallons. Approximately 200 gallons were lost to storm drain. Flow to storm drain was restricted due to silt fence around the drain. Contractor dug up contaminated dirt around drain and dirt will be properly disposed of.	1700	200	Primary Clarifying Influent (PCI)	Storm Water Pond	\$750
9/9/2024	Nansemond	A contractor hit a chlorinated non-potable water (NPW) line while digging with an excavator.	7	Valve on NPW line in excavation site was closed to stop flow. Contractors will repair the line. A pump was used to remove as much water as possible and directed to the process tank. The remainder was lost to the ground.	4000	2000	Non-Potable Water (NPW)	Ground	NPW
9/16/2024	James River	The plant experienced a brief loss of utility power which caused the generator to start. Utility power was available within a couple of minutes and the system switched back automatically. The rapid transition of power cycling resulted in the NPW pumps turning off and on quickly creating a water hammer effect. The pressure surge from the water hammer pushed a unrestrained pipe slightly out of a mechanical flange allowing NPW to spray out around the flange.	6	The portion of the NPW line was secured and the pipe and flange was repaired.	3000	2000	Non-Potable Water (NPW)	Ground to Storm Drain	NPW

Note: NPW (non-potable water) is fully treated and chlorinated final effluent.

Appendix A. Post-Storm Synopses Reports

There were five (5) qualifying events this quarter.

Appendix B. Definitions

"Bypass" shall mean the intentional diversion of waste streams from any portion of a treatment facility, as defined by 40 C.F.R. § 122.41(m).

"HRSD SS System" or "HRSD Sanitary Sewer System" shall mean the wastewater collection and transmission systems, including all pipes, Force Mains, Gravity Sewer Lines, lift stations, Pumping Stations, Pressure Reducing Stations, manholes, and any other appurtenances thereto, which are owned or operated by HRSD as of the Effective Date of this Consent Decree, and which serve the Localities. It does not include the portions of the sewer system that serves the Middle Peninsula communities within King William County, King and Queen County, Middlesex County, and Mathews County.

"Non-potable water (NPW)" is fully treated and chlorinated final effluent.

"Prohibited Bypass" shall mean a Bypass within the meaning of 40 C.F.R § 122.41(m)(4).

"Sanitary Sewer Overflow" or "SSO" shall mean an overflow, spill, diversion, or release of wastewater from or caused by the Regional SS System. This term shall include: (i) discharges to waters of the State or United States from the Regional SS System and (ii) any release of wastewater from the Regional SS System to public or private property that does not reach waters of the United States or the State, including Building/Private Property Backups.

"Sanitary Sewer Discharge" or "SSD" shall mean any discharge to waters of the State or the United States from the HRSD SS System through a point source not authorized in any Permit.

Hampton Roads Sanitation District

Post-Storm Report



July 11-13, 2024



DISCLAIMER:

About the information on this HRSD server

This report is intended to provide the HRSD regional community summary information about the HRSD system during select wet weather events/anomalies. The attached report contains a selection of *official* Interceptor and Treatment data, as well as other environmental and meteorological data provided through other services. In an effort to enhance the HRSD system, the attached products have been made accessible on this server and care must be taken when using such products as they are intended for informational and not operational, legal, or other purposes.

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Summary

From July 11th through July 13th, there was an approximate 62-hour rainfall event that resulted in 4 sites on the North Shore and 16 sites on the South Shore that met a 1 to 5-year rainfall recurrence interval throughout the HRSD rain gauge network. A stalled cold front brought thunderstorms into the region along with a Flash Flood watch for the majority of Hampton Roads. Heavy localized rain started Thursday and continued into Saturday with some portions of Hampton Roads seeing over 5" of rain and others seeing less than 1". North Shore sites averaged around 2.08 inches of rain while South Shore sites averaged around 2.98 inches. There was minimal impact on groundwater levels compared to July 2023. See Appendix C for the Historical Shallow Well comparison.

No HRSD interceptor weather-related overflow(s) were reported.

HRSD flow and pressure meters met data reliability requirements per the MOM program. For all pressure meters in the aggregate and all pressure-side flow meters in the aggregate for each treatment plant service area listed below, at least 90% reliable data was achieved, based on the duration of system response to this rainfall event. The data reliability for the gravity flow meters is not included in this synopsis.

- Duration of system response: See Table Below
- Aggregate flow meter validity: 91.92%
- Aggregate pressure meter validity: 99.40%

Currently, rainfall recurrence intervals are only analyzed for a maximum of 96-hours. Rainfall analysis begins after 0.1 inches of rain has occurred. A 72-hour dry period of less than 0.1 inches of rain is typically used to signify two separate events. However, if a site returns to "dry weather" conditions prior to the next rainfall that occurs within 72 hours of the previous event, it is also considered for separate analysis. See Appendix A for the Rainfall Total System Maps.

The current criteria for publishing a post-storm analysis are the following:

- One or more rain gauge sites meet a two-year or greater RRI (rainfall recurrence interval) and at least 50% of sites in any treatment plant service area receive one inch of rainfall or greater,
- A rain gauge site meets a five-year or greater RRI, or
- A weather-related SSO occurs.

Treatment Plant Data: (Data obtained from Telog Database) See Appendix B for HRSD Treatment Plant Flows

7/11/2024 - 7/13/2024							
	North Shore						
Treatment	Date of Peak	Peak Hourly					
Plant	Hourly Flow	Flow (MGD)	Peak Hour	TPSA Total Rainfall Avg (in)			
Boat Harbor	7/11/2024	12.19	12:00	0.41			
	7/12/2024	21.33	19:00	1.57			
	7/13/2024	14.88	15:00	0.06			
James River	7/11/2024	13.18	21:00	0.05			
	7/12/2024	20.79	19:00	1.22			
	7/13/2024	15.42	12:00	0.05			
Williamsburg	7/11/2024	10.66	21:00	0.02			
	7/12/2024	26.03	14:00	2.27			
	7/13/2024	15.22	00:00	0.14			
York River	7/11/2024	11.41	06:00	0.10			
	7/12/2024	19.91	18:00	1.97			
	7/13/2024	13.81	08:00	0.03			

HRSD Treatment Plant Data 7/11/2024 – 7/13/2024

South Shore						
Treatment Plant	Date of Peak Hourly Flow	Peak Hourly Flow (MGD)	Peak Hour	TPSA Total Rainfall Avg (in)		
Army Base	7/11/2024	12.01	18:00	0.49		
	7/12/2024	19.77	18:00	1.20		
	7/13/2024	13.27	12:00	0.41		
Atlantic	7/11/2024	101.28	15:00	2.06		
	7/12/2024	87.58	18:00	1.58		
	7/13/2024	88.75	13:00	0.48		
Nansemond	7/11/2024	20.31	20:00	0.56		
	7/12/2024	36.67	18:00	1.90		
	7/13/2024	28.65	12:00	0.42		
VIP	7/11/2024	39.21	18:00	0.77		
	7/12/2024	55.17	19:00	1.25		
	7/13/2024	47.17	13:00	0.44		

HRSD Data Analysis Section Page 4 of 29

North Shore

Weather:

Rainfall (HRSD Rainfall Gauges): Recurrence intervals based on NOAA Atlas 14

North Shore Table

Rain Gauge Site	Peak Rainfall RI (Duration)	Locality
Boat Harbor Tr	eatment Plant Service Area ¹	
Bayshore PS	DNQ	HAMP
Bridge Street Tide Gate	DNQ	HAMP
Boat Harbor	DNQ	NEWP
Copeland Park PS	DNQ	NEWP
Hampton PS 159	DNQ	HAMP
James River Tre	eatment Plant Service Area ¹	
Hilton School PS	DNQ	NEWP
James River Main Flow (Influent)	DNQ	NEWP
Lee Hall PRS	DNQ	NEWP
Lucas Creek PS	DNQ	NEWP
Morrison PS	Invalid	NEWP
Williamsburg Tr	reatment Plant Service Area ¹	
Ford's Colony	1-year (24hr)	JCSA
Fort Eustis PS	DNQ	NEWP
Greensprings PS	2-year (12hr)	JCSA
Solarex	DNQ	JCSA
Williamsburg Main Flow (Effluent)	DNQ	JCSA
Williamsburg PS	1- to 2-year (12hr)	WILL
York Skimino Hills PS	1-year (24hr)	YORK
York River Tre	atment Plant Service Area ¹	
Big Bethel PRS	DNQ	HAMP
Freeman PS	DNQ	HAMP
Gloucester Court House	DNQ	GLOU
Guinea Rd at Maryus Rd	DNQ	GLOU
Ordinary PCV	DNQ	GLOU
Poquoson PS 6	DNQ	POQ
Wolf Trappe PCV	DNQ	YORK
York Kiln Creek 1 PS	DNQ	YORK
York PS 15	DNQ	YORK
York River Main Flow (Influent)	DNQ	YORK
York River Crossing (York River Rectifier)	DNQ	GLOU

Note:

1. Typical treatment plant service area.

Newport News-Williamsburg International (PHF)

• Wind and I	Rainfall (daily	total):			
Date	Gust	Sustained	Sustained	Direction	Rainfall
	(IIIax)	(IIIaA)	(41g)		(111)
7/11/24	29 mph	12 mph	3 mph	Е	0.06
7/12/24	32 mph	10 mph	5 mph	S	1.76
7/13/24	-	12 mph	7 mph	SE	Т

Tide:

• Yorktown USCG Training Center:

• Storm Surge: An approximate 0.9-foot storm surge was observed.









o Sewells Point Tide Station:

• Storm Surge: An approximate 0.7 foot storm surge was observed.





Figure 2. Preliminary data obtained from NOAA and a connection with Open Weather

South Shore

Weather:

Rainfall (HRSD Rainfall Gauges): Recurrence intervals based on NOAA Atlas 14

Rain Gauge Site	Peak Rainfall RI (Duration)	Locality
Army Base	Treatment Plant Service Area ¹	
Bancker Rd (Dovercourt Discharge)	DNQ	NORF
Taussig Blvd PS	DNQ	NORF
Atlantic T	Freatment Plant Service Area ¹	
Callison at GB Locks	DNQ	CHES
Chesapeake PS 243	1- to 2-year (36hr)	CHES
Chesapeake PS 254	DNQ	CHES
Courthouse PRS	2-year (2hr)	VAB
Elbow Rd	1- to 2-year (1hr)	CHES
John B. Dey MLV-AT side	2-year (36hr)	VAB
Kempsville PRS	2- to 5-year (1hr)	VAB
Lagomar IFM at Atlantic TP	DNQ	VAB
Laskin Rd PRS	1-year (48hr)	VAB
Pine Tree PRS	2-year (36hr)	VAB
Shipps Corner PRS	2-year (2hr)	VAB
Ches-Liz T	Freatment Plant Service Area ¹	
Dozier's Corner PS	1-year (48hr)	CHES
Independence PRS	2- to 5-year (36hr)	VAB
Northampton Blvd at Wesleyan Dr	2- to 5-year (36hr)	NORF
Providence PRS	2-year (36hr)	VAB
Shore Dr @ Jack Frost	2- to 5-year (36hr)	CHES
Nansemond	Treatment Plant Service Area ¹	
Bowers Hill PRS	DNQ	CHES
Cedar Lane PS	DNQ	PORT
Chesapeake PS 158	DNQ	CHES
Chesapeake PS 238	DNQ	CHES
Crittenden Rd_Chuckatuck Rectifier	DNQ	SUFF
Deep Creek PRS	DNQ	CHES
Hill Point Rectifier	DNQ	SUFF
Lake Kilby WTP	DNQ	SUFF
Nansemond Main Flow (Effluent)	DNQ	SUFF
Pagan River Rectifier	DNQ	IOW
Pughsville PS	1- to 2-year (3hr)	SUFF
Route 337 PRS	DNQ	CHES
Smithfield High School	DNQ	IOW
Suffolk PS	2-year (2hr)	SUFF
Suffolk PS 81	DNQ	SUFF
Suffolk PS 87	1-year (2hr)	SUFF
Windsor Duke St PS	DNO	IOW

HRSD Data Analysis Section

VIP Treatment Plant Service Area ¹						
Rain Gauge Site	Peak Rainfall RI (Duration)	Locality				
Elizabeth River Crossing_Eastern Branch	DNQ	NORF				
Ferebee Avenue PS	DNQ	CHES				
Luxembourg Avenue PS	DNQ	NORF				
Rodman Ave PS	DNQ	PORT				
Va Beach Blvd PS	DNQ	NORF				
VIP Main Flow (Effluent)	DNQ	NORF				

Note:

1. Typical treatment plant service area.

*Duration represents the minimum amount of time it took to reach the specified RRI.

Norfolk International Airport (ORF)

 Wind an 	d Raintall (daily				
Date	Gust	Sustained	Sustained	Direction	Rainfall
	(max)	(max)	(avg)		(in)
7/11/2024	28 mph	7 mph	3 mph	ENE	2.26
7/12/2024	39 mph	15 mph	5 mph	S	2.32
7/13/2024	18 mph	9 mph	3 mph	S	0.47

Tide:

• Sewells Point Tide Station:

• Storm Surge: An approximate 0.7 foot storm surge was observed.





Figure 3. Preliminary data obtained from NOAA and a connection with Open Weather

Shallow Well Analysis:

Shallow wells are located at/or near HRSD Pump Stations to measure groundwater levels. The water column is measured using a pressure transducer located near the bottom of the well. The installed sensor measures gauge pressure in inches of water. The Shallow Well_NAVD88 measurement referenced in Appendix C refers to the elevation (referenced as NAVD 88) of the sensor plus the gauge measurement in feet.

Appendix A

HRSD Rain Gauge Network Rainfall Totals



*Note: Rain Gauge was invalid for event and an average of surrounding sites was used.



*Note: Rain Gauge was invalid for event and an average of surrounding sites was used.



*Note: Rain Gauge was invalid for event and an average of surrounding sites was used.

Appendix B

HRSD Treatment Plant Flows









MMPS-071 (07/07/24 to 07/19/24)







Nansemond Treatment Plant







Williamsburg Treatment Plant

MMPS-222 (07/07/24 to 07/19/24)





Appendix C

Shallow Well Analysis

North Shore Shallow Well Graphs

07/10/24 to 07/15/24


1 - year

North Shore Shallow Well Graphs





5 - day

South Shore Shallow Well Graphs

07/10/24 to 07/15/24



20.0 -

~

1 - year

South Shore Shallow Well Graphs



0.0



Hampton Roads Sanitation District

Post-Storm Report



7/20/2024



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July 20th, 2024 – Post-Storm Rain Event Synopsis

Summary

On July 20th, there was an approximate 16-hour rainfall event that resulted in 6 sites on the North Shore that met a 1 to 100-year rainfall recurrence interval throughout the HRSD rain gauge network. A stationary front in the region brought scattered rain to the area. Most of the day was cloudy with scattered showers with most of the rain coming in the afternoon. High humidity and recent rains also made some flooding possible. North Shore sites averaged around 1.61 inches of rain. There was minimal impact on groundwater levels compared to July 2023. See Appendix C for the Historical Shallow Well comparison. This report will be for North Shore only.

No HRSD interceptor weather-related overflow(s) were reported.

HRSD flow and pressure meters met data reliability requirements per the MOM program. For all pressure meters in the aggregate and all pressure-side flow meters in the aggregate for each treatment plant service area listed below, at least 90% reliable data was achieved, based on the duration of system response to this rainfall event. The data reliability for the gravity flow meters is not included in this synopsis.

- Duration of system response: See Table Below
- Aggregate flow meter validity: 96.75%
- Aggregate pressure meter validity: 98.48%

Currently, rainfall recurrence intervals are only analyzed for a maximum of 96-hours. Rainfall analysis begins after 0.1 inches of rain has occurred. A 72-hour dry period of less than 0.1 inches of rain is typically used to signify two separate events. However, if a site returns to "dry weather" conditions prior to the next rainfall that occurs within 72 hours of the previous event, it is also considered for separate analysis. See Appendix A for the Rainfall Total System Maps.

The current criteria for publishing a post-storm analysis are the following:

- One or more rain gauge sites meet a two-year or greater RRI (rainfall recurrence interval) and at least 50% of sites in any treatment plant service area receive one inch of rainfall or greater,
- A rain gauge site meets a five-year or greater RRI, or
- A weather-related SSO occurs.

Treatment Plant Data: (Data obtained from Telog Database) See Appendix B for HRSD Treatment Plant Flows

HRSD Treatment Plant Data 7/20/2024				
		North Sh	ore	
Treatment Plant	Date of Peak Hourly Flow	Peak Hourly Flow (MGD)	Peak Hour	TPSA Total Rainfall Avg (in)
Boat Harbor	7/20/2024	12.80	18:00	0.99
James River	7/20/2024	22.75	18:00	0.77
Williamsburg	7/20/2024	23.79	16:00	1.54
York River	7/20/2024	18.47	18:00	2.83

North Shore

Weather:

Rainfall (HRSD Rainfall Gauges): Recurrence intervals based on NOAA Atlas 14

Rain Gauge Site	Peak Rainfall RI (Duration)	Locality		
Boat Harbor Treatment Plant Service Area ¹				
Bayshore PS	DNQ	HAMP		
Bridge Street Tide Gate	DNQ	HAMP		
Boat Harbor	DNQ	NEWP		
Copeland Park PS	DNQ	NEWP		
Hampton PS 159	DNQ	HAMP		
James River Tr	eatment Plant Service Area ¹			
Hilton School PS	DNQ	NEWP		
James River Main Flow (Influent)	DNQ	NEWP		
Lee Hall PRS	DNQ	NEWP		
Lucas Creek PS	DNQ	NEWP		
Morrison PS	Invalid	NEWP		
Williamsburg T	reatment Plant Service Area ¹			
Ford's Colony	5- to 10-year (1hr)	JCSA		
Fort Eustis PS	DNQ	NEWP		
Greensprings PS	DNQ	JCSA		
Solarex	DNQ	JCSA		
Williamsburg Main Flow (Effluent)	DNQ	JCSA		
Williamsburg PS	DNQ	WILL		
York Skimino Hills PS	2-year (1hr)	YORK		
York River Tre	eatment Plant Service Area ¹			
Big Bethel PRS	DNQ	HAMP		
Freeman PS	DNQ	HAMP		
Gloucester Court House	100-year (2hr)	GLOU		
Guinea Rd at Maryus Rd	1-year (12hr)	GLOU		
Ordinary PCV	25- to 50-year (2hr)	GLOU		
Poquoson PS 6	DNQ	POQ		
Wolf Trappe PCV	DNQ	YORK		
York Kiln Creek 1 PS	DNQ	YORK		
York PS 15	DNQ	YORK		
York River Main Flow (Influent)	2-year (2hr)	YORK		
York River Crossing (York River Rectifier)	DNQ	GLOU		

Note:

1. Typical treatment plant service area.

Newport News-Williamsburg International (PHF)

• Wind and Ra	ainfall (daily	total):			
Date	Gust (max)	Sustained (max)	Sustained (avg)	Direction	Rainfall (in)
7/20/2024	20 mph	14 mph	5 mph	VAR	1.24

Tide:

o Yorktown USCG Training Center:

• Storm Surge: An approximate 0.81-foot storm surge was observed.



Figure 1. Preliminary data obtained from NOAA and a connection with Open Weathe

July 20th, 2024 – Post-Storm Rain Event Synopsis

o Sewells Point Tide Station:

• Storm Surge: An approximate 0.96 foot storm surge was observed.



Figure 2. Preliminary data obtained from NOAA and a connection with Open Weather

Shallow Well Analysis:

Shallow wells are located at/or near HRSD Pump Stations to measure groundwater levels. The water column is measured using a pressure transducer located near the bottom of the well. The installed sensor measures gauge pressure in inches of water. The Shallow Well_NAVD88 measurement referenced in Appendix C refers to the elevation (referenced as NAVD 88) of the sensor plus the gauge measurement in feet.

Appendix A

HRSD Rain Gauge Network Rainfall Totals



*Note: Rain Gauge was invalid for event and an average of surrounding sites was used. **Rain Gauge disconnected during event

Appendix B

HRSD Treatment Plant Flows





James River Treatment Plant

Williamsburg Treatment Plant

MMPS-222 (07/18/24 to 07/23/24)

Flow_Effluent (MGD) Rainfall @ WBTP





MMPS-235 (07/18/24 to 07/23/24)



Appendix C

Shallow Well Analysis

North Shore Shallow Well Graphs

07/18/24 to 07/22/24



5 Day

HRSD NP - Lucas Creek PS





Hampton Roads Sanitation District

Post-Storm Report



July 22-25, 2024



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Summary

From July 22nd through July 25th, there was an approximate 90-hour rainfall event that resulted in 1 site on the North Shore and 8 sites on the South Shore that met a 1 to 2-year rainfall recurrence interval throughout the HRSD rain gauge network. Scattered showers and storms caused pop up storms in our area. Downpours and some flooding occurred with most of the area in a flood watch. The rain continued into the next few days with high humidity bringing afternoon thunderstorms. North Shore sites averaged around 2.08 inches of rain while South Shore sites averaged around 2.42 inches. There was a slight impact on groundwater levels compared to July 2023. See Appendix C for the Historical Shallow Well comparison. This report will be for South Shore only.

No HRSD interceptor weather-related overflow(s) were reported.

HRSD flow and pressure meters met data reliability requirements per the MOM program. For all pressure meters in the aggregate and all pressure-side flow meters in the aggregate for each treatment plant service area listed below, at least 85% reliable data was achieved, based on the duration of system response to this rainfall event. The data reliability for the gravity flow meters is not included in this synopsis.

- Duration of system response: See Table Below
- Aggregate flow meter validity: 85.25%
- Aggregate pressure meter validity: 99.91%

Currently, rainfall recurrence intervals are only analyzed for a maximum of 96-hours. Rainfall analysis begins after 0.1 inches of rain has occurred. A 72-hour dry period of less than 0.1 inches of rain is typically used to signify two separate events. However, if a site returns to "dry weather" conditions prior to the next rainfall that occurs within 72 hours of the previous event, it is also considered for separate analysis. See Appendix A for the Rainfall Total System Maps.

The current criteria for publishing a post-storm analysis are the following:

- One or more rain gauge sites meet a two-year or greater RRI (rainfall recurrence interval) and at least 50% of sites in any treatment plant service area receive one inch of rainfall or greater,
- A rain gauge site meets a five-year or greater RRI, or
- A weather-related SSO occurs.

Treatment Plant Data: (Data obtained from Telog Database) See Appendix B for HRSD Treatment Plant Flows

HRSD Treatment Plant Data 7/22/2024 – 7/25/2024					
South Shore					
Treatment Plant	Date of Peak Hourly Flow	Peak Hourly Flow (MGD)	Peak Hour	TPSA Total Rainfall Avg (in)	
Army Base	7/22/2024	19.67	19:00	0.92	
	7/23/2024	14.51	19:00	0.41	
	7/24/2024	13.05	22:00	0.19	
	7/25/2024	15.88	15:00	0.57	
Atlantic	7/22/2024	69.80	19:00	0.65	
	7/23/2024	90.76	17:00	0.81	
	7/24/2024	66.06	21:00	0.14	
	7/25/2024	98.35	14:00	1.05	
Nansemond	7/22/2024	26.36	19:00	0.74	
	7/23/2024	32.29	19:00	1.04	
	7/24/2024	22.51	22:00	0.19	
	7/25/2024	29.91	15:00	0.76	
VIP	7/22/2024	41.09	19:00	0.76	
	7/23/2024	59.72	20:00	1.24	
	7/24/2024	45.13	00:00	0.07	
	7/25/2024	53.02	15:00	0.67	

South Shore

Weather:

Rainfall (HRSD Rainfall Gauges): Recurrence intervals based on NOAA Atlas 14

Rain Gauge Site	Locality				
Army Base Treatment Plant Service Area ¹					
Bancker Rd (Dovercourt Discharge)	DNQ	NORF			
Taussig Blvd PS	DNQ	NORF			
Atlantic Tr	eatment Plant Service Area ¹				
Callison at GB Locks	DNQ	CHES			
Chesapeake PS 243	DNQ	CHES			
Chesapeake PS 254	DNQ	CHES			
Courthouse PRS	DNQ	VAB			
Elbow Rd	DNQ	CHES			
John B. Dey MLV-AT side	DNQ	VAB			
Kempsville PRS	DNQ	VAB			
Lagomar IFM at Atlantic TP	DNQ	VAB			
Laskin Rd PRS	DNQ	VAB			
Pine Tree PRS	DNQ	VAB			
Shipps Corner PRS	1-year (1hr)	VAB			
Ches-Liz Tr	reatment Plant Service Area ¹				
Dozier's Corner PS	DNQ	CHES			
Independence PRS	DNQ	VAB			
Northampton Blvd at Wesleyan Dr	DNQ	NORF			
Providence PRS	DNQ	VAB			
Shore Dr @ Jack Frost	DNQ	CHES			
Nansemond T	Freatment Plant Service Area ¹				
Bowers Hill PRS	DNQ	CHES			
Cedar Lane PS	1-year (72hr)	PORT			
Chesapeake PS 158	1-year (1hr)	CHES			
Chesapeake PS 238	DNQ	CHES			
Crittenden Rd_Chuckatuck Rectifier	DNQ	SUFF			
Deep Creek PRS	DNQ	CHES			
Hill Point Rectifier	DNQ	SUFF			
Lake Kilby WTP	1-year (1hr)	SUFF			
Nansemond Main Flow (Effluent)	DNQ	SUFF			
Pagan River Rectifier	DNQ	IOW			
Pughsville PS	DNQ	SUFF			
Route 337 PRS	DNQ	CHES			
Smithfield High School	DNQ	IOW			
Suffolk PS	1-year (1hr)	SUFF			
Suffolk PS 81	DNQ	SUFF			
Suffolk PS 87	1- to 2-year (1hr)	SUFF			
Windsor Duke St PS	DNQ	IOW			

ent Plant Service Area	
Peak Rainfall RI (Duration)	Locality
1-year (1hr)	NORF
DNQ	CHES
DNQ	NORF
2-year (1hr)	PORT
DNQ	NORF
DNQ	NORF
	Peak Rainfall RI (Duration) 1-year (1hr) DNQ DNQ 2-year (1hr) DNQ DNQ

Note:

1. Typical treatment plant service area.

*Duration represents the minimum amount of time it took to reach the specified RRI.

Norfolk International A	irport ((ORF)
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O Wind :	and Rainfall (daily	total):			
Date	Gust	Sustained	Sustained	Direction	Rainfall
	(max)	(max)	(avg)		(in)
7/22/2024	25 mph	10 mph	3 mph	SW	0.71
7/23/2024	13 mph	8 mph	2 mph	SW	0.86
7/24/2024		15 mph	8 mph	SW	0.12
7/25/2024		8 mph	5 mph	SW	0.47

• Wind and Rainfall (daily total)

Tide:

• Sewells Point Tide Station:

• Storm Surge: An approximate 0.7 foot storm surge was observed.





Figure 3. Preliminary data obtained from NOAA and a connection with Open Weather

Shallow Well Analysis:

Shallow wells are located at/or near HRSD Pump Stations to measure groundwater levels. The water column is measured using a pressure transducer located near the bottom of the well. The installed sensor measures gauge pressure in inches of water. The Shallow Well_NAVD88 measurement referenced in Appendix C refers to the elevation (referenced as NAVD 88) of the sensor plus the gauge measurement in feet.

HRSD Data Analysis Section Page 8 of 20

Appendix A

HRSD Rain Gauge Network Rainfall Totals



*Note: Rain Gauge was invalid for event and an average of surrounding sites was used.



*Note: Rain Gauge was invalid for event and an average of surrounding sites was used.



*Note: Rain Gauge was invalid for event and an average of surrounding sites was used.

Appendix B

HRSD Treatment Plant Flows





MMPS-071 (07/17/24 to 07/30/24)




MMPS-202 (07/17/24 to 07/30/24)





Appendix C

Shallow Well Analysis



5 - Day South Shore Shallow Well Graphs

1 - Year

South Shore Shallow Well Graphs





Hampton Roads Sanitation District

Post-Storm Report



8/18/2024



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August 18th, 2024 – Post-Storm Rain Event Synopsis

Summary

On August 18th, there was an approximate 7-hour rainfall event that resulted in 5 sites on the South Shore that met a 1 to 5-year rainfall recurrence interval throughout the HRSD rain gauge network. High heat, humidity and a nearby front saw some strong storms develop in the afternoon. The main risks came from powerful wind gusts. South Shore sites averaged around 0.86 inches. There was minimal impact on groundwater levels compared to August 2023. See Appendix C for the Historical Shallow Well comparison. This report will be for South Shore only.

No HRSD interceptor weather-related overflow(s) were reported.

HRSD flow and pressure meters met data reliability requirements per the MOM program. For all pressure meters in the aggregate and all pressure-side flow meters in the aggregate for each treatment plant service area listed below, at least 89% reliable data was achieved, based on the duration of system response to this rainfall event. The data reliability for the gravity flow meters is not included in this synopsis.

- Duration of system response: See Table Below
- Aggregate flow meter validity: 89.05%
- Aggregate pressure meter validity: 100%

Currently, rainfall recurrence intervals are only analyzed for a maximum of 96-hours. Rainfall analysis begins after 0.1 inches of rain has occurred. A 72-hour dry period of less than 0.1 inches of rain is typically used to signify two separate events. However, if a site returns to "dry weather" conditions prior to the next rainfall that occurs within 72 hours of the previous event, it is also considered for separate analysis. See Appendix A for the Rainfall Total System Maps.

The current criteria for publishing a post-storm analysis are the following:

- One or more rain gauge sites meet a two-year or greater RRI (rainfall recurrence interval) and at least 50% of sites in any treatment plant service area receive one inch of rainfall or greater,
- A rain gauge site meets a five-year or greater RRI, or
- A weather-related SSO occurs.

Treatment Plant Data: (Data obtained from Telog Database) See Appendix B for HRSD Treatment Plant Flows

HRSD Treatment Plant Data 8/18/2024						
		South Sh	ore			
Date of Peak Peak Hourly Treatment Plant Hourly Flow Flow (MGD) Peak Hour TPSA Total Rainfall Avg (in)						
Army Base	8/18/2024	12.68	22:00	0.25		
Atlantic	8/18/2024	74.25	22:00	0.72		
Nansemond	8/18/2024	27.83	22:00	0.98		
VIP	8/18/2024	61.60	23:00	1.73		

South Shore

Weather:

Rainfall (HRSD Rainfall Gauges): Recurrence intervals based on NOAA Atlas 14

South Shore Table

Rain Gauge Site	Peak Rainfall RI (Duration)	Locality					
Army Base T	Army Base Treatment Plant Service Area ¹						
Bancker Rd (Dovercourt Discharge)	DNQ	NORF					
Taussig Blvd PS	DNQ	NORF					
Atlantic Treatment Plant Service Area ¹							
Callison at GB Locks	DNQ	CHES					
Chesapeake PS 243	DNQ	CHES					
Chesapeake PS 254	DNQ	CHES					
Courthouse PRS	DNQ	VAB					
Elbow Rd	DNQ	CHES					
John B. Dey MLV-AT side	DNQ	VAB					
Kempsville PRS	DNQ	VAB					
Lagomar IFM at Atlantic TP	DNQ	VAB					
Laskin Rd PRS	DNQ	VAB					
Pine Tree PRS	DNQ	VAB					
Shipps Corner PRS	DNQ	VAB					
Ches-Liz Tr	eatment Plant Service Area ¹						
Dozier's Corner PS	DNQ	CHES					
Independence PRS	DNQ	VAB					
Northampton Blvd at Wesleyan Dr	DNQ	NORF					
Providence PRS	DNQ	VAB					
Shore Dr @ Jack Frost	DNQ	CHES					
Nansemond Treatment Plant Service Area ¹							
Bowers Hill PRS	1- to 2-year (3hr)	CHES					
Cedar Lane PS	DNQ	PORT					
Chesapeake PS 158	DNQ	CHES					
Chesapeake PS 238	DNQ	CHES					
Crittenden Rd_Chuckatuck Rectifier	DNQ	SUFF					
Deep Creek PRS	5-year (3hr)	CHES					
Hill Point Rectifier	DNQ	SUFF					
Lake Kilby WTP	DNQ	SUFF					
Nansemond Main Flow (Effluent)	DNQ	SUFF					
Pagan River Rectifier	DNQ	IOW					
Pughsville PS	DNQ	SUFF					
Route 337 PRS	DNQ	CHES					
Smithfield High School	DNQ	IOW					
Suffolk PS	DNQ	SUFF					
Suffolk PS 81	DNQ	SUFF					
Suffolk PS 87	DNQ	SUFF					
Windsor Duke St PS	DNQ	IOW					

HRSD Data Analysis Section

Page 5 of 19

August 18th , 2024 – Post-Storm Rain Event Synopsis

Rain Gauge Site	Peak Rainfall RI (Duration)	Locality
VIP Treatm	ent Plant Service Area ¹	
Elizabeth River Crossing_Eastern Branch	2- to 5-year (2hr)	NORF
Ferebee Avenue PS	2- to 5-year (3hr)	CHES
Luxembourg Avenue PS	DNQ	NORF
Rodman Ave PS	1-year (1hr)	PORT
Va Beach Blvd PS	DNQ	NORF
VIP Main Flow (Effluent)	DNQ	NORF

Note:

1. Typical treatment plant service area.

*Duration represents the minimum amount of time it took to reach the specified RRI.

Norfolk International Airport (ORF)

 Wind and 	l Rainfall (daily	total):			
Date	Gust	Sustained	Sustained	Direction	Rainfall
	(max)	(max)	(avg)		(in)
8/18/2024	43 mph	30 mph	11 mph	NE	0.72
	-				

Tide:

- Sewells Point Tide Station:
 - Storm Surge: An approximate 0.76 foot storm surge was observed.





Figure 3. Preliminary data obtained from NOAA and a connection with Open Weather

August 18th , 2024 – Post-Storm Rain Event Synopsis

Shallow Well Analysis:

Shallow wells are located at/or near HRSD Pump Stations to measure groundwater levels. The water column is measured using a pressure transducer located near the bottom of the well. The installed sensor measures gauge pressure in inches of water. The Shallow Well_NAVD88 measurement referenced in Appendix C refers to the elevation (referenced as NAVD 88) of the sensor plus the gauge measurement in feet.

HRSD Data Analysis Section Page 8 of 19

Appendix A

HRSD Rain Gauge Network Rainfall Totals



*Note: Rain Gauge was invalid for event and an average of surrounding sites was used. **Rain Gauge disconnected during event



*Note: Rain Gauge was invalid for event and an average of surrounding sites was used. **Rain Gauge disconnected during event

Appendix B

HRSD Treatment Plant Flows













Nansemond Treatment Plant









Appendix C

Shallow Well Analysis

South Shore Shallow Well Graphs





5 Day

South Shore Shallow Well Graphs



00:00:00

00:00:00

00:00:00

00:00:00

00:00:00

1 Year

Hampton Roads Sanitation District

Post-Storm Report



9/27/2024 - 9/28/2024



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Sep 27th – Sep 28th, 2024 – Post-Storm Rain Event Synopsis

Summary

From September 27th to 28th there was an approximate 9 hour rainfall event that resulted in 8 sites that met a 1-5-year rainfall recurrence interval throughout the HRSD rain gauge network. Hurricane Helene brought some light rain to the area. Winds were between 10 and 15mph with gusts reaching 25mph. These winds pulled in warm humid air from the Atlantic which caused isolated thunderstorms in the area as well. Tornado watches were issued in the area due to these isolated thunderstorms. North Shore sites averaged around 1.51 inches of rain. There was minimal impact on groundwater levels compared to September 2023. See Appendix C for the Historical Shallow Well comparison. This report will be for North Shore only.

2 Locality interceptor weather-related overflow(s) were reported.

HRSD flow and pressure meters met data reliability requirements per the MOM program. For all pressure meters in the aggregate and all pressure-side flow meters in the aggregate for each treatment plant service area listed below, at least 90% reliable data was achieved, based on the duration of system response to this rainfall event. The data reliability for the gravity flow meters is not included in this synopsis.

- Duration of system response: See Table Below
- Aggregate flow meter validity: 97.67%
- Aggregate pressure meter validity: 97.96%

Currently, rainfall recurrence intervals are only analyzed for a maximum of 96-hours. Rainfall analysis begins after 0.1 inches of rain has occurred. A 72-hour dry period of less than 0.1 inches of rain is typically used to signify two separate events. However, if a site returns to "dry weather" conditions prior to the next rainfall that occurs within 72 hours of the previous event, it is also considered for separate analysis. See Appendix A for the Rainfall Total System Maps.

The current criteria for publishing a post-storm analysis are the following:

- One or more rain gauge sites meet a two-year or greater RRI (rainfall recurrence interval) and at least 50% of sites in any treatment plant service area receive one inch of rainfall or greater,
- A rain gauge site meets a five-year or greater RRI, or
- A weather-related SSO occurs.

Sep 27th – Sep 28th, 2024 – Post-Storm Rain Event Synopsis

Sanitary Sewer Overflows

Locality

Location	Jurisdiction	Start Date
5349 Rockingham Drive	James City	9/27/2024
76Z Carlton Ct	Williamsburg	9/27/2024

Treatment Plant Data: (Data obtained from Telog Database) See Appendix B for HRSD Treatment Plant Flows

HRSD Treatment Plant Data 9/27/2024 – 9/28/2024						
		North She	ore			
TreatmentDate of PeakPeak HourlyPlantHourly FlowFlow (MGD)Peak HourTPSA Total Rainfall Avg (in)						
Boat Harbor	9/27/2024	22.57	20:00	1.07		
	9/28/2024	16.56	00:00	0.00		
James River	9/27/2024	31.72	18:00	1.30		
	9/28/2024	16.09	12:00	0.00		
Williamsburg	9/27/2024	33.77	18:00	1.77		
	9/28/2024	11.46	11:00	0.00		
York River	9/27/2024	21.59	14:00	1.57		
	9/28/2024	13.19	10:00	0.00		

North Shore

Weather:

Rainfall (HRSD Rainfall Gauges): Recurrence intervals based on NOAA Atlas 14

Rain Gauge Site	Peak Rainfall RI (Duration)	Locality
Boat Harbor	Treatment Plant Service Area ¹	
Bayshore PS	DNQ	HAMP
Bridge Street Tide Gate	DNQ	HAMP
Boat Harbor	DNQ	NEWP
Copeland Park PS	DNQ	NEWP
Hampton PS 159	DNQ	HAMP
James River	Treatment Plant Service Area ¹	
Hilton School PS	DNQ	NEWP
James River Main Flow (Influent)	DNQ	NEWP
Lee Hall PRS	DNQ	NEWP
Lucas Creek PS	1-year (3hr)	NEWP
Morrison PS	DNQ	NEWP

HRSD Data Analysis Section

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Sep 27th – Sep 28th, 2024 – Post-Storm Rain Event Synopsis

Rain Gauge Site	Peak Rainfall RI (Duration)	Locality			
Williamsburg Treatment Plant Service Area ¹					
Ford's Colony	DNQ	JCSA			
Fort Eustis PS	DNQ	NEWP			
Greensprings PS	DNQ	JCA			
Solarex	DNQ	JCSA			
Williamsburg Main Flow (Effluent)	2- to 5-year (2hr)	JCSA			
Williamsburg PS	1- to 2-year (1hr)	WILL			
York Skimino Hills PS	1-year (3hr)	YORK			
York River Treatment Plant Service Area ¹					
Big Bethel PRS	DNQ	HAMP			
Freeman PS	DNQ	HAMP			
Gloucester Court House	2-year (3hr)	GLOU			
Guinea Rd at Maryus Rd	DNQ	GLOU			
Ordinary PCV	5-year (3hr)	GLOU			
Poquoson PS 6	1-year (3hr)	POQ			
Wolf Trappe PCV	DNQ	YORK			
York Kiln Creek 1 PS	DNQ	YORK			
York PS 15	DNQ	YORK			
York River Main Flow (Influent)	DNQ	YORK			
York River Crossing (York River Rectifier)	1- to 2-year (3hr)	GLOU			

Note:

1. Typical treatment plant service area.

Newport News-Williamsburg International (PHF)

• Wind and Rainfall	(daily total):	
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Date	Gust	Sustained	Sustained	Direction	Rainfall
	(max)	(max)	(avg)		(in)
9/27/24	33 mph	20 mph	9 mph	Е	1.10
9/28/24	18 mph	13 mph	5 mph	SW	0.00

Tide:

• Yorktown USCG Training Center:

• Storm Surge: An approximate 1.68-foot storm surge was observed.





Figure 1. Preliminary data obtained from NOAA and a connection with Open Weather

o Sewells Point Tide Station:

• Storm Surge: An approximate 1.48 foot storm surge was observed.



Figure 2. Preliminary data obtained from NOAA and a connection with Open Weather

Shallow Well Analysis:

Shallow wells are located at/or near HRSD Pump Stations to measure groundwater levels. The water column is measured using a pressure transducer located near the bottom of the well. The installed sensor measures gauge pressure in inches of water. The Shallow Well_NAVD88 measurement referenced in Appendix C refers to the elevation (referenced as NAVD 88) of the sensor plus the gauge measurement in feet.

Appendix A

HRSD Rain Gauge Network Rainfall Totals



*Note: Rain Gauge was invalid for event and an average of surrounding sites was used. **Rain Gauge disconnected during event

Appendix B

HRSD Treatment Plant Flows



Boat Harbor Treatment Plant


James River Treatment Plant

Williamsburg Treatment Plant

MMPS-222 (09/24/24 to 10/01/24)

Flow_Effluent (MGD) Rainfall @ WBTP





MMPS-235 (09/24/24 to 10/01/24)



Appendix C

Shallow Well Analysis

North Shore Shallow Well Graphs

09/25/24 to 10/01/24



HRSD NP - Lucas Creek PS



