COMMISSION MEETING MINUTES
December 19, 2023

No.	Topic
	Call to Order
1.	Awards and Recognition
2.	Public Comments Not Related to the Agenda
3.	Consent Agenda
4.	Wastewater Process Tank Cleaning Services Rejection of all Bids (>$200,000)
5.	Virginia Initiative Plant and Army Base Treatment Plant Secondary Clarifier Weir Covers Initial Appropriation - Regulatory Required CIP (<$10,000,000) Rejection of Low Bid (>$200,000) Contract Award (>$200,000)
6.	West Point Treatment Plant Green Power On Demand Systems (G-PODS) Grant Agreement (>$200,000)
7.	City of Chesapeake, Coastal Virginia Commerce Park Development Service Area Expansion Agreement
8.	Williamsburg Treatment Plant Outfall Flow Control System Repairs Additional Appropriation - Non-Regulatory >$1,000,000, Contract Award (>$200,000) and Task Order (>$200,000)
9.	York River DEMON Upgrades Initial Appropriation
10.	Atlantic Treatment Plant Reliability and Odor Control Improvements (ROCI) Update ATP Liquid Side Odor Evaluation and Improvements ATP Gravity Belt Thickener and Pre-Dewatering Polymer Improvements ATP Odor and Solids Improvements 2023 ATP Solids Curing Facility and Pad Improvements
11.	2023 Engagement Survey/Stay Interview
12.	New Business
13.	Unfinished Business
14.	Commissioner Comments
15.	Informational Items

COMMISSION MEETING MINUTES
December 19, 2023

The Commission Chair called the meeting to order at 9:01 a.m.

Name	Title	Present for Item Nos.
Rodriguez, Stephen C.	Commission Chair	1-15
Elofson, Frederick N.	Commission Vice-Chair	1-3, 5-15
Glenn, Michael E.	Commissioner	1-15
Lakdawala, Vishnu K.	Commissioner	1-15
Levenston, Jr., Willie	Commissioner	1-15
Stern, Nancy J.	Commissioner	1-15
Taraski, Elizabeth	Commissioner	1-15
Templeman, Ann	Commissioner	7-15

In accordance with Virginia Code § 2.2-3708.3 (B) and the HRSD Remote Participation Commission Adopted Policy Commissioner Elofson requested approval to participate in today's meeting from Newport News due to a medical condition that prevents the Commissioner's physical attendance. In addition, Commissioner Lakdawala is unable to attend the meeting in person due to out-of-town travel.

Moved: Michael Glenn
Seconded: Willie Levenston

Ayes: 5
Nays: 0
(Excludes Remote Participants; Commissioner Templeman absent)

1. Awards And Recognition

Action: No action required.

Brief: HRSD is pleased to announce the following:

a. Promotion Announcement

Mr. Jeff Sparks was recently promoted to Chief of Operations Data Systems and Optimization in the General Management Department. In this newly created position, Jeff will be responsible for leveraging Machine Learning and AI to help make operational decisions.

Jeff is a licensed Professional Engineer with 15 years of experience in design, operations, process control, and utility management. He is a graduate of Virginia Military Institute (VMI) where he earned his bachelor's degree in civil and environmental engineering. Our very own Dr. Charles Bott was one of Jeff's professors during his time there. Jeff went on to get his master's degree in

environmental engineering from Virginia Tech. After that, Jeff went into consulting until he was ready to join our side as an owner in 2010. Since then, Jeff has never looked back. At HRSD, Jeff has served in various roles including Interceptor Engineer, Small Communities Systems Manager, and Treatment Process Engineer (TPE). It is Jeff's range of experience that makes him well-suited for his new role. Jeff is also currently pursuing his PhD at Université Laval. His focus is on integrating machine learning into industrial controllers at Water Resource Recovery Facilities. Over the last few years while Jeff has been studying at Laval, he deployed one of the only Water Resource Recovery Facility digital twins at our Nansemond Treatment Plant (NTP). His digital twin uses machine learning to forecast the quality of the plant's effluent, informing the decisions about what to do upstream to meet treatment objectives. Jeff will be looking to apply his expertise to other areas across HRSD.

b. Awards

Ms. Lauren Zuravnsky was recently recognized by Inside Business as a 2023 Women in Business honoree. This award recognizes and celebrates women who have been successful in their business and careers, have had a significant impact on the business community and local economy and have served as mentors and examples to others.

Lauren was hired in January 2016 as a Project Manager in the Engineering Department and was then promoted to Chief of Design & Construction - SWIFT in March 2018. In her current position, Lauren is responsible for leading the team that is planning and delivering multiple concurrent capital improvement projects, totaling $4.2 Billion, to implement HRSD's innovative Sustainable Water Initiate for Tomorrow (SWIFT) program. Lauren holds a bachelor's degree in civil engineering from Villanova University, a master's degree in environmental engineering from Virginia Tech, and is a licensed professional engineer in Virginia. Lauren is an active participant in Virginia Water Environment Association, Water Environment Federation, and recently joined the WateReuse Association Board of Directors.

2. **Public Comments Not Related to Agenda** – None

3. Consent Agenda

Action: Approve the items listed in the Consent Agenda.

Moved:	Nancy Stern	**Ayes:**	7
Seconded:	Michael Glenn	**Nays:**	0

Brief:

a. Approval of minutes from previous meeting.

b. Contract Awards (>$200,000)

1. Central Norfolk Area Gravity Sewer Improvements Phase II
   - Contract Award $5,382,145
   - Task Order $335,318

2. Fleet Management (FY-2024) Crew Cab Truck with Hydraulic Tool and Body Crane — $312,645

3. Office Supply Blanket Purchase Agreement — $328,146

4. Williamsburg Treatment Plant Roof Replacements — $459,000

c. Contract Change Orders (>25% of original contract value or $50,000)

1. Larchmont Area Sanitary Sewer Improvements — $51,805

d. Non-Regulatory Capital Improvement Project – Additional Appropriation <$1,000,000

1. Nansemond Treatment Plant Regional Residuals Facility Upgrade
   - Task Order $305,157
   - Additional Funding $454,099

Item(s) Removed for Discussion: None

Public Comment: None

4. **Wastewater Process Tank Cleaning Services**
Rejection of all Bids (>$200,000)

Action: Approve rejection of all bids submitted for the Wastewater Process Tank Cleaning Services.

Moved:	Willie Leveston	**Ayes:**	6
Seconded:	Elizabeth Taraski	**Nays:**	0
			Commissioner Elofson absent

Regulatory Requirement: None

Type of Procurement: Competitive Bid

In accordance with HRSD's competitive sealed bidding procedures, the Procurement Department advertised and solicited bids directly from potential bidders. The project was advertised on October 16, 2023, and three bids were received on November 28, 2023 as listed below:

Bidder	Bid Amount
Hepaco LLC	n/a
Potomac Environmental Inc.	n/a
Synagro-WWT, Inc.	n/a

HRSD Estimate: $174,000/year
$870,000/5 Years

Contract Description: This contract is for labor, materials, equipment and supervision necessary for general cleaning to various types of process tanks at multiple treatment plants on an as needed basis. These services can include vacuuming and removing and disposing of solids which represent a critical step in maintaining system operations. These services may be required during normal working hours, after normal working hours, or during an emergency situation.

Bidders were asked to submit a price sheet with labor, equipment, and response rates for evaluation. Upon review of the bids received, it became evident that the pricing structure of the solicitation was not defined well enough to allow for evaluation and award of a low responsive and responsible bidder. Also, specifications will be revised to further define the types of process tanks, average type of cleaning scenarios, and typical response time for the bidders to better calculate their pricing.

This work is in accordance with the Commission Adopted Procurement Policy.

Public Comment: None

5. **Virginia Initiative Plant and Army Base Treatment Plant Secondary Clarifier Weir Cover Installation**
Initial Appropriation - Regulatory Required CIP (<$10,000,000)
Rejection of Low Bid (>$200,000)
Contract Award (>$200,000)

Actions:

a. Appropriate total project funding in the amount of $1,560,000.

b. Approve rejection of the bid submitted by Sentry Equipment Corp. and find the bidder non-responsive.

c. Award a contract to Nefco, Inc. in the amount of $1,371,252.

Moved:	Michael Glenn	**Ayes:**	7
Seconded:	Nancy Stern	**Nays:**	0

CIP Project: GN020100

Regulatory Requirement: None

Budget	$1,560,000
Previous Expenditures and Encumbrances	($0)
Available Balance	$1,560,000

Type of Procurement: Competitive Bid

In accordance with HRSD's competitive sealed bidding procedures, the Procurement Department advertised and solicited bids directly from potential bidders. The project was advertised on September 22, 2023, and three bids were received on October 13, 2023, as listed below:

Bidder	Bid Amount
Sentry Equipment Corp. (determined to be non-responsive)	$1,327,716
Nefco, Inc.	$1,371,252
Sherwood Logan and Associates, Inc.	Withdrawn

HRSD Estimate: $1,376,050

Project Description: This project will involve procurement and installation of covers on the secondary clarifier effluent weir channels at both Virginia Initiative Plant (VIP) and Army Base Treatment Plant (ABTP).

Project Justification: The covers will prevent algae growth from occurring in the quiescent portion of clarifier by eliminating exposure to sunlight. At ABTP, the current protocol is to assign Maintenance Operators to the task of removing algae once every week equating to $34,000 per year. VIP currently utilizes sodium hypochlorite to prevent algae growth, which with recent increases in chemical costs equates to $150,000 per year. The prevention of algae growth is necessary to reduce adverse impacts on effluent quality and downstream mechanical equipment.

Contract Description: This contract is for the fabrication of fiberglass launder covers for the secondary clarifier effluent weir channels at both VIP and ABTP. The covers will be installed by operations personnel with onsite user training provided by Nefco once completed.

Analysis of Cost: Costs are determined to be fair and reasonable based on past purchase history of similar covers. Sentry Equipment Corp. was deemed non-responsive due to not meeting the minimum specifications required. Sherwood Logan and Associates withdrew their bid due to multiple cost calculation errors.

This work is in accordance with the Commission Adopted Procurement Policy.

Schedule:

Construction	July 2023
Project Completion	July 2025

Public Comment: None

6. **West Point Treatment Plant Green Power On Demand Systems (G-PODS) Grant Agreement (>$200,000)**

Action: Approve the terms and conditions of the Voluntary Participation Agreement and Letter of Intent to Participate in the G-PODS within the Virginia Department of Emergency Management (VDEM) Building Resilient Infrastructure and Communities (BRIC) grant program for the installation of a G-PODS system at the West Point Treatment Plant and authorize the General Manager to execute same, substantially as presented, together with such changes, modifications, and deletions as the General Manager may deem necessary.

Moved:	Nancy Stern	**Ayes:**	7
Seconded:	Michael Glenn	**Nays:**	0

Agreement Description: HRSD's Westpoint Treatment Plant has been selected by VDEM in their Phase 3 FEMA BRIC Application for 2024. The attached agreement and letter of intent between VDEM and HRSD is for the G-PODS initiative will leverage mobile, rechargeable battery systems that will support the electric grid during normal conditions but could also be deployed to your facility by Dominion Energy during an electrical outage. Deployment will be coordinated using the standard resource request process through the Virginia Department of Emergency Management. The GPOD system will be owned, operated, and maintained by Dominion Energy. Some key highlights of the Agreement include Dominion Energy owning and maintaining the Mobile Battery Systems, they will be located at a Dominion Facility, and mobilized during natural disasters and interruptions to service. GPOD mobile battery systems cost approximately $1,500,000 and the quick connection and equipment pad cost approximately $125,000. The grant will be financially responsible for the cost of installing the proposed system.

This work is in accordance with the Financial Commission Adopted Policy.

Schedule:	Construction	July 2025
	Project Completion	July 2026

Discussion Summary: This mobile battery unit is estimated to run the treatment plant for a few days in the event of a power outage and will be an additional source of alternate power to the existing generator.

Public Comment: None

7. **City of Chesapeake, Coastal Virginia Commerce Park Development Service Area Expansion Agreement**

Action: Approve the modification to the existing HRSD service area as requested by the City of Chesapeake and authorize the General Manager to execute by letter the same, substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary.

Moved:	Michael Glenn	**Ayes:**	8
Seconded:	Elizabeth Taraski	**Nays:**	0

Project Description: The City of Chesapeake has requested an expansion of HRSD's service area to include the Coastal Virginia Commerce Park development.

The City of Chesapeake has requested the service area expansion prior to knowing what businesses will occupy the site. Having the HRSD service area expansion approved, prior to knowing the occupants and the associated wastewater flow and load, will increase the chances of the City's Virginia Economic Development Commission grant application being approved. The grant would be used in part to pay for water and sewer service to the site. The grant application is due by January 11, 2024.

HRSD understands that the build-out flows will be dependent on the occupants of the Coastal Virginia Commerce Park development. HRSD cannot approve the service area expansion with an undefined wastewater flow rate. However, HRSD can approve the service area expansion request for the first 1,420 acres, as requested, with a not to exceed wastewater flow of up to 2.73 Million Gallons per Day (MGD) . The expanded service area will connect to the HRSD South Battlefield Interceptor Force Main through a new pump station and sewer force main. HRSD will own the interceptor extension along the Battlefield Boulevard corridor. This expansion will work in conjunction with the Public Safety Training Academy service area expansion previously approved in September 2023. Under this concept, costs associated with connection to the HRSD Interceptor would be the City's responsibility. HRSD will continue to collaborate with the City of Chesapeake to provide wastewater service for the expanded service area. Additional flow from the Coastal Virginia Commerce Park development will need a system capacity assessment.

Staff provided a briefing during the meeting.

This work is in accordance with the Service Area Expansion Commission Adopted Policy.

Discussion Summary: The water and sewer pipe extensions cover approximately 15 miles, is estimated to cost $297 million, and will be completed in approximately four years. The City of Chesapeake has applied for grant funding and there will be no cost to HRSD. The Commission discussed the ability to treat flow from North Carolina. Counsel Jeff Geiger of Sands Anderson believes the HRSD Enabling Act only allows HRSD to treat wastes

originating in Virginia. Staff will continue to work closely with the City of Chesapeake on this project and will provide regular updates to the Commission. Mr. David Jurgens, City of Chesapeake Director of Public Utilities explained the first portion of the grant funding will be used for the connection for the Public Safety Training Academy. In addition, City of Chesapeake meets with the U.S. Navy on a quarterly basis. He also said they are working with the Department of Corrections to assist with their sewer discharges.

Chair Rodriguez thanked staff for working with the City of Chesapeake.

Public Comment: None

8. **Williamsburg Treatment Plant Outfall Flow Control System Repairs Additional Appropriation - Non-Regulatory ≥$1,000,000, Contract Award (>$200,000) and Task Order (>$200,000)**

Actions:

a. **Appropriate additional funding in the amount of $3,639,588.**
b. **Award a contract to Bridgeman Civil Inc. in the amount of $4,840,000.**
c. **Approve a task order with HDR in the amount of $258,655.**

Moved:	Michael Glenn	**Ayes:**	8
Seconded:	Willie Levenston	**Nays:**	0

CIP Project: WB013100

Regulatory Requirement: None

Budget	$1,958,040
Previous Expenditures and Encumbrances	($244,040)
Available Balance	$1,714,000
Proposed Construction Contract to Contractor	($4,840,000)
Proposed Task Order to Engineer	($258,655)
Proposed Contingency	($254,933)
Project Shortage/Requested Additional Funding	($3,639,588)
Revised Total Project Authorized Funding	$5,597,628

Contract Status with Task Orders:	**Amount**
Original Contract with Engineer	$243,931
Total Value of Previous Task Orders	$0
Requested Task Order	$258,655
Total Value of All Task Orders	$258,655
Revised Contract Value	$502,586
Engineering Services as % of Construction	10%

Type of Procurement: Competitive Bid

In accordance with HRSD's competitive sealed bidding procedures, the Engineering Department advertised and solicited bids directly from potential bidders. The project was advertised on October 20, 2023, and two (2) bids were received on November 21, 2023, as listed below:

Bidder	Bid Amount
Bridgeman Civil, Inc.	$4,840,000
American Contracting & Environmental Services, Inc.	$5,447,000

Engineer Estimate: $3,240,000
The design engineer, HDR, evaluated the bids based upon the requirements in the invitation for bid and recommends award to the lowest responsive and responsible bidder Bridgeman Civil, Inc. in the amount of $4,840,000. Evaluation of the bid followed by discussion with Bridgeman Civil on November 27, 2023, identified the primary difference in cost between the bid amount and the engineer's estimate was the cost and risk of the shoring and excavation so near the Mean High Water level of the James River at the required line stop location. HDR provided their letter of recommendation for award on November 30, 2023.

Project Description: This project will replace worn out flow control and isolation valves on the outfall flow control system used to maintain water level in the chlorine contact tanks. To replace valves, the contractor will need to isolate the outfall to prevent river water from entering the flow control vault.

Project Justification: This project will ensure proper flow control from the chlorine contact tanks to the outfall and maintain the required water level in the chlorine contact tanks by replacing worn out flow control valves. It will also replace leaking isolation valves needed to isolate flow control valves for maintenance and repair.

Contract Description: This contract is for the construction of the project as described above.

Task Order Description: This task order will provide construction phase services for this project. A fee of $258,655 was negotiated with HDR.

Analysis of Cost: The cost for this Task Order is based on anticipated construction administration and inspection hours required for this effort. This cost for construction phase services is approximately 10 percent of the total construction cost, which is somewhat lower than comparable projects. The labor rates are within the Rate Schedule included in the amendment of the Professional Engineering Services Agreement for General Engineering Services, dated date July 1, 2023. A Contingency of 5% is also being requested.

Schedule:		
	Bid	November 2023
	Construction	January 2024
	Project Completion	May 2025

Public Comment: None

9. **York River DEMON Upgrades**
Initial Appropriation

Action: Appropriate total project funding in the amount of $530,000.

Moved:	Michael Glenn	**Ayes:**	8
Seconded:	Elizabeth Taraski	**Nays:**	0

CIP Project: YR014900

Regulatory Requirement: None

Project Description: This project includes upgrades to improve the reliability and stability of the DEMON process at York River Treatment Plant and to address a few remaining upgrades needed in the mainstream biological process following a previous CIP York River Advanced Nutrient Reduction Improvements Phase I (YR013710). For DEMON, the work will incorporate mobile biofilm carriers for anammox attachment and retention screens. Improvements will also be made for the centrate equalization and pumping systems, and emergency heating will be provided for the DEMON tank to maintain process temperature during unplanned winter shutdowns. Mainstream plant improvements include instrumentation upgrades for the methanol facility and electrical and control system upgrades for the aeration tanks and secondary clarifiers. The tasks associated with this project will be designed by HRSD staff and constructed by HRSD staff and on-call contractors. It should be noted that some equipment items associated with the DEMON upgrades were ordered on the Operations operating budget due to long lead times (approximately $40,000), and these costs will not be allocated to this CIP.

Project Justification: The goal is to improve reliability and stability of the DEMON process by making it more resistant to upsets from high influent suspended solids by switching from a hybrid granular/suspended growth process to an attached growth process. Currently, there are frequent upsets from influent solids that cause temporary shutdowns and restarts which require a significant amount of operator time and attention. When DEMON is offline, the nitrogen loading on the plant is increased which uses more aeration energy, alkalinity, and methanol. The mainstream treatment upgrades address problems with instrumentation and control systems for aeration tanks, secondary clarifiers, and the methanol feed system.

Analysis of Cost: The cost is based on a Class 5 estimate from Operations.

Staff provided a briefing during the meeting.

Schedule:	Design	July 2023
	Construction	January 2024
	Project Completion	March 2025

Public Comment: None

10. **Atlantic Treatment Plant Reliability and Odor Control Improvements (ROCI) Update**
ATP Liquid Side Odor Evaluation and Improvements
ATP Gravity Belt Thickener and Pre-Dewatering Polymer Improvements
ATP Odor and Solids Improvements 2023
ATP Solids Curing Facility and Pad Improvements

Action: No action is required.

CIP Project: AT015800, AT015900, AT016000, AT016100

Regulatory Requirement: None

Budget	$75,244,000
Previous Expenditures and Encumbrances	($2,141,672)
Available Balance	$73,102,328

Project Description: These projects will provide for treatment plant improvements to Atlantic Treatment Plant. These improvements will increase treatment reliability and minimize offsite odors for the surrounding community.

Project Justification: There has been an increase in odor complaints around the Atlantic Treatment Plant since calendar year 2022 based on the implementation of the new solids handling process and the diversion of all Chesapeake-Elizabeth Treatment Plant flow. These projects include design and construction to perform needed solids handling and odor control upgrades at the Atlantic Treatment Plant. Four CIP projects are included in this effort as follows:

ATP Liquid Side Odor Evaluation and Improvements (AT015800):

- Evaluate and address any potential odors not captured as part of the ATP Odor and Solids Improvements 2023 CIP, to include Odor Control Stations B and D and the areas they serve from the headworks, through the primary clarifiers, and the covered portions of the aeration tanks.

ATP Gravity Belt Thickener and Pre-Dewatering Polymer Improvements (AT015900):

- Since the diversion of the Chesapeake-Elizabeth Flows to the Atlantic Treatment Plant, at peak solids loadings, the plant requires a fourth gravity belt thickener to maintain redundancy.
- The pre-dewatering polymer systems at Atlantic Treatment Plant does not meet expected performance and is often the root cause of failures in the pre-dewatering system. Upgrading the system will minimize such failures. Upgrades to the thickening polymer system that is adjacent to the pre-dewatering polymer system will allow for standardization, operating cost minimization, and additional operational flexibility.

ATP Odor and Solids Improvements 2023 (AT016000):

- Demolish the old high-purity oxygen tanks and construct two gravity thickeners in their place. This will allow for thickening of primary solids outside of the rectangular primary clarifiers which will protect the chain and flight mechanisms and allow for effective operation of the primary clarifiers.
- Replace the outdated Odor Control Stations (OCS) A & C with a new odor control station that has the capacity to serve areas currently treated by OCS A & C as well as the gravity thickeners, scrubbed digester annular space and Dystor cover vents, and the primary fermenter.
- Assess the overall digester gas system and upgrade as necessary. This will include replacing the current flares with enclosed flares to reduce offsite odors and eliminate a visible flame as well as covering and scrubbing both the annular space around the floating covers on Digesters 1 through 4 and the vents from the Dystor covers on Digesters 5 and 6.
- Install an additional Cambi B6 skid, screw loadout from the existing pre-dewatering hopper, and a third Fats, Oils and Grease (FOG) tank to improve reliability, increase capacity, and provide more operational flexibility.
- Retrofit the existing Digested Solids Storage Tank to allow for post-digestion struvite precipitation to protect downstream equipment.

ATP Solids Curing Facility and Pad Improvements (AT016100):

- Enclose and scrub a portion of the South Biosolids Pad to allow for curing of biosolids without producing offsite odors. Once the solids are cured, they can then be moved to open areas on the biosolids pads with less potential for producing offsite odors.
- Increase wall height around the remaining, uncovered portion of the South Biosolids Pad to allow for higher stacking of cured biosolids.
- Construct a conveyor that runs from the newly constructed curing area to the North Biosolids Pad.
- Repair degraded support columns on both the North and South Biosolids Pads.

Staff provided a briefing during the meeting.

Schedule:		
	PER	December 2023
	Design	December 2024
	Bid	March 2025
	Construction	June 2025
	Project Completion	May 2027

Public Comment: None

11. 2023 Engagement Survey/Stay Interview Briefing

Action: No action is required.

Brief: An engagement survey serves as a vital tool for organizations seeking to understand and enhance the overall well-being and productivity of their workforce. By soliciting anonymous feedback from employees about their experiences, job satisfaction, and level of engagement, we can gain valuable insights into the factors that contribute to a positive or negative work environment. This feedback allows us to identify areas for improvement and make informed decisions to foster a more engaged and motivated workforce. Additionally, engagement surveys provide employees with a platform to voice their concerns, contributing to a culture of transparency and open communication.

The General Manager provided a short presentation on the 2023 results.

Public Comment: None

12. **New Business** – None

13. **Unfinished Business** – None

14. **Commissioner Comments**

Commissioner Glenn thanked staff for the presentation on the Employee Engagement Survey. He said it was a great way to end the year with good news.

15. **Informational Items**

Action: No action required.

Brief: The items listed below were presented for information.

a. Management Reports

(1) General Manager
(2) Communications
(3) Engineering
(4) Finance
(5) Information Technology
(6) Operations
(7) Talent Management
(8) Water Quality
(9) Report of Internal Audit Activities

b. Strategic Measures Summary

Discussion Summary: The General Manager said he recently gave an update on the SWIFT Program and funding requirements to Senators and Delegates at the State Water Commission. HRSD's lobbyists Chris Pomeroy and Preston Bryant were also in attendance. Chair Rodriguez asked staff to plan to attend the next meeting of the Hampton Roads Caucus of the Virginia General Assembly to discuss HRSD's priorities for the upcoming legislative session.

Public Comment: None

Next Commission Meeting Date: January 23, 2024 at the HRSD North Shore Operations Center, 2389 G. Avenue, Newport News, VA 23602.

Meeting Adjourned: 10:54 am

SUBMITTED:

Jennifer L. Cascio
Commission Secretary

APPROVED:

Stephen C. Rodriguez
Commission Chair

3. Consent Agenda

CONSENT AGENDA ITEM 3.b.1. – December 19, 2023

Subject: Central Norfolk Area Gravity Sewer Improvements Phase II
Contract Award (>$200,000), Task Order (>$200,000)

Recommended Actions:

a. Award a contract to Bridgeman Civil, Inc. in the amount of $5,382,145.

b. Approve a task order with Hazen and Sawyer in the amount of $335,318.

CIP Project: VP017120

Regulatory Requirement: Rehab Action Plan Phase 2 (2025 Completion)

Budget	$7,160,000
Previous Expenditures and Encumbrances	($542,945)
Available Balance	$6,617,055

Contract Status with Task Orders:	Amount
Original Contract with Hazen and Sawyer	$0
Total Value of Previous Task Orders	$531,901
Requested Task Order	$335,318
Total Value of All Task Orders	$867,219
Revised Contract Value	$867,219
Engineering Services as % of Construction	16%

Type of Procurement: Competitive Bid

In accordance with HRSD's competitive sealed bidding procedures, the Engineering Department advertised and solicited bids directly from potential bidders. The project was advertised on October 17, 2023, and four bids were received on November 29, 2023 as listed below:

Bidder	Bid Amount
Bridgeman Civil, Inc.	$5,382,145
Prism Contractors and Engineers, Inc.	$6,256,943
Tidewater Utility Construction, Inc.	$8,875,900
Spiniello Companies	Withdrawn

Engineer Estimate: $2,694,711

The low bidder was Spiniello Companies in the amount of $1,853,300. HRSD received notification from Spiniello on November 30, 2023, indicating that they had made a material and substantial mistake in the preparation of the bid. Spiniello requested to withdraw their bid in accordance with Article 16.03 of the Instructions to Bidders. The withdrawal was made in accordance with the requirements of the bid documents.

The design engineer, Hazen and Sawyer, evaluated the bids based upon the requirements in the invitation for bid and recommends that HRSD accept Spiniello Companies' request to withdraw their bid due to clerical error in accordance with 2.2-4330 of the Code of Virginia. Hazen and Sawyer

further recommends award to the lowest responsive and responsible bidder, Bridgeman Civil, Inc., in the amount of $5,382,145.

The Engineer's Estimate did not adequately account for the saturated market conditions or lack of qualified bidders from outside the Hampton Roads area to bid on the project. The estimate was based on previous CIPP and manhole rehabilitation projects in the area, supplier and vendor costs data but the estimate did not include the same amount of risk the bidders perceived on work in the creeks and in the Five Points intersection or the escalation of labor costs since the PER phase of the project. The greatest deviation between the bidders' totals and the engineer's total was in CIPP lining unit costs and bypass pumping. The Bridgeman Civil bid consisted of all UV-cured lining and because their cost estimating methods differ from the unit prices presented in the bid, the unit price line items may reflect risk and cost distributed unevenly throughout each line item.

Project Description: This project consists of three sections of improvements to the existing HRSD gravity sewer system in the City of Norfolk. The method of improvement will be installation of Cured-In-Place-Pipe (CIPP) liner:

- Fox Hall/Norcova Drive/East Princess Anne Road Gravity Sewer - Rehabilitation of 3,697 linear feet (LF) of gravity sewer (ranging from 8 to 12 inches) and 1 manhole. The work also includes 85 LF of 12-inch gravity sewer extending to the City of Norfolk Pump Station #44.
- Luxembourg Avenue Gravity Sewer - Rehabilitation of 3,044 LF of gravity sewer (ranging from 8 to 12 inches) and 7 manholes including 326 LF of 8-inch City of Norfolk gravity sewer.
- Norview-Estabrook/Chesapeake Boulevard Gravity Sewer - Rehabilitation of gravity sewer not previously rehabilitated or replaced including 2,887 LF of gravity sewer (ranging from 12 to 18 inches) and 7 manholes.

The attached map depicts the project location.

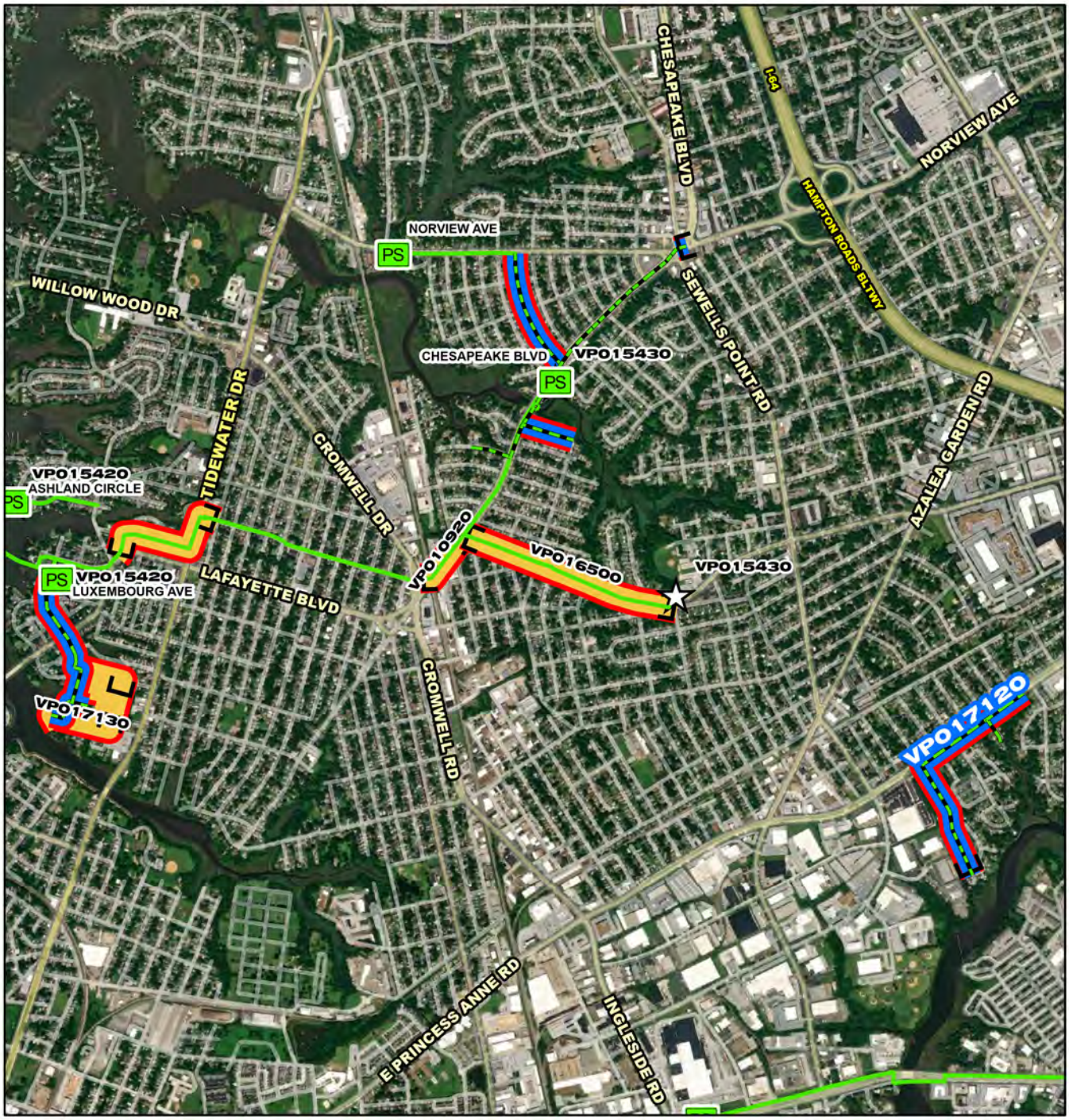
Project Justification: Condition assessment activities indicate that these assets present a material risk of failure due to infiltration and inflow and physical condition defects. This project is a portion of the EPA Rehabilitation Action Plan Phase 2 with a Substantial Completion requirement of May 5, 2025.

Contract Description: This contract is for the rehabilitation of sanitary sewer gravity main by means of CIPP liner and rehabilitation of sanitary manholes. The contract will include lump sum and unit price items.

Task Order Description and Analysis of Cost: This task order will provide the required contract administration and inspection services during construction. A fee of $335,318 was negotiated based on hourly rates in Hazen and Sawyer's annual services contract for General Engineering Services and an estimation of hours needed to complete the work. The fee is 6.2% of the construction cost and is in agreement with other projects of similar size and complexity.

Schedule:

PER	July 2021
Design	February 2022
Bid	October 2023
Construction	February 2024
Project Completion	March 2025



VP017120

- Project Interceptor Line
- Project Interceptor Point
- Project Pump Station Point
- Project Area

Legend

- CIP Interceptor Point
- CIP Pump Station Point
- CIP Interceptor Line
- CIP Abandonment
- CIP Project Area
- HRSD Interceptor Force Main
- HRSD Interceptor Gravity Main
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 500 1,000 2,000 3,000 4,000 Feet

VP017120

Central Norfolk Area Gravity Sewer Improvements Phase II

HRSD

N
W E
S

CIP Location

Resource: Eddie Abisaab

CONSENT AGENDA ITEM 3.b.2 – December 19, 2023

Subject: Fleet Management (FY-2024)
Crew Cab Truck with Hydraulic Tool and Body Crane
Contract Award (>$200,000)

Recommended Action: Award a contract to Norfolk Truck Center, Inc. in the amount of $312,645.

CIP Project: GN019300

Regulatory Requirement: None

Budget	$2,670,910
Previous Expenditures and Encumbrances	($1,928,192)
Available Balance	$742,718

Type of Procurement: Competitive Bid

In accordance with HRSD's competitive sealed bidding procedures, the Procurement Department advertised and solicited bids directly from potential bidders. The project was advertised on October 23, 2023, and two bids were received on November 6, 2023, as listed below:

Bidder	Bid Amount
Norfolk Truck Center, Inc.	$312,645
All Roads Kenworth, LLC dba All Roads Kenworth Mardela Spring	Withdrawn

HRSD Estimate: $358,500

Project Description: This project will provide for replacement of aging fleet vehicles and purchase of additional vehicles to meet the needs of the organization. An itemized list of vehicles to be replaced or added is maintained by the Support Systems Division.

Project Justification: Replacement of aging vehicles will result in lower repair costs and the purchase of additional vehicles will provide for increased staff efficiency.

Contract Description: This contract is for the purchase of a crew cab truck with hydraulic tool and body crane. Features on this vehicle include a full tractor package, automatic and manual drain valves, and front mud flaps with severe service splash shields.

Analysis of Cost: Costs are determined to be fair and reasonable based on past purchase history of similar vehicles. All Roads Kenworth withdrew their bid due to not quoting the correct model of vehicle.

This work is in accordance with the Commission Adopted Procurement Policy.

Resource: Steve de Mik

CONSENT AGENDA ITEM 3.b.3 – December 19, 2023

Subject: Office Supply Blanket Purchase Agreement
Contract Award (>$200,000)

Recommended Action: Award a contract to Staples Contract and Commercial Inc DBA Staples Advantage in the amount of $109,382 for one year with two renewal options and an estimated cumulative value of $328,146.

Regulatory Requirement: None

HRSD Estimate: $109,382

Type of Procurement: Use of Existing Contract Vehicle

Contract Description: This contract is an agreement to supply and deliver office supplies for use by all of HRSD in accordance with a cooperative contract competitively solicited by Sourcewell. In-store and online ordering capabilities, product selection and an annual rebate of one percent offered by Staples Advantage make this the most advantageous cooperative contract for HRSD.

Upon evaluation of the Sourcwell contract terms and conditions, as a public agency, HRSD is eligible to use the contract awarded to Staples Contract and Commercial Inc DBA Staples Advantage.

Analysis of Cost: This is an estimated use contract. By utilizing the Sourcewell Contract #012320-SCC for Office Supply Catalog Solutions, HRSD is receiving 50 and 65 percent discount off retail prices based on various product categories.

This work is in accordance with the Commission Adopted Procurement Policy.

Resource: Eddie Abisaab

CONSENT AGENDA ITEM 3.b.4. – December 19, 2023

Subject: Williamsburg Treatment Plant Roof Replacements
Task Order (>$200,000)

Recommended Action: Approve a task order with International Roofing in the amount of $459,000.

Regulatory Requirement: None

Task Order Description: This task order will provide roof replacements on multiple buildings at the Williamsburg Treatment Plant. These include Blower building #3, #4, and #5; Grit Screen building #14; Odor A building #23; Primary Solids building #26; Return Waste Biosolids Pumping building #27; Scum building #28; and Septic Unloading building #29.

Analysis of Cost: The cost for this task order is based on the pre-negotiated rates under the Roof Inspection and Maintenance Contract.

This work is in accordance with the Commission Adopted Procurement Policy.

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 3.c.1. – December 19, 2023

Subject: Larchmont Area Sanitary Sewer Improvements
Contract Change Order (>25% of original contract value or $50,000)

Recommended Action: Approve a change order to the contract with Ulliman Schutte Construction, LLC in the amount of $51,805.

CIP Project: VP015320

Regulatory Requirement: Rehab Action Plan Phase 2 (2025 Completion)

Budget	$38,734,000
Previous Expenditures and Encumbrances	($10,269,528)
Available Balance	$28,464,472

Contract Status with Change Orders:	Amount	Cumulative % of Contract
Original CM Contract with Ulliman Schutte	$397,500	
Total Value of Previous Change Orders	$173,172	43.6%
Requested Change Order	$51,805	
Total Value of All Change Orders	$224,977	56.6%
Revised Contract Value	$622,477	

Project Description: This project involves design and construction of five new sanitary sewer pump stations, approximately 3,700 linear feet of 6-inch, 8-inch, and 10-inch force mains, and approximately 10,000 linear feet of 8-inch and 10-inch gravity mains and appurtenances. The new infrastructure will replace (a) five existing HRSD pump stations: Monroe Place PS#114, Powhatan Avenue PS#122, Richmond Crescent PS#124, Hanover Avenue PS#141, and Jamestown Crescent PS#142; (b) three City of Norfolk pump stations: Larchmont Eleanor Court PS#112, Larchmont Walnut Hill Street PS#113, and Larchmont Westwood Terrace PS#11, and (c) install new gravity trunk lines to divert the flow to the new pump station locations.

As a result of significant forecasted project construction cost escalation exceeding $61 million (as compared to the construction cost estimate of approximately $29 million at the PER stage), HRSD and the City of Norfolk jointly approved alternate design and construction concepts included in a Value Engineering effort that are intended to produce mutually agreeable outcomes while satisfying the material risk of failure requirements under the EPA Phase 2 Rehabilitation Action Plan for the five HRSD pump stations listed above.

The attached Map depicts the project location.

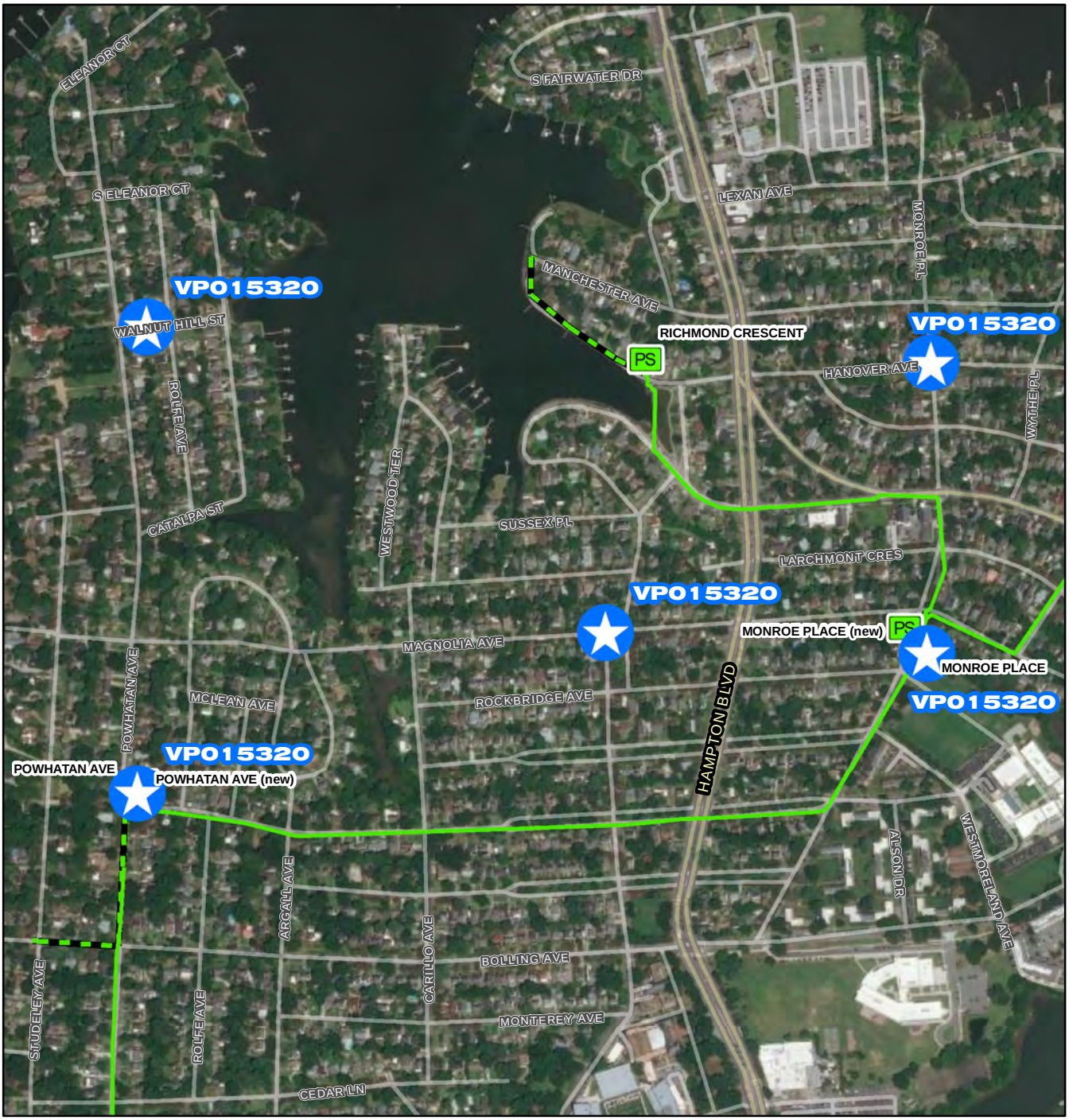
Project Justification: This project was initially identified by HRSD as part of a condition assessment program to address aging infrastructure concerns related to structural, electrical, and pump performance operation. It was also identified to mitigate the risks from tidal flooding during wet weather conditions and from sea level rise due to climate change. HRSD and City jointly funded a comprehensive sanitary sewer master plan for the Larchmont sanitary sewer service area that encompassed pump station facilities and gravity collection systems associated with these pumping facilities. Hazen was commissioned to perform the comprehensive study on behalf of HRSD and City. HRSD and City are entering into a cost sharing agreement with the intent to plan, design, and construct the recommended improvements. Elements of the Project identified under the VIP-R10 in

HRSD's EPA Rehabilitation Action Plan Phase 2 will need to reach Substantial Completion by May 5, 2025.

Change Order Description and Analysis of Cost: This change order will provide additional value engineering and redesign preconstruction services for Hanover Avenue and Jamestown Cresent based upon revised design milestones. A proposal for the extra work effort has been reviewed, and the design engineer and HRSD have recommended approval for the negotiated cost for this work.

Schedule:

PER	July 2020
Design	June 2021
Bid	December 2023
Construction	March 2024
Project Completion	December 2026



VP015320

- Project Interceptor Line
- Project Interceptor Point
- Project Pump Station Point
- Project Area

Legend

- CIP Interceptor Point
- CIP Pump Station Point
- CIP Interceptor Line
- CIP Abandonment
- CIP Project Area
- HRSD Interceptor Force Main
- HRSD Interceptor Gravity Main
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 230 460 920 1,380 1,840 Feet

N W E S

CIP Location

VP015320

Larchmont Area Sanitary Sewer Improvements

HRSD

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 3.d.1. – December 19, 2023

Subject: Nansemond Treatment Plant Regional Residuals Facility Upgrade
Task Order (>$200,000) and Non-Regulatory Capital Improvement Project Additional Appropriation (<$1,000,000)

Recommended Actions:

a. Approve a task order with HDR Engineering Inc. in the amount of $305,157.

b. Appropriate additional funding in the amount of $454,099.

CIP Project: NP014500

Regulatory Requirement: None

Budget	$1,920,000
Previous Expenditures and Encumbrances	($339,365)
Available Balance	$1,580,635
Proposed Change Order No. 2 to MEB Through NP014700	($1,479,577)
Proposed Task Order to HDR Engineering, Inc.	($305,157)
Proposed Contingency	($250,000)
Project Shortage/Requested Additional Funding	($454,099)
Revised Total Project Authorized Funding	$2,374,099

Type of Procurement: Issued as a Change Order to NP014700

In an effort to keep construction conflicts to a minimum at the Nansemond Treatment Plant, it is recommended that this additional work be awarded to MEB as a Change Order to the Nansemond Treatment Plant Digester Capacity Upgrades (NP014700). Work for construction, construction administration and construction Inspection will be billed under NP014500.

Contract Status with Task Orders:	Amount
Original Contract with Engineer	$0
Total Value of Previous Task Orders	$0
Requested Task Order	$305,157
Total Value of All Task Orders	$305,157
Revised Contract Value	$305,157
Engineering Services as % of Construction	20.3%

Engineer Estimate: $1,140,000

The design engineer, Hazen and Sawyer (Hazen), evaluated the Request for Proposal response based upon the requirements in the final design documents and recommends award to MEB in the amount of $1,479,577. The contractor's proposal came in 30% higher than the estimate. After reviewing the proposal, the engineer determined that the additional costs were for electrical commodity items and components that were estimated below the actual value, as well as the cost of subcontractor bonding, OH&P and contingency which were not included in the engineer's estimate. The engineer states that the proposal is reasonable and award is recommended to MEB.

Project Description: This project includes the installation of a new mechanical screen, pump station and Fats Oils & Grease (FOG) separator at the Nansemond Treatment Plant Regional Residuals Facility (RRF). The screen will be installed upstream of the new pump station, which will pump up to the FOG separator where concentrated FOG will be conveyed to a dumpster and the underflow will drain to the RRF's existing pump station. The existing pump station will also be upgraded to handle additional channel, bay and equipment washdown water.

Project Justification: Regional pump station wet well cleaning produces a significant number of truckloads per month that carry primarily grease and water and are light on residuals (grit). The number is significant enough that plant staff has had to dedicate bays at the RRF strictly for grease loads and bays strictly for heavy residual (grit) loads. The heavy grease loads complicate RRF operation, plugging up drains and leading to increased manpower and a greater presence of grease in downstream processes.

Contract Description: This contract is for construction services from MEB at the at the Nansemond Treatment Plant Regional Residual Facility.

Task Order Description: This task order will provide Construction Administration/Construction Inspection (CA/CI) services for the Nansemond Treatment Plant Regional Residuals Facility (RRF) Upgrades from HDR and their subcontractor Hazen.

Analysis of Cost and Funding Description: The construction cost submitted by MEB in the amount of $1,479,577 was approximately 30% higher than the engineer's estimate due to higher costs than anticipated for electrical commodity items and components as well as the additional costs for electrical subcontractor bonding, overhead and profit, and contingency, which were not specifically included in the engineer's estimate. After meeting with the contractor, the engineer recommends approval.

The CA/CI cost submitted by HDR was based on fees incurred by both the engineering team and the work required by Hazen and Sawyer. An additional $250,000 in contingency costs have been added to the project in the event of additional work being required during the course of construction.

Schedule:			
	Construction	December	2023
	Project Completion	September	2024

6. West Point Treatment Plant Green Power On Demand Systems (G-PODS) Grant Agreement (>$200,000)

Virginia Department of Emergency Management

VOLUNTARY PARTICIPATION AGREEMENT
For Property Owner/Manager

Project Applicant: Virginia Department of Emergency Management (VDEM)
Property Owner(s)/Manager(s): HRSD/Jay Bernas, General Manager

1. I, Jay Bernas, am/are the owner(s)/ manager(s) of the property located at 600 23rd Street, West Point, VA 23181 (Street address, city, zip).

2. I/We have been notified by Virginia Department of Emergency Management (VDEM) that my/our property may be included in a "Green Power Mobile Energy Storage Systems" within the Building Resilient Infrastructure and Communities (BRIC) grant project.

3. I/We have been notified that VDEM may wish to deploy a mobile energy storage (batteries) platform (aka GPODS, Green Power on Demand System) to the property to mitigate risks of electrical outages caused by disasters and natural hazards. The utility will manage these units and deploy them to pre-designated locations identified, selected, and governed by the Virginia Department of Emergency Management (VDEM) in collaboration with their state and local stakeholders.

4) I/We acknowledge and I/we understand that I/we:
   a) Will become a GPODS project participant.
   b) Will NOT be responsible for the purchase of any equipment for this project.
   c) Will NOT be required to manage or maintain the utility-managed units, and that VDEM and the utility, Dominion Energy, will oversee the deployment, operations, and maintenance of the system.
   d) Will NOT be able to hook a building generator to the GPODS system without coordination with the utility.

5) The project applicant (VDEM) stipulates and agrees that:
   a) It understands this program is voluntary for the property owners.

This agreement will extend for the term of the grant project period, to be finalized within project legal agreements once the project is awarded.

Signed _____ 12/19/2023

Jay A. Bernas, HRSD General Manager — Date

Property Owner(s)/ Manager(s)

Letter of Intent
To Participate in the Virginia Department of Emergency Management GPODS Energy Resilience Project Under the FEMA BRIC Grant Program

By signing this Letter of Intent, __Hampton Roads Sanitation District (HRSD) hereby commits to participation in the "Green Power Mobile Energy Storage Systems Project" for the Virginia Department of Emergency Management's Green Power on Demand System (GPODS) Energy Resilience initiative as part of the FEMA BRIC (Building Resilient Infrastructure and Communities) grant program.

The G-POD initiative will leverage mobile, rechargeable battery systems that will support the electric grid during normal conditions, but could also be deployed to your facility by Dominion Energy during an electrical outage. Deployment will be coordinated using the standard resource request process through the Virginia Department of Emergency Management. The GPOD system will be owned, operated, and maintained by Dominion Energy.

____HRSD_____ agrees to fully participate in the project including attending and participating in (virtual or in-person) project meetings, answering relevant questions, providing relevant data or information, and supporting the fulfillment of the local match requirements of the grant. Local match requirements will be coordinated with the All Hazards Consortium (AHC) to track in-kind services, and/or materials associated with the activities described above.

Organization Name: HRSD

Local Contact: Sam McAdoo
Title: Chief of Small Communities
Phone / Email: (757) 284-6315

Signed _____ 12/19/2023
Jay A. Bernas, HRSD General Manager — Date
Property Owner(s)/ Manager(s)

Local Emergency Management Agency Name:

Local EM Agency Contact:_____
Title:_____
Phone / Email: _____

7. City of Chesapeake, Coastal Virginia Commerce Park Development Service Area Expansion Agreement

HRSD

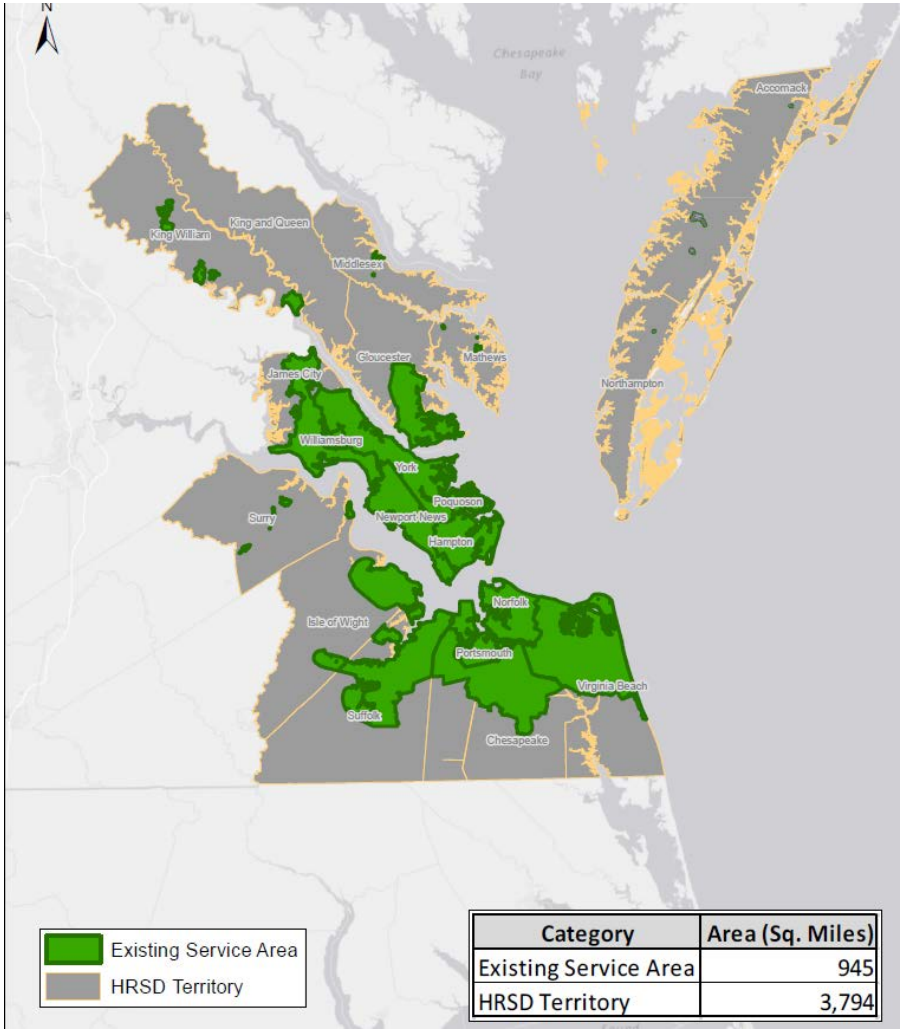
Cleaning wastewater every day for a better Bay.

Service Area Expansion
Coastal Virginia Commerce Park

December 19, 2023

Service Area Expansion Policy

- Describes and clarifies the process for localities to expand the HRSD service area within their boundaries
  - (Localities control development)
- Describes and clarifies how infrastructure can be extended and how capacity can be increased



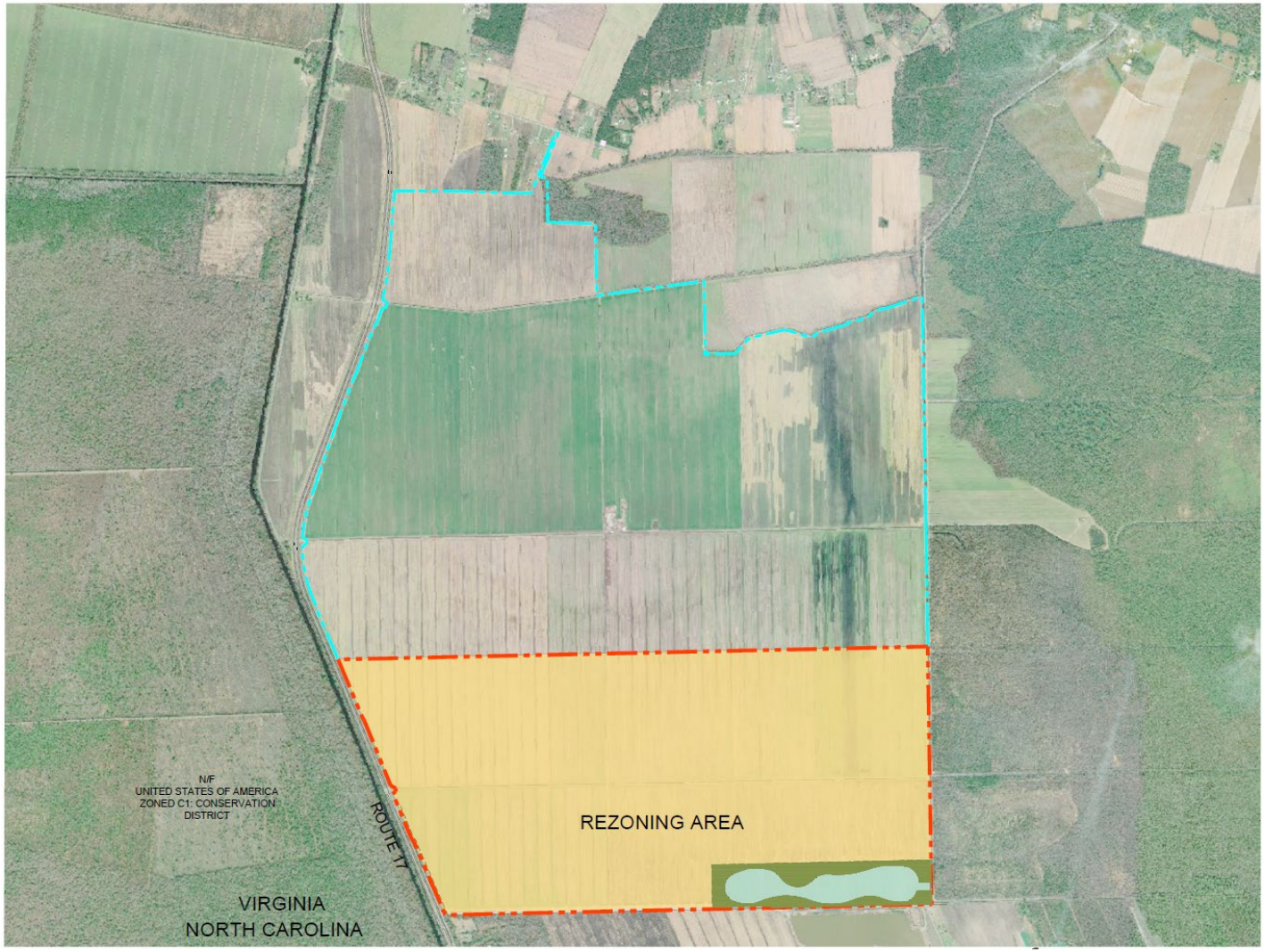
Category	Area (Sq. Miles)
Existing Service Area	945
HRSD Territory	3,794

Capacity Assurance and Connection Policy

- Describes and clarifies when new flows to the Regional Interceptor System can be approved
- Describes and clarifies acceptable locations and methods for connecting to the Regional Interceptor System

Chesapeake Service Area Expansions

Coastal Virginia Commerce Park



History of Coastal Virginia Commerce Park in Chesapeake/Hampton Roads

2015 – Request Commonwealth designate site as "Mega-Site" for Commonwealth's Major Employment and Investment (MEI) Grant Program funding eligibility

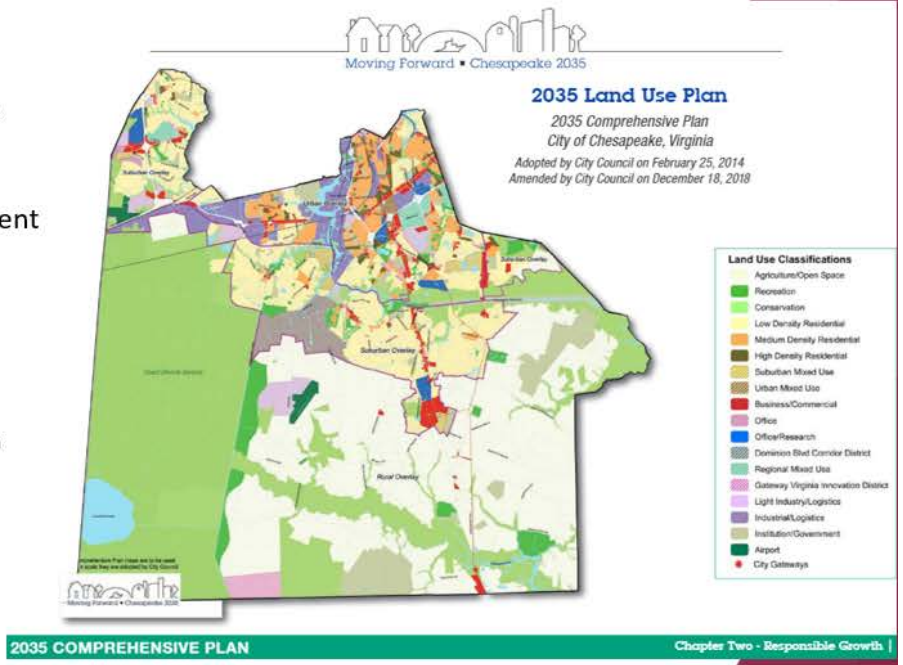
2016 - City Council designates site as Unique Economic Development Opportunity (UEDO) in Comprehensive Plan

2018 – City Council further designates site as "Gateway Virginia Innovation District" in Comprehensive Plan

November 2022 - Chesapeake City Council rezoned 1,420 acres to Industrial Park – Planned Unit Development

December 2022 – Chesapeake Economic Development Authority has 1,420 acres under purchase contract and option contract for 2,602 acres = 4,022 acres total

July 2023 – City Council approves $297M South Central Water and Sewer Transmission capital project



Chesapeake VIRGINIA

Economic Development

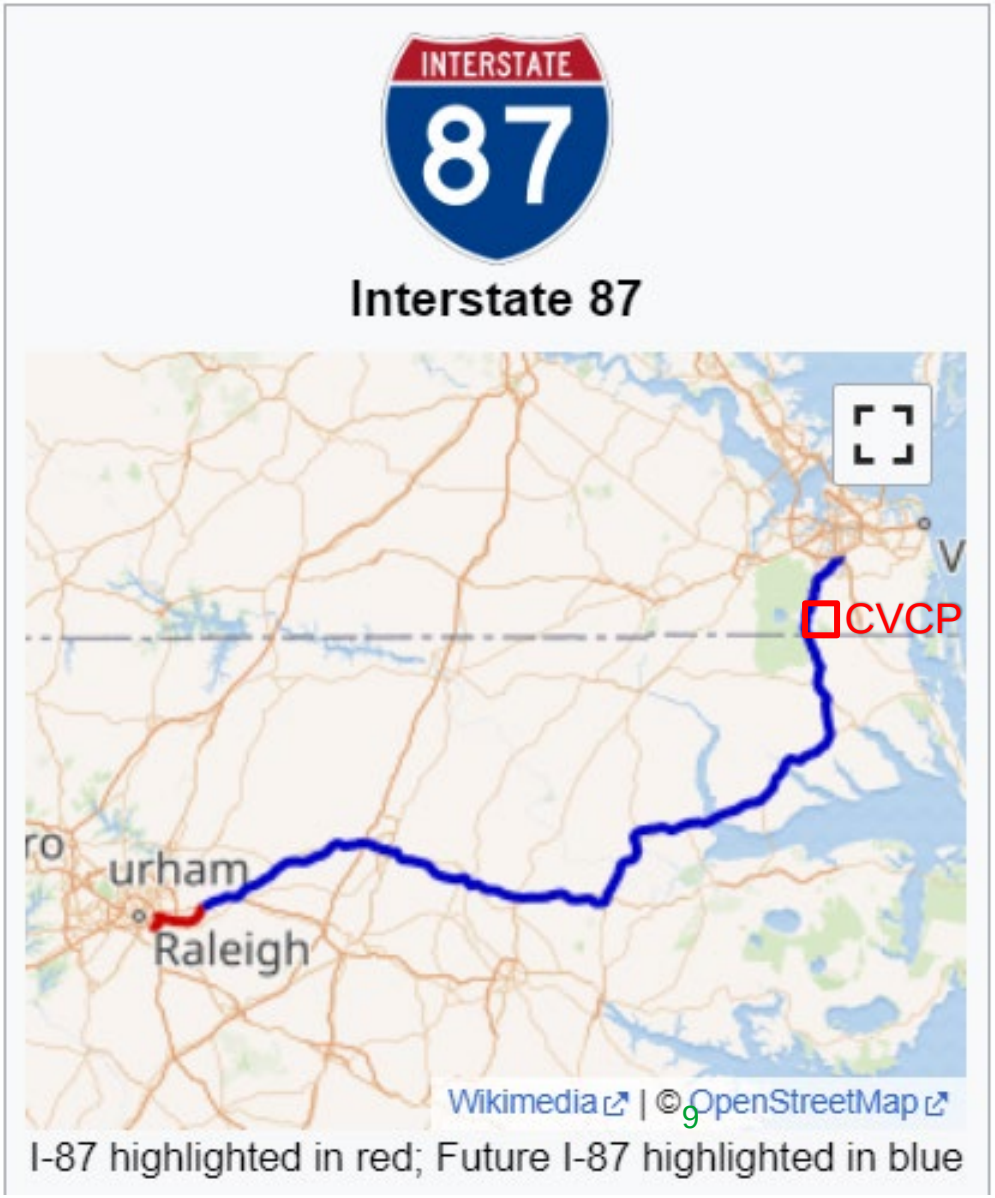
Coastal Virginia Commerce Park Route 17 in Chesapeake

- ✓ Economic Development Mega Site – 4,022 acres for advanced manufacturing and logistics
- ✓ Commonwealth of Virginia awarded Chesapeake Economic Development Authority (CEDA) a Virginia Business Ready Sites Program (VBRSP) grant for $750,000 in January 2023 for site due diligence (infrastructure design and permitting)
- ✓ Site readiness has advanced substantially in the past year
- ✓ CEDA has applied for VBRSP grant funding for 2024 toward the City of Chesapeake's $297M South Central Water and Sewer Transmission Capital Project
- ✓ Chesapeake Economic Development has developed numerous successful office and industrial parks including Cavalier, Oakbrooke, Greenbrier North, Three Oaks

Coastal Virginia Commerce Park - Strategic Investment and Location

- ✓ Largest Mega Site in Virginia with closest proximity to the Port of Virginia
- ✓ Nearly three miles of frontage on U.S. 17/Dominion Blvd.
  - ✓ Improved to Interstate limited access quality including I-464/168 Interchange and the Veterans Bridge
  - ✓ City managed and construction competed in November 2016 with $400 million invested of state, Federal and local funds, including toll revenue bonds
  - ✓ Potential future Raleigh – Hampton Roads interstate designation

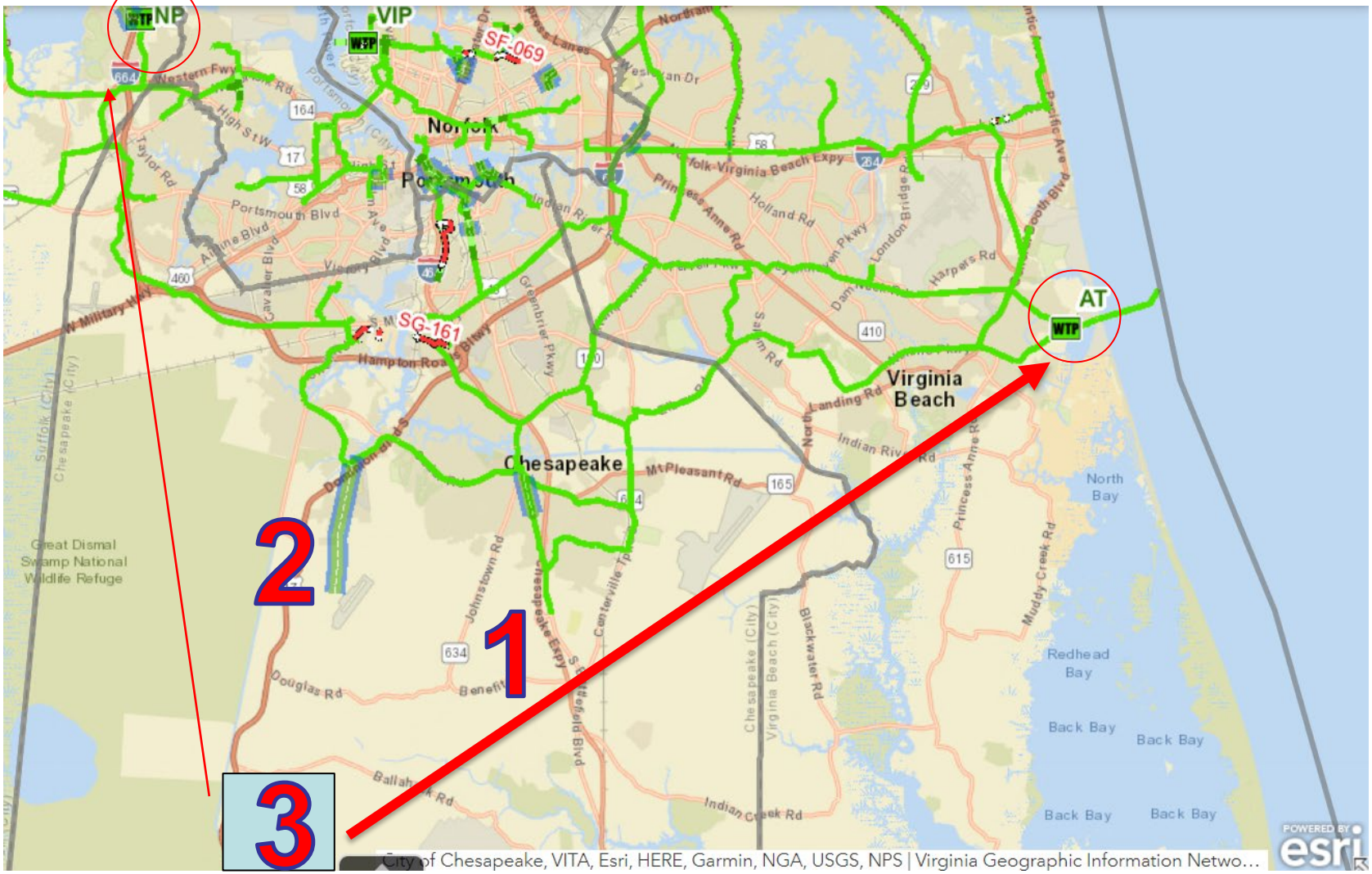
Future Interstate 87



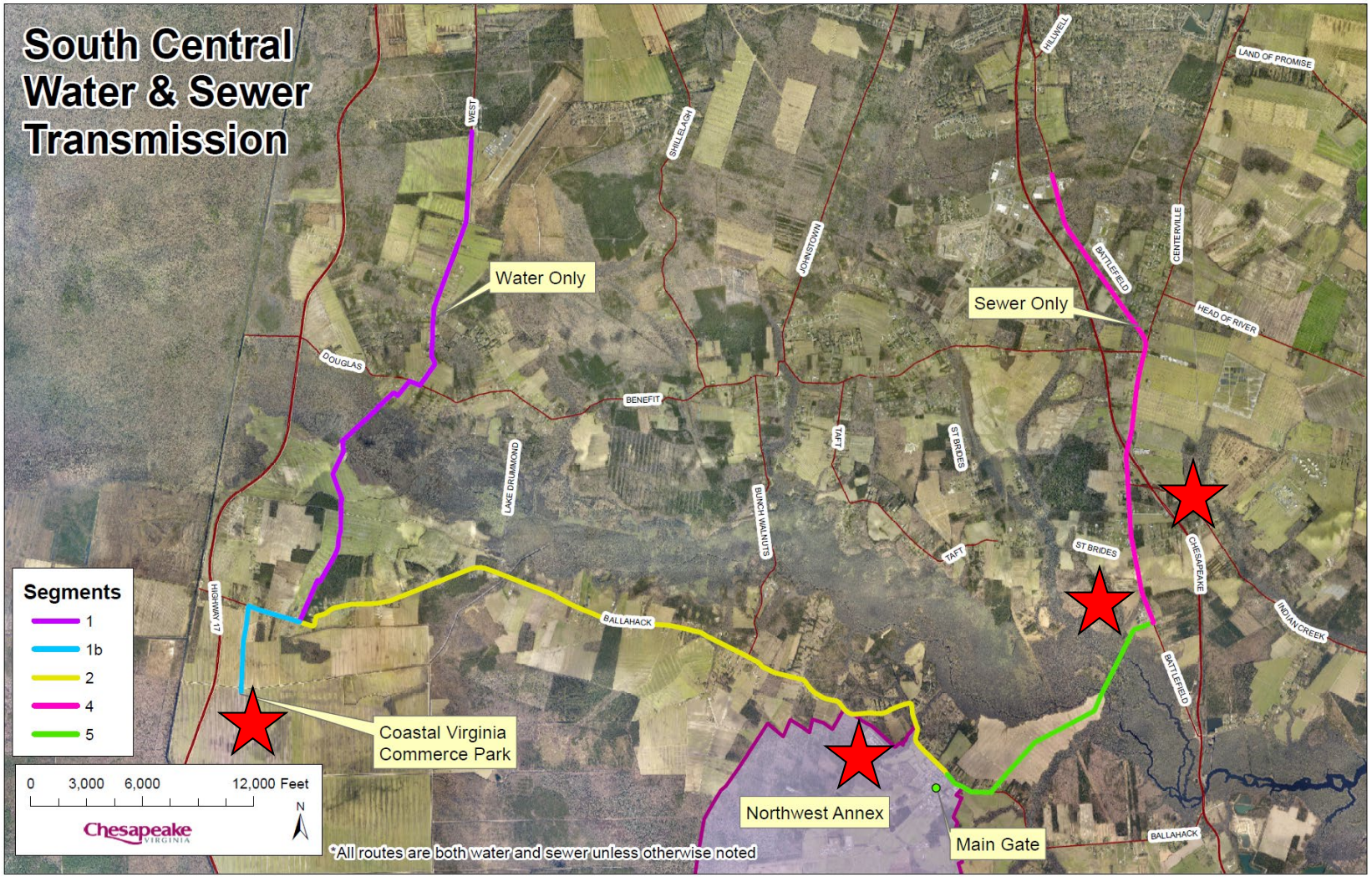
Coastal Virginia Commerce Park

- CVCP full site = 4,022 acres
- Service Area Expansion Request for 1,420 acres
  - 2,726,255 gallons per day wastewater
- City working to provide water and sewer
  - Seeking Virginia Economic Development Commission grant
  - Grant submission due January 11, 2024

Flow to Atlantic Plant



Proposed Force Main Routing



Proposed Connections

- Coastal Virginia Commerce Park
- Naval Station Northwest Annex
- Northwest River Water Treatment Plant
- Public Safety Training Academy
- Saint Brides Correctional Center
- Northwest River Park

Pipe Size Uncertainty

- Too Big
  - Low velocities
  - Deposition in pipe
  - Air entrainment
- Too Small
  - Limited capacity
  - High pressure/velocity/head loss
  - Increased energy/operating cost

Recommendation

- Approve service area expansion for 1,420 acres of Coastal Virginia Commerce Park
  - No HRSD improvements needed to accommodate the 2.73 MGD flow
- Continue collaboration with City of Chesapeake to provide sewer service
  - Monitor economic development activity (potential occupants)
  - Coordinate sewer pipeline/routing/connection design
  - Track potential wastewater flow(s)

Questions?

9. York River DEMON Upgrades
   Initial Appropriation

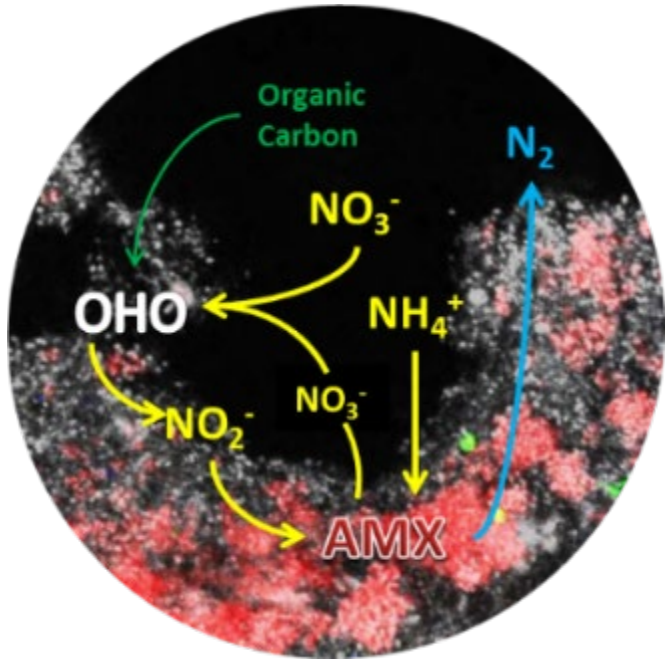
Update on York River BNR Processes and Planned Improvements for 2024

How We Avoided Major Plant Construction with Sidestream PNA + Mainstream PdNA

Michael Parsons, PE

Treatment Process Engineer

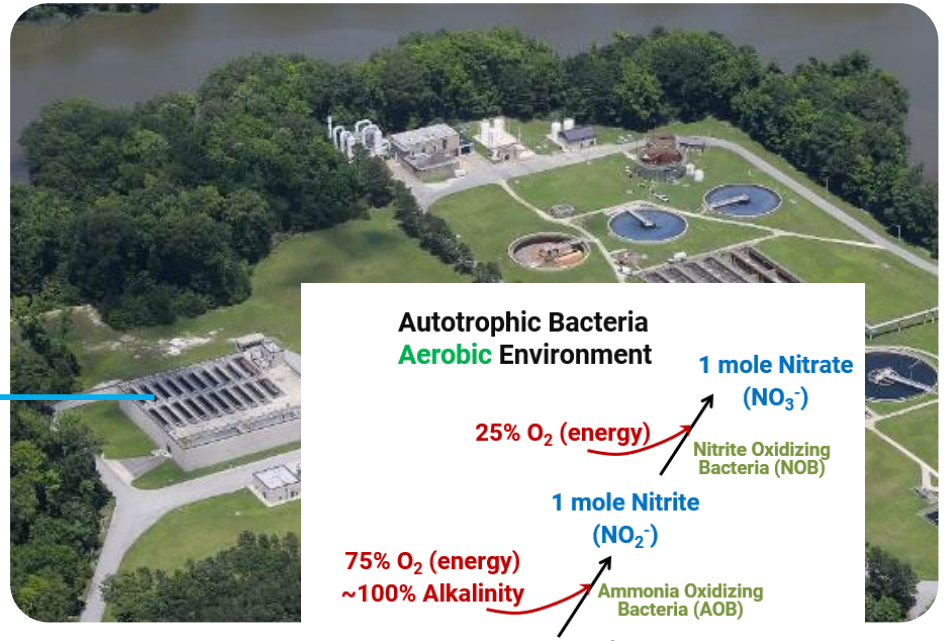
Hampton Roads Sanitation District



HRSD York River (15 MGD)

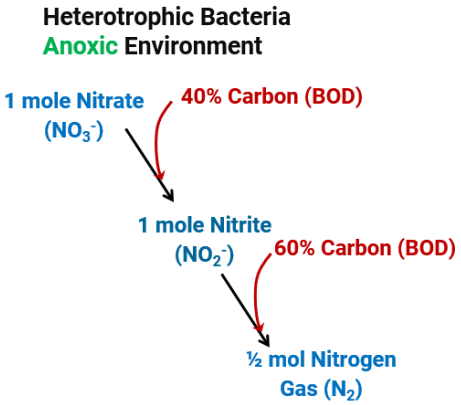
York River Plant (15 MGD) – The Past (pre 2018)

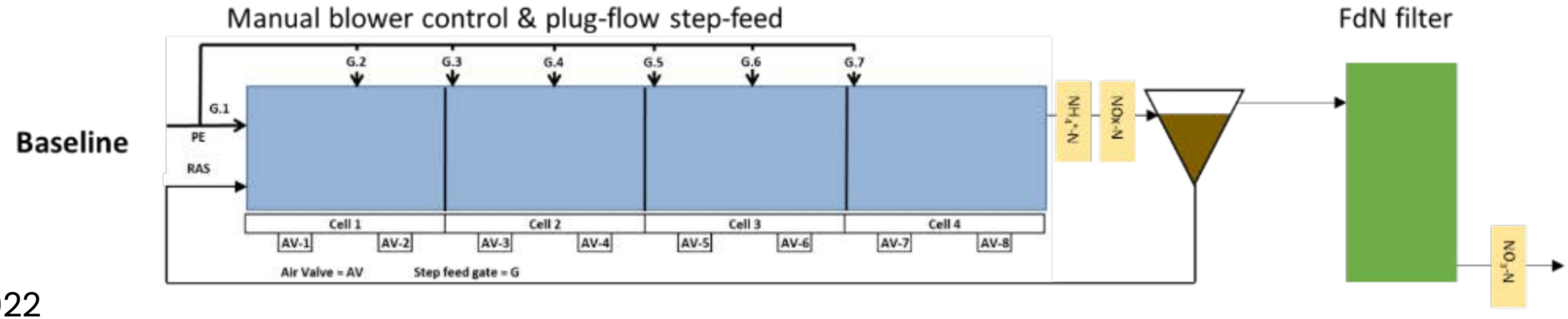
Deep-bed filters with 2 to 3 mm silica sand and NOx-based feedforward-feedback methanol dosing control



The Problem

1. Limited aerobic capacity
2. Excessive energy/chemical usage
   - Methanol
   - Caustic
   - Ferric

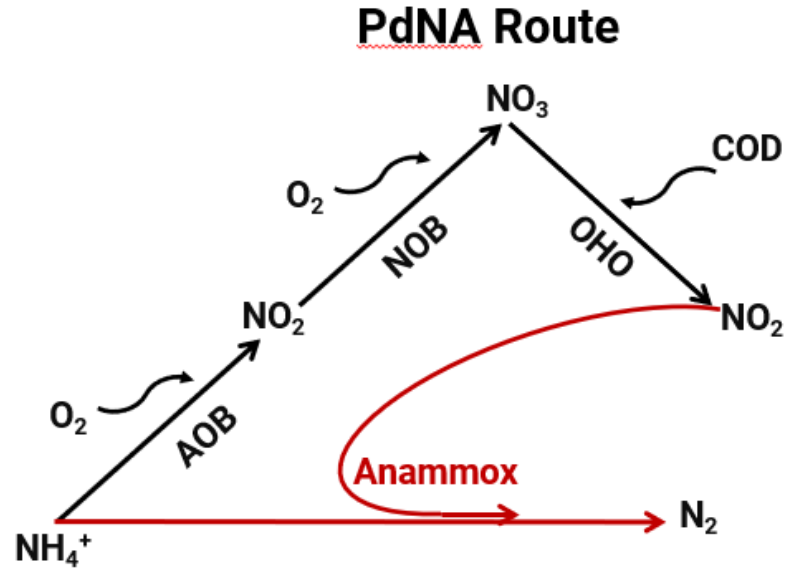




Fofana et al., 2022

A Traditional Upgrade – The YRTP Expansion Phase 1 – Contract C

- ~~A Conventional Upgrade ~ $80-$100M~~
  - *~~Contract C will consist of plant upgrades designed to improve operational cost efficiencies at the current permitted capacity of 15MGD.~~*
- An HRSD Approach – AvN + PdNA ~ $1.5M
  - *Optimize use of influent COD and provide the correct AvN for the downstream filter to allow PdNA to be successful and expand flow capacity if desired.*
- ~~Upgrade existing aeration tanks to Johannesburg~~
  - ~~NRCY~~ pumps, anoxic mixers, baffle walls
- Upgrade existing aeration tanks to intermittent aeration and intermittent step feed
  - HRSD minions and baffle walls
- ~~3 new aeration tanks in the Johannesburg configuration~~
  - Not needed with AvN + PdNA.
- ~~One new secondary clarifier~~
  - Not needed with AvN + PdNA.
- ~~New aeration blowers and piping~~
  - The existing blowers are already oversized



York River Advanced Nutrient Reduction Improvements Phase 1

Goal - Optimize use of influent COD and provide the correct AvN for the downstream filter to allow PdNA to be successful

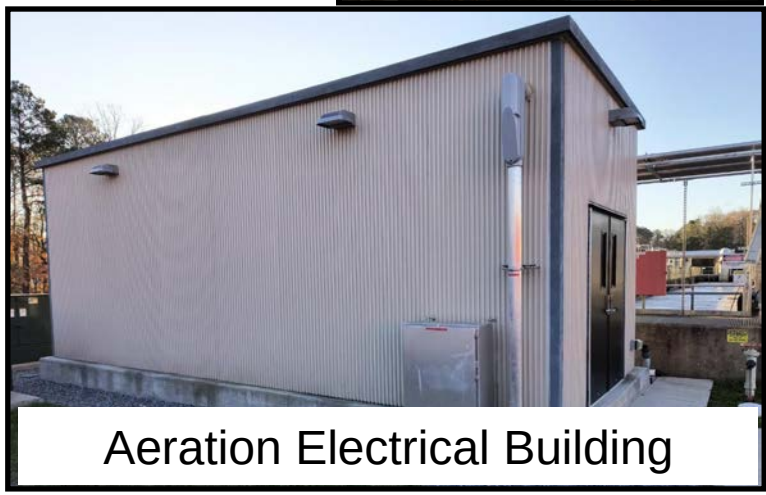
- Spent $1.5M
- New Aeration Electrical Building - Aeration tank power and control
- Automation of aeration blowers with motor operated inlet valves
- Reconfigured tanks to intermittent aeration and intermittent step feed
  - Baffle walls and big bubble mixing system
  - Motor operated valves for air control (50 valves) and step feed (18 gates)
- Nutrient sensors for AvN control – Jarbalyzer
- New secondary clarifier duct bank
- DEMON Improvements – Was put on hold

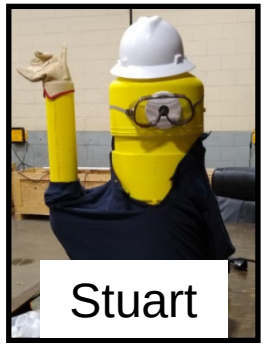

Baffle walls


Before


After


Jarbalyzer


Aeration Electrical Building


Stuart


Army of minions

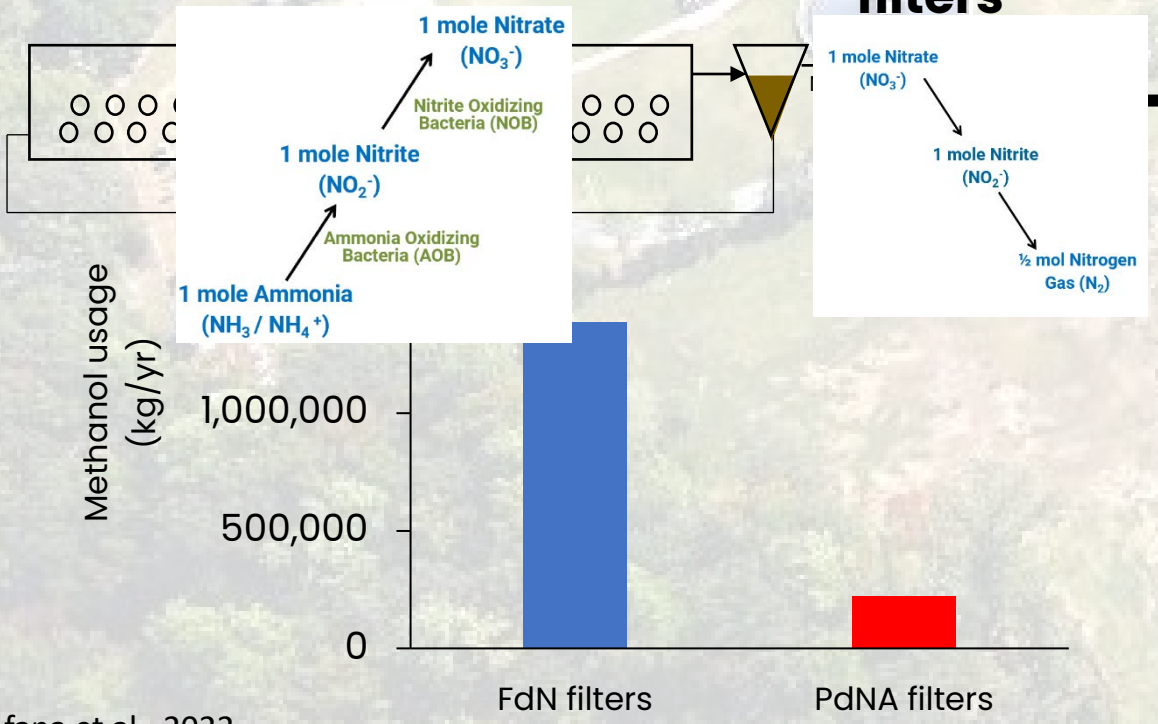
HRSD's first full-scale PdNA Upgrade: York River Plant (15 MGD) Mainstream Anammox Through AvN + PdNA

O&M Savings = ~$1M/year
Capital Cost avoided = ~$80-100M

The Solution:
1. Update aeration tanks for AvN
2. Convert denitrification filter to PdNA

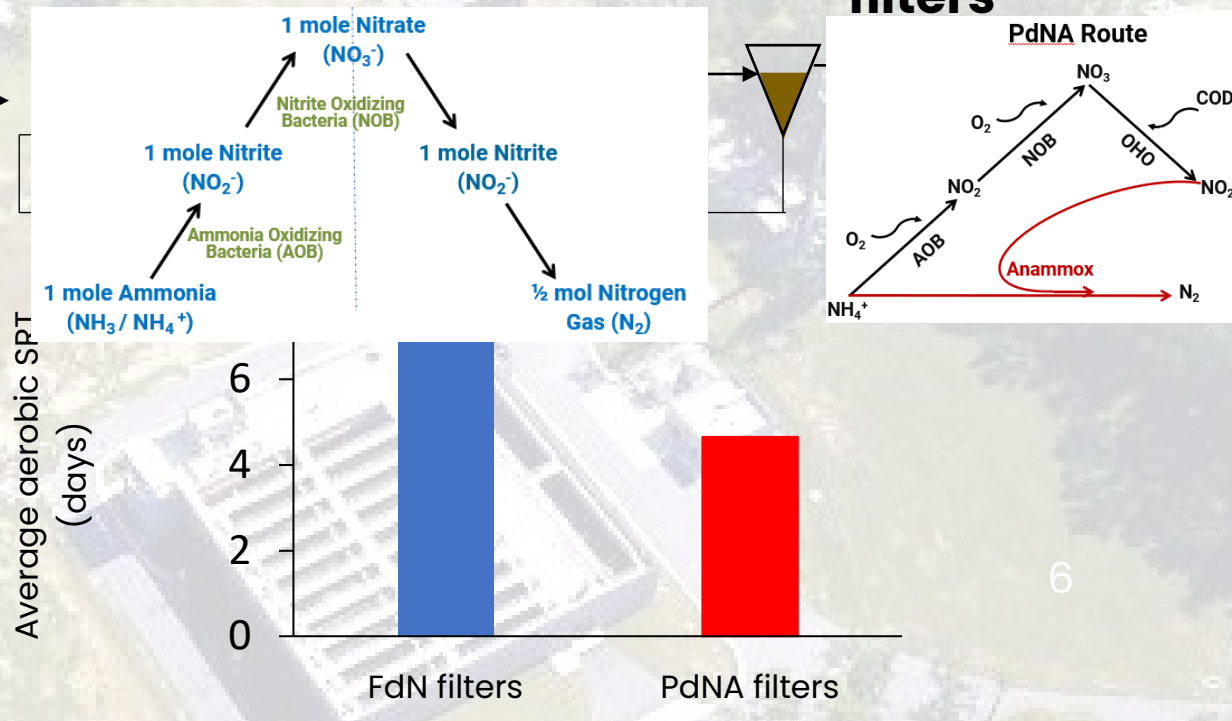
Full Nitrification
with manual blower control

+Full denite filters



BNR
with AvN Control

+PdNA filters



Fofana et al., 2022

Remaining Improvements to the Aeration Tanks and PdNA Filters

- RIO extension for aeration tank - Air valve feedback is currently on a PLC
  - $75,000
- Secondary clarifier #3 on permanent power, Jarbalyzer on permanent power, secondary clarifiers to the DCS, ammonia feed to the DCS
  - $30,000
- Instrumentation upgrades for the methanol tanks
  - $35,000

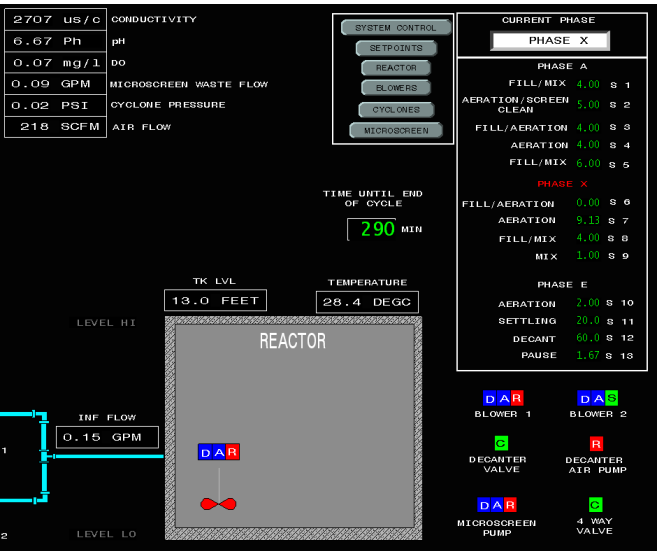
PLC and RIO

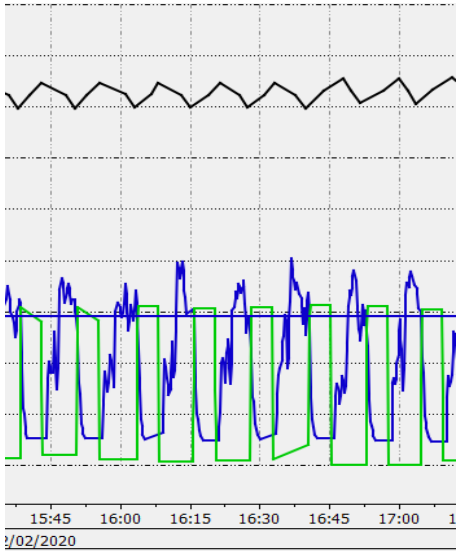
New Secondary Duct Bank

Methanol Facility

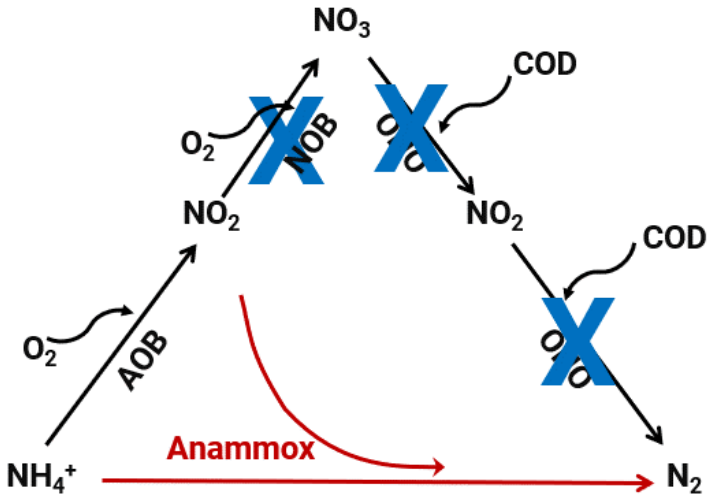
DEMON Overview – Centrate Treatment

- Why centrate treatment with PNA?
  - The “best” form of Shortcut Nitrogen Removal
  - 1% of total plant flow = 15 to 25% of total plant TN load
  - Ammonium concentration ~ 1,000 mg/L
  - Temperature 30 - 35°C
- What is DEMON?
  - Single stage PNA suspended solids process in an SBR
  - Been in-service since October 2012
- 2019 updates
  - Control moved to the DCS
  - Microscreen installed for wasting (vs. cyclones)
- **DEMON must be stable for future nitrogen goals!**





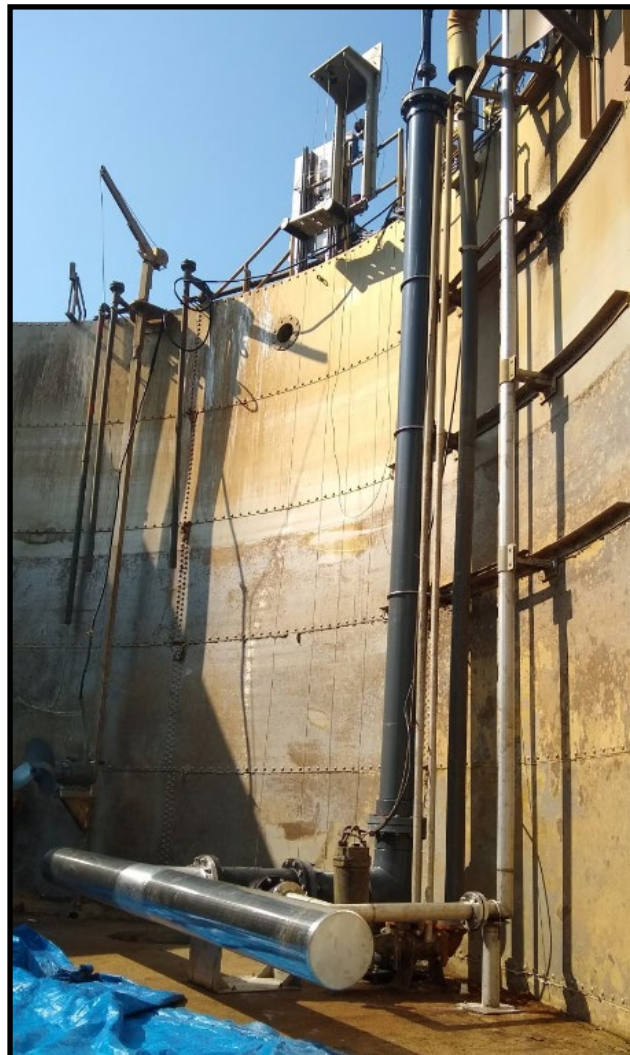
PNA = NOB Out-Selection Route



Partial Nitritation/Anammox

Operational Cost Savings:

- 60% in aeration
- 100% in carbon



DEMON Upgrades Planned for 2024

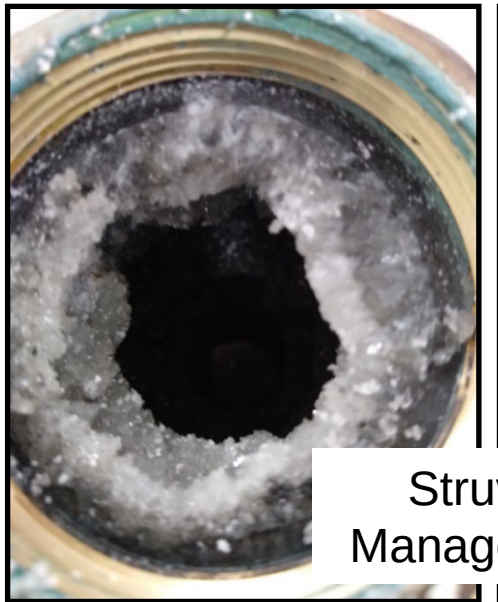
DEMON improvements after 11 years of operation

1. Update the transfer system - larger pipes and standby pump
2. Update the untreated centrate equalization pumping system
   - VFD's, flow meters, and DCS control
3. Managing struvite
   - Update the acid cleaning system for struvite management
   - Update the Flosperse pumping with DCS control for struvite management
4. Add a tank heater to DEMON to maintain temperature during unplanned shutdowns in the winter
5. Managing dirty centrate

Centrate Transfer


Centrate Quality


Centrate EQ


Struvite Management

DEMON and Centrate Quality

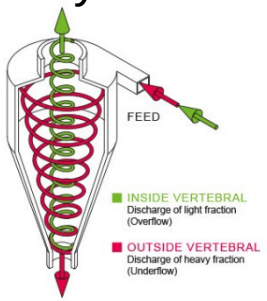
Centrate Quality

- Centrate quality can impact anammox retention when anammox is in the mixed liquor
- Centrate quality does not impact anammox retention when anammox is in a biofilm

Wasting methods and anammox retention

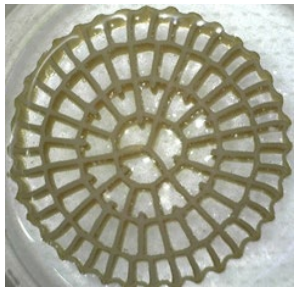
- Cyclone
- Microscreen
- Biofilm + large opening screen

Cyclone



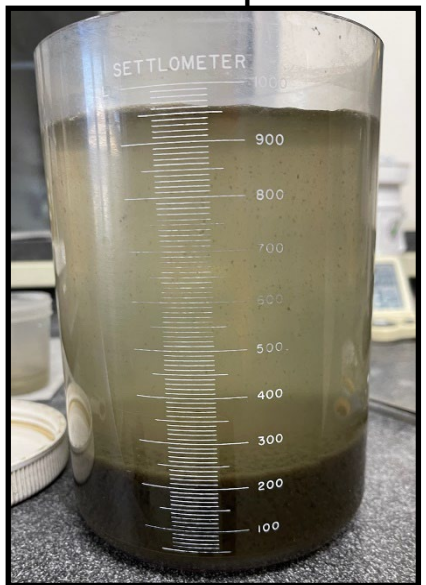
Microscreen

Biofilm



Centrate – Clean vs dirty

DEMON 5min SSV
Normal operation



DEMON 5min SSV
What dirty centrate does

Biofilm is the best way to retain anammox

1. MBBR approach similar to Nansemond and James River designs
   - Traditional plastic media, screens, mixer, blowers, diffusers, pumps
   - Continuous flow and media is retained with a screen with 5mm opening size
2. Mobile Biofilm – miGRATE® option
   - Use all the existing DEMON infrastructure
   - Add miGRATE media
   - Update the microscreen to 0.5 mm to retain the media during wasting
   - SBR operation: media settles before decant

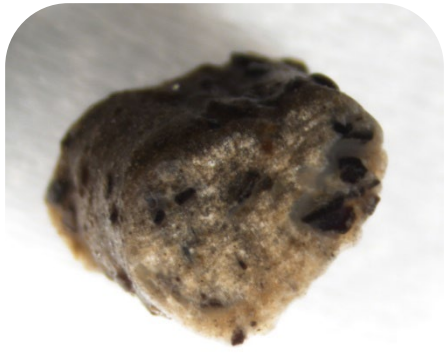
- What is miGRATE®?
  - miGRATE media supplied by World Water Works
  - Plant based media
  - High surface area to volume media in comparison to traditional plastic

Traditional Plastic Media

- 25 mm diameter
- 5 mm retention screens

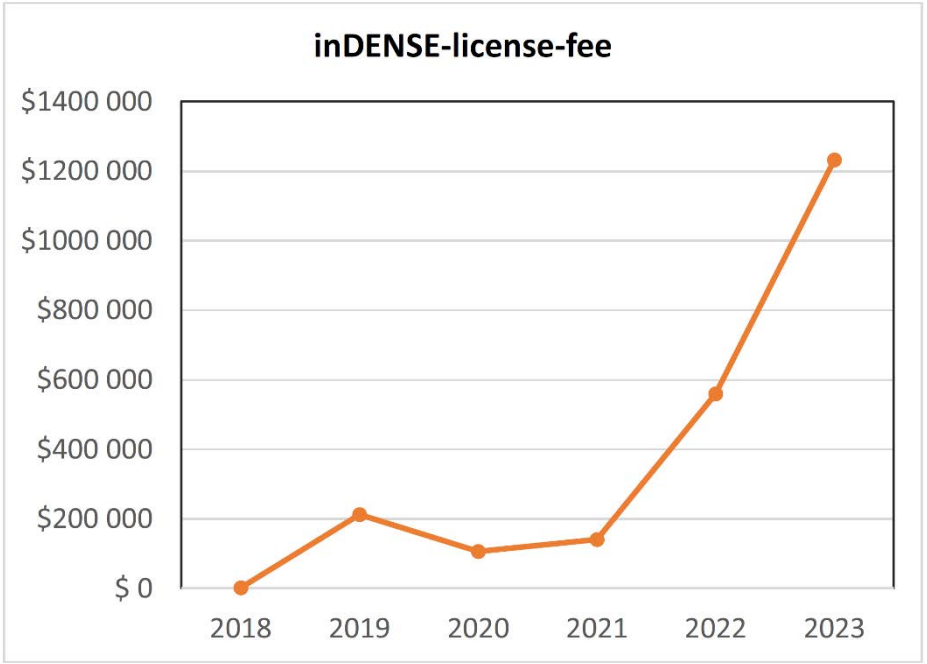
miGRATE Media

- 1.0 mm diameter
- 0.5 mm retention screen



inDENSE® Line of Technologies - Commercialization

- inDENSE® Technology
  - Use of hydrocyclones (or screens) to improve mixed liquor settleability, improve resistance to membrane fouling, and induce/stabilize biological P removal
  - Ballast addition included
- Other products: zeeDENSE®, miGRATE®
- 70 active projects, 55 ordered or delivered (2022)
- Three HRSD/DCWater patent families licensed to ARAConsult and NEWhub Holding Co:
  - Gravimetric Selection – hydrocyclone, settleability, membrane fouling
  - External Selection – hydrocyclone, screen, bioP, ballast
  - Screens – anammox and settleability (DCWater only)

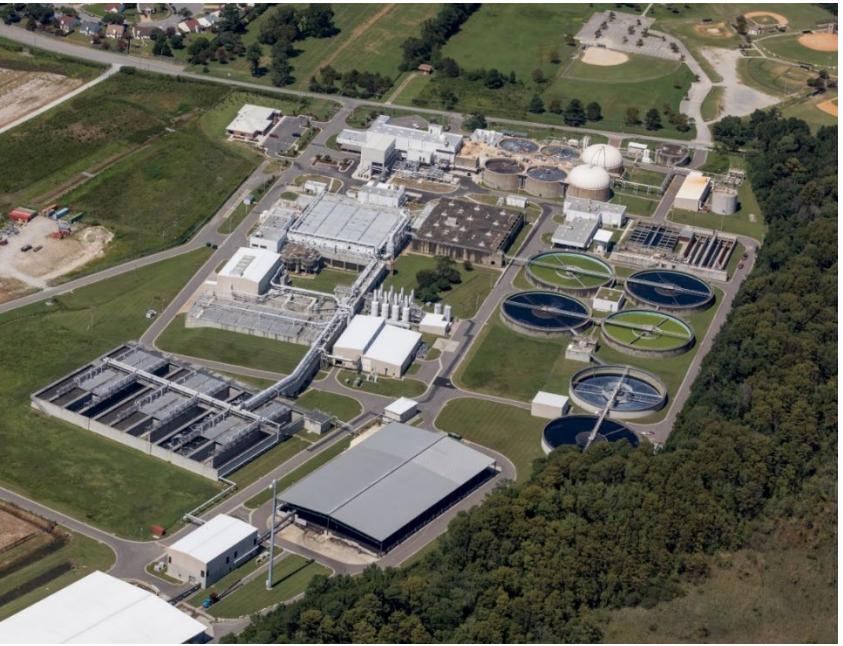


Sweco:	Northern Europe (NL, BE, DK, SE, NO, UK, IE)
WaWaTech:	Eastern Europe (Poland, Ukraine, Belarus, Russia)
Suez:	Large Global EPC (2 successful demos and 3 orders)
Meiden:	Japan+Singapore
CNP:	Northern Germany (specialist in P-recovery)
ZWT:	Southern Germany (specialist for Biocos; 4 inDENSE references)
JeonTech:	Korea (first project delivered)
Envitec:	Greece (ongoing proposal)
WWW:	USA+Canada (several references and ongoing leads)
Inima:	Spain (ongoing Biocos-inDENSE proposal)
UTB:	Hungary (already 1 inDENSE reference)
Atzwanger:	Italy (already 1 inDENSE reference)
WTS:	Global exclusive agreement for technology combination inDENSE with MABR and MBR

10. Atlantic Treatment Plant Reliability and Odor Control Improvements (ROCI) Update
    ATP Liquid Side Odor Evaluation and Improvements
    ATP Gravity Belt Thickener and Pre-Dewatering Polymer Improvements
    ATP Odor and Solids Improvements 2023
    ATP Solids Curing Facility and Pad Improvements

HRSD

Cleaning wastewater every day for a better Bay.



An Atlantic Plant Christmas Carol: Past, Present, and Future

December 19, 2023

ATP North Pad – Feb 2013 (before closure of Chesapeake-Elizabeth Plant)

PAST

ATP South Pad - Feb 2013

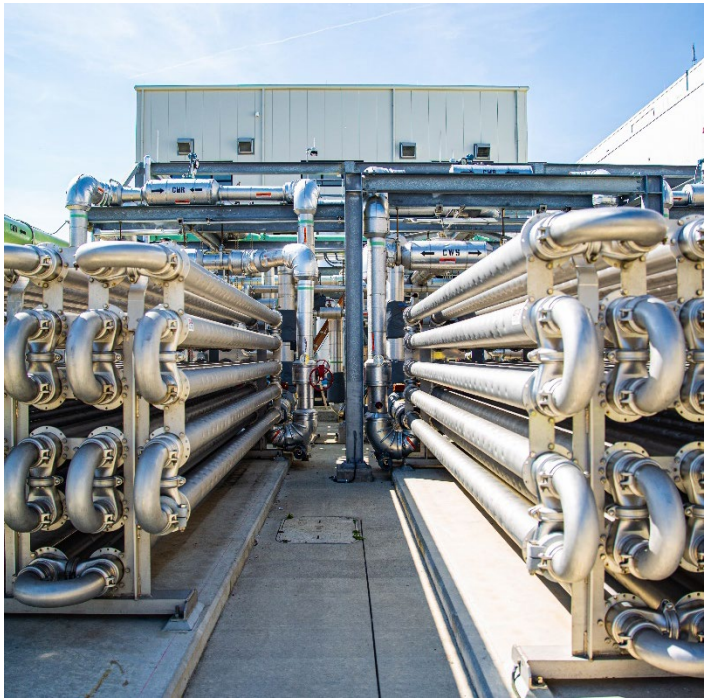
PAST

PRESENT

CAMBI Thermal Hydrolysis Process (THP)

PRESENT

Six Main Drivers for THP at ATP



- Less storage capacity required at the plant (drier, more stackable solids)
- Increase current digester capacity by allowing for higher loading rates
- Class A quality biosolids
- Near energy neutral, energy positive post FOG addition
- Easily incorporates P release
- Opportunity to receive dewatered raw solids from other plants

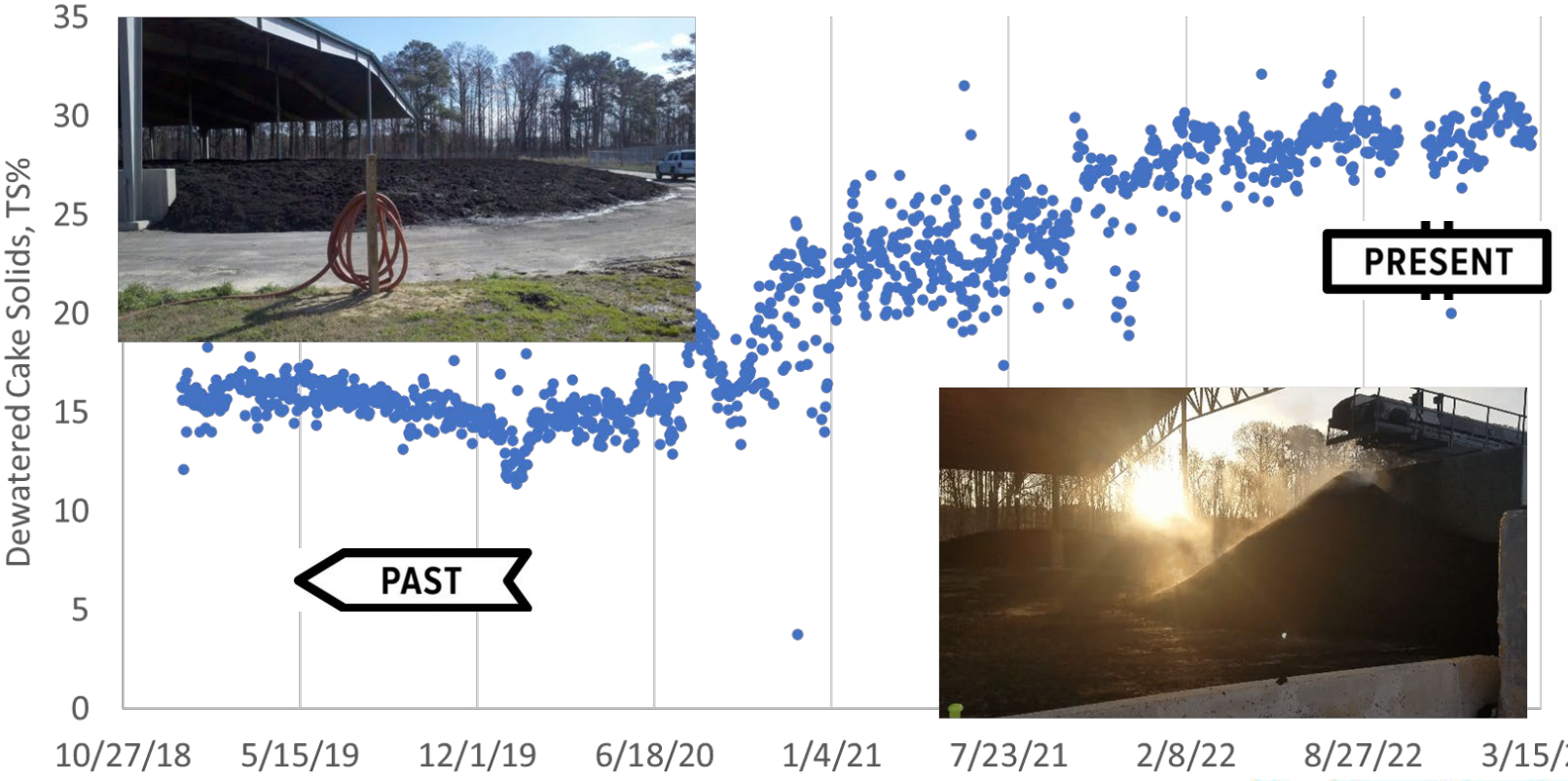
HRSD

PRESENT

Current Progress at Atlantic Treatment Plant (ATP)

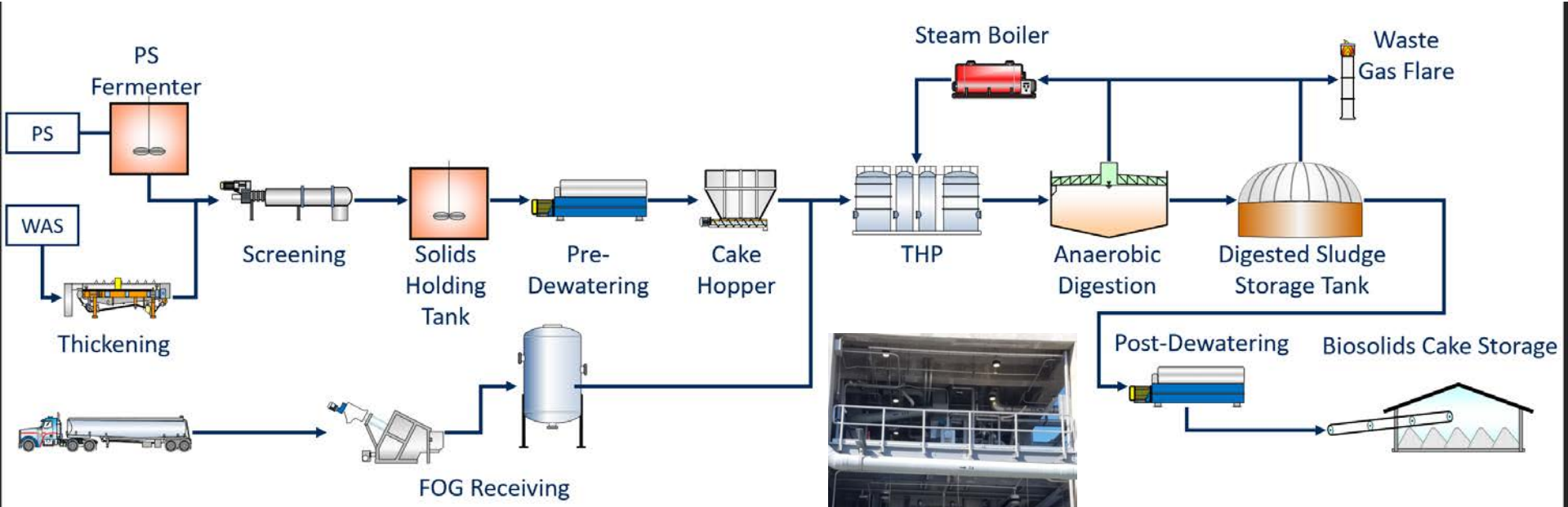
- Startup in May 2020; about 18 months to get to steady-state
- Nearly all equipment working as intended (exception is hopper)
- Digester loading increase by 2-~3X (large CIP avoided)
- THP allows for effective FOG management at ATP
- Approximately doubled cake solids
  - Stacking for storage pad capacity
  - Land app cost decrease (~$2M/yr)
  - Very close to a marketable product (revenue generating)

Atlantic Cake Solids Past to Present



PRESENT

Current Solids Handling Process Flow Diagram

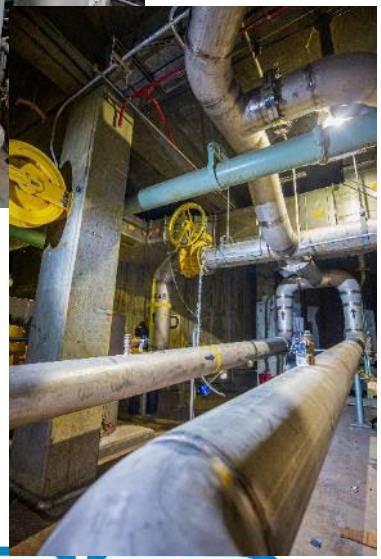


HRSD

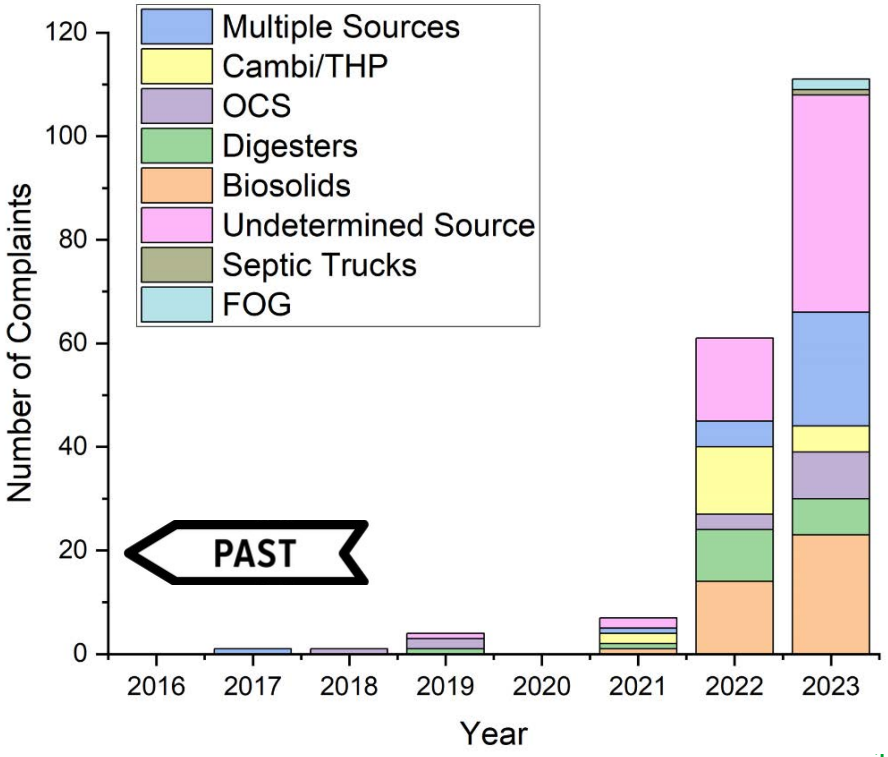
PRESENT

THP Project Lessons Learned (what went wrong…)

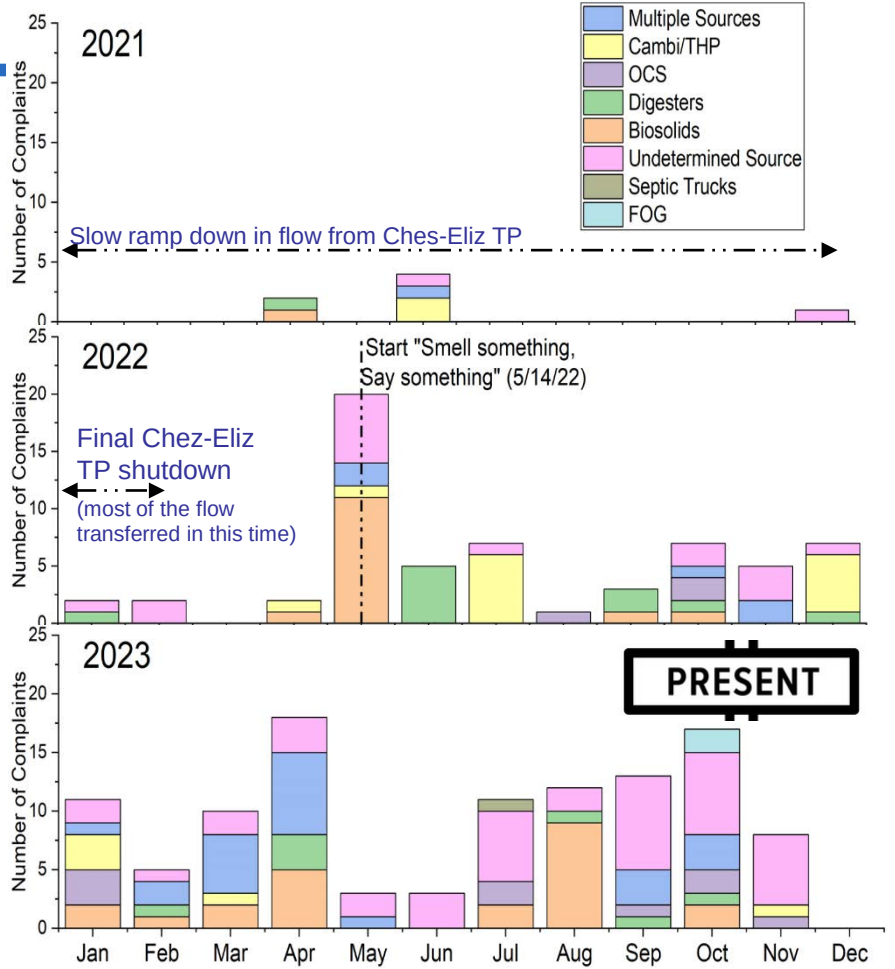
- Underestimated COD load into ATP with Ches-Eliz Plant flow
- Pre-dewatering after P-release in summer is not sufficient – need fermenter (odor)
- Emergency storage not feasible or large enough – need 2nd CAMBI train
- Existing waste gas flares achieve insufficient combustion efficiency for gas generated by THP digesters
- Floating digester cover annular space is a source of odor – potentially move to fixed covers in future
- Aging of digester gas system over D&C timeframe
- THP solids dewater very well, but there is lingering biosolids odor (after intense release of ammonia) that is probably enhanced by centrifuge dewatering



Increased Odor Complaints from ATP Neighbors

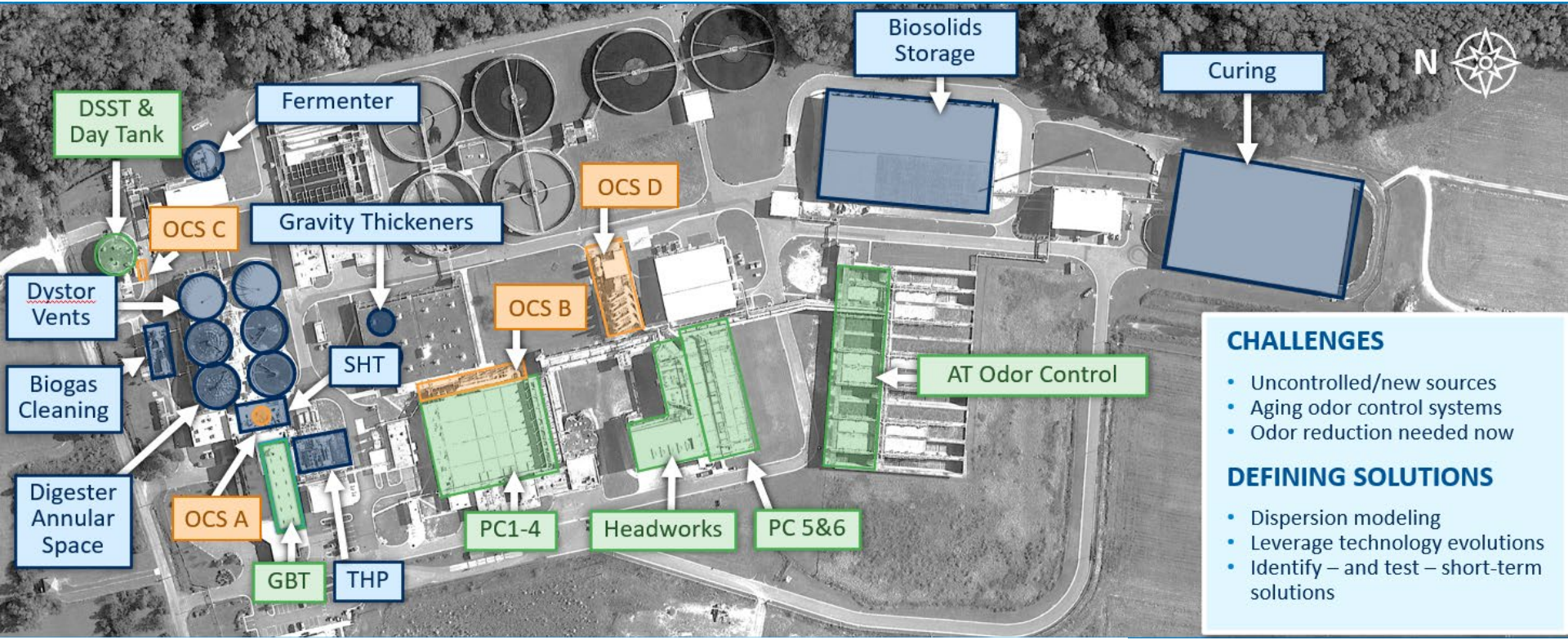


THP startup – May 2020 (~12-18 months)



PRESENT

Odor Sources



HRSD

When is an Odor a Nuisance?

Frequency

How often an individual is exposed to odor

Intensity

The strength of the odor

Duration

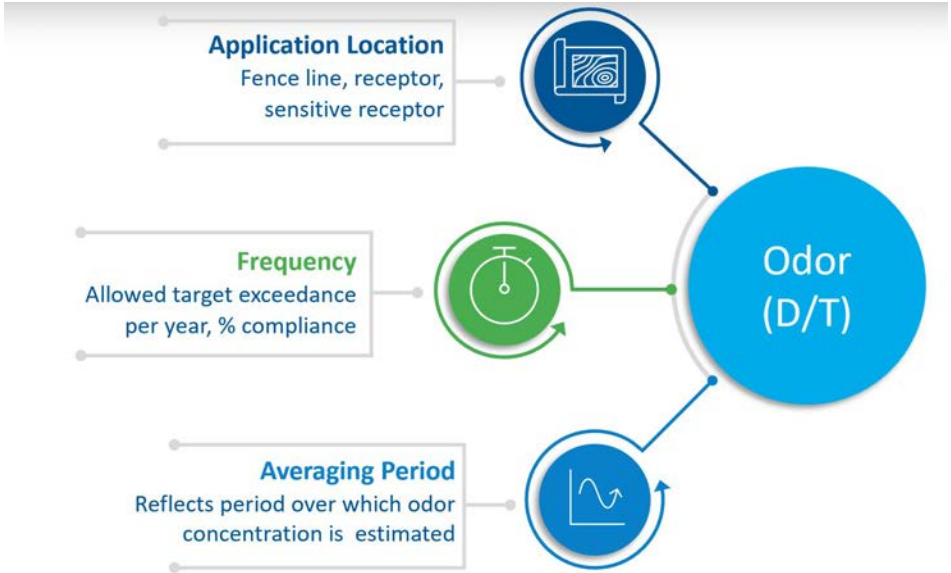
How long the odor is detected

Offensiveness

Reflects odor character and hedonic tone

Location

Receptor sensitivity, related to land use



Defining Odor Impacts and Reduction Needs

Measure Odors

Samples collected from ATP and odor measured in a lab

Define Odor Footprint

Models show how far odors spread and identify significant odor sources

Set Odor Target

7 D/T* set as target to reduce odor complaints based on review of nationwide examples

Identify Solutions

Short-term and long-term improvements identified to meet odor target

Odor concentration is reported as dilution-to-threshold (D/T)

PRESENT

Current ATP Odor Footprint - Dispersion Modeling Results

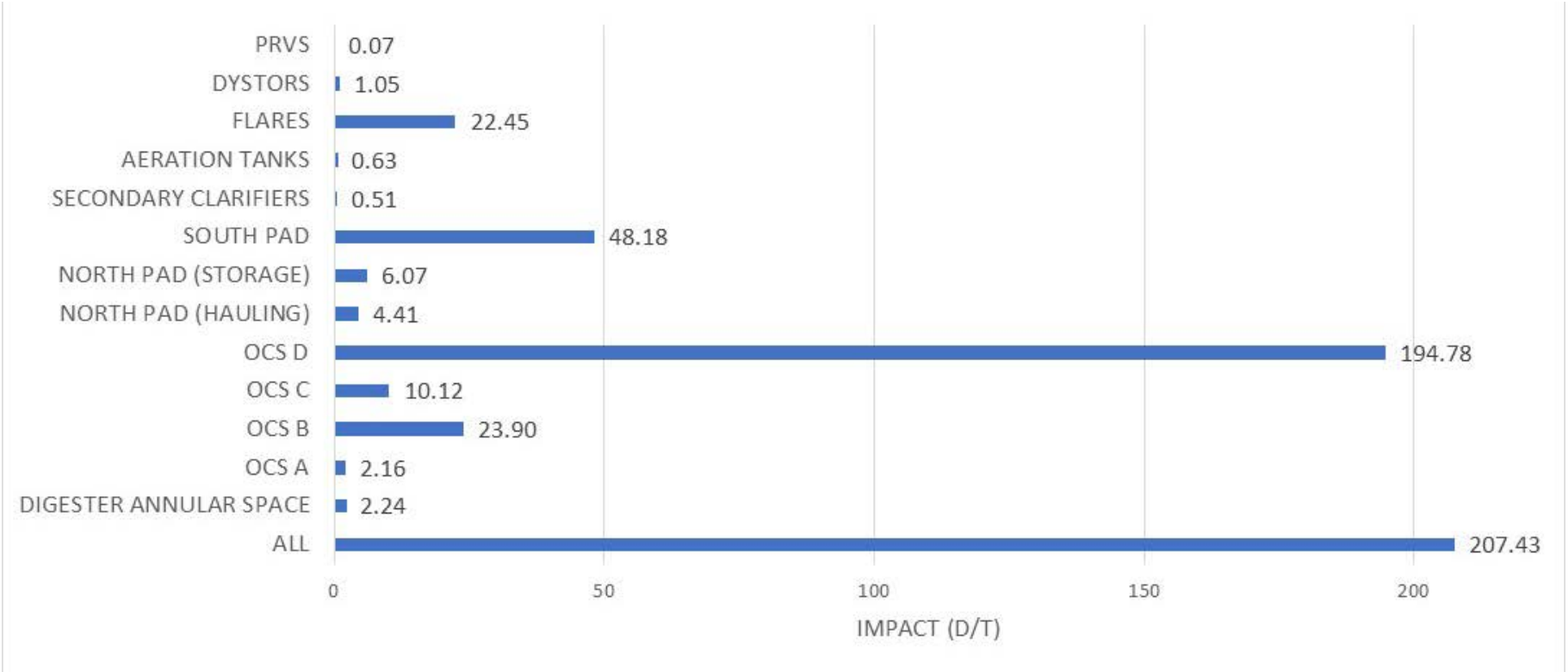
Dilution-to-Threshold (D/T) ratio is a measure of the number of dilutions needed to make the odorous ambient air non-detectable.

Performance Metric = 7 D/T

PRESENT

What are the sources of odor at Atlantic?

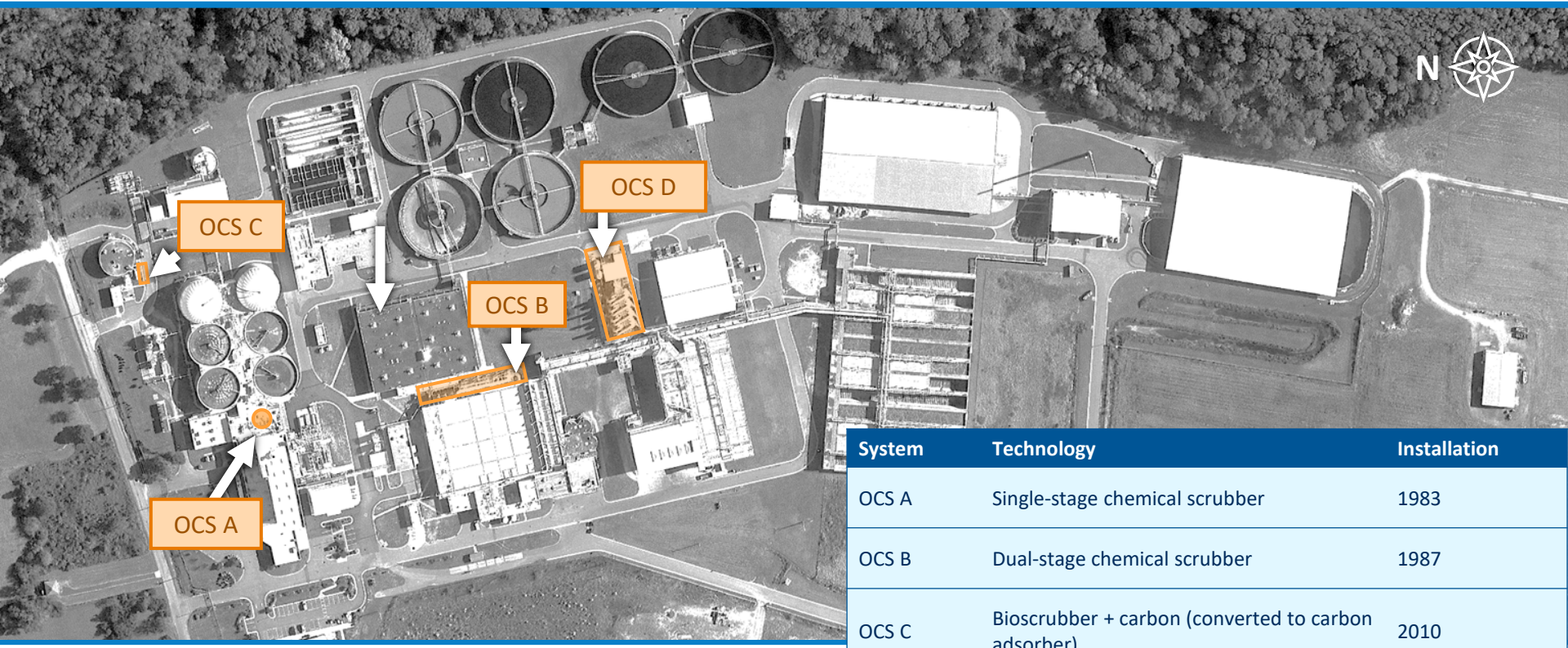
Current uncontrolled status, dispersion modeling results



Performance Metric: 7 D/T (5-minute)

PRESENT

ATP Existing Odor Control Station (OCS) Overview



System	Technology	Installation
OCS A	Single-stage chemical scrubber	1983
OCS B	Dual-stage chemical scrubber	1987
OCS C	Bioscrubber + carbon (converted to carbon adsorber)	2010
OCS D	Dual-stage chemical scrubber	2010

Odor Sources - Discussion

PRESENT

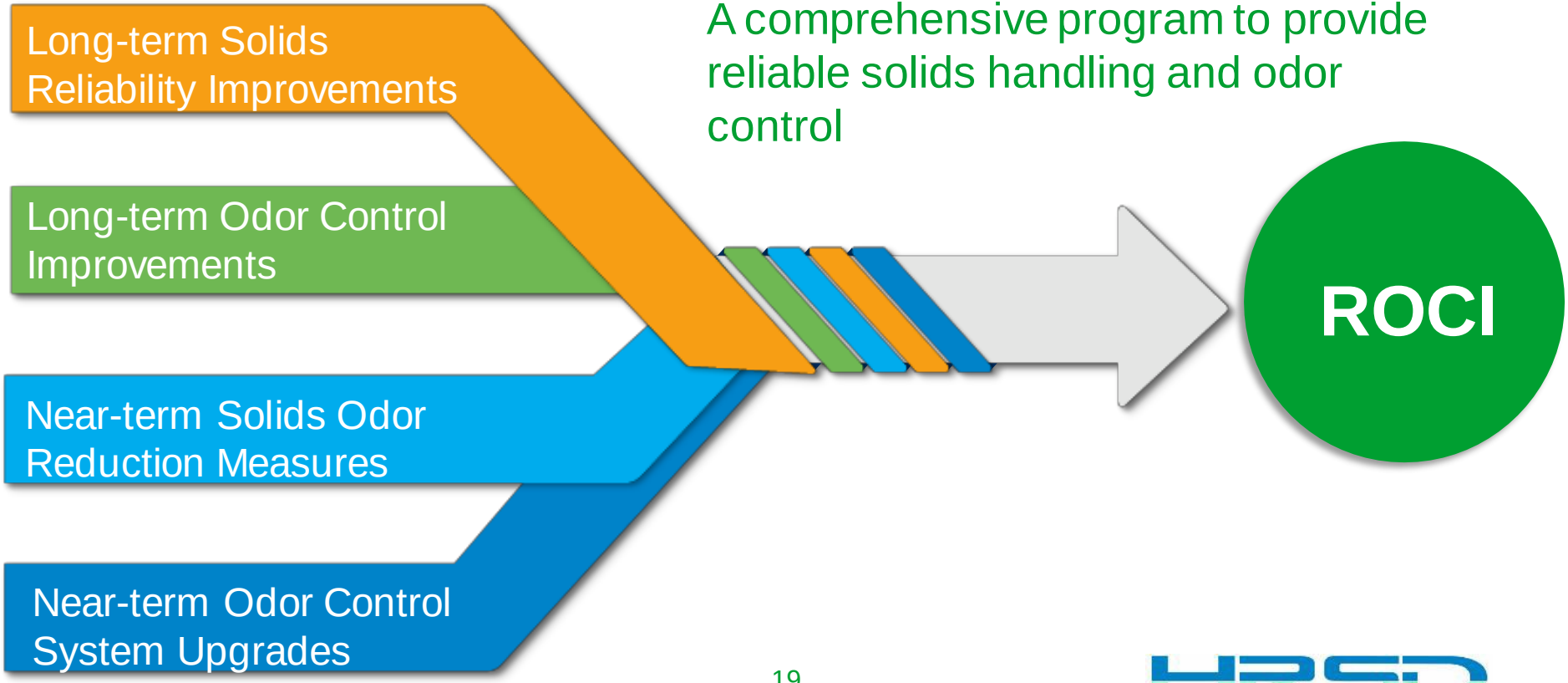
- THP system itself – needs to stay buttoned up (no leaks), normally not an issue
- Primary solids fermenter - currently uncontrolled
- Loadout of raw cake – needs to not happen
- Digester PRVs, Dystor cover vents – need gas system rehab and careful attention to gas pressure and maintenance
- Digester annular space – vaporization system until fixed covers are installed
- Odor D – significantly underperforming (important find from current study)
- Odor B – old system that is under performing
- Odor C – insufficient for current needs
- Odor A – probably should have already been replaced, but not a big source
- Waste Gas Flares – inefficient combustion
- Biosolids storage pads – Extent of offsite odor while curing needs to be evaluated
- Loadout and hauling of biosolids for land application – for discussion later

FUTURE

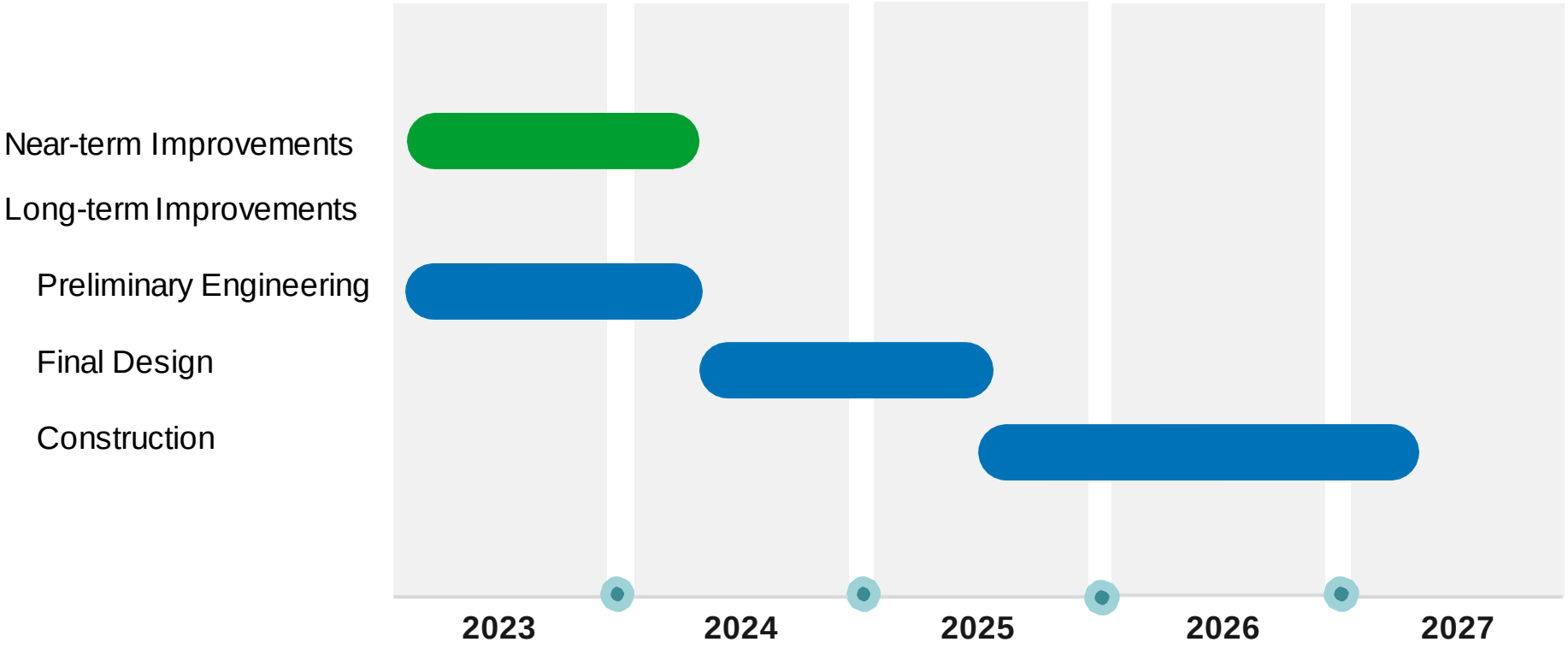
- Future – Primary solids gravity thickeners, tied to new odor system

What is ROCI?

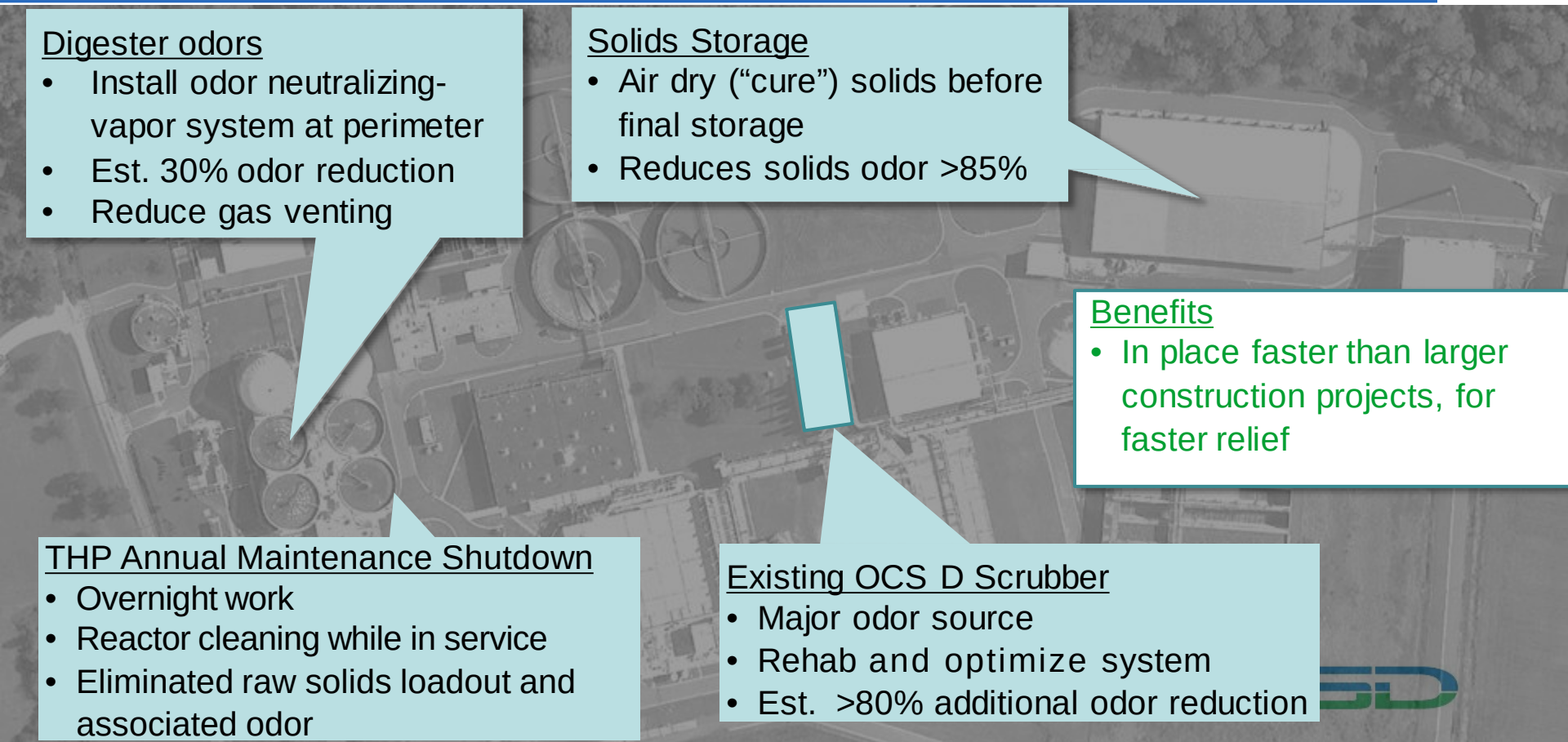
A comprehensive program to provide reliable solids handling and odor control



ROCI Schedule



Near-term Odor Solutions



Digester odors
- Install odor neutralizing-vapor system at perimeter
- Est. 30% odor reduction
- Reduce gas venting

Solids Storage
- Air dry (“cure”) solids before final storage
- Reduces solids odor >85%

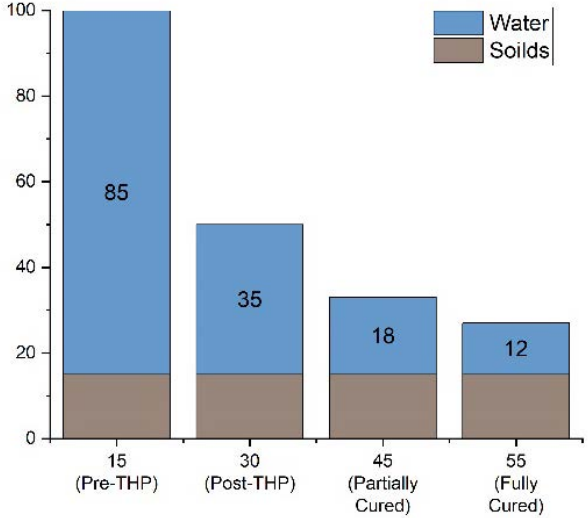
Benefits
- In place faster than larger construction projects, for faster relief

THP Annual Maintenance Shutdown
- Overnight work
- Reactor cleaning while in service
- Eliminated raw solids loadout and associated odor

Existing OCS D Scrubber
- Major odor source
- Rehab and optimize system
- Est. >80% additional odor reduction

ATP Odor Footprint: ROCI Near-term Improvements

- Area with odor impacts above 7 D/T significantly reduced
- Area within a 1-mile radius is still impacted above a 7 D/T



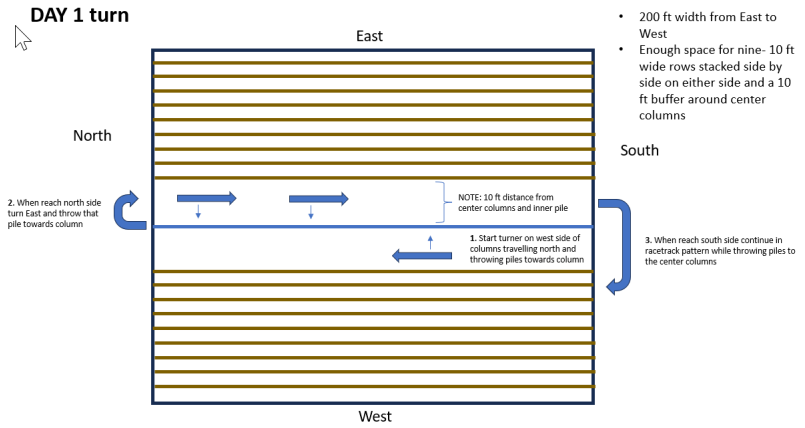
Biosolids Curing – From Pilot to Full-Scale

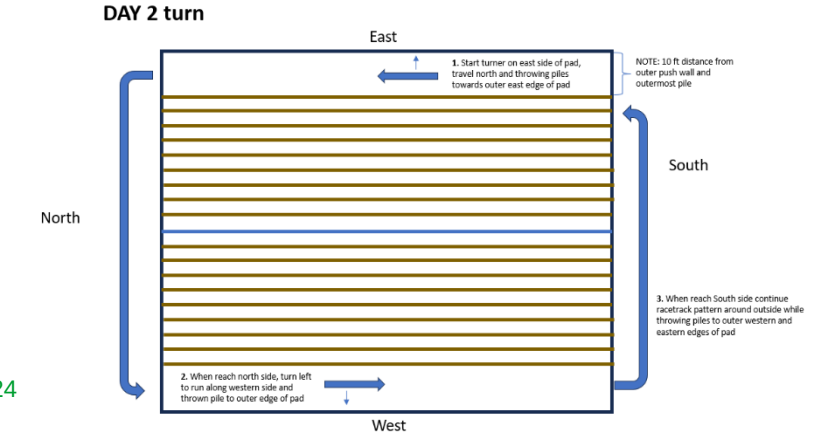
- End Product Characteristics
  - 55-60% TS and VS
  - 15-45% additional VSR by curing
  - Very low odor
- Curing Optimization
  - Number of Turns: 5 times/week works well
  - Seeding: 25% cured cake “seed” works well
  - O&M with ATP staff
- Offsite Odor Potential – seeding should help, but still need to monitor odors when start full scale curing
- Capacity Estimates and Equipment
  - 24 days of curing time on one pad (25% seed)
  - 68 – 80 % of second pad needed for cured cake storage

Our new windrow turner dramatically increases the curing capacity on a single pad…

Current Pilot: 10 rows/pad

Brown Bear R31: 18 rows/pad

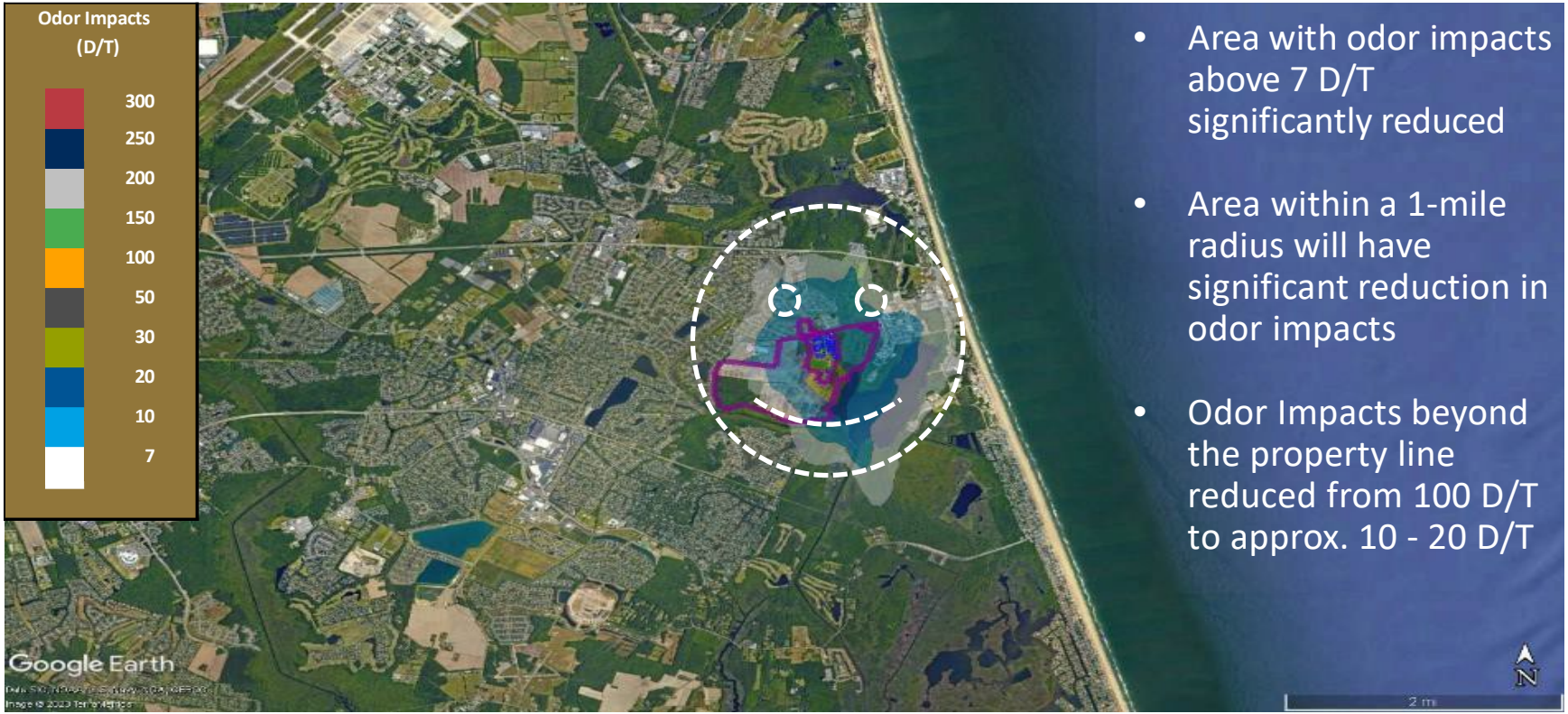




ROCI Long-term Solutions – Odor Focused

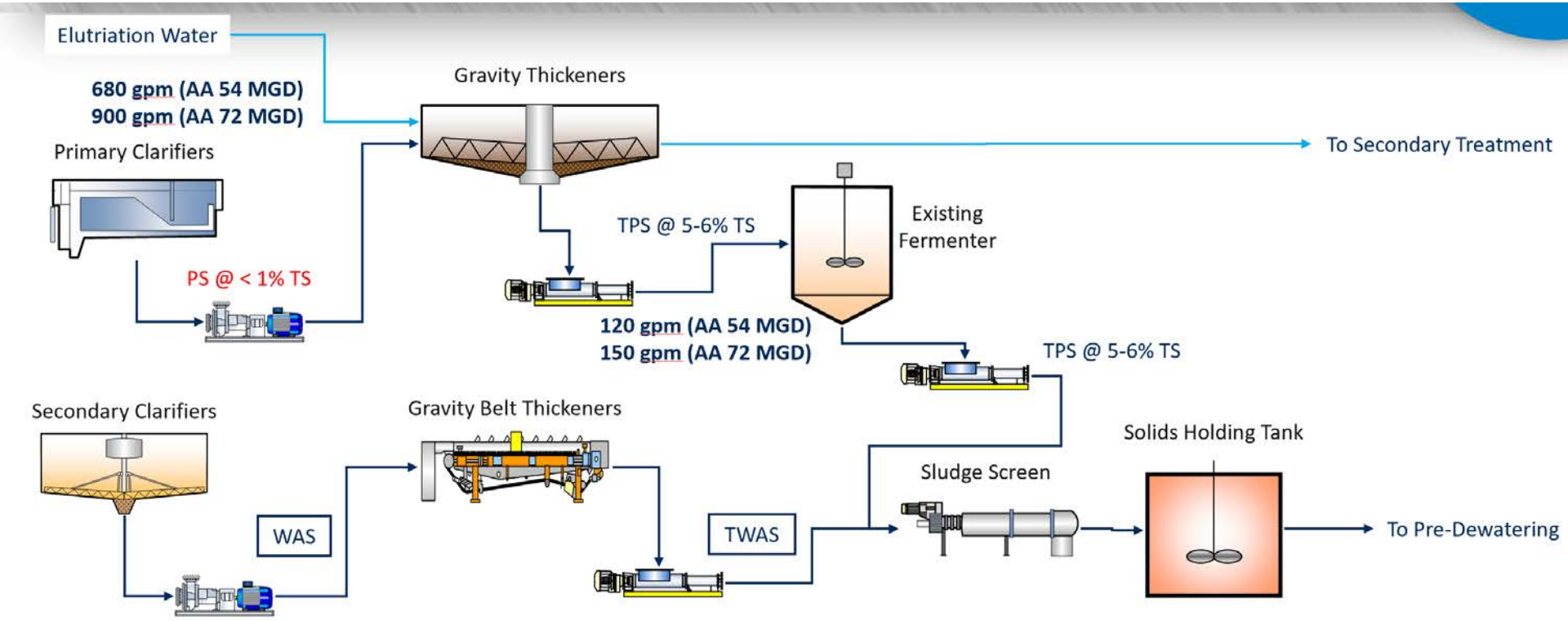
1. New odor control system replaces aging systems (A, B, and C + new sources)
2. Odor D – optimization and polishing if needed
3. New THP facilities - eliminate odors from annual & routine maintenance
4. New enclosed digester gas flare - improves odor destruction
5. Additional aerobic treatment of digestate in DSST minimizes cake odor (pilot testing ongoing)

ATP Odor Footprint: ROCI Long-term Improvements

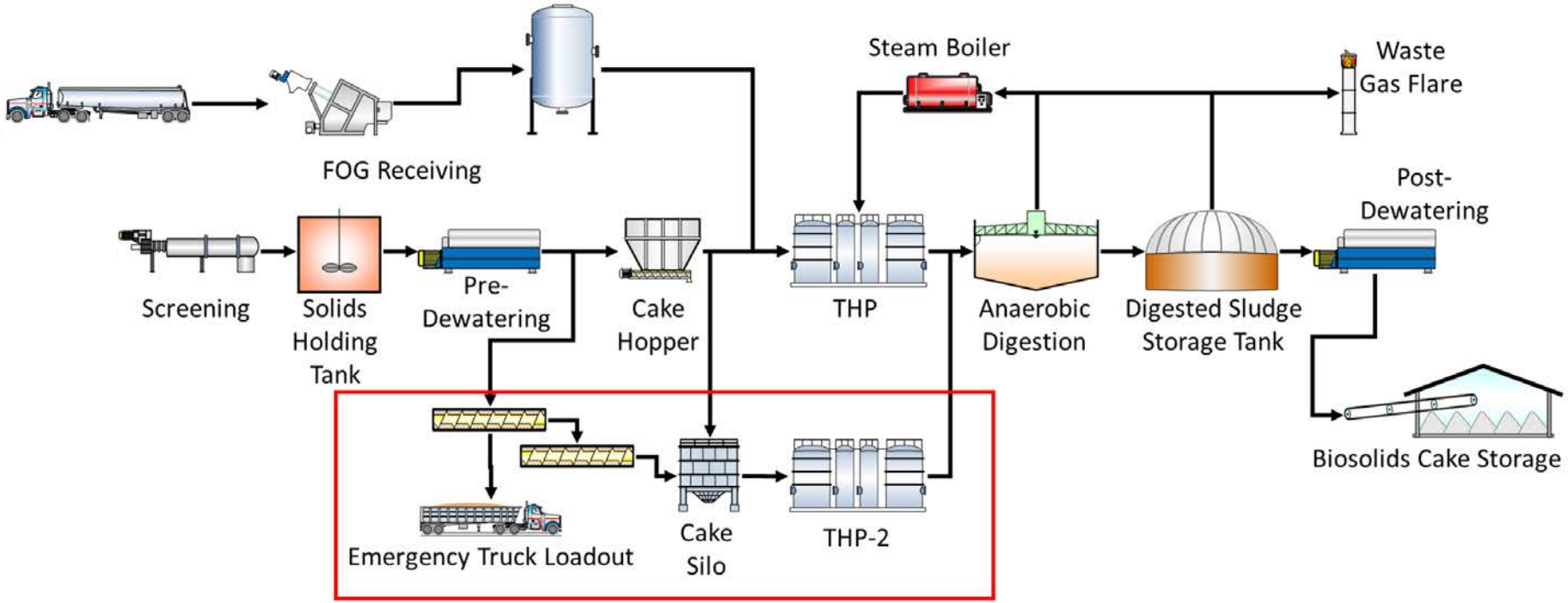


- Area with odor impacts above 7 D/T significantly reduced
- Area within a 1-mile radius will have significant reduction in odor impacts
- Odor Impacts beyond the property line reduced from 100 D/T to approx. 10 - 20 D/T

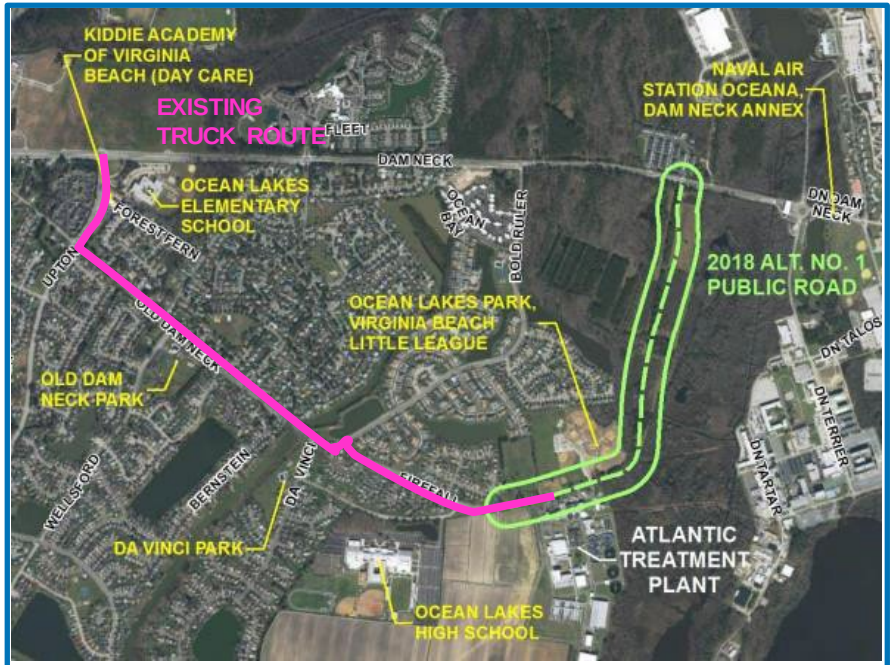
Future Solids Handling Process Flow Diagram (part 1)



Future Solids Handling Process Flow Diagram (part 2)



Additional Long-term Improvements



New road will eliminate biosolids hauling through neighborhoods (separate CIP)

New fixed digester covers will completely enclose odors (possibly in ROCI)

Ongoing Efforts

- Community Outreach - Communications
  - Letter, fliers, dedicated website page
  - Plant tours
  - Community Roundtable Group
    - Ocean Lakes Neighborhood, Ocean Lakes High School, Lynnhaven River NOW, US Navy, City of Virginia Beach
  - Smell Something, say something (email/phone)
  - Targeted outreach via NextDoor
  - HOA Meeting
  - Narrated presentations

- Monitoring – Water Quality
  - Rapid response by TSD to identify sources of odors
  - Proactive monitoring—daily checklist

Ongoing Efforts

- Onsite Work - Operations
  - Addition of ferric chloride
  - Odor Control Stations D optimization
  - Biosolids curing pilots – plan to cure all cake in 2024 (pilot)
  - No fresh cake hauling - made possible by higher cake TS on pads
  - Find and fix
    - Digester gas system and Dystor cover vents/PRVs
    - Flares
  - Land application trucks
    - Cleaning (covers, wheel washers, inspections before leaving plant, night hauling)
    - Minimize hauling duration
  - THP Maintenance – 24/7 operation
    - No solids hauling = No odor issues
    - Cost savings ~ $750k


why
when
who
where
what
why
QUESTIONS
who
how
where
who
what
how
why
when

11. 2023 Engagement Survey/Stay Interview

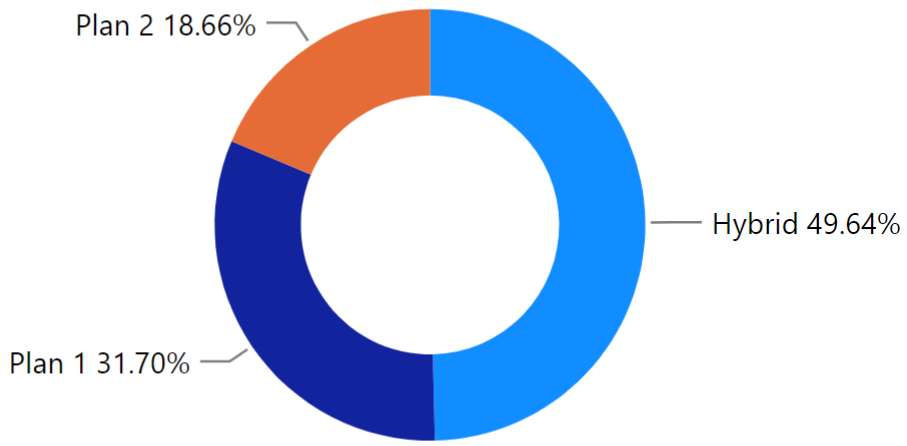

HRSD
2023 Engagement Survey
December 19, 2023

Benefits of Employee Engagement

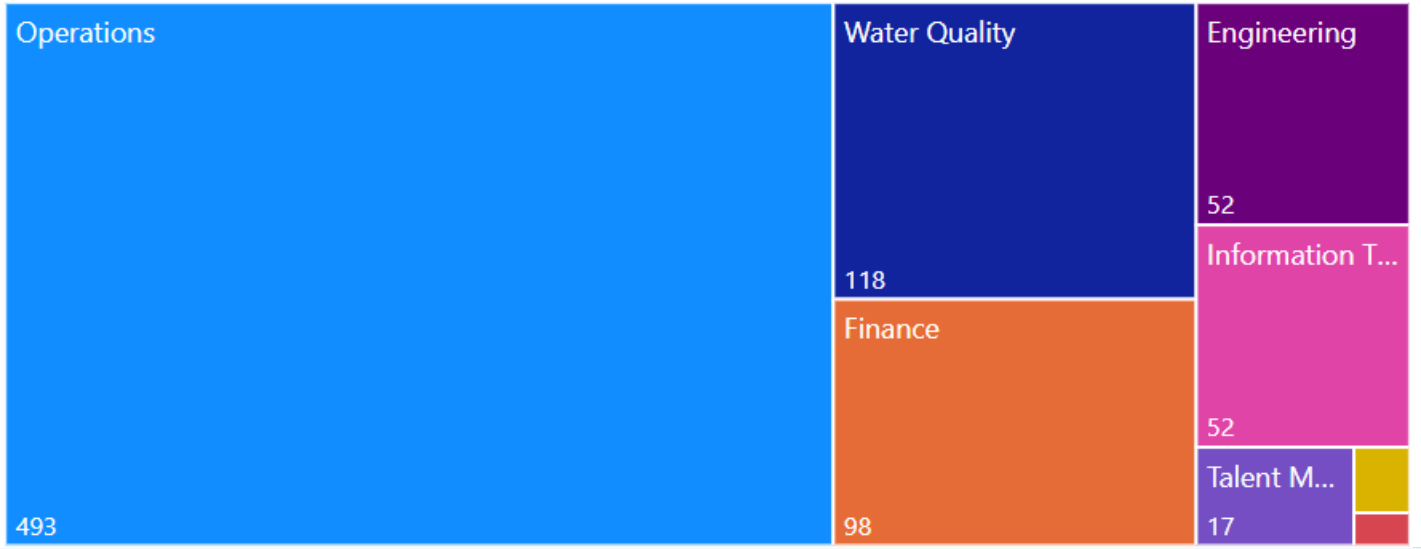
- Improved team performance
- Increased productivity
- Higher retention and lower turnover
- Surveys give employees a voice

Demographics

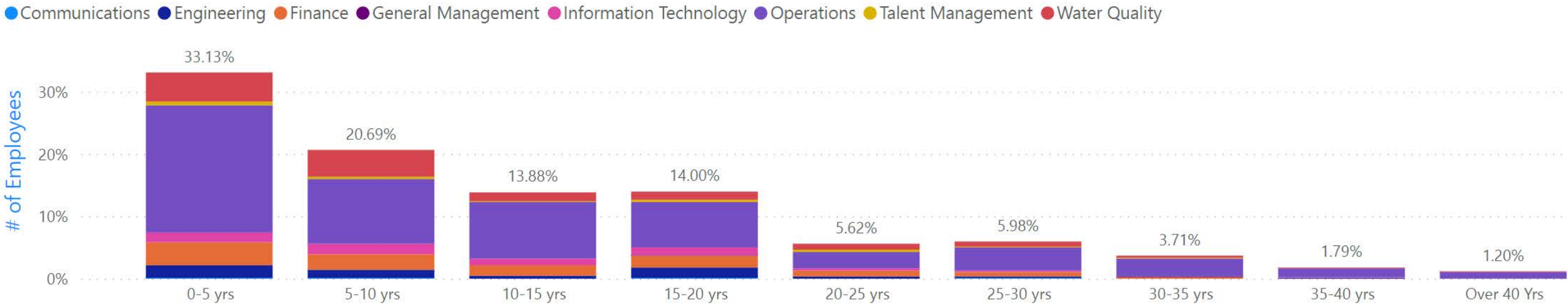
% of Employees per Retirement Plan



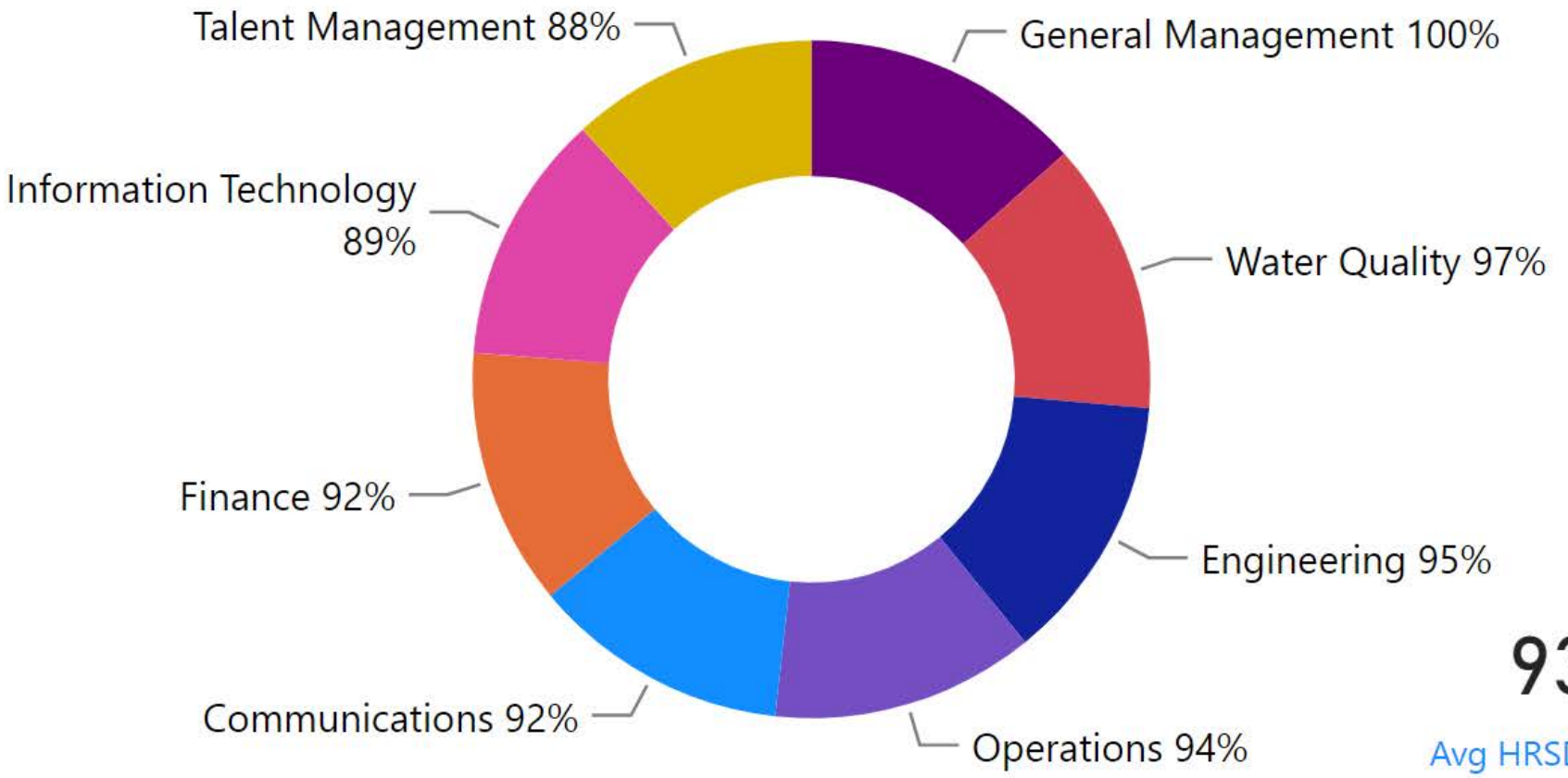
of Employees by Department



% of Employees per Years of Service Category



FY Avg Staffing Level



93.3%

Avg HRSD Staffing Level

Sum of Max of # of Employees	Column Labels					
Row Labels	July	August	September	October	November	Grand Total
Administrative Separation		1				**1**
Career/Better Opportunity	2		1		1	**4**
Content of work				1		**1**
Death in Service	2					**2**
Dismissal	1	1	1	2		**5**
Family circumstances			2		1	**3**
Retirement	4	1	1	1		**7**
Grand Total	**9**	**3**	**5**	**4**	**2**	**23**

Succession Planning – 53 Employees Eligible in FY2023

- Operations – 39
- Info Tech – 6
- Finance – 3
- Water Quality – 3
- Engineering - 2

Engagement Survey

Up from 66% last year

678
HRSD # of Responses

80%
HRSD % of Responses

Department	Current Positions Filled	# of Respondents	% Response
Communications & General Management	6	7	117%
Engineering	52	55	106%
Water Quality	118	103	87%
Information Technology	52	43	83%
Operations	496	383	77%
Finance	98	75	77%
Talent Management	17	12	71%

Note: *For % Response over 100%, employees may have filled out the incorrect department but the reviewer could not determine which department their responses belonged in. Respondents may have also completed the survey more than once.*

Last Update: October 5, 2023

Year-Over-Year (YOY) Comparison

Question	2022	2023		Increase
HRSD has flexible work policies	N/A	81%		N/A
HRSD has job security.	N/A	92%		N/A
HRSD is an employer of choice.	N/A	77%		N/A
I would encourage friends and family to work for HRSD.	N/A	79%		N/A
HRSD is going in the right direction.	64%	74%		10%
HRSD recognizes, values, and respects you as an employee.	63%	71%		8%
HRSD promotes great work teams.	65%	72%		7%
HRSD provides adequate/competitive benefits.	75%	81%		6%
HRSD provides career growth and opportunities for you to learn and develop.	80%	86%		6%
I am proud of HRSD's promise and vision.	82%	86%		4%
HRSD provides a great work environment and culture.	65%	69%	21%	4%
HRSD provides exciting work that offers you a challenge.	84%	87%		3%
HRSD provides supportive management and good leadership.	66%	68%		2%
HRSD provides fair/competitive pay.	55%	57%		2%
HRSD provides meaningful work that allows you to make a difference.	86%	87%	33%	1%

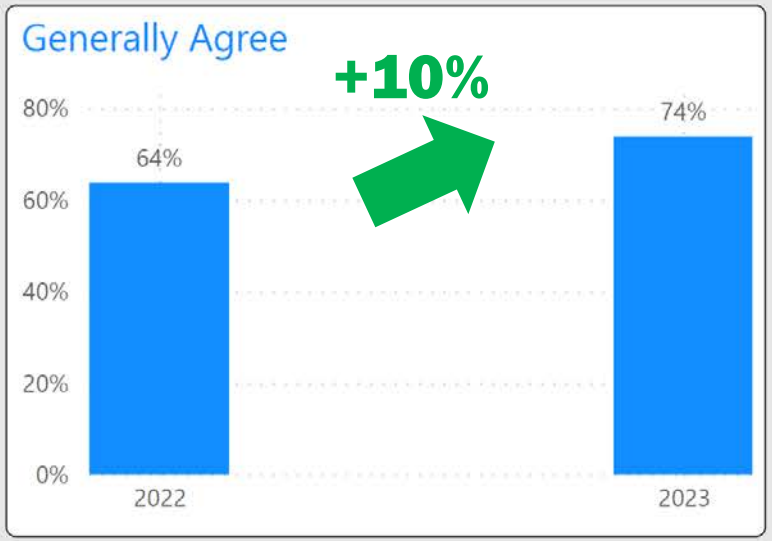
GALLUP HRSD

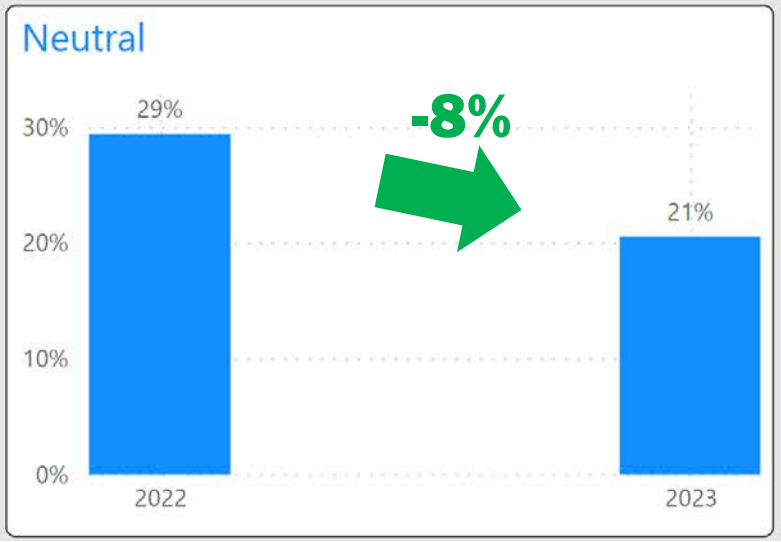
YOY Comparison

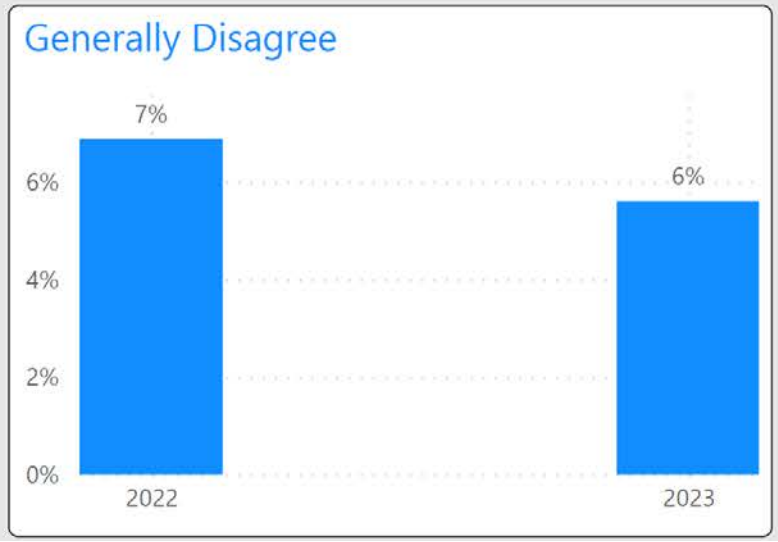
Generally Disagree

Question	2022	2023	Increase
HRSD has flexible work policies	N/A	7%	N/A
HRSD has job security.	N/A	2%	N/A
HRSD is an employer of choice.	N/A	3%	N/A
I would encourage friends and family to work for HRSD.	N/A	6%	N/A
HRSD recognizes, values, and respects you as an employee.	7%	11%	4%
HRSD provides supportive management and good leadership.	8%	11%	3%
HRSD provides fair/competitive pay.	18%	20%	2%
HRSD provides adequate/competitive benefits.	6%	7%	1%
HRSD provides a great work environment and culture.	9%	10%	1%
I am proud of HRSD's promise and vision.	1%	2%	1%
HRSD provides meaningful work that allows you to make a difference.	1%	2%	1%
HRSD provides exciting work that offers you a challenge.	2%	3%	1%
HRSD provides career growth and opportunities for you to learn and develop.	6%	6%	0%
HRSD is going in the right direction.	7%	6%	-1%
HRSD promotes great work teams.	10%	9%	-1%

HRSD is going in the right direction.





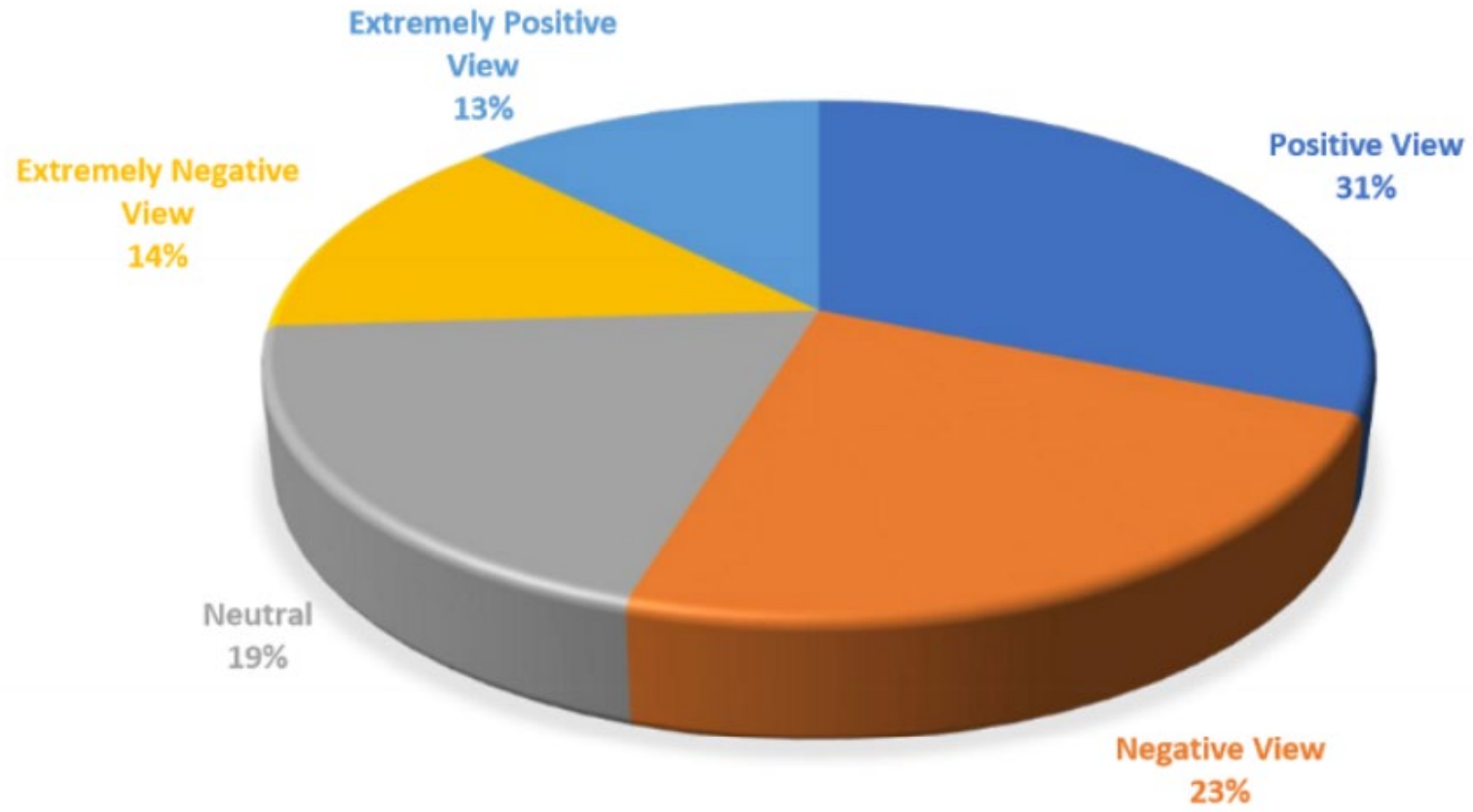


Jan 2022 Survey

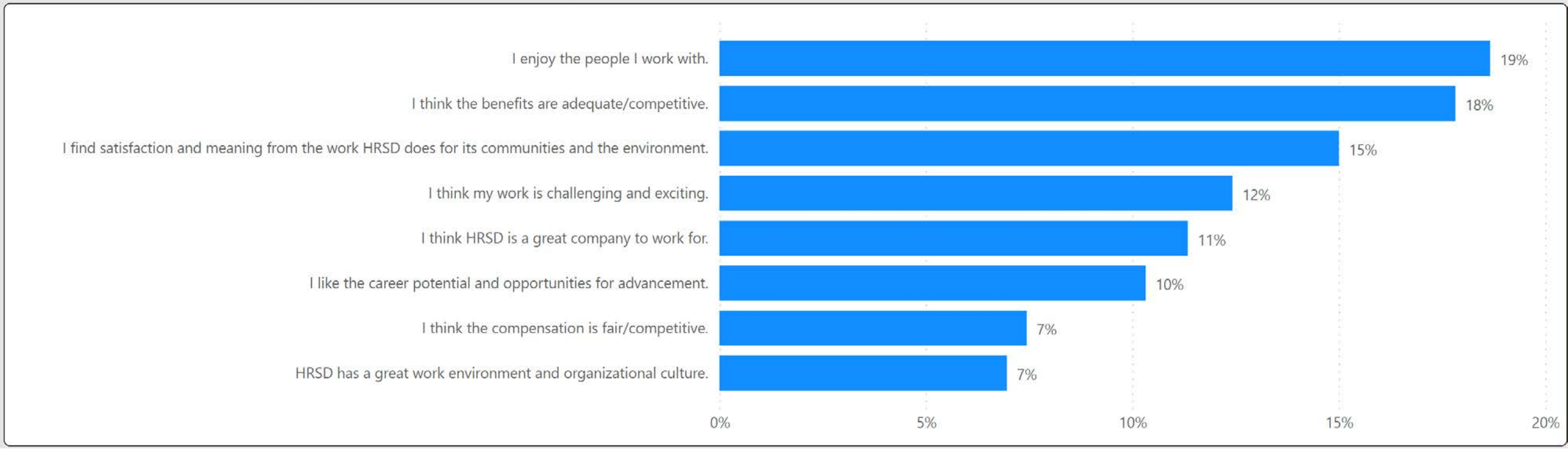
37% Negative View of Leadership/44% Postive

Survey Question:

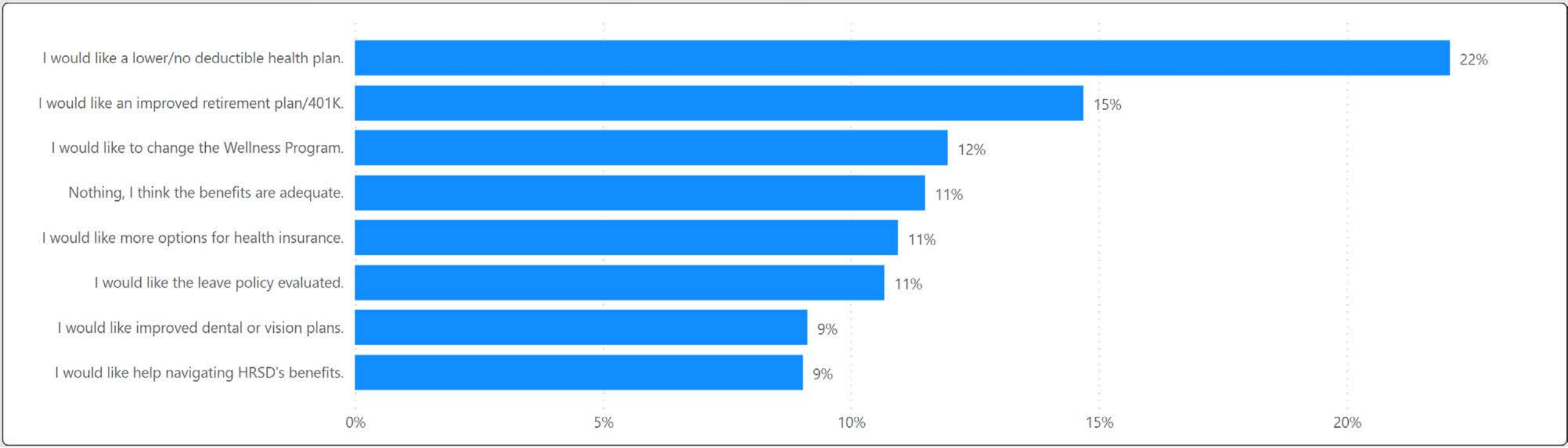
What do you think of HRSD leadership for mandating the vaccine?



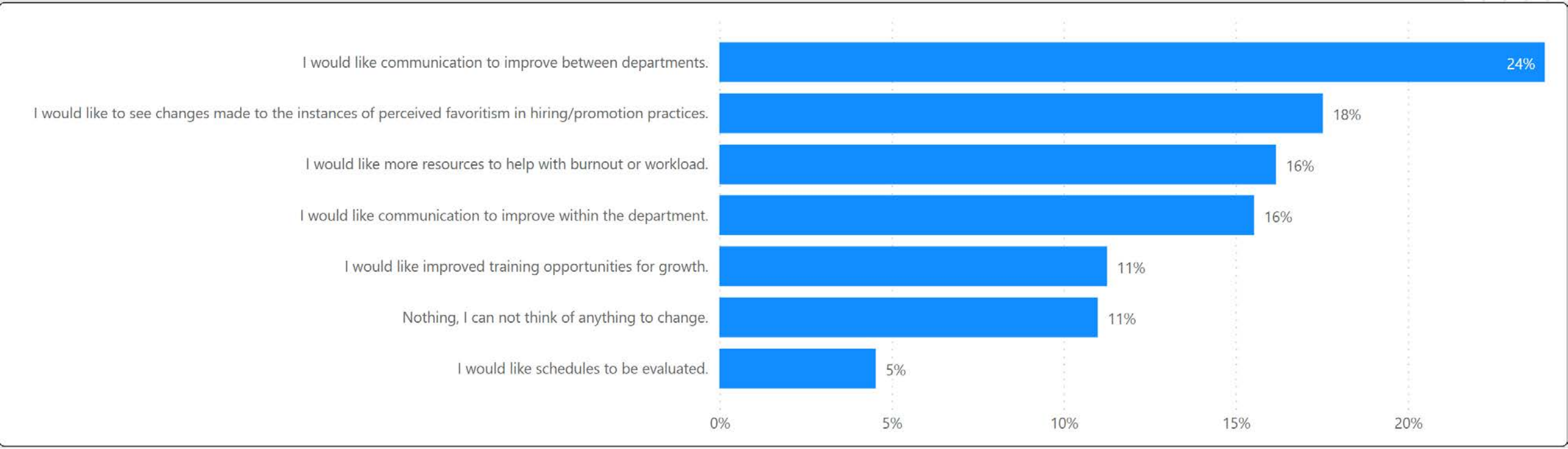
Why have you continued to work for HRSD?



What would you change about the benefits?



What would you change about the your job?

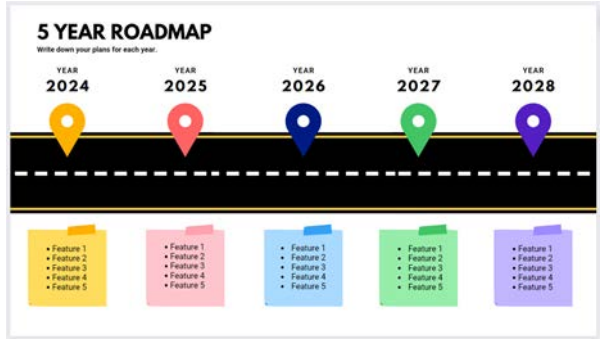


New Employees Stay Interview Results Compared to Org Results

Survey Question	Generally Agree	Neutral	Generally Disagree
The benefits at HRSD are better than those offered at my previous employer.	67%	22%	11%
The benefits at HRSD are better than the other employers I considered during my job search.	**83%**	**11%**	**6%**
HRSD provides adequate/competitive benefits.	*81%*	*13%*	*7%*
I feel my career goals can be met at HRSD.	**100%**	**0%**	**0%**
HRSD provides career growth and opportunities for me to learn and develop.	*86%*	*9%*	*6%*
I feel HRSD offers fair and competitive pay for the job I was hired to do.	**83%**	**6%**	**11%**
HRSD provides fair/competitive pay.	*57%*	*24%*	*20%*
I would encourage family and friends to work at HRSD.	**100%**	**0%**	**0%**
I would encourage friends and family to work at HRSD.	*79%*	*15%*	*6%*
I feel HRSD values and recognizes me as an employee.	**94%**	**6%**	**0%**
HRSD recognizes, values, and respects me as an employee.	*71%*	*18%*	*11%*
I feel HRSD is going in the right direction.	**94%**	**0%**	**6%**
HRSD is going in the right direction.	*74%*	*21%*	*5%*

5-Year Roadmaps and Action Planning

- Each division will develop a strategic roadmap
  - Strategic Plan Priorities alignment
  - Engagement Survey Data
  - Succession Planning
  - Planning Days
- Preparing for Fall 2024 Commission Retreat




Questions

15. Informational Items

a. Management Reports

(1) General Manager

(2) Communications

(3) Engineering

(4) Finance

(5) Information Technology

(6) Operations

(7) Talent Management

(8) Water Quality

(9) Report of Internal Audit Activities

b. Strategic Metrics Summary

December 13, 2023

Re: General Manager's Report

Environmental Responsibility

Staff discovered a waste gas regulator on our digester flare at the Atlantic Treatment Plant was not seating all the way on the gas burner, which created a significant odor issue. The issue was corrected and there was a noted decrease in odor complaints.

Treatment Compliance and System Operations: The Anaerobic, Anoxic, and Aerobic (AAA) influent channel separated at an expansion joint when the contractor was drilling piles nearby. Approximately 3,000 gallons of mixed liquor went into the ground.

- From FY-2024 to date, there have been four Permit Exceedances out of 23,553 Total Possible Exceedances.
- Pounds of Pollutants Removed in FY-2024 to date: 83,026,360.

Water Quality: No civil penalties were issued in November.

Financial Stewardship

Onancock Treatment Plant (OTP) staff installed a new Non-Potable Water (NPW) system which will be activated in December. This will save approximately $100,000 annually on water bills and reduce the volume of treated water in the plant.

Contractors and plant maintenance staff at the Atlantic Treatment Plant successfully performed the Thermal Hydrolysis Processing (THP) system annual maintenance. With their effective planning and working around the clock, they saved upwards of $750,000.

Capital Improvement Program (CIP) spending for the fourth month of FY-2024 was significantly above the planned spending target at $61.5 million actual vs $47.2 million planned and remains on target for the fiscal year.

Construction throughout the region continues to be brisk resulting in fewer contractors bidding on our work. Even though HRSD is an "Owner of Choice", we are still seeing fewer bidders on our work making it challenging to estimate projects.

Water consumption remains higher than expected as wastewater revenues remain slightly higher than budget. Expenses remain under control as staff remains vigilant and inflation subsides.

Talent

Our senior leadership team and division leaders held an all-day retreat to discuss strategic issues and our recent Employee Engagement Survey. Each division is tasked to develop a 5-year strategic roadmap by next fall that is in alignment with our strategic plan and addresses items in the survey.

Ashley Roberts, Lab Manager was featured as the cover story in the latest issue of Treatment Plant Operator (TPO).

I participated in the following meetings/activities with HRSD personnel:

1. Participated in the rebranding workshop.
2. Attended the compensation study workshops and calibration sessions.
3. Provided a video interview for the upcoming SWIFT Industry Day.

Community Engagement

I was invited to speak at the Chesapeake Bay Foundation Decision Makers boat tour on the Nansemond River. The attendees included Suffolk Planning Commissioners, Suffolk City staff, Non-Governmental Organizations (NGOs) and the Nansemond Native American tribe.

Staff set up an HRSD booth for the Shored Up Shellabration in Hampton, which drew more than 350 attendants. It was a great opportunity to educate citizens about the critical role HRSD plays to protect our waterways.

Following the Potomac Aquifer Recharge Oversight Committee (PAROC) meeting, we gave the Director of the Department of Environmental Quality (DEQ) a tour of the SWIFT Research Center. He was very impressed and included his visit in the DEQ monthly newsletter.

I participated in the following external meetings/activities:

1. Attended the monthly Hampton Roads Director of Utilities meeting.
2. Presented at the Chesapeake Bay Foundation "Decision Makers" boat tour.
3. Attended the National Association of Clean Water Agencies (NACWA) fall board meeting.
4. Attended the quarterly Potomac Aquifer Recharge Oversight Committee (PAROC) meeting.

Innovation

Staff are working on different options to regenerate Granular Activated Carbon (GAC) on-site as it is a significance operating expense. We are looking at rotary kilns and are also partnering in some research to evaluate industrial microwaves and other technologies.

Staff are working with Old Dominion University and the U.S. Department of Energy on a machine-learning process to forecast flows which should help us to predict sanitary sewer overflows (SSOs) so we can design and/or operate our system to prevent them from occurring.

The Central Environmental Laboratory (CEL) continued working on development of capabilities to analyze for Perfluorooctanoic Acid (PFOA) to be able to provide quick data turn around to the Sustainable Water Initiative For Tomorrow (SWIFT) group, and equipment has been purchased to facilitate improved instrument performance.

Thanks for your continued dedicated service to HRSD, the Hampton Roads region, the Commonwealth, and the environment.

I look forward to seeing you in person in Virginia Beach at 9:00 a.m. on Tuesday, December 19, 2023.

Respectfully submitted,

Jay Bernas, P.E.
General Manager

TO: General Manager

FROM: Director of Communications

SUBJECT: Monthly Report for November 2023

DATE: December 5, 2023

A. Publicity and Promotion

1. HRSD and Sustainable Water Initiative For Tomorrow (SWIFT) were mentioned or featured in eight stories this month. Topics included:

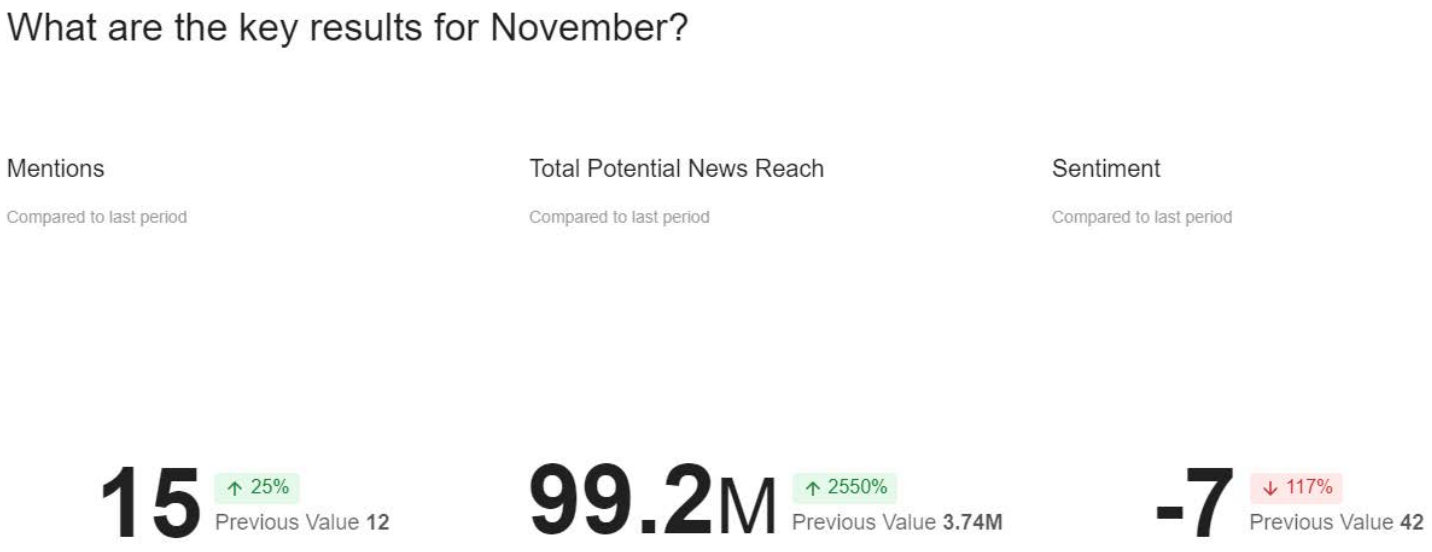
   a. Feature story about Lab Manager, Ashley Roberts in Treatment Plant Operator Magazine

   b. Story about HRSD working with the City of Virginia Beach to resolve an environmental odor issue

   c. Fitch ratings for HRSD revenue bonds

   d. HRSD Apprenticeship program featured in larger story about apprentice opportunities in Hampton Roads

2. Analysis of media coverage



What is the top performing news content?

Top Article by Reach

Yahoo! News · Madie MacDonald
Editorial | US | Nov 17 · 11:51 AM

Something smells in Holland Pines

Beach Public Utilities, Public Works departments and the **Hampton Roads Sanitation District** are working together to investigate and identify …

Social Echo 0 0 0
60.3M Reach Neutral

Top Article by Reach and Volume

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Something smells in Holland Pines

Beach Public Utilities, Public Works departments and the **Hampton Roads Sanitation District** are working together to investigate and identify …

Social Echo 0 0 0
60.3M Reach Neutral

Top Article by Social Echo

Trenchless Technology · Jim Rush
Editorial | US | Nov 20 · 9:20 AM

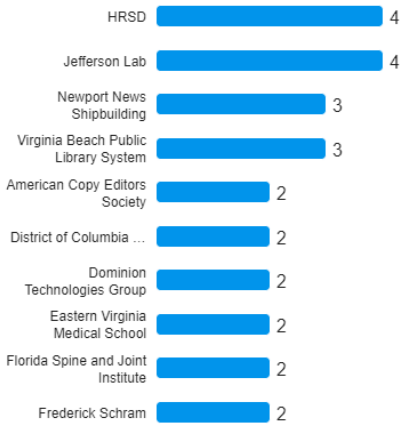
2023 North American Microtunneling Job Log

… for the drive along 33rd Street. Key project members include **Hampton Roads Sanitation District** (HRSD) (Owner), Ramboll Americas Engineer…

Social Echo 54 1 0
10k Reach Neutral

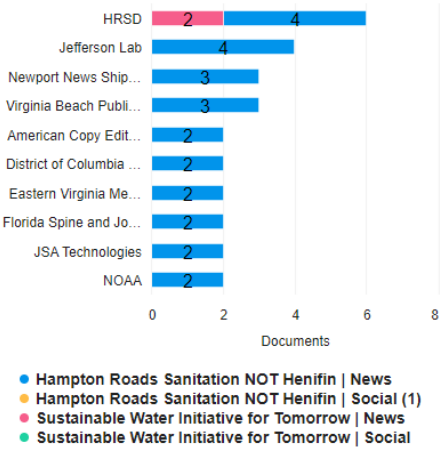
What are the top entities and keywords?

Top Entities



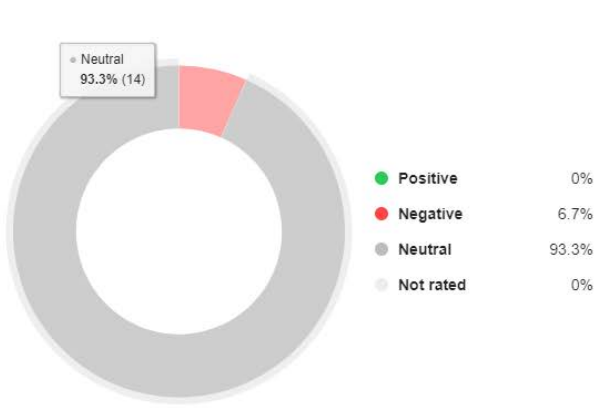
Top Keywords

Top Organizations

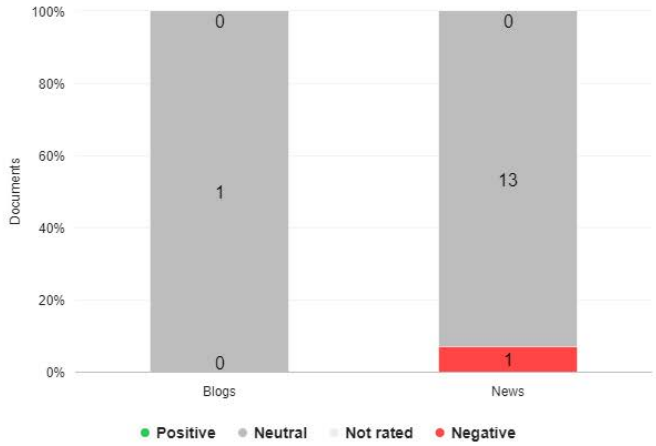


How favorable is the content?

Sentiment Share of Voice

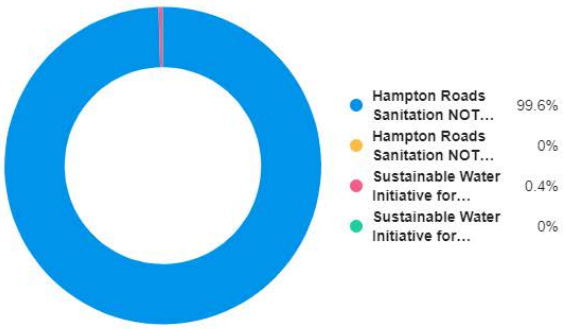


Sentiment by Source Type

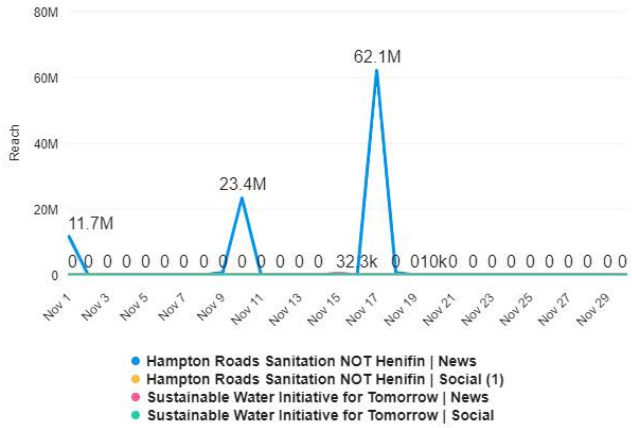


What is the potential reach?

Share of Voice by Reach

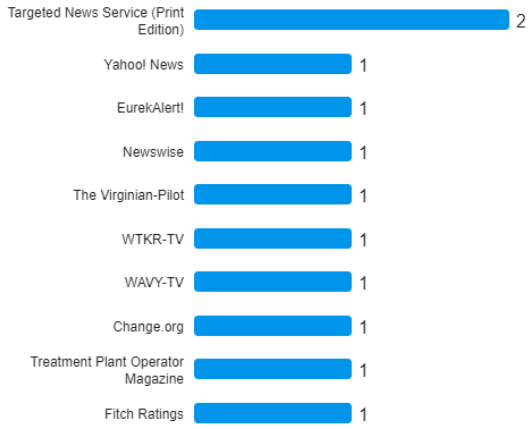


Potential News Reach

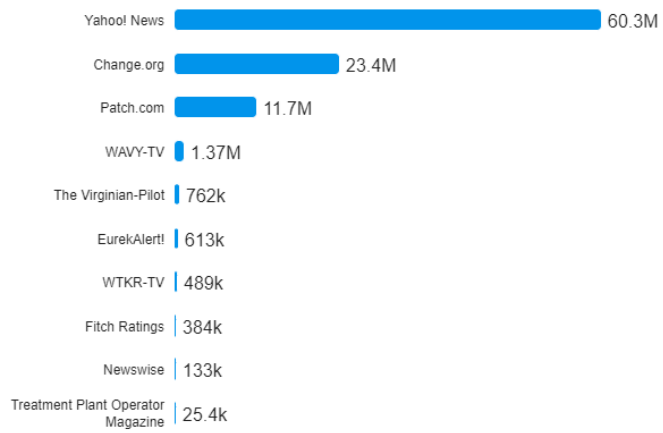


What are the top publishers?

Top Publications by Volume



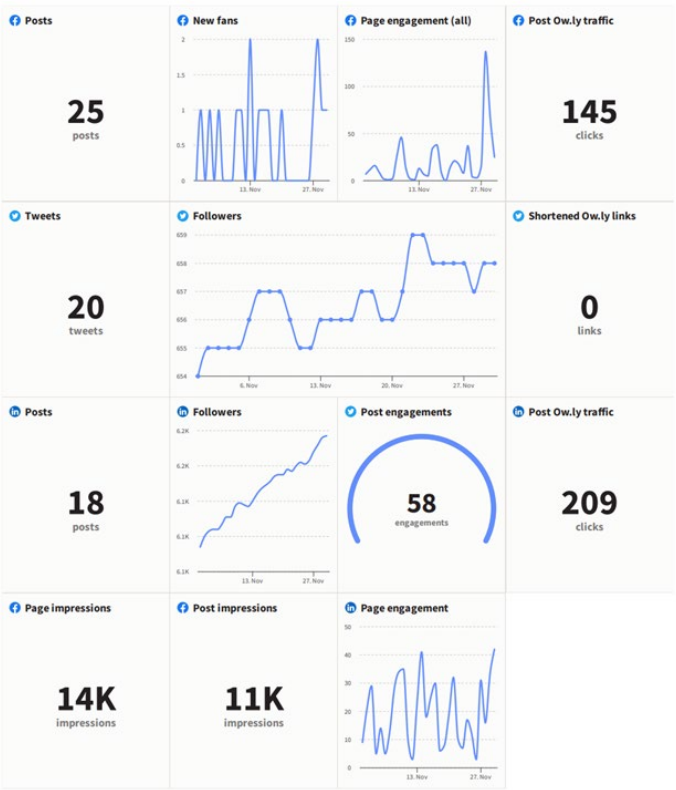
Top Publications by Reach



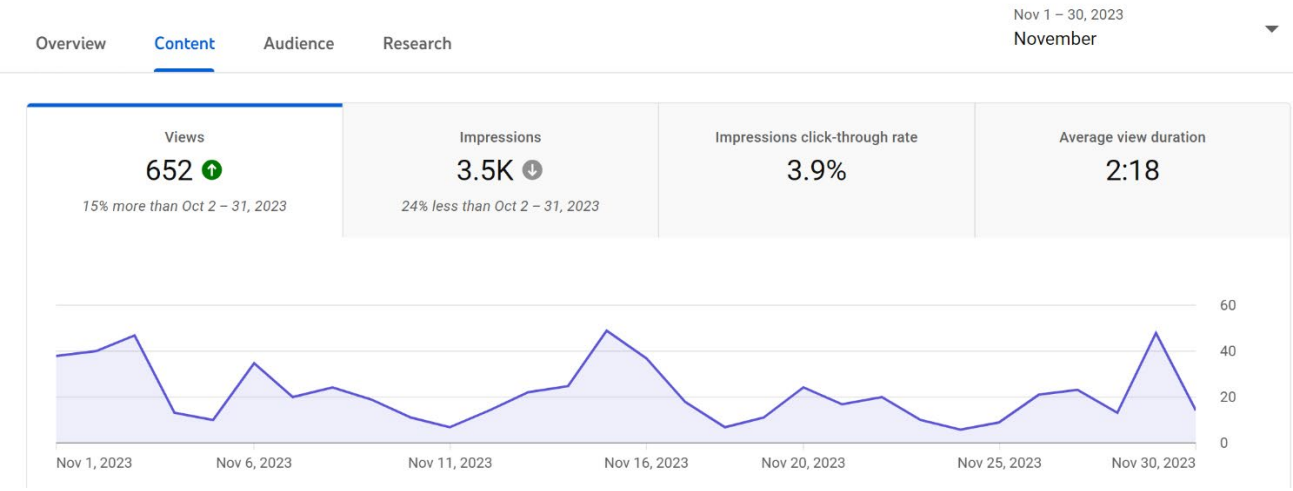
Community Engagement

B. Social Media and Online Engagement

1. Metrics – Facebook, X and LinkedIn



2. YouTube



3. Top posts on Facebook, Twitter, and YouTube

a. Top Facebook post

b. Top Tweet

c. Top YouTube Videos

(1) SWIFT Research Center: What Is the Potomac Aquifer (234 views)

(2) The Wastewater Treatment Process (191 views)

(3) National Infrastructure Week: James River Treatment Plant SWIFT Improvements (35 views)

(4) Atlantic Treatment Plant Cambi Tour (31 views)

(5) What Is Asset Management? Celebrating Infrastructure Week at HRSD (28 views)

4. Website and Social Media Impressions and Visits

a. Facebook:

(1) 14,245 page impressions

(2) 11,239 post impressions reaching 10,717 users

(3) Facebook Engagement of 594 (492 reactions, 57 shares, and 71 comments)

b. X : 2,115 post impressions, 1.9% engagement rate

c. HRSD.com/SWIFTVA.com: 992 page visits

d. LinkedIn Impressions:

(1) 18,035 page impressions

(2) 16,064 post impressions

e. YouTube: 652 views

f. Next Door unique impressions: 18,807 post impressions from 13 targeted neighborhood postings and one region-wide posting shared with 627,076 total residents

g. Blog Posts (2): Food Waste (Micaela Griffin) and Christel Dyer Interview

h. Construction Project Page Visits – 1,871 total visits (not including direct visits from home page, broken down as follows:

(1) 1,532 visits to individual pages

(2) 339 to the status page

C. Education and Outreach Activity Highlights

Communications staff and HRSD Ambassadors staffed a booth at the Shored Up Shellabration in Hampton this month. The event drew more than 350 attendants, and HRSD's booth featured educational games and giveaways, including bottles of SWIFT Water™. As a water-centric event, it was a good opportunity to connect with our customers and raise awareness and understanding of the critical role HRSD plays in protecting local waterways.

Staff also attended the Canon Environmental and Safety Fair at Canon Virginia in Newport News and engaged with more than 150 attendees at Portsmouth's I.C. Norcom High School during their STEAM Night event.

Project notices were distributed to 614 customers for eight different projects across the service area this month and the department issued and posted ten construction or work notices to the HRSD.com Newsroom.

There were six SWIFT Research Center tours given by the Communications department over the course of the month to a total of 83 people.

D. Internal Communications

Director participated in the following internal meetings and events:

1. SWIFT Industry Day planning meetings

2. Compensation Study update meetings

3. Three-month employee review meeting

4. Atlantic Treatment Plant/Progress Farm story mapping meeting

5. Website refresh planning meetings

6. Crisis Communications plan review and refinement meetings

7. Bi-weekly General Manager (GM) briefings

8. Discharge Monitoring Report (DMR), SWIFT Quality Steering Team (QST) and HRSD QST meetings

9. Check-in meetings with Deputy General Manager (DGM)

10. Director also conducted biweekly Communications department status meetings and weekly one-on-one check-in meetings.

11. Staff participated in 14 project progress meetings and seven outreach development meetings with various project managers.

Respectfully,

Leila Rice, APR
Director of Communications

TO: General Manager

FROM: Director of Engineering

SUBJECT: Engineering Monthly Report for November 2023

DATE: December 7, 2023

Environmental Responsibility

Condition assessment of critical HRSD buried pipe infrastructure remains an important proactive effort to limit the likelihood of system failures. Each year, pipe segments with the highest level of risk are identified and inspected. Since many of these pipe segments are buried, inspection of this infrastructure is often quite challenging. All pipe segments identified for 2023 have been inspected except for one location at the Army Base Treatment Plant. Due to delays in receiving certain equipment and challenges with access for our contractor partner, this work has been postponed but should be completed in the next few months. The HRSD team has selected a number of critical pipe segments to be inspected for 2024 and this work will begin soon.

Most of HRSD's CIP projects address important environmental issues for the region. To assure that we are focused on sustainable solutions, projects are reviewed using a criterion provided by the Institute for Sustainable Infrastructure known as Envision. The Envision Rating System includes five major scoring categories:

- Quality of Life
- Leadership
- Resource Allocation
- Natural World
- Climate and Risk

Although HRSD does not use the scoring system to attain formal accreditation for our projects, we use this criterion to assure our projects are aligned with HRSD's Promise and Mission.

Financial Stewardship

Capital Improvement Program (CIP) spending for the fourth month of FY2024 was significantly above the planned spending target.

CIP Spending ($M):

	Current Period	FYTD
Actual	61.48	184.25
Plan	47.20	184.80

This monthly spending level surpassed last month's spending, which continues to set records for CIP spending at HRSD. To meet our annual CIP spending target, we will need to average at least $48M each month in FY24.

CIP project costs remain very challenging to estimate for our Consulting Engineers. The current economic conditions in Hampton Roads have resulted in a large number of infrastructure projects with a limited pool of capable contactors to complete this work. This is particularly true for the public sector. HRSD has observed fewer contractors competing on many of our projects that historically had numerous bidders. This limited pool of general contractors and subcontractors required to complete our projects will continue to put pressure on bid prices. This situation makes the process of estimating costs in a tight market quite challenging. We continue to be an "Owner of Choice" with both the consulting and contracting community, but until the construction market begins to rebalance, we will continue to see a limited number of bidders and highly variable construction costs.

Talent

A prime goal for the Engineering Department in FY2024 was to become fully staffed. We began the fiscal year with 14 openings within the Engineering Department. We have reduced the number of vacant positions down to just two. This has been a significant time commitment by the Engineering Department Leadership Team to find qualified individuals to join our group. Our ability to find qualified candidates and onboard these individuals quickly has greatly helped our ability to meet the needs of the organization. We will work to find qualified candidates for the two open positions and will be working closely with the Talent Management Department in the coming months.

Training and continuous learning are critical to the success of the Engineering Department. Each year our target is to provide each staff member with 40 hours of training. We are currently tracking above this target for FY2024 and continue to look for meaningful training opportunities for our staff. This metric has extra importance since we have added many new staff members in the past year.

Community Engagement

For the past few years, staff has provided training to the Hampton Roads Public Works Academy (HRPWA). In November our staff provided training on Engineering and Surveying. The HRPWA has been a beneficial partnership. HRSD has provided teachers on a variety of subjects and the Academy has been a source on both interns and full-time employees.

The SWIFT Research Center continues to be of great interest to the general public. We hosted a tour of this facility with 12 Board Members of the Hampton roads Chamber of Commerce – Suffolk Division. The SWIFT Research Center is a perfect backdrop to tell "our story." This group was very interested in the SWIFT Program and how this effort will positively impact our region.

Innovation

Innovation can be achieved in many ways. In some cases, a new tool or piece of equipment is developed. In other cases, a new process or procedure can be implemented to improve efficiencies. To provide for an efficient delivery of the Infiltration and Inflow Program, we are planning to use the Public-Private Education and Infrastructure Act procedures. This act was adopted by the

Commonwealth of Virginia in 2002 to facilitate a timely acquisition of public infrastructure. HRSD has used this project delivery method for two projects in the past and this method should allow us to address the regions sewer infiltration and inflow challenges more effectively as part of the Federal Consent Decree. The Commission approved this alternative project delivery method in October, and a request for qualifications will be issued for this program in January. Due to the tight timeframes included in the Consent Decree, this delivery method is needed to assure both compliance with the reduction in sewer overflows and deadlines defined in the court order.

Staff have teamed with Old Dominion University and the U.S. Department of Energy on a machine-learning process aimed at forecasting sanitary sewer flows at locality pump stations. Using climatological data, information about pump station hydraulics and system storage capacity, this tool should be able to better predict pumping constraints prior to sewer overflows from occurring. This research could potentially be used in a future hydraulic model to better design and operate sewer pump stations.

Bruce W. Husselbee

Bruce W. Husselbee, PhD, P.E., BCE, DBIA

TO: General Manager

FROM: Director of Finance

SUBJECT: Monthly Report for November 2023

DATE: December 15, 2023

Financial Stewardship

This month Fitch Ratings (Fitch) affirmed its AA+ rating on HRSD's $142.3 million senior wastewater revenue bonds; its AA rating on $369.1 million subordinate wastewater revenue bonds; and its AA/F1+ rating on $50 million variable rate wastewater revenue bonds. In its report, Fitch noted that despite HRSD's "very strong" financial profile and low operating cost burden, HRSD's current and planned spending on regulatorily related capital projects is now in a "peak phase" and that leverage will increase notably in the coming years. As a result, Fitch revised its Rating Outlook from "Positive" to "Stable".

Since mid-November 2022, HRSD has been working with the Virginia Department of Social Services' third party to distribute Virginia Low-Income Household Water Assistance Program (LIHWAP) funding. To date, approximately $7.6 million has been applied to over 15,000 low-income qualified HRSD and Hampton Roads Utility Billing Service (HRUBS) customer accounts for water, sewer and wastewater charges. HRSD coordinates and accepts LIHWAP payments on behalf of HRUBS partner localities.

Available Virginia LIHWAP funds are anticipated to be spent by the end of 2023, thus concluding the program.

	HRSD	City/County	Total LIHWAP
Norfolk	$ 1,082,647.55	$2,481,992.36	$ 3,564,639.91
Newport News	$ 1,151,067.30		$ 1,151,067.30
Suffolk	$ 279,184.31	$ 733,349.62	$ 1,012,533.93
Chesapeake	$ 334,249.57	$ 480,822.61	$ 815,072.18
Virginia Beach	$ 481,293.48		$ 481,293.48
Portsmouth	$ 437,812.92		$ 437,812.92
James City	$ 38,349.05	$ 48,912.33	$ 87,261.38
Smithfield	$ 8,201.62	$ 11,765.53	$ 19,967.15
Isle of Wight	$ 10,906.99		$ 10,906.99
King William	$ 8,390.66	$ 1,794.73	$ 10,185.39
Windsor	$ 7,846.30		$ 7,846.30
Urbanna	$ 4,032.53	$ 1,706.41	$ 5,738.94
Aqua	$ 4,946.18		$ 4,946.18
Surry County	$ 2,855.52	$ 1,542.63	$ 4,398.15
Gloucester	$ 3,286.11		$ 3,286.11
Town of Surry	$ 2,051.09	$ 159.62	$ 2,210.71
Mathews County	$ 1,276.13		$ 1,276.13
Williamsburg	$ 541.53		$ 541.53
York County	$ 372.26		$ 372.26
Hampton	$ 15.23		$ 15.23
	$ 3,859,326.33	**$3,762,045.84**	**$ 7,621,372.17**

Field staff delivered 5,125 warning door tags and disconnected water service to 1,235 accounts during November 2023. The Debt Solutions team continues to advance assistance initiatives such as the LIHWAP, pay plans and Help to Others.

A. Interim Financial Report

1. Operating Budget for the Period Ended November 30, 2023

	Amended Budget	Current YTD	Current YTD as % of Budget (42% Budget to Date)	Prior YTD as % of Prior Year Budget
Operating Revenues				
Wastewater	$ 405,832,000	$ 175,768,369	43%	44%
Surcharge	1,600,000	597,489	37%	38%
Indirect Discharge	4,400,000	1,874,976	43%	55%
Fees	2,894,000	1,526,504	53%	50%
Municipal Assistance	800,000	455,093	57%	33%
Miscellaneous	1,295,000	1,159,541	90%	44%
Total Operating Revenue	416,821,000	181,381,972	44%	44%
Non Operating Revenues				
Facility Charge	6,095,000	2,950,125	48%	35%
Interest Income	3,000,000	5,513,892	184%	61%
Build America Bond Subsidy	1,954,000	995,531	51%	51%
Other	620,000	126,993	20%	98%
Total Non Operating Revenue	11,669,000	9,586,541	82%	43%
Total Revenues	428,490,000	190,968,513	45%	44%
Transfers from Reserves	17,120,789	7,133,662	42%	42%
Total Revenues and Transfers	$ 445,610,789	$ 198,102,175	44%	44%
Operating Expenses				
Personal Services	$ 70,450,193	$ 26,800,306	38%	42%
Fringe Benefits	28,487,963	11,290,823	40%	37%
Materials & Supplies	16,073,465	4,495,136	28%	31%
Transportation	2,003,573	678,314	34%	34%
Utilities	16,843,498	6,653,793	40%	38%
Chemical Purchases	17,688,997	6,427,258	36%	34%
Contractual Services	53,541,285	14,271,201	27%	28%
Major Repairs	13,696,912	2,586,808	19%	28%
Capital Assets	1,258,970	185,567	15%	14%
Miscellaneous Expense	3,938,563	1,335,194	34%	32%
Total Operating Expenses	223,983,419	74,724,400	33%	35%
Debt Service and Transfers				
Debt Service	76,150,000	44,339,804	58%	56%
Transfer to CIP	145,217,370	60,507,238	42%	42%
Transfer to Risk management	260,000	108,335	42%	42%
Total Debt Service and Transfers	221,627,370	104,955,377	47%	47%
Total Expenses and Transfers	$ 445,610,789	$ 179,679,777	40%	41%

2. Notes to Interim Financial Report

The Interim Financial Report summarizes the results of HRSD's operations on a basis of accounting that differs from generally accepted accounting principles. **Revenues are recorded on an accrual basis, whereby they are recognized when billed**, and expenses are generally recorded on a cash basis. No provision is made for non-cash items such as depreciation and bad debt expense.

This interim report does not reflect financial activity for capital projects contained in HRSD's Capital Improvement Project (CIP).

Transfers represent certain budgetary policy designations as follows:

a. Transfer to CIP: represents current period's cash and investments that are designated to partially fund HRSD's capital improvement program.

b. Transfers to Reserves: represents the current period's cash and investments that have been set aside to meet HRSD's cash and investments policy objectives.

3. Reserves and Capital Resources (Cash and Investments Activity) for the Period Ended November 30, 2023

HRSD - RESERVE AND CAPITAL ACTIVITY November 30, 2023

	General Reserve				Capital	
	General	CARES - ARPA	Debt Service	Risk Mgmt Reserve	Paygo	Debt Proceeds
	Unrestricted	Restricted	Restricted	Unrestricted	Unrestricted	Restricted
Beginning - July 1, 2023	**$ 203,718,301**	**$ 4,406**	**$ 33,830,226**	**$ 4,539,551**	**$ 3,115,384**	**$ -**
Current Year Sources of Funds						
Current Receipts	192,723,190					
Line of Credit						31,420,145
VRA Draws						37,593,171
WIFIA Draws						127,948,488
Transfers In				108,335	60,507,238	
Sources of Funds	192,723,190	-	-	108,335	60,507,238	196,961,804
Total Funds Available	**$ 396,441,491**	**$ 4,406**	**$ 33,830,226**	**$ 4,647,886**	**$ 63,622,622**	**$ 196,961,804**
Current Year Uses of Funds						
Cash Disbursements	126,081,593				-	188,100,853
CARES Transfer Out		4,406				
Transfers Out	60,615,573					
Uses of Funds	186,697,166	4,406	-	-	-	188,100,853
End of Period - October 31, 2023	**$ 209,744,325**	**$ -**	**$ 33,830,226**	**$ 4,647,886**	**$ 63,622,622**	**$ 8,860,951**
Unrestricted Funds	**$ 278,014,833**					

4. Capital Improvements Budget and Activity Summary for Active Projects for the Period Ended November 30, 2023

HRSD - PROJECT ANALYSIS November 30, 2023

Classification/ Treatment Service Area	Appropriated Funds	Expenditures prior to 7/1/2023	Expenditures Year to Date FY2024	Total Project Expenditures	Encumbrances	Available Funds
Administration	71,284,950	25,407,455	2,239,012	27,646,467	4,195,152	39,443,331
Army Base	163,448,800	125,866,880	188,833	126,055,713	459,067	36,934,020
Atlantic	237,858,729	81,471,915	3,130,321	84,602,236	20,837,058	132,419,435
Boat Harbor	508,039,124	75,596,057	52,256,610	127,852,667	297,592,057	82,594,400
Ches-Eliz	87,134,516	34,995,850	325,441	35,321,291	1,658,288	50,154,937
Eastern Shore	63,122,892	26,927,768	8,705,793	35,633,561	8,256,155	19,233,176
James River	362,171,624	104,382,910	33,950,227	138,333,137	196,740,929	27,097,558
Middle Peninsula	98,206,116	23,493,172	3,429,671	26,922,843	7,082,209	64,201,064
Nansemond	482,008,177	83,702,138	44,051,372	127,753,510	276,749,351	77,505,316
Surry	60,391,465	41,079,533	1,832,626	42,912,159	9,477,861	8,001,445
VIP	195,460,792	34,150,127	9,218,313	43,368,440	54,144,138	97,948,214
Williamsburg	66,077,531	21,441,839	240,885	21,682,724	190,082	44,204,725
York River	114,257,845	20,416,156	8,488,718	28,904,874	19,856,297	65,496,674
General	1,106,260,982	201,364,418	62,503,358	263,867,776	270,257,963	572,135,243
	3,615,723,543	900,296,218	230,561,180	1,130,857,398	1,167,496,607	1,317,369,538

5. Active Capital Grants

Active Capital Grants Activities

Grant Name	Funder	Project	CIP#	Application Submitted	Amount Requested	HRSD Award Amount
American Rescue Plan Act	VDEQ	Eastern Shore Infrastructure Improvements - Transmission Force Main Phase II (Accomac Sewer Collection System)	ES010200	11/28/2022	$ 8,367,000	$ 4,183,500
American Rescue Plan Act	VDEQ	James River Treatment Plant Advanced Nutrient Reduction Improvements	JR013400	10/7/2022	$ 50,000,000	$ 16,940,000
American Rescue Plan Act	VDEQ	Nansemond Treatment Plant Advanced Nutrient Reduction Improvements Phase II	NP013820	10/7/2022	$ 50,000,000	$ 14,640,000
FY2024 Congressionally Directed Funding Warner-Kaine	CDF FY24	Eastern Shore Wastewater Improvements	ES010100	3/9/2023	$ 9,677,112	$ -
Water Quality Improvement Fund, Conveyance	VDEQ	Chesapeake-Elizabeth Treatment Plant Conveyance	Multiple	2/7/2023	$ 100,647,746	$ -
Water Quality Improvement Fund, Conveyance	VDEQ	Eastern Shore TFM Phase 1	ES010100	5/2/2022	$ 4,900,000	$ -
Water Quality Improvement Fund, Nutrient Reduction	VDEQ	James River SWIFT - Advanced Nutrient Reduction Improvements	JR013400	3/23/2023	$ 344,741,547	$ -
					$ 568,333,405	$ 35,763,500

6. Debt Management Overview

HRSD - Debt Outstanding ($000's) — November 30, 2023

	Principal Oct 2023	Principal Payments	Principal Draws	Principal Nov 2023	Interest Payments
Fixed Rate					
Senior	151,306	(4,445)	-	146,861	(3,016)
Subordinate	855,035	-	50,647	905,682	-
Variable Rate					
Subordinate	50,000	-	-	50,000	(149)
Line of Credit	100,000		-	100,000	(387)
Total	$ 1,156,341	$ (4,445)	$ 50,647	$ 1,202,543	$ (3,552)

HRSD- Series 2016VR Bond Analysis — December 01, 2023

	SIFMA Index	HRSD	Spread to SIFMA
Maximum	4.71%	4.95%	0.24%
Average	1.02%	0.75%	-0.27%
Minimum	0.01%	0.01%	0.00%
As of 12/01/23	3.30%	3.10%	-0.20%

* Since October 20, 2011 HRSD has averaged 75 basis points on Variable Rate Debt

Subsidised Debt Activity

Source	Funder	Loan Amount	Current Drawn Total	% Remain	Initial Draw Date - Projected
WIFIA Tranche 1	EPA	$ 225,865,648	$ 140,190,529	38%	Ongoing
WIFIA Tranche 2	EPA	$ 476,581,587	$ 87,009,433	82%	Ongoing
WIFIA Tranche 3	EPA	$ 346,069,223	$ -	100%	July 2025
Clean Water Program 2022	DEQ	$ 100,000,000	$ 71,735,868	28%	Ongoing
Clean Water Program 2023	DEQ	$ 50,000,000	$ -	100%	March 2024

7. Financial Performance Metrics for the Period Ended November 30, 2023

HRSD - UNRESTRICTED CASH

Can be used for any purpose since it is not earmarked for a specific use and is extremely liquid

			Days Cash on Hand	Adjusted Days Cash on Hand
Total Unrestricted Cash	**$**	**278,014,833**		**453**
Risk Management Reserve	$	(4,647,886)	(8)	445
Capital (PAYGO only)	$	(72,483,572)	(118)	327
Adjusted Days Cash on Hand	**$**	**200,883,375**		**327**

Risk Management Reserve as a % of Projected Claims Cost is 25% YTD compared to 25% Policy Minimum
Adjusted Days Cash on Hand Policy Minimum is 270-365 days.

HRSD - SOURCES OF FUNDS

November 30, 2023

Primary Source	Beginning Market Value July 1, 2023	YTD Contributions	YTD Withdrawals	YTD Income Earned	Ending Market Value November 30, 2023	Allocation of Funds	Credit Quality	Current Mo Avg Yield
BOA Corp Disbursement Account	30,761,730	398,083,335	371,529,188	427,675	57,743,552	25.0%	N/A	0.55%
VIP Stable NAV Liquidity Pool	129,511,237	60,000,000	20,000,000	3,661,519	173,172,756	75.0%	AAAm	5.56%
Total Primary Source	**$ 160,272,967**	**$ 458,083,335**	**$ 391,529,188**	**$ 4,089,194**	**$ 230,916,308**	100.0%		

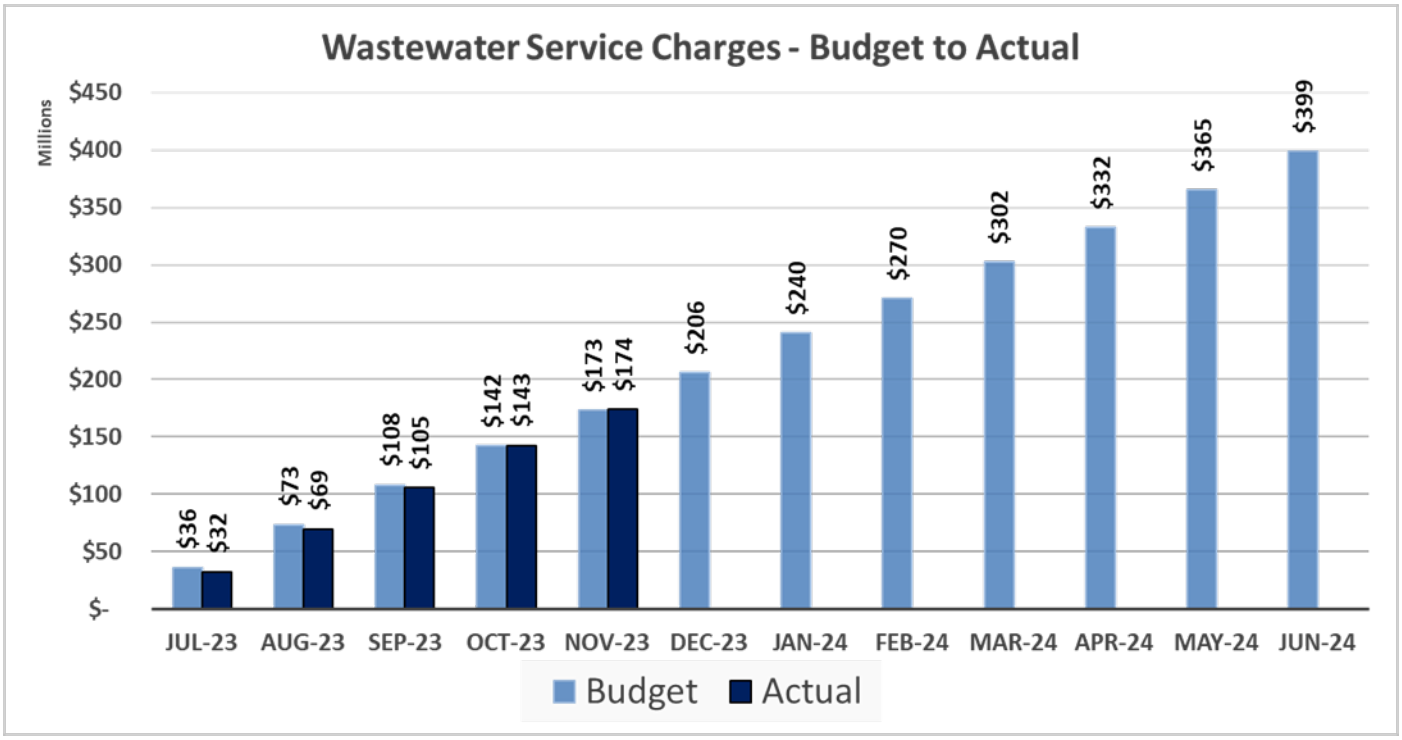
VIP Stable NAV Liquidity Pool performed 0.02% above Va Local Government Investment Pool's (the market benchmark) in the month of November 2023.

Secondary Source	Beginning Market Value July 1, 2023	YTD Contributions	YTD Withdrawals	YTD Income Earned & Realized G/L	Ending Market Value November 30, 2023	Ending Cost	LTD Mkt Adj	Yield to Maturity at Market
VIP 1-3 Year High Quality Bond Fund	63,074,075	-	5,314	884,542	64,402,962	65,768,070	(1,365,108)	4.81%
Total Secondary Source	**$ 63,074,075**	**$ -**	**$ 5,314**	**$ 884,542**	**$ 64,402,962**	**$ 65,768,070**	**$ (1,365,108)**	

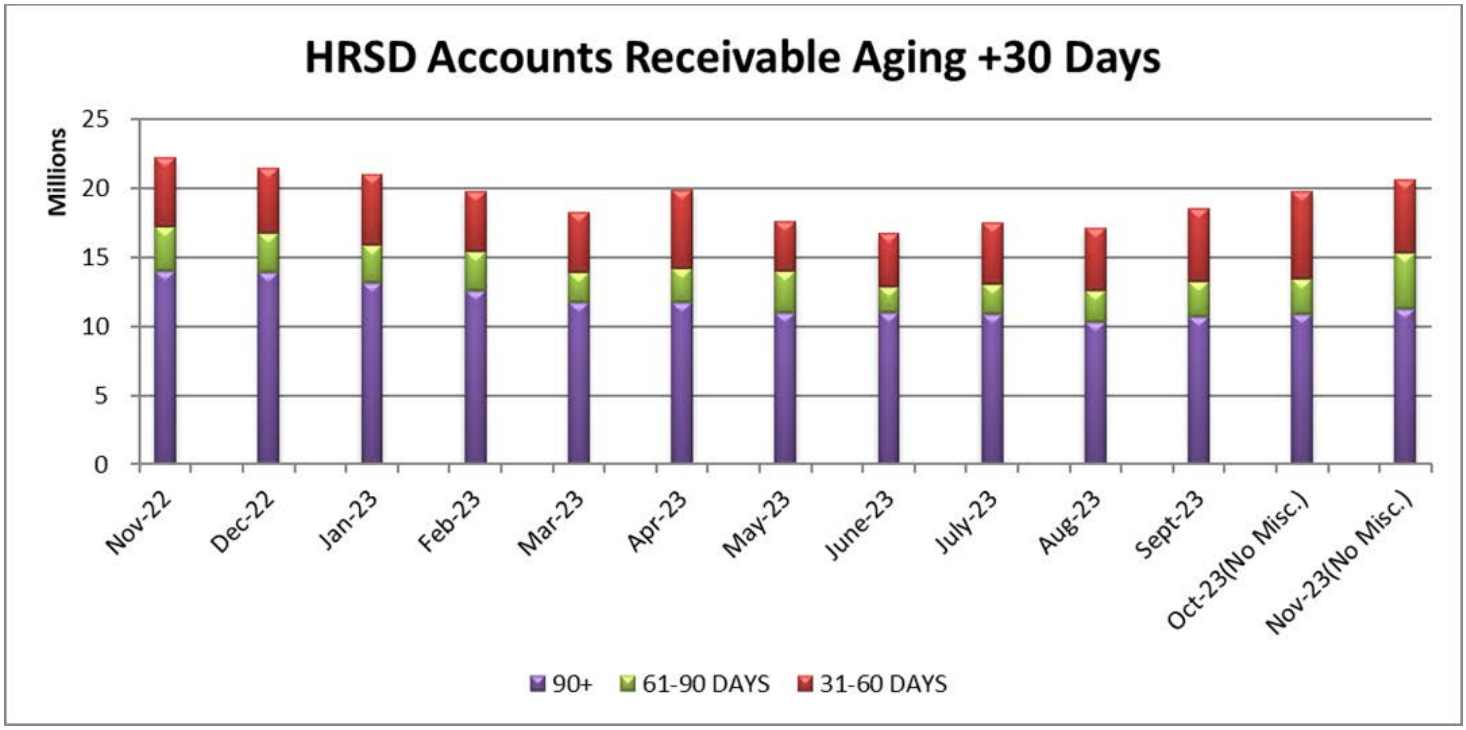
VIP 1-3 Year High Quality Bond Fund performed 0.02% below ICE BofA ML 1-3 yr AAA-AA Corp/Gov Index (the market benchmark) in November 2023.

	Total	Fund Alloc
Total Primary Source	**$ 230,916,308**	**78.2%**
Total Secondary Source	**$ 64,402,962**	**21.8%**
TOTAL SOURCES	**$ 295,319,270**	**100.0%**

8. Summary of Billed Consumption

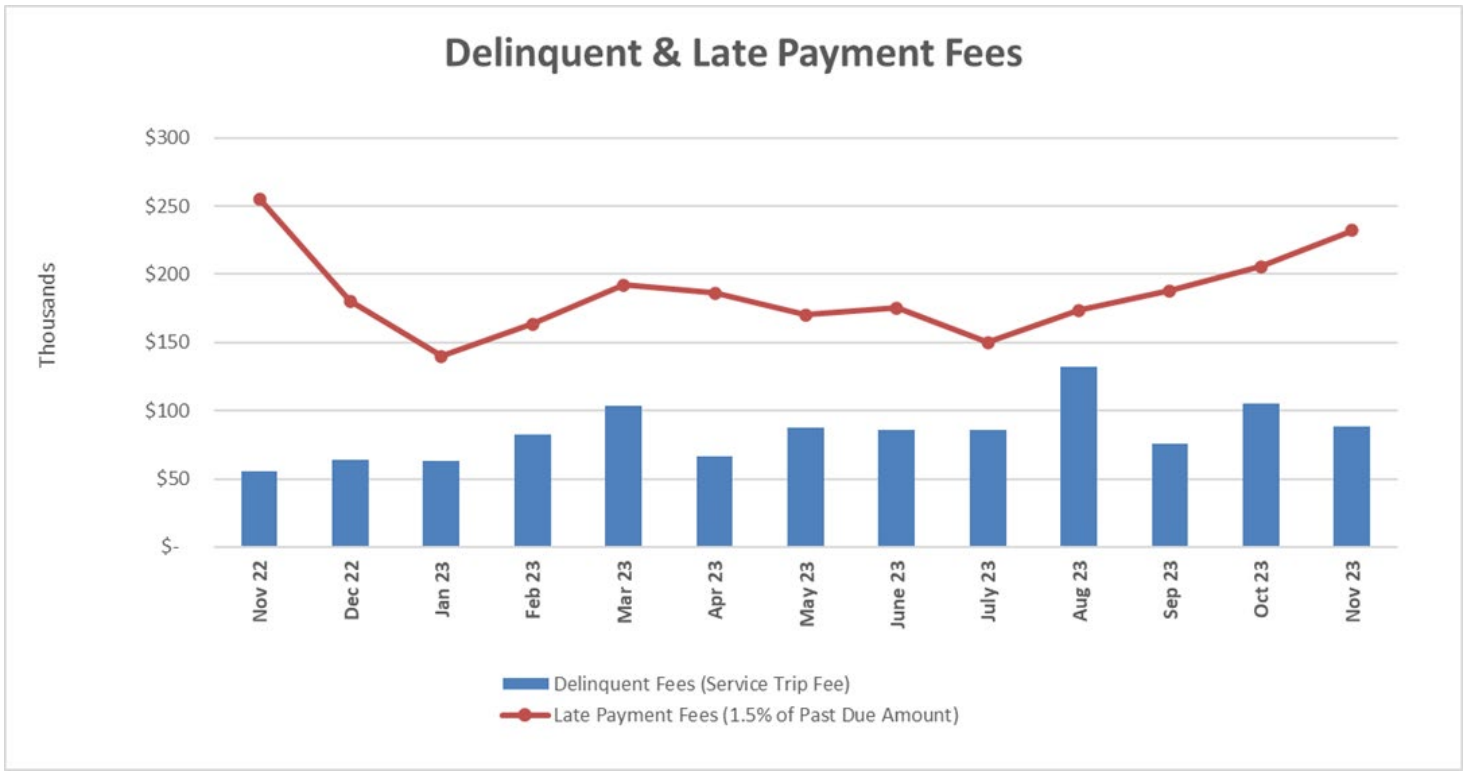


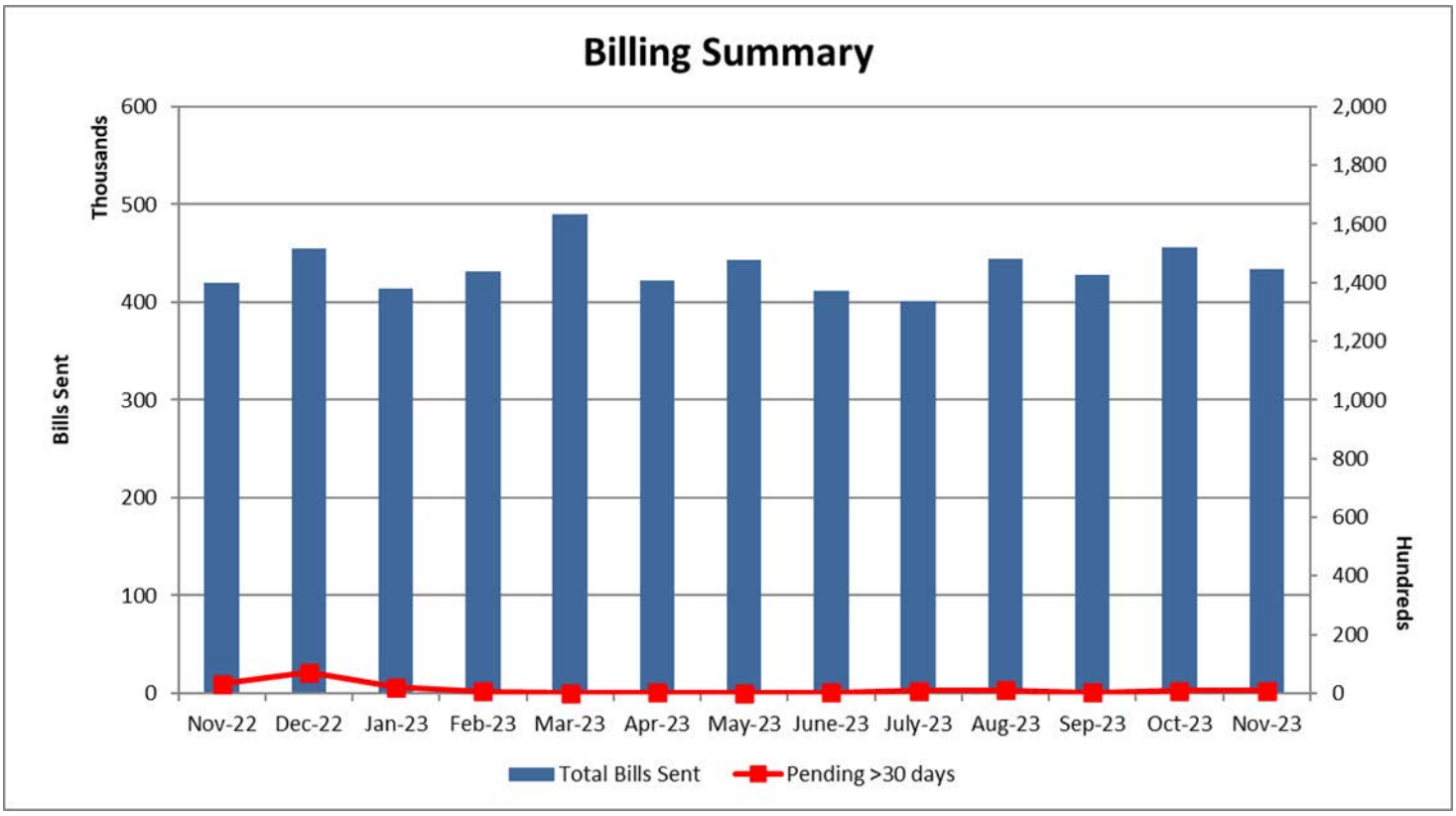
Summary of Billed Consumption (,000s ccf)							
			% Difference		% Difference		% Difference
Month	*FY2024 Cumulative Budget Estimate*	*FY2024 Cumulative Actual*	*From Budget*	*Cumulative FY2023 Actual*	*From FY2023*	*Cumulative 3 Year Average*	*From 3 Year Average*
July	4,678	4,504	-3.7%	4,682	-3.8%	4,803	-6.2%
Aug	9,644	9,432	-2.2%	9,652	-2.3%	9,543	-1.2%
Sept	14,196	13,965	-1.6%	14,208	-1.7%	14,297	-2.3%
Oct	18,663	18,854	1.0%	18,680	0.9%	18,863	0.0%
Nov	22,756	23,004	1.1%	22,777	1.0%	22,307	3.1%
Dec	27,109	-	N/A	27,133	N/A	27,430	N/A
Jan	31,641	-	N/A	31,669	N/A	32,004	N/A
Feb	35,568	-	N/A	35,601	N/A	35,952	N/A
March	39,770	-	N/A	39,807	N/A	40,351	N/A
Apr	43,694	-	N/A	43,735	N/A	44,473	N/A
May	48,027	-	N/A	48,072	N/A	48,548	N/A
June	52,500	-	N/A	52,549	N/A	53,329	N/A

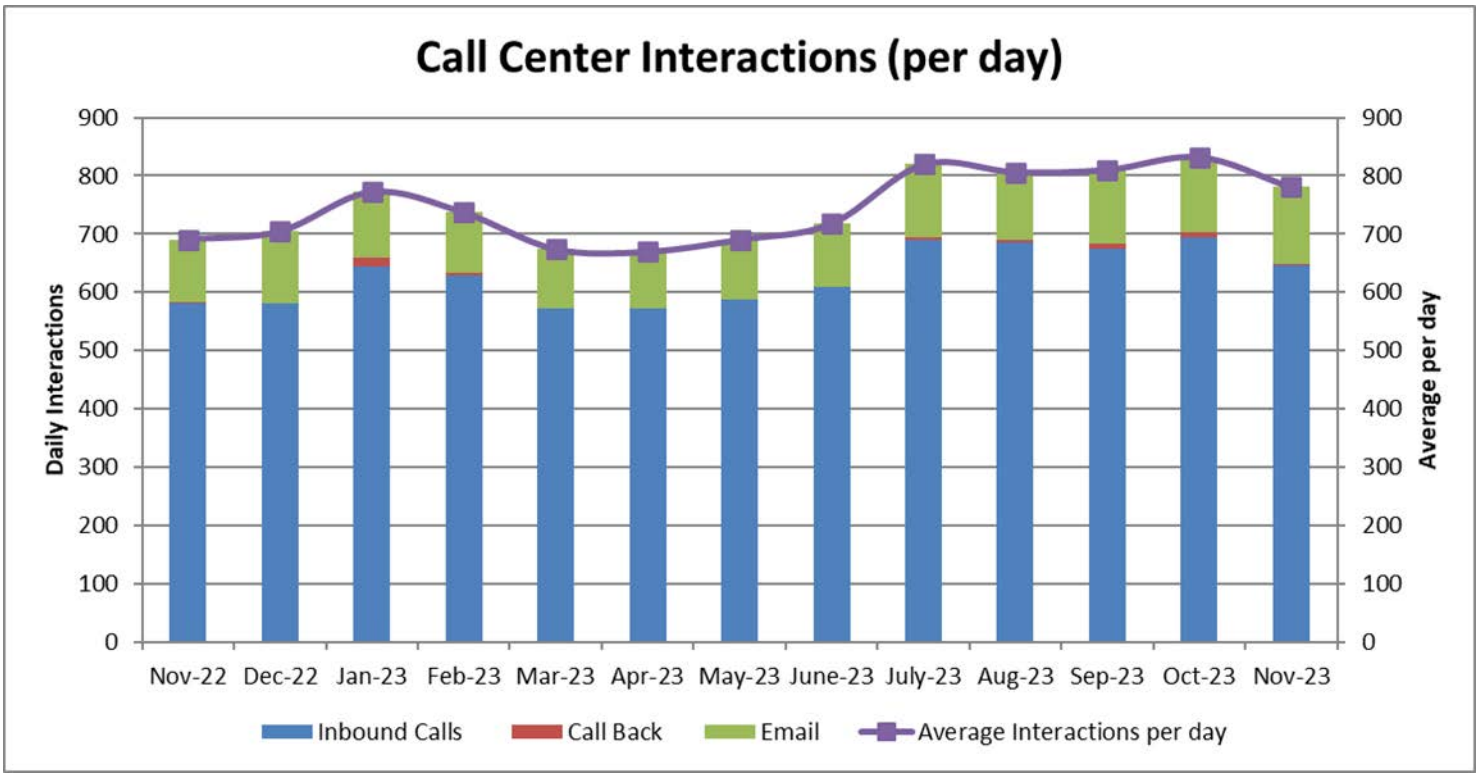


B. Customer Care Center

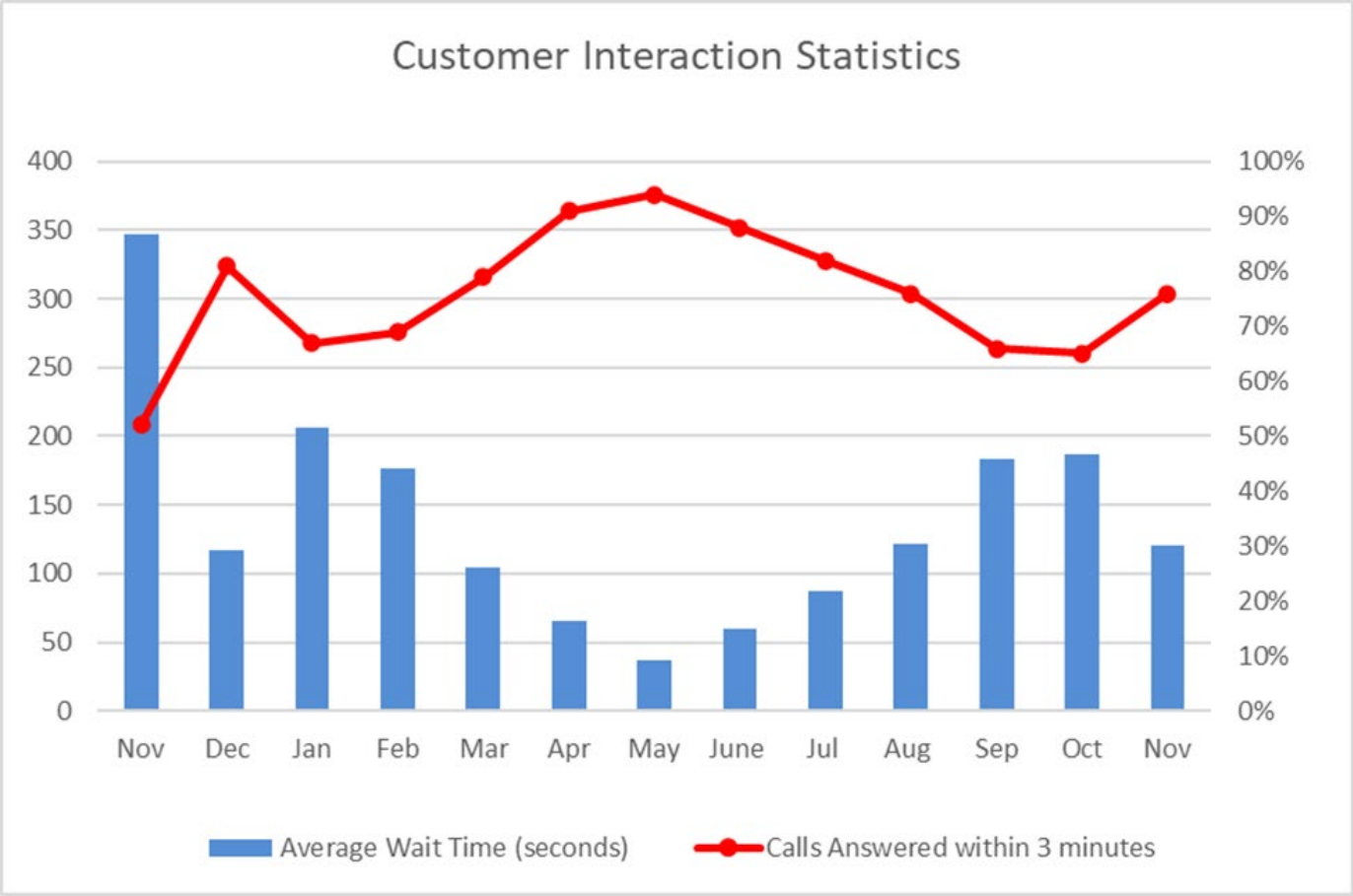
1. Accounts Receivable Overview



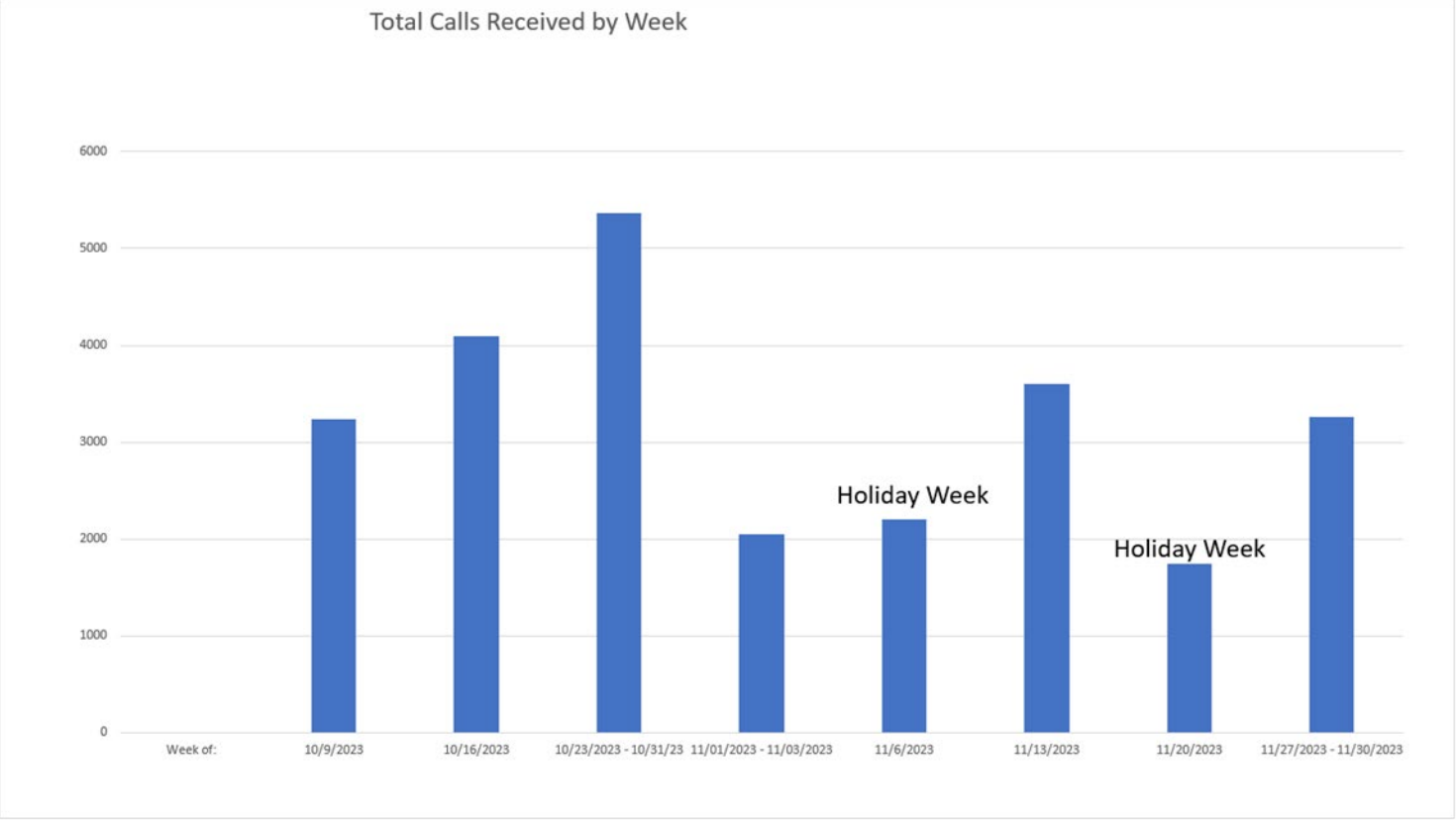

Billing Summary
Thousands
Bills Sent
Hundreds
600
500
400
300
200
100
0
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
Nov-22 Dec-22 Jan-23 Feb-23 Mar-23 Apr-23 May-23 June-23 July-23 Aug-23 Sep-23 Oct-23 Nov-23
Total Bills Sent
Pending >30 days


Call Center Interactions (per day)
Daily Interactions
Average per day
900
800
700
600
500
400
300
200
100
0
Nov-22 Dec-22 Jan-23 Feb-23 Mar-23 Apr-23 May-23 June-23 July-23 Aug-23 Sep-23 Oct-23 Nov-23
Inbound Calls
Call Back
Email
Average Interactions per day

2. Customer Care Center Statistics



Customer Interaction Statistics	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov
Calls Answered within 3 minutes	52%	81%	67%	69%	79%	91%	94%	88%	82%	76%	66%	65%	76%
Average Wait Time (seconds)	347	117	206	177	105	66	37	60	87	122	183	187	121
Calls Abandoned	18%	8%	12%	11%	7%	5%	4%	5%	7%	8%	11%	12%	10%

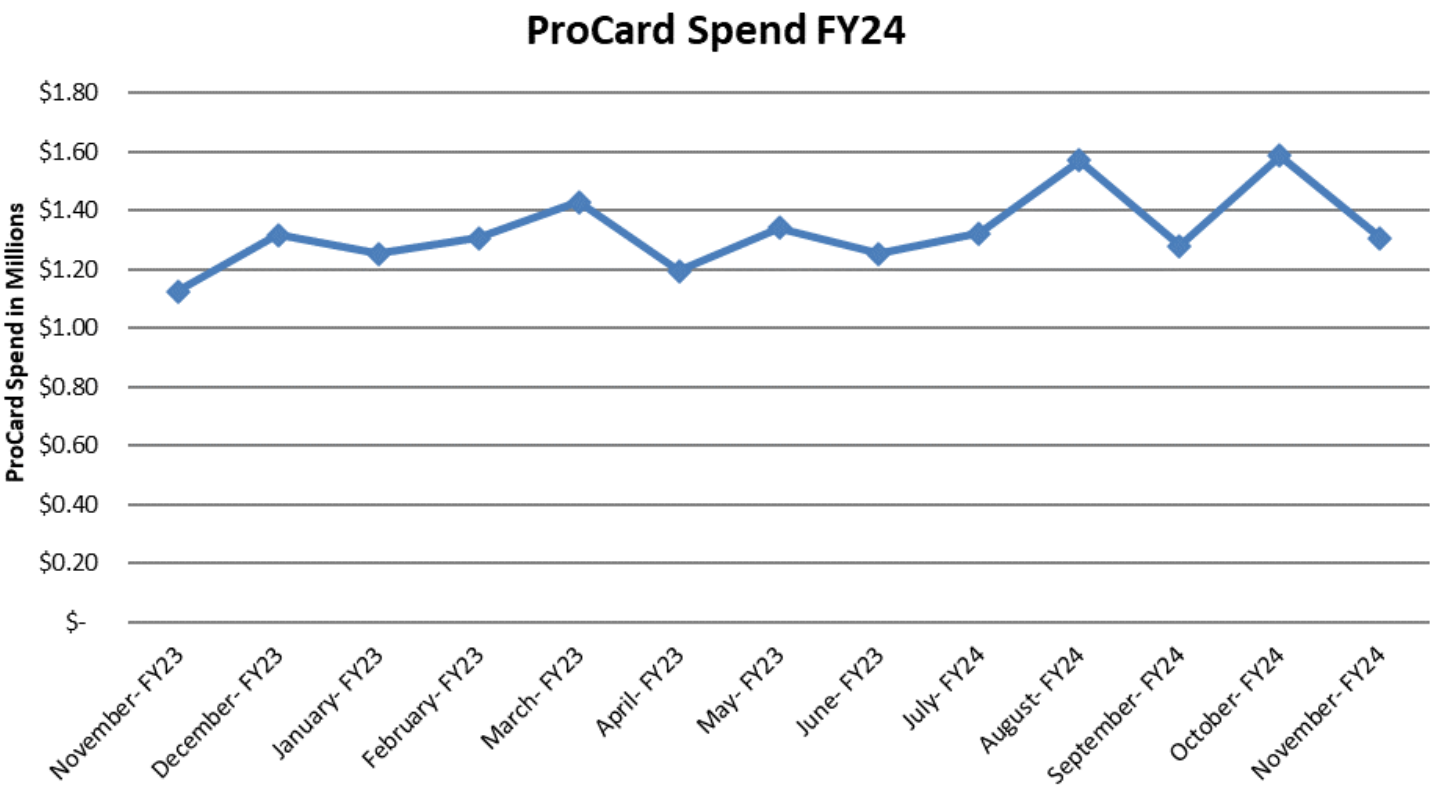


C. Procurement Statistics

Savings	Current Period	FYTD
Competitive Savings[1]	$67,528	$332,035
Negotiated Savings[2]	$8,857	$18,979
Salvage Revenues	$22,544	$124,512
Corporate VISA Card - Estimated Rebate	$19,450	$105,260

[1] Competitive savings are those savings obtained through the informal/formal bidding process. All bids received (except for the lowest responsive/responsible bid) added together and averaged. The average cost is subtracted from the apparent low responsive/responsible bidder.

[2] Negotiated savings are savings obtained during a Request for Proposal process, or if all bids received exceed the budgeted amount, or if only one bid is received.



Respectfully,

Steven G. de Mik

Steven G. de Mik
Deputy General Manager/Chief Financial Officer

TO: General Manager

FROM: Chief of Enterprise Data Services Information Technology

SUBJECT: Information Technology Department Report for November 2023

DATE: December 11, 2023

Innovation

Compatibility testing for the upcoming Surface Pro refresh continues. The deployment schedule is being finalized.

Staff are working with Customer Care vendors, Voxai and Genesys, in the final phase of implementing the new cloud-based Call Center software. Go live is planned for the first quarter of 2024.

The IT Help Desk processed 319 work orders and requests for assistance in November, ensuring availability of computing resources to those working locally and remotely.

Installation of additional network accessible security and monitoring equipment has been completed at HRSD's Providence Road facilities.

As HRSD continues its cloud migration efforts, staff are researching means and methods to extend our existing immutable (non-modifiable) hardware and software platforms to include additional cloud-based data.

Web Portal Programming staff along with the Communications Division and Tyler Tech are in Phase I of the HRSD.COM website redesign.

The initial kickoff phase for implementation of the new Customer Engagement Portal, IDEA by Meridian Software took place in November.

Staff continue work with the Asset Management work center and the upgrade of the Computerized Maintenance Management System (CMMS). Upgrade go-live is December 8, 2023.

Community Engagement

The monitoring and stability period from the Chesapeake model 3 conversion continues. Staff are monitoring system performance, affecting any needed changes to ensure optimal performance. This period of "stabilization" is projected to continue through January.

Work with Customer Care and James City Service Authority (JCSA) to convert JCSA from a Model 3 jurisdiction (they have their own billing system) continues. Go-live date is April 2024.

Respectfully,

Mary Corby

TO: General Manager

FROM: Director of Operations

SUBJECT: Operations Monthly Report for November 2023

DATE: December 6, 2023

Environmental Responsibility

Treatment and Interceptor System Spills and Sanitary Sewer Overflows (SSO):

There were two Treatment Plant (TP) spills in November. Additional details are available in the Air and Effluent Summary in the Water Quality monthly report.

Internal Air and Odor Compliance:

There were several odor complaints and/or permit exceptions at the Army Base (ABTP), Atlantic (ATP), Boat Harbor (BHTP), James River (JRTP), and Williamsburg (WBTP) treatment plants. Please refer to the Water Quality Air and Effluent Summary for additional details.

Air Compliance Summary:

The Total Hydrocarbon (THC) monthly averages (not to exceed 100 ppm) were met by all Multiple Hearth Incineration (MHI) plants, Army Base (ABTP), Boat Harbor (BHTP), Virginia Initiative (VIP), and Williamsburg (WTP), with a THC continuous emissions monitoring valid data captured of greater than 69%. The MHIs had three deviations at BHTP and Virginia Initiative Plant (VIP) from the required Clean Water Act section 129 Sewage Sludge Incineration rule minimum operating parameters.

Additional Topics for Compliance:

1. A multitude of construction and maintenance efforts are in progress at the ATP to address odor concerns, as follows:

    a. After much due diligence, staff discovered that the waste gas regulator #3 was not seating all the way on the gas burner. This resulted in digester gas leaking, and causing unburnt gas to leak into the atmosphere, creating a significant odor issue. Plant staff corrected the issue stopping the gas from leaking by the regulator, and as a result, there was a noted decrease in odor complaints received in November from the surrounding communities.

    b. Staff replaced the Carbon Media on Odor Control System C. The media was replaced in March 2023, however due to noticeable odors, proactive, early replacement in this case helps mitigate any potential off-site odors.

    c. Final walkthrough inspection was conducted on the Odor Control System D project. This project now complete.

2. The Treatment Department Daily Plant Operator Report will be upgraded to a new platform. The platform is more reliable, user friendly, and tailored for wastewater facilities. In addition, it communicates with HRSD's existing systems. Water Information Management System (WIMS) staff conducted training for all plant operators and supervisors in preparation for the transition planned for implementation by the end of 2023 and the project is planned to be completed by July 2024.

3. Staff successfully completed cutover testing for the new Ovation Supervisory Control and Data Acquisition (SCADA) System at Newmarket, Copeland Park, and State Street Pump Stations (PS). These sites are now active on the new Ovation SCADA systems.

4. Staff managed the conveyance and treatment of over 122 million gallons of wastewater this month.

Financial Stewardship

1. Onancock Treatment Plant (OTP) staff installed a new Non-Potable Water (NPW) system which will be activated in December. This will save approximately $100,000 annually on water bills and reduce the volume of treated water in the plant.

2. Contractors cleaned all reactors for the Thermal Hydrolysis Processing (THP) system this month in preparation for the annual THP maintenance. They cleaned one reactor per day to continue processing solids. By spreading this maintenance effort over two weeks versus doing all in one week, we will remove the need to dewater and haul solids offsite. This creates two huge wins:

    a. The first is cost savings. Last year we spent around $750,000 for mobile dewatering, odor control, and hauling costs.

    b. The second is eliminating solids hauling offsite through the Ocean Lakes community. This happens due to the maintenance team's willingness to work around-the-clock, in shifts, to complete the maintenance efforts.

Talent

Christel Dyer, Chief of Treatment, published a children's book titled "Lemon and Cedar". The book is a story illustrating the importance of wildlife conservation. Cedar the red wolf has always wondered if there are other red wolves like him in the wild. So, when a plucky cottontail rabbit named Lemon stumbles into his clearing and takes him up on his offer for an adventure, an unlikely friendship is formed as the pair embark on a journey, leaving their home at the Alligator River National Wildlife Refuge for the first time. Along the way, Lemon and Cedar meet a seabird on the sandy beaches of the Outer Banks, discover large, winged predators while traveling through a swamp, and have a close call with a four-legged foe in a cornfield. Despite the obstacles they face, Cedar and Lemon persist on their quest, searching for red wolves and finding friendship along their way to the Great Dismal Swamp. 10% of the author's proceeds will be donated to the Red Wolf Coalition.

Community Engagement

1. Staff participated in a Poverty Simulation Experience hosted by Talent Management and the Virginia Center for Inclusive Communities (VCIC). The simulation is designed to help participants begin to understand what it might be like to live in a typical low-income family trying to survive from month to month. The objective is to sensitize participants to the realities faced by low-income people.

2. Staff attended the quarterly Virginia Energy Purchasing Governmental Association (VEPGA) meeting. The meeting focused on discussing ongoing challenges, potential resolutions, contract negotiations, rate schedules, future “green power” initiatives, and planning for the annual VEPGA meeting.

Innovation

1. HRSD is evaluating whether to construct a regional Granular Activated Carbon (GAC) facility to manage both Sustainable Water Initiative For Tomorrow (SWIFT) needs for GAC as well as those of the local drinking water utilities. Our usage rate for GAC has increased due to the requirement for meeting the proposed maximum contaminant levels for Per- and Polyfluoroalkyl Substances (PFAS). Similarly, it is anticipated that some of the local drinking water utilities will also implement GAC to meet these new limits, and HRSD could provide considerable value to the region with GAC reactivation services. Thermal treatment with steam reactivation is the conventional approach for GAC regeneration, and the technologies typically employed include rotary kiln or multiple hearth furnaces, the latter of which is quite similar to our incinerators. HRSD is also evaluating two emerging technologies for GAC reactivation as follows:

    a. We are partnering with Professor Tanju Karanfil at Clemson University and several other utilities to evaluate industrial microwave reactivation as part of a Water Research Foundation project. Preliminary data suggest good GAC reactivation efficiency and good destruction of adsorbed PFAS.

    b. We are also evaluating a Korean technology that is being commercialized by Wintec Glovis and uses superheated steam in a single step for thermal treatment and reactivation. Management of the steam condensate in terms of organics and PFAS remains a topic for consideration for this technology.

2. HRSD is in discussions with our consultant and Johnson Controls Incorporated (JCI) regarding biogas production, repurposing, and incentives at ATP. Staff provided JCI a plant tour and had follow-up discussions with our consultant. The Inflation Reduction Act modifies and extends the clean energy Investment Tax Credit to provide up to 30% credit for qualifying investment in wind, solar, energy storage and other renewable energy projects. To take advantage of the incentive, the project must begin by the end of 2024. Benefits include up to 5,000 metric tons of Carbon Dioxide reduction from greenhouse gases, odor control improvements, and community relations to mention a few.

3. Staff met with a consultant at the West Point Treatment Plant (WPTP) to discuss a future partnership with Dominion Energy and the Virginia Department of Emergency Management

(VDEM). VDEM is searching for locations with critical infrastructure to provide Green Power on Demand Systems (GPODS) as part of a grant application. GPOD is a mobile rechargeable battery system that can be deployed to support critical infrastructure in the event of power outages due to natural disasters. An agreement will be presented to Commission for approval in December.

Respectfully submitted,

Eddie M. Abisaab, PE, PMP, ENV SP
Director of Operations

Attachment: MOM Reporting

MOM Reporting Numbers

MOM #	Measure Name	Measure Target	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
2.7	# of PS Annual PMs Performed (NS)	37	3	3	3	4	3							
2.7	# of PS Annual PMs Performed (SS)	53	4	0	7	5	7							
2.7	# of Backup Generator PMs Performed	4.6	12	7	14	14	10							
2.8	# of FM Air Release Valve PMs Performed (NS)	234	234	199	296	241	109							
2.8	# of FM Air Release Valve PMs Performed (SS)	1,550	154	174	59	569	71							
2.9	# of Linear Feet of Gravity Clean (NS)	2,417	2,808	2,762	3,791	4,969	5,741							
2.9	# of Linear Feet of Gravity Clean (SS)	2,417	5,994	5,637	7,169	1,610	0							
2.9	# of Linear Feet of Gravity CCTV Inspection	3,300	0	0	0	0	0							

TO: General Manager

FROM: Director of Talent Management

SUBJECT: Talent Management Monthly Report for November 2023

DATE: December 7, 2023

Talent

Staff retention and recruitment remain significant priorities for the Talent Management Department. Talent Management has one new position to fill in the upcoming months for a Workforce Development Specialist. We are fully staffed in all divisions, outside of this new position.

Human Resources (HR): HR staff and representatives from all departments continue working on the large compensation project with Mercer. Meetings with the core group, extended project group, and Senior Leadership occurred throughout the month. In addition, Mercer presented at the Leadership Retreat for all division leaders and senior leaders, and they had meetings with division leaders to review job placement in the new job architecture development by Mercer. The next phases will focus on the pay structure, which will include the development of a pay table and the placement of all jobs into that new structure. HR staff continue to prepare for the benefit vendor changes for the upcoming benefit year.

Participation in HRSD's Wellness Program continues to increase. The Wellness Specialist conducted onsite visits, virtual lunch and learns, emailed informational flyers, and facilitated virtual guided meditation sessions.

Learning and Development (L&D): L&D collaborated with Operations to celebrate National Apprenticeship Week (NAW). It is an annual celebration that highlights the importance of apprenticeships and promote the benefits of this form of work-based learning. The event typically aims to raise awareness about the value of apprenticeships for both individuals and businesses, encouraging more people to consider apprenticeship programs as a pathway to career development. To recognize this week, a luncheon was held onsite for HRSD's apprentices and instructors. The Apprenticeship Program Administrator participated as a panel member in the Apprenticeship Summit for National Apprenticeship week held at Virginia Peninsula Community College.

Safety: Staff conducted required safety trainings and medical monitoring. Weekly, monthly, and quarterly safety inspections, testing and monitoring were performed at various work centers and construction sites. There were three reported work-related injuries requiring medical attention and one auto/property damage accident.

Community Engagement

Staff provided outreach at career events. This outreach was focused on the variety of careers fields represented at HRSD. Information was shared about our open positions, the Apprenticeship Program, how we positively impact the local waterways and our generous benefits. Staff also explained how to apply for a position at HRSD and answered questions about what it's like to work at HRSD.

Respectfully submitted,

Dorissa Pitts-Paige

Director of Talent Management

TO: General Manager

FROM: Director of Water Quality (DWQ)

SUBJECT: Monthly Report for November 2023

DATE: December 6, 2023

Environmental Responsibility

1. HRSD's Regulatory Activities:

   a. Monthly Discharge Monitoring Report (DMR) Summary and Items of Interest: Effluent and Air Emissions Summary.

   b. Comments submitted to Department of Environmental Quality (DEQ) on the King William draft permit.

2. Pretreatment and Pollution Prevention (P3) Program Highlights:

   No civil penalties were issued by the P3 Division in November.

3. Environmental and Regulatory Advocacy

   a. The Sustainability Environment Advocacy (SEA) Group reported the following activities for the month of November:

      (1) Boat Harbor staff reported that the Boat Harbor Trash Collector collected 27 pounds of trash for the month of November.

      (2) The SEA Community Cleanups team hosted a cleanup event in the vicinity of Air Rail Avenue near the main office. Seven volunteers filled 27 bags of trash weighing approximately 324 lbs. This clean-up event was part of the Keep Virginia Beautiful's LOVE VA campaign.

   b. Director participated in the following advocacy and external activities:

      (1) Attended the Elizabeth River Project's River Restoration Advisory Committee meeting to review and approve recognition levels for River Star Businesses to acknowledge voluntary efforts in pollution prevention, conservation, habitat restoration and resiliency.

      (2) Attended the Utility Participant's workshop for the Water Research Foundation's (WRF) Project 5175: "Navigating One Water Planning through Municipal Water Programs: Meeting Multiple Objectives and

Regulatory Challenges". This initial workshop allowed participants to share their successes and challenges in support of developing a guidance document to support One Water planning throughout the nation.

(3) Attended the National Association of Clean Water Agencies (NACWA) Fall Leadership meeting as well as the NACWA-sponsored Clean Water Law and Enforcement Seminar. The potential legal challenges associated with Per- and Polyfluoroalkyl Substances (PFAS) continue to dominate discussions. Also of concern this year was the proposed decrease in federal funding for water and wastewater utilities. NACWA and its utility members (including HRSD) will prioritize sustainable funding for water and wastewater infrastructure during federal legislative meetings in the coming months.

(4) Attended the Environmental Protection Agency's Mid-Atlantic Source Water Protection Leadership Forum and provided a presentation on HRSD's SWIFT program.

(5) Provided comments on the draft case studies report for the WRF 5123 "Establishing Seasonal Targets for Receiving Waters: Rethinking Wet Weather and Dry Weather Expectations".

Financial Stewardship

1. Staff supported the generation of high-quality data for use in permitting and environmental management decisions through our Municipal Assistance Program (MAP), which offers services to other municipal and regional authorities throughout the state. HRSD costs for this program are reimbursed by the customer. Below are program highlights for the month.

   HRSD provided sampling and analytical services to the following to support monitoring required for their respective Virginia Permit Discharge Elimination System (VPDES) permits:

   a. City of Franklin

   b. Northumberland County

   c. Westmoreland County

2. Director participated as a panelist for the Virginia Initiative Plant (VIP) Tertiary Filtration Project selection.

Talent

Director participated in the following activities:

1. Compensation study meeting
2. Division and Senior Leadership Retreat

Community Engagement

Staff supported Microbial Source Tracking (MST) investigations in partnership with Hampton Roads' localities. This work is required as part of HRSD's Integrated Plan. Sampling and analytical services were provided for the localities and projects identified below:

1. City of Chesapeake (Southern Branch)
2. City of Hampton (New Market Creek)
3. City of Newport News (Southeast Newport News)
4. City of Norfolk (Mason Creek)
5. City of Suffolk (downtown)
6. City of Virginia Beach (Thalia Creek)
7. James City County

Innovation

The Central Environmental Laboratory (CEL) continued working on development of capabilities to analyze for Perfluorooctanoic Acid (PFOA) to be able to provide quick data turn around to the Sustainable Water Initiative For Tomorrow (SWIFT) group, and equipment has been purchased to facilitate improved instrument performance.

Respectfully submitted,

Jamie Heisig-Mitchell

Director of Water Quality

EFFLUENT SUMMARY FOR NOVEMBER 2023

PLANT	FLOW mgd	% of Design	BOD mg/l	TSS mg/l	FC #/UBl	ENTERO #/UBl	TP mg/l	TP CY Avg	TN mg/l	TN CY Avg	CONTACT TANK EX
ARMY BASE	8.57	48%	1	2.2	2	1	0.52	0.85	5.9	4.7	22
ATLANTIC	39.53	73%	10	9.8	8	2	NA	NA	NA	NA	11
BOAT HARBOR	8.66	35%	4	2.3	2	3	0.21	0.61	12	21	4
CENT. MIDDLESEX	0.013	52%	<2	<1.0	<1	<1	NA	NA	NA	NA	NA
JAMES RIVER	9.78	49%	6	4.5	2	1	0.32	0.39	9.1	9.7	14
KING WILLIAM	0.084	84%	<2	0.20	NA	<1	0.033	0.077	5.1	2.6	NA
NANSEMOND	14.69	49%	4	7.2	2	1	1.8	0.94	5.4	4.1	0
ONANCOCK	0.175	23%	<2	1.4	<1	1	0.049	0.26	1.0	2.1	NA
URBANNA	0.061	61%	10	21	6	8	3.4	4.8	22	15	NA
VIP	22.86	57%	1	1.2	2	<1	0.42	0.41	3.3	3.7	3
WEST POINT	0.269	45%	21	5.8	1	1	4.0	3.3	21	19	0
WILLIAMSBURG	7.33	33%	7	4.3	3	3	1.0	0.90	2.7	2.9	15
YORK RIVER	9.70	65%	3	0.52	1	1	0.17	0.27	9.8	5.1	0
	121.72										

	% of Capacity
North Shore	43%
South Shore	60%
Small Communities	35%

Tributary Summary

	Annual Total Nitrogen			Annual Total Phosphorus		
	Discharged YTD	Operational Projection CY23		Discharged YTD	Operational Projection CY23	
Tributaries	%	Lbs	%	%	Lbs	%
James River	47%	1,811,908	51%	47%	177,241	56%
York River	64%	204,942	71%	63%	13,571	70%
Rappahannock	86%	NA	NA	95%	NA	NA

Permit Exceedances:Total Possible Exceedances, FY24 to Date: 4:23,553
Pounds of Pollutants Removed in FY24 to Date: 83,026,360
Pollutant Lbs Discharged/Permitted Discharge FY24 to Date: 13%

Rainfall (inch)

	North Shore (PHF)	South Shore (ORF)	Small Communities (FYJ)
Month	2.90"	2.43"	N.A.
Normal for Month	3.15"	3.06"	3.08"
Year to Date Total	41.82"	44.12"	32.12"
Normal for YTD	47.95"	45.93"	45.04"

AIR EMISSIONS SUMMARY FOR NOVEMBER 2023

	No. of Permit Deviations below 129 SSI Rule Minimum Operating Parameters								Part 503e Limits		
MHI PLANT	Temp 12 hr ave (F)	Venturi(s) PD 12 hr ave (in. WC)	Precooler Flow 12 hr ave (GPM)	Spray Flow 12 hr ave (GPM)	Venturi Flow 12 hr ave (GPM)	Tray/PBs Flow 12 hr ave (GPM)	Scrubber pH 3 hr ave	Any Bypass Stack Use	THC Mo. Ave (PPM)	THC DC (%)	BZ Temp Daily Ave Days >Max
ARMY BASE	0	0	0	0	0	0	0	1	55	76	0
BOAT HARBOR	0	1	0	n/a	1	0	0	0	19	97	0
VIP	0	0	0	n/a	0	0	0	1	28	100	0
WILLIAMSBURG	0	0	1	n/a	0	0	0	2	17	69	0

ALL OPERATIONS

DEQ Reportable Air Incidents:	1
DEQ Request for Corrective Action:	0
DEQ Warning Letter:	0
DEQ Notice of Violation:	0
Other Air Permit Deviations:	0
Odor Complaints Received:	27
HRSD Odor Scrubber H2S Exceptions:	3

Items of Interest – November 2023

MULTIPLE HEARTH INCINERATION (MHI)

Total Hydrocarbon (THC) monthly averages (not to exceed 100 ppm) were met by all four MHI plants (Army Base, Boat Harbor, Virginia Initiative, and Williamsburg) with a THC continuous emissions monitoring (CEM) valid data captured of greater than 69%.

The MHIs had three (3) deviations from the required 129 SSI rule minimum operating parameters, three (4) minor bypass events (< 60 minutes), and one (1) bypass event just over one hour.

HRSD Williamsburg's MHI required the use of the bypass stack for 62 minutes on November 4th when a Non-Potable Water (NPW) line ruptured. This NPW line provides water flow to the MHI's scrubbers and cools the gases to protect the ID fan and scrubbers. Once the NPW line was repaired, the MHI was placed back into normal operation ending the malfunction event. DEQ was notified accordingly.

AIR PERMITS and ODOR CONTROL.

HRSD submitted a stack test waiver request to EPA per DEQ's request. HRSD and DEQ had previously agreed that 129 emission limits testing could be based on 11-13 MHI operating months not the calendar months stated in the rule. During Williamsburg's T5 permit renewal, DEQ Central Office identified this as a potential issue and subsequently the EPA waiver request was submitted.

There were three (3) odor control scrubber system hydrogen sulfide (H_2S) exceptions.

Atlantic Plant received eight (8) odor complaints from Ocean Lakes neighbors. Plant Staff and TSD responded to all complaints and followed up with our neighbors with the investigation results. An additional 14 complaints were received through the Atlantic Plant Outreach, 12 of which were related to the City of Virginia Beach's Holland Pines event and the remaining 2 were non-HRSD system complaints.

York River received five (5) odor complaints from a neighbor across the street from the plant on Back Creek Road. All of these complaints were addressed by Plant staff and TSD. HRSD is still working with the neighbor to determine the source of the odors that are sporadically inside and outside of the house. In addition to complaint response, TSD re-established ambient hydrogen sulfide monitoring and York County checked their vacuum sewer system that connects to the homeowner's lateral. Smoke testing of the residence is being scheduled.

CENTRAL ENVIRONMENTAL LABORATORY

For the week of November 26, the required frequency of BOD sample analysis for West Point was not met. The permit requires the collection and analysis of three BOD samples per week. Although four BOD samples were collected during the week, the required number of valid BOD analytical results were not realized because quality control standards required of the test procedure and associated with these samples were not met. Analytical results not meeting the quality control standards are considered invalid and were flagged (*) with the designation IA2 analytical procedure error for the November 28 sample and IA3 instrument malfunction or improper calibration (**) for November 29 sample during the data review. These flagged analytical results were not included in the monthly average calculations.

TREATMENT

DEQ was notified of the following reportable events:

James River

On November 9, contractors failed to install a plug in a test port of a newly constructed tank. The tank was filled with NPW to soak the concrete and check for leaks. During tank testing approximately 40,000 gallons of NPW were released to the ground through the open test port and subsequently pumped to a storm drain.

Nansemond

On November 2, contractors dropped a piece of concrete on the discharge line from the centrate tanks. The pipe was broken before the closest valve in line making it difficult to secure. Plant staff and contractors removed the broken section of pipe at a flange and replaced it with a valved flange to stop the spill. Approximately 600 gallons of centrate were released to the ground.

On November 7, plant staff discovered flow discharging from the SRF Reactor #3 drain that had been cut in preparation for the demo of Reactor #3. The plant drain well was overwhelmed with drain flow causing the overflow at the SRF with some flow leaving the building. Approximately 650 gallons of NPW/struvite soaked into the ground.

On November 14, contractors were drilling piles for the new Primary Clarifier Equalization Tank and part of the Anaerobic, Anoxic, and Aerobic (AAA) influent channel separated at an expansion joint and began leaking. Contractors collected the mixed liquor in a dug trench and patched the leaks from the outside with oakum soaked in hydrophobic polyurethane grout. This event released approximately 3,000 gallons of mixed liquor onto the ground.

Williamsburg

On November 4, while investigating a drop in NPW system pressure, a plant operator discovered water coming from the road and ground at the southwest end of the plant. The leak was traced back to the main 10-inch NPW line. The NPW system was shutdown to stop the leak, and the line was excavated and repaired. Approximately 16,500 gallons of NPW soaked into the ground and storm drain to Grove Creek.

2023 Metals, Ammonia, and TKN

		Limit	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Central Middlesex	Ammonia	0.56	0.02	NA	NA	0.06	NA	NA	<0.02	NA	NA	0.06	NA	
	TKN	3.0	NA	<0.50	NA	1.7	NA	NA	0.72	NA	NA	0.59	NA	
King William	Zinc	*	54	NA	NA	35	NA	NA	NA	52	NA	NA	NA	
	TKN	3.0	1.9	1.1	1.6	0.76	0.61	0.53	0.47	0.89	0.61	0.67	0.86	
Nassawadox Riverside	Cadmium	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	NA	
	Copper	23	<5.0	<5.0	<5.0	5.2	<5.0	<5.0	<5.0	5.8	5.4	NA	NA	
	Nickel	38	14	18	14	<10	<10	<10	<10	<10	<10	NA	NA	
	Zinc	150	<50	<50	<50	<50	<50	<50	<50	<50	<50	NA	NA	
	Ammonia	1.7	0.31	0.67	0.44	0.14	0.19	0.09	0.08	0.13	0.04	NA	NA	
Onancock	Copper	12	2.2	NA	NA	0.80	NA	NA	0.52	NA	NA	2.1	NA	
	Ammonia	0.90, 2.0	0.04	0.03	0.03	0.08	0.04	0.77	0.07	0.41	0.07	0.04	0.05	
Surry County	Copper	5.9	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Zinc	56	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Ammonia	0.77	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	TKN	3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Urbanna	Ammonia	3.83, 9.08	0.04	0.16	0.02	0.02	0.92	0.05	0.05	0.05	0.08	0.34	1.87	

*No limit. Treatment objective 53 ug/L

Units: TKN, Ammonia: mg/L. Metals: ug/L

2023 MONTHLY FLOW AVERAGES

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YR AVG	FY AVG
Army Base	9.10	9.87	9.09	8.47	8.46	9.28	10.86	10.35	9.76	8.54	8.57		9.30	9.61
Atlantic	44.58	46.31	43.65	41.11	41.28	44.62	47.18	45.58	43.84	40.35	39.53		43.46	43.29
Boat Harbor	11.60	12.95	11.16	10.39	10.31	12.27	11.88	11.55	10.72	9.92	8.66		11.04	10.55
C.Middlesex	0.013	0.013	0.013	0.010	0.010	0.011	0.014	0.011	0.011	0.012	0.013		0.012	0.012
James River	12.46	13.31	11.87	12.13	12.03	12.42	11.78	11.46	11.17	10.13	9.78		11.69	10.86
King William	0.070	0.065	0.058	0.062	0.076	0.083	0.082	0.084	0.086	0.088	0.084		0.076	0.085
Lawnes Point	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000
Nansemond	15.97	16.61	15.77	15.59	15.75	15.38	16.76	16.13	16.31	14.51	14.69		15.77	15.68
Nassawadox	0.016	0.015	0.013	0.013	0.014	0.015	0.018	0.018	0.015	0.000	0.000		0.012	0.010
Onancock	0.170	0.194	0.207	0.208	0.197	0.207	0.235	0.209	0.159	0.188	0.175		0.195	0.193
Surry, County	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.001	0.000
Surry, Town	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000
Urbanna	0.035	0.039	0.046	0.050	0.056	0.063	0.067	0.061	0.071	0.070	0.061		0.056	0.066
VIP	27.26	30.12	27.54	27.47	27.99	29.68	31.37	31.51	29.61	25.65	22.86		28.28	28.20
West Point	0.466	0.470	0.389	0.359	0.373	0.330	0.423	0.329	0.312	0.273	0.269		0.363	0.321
Williamsburg	7.73	8.09	7.96	8.48	7.76	8.59	8.41	8.27	8.14	7.46	7.33		8.02	7.92
York River	12.69	13.74	12.00	12.37	12.31	12.67	11.37	11.02	10.59	10.07	9.70		11.68	10.55
North Shore	44.47	48.09	42.99	43.36	42.42	45.95	43.44	42.31	40.63	37.58	35.47		42.43	39.88
South Shore	96.91	102.91	96.06	92.64	93.47	98.95	106.16	103.56	99.51	89.04	85.65		96.81	96.78
Small Communities	0.78	0.80	0.73	0.70	0.72	0.71	0.84	0.71	0.65	0.63	0.60		0.72	0.69
TOTAL	142.16	151.79	139.78	136.70	136.62	145.61	150.44	146.58	140.79	127.25	121.72		139.95	137.36

Bold values indicate monthly plant flow average >95% of permitted design flow

Hampton Roads Sanitation District
Internal Audit Status
November 30, 2023

The following Internal Audit Status document has been prepared by SC&H for the HRSD Commission. Below is a summary of projects in process, upcoming projects, and the status of current management action plan monitoring.

I. Projects in Process

Operational Technology Security and Resilience

- **Completed Tasks (November 2023)**
  - Met with stakeholders to review audit approach and begin planning phase.
  - Initiated internal planning and scoping.
- **Upcoming Tasks (December 2023)**
  - Continue development of planning steps to construct an audit program.
  - Meet with stakeholders to review audit objectives and scoping.
  - Schedule client meeting to continue general scoping, project plan, and timelines discussions.

Risk Assessment Refresh

- **Completed Tasks (November 2023)**
  - Commenced risk assessment procedures.
- **Upcoming Tasks (December 2023)**
  - Confirm timing with HRSD.
  - Prepare survey for Dec/Jan distribution.

Design and Construction Estimating

- **Completed Tasks (November 2023)**
  - Conducted entrance meeting.
  - Conducted initial process understanding meeting with Chief of Capital Finance.
  - Conducted external research.
- **Upcoming Tasks (December 2023)**
  - Conduct additional process understanding meeting with Design and Construction team members.
  - Continue external research.

Accounts Payable and ProCards

- **Completed Tasks (November 2023)**
  - Initiated fieldwork procedures.
- **Upcoming Tasks (December 2023)**
  - Continue fieldwork procedures.

Remote Access

- **Completed Tasks (November 2023)**
  - Continued to follow up on the request list items.
- **Upcoming Tasks (December 2023)**
  - Continue following up on requests, and conducting meetings to gather evidence.
  - Document testing when requested documentation is obtained.

II. Upcoming Projects

- Billing, accounts receivable, and aging: March/April 2024

III. Management Action Plan Status

SC&H performs on-going management action plan (MAP) monitoring for completed internal audits/projects. SC&H begins MAP follow-up approximately one year following the completion of each audit and periodically follows up until conclusion.

For each recommendation noted in an audit report, SC&H gains an understanding of the steps performed to address the action plan and obtains evidence to confirm implementation, when available.

The following describes the current project monitoring status. This listing does not include audits which were determined by HRSD Management and the Commission to include confidential or sensitive information.

		Recommendations		
Audit	**Next Follow-up**	**Closed**	**Open**	**Total**
Personally Identifiable Information	February 2024	0	3	3
Succession Planning	January 2024	2	2	4
Safety Division	December 2023	2	1	3
Freedom of Information Act	December 2023	0	1	1
Family Medical Leave Act (FMLA)	April 2024	0	4	4
D&C: CIP Project Management	Closed	13	0	13
HR Benefits	Closed	15	0	15
Inventory	Closed	5	0	5
Procurement/ProCard	Closed	11	0	11
Engineering Procurement	Closed	8	0	8
Corporate Governance: Ethics Function	Closed	5	0	5
Treatment Plant Operations	Closed	9	0	9
Permitting	Closed	2	0	2
Payroll	Closed	3	0	3
Customer Care Division	Closed	4	0	4
Pollution Source Control	Closed	8	0	8
Fleet Services	Closed	17	0	17
Biosolids Recycling	Closed	8	0	8
Unifier/ERP Integration	Closed	4	0	4
Emergency Repairs	Closed	3	0	3
SWIFT Program	Closed	12	0	12
	Totals	131	11	142

Strategic Measures
November 2023

Strategic Planning Measure	Oct-23	Nov-23	FY-24
Capacity Related Overflows (Reported Quarterly)			3
Educational and Outreach Events	28	20	99
Number of Community Partners	15	17	84
Revenue vs. Budget	$1	$1	$1
Wastewater Expenses vs. Budget	$0	$1	$1
General Reserves	110%	109%	108%
Liquidity	345	327	335
Accounts Receivable (HRSD)	$44,145,812	$44,759,932	$43,221,075
Aging Accounts Receivable	24.00%	25.30%	25.08%
Monthly CIP Spending			$41,018,386
Turnover Rate wo Retirements	0.35%	0.00%	0.17%
Turnover Rate w Retirements	0.47%	0.00%	0.25%
Avg Time to Hire			3 months 3 days
Number of Vacancies	52		65
Number of Technical Presentations	12	5	27
TONS OF CARBON: Tons of carbon produced per million gallons of wastewater treated. Energy consumed (gas (scfm) and electricity (kWh)) per million gallons of wastewater treated.	*		0
GAS CONSUMPTION: Tons of carbon produced per million gallons of wastewater treated. Energy consumed (gas (scfm) and electricity (kWh)) per million gallons of wastewater treated.	*		0
ELECTRICITY CONSUMPTION: Tons of carbon produced per million gallons of wastewater treated. Energy consumed (gas (scfm) and electricity (kWh)) per million gallons of wastewater treated.	*		0
System Failures (Reported Quarterly)			0
Total number of applicants per position	4.45		6
Percentage of positions filled with internal applicants.	29.63%		30.25%
Recruitment source Return on Investment.			0.00
Avg Time to Hire			3 months 3 days
Quantity of expenditures ($) allocated to Information Technology per 1,000 HRSD customers (commercial and residential).			0.00
Customer Call Wait Time	4	2	2.52
Percentage of CIP projects that are completed within budget.			0.00%

Strategic Measures
November 2023

Date	Education Outreach Events
11/1/2023	Virginia Beach Public Schools Environmental Studies Partnership. Began work that will include hands on activities including regulatory overview, development of sampling plans, analysis, data interpretation and presenting results.
11/3/2023	Coastal Homeschool Academy Career Day
11/3/2023	VIP Tour for ODU CEE 350 Class
11/4/2023	Cooperating Hampton Roads Organizations for Minorities in Engineering (CHROME) Sponsor Launch Event
11/6/2023	I.C. Norcom STEAM Night
11/6/2023	SWIFT RC Tour - VA Wesleyan University Hydrology Class
11/9/2023	ATP Tour for City of Columbus and Brown and Caldwell
11/9/2023	SWIFT RC Tour - Kings Fork High School
11/13/2023	Tour for ODU CEE 350 Class
11/14/2023	Princess Anne Plaza Civic League Presentation
11/14/2023	SWIFT RC Tour - American Groundwater Trust
11/15/2023	Canon Environmental and Safety Fair
11/15/2023	Safety and Environmental Fair
11/15/2023	SWIFT RC Tour - Lakeland High School
11/16/2023	FOG Presentation - Cox High School
11/18/2023	Shored Up Shellabration Event
11/21/2023	SWIFT TOUR - Water Corporation in Australia
11/22/2023	SWIFT RC Tour - friend of Commissioner Taraski
11/28/2023	ATP Tour for U.S. Navy
11/30/2023	Tour for HRSD Engineering PM and Real Estate Manager

Strategic Measures
November 2023

Date	Community Partners
11/1/2023	City of Virginia Beach
11/1/2023	DOE Jefferson Lab
11/1/2023	Mathews County
11/1/2023	ODU
11/1/2023	Wachapreague Collection System
11/3/2023	Coastal Homeschool Academy
11/4/2023	CHROME
11/6/2023	Portsmouth Public Schools
11/6/2023	Virginia Wesleyan University
11/9/2023	Suffolk Public Schools
11/14/2023	American Groundwater Trust
11/14/2023	Princess Anne Plaza Civic League
11/15/2023	Canon Virginia
11/15/2023	Suffolk Public Schools
11/16/2023	Virginia Beach City Public Schools
11/18/2023	Shored Up

Date	Technical Presentations	Presenter	Department
11/7/2023	Validating Pathogen Removal by Ozone and Biofiltration Water Reuse Treatment Trains	Samantha Hogard	Operations
11/8/2023	PFAS in Potable Reuse: PFAS Removal at the SWIFT Research Center	Erin Bereyso	Operations
11/12/2023	National Science Foundation, Engineering Directorate Advisory Committee Meeting	Charles Bott	Operations
11/14/2023	PFAS at the SWIFT Research Center: Managing Stringent Emerging Limits	Germano Salazar-Benites and Chris Waller	Operations
11/20/2023	JEA H2.O Utility Advisory Panel	Germano Salazar-Benites	Operations