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COMMITMENT & INTEGRITY DRIVE RESULTS

HULL WATER POLLUTION CONTROL FACILITY

December
2019

MONTHLY OPERATING REPORT



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Cover pictures:

[top] Godwin pump being lifted so that spill containment berm can be installed under the unit to comply with spill containment regulations.

[bottom] New trailer-mounted portable 8-inch trash pump set up for training & demo/test

1 EXECUTIVE SUMMARY

This Monthly Operating Report provides a summary of the pertinent information and activities that occurred at Hull WPCF during the month of December 2019.

- No lost-time incidents for the month of December.
- There were 144 effluent samples taken in the month of December. Please see page (8) for details.
- There were no effluent permit violations.
- Plant average flows were higher in December in comparison to previous few months. The average daily flow for the month was 2.33 MGD. A total of 8.65 inches of rainfall was recorded.
- The plant and collection system odors were low. The Bioxide system was not service as the system was shut down for the season on 10/28/19. Working on odor control planning for 2020 with Evoqua.
- Asset Management Accounts checkbook for 05M is attached, and the updated planned expenses sheets also attached [latest update 1/20/20]. A review of the account status between W&C and Hull Sewer Dept. is an on-going process.
- There were 3 grinder pump call outs during the month of December that the staff responded to.
- O&M staff continues to assist HSD with assistance & tracking of some of the equipment off the original "Critical Equipment List". The Amwell gear box mechanical drives were delivered. Some minor issues encountered during the off-loading due to poor shipping prep.
- W&C O&M continues to work with Engineering on multiple projects including Facility Planning & Pump Stations, Conditions Assessments, SSES yard piping, effluent room isolation issues, headworks and PS Structural, Gunrock/Atlantic Ave and Nantasket Ave lining projects.
- Attended multiple planning meetings with HSD to discuss headworks bypass, capital projects, and on-going projects – effluent outfall, perimeter resiliency grant [berm], HVAC upgrades.
- Assisted with pump station shutdowns as needed and force main drain backs as part of on-going sewer project work.
- Assist with PS4 – Marginal Road Pump Station by-pass and piping modifications, PS1 force main issues, and various interceptor bypass needs.
- New trailer mounted 8-inch trash pump & accessories delivered. Training provided and performance tested.
- Godwin pump spill containment berm and other 12-inch influent diversion pipeline modifications made to HDPE line.

Woodard & Curran strives to deliver a high-quality operations service and is responsive to our customers concerns. Please feel free to request any modifications to the format or content of this report.

2 FLOWS AND LOADINGS



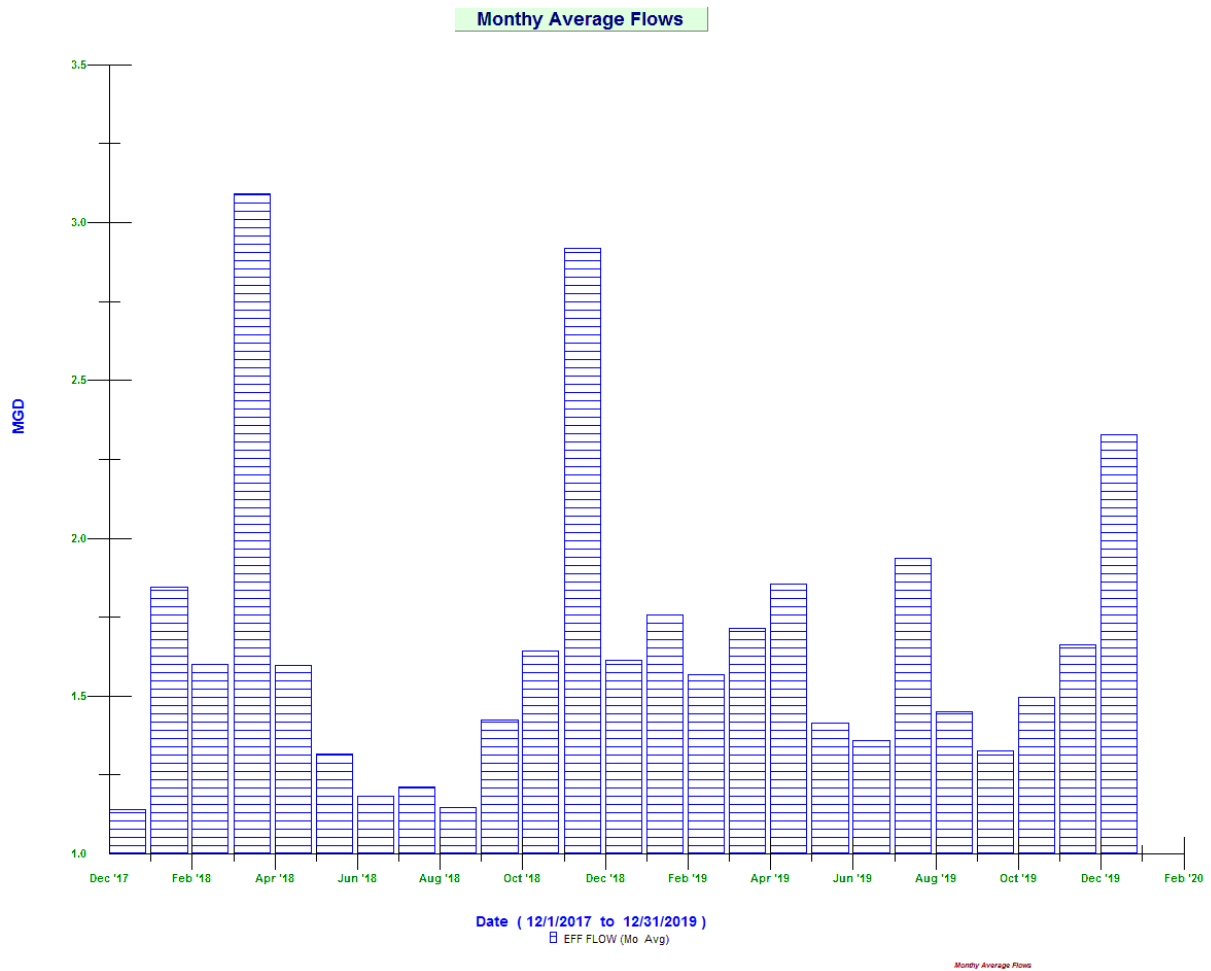
Average Daily Flows and Loadings for the Month:

	Eff Flow MGD	Inf Flow MGD	Inf BOD LBS	Inf TSS LBS	Eff BOD LBS	EFF TSS LBS
Nov 2017	1.138	1.182*	1636	2304	32	132
Nov 2018	2.919	3.310 *	1867	2604	215	432
Nov 2019	1.661	1.698*	1591**	2976**	101	231

* Meter drift – influent flow meters are strap on doppler flow meters, and the internal pipe condition prevents getting a strong signal. The staff adjusts accordingly and utilizes the area velocity meter in the aeration tank inlet channel as needed. All loadings are based on the effluent flow meter. There is an additional flow meter installed in the headworks that is monitoring influent sewage flows. This meter will be tied into the Scada system soon.

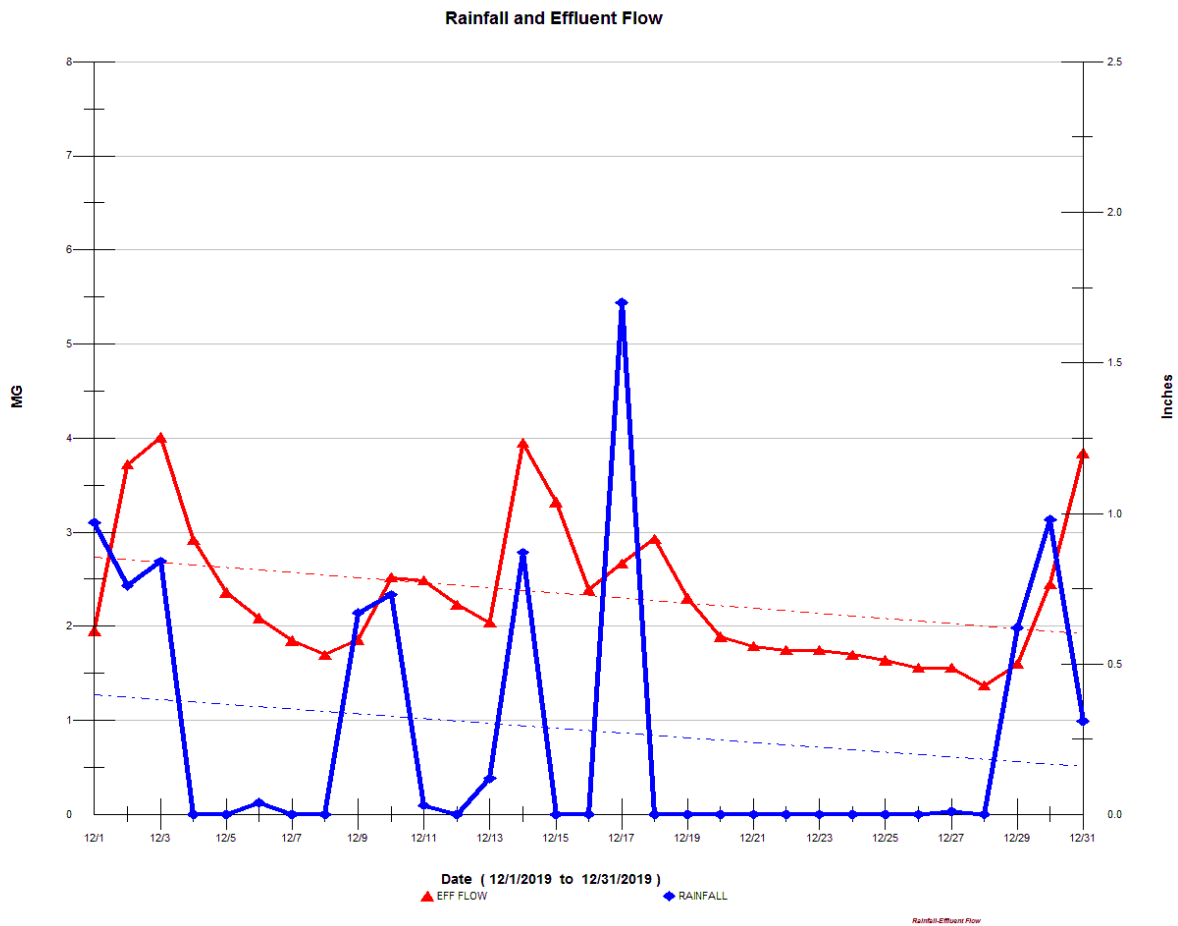
** Influent sewage dirty on less sample days, some impact on higher loading, due to interceptor cleaning project.

2.1 AVERAGE EFFLUENT MONTHLY FLOWS – TWO YEAR COMPARISON

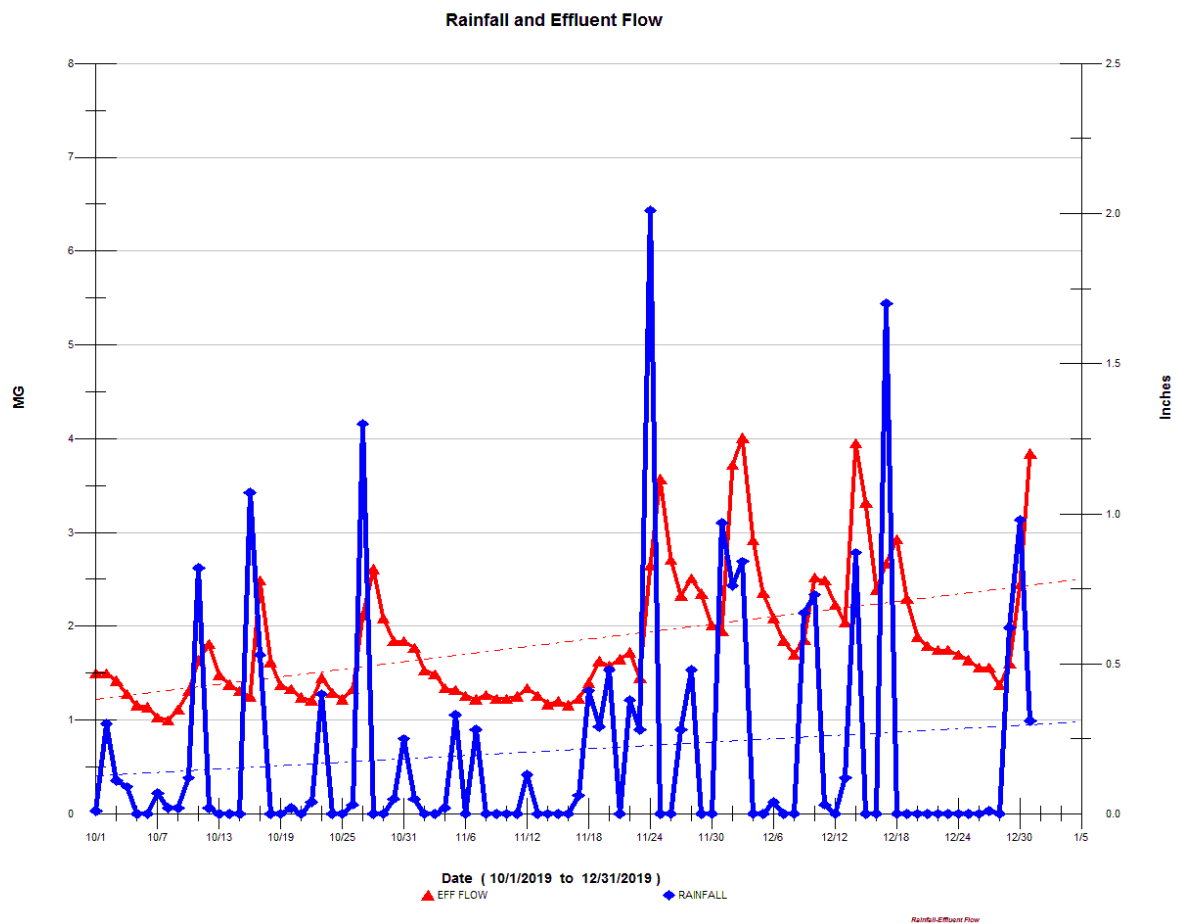


Monthly average flow for December was 2.33 MGD, about 50% higher than the previous month. There were a number of wet weather events in December. The total precipitation for the month was 8.65 inches. The graph shows a 2-year summary of the monthly average flows.

2.2 MONTHLY SUMMARY OF RAINFALL AND THE INFLUENCE ON EFFLUENT FLOWS



This graph shows the days where plant flows were higher due to some rainfall [Blue Peaks]. This graph provides a good indication where flows remained higher due to wet weather conditions. There were five [5] notable wet weather periods in December where the rainfall caused a rise in plant flows. Inflow and Infiltration out in the collection system has been noted in the past with the increased effluent flow values when it rains.



This graph shows the last 3 months Oct, Nov, Dec and the impacts of rainfall on plant flows.

3 COMPLIANCE



➤ Plant Effluent

- There were no permit exceedances for the month of December.

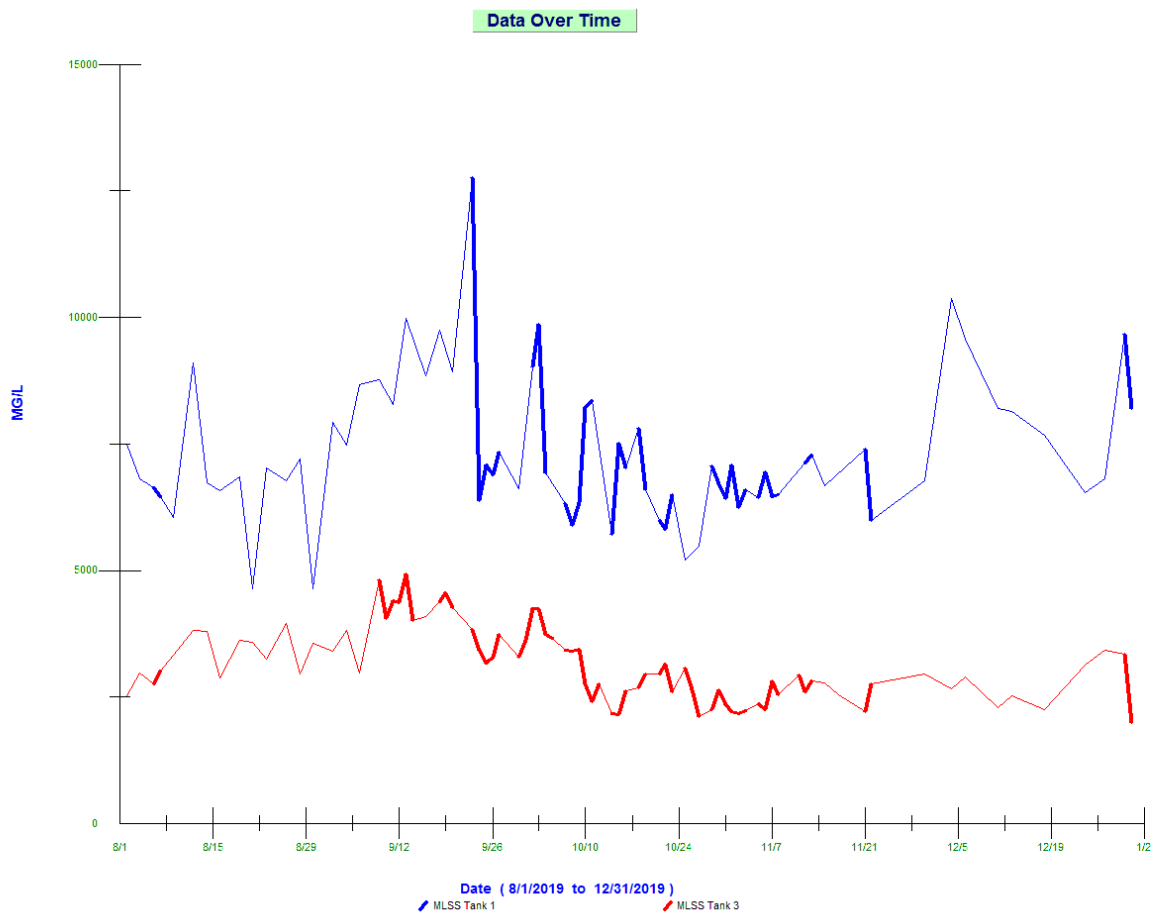
Plant process conditions continued to be maintaining well, with the aeration tank solids inventory remaining consistent. There was minor impact from the Nantasket interceptor cleaning. Wasting rates were stable. Effluent clarity remained very good with results less than 4 NTU [turbidity units]. Both secondary clarifiers and the primary clarifier remained on-line for the entire month due to elevated plant flows. Sludge settleability remained good and no chlorination of the RAS was needed. The aeration process mode remained in contact stabilization mode, with a limited flow into aeration tank #1. There were no changes in the current split with approximately 10-15% to aeration tank #1, with all RAS flow going to aeration tank #1, and approximately 85-90% of flow going into aeration tank #3. As noted in previous months, the current process mode allows for lower solids loading to the secondary clarifiers, minimizes filamentous bacteria formation, and nitrifying bacteria predominance, while maintaining a higher system solids inventory and good sludge settling characteristics. Moderate brown system color in aeration tank #3, and no odors. Darker color in aeration tank #1, due to higher solids concentration, since all the RAS returned to this tank. The aeration blower is being operated in the timed mode during the day to lessen excess dissolved oxygen levels and conserve power. Also, directing some of the air to the #2 sludge holding tank, and able to keep smaller blower off, saving additional electrical power.



Aeration tank #1- moderate foam



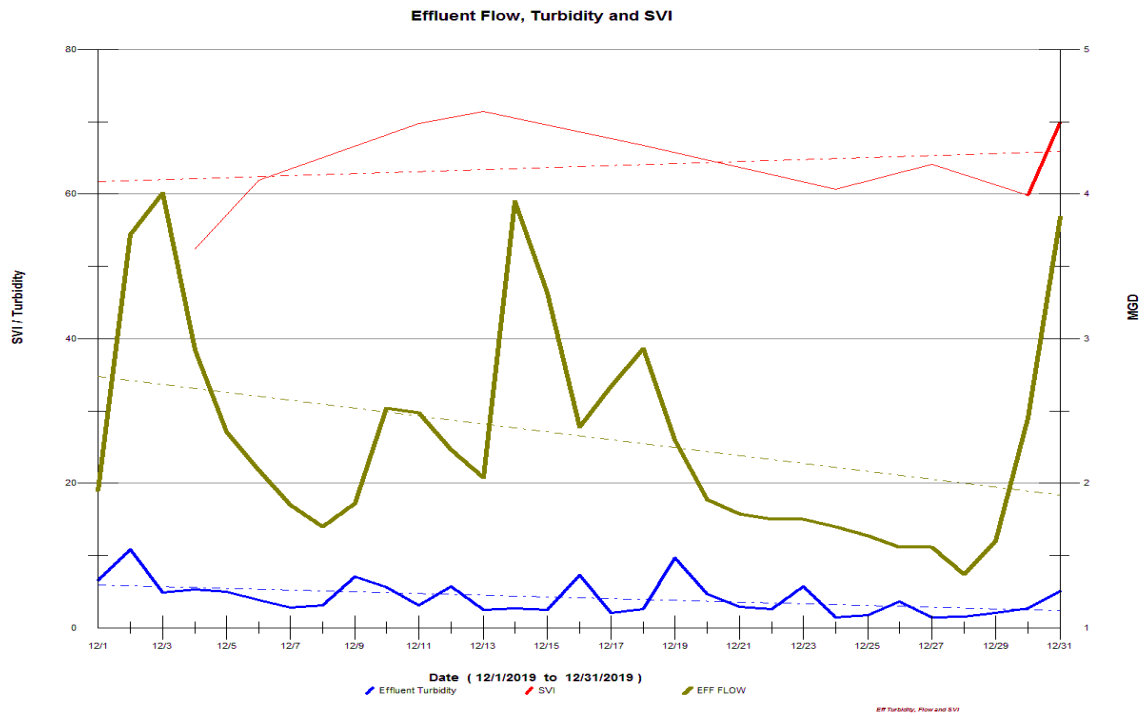
Aeration tank #3 [moderate brown color, no foam]



Trend showing MLSS levels in the aeration tanks over the past five [5] months, and this includes the interceptor cleaning. The trend shows a leveling out in the aeration tank #3 concentrations [red], while the concentration in aeration tank #1 [blue] is a bit more erratic. Aeration tank #3 receives most of the plant flow and the mixed liquor “bugs” work on this food source before flowing to the secondary clarifiers. The plant effluent BOD and TSS levels were very low and well under the permitted limits in December.

- A Copy of the NPDES report for December 2019 was submitted to the EPA & DEP and then forwarded to the Hull Sewer Dept. The Whole effluent Toxicity results for the sample collected in November was compliant, and that report was forwarded to the regulatory agencies.
- Corporate team [Frank C & Alan F] continued work with the Scada to Hach Wims data management computer data export and transitioning data sharing between SCADA, HACH, and Power BI for analysis. This also supports additional energy tracking work for the AI project setup.
- The Use of Drylet continued. The additive continues to show improved secondary effluent quality and bacterial augmentation of the process. This observation was seen during the heavier loaded days and during higher flow periods. Also, the clarity of the facility effluent has increased. The

costs for use of the Drylet product is being paid for by W&C. The goal to be achieved is that the product costs will be offset by the lower sludge generation and lower sludge disposal costs. The daily dose of Drylet product was decreased to “1 scoop” dosed (1 pound), since the primary clarifier is back online, and the amount of food [loading] to the aeration system is lower.



Graph shows trending in SVI – relatively stable, effluent turbidity – stable, and flow – somewhat erratic due to seasonal conditions. Settling remains good with the sludge volume index [SVI] calculated to be around 70. A good range is 50-100. Process is currently very stable.

- There was one SSO report submitted in December as a result of a spill/leak on 12/9/19. The discharge end of the bypass pipe (located at the intersection of Nantasket Avenue and F Street) was struck by a tractor trailer and dislodged a fitting approximately 2-feet from the discharge manhole. The Contractor was able to sandbag the location of the break and direct flow back into the nearby sewer manhole within ten minutes of the break. The Contractor utilized their vacuum truck to clean the nearby receiving catch basins and washed the gutter line along the F Street (western side) where the SSO flowed due to the crown of the road. This area was washed down and then vacuumed using the Contractor's vacuum truck. These catch basins were found to be leaching catch basins (no outlet), therefore, the flow did not reach nearby receiving waters. The SSO occurred during a heavy rain period, which helped to dilute the wastewater flow. The estimated release was determined at 7,000 gallons and this was based upon temporary wastewater bypass pumps running at about 1,400 gallons per minute for the time it took to secure the surface flow via sandbags back to the sewer manhole. (assumed 50% of the volume discharged to street and 50% of volume discharged to the nearby sewer manhole).

FIGURE 1: DIAGRAM OF SANITARY SEWER OVERFLOW ON 12/9/2019 DUE TO TRAFFIC ACCIDENT – HULL MA



Sandbagging of area of break to divert flow into the manhole

- SPCC: Regular inspections of the new AST and fuel day tank, as well at container storage of waste oil. Updated file. Vortex Turnkey Solutions installed the new secondary containment berm for the for the Godwin pump, additional piping modifications.



Lifting of Godwin Pump [Aqualine loader]



New containment berm in place



Piping modifications for pump suction and discharge with additional screens, flush connections, and gauges

4 KEY PERFORMANCE INDICATORS



4.1 WATER QUALITY – DECEMBER 2019

Parameter Info		Permit Requirements					Results				
Parameter	Units	Daily Allowed Max in month	Min %	Weekly Avg. Max Allowed in month	Monthly Avg	Freq	Period Monthly Avg.	Period Weekly Min	Period Daily Max	# of Samples	# of Violations
Eff TSS	MG/L	50		45	30	1 X Week	7.4	3.0	11.0	5	0
Eff TSS	LBS			1152	768	1 X Week	179.6	43.8	367.9		0
% TSS Rem	%		85			1 X Month	96.5				0
Eff BOD	MG/L	50		45	30	1 X Week	3.4	3.0	4.8	5	0
Eff BOD	LBS			1152	768	1 X Week	79.1	43.8	160.5		0
% BOD Rem	%		85			1 X Month	96.4				0
Eff Chlorine	MG/L	1.0			0.7	3 X Day	0.37	0.02	0.73	93	0
Eff Fecal	#/100 ML	260			88	1 X Week	10	10	10	5	0
Eff pH	SU	8.5	6.5			1X Daily	6.8	6.5	7.6	31	0
Enterococci	#/100 ML	276			35	1 X Week	10	10	10	5	0

- There were 144 effluent samples taken in the month of December with zero [0] NPDES Permit exceedances.

Gallons Treated vs Sludge Disposed

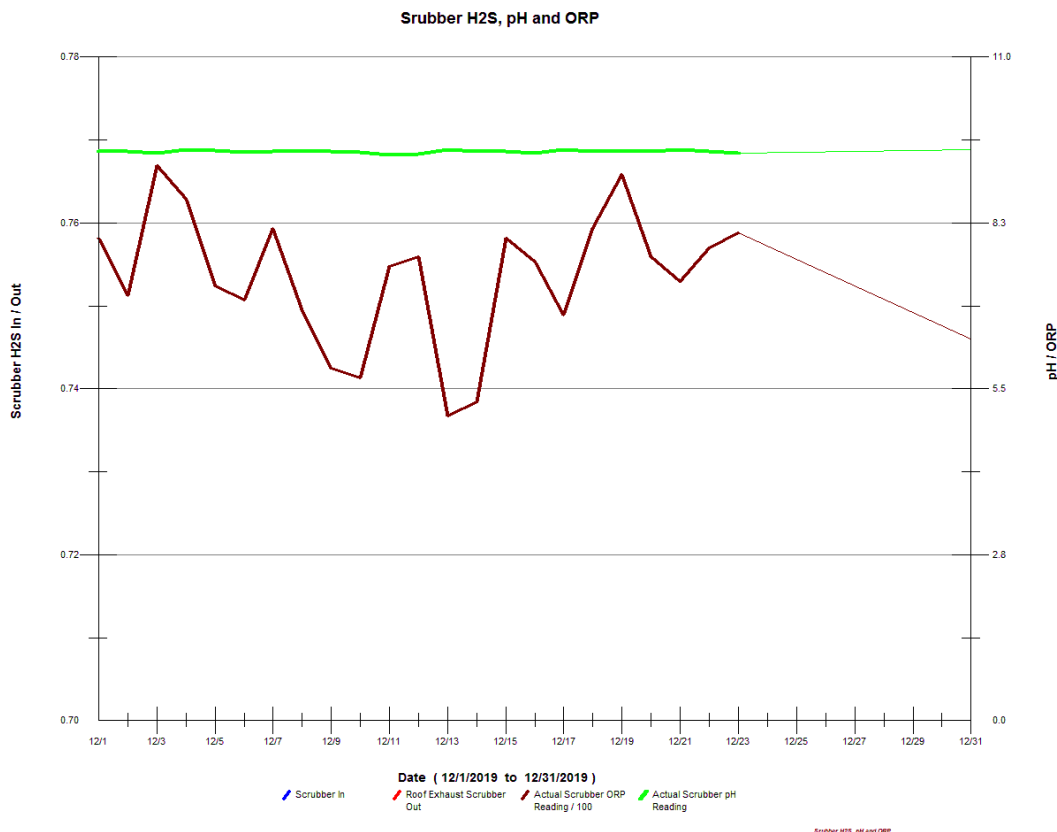
Month	Effluent Treated, MG	Sludge Disposed, Gals
December 2017	35.30	115,600
December 2018	50.06	168,000
December 2019	72.20	95,500 *

* Some Impact from interceptor cleaning, with increased solids processed/disposal quantity

5 ODOR CONTROL

There were no odor complaint calls during the month of December. The gravity thickener and primary clarifier were put back on-line due to higher plant flows and due to the shutdown of the rotary drum sludge thickener [RDT] for the winter months. The above ground sludge storage tank and RDT were shut down in mid-December. Other plant operations such as scum well pumping, tank cleaning, aeration trough flushing was conducted regularly to avoid odors. The portable Jerome meter was sent in for evaluation and possible repairs, since the unit stopped working in early December. Since the unit is 16-17 years old, the manufacturer will not cover repairs under a service agreement. Due to the age of the unit, increased repair frequency is to be expected and we are evaluating a possible trade-in towards a new unit. Permanent installation of H₂S sensors on the scrubber for the “in” and “out” monitoring is planned during the winter 2020 period.

The odor scrubber system was on-line for entire the month. The scrubber fan speed remains at the mid-range due to low levels of hydrogen sulfide production. The annual cleaning of the scrubber is planned for late January 2020.



Graph shows only the scrubber pH and ORP levels in the scrubber. No Jerome meter data was available due to the meter being out for repairs.

- As noted last month, the Evoqua odalog data logging units in the manholes were removed on 11/13/19 for the season. For 2020, the plan will be to utilize bioxide again, with new “Vapor Link” system controls for remote monitoring and chemical feed adjustment. The newer system components will be installed in April 2020.
- “In-Pipe” bacteria addition continued with all 24 dosing stations operational. No additional actions taken for headworks sulfide reduction plan proposed by “In-Pipe. The inspection/replacement with

full bottles took place on 12/18/19. Additional kick-start vegetable protein and bacteria was added in November. The kick-start program will continue to follow the monthly plan, with the addition of more bacteria to the system. All work being tracked on the Utility Cloud [UC].

- Continued the bi-weekly change outs of the bacteria bottles at three lift stations Microbe Dosing Stations (MDU's) with installation just in front of the three largest pump stations [in the wet wells or manhole just prior to the station. [PS 3, PS 5, PS 9] The re-load plan is delivering an additional 5.4 liters per month in total (1.8 liters x 3 locations). The goal is to see if we get a step change and reduce odors, while at the same time potentially reducing sludge. This change is being monitored closely. There is no additional fee.
- As noted, the Jerome portable H2S meter is currently out of service and was sent in for evaluation.
- Mixing systems/aerators all functional at the pump stations, except for pump station #3. New Medora Gridbee mixing system for PS 3 not installed yet. Mixer/Aerators at PS 1, PS4. PS6 & PS 9 are on timed control through SCADA.

6 MAINTENANCE SUMMARY

6.1 TASKS COMPLETED THIS MONTH

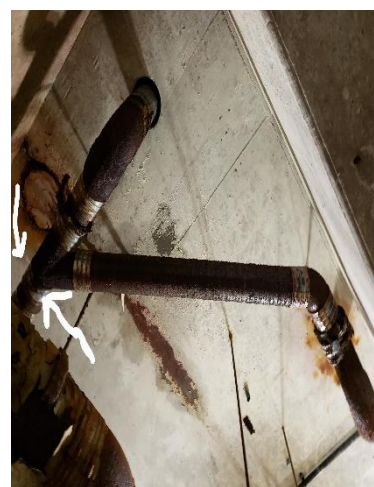
The SEMS monthly work order summary for December is compiled and attached as a pdf file for review.

Key items of note are listed below.

- 1) In-Pipe units – battery change out, dosing unit cleaning and inspection and circuit board troubleshooting and replacement as needed.
- 2) There were several one grinder pump calls in December. 14 Nantasket Ave., 34 Rockaway Ave., 35 N. Truro Grinder pumps were replaced. Also, visited 37 ELM Ave to review discuss pump chamber issues, and homeowner issue with grinder cover/top piece at 30 N. Truro. [they were directed to get repairs made at homeowner expense to town owned property]
- 3) On-going issue – continuing to add oil to sec clarifier gear boxes. All the existing Amwell units have leaks [lower gear box seals are no good]. The only exception is primary clarifier #2, where the unit is currently ok. Continuing to use the flowable grease product that is of heavier consistency to lessen the amount of leakage of oil. The estimated use of product with SC1, SC2, and GT1 on-line has risen to about 5-6 gallons per week. The gravity thickener drive unit is leaking more.
- 4) Aerated grit system issues – piping clogs related to grit pumps in grit pump room. Several room entries to flush out clogged piping. Requires confined space entry equipment. Clogged classifier drain piping separated & cleaned. Excessive grit collected due to higher flows. Sump pump service needed in grit pump room.



Grit collected from grit classifier [very dense – sand]



Drain piping as viewed in headworks ceiling

- 5) Weekly exercise without loads and Monthly load tests completed on all generators including the portable generator and pump stations.

- 6) Ladder replacements at PS 3 were completed. [Fabricated and installed by Boston Welding and Forging]



Upper ladder



Lower ladder

- 7) Scrubber fan unit maintenance – monthly maintenance performed – belts and motor are good.
- 8) Snow removal equipment – ready for service – snowplow for pick-up truck, snowblower, available salt/sand barrels, salt for walkways, & shovels.
- 9) Responded to high tide levels at D Street/Central Ave area during period of the slip-lining work of outfall pipe. No pumps available at that time. Set up and start trash pump to alleviate the street flooding. [12/18]



- 10) RAS pumps – the frequency of cleaning was less, since interceptor cleaning nearly completed, and the primary clarifier was online for the entire month.
- 11) Fine screen operational issue on 12/29 – 2 x 6 plank [approx. 50" long] causing jams/banging in unit. Fortunately, the staff was on site and could hear the jammed unit and banging noise. Suspect that this debris floated down the interceptor as a result of the GMPS work.



"The Plank"

- 12) All pump station wet wells and alarms checked/inspected on 12/17
- 13) Make & install rubber extension for manual bar rack, to seal space under the rack in the channel.



Bar rack in place with rubber seal/extension

- 14) Effluent pump room: Fabricate & install rubber seals around pump discharge piping for all four effluent pumps, in effort to reduce room's moisture. Also, install fan to draw off moist air from room and discharge outside of the room.



- 15) SCADA group work: New Human-Machine-Interface [HMI] panels for flex rake, Sensaphone unit for PLC monitoring [will callout, text, and email alerts], Aquasight work, Scada updates as needed.



Sensaphone box

- 16) On-going gas meter calibration and repairs as needed for portable and fixed gas monitoring units.
- 17) All Pump Station wet wells inspected. No wet well cleaning was performed
- 18) On-going building cleaning/organization – garage area and first floor MCC room.





Please see the attached summary of the Asset Management accounts for contract year (5). Most recent through 01/20/20.

**Updates & notes made to the planned expenditures list.
Items grouped by task – 101A, 102B, 103A**

While the projected costs and actual costs combined total exceeds the 05M planned budget, adjustments and decisions are being made on a regular basis based upon priorities and unforeseen costs. The planned list was initially set up to layout a planned budget for the contract year. Some items are shaded in comment section that most likely will be planned for next contract year.

If a capital project is completed the cost to complete is noted under “final cost.” All the capital “102B” items have been listed together in the planned expenditures list.

7 SAFETY



It is Woodard & Curran's policy to maintain a safe and healthy work environment for every employee and to comply with applicable occupational health and safety regulations.

- No lost time incidents reported for December.
- Ongoing - Daily safety briefing meetings, review site safety policies with sub-contractors, safety tailgate topics. Pure Safety topic– December – focus on annual task completion.
- All Annual tasks for 2019 completed. updated Hearing Attenuation, Emergency Action Plan, Confined Space entry permits. and LOTO procedures.
- Bi-annual testing of electrical gloves [arc-flash] requirement
- Monthly staff safety meeting conducted on 12/19/19 - AV and RH presented.
- Safety Stand-down on 12/4 – Osha recordable ankle injury as a result of stacked piping materials at plant site.
- Reminders for daily safety briefing topics and discussion points & documentation. Review “Lessons Learned” from November 2019 - Near misses and incidents from other company projects.
- PPE needs – winter/cold weather months
- On-going noise monitoring of various areas at plant and pump stations. Update where needed.

▲ Facility : Hull, MA (12)

Conduct Evacuation Drill	2019	Yes	📄	Conduct Evacuation Drill	...
Evaluate Hearing Protector Attenuation	2019	Yes	📄	Evaluate Hearing Protector Attenuation	...
Inspect Lockout Tagout Procedures	2019	Yes	📄	Inspect Lockout Tagout Procedures	...
Pandemic Flu Plan Review	2019	Yes	📄	Pandemic Flu Plan Review	...
Perform Non-Entry CSE Rescue Practice	2019	Yes	📄	Perform Non-Entry CSE Rescue Practice	...
Review BBP Exposure Control Plan	2019	Yes	📄	Review BBP Exposure Control Plan	...
Review Confined Space Entry Permits	2019	Yes	📄	Review Confined Space Entry Permits	...
Review Confined Space Inventory	2019	Yes	📄	Review Confined Space Inventory	...
Review Emergency Action Plan	2019	Yes	📄	Review Emergency Action Plan	...
Review PPE Hazard Assessment	2019	Yes	📄	Review PPE Hazard Assessment	...
Review Respiratory Protection Program	2019	Yes	📄	Review Respiratory Protection Program	...
Update Chemical Inventory	2019	Yes	📄	Update Chemical Inventory	...

- Gravity thickener – confined space entry [CSE] for tank inspection – permit required with safety retrieval winch. W&C performs many permit-required confined space entries to perform repairs, inspections, etc. All W&C staff are trained to perform CSE work.



8 STAFF DEVELOPMENT

Training is an important part of any operation to ensure employee health and safety is assured, quality standards are maintained, staff skills are improved, career opportunities become available, and higher productivity is achieved.

Listed is a general outline of training that the staff received over the course of the month:

- Monthly staff Safety training – completed – Pure Safety and monthly safety meeting. W&C “near-miss” incidents at all projects for November discussed.
- Operational updates and process control discussions, pump station operations, especially with all sewer projects going on in the town, dig-safes, etc.
- Off-site training - Dave W and Ryan H completed the intermediate wastewater short course in December.
- Dave W and Ryan H sit for MA Grade 4M wastewater exam – Dave passed the exam. Ryan – close “miss”
- All staff renewed their wastewater licenses with required training contact hours, end of the 2-year cycle ending 12/31/19.

Staffing related items:

- Continued involvement with Mass Maritime [MM] internship program/career fair for future interns. Corporate human resources department leading the effort for future intern for next year’s winter and summer months. Winter intern selected for Jan-March 2020 period. Declan Baggett from Hull, MA started his internship on Dec 30th.
- Sunday rotation schedule in place with Jim Gagliard working every other Sunday, and remaining weekends being filled by Roger B., Aram V., and Bill B. When Bill is not scheduled for a Sunday, he will be on a Monday-Friday schedule.
- Supplementing staff needs with O&M tech support where needed. Jody S providing coverage when staff levels are lower due to sickness, vacation, or training. Richard [Dick] Gould from the Linden Ponds project is available for various fill-in coverage as needed.

9 COLLECTION SYSTEM

9.1 WET WELL CLEANING

The actual schedule for wet well cleaning: May 2019 to April 2020:

(X-Cleaned) - (Orange – Inspected) - (Green – See notes) - (blank – no work done)

Frequency of cleaning	Pump Station							
	A	1	3	4	5	6	9	D
May, 2019				X	X			
June, 2019								
July, 2019								
Aug., 2019	X			X	X		X	
Sept. 2019								
Oct., 2019	X		X	X				
Nov, 2019								
Dec., 2019								
Jan., 2020								
Feb., 2020								
March 2020								
April 2020								

All pump stations except for Pump Station 3 and Station D have an aerator/mixer in the wet wells

9.2 COLLECTION SYSTEM MAINTENANCE

Woodard & Curran assisted/conducted camera work and sewer system support in the Hull collection system at the following areas during the month of November.

- D Street Outfall pipe
- Co-ordinate pump & haul for PS4 while bypass pipe modifications were made
- 2 K Street - inspection of sewers for flow
- 41 Pt Allerton – inspection of sewers for flow
- 113 Samoset Ave - inspection of sewers for flow
- “W” Street marking – for NGrid work
- Various responses during off-hours to calls about the Nantasket Ave HDPE bypass pipe shifting and causing obstructions in traffic flow.

Manholes:

- Staff continues to respond to rattling manhole covers, installation of manhole cushion rings, broken manhole covers/rims and sunken manholes covers/rims.

Dig Safe mark outs:

- Dig-Safe mark outs were completed throughout the Town of Hull in order to assist/facilitate the Town's paving projects and the emergency repairs of the broken water lines, broken sewer laterals due to gas main work.

Collection system work is being documented and tracked in Utility Cloud and a summarized report for the month of December has been included as an attachment with the Monthly Operating Report.

10 PROJECT MANAGEMENT & ADMINISTRATION



10.1 ON-GOING PROJECTS AND SUPPORT ITEMS

- The current summary for the account status for and the year 5 asset management accounts, as of 01/20/20, is included as an attached pdf file with this report. The 05M checkbook spreadsheet with proposed maintenance task plan for the year was set up and presented as an attachment with this report. The plan is regularly updated to reflect recent changes in the spending plan, with adjustments made as projects are completed, and priorities changed. Unexpected work also is factored in. There are regular adjustments being made. [i.e. sub-contractors, goods and services, etc.]
- On-going assistance to the sewer department with various items for purchase from encumbered funds, dealing primarily with items on the critical spares list. Reviewed quotations [RFQ] for the Amwell gear drives installation and made recommendations for the selected contractors. The delivery of the Amwell occurred in mid-December on 12/11. There was an issue with the shipment of the drive for the thickener, where the shipping pallet collapsed, causing the unit to tilt and not be properly supported. The manufacturer was consulted, and conditions documented before off-loading. The Hull DPW assisted on 12/11 & 12/12 to safely off-load and deliver the equipment to the garage for proper storage.



Clarifier gear boxes – 2 units



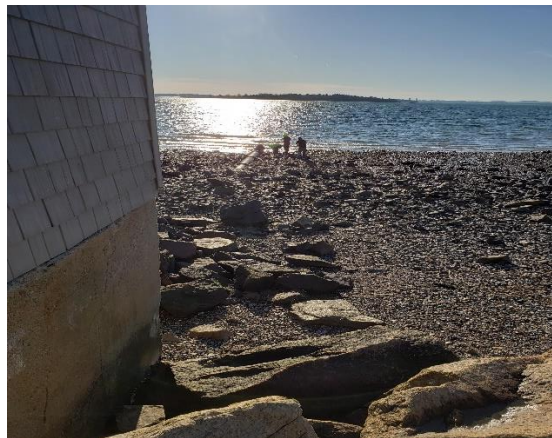
Thickener drive unit on left tipped on broken pallet

- Capital Purchases: The Flygt effluent submersible pump, and the plant water strainer are all in production and W&C is waiting for delivery. Flygt pump was received on 12/19/19. Worked to finalize

the portable generator purchase through the “Sourcewell” purchasing contract. A Town purchase order was issued. The new lawnmower was ordered from Stewart’s Power Equipment and received, capital purchase under 05M account and purchased from the state bid list.



- The procurement of D Street equipment items continued – new pumps and electrical VFD's. The portable trash pump remained set up at the station with float control for remote starting, and the pump operated as necessary. The existing submersible pumps were taken out of service for a time, while Ted Berry Co worked on the outfall slip lining project [sealing & grouting]. Various and additional responses to the station were made as needed to assist TBerry, changing tides, and related street conditions. Currently in the process of obtaining quotes for the new pump installation, as additional 10-inch piping is needed. The old duckbill was reinstalled on the outfall pipe in late December. [crew installing duckbill check valve on 12/23] D Street – Work with HSD on co-ordination of work by Ted Berry [slip lining of outfall pipe].



- W&C assisting the Town and Tighe & Bond with regular review and information exchange. Where asked, making recommendations on the HVAC plan and operations building layout changes, architectural questions, assisting T&B engineers and affiliated Peer PC engineers [building assessments] those staff that have come to the plant [12/19].
- RS continued work on the Annual Operating Report for contract years 3 and 4 with an expected delivery at the close of January 2020.

- Bill has continued work on the best approach for effluent pump room isolation in the event necessary and for flow isolation to allow for valve and check valve replacements. Evaluating what construction related activities are needed to allow for rehabilitation of the effluent pump room valves through O&M services and coordination of the potential work with the on-going facilities plan.
- Bill and Brian working on finalizing plans and obtaining pricing for Pump Station 5 bypass improvements related to the engineering support and recommendations previously concluded. The bypass improvements will provide for a new FM isolation valve and will allow for the protection of the pump station's function if a pump failure were to occur in the dry-pit pump room. Currently the project work will be funded under the 05M account.
- Drylet bacterial process enhancement continued in December. There were no changes in the process plan, other than a change in the daily amount added. With the primary clarifier on-line, the amount added was cut in half due to less food entering the aeration system. The product's effectiveness and costs are closely tracked and reviewed. [See effluent/compliance section]. As noted in the previous few months, the interceptor cleaning project phase has had a significant impact on increasing the solids inventory in the facility, resulting in more influent solids that ultimately has led to increased thickening and disposal costs. A summary of the impact and added disposal costs is being worked on and the report will be presented.
- Roofing repair work – moving ahead and working with contractor - Tecta America [TA] to get the repairs to the stairwell roofs in progress. TA has been pre-qualified by W&C and has got an approved safety plan in place. Along with these repairs, the annual roof inspection will be made for all building roofs, as well as the addition of square roofing mats for high traffic areas on the operations building roof. The project work is on TA's schedule, but unclear on start date due to weather and their backlog of work.
- Pump Station 9 [PS 9] – Currently operational, with both pumps. There was a “special order” check valve ordered this past July; however, the replacement work is on hold due to the station's structural issues. Should an issue arise at the station, a plan is in place to make the necessary replacement.
- The pump station ladder replacement project is well underway with Boston Forging and Welding. The ladder at PS 3 was completed in December. Planned ladder replacements at PS 4 [2 sections]; LS A [one section]; PS 6 [one section]. The replacements are being done under the 05M asset management account. There remaining ladders are on hold – PS 5 and PS 9 due to future upgrades planned at the pump stations.
- The Town took delivery of the Sewer Department's new 8-inch portable trash pump in December. The pump and associated hoses and fittings were supplied by Vortex Turnkey Solutions. With the delivery, the vendor provided start up training and assisted the staff with the set-up of suction and discharge hoses, so that a pumping test could be run.



Pump Set up (Test) and Training – Vortex and staff

- Fellows Electrical: Site visit on 12/10/19. Station A - Removed old outside light fixture and installed new LED light fixture; Station #5 - Installed a contactor inside Generator control Box for louver operation. Pulled in two new wires between the Generator control Box and the ATS, so when the generator turns on the louvers will open. Tested OK. Main Plant - Installed new 30AMP fuse for heater in lower basement. D Street- Visit to D street station – prepared stock list for the installation of the 2 new VFD drives.
- Working with Hi Voltage Associates [electricians] for installation of a heater for the effluent pump room to address moisture issues. The lack of heat along with unsealed wet wells are contributing to the corrosion of all piping and equipment. As noted in the maintenance section, some improvements in the area have already been made. The new heater will be installed in January 2020.
- With the winter shutdown of the rotary drum thickener [RDT] prepare list of items to be addressed while the unit is off-line. Items include drive sprocket and chain replacement, installation of PVC piped polymer solution line to the sludge pump room, replacement of thickened sludge hopper corroded.
- PS4 FM planning for early Dec work 3 days of work onsite included: installing new bypass valve and bypass standpipe with a 2-inch standpipe drain-off line and valve. Extending new forcemain with PVC out to the intersection where existing DI was found corroded. TV inspection of the remaining existing DI pipe for further inspection and potential lining repairs. Also, GEI did test pits on the embankment to look at settling issues and found “fines” were traveling through failed geofabric in the retaining wall.



- CommTank visited the facility to review and provide an estimate for the old incinerator removal. Their estimate was provided to those working on the facility plan.
- Bill and W&C assist Town with flood berm planning project thru state coastal grant. Provide Woods Hole group and surveyors information and site access. Coordinate with Brian/Town and the Hatch engineers with information they need and sit in on design meetings for support. Distribute neighborhood flyers.
- Facility Planning Meetings – Bill B provided on-going support to the efforts – conference calls & providing process and pump station data.
- SSES kick-off meeting 12/6 and additional discussions for underground piping assessment at the wastewater plant. Met and toured potential test pit locations with W&C engineer and Corrosion Probe staff.
- Nature-based resiliency measures – Participate in 12/2 meeting at the facility with the Town, Hatch Group representatives, and CZM – MADEP representatives. Discuss conceptual design options, design flood elevations, mapping efforts, modeling, CZM concerns & permitting questions.
- Review of various bypass plans and return to normal service for on-going sewer projects – offer review and support where needed. PS 1 – provide support and guidance when contractor work pulled existing FM pipe away from building causing a bypass fitting to break inside the pump station [see picture below]. A temporary fitting installed, until the correct piece can be delivered. A station shut down will be needed to install the new piece with W&C continued staff support. PS 3 – end of force main planned work – review shutdown plan with pump & haul from PS 3 with disposal along the route to the gravity sewer. PS 6 – work with GMPS for shut down of the pump station at various times to accommodate lining and manhole rehabilitation.



- The Town, W&C and the consultants for the RCM and Criticality Analysis met to review findings and preview the final documents at the Dedham office for the day during December.

- Aquasight [AI] Project: Glenn F on site 12/16. Mounted J-box above flood zone on first floor in the MCC Electrical room and brought the influent and plant water pressure transducers that Jody S had installed and run into the j-box. Labeled all and pulled in a CAT5 cable and a two-wire cable from the j-box to the SCADA cabinet. Next steps involve SCADA group [Steve Rose's work]
- Some additional after hours call ins in support of bypass and traffic detour setups from the Interceptor project at night and over the weekends were done by staff.