



TRI - REGIONAL JETS 2025



Delivering Adaptable and Cost-Effective Infrastructure:

A Utilities Privatization Success Story



Delivering Adaptable and Cost-Effective Infrastructure: A Utilities Privatization Success Story

Moderator:

Mahsa Modiri, PhD, PE

EA Engineering, Science, and Technology, Inc.

Speakers:

Ryan Howard, PE, CEM
Utilities Division Director
NAVFAC Southeast

CDR Nathan Chenarak, PE
Deputy Public Works Director
NAVFAC Southeast

TRI - REGIONAL
JETS 2025

Society of
SAFETY
American Military Engineers



SPEAKER

Ryan Howard, PE, CEM
NAVFAC Southeast
Utilities Division Director



- **Sports Teams:** Jacksonville Jaguars, UCF & FSU Football, Aberdeen Rays Swim Team
- **Vacation Spots:** Crescent City, FL
- **Did You Know:** I lived in Japan for 3 years and have attended the Australian Open
- **Hobbies:** Spending time with family, anything grill/BBQ, fishing, and jet skiing
- **Coollest Project:** 4160V Power Distribution to Waterfront, CFA Sasebo Japan

TRI - REGIONAL
JETS 2025

Society of
SAFETY
American Military Engineers



SPEAKER

CDR Nathan Chenarak, PE
NAVFAC Southeast
Deputy Public Works Director



- **Sports Teams:** New England Patriots, Boston Red Sox
- **Vacation Spots:** Lincoln, New Hampshire
- **Did You Know:** I worked for Pulte Homes prior to joining the Navy
- **Hobbies:** Spending time with family and snowboarding
- **Coolest Project:** Construction of the Bonriki Bridge, Tarawa, Kiribati

Learning Objectives

- Identify the key benefits of utilities privatization (UP) in infrastructure development, including cost savings and accelerated project timelines.
- Understand how utilities privatization (UP) can enhance infrastructure resilience and adaptability in response to changing regulatory requirements.
- Learn how the Naval Station Mayport UP project as a case study, illustrates the practical application and positive outcomes of a privatized wastewater treatment solution.

Agenda

- Utilities Privatization (UP) and Navy Southeast Portfolio
- Naval Station Mayport Wastewater Treatment Plant Problem Set
- MILCON Challenges
- UP Solution
- Adaptability Post UP Contract Award
- Q&A / Discussion

**How many of you have been
involved in a Utilities
Privatization effort?**



Utilities Privatization and Navy Southeast Portfolio

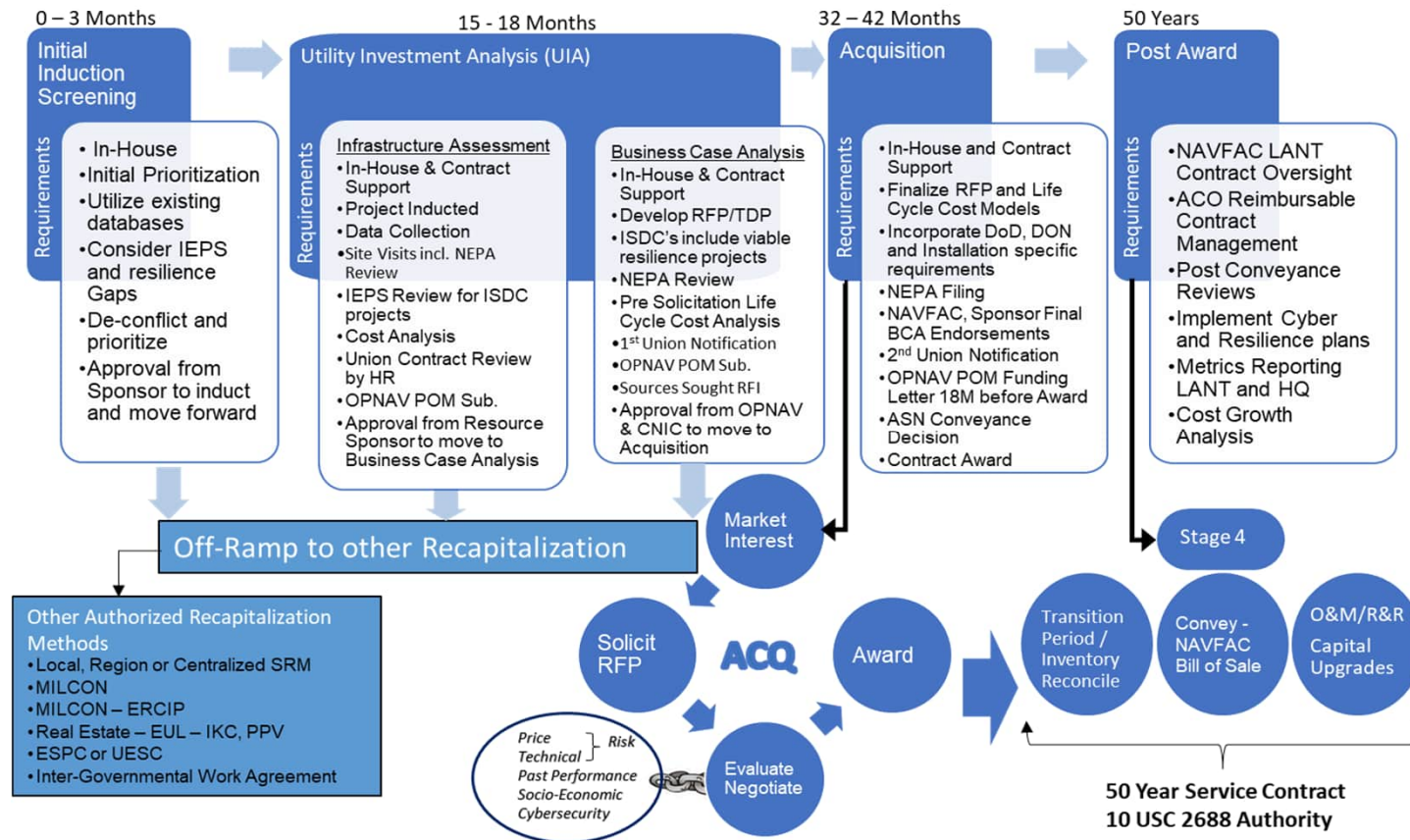


Utilities Privatization Authority

- Authorized by 10 USC 2688 – Utility Systems: Conveyance Authority
- Conveyance (Bill of Sale) for utility system assets at fair market value to a new system owner and establishment of a long-term service contract with the new system owner to operate, maintain, and recapitalize the system.
- UP is an alternative financing mechanism that enables investments in utility infrastructure over time with regular renewals and replacements over 50 years.



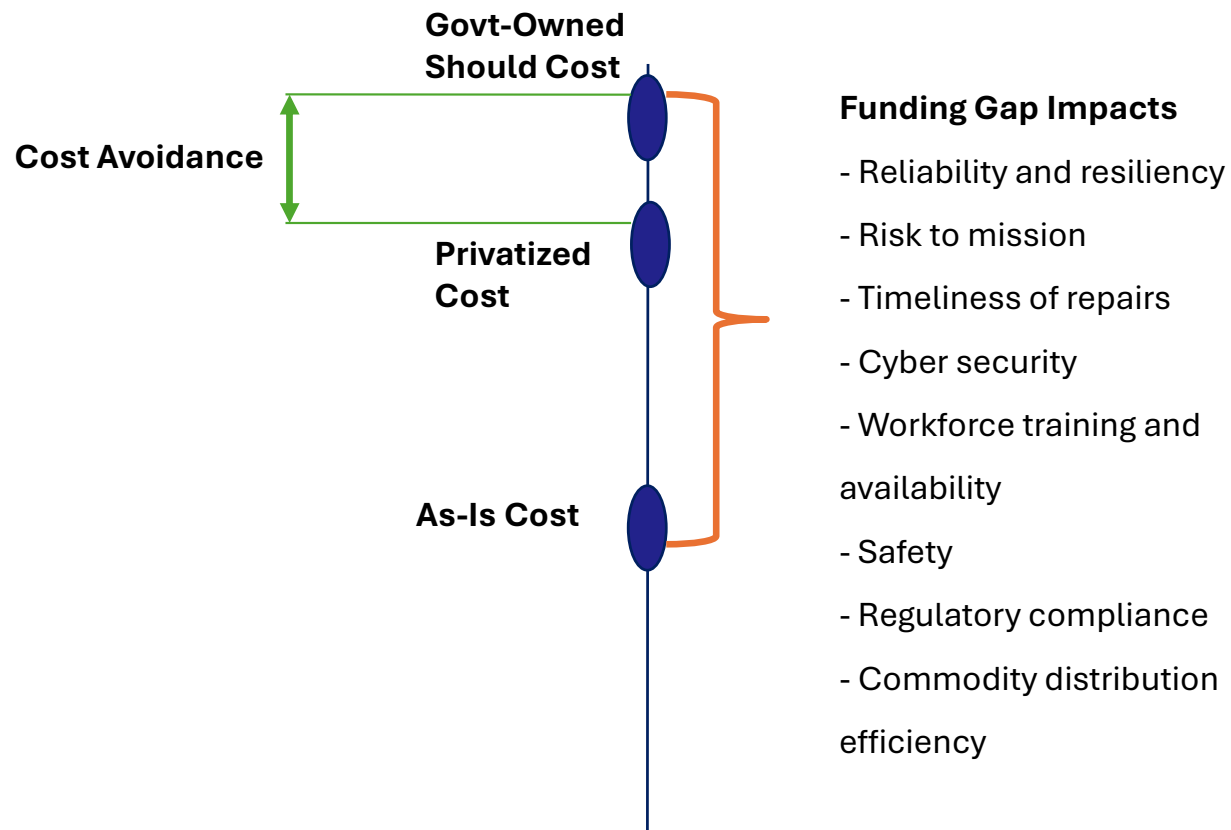
Navy Utilities Privatization Decision Analysis



Economic Scenarios

- **As-Is Cost:** The current and historical annual O&M, emergency repair/replacement, periodic repair/replacement, and capital investments.
- **Should Cost (GSC):** Estimate of the cost required for the Government to bring the system up to and maintain it at industry standards; capital upgrades to immediately address safety, resiliency, and regulatory issues, O&M costs, periodic recapitalization at industry standard, and general and administrative overhead costs.
- **Privatized Cost:** Estimate of the cost required for a new system owner to bring the system up to and maintain it at industry standards; capital upgrades to immediately address safety, resiliency, and regulatory issues, O&M costs, periodic recapitalization at industry standard, and general and administrative overhead costs.

Economic Scenarios



Utilities Privatization Pros

- 10 USC 2688 gives authority to Services (USN, USMC) to select, justify and award without Congressional involvement
- Speed of Contract Mod Awards. UP allows for new requirements generated by mission, regulatory, safety or resiliency to be developed, funded and awarded as a modification within 12 months.
- Flexibility to use MILCON or O&M Funds for new utility services
- Contract duration is 50-years renewable
- Less cost-effective initiatives can be justified by a need for resiliency, efficiency, mission or cybersecurity
- System Operators (SO) can maintain an inventory of critical spares (eg. transformers, breakers, pumps) and can reserve an equipment production place in line for long-lead items
- SO pay market rates for trade personnel so reduced vacancies drive improved PM execution
- Reduced outage duration and frequency as evidence by improved SAIDI & SAIFI scores

Utilities Privatization Cons

- The UP Process takes about 5-years to develop, justify and award.
- Funds for new start Initial System Deficiency Corrections (ISDCs) are currently limited to \$50M annually by OPNAV N4I.
- Utility distribution systems such as electric, water, wastewater, thermal, communications and gas. Not applicable to general buildings nor storm water or compressed air.
- Higher annual contract cost vs. As-Is funding levels, however, still more cost-effective over the long term.

Navy SE Utilities Privatization Portfolio

- Corpus Christi – Electric
 - Kingsville – Electric
 - Meridian – Electric
 - Key West – Water
 - Key West – Wastewater
 - Mayport – Wastewater
- } 2008 Nueces Electric Cooperative
- 2008 East Mississippi Electric Power Association
- 2007 Florida Keys Aqueduct Authority
- 2016 Florida Keys Aqueduct Authority
- 2022 American Water Military Services



Naval Station Mayport Wastewater Treatment Plant Problem Set



Regulatory Compliance Challenges

- In June 2008, the Florida Department of Environmental Protection (FDEP) established a Total Maximum Daily Load (TMDL) for impaired waters.
- The TMDL for the Lower St. Johns River (LSJR), which receives discharges from Naval Station Mayport (NS Mayport), is 3,029,081 lb/year of Total Nitrogen (TN).
- NS Mayport Wastewater Treatment Facility (WWTF) was allocated 16,909 lb/year of TN.
- Actual TN discharges from the facility averaged between 36,000 and 42,000 lb/year, exceeding the allocation.
- As a result, NS Mayport's permit was under a Consent Order since 2014.

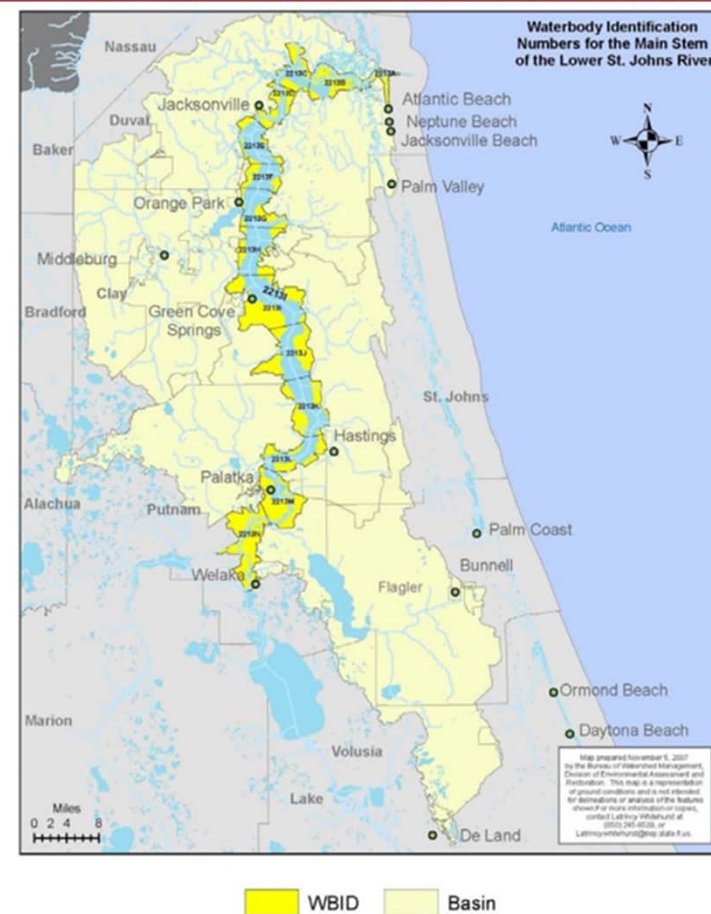


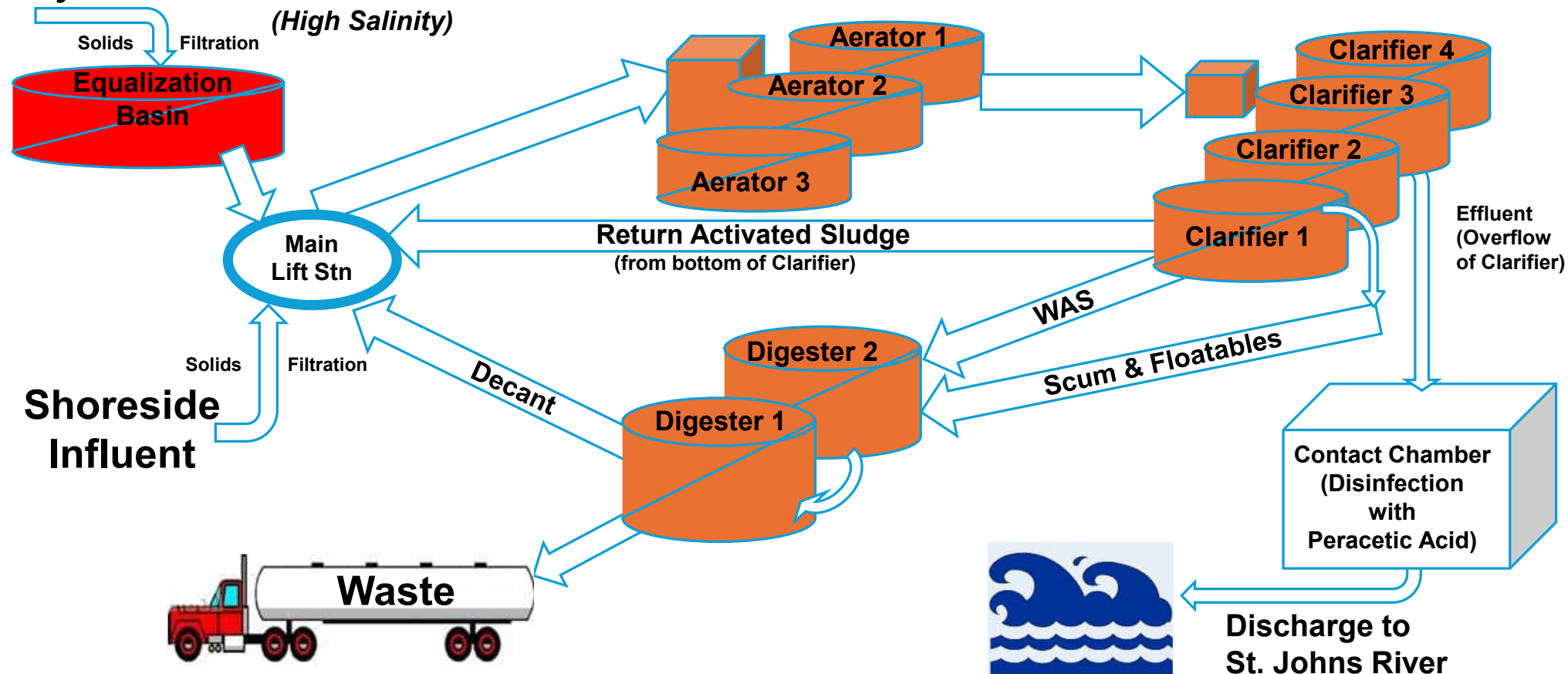
FIGURE 1: LOWER ST. JOHNS RIVER BASIN

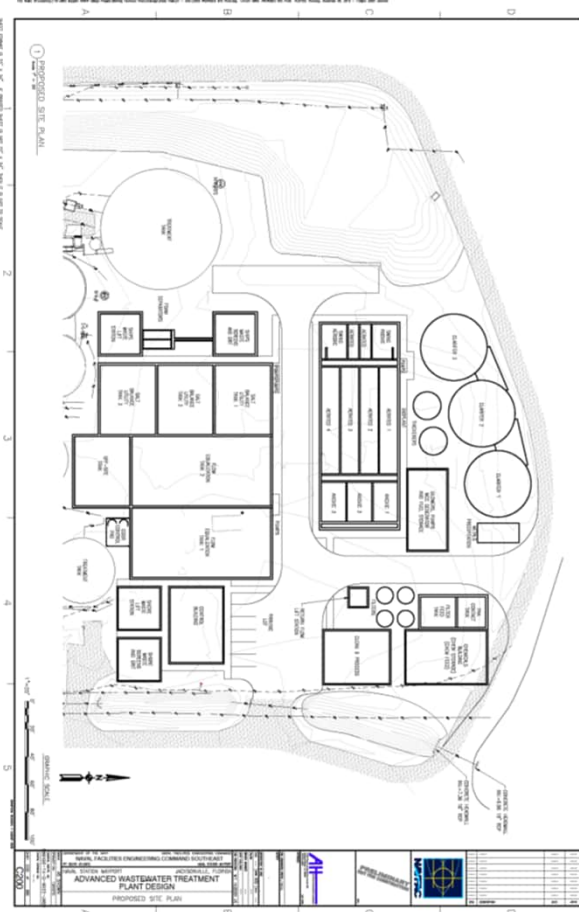
Existing WWTP Site



Ships &
Oily Waste Plant Influent
(High Salinity)

WWTP Existing Operations





Regulatory Compliance Solutions

- NS Mayport conducted 12 studies to identify the most effective compliance solution.
- The initial preferred option was to pipe treated effluent from NS Mayport to a local public utility treatment facility, but this was not feasible due to high salinity levels in the wastewater from ships.
- The construction of a new Advanced Wastewater Treatment Facility was ultimately selected as the solution.
- MILCON Project P663 was funded in FY18.

MILCON Challenges



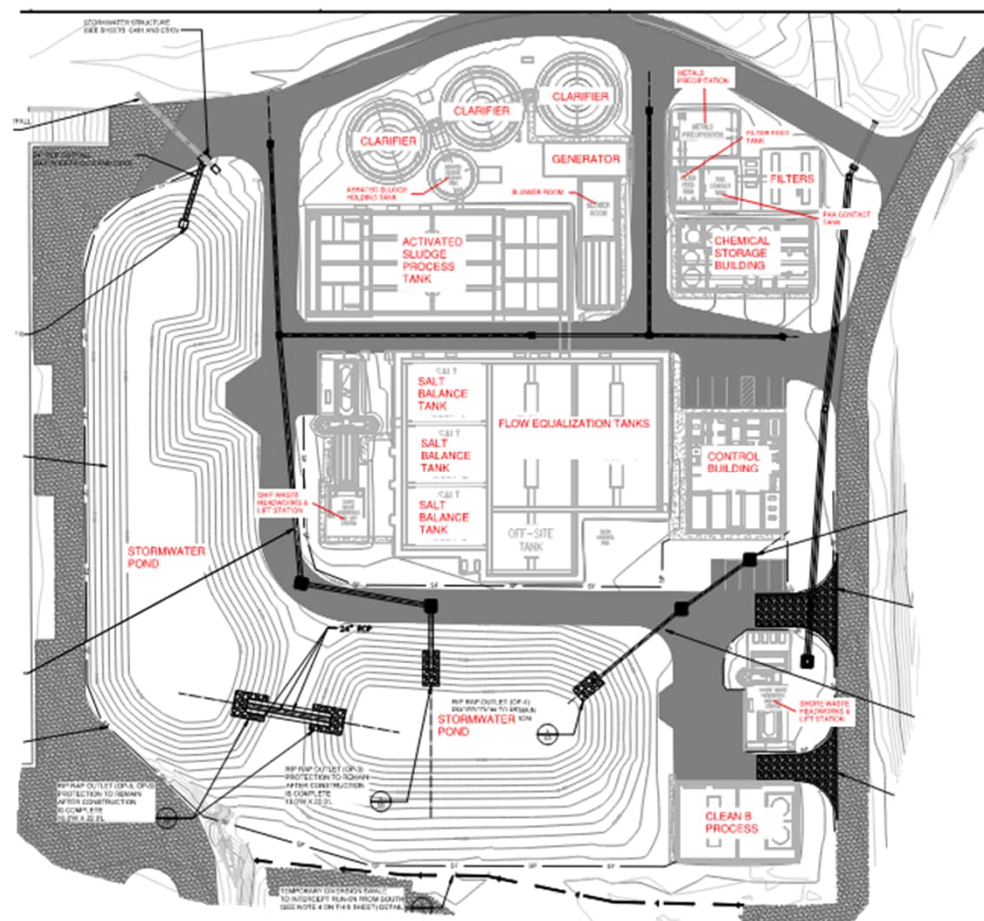
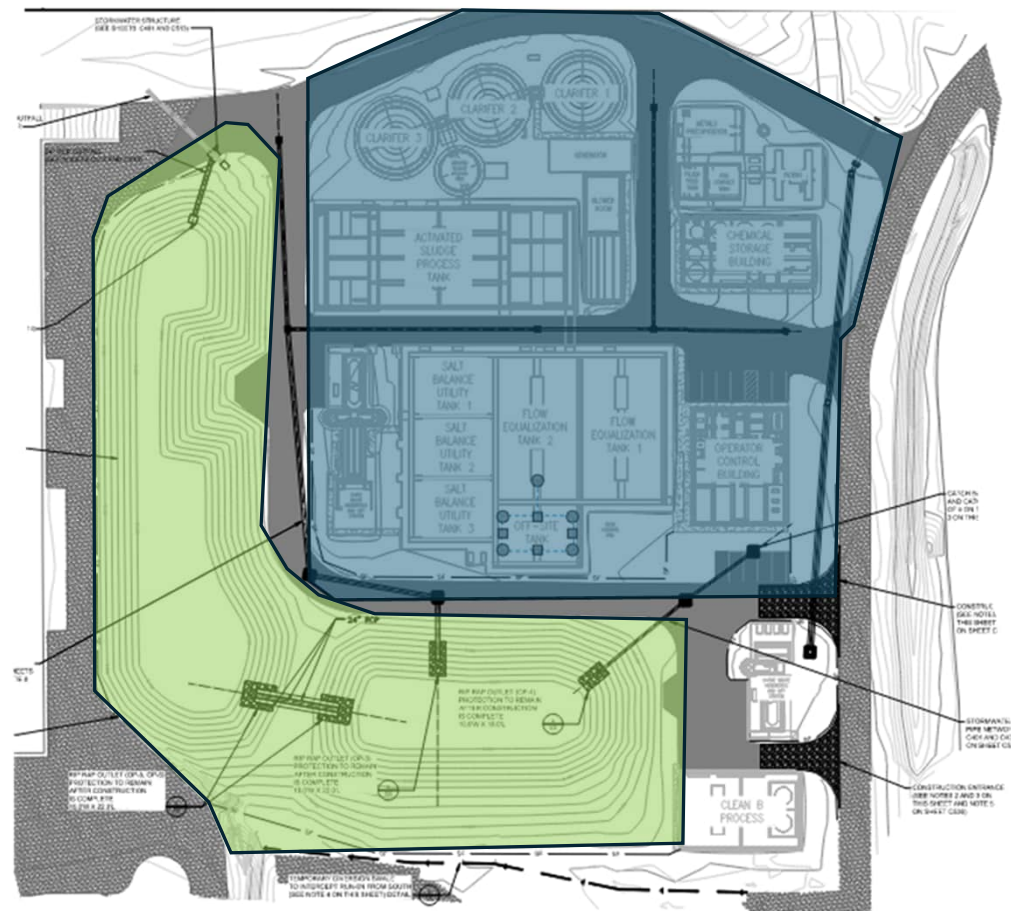
Mayport WWTP MILCON

- Project Scope: Construct an Advanced Wastewater Treatment Plant to treat raw sewage from ships' collection, holding and transfer tanks and all shore-based support operations.
- The project replaces a ~ 60-year-old sewage treatment plant and associated infrastructure and adds new capabilities to remove nitrogen and metals as required by the regulatory discharge permit.
- The WWTP will be located within the existing fence-line. Wastewater treatment will continue during construction.

Mayport WWTP MILCON

- Demolished Existing WWTP & Associated Infrastructure
- Shoreside Headworks
- Liftstation
- 3 Aerators
- 4 Clarifiers
- 2 Digesters
- 1 Equalization Basin (Shipside Headworks)

SAME



Mayport WWTP MILCON Site



Mayport WWTP MILCON

- New Construction – Funded in FY18
 - Construct a new operations building to support upgraded treatment functions.
 - Treatment process improvements:
 - ✓ Replace circular tanks with rectangular tanks featuring interior chambers for a smaller footprint and direct interconnections without underground piping.
 - ✓ Add tertiary metals removal and biosolids chemical oxidation capabilities.
- New Construction Challenges
 - Installation of piles to support new tanks built over poor-quality fill material.
 - Implementation of an elaborate stormwater collection, retention, and discharge system.
 - A phased construction approach was required to maintain continuous wastewater treatment plant (WWTP) operations during construction.

Mayport WWTP MILCON – Solicitation Challenges

- Project P-663 funded the design with an estimated budget of \$77M. During solicitation, all bids exceeded the budget by 40%.
- WHY
 - Market conditions changed from budget / DD1391 pricing in 2014 to solicitation in 2018
 - Specialized nature of work reduces the pool of qualified contractors resulting in decreased competition
 - Phasing & Schedule are complex to continue operating the existing WWTP while constructing the new WWTP
 - Restricted access to NS Mayport adds administrative burden resulting in an increase in Contingency, Supervision, Inspection & Overhead

Finding a Path to Compliance

- Alternatives Considered
 - Utility Services Contract (USC): Local public utility denied request due to salinity concerns and capacity limitations.
 - Third Party Financing (UESC/ESPC): Potentially infeasible due to limited energy savings; doesn't relieve Navy of compliance liability.
 - Review MILCON RFP for cost reductions: Only minor reductions achievable.
- Potentially Viable Solutions requiring Congressional Action:
 - Augmented MILCON Scope: Reduce MILCON scope to TMDL compliance items, fund remaining repairs/upgrades through other accounts.
 - Reclassify Entire Scope as Repair: Consider the WWTP project as repair based on ASN memo and fund with OMN SRM funds.

Next Steps

- Reprogram Project P-663
 - Feb 2019 -> Existing Bids Expire
 - Nov 2019 -> Latest Possible Award Date for Project P663
 - Nov 2022 -> CCD of P663
 - May 2023 -> Commissioning Completion
 - Sept 2023 -> Compliance Deadline
- Privatization -> American Water Military Services
 - Initial Evaluation & Light BCA -> Dec 2018 (Recommended to Proceed with UP)
 - OPNAV N46 Direction to Proceed -> May 2019
 - Solicitation/RFP -> Feb 2020
 - Contract Award -> June 2022
 - Conveyance -> Sept 2023 (Scheduled), March 2023 (Actual)

Utilities Privatization Solution



Mayport WWTP UP Contract Award

- Bid Range: \$300M - \$400M
- Number of Offers: 4
- All proposals were technically acceptable (Best Value Solicitation)
- American Water Military Services was the successful offeror
- Firm Fixed Price Contract: Two Transactions (1) Bill of Sale, (2) Utility Services
- 1 Year transition period
- CLINs 1-50: Utility Service Charge
- CLINs 52-64: Initial System Deficiency Corrections (ISDC)

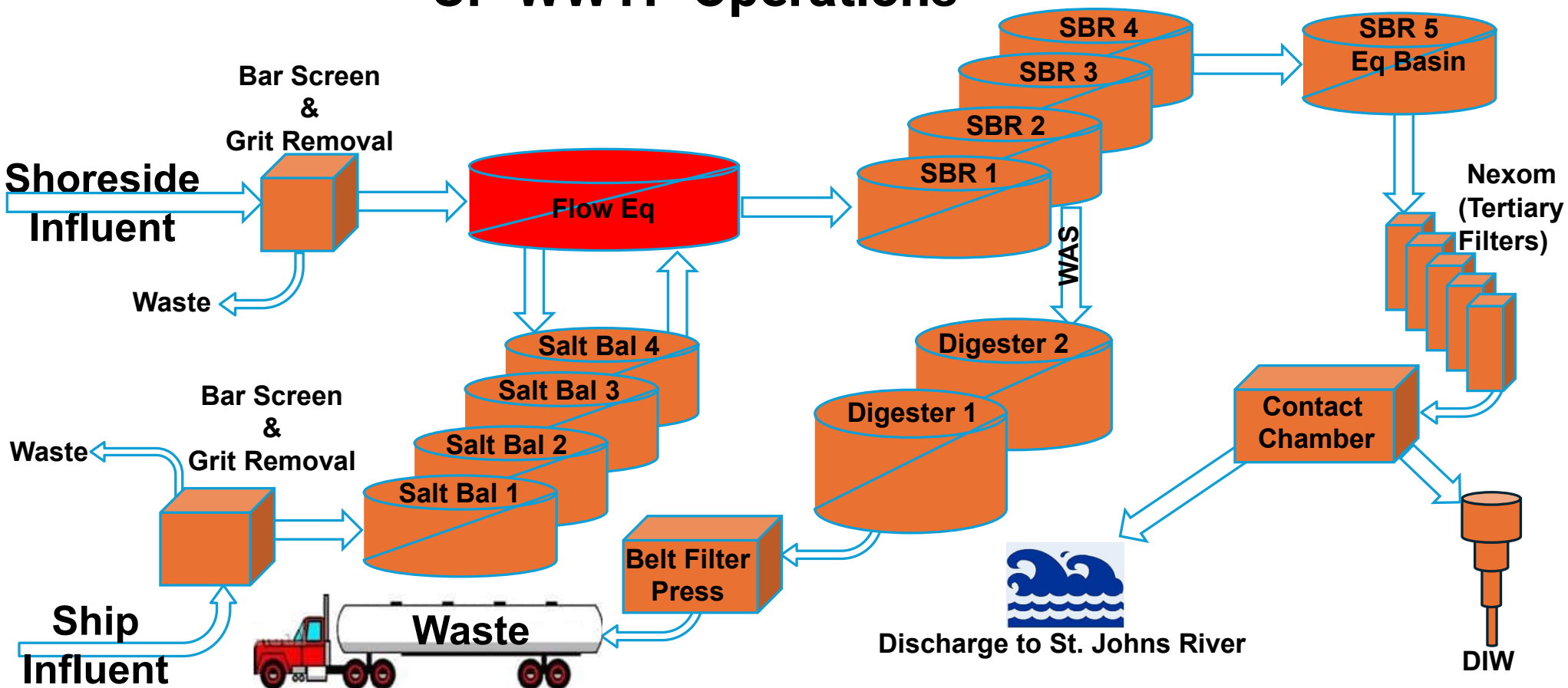


Mayport WWTP UP Features

- Refurbish Existing Infrastructure
- Construction Phasing
- NEXOM Nitrogen Filters
- 5 Sequencing Batch Reactors (Treatment Flexibility):
2 New & 3 Rehab Aeration Tanks
- 2 Rehab Digesters
- 1 Ship Equalization Tank
- 4 High Salt Balancing Tanks
- Belt Filter Press
- Reuse Chemical Contact Chamber
- Office, Lab, Control Building

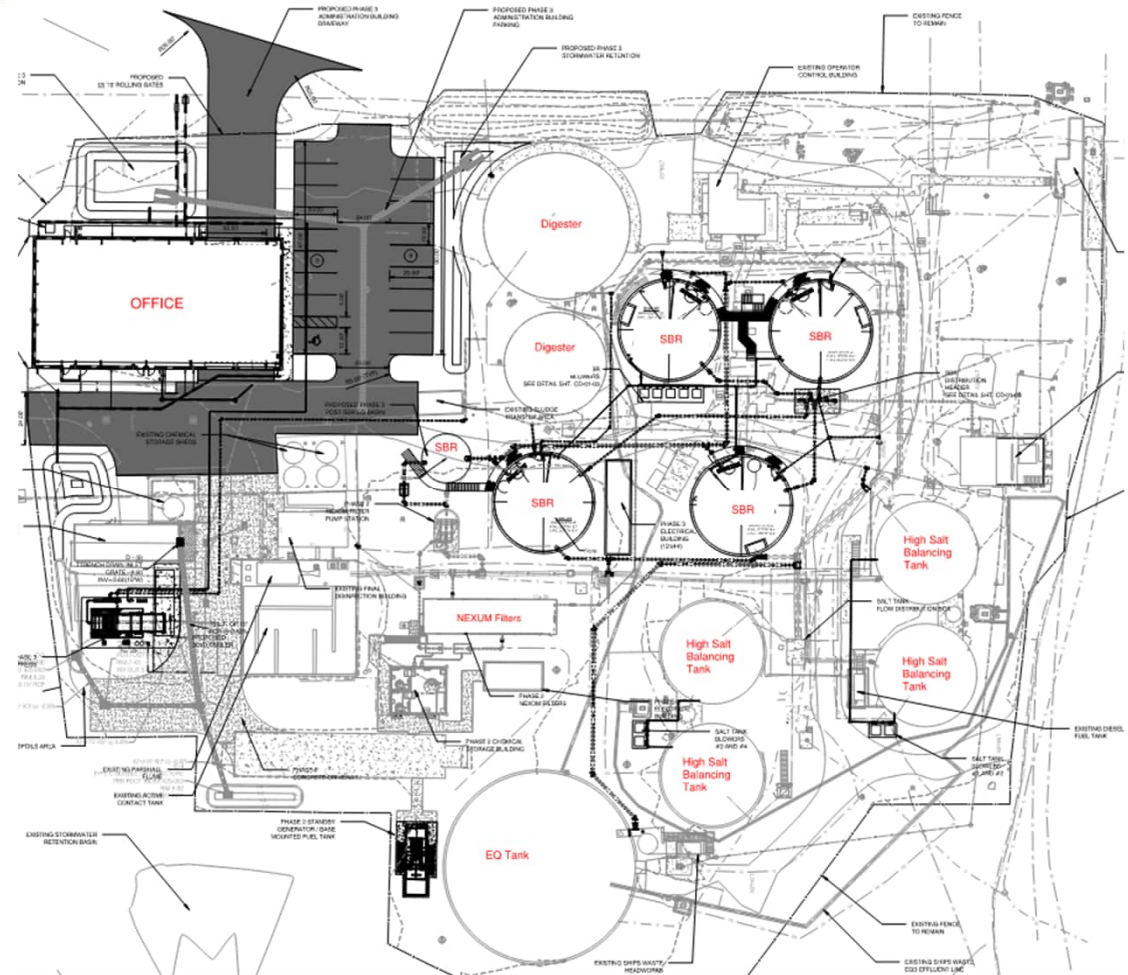


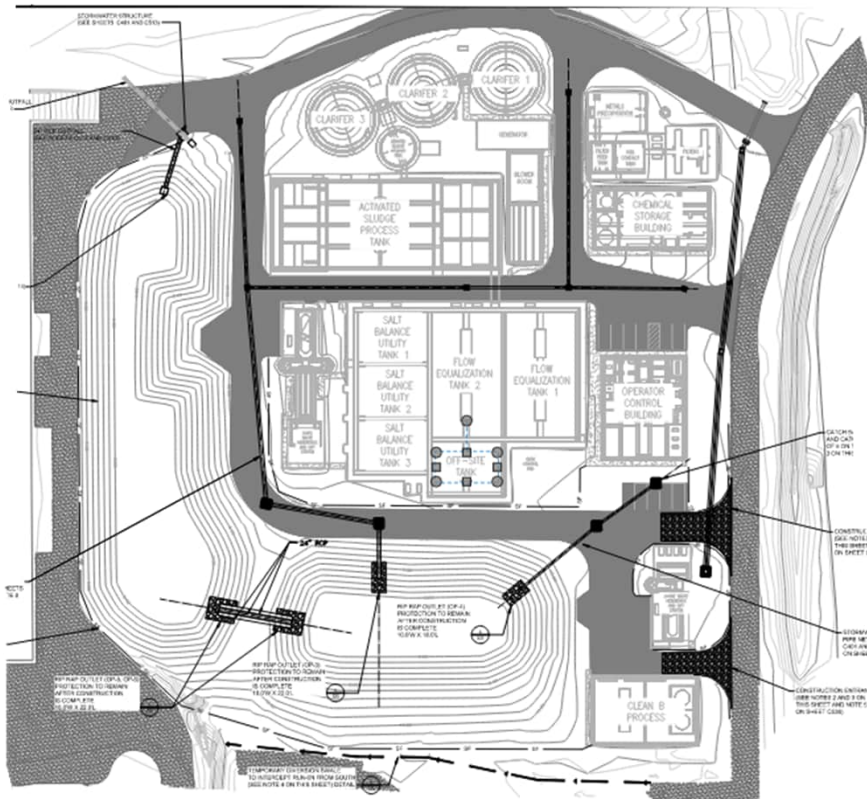
UP WWTP Operations



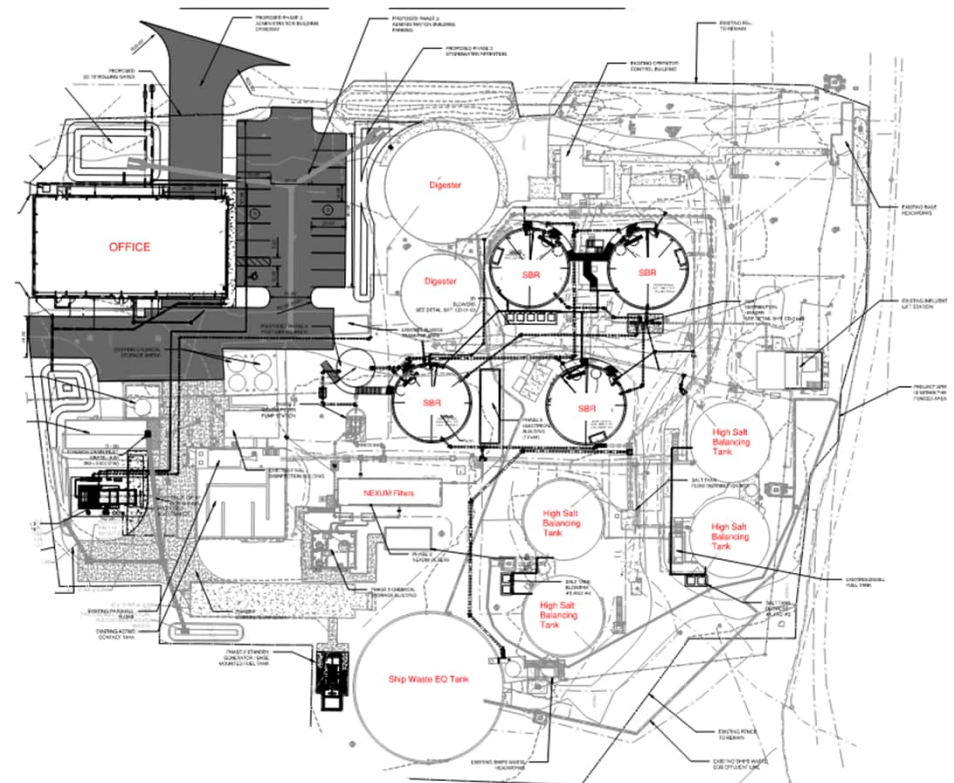
UP Site Plan

- Majority of site dedicate to wastewater treatment
- Minor amount of impervious surface addition





MILCON Site Plan



UP Site Plan

Adaptability Post UP Contract Award

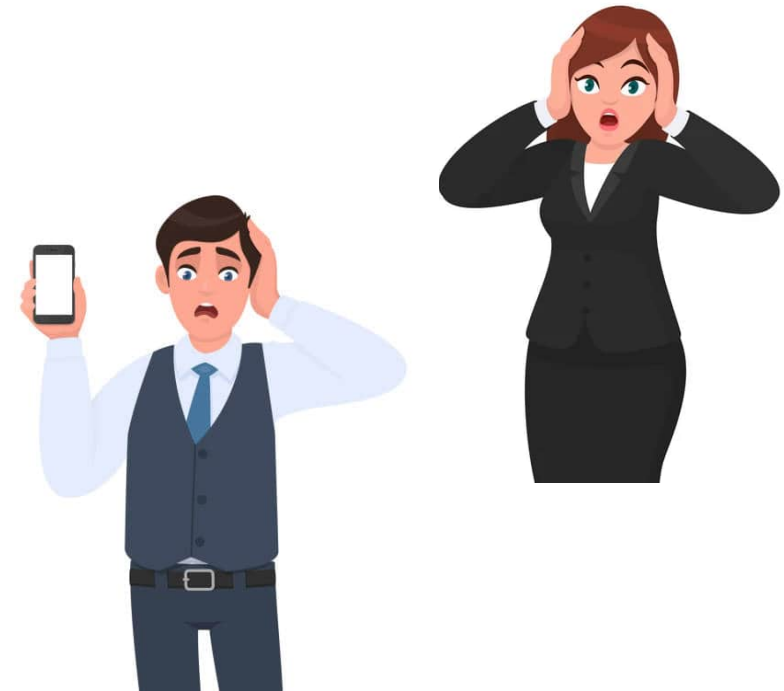


Mayport WWTP UP Post Award – All Good?

- ✓ Over last 12 months, TN discharge levels are below annual permit requirement.

HOWEVER...

- New Copper Limit was Lowered from 75 ppb to 3.7 ppb by December 1, 2024, with the permit renewal.
- Senate Bill 64 Prohibits Wastewater Discharge into the St. Johns River by 2032.



Mayport WWTP UP Post Award – Now What?

Deep Well Injection of Treated Wastewater (~2,400 feet below ground)

- Provides compliance with SB64, eliminating non-beneficial surface water discharge.
- Increases the allowable copper limit to an achievable level.
- Enabled the system owner to conduct independent studies and concur with the Government's selected approach.
- Implemented through a modification of the existing UP contract, adding the deep well injection task and FY24 Utilities funding of approximately \$27 million.
- The contract modification (MOD) was executed on July 10, 2024. FDEP granted an extension on the copper limit compliance date to coincide with the deep well installation.

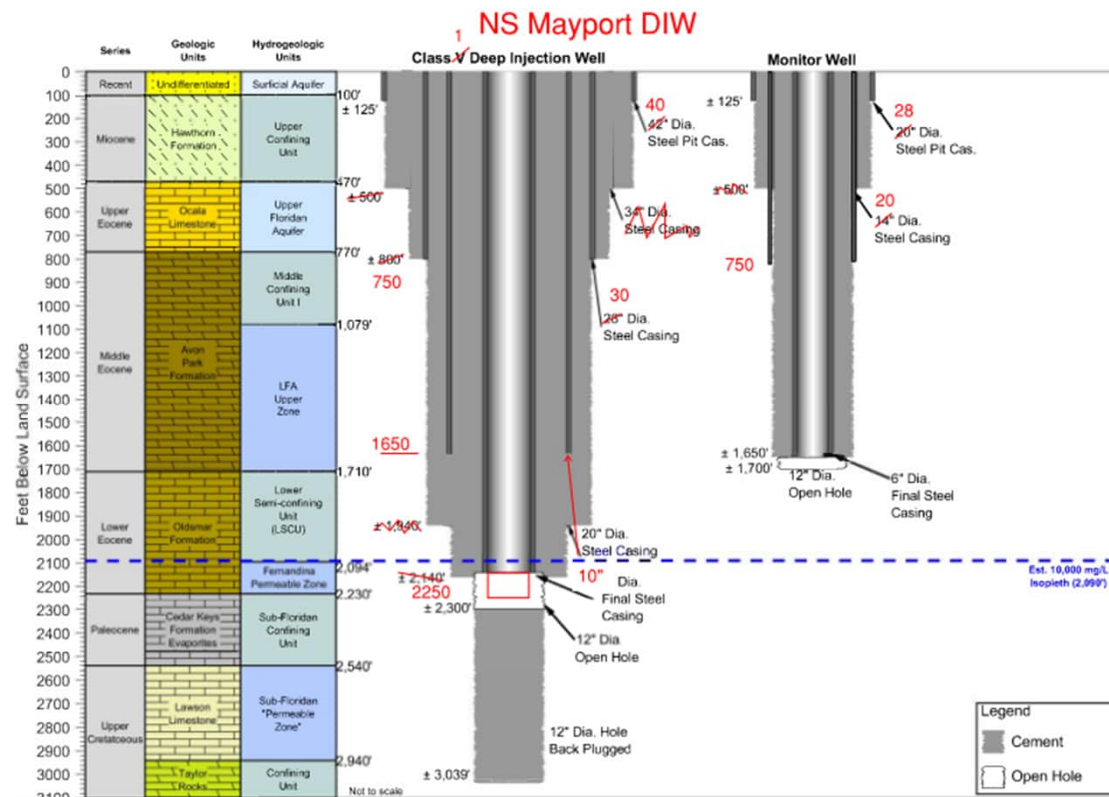


Alternative Solution Considered

- Reverse Osmosis
 - Utilize RO unit to remove copper adequately for reuse program ~\$17M
 - Deep well is needed to dispose of RO Effluent
 - Reuse water would be piped throughout base for irrigation
 - Reuse system cost ~ \$20M
 - High O&M Cost
 - ~ 500k Storage tank would be needed. Additional Real Estate would be needed.



Deep Injection Well



WWTP Receives FDEP Award

"... Mayport Naval Station has been selected to receive a 2024 Wastewater Plant Operations Excellence Award in recognition of outstanding treatment plant operation, maintenance, and compliance."



FLORIDA DEPARTMENT OF Environmental Protection

Ron DeSantis
Governor

Alexis A. Lambert
Secretary

Northeast District
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

March 12, 2025

Mr. Stephan Schmidt
8808 Somers Road
Jacksonville, FL 32226
stephan.schmidt@amwater.com

Dear Mr. Schmidt:

On behalf of the Florida Department of Environmental Protection (DEP), I am pleased to let you know that Mayport Naval Station has been selected to receive a 2024 Wastewater Plant Operations Excellence Award in recognition of outstanding treatment plant operation, maintenance, and compliance. Congratulations!

This award will be presented at a ceremony to be held during the morning general session of the "Focus on Change" seminar, hosted by DEP and the Florida Rural Water Association, to be held on March 25, 2025, at Florida Gateway College -- Performing Arts Center, 168 Southeast Student Way, Lake City, FL 32025. Details of the seminar, including the award ceremony, are available at: <https://www.frw.net/focus-on-change-preview>.

If you would like to attend the ceremony to receive the award in person, please send the name(s) and contact number(s) of the representative(s) from your facility that plan to attend to Joni Petry at Joni.Petry@floridadep.gov. Attendance is not limited to the list you provide; however, please let us know if any of the representatives on your list cannot attend once your list is submitted, as the representative names you provide will be recognized aloud during the award presentation.

We look forward to presenting this award to you on March 25, 2025. If you have any questions about the award or the award presentation, please contact Joni Petry at 904-256-1606, or via email at the address above. Congratulations Again!

Sincerely,

A handwritten signature in blue ink, appearing to read "Gregory J. Strong".

Gregory J. Strong
District Director

cc: Joni Petry, joni.petry@floridadep.gov

Q&A / Discussion



**TRI - REGIONAL
JETS 2025**

Society of
SAME
American Military Engineers

Contact Info



Ryan Howard, PE, CEM

NAVFAC SE Utilities Division Director

904-542-6947

Ryan.J.Howard12.civ@us.navy.mil



LinkedIn



TRI - REGIONAL JETS 2025

