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COMMITMENT & INTEGRITY DRIVE RESULTS

HULL WATER POLLUTION CONTROL FACILITY

November 2018

MONTHLY OPERATING REPORT



NPDES NO. MA0101231

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Cover pictures: Confined Space Rescue training & set-up at PS #1
Cadish at D Street Pump Station [11/10/18]

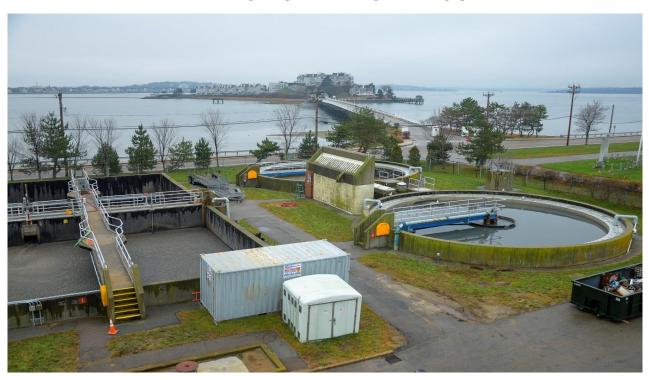
1 EXECUTIVE SUMMARY

This Monthly Operating Report provides a summary of the pertinent information and activities that occurred at Hull WPCF during the month of November 2018.

- No lost-time incidents for the month of November.
- There were 140 effluent samples taken in the month of November. Please see page (9) for details.
- There were several high flow days in the month of November, and the monthly average daily flow
 was 2.92 MG. There were 10 days where total plant flows were above the average daily design
 flow of 3.08 MGD. Several of the pump station wet wells were high for a number of hours during
 these periods, but there were no reported SSO's.
- As noted last month system odors are low for this time of year and the Bioxide system at PS 3
 remains off for the season. An agreement with Evoqua will allow for the equipment to remain in
 place until the spring start-up in May 2019.
- Asset Management Accounts checkbook for tracking of expenses is ongoing weekly for year #4. A summary of year-to-date totals for [04M]. Review of account status between W&C and Hull Sewer Dept. is on-going.
- The monitoring of the plant's electrical voltage continued. W&C Electrical Engineering has reviewed
 all data and is recommending a harmonic filter, since voltage harmonic distortion results are above
 the recommended allowable limits. Working with Town on the CZM grant for raising the electrical
 transformers.
- There was one grinder pump call out during the month of November that the staff responded to and corrected.
- The Underground Storage Tank Removal Project/Above Ground Fuel Storage Tank work is completed, and all efforts directed to the new AST installation. W&C Engineering is providing oversight for this project.
- New pumps at Pump Station 1 installed by Aqualine Utility LLC on November 8th and 9th.
- W&C has developed scope of work for the pump station ladders, since the integrity of the current ladders is becoming diminished. That pricing also came in, but work has not been awarded yet.

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

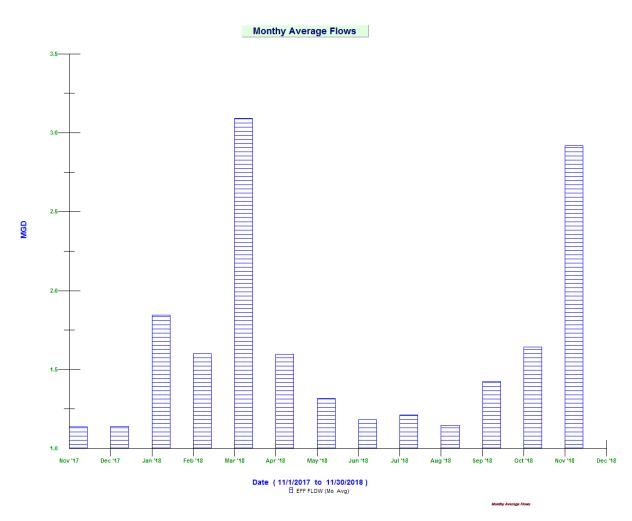


Average Daily Flows and Loadings for the Month:

	Eff Flow MGD	Inf Flow MGD	Inf BOD LBS	Inf TSS LBS	Eff BOD LBS	EFF TSS LBS
Nov 2016	1.269	1.538 *	2977	3044	115	131
Nov 2017	1.138	1.182 *	1636	2304	32	102
Nov 2018	2.919	3.310 *	1867	2604	215	436

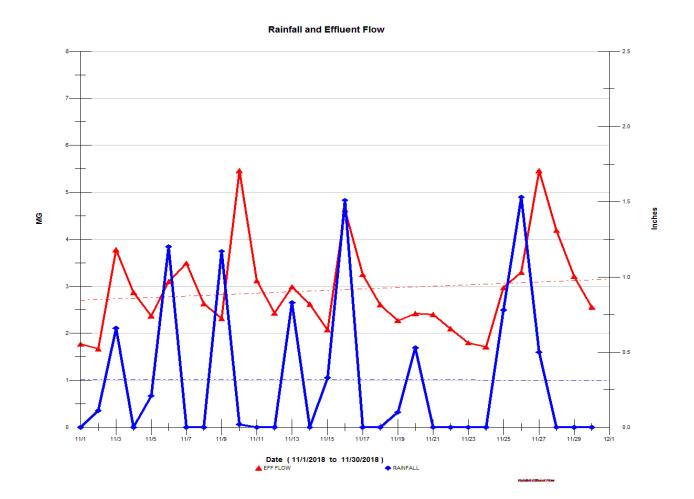
^{*} Meter drift – influent flow meters are strap on doppler flow meters and the internal pipe condition prevents getting a strong signal. The staff adjusts accordingly and utilizes the area velocity meter in the aeration tank inlet channel as needed. All loadings are based on the effluent flow meter.

2.1 AVERAGE EFFLUENT MONTHLY FLOWS - ONE YEAR COMPARISON



Monthly average flows trending up for September through November due to increased rainfall amounts. 9.48 inches of rainfall fell during the month of November.

2.2 MONTHLY SUMMARY OF RAINFALL AND THE INFLUENCE ON EFFLUENT FLOWS



This graph provides a good indication of the influence that rainfall has on the effluent flows. Inflow and Infiltration out in the collection system is noted with the increased effluent flow values when it rains. For the month of November 9.48" of rainfall recorded. Influent flow into the plant was throttled where necessary, and additional process tanks were put on line to equalize the flows and maintain secondary processes. The summary table below shows the rainfall amounts and the effect on plant flow totals.



Hull WWTF Monthly Rain, Temperature and Flow November, 2018

11/01/18 11/02/18 11/03/18 11/04/18 11/05/18 11/06/18 11/07/18 11/09/18 11/10/18 11/10/18	0.00 0.11 0.66 0.00 0.21 1.20 0.00 0.00 1.17 0.02 0.00	F 51 52 47 43 45 48 52 44 40	F 60 65 65 55 52 58 61 54 50	MGD 1.770 1.670 3.780 2.870 2.370 3.100 3.490 2.630	
11/02/18 11/03/18 11/04/18 11/05/18 11/05/18 11/06/18 11/08/18 11/09/18 11/10/18 11/11/18	0.11 0.66 0.00 0.21 1.20 0.00 0.00 1.17 0.02	52 47 43 45 48 52 44	65 65 55 52 58 61	1.670 3.780 2.870 2.370 3.100 3.490	
11/03/18 11/04/18 11/05/18 11/06/18 11/07/18 11/09/18 11/09/18 11/10/18 11/11/18	0.66 0.00 0.21 1.20 0.00 0.00 1.17 0.02	47 43 45 48 52 44	65 55 52 58 61 54	3,780 2,870 2,370 3,100 3,490	
11/04/18 11/05/18 11/06/18 11/07/18 11/08/18 11/09/18 11/10/18 11/11/18	0.00 0.21 1.20 0.00 0.00 1.17	43 45 48 52 44	55 52 58 61 54	2.870 2.370 3.100 3.490	
11/05/18 11/06/18 11/07/18 11/08/18 11/09/18 11/10/18 11/11/18	0.21 1.20 0.00 0.00 1.17 0.02	45 48 52 44	52 58 61 54	2.370 3.100 3.490	
11/06/18 11/07/18 11/08/18 11/09/18 11/10/18 11/11/18	1.20 0.00 0.00 1.17 0.02	48 52 44	58 61 54	3.100 3.490	
11/07/18 11/08/18 11/09/18 11/10/18 11/11/18 11/12/18	0.00 0.00 1.17 0.02	52 44	61 54	3.490	
11/08/18 11/09/18 11/10/18 11/11/18 11/12/18	0.00 1.17 0.02	44	54		
11/10/18 11/10/18 11/11/18 11/12/18	1.17 0.02			2.630	
11/10/18 11/11/18 11/12/18	0.02	40	EO		
11/11/18 11/12/18			50	2.320	
11/12/18	0.00	37	50	5.460	
	0.00	35	44	3.120 2.430	
44148148	0.00	34	48		
11/13/18	0.83	41	53	2.990	
11/14/18	0.00	25	41	2.620	
11/15/18	0.33	23	37	2.070	
11/16/18	1.51	34	45	4.630	
11/17/18	0.00	39	48	3,250	
11/18/18	0.00	37	43	2.610	
11/19/18	0.10	37	41	2.270	
11/20/18	0.53	34	42	2.420	
11/21/18	0.00	25	41	2.400	
11/22/18	0.00	14	24	2.100	
11/23/18	0.00	16	32	1.800	
11/24/18	0.00	29	47	1.710	
11/25/18	0.78	42	49	2.970	
11/26/18	1.53	42	46	3.300	
11/27/18	0.50	38	48	5.460	
11/28/18	0.00	36	42	4.190	
11/29/18	0.00	36	43	3.210	
11/30/18	0.00	33	41	2.560	
Min	0.00	14	24	1.67	
Max	1.53	52	65	5.46	
Avg Sum	0.32 9.48	37	48	2.92 87.57	

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3 COMPLIANCE



> Plant Effluent

- There were no exceedances for the month of November.
- Plant process conditions continue to be good & maintaining very well. Clarifier surfaces were good.
 Chlorination of the RAS was on and off, based upon flows, RAS pump selection, and Drylet trial.
 The process solids inventory was higher due to the planned increase as part of the Drylet trial. With the high flows on several days, the primary sludge was re-directed to the gravity thickener.
- With the heavy rainfall, came higher flows on several dates in November. Additional staffing at plant
 was necessary at times, and remote monitoring of the facility and stations was necessary.
 Additional tanks were put on line for the 11/9-10 & 11/28-29 rain events. The influent gate was
 utilized at times to throttle the influent flow until the heaviest part of the various storms had passed.
- A Copy of the NPDES report for November 2018 was submitted to the DEP and then forwarded to the Hull Sewer Dept.
- Continued working with corporate team for planning and rollout of company /process control plan/ template. Review of process flow diagrams, detention time calculations, previous performance evaluation reports. Chibby Alloway of W&C is leading the plan's development and scheduled to visit the plant in early December to review unit process reports, graphs, and limits for notification as conditions change.
- Drylet Trial continued and reached the 90-day milestone. To date, the facility's biological system
 has adapted well to the supplemental bacteria being added daily. Improved sludge settleability and
 clarity have been seen, while slowly increasing the overall system sludge inventory.

Since there was still some uncertainty as to the anticipated solids reduction, W&C decided to continue with the program in order to monitor for a longer period. The variable and higher flows also contributed to the uncertainty of solids reduction. Due to the higher flows, there historically has been a flushing out of the collection system that brings addition flow, solids, and different bacteria types into the process. Some of the resulting effects of the flush-out is a large increase in solids inventory, added grit, and debris. One of the positives seen from the Drylet addition is the improved secondary effluent and the settleability of the activated sludge solids. A change in the Drylet dose addition was implemented due to the extended period of higher plant flows. The secondary clarifiers were able to handle a lot of the higher plant flows with no significant issues. The weekly calls, data exchange, and updates are discussed with the Drylet Team.

Photos below show the various observed effects of carrying increased solids in secondary system. These pictures were taken on 11/24/18



Aeration Tank #1 - increased foam/solids



Secondary Clarifier increased floating solids

4 KEY PERFORMANCE INDICATORS



4.1 WATER QUALITY - NOVEMBER

Parameter Info				Permit Re	quirements		Results					
Parameter	Units	Daily Max	Daily Min	Weekly Avg. Max	Monthly Avg. Max	Freq	Period Avg.	Period Min	Period Max	# of Sample s	# of Violations	
Eff TSS	MG/L	50		45	30	1 X Week	12.4	6.0	32.0	6	0	
Eff TSS	LBS			1152	768	1 X Week	436.2	121.1	1457.2		0	
% TSS Rem	%		85			1 X Month	86.4					
Eff BOD	MG/L	50		45	30	1 X Week	5.9	3.0	17.0	6	0	
Eff BOD	LBS			1152	768	1 X Week	215.3	60.5	774.1		0	
% BOD Rem	%		85			1 X Month	91.3	·				
Eff Chlorine	MG/L	1.0			0.7	3 X Day	0.24	0.02	0.83	90	0	
Eff Fecal	#/100 ML	260			88	1 X Week	10	10	10	4	0	
Eff pH	SU	8.5	6.5			1X Daily	7.1	7.0	7.5	30	0	
Enterococci	#/100 ML	276			35	1 X Week	13	10	20	4	0	

- There were 140 effluent samples taken in the month of November with zero [0] NPDES Permit exceedances.
- Gallons Treated vs Sludge Disposed [2 of the loads [18,000 gal] as a result of aer tank 3 cleaning for repairs in tank

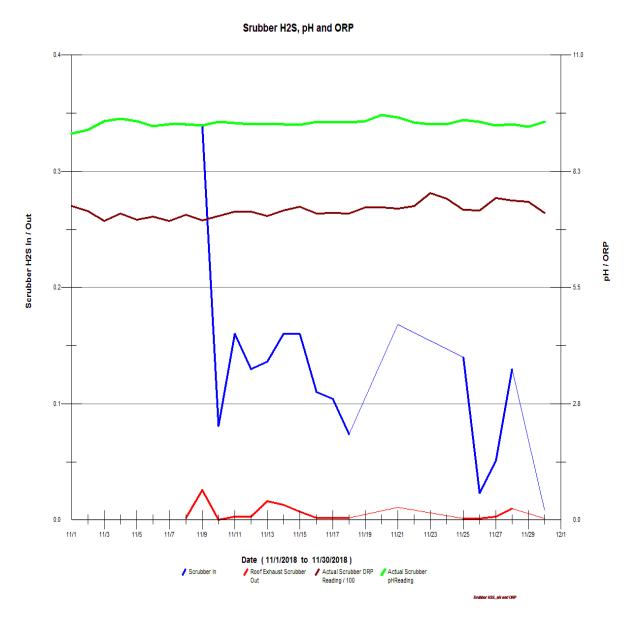
Month	Effluent Treated, MG	Sludge Disposed, Gals
November 2016	38.08	90,000
November 2017	34.14	117,000
November 2018	87.57	62,500

5 ODOR CONTROL

There were no odor complaints reported in November.

The gravity thickener and primary clarifier remained off line until late October. Increased plant flows and equipment issues led to placing these units back on line at the very end of October. Nearly all influent sewage flow is directed to the aeration tanks. The waste activated sludge currently is being pumped to the underground sludge holding tank #2, via the blend box. Aeration tank troughs are being flushed, to minimize build-up of odors.

The odor scrubber system was on line for the entire month. As noted last month, the scrubber media is scheduled to be replaced. The new media has been purchased and on site. The system pH and ORP probes were checked. Scrubber operation is good.



Graph shows limited H2S reading at start of the month due to problems with the portable Jerome H2S meter. H2S levels into the scrubber continue to drop with lower water temperatures.

- "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 11/14-15/18. 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 over the summer months, for pump stations and at the plant.
- On-going frequent pumping of the secondary scum wells. Tank cleaning performed as needed.
- No [Bioxide] product added, system off for the winter period.
- 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.
- In Progress Vetting of ideas/discuss options for headworks area to reduce corrosion and odors. These
 items part of the discussion with Tighe and Bond's HVAC evaluation/upgrade.

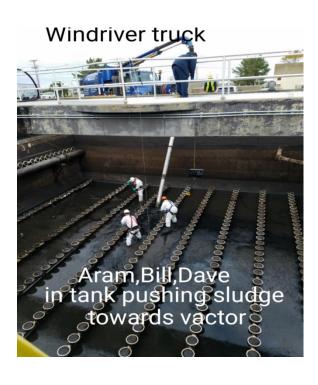
6 MAINTENANCE SUMMARY

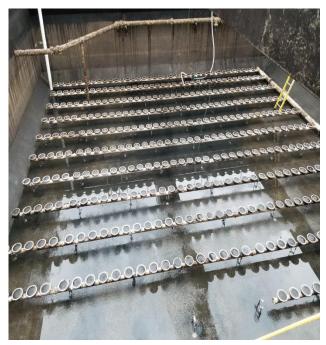
6.1 TASKS COMPLETED THIS MONTH

Monthly work order summary for November compiled and attached for review.

Key items of note are listed below.

- 1) Gravity thickener #1 new drive motor installed
- 2) New Deragger unit for pump #1 on 10/18/18. The Deragger unit has been working well with no issues. To date, the #1 pump had not needed any cleaning. The 2nd sump pump is on order and will be replaced after the sump float cable cabinet is replaced.
- 3) Electrician worked on new heater installation for primary pump room & RST hopper float switch.
- 4) Several de-rags/cleaning done on the influent composite sampler suction line. Strainer clogged inhibiting adequate samples to be drawn.
- 5) WRE assisted with vac truck to clean out aeration tank #3 accumulated grit and solids. Tank had to be cleaned out so that inspection of all hardware and damaged air distribution piping could be made. W&C staff performed the in-tank cleaning. Repairs to all hardware completed approximately 0ne-half of the anchor supports, band clamps, and floor anchors were replaced. Two 8-10 foot sections of air distributor piping and diffusers replaced.





Cleaned aeration tank, prior to start of repairs





Clean water testing, inspection & check diffuser domes and tightening of dome rings

- 6) On-going need to add oil to sec clarifier gear boxes and the GT gear box. All of the units have leaks [lower gear box seal is not good].
- 7) Annual maintenance performed by Highland power for plant and pump station generators.
- 8) Replace coupling and inspect coupling hubs for influent pump #5.
- 9) Various PM's and CM's done on all of the portable pumps. Oil changes and fuel filters changed on the 4-inch pumps, greasing done for all pumps, and control boxes re-supported, where supports had failed.
- 10) Weekly No loads and Monthly load tests completed on all generators including the portable generator and pump stations
- 11) Multiple visits to D Street stormwater station to run/start up back-up trash pump due to high well levels, as a result of rainfall at high tide periods.
- 12) On-going Dig-Safe mark outs completed, due to emergencies, upcoming paving projects, and responded various rattling manhole covers, broken manhole covers/rims, sunken manholes covers/rims. All work that W&C completed is documented in the monthly Work Order Report.
- 13) The discharge line to the above ground sludge storage tank regularly clogging in November due to worn components on thickened sludge transfer pump. The line was flushed clean many times. Based on pressure testing of the line, the pump wear issue is the major cause. Parts ordered to rebuild the pump. The RST operation was halted for the 2nd half of the month of November.
- 14) On-going repairs to E-1 grinder pumps by F R Mahony Corp. Maintaining current spare pump inventory, as well as some stocked supplies for these systems.

a. There was one grinder pump call outs during the month of November
 5 Elm Ave. – replace grinder pump

6.2 ON GOING PROJECT UPDATES



- Drylet bacterial process enhancement trial continued in November. [See effluent/compliance section]. Holding a
 weekly process call/meeting to discuss plant performance. Continued monitoring of the biological system and
 additional sampling performed during September as requested. Most significant process change was to raise
 target MLSS to 3500 mg/L.
- Pump Station 4, Pump Station 9, and Plant Headworks are now being evaluated together for a structural
 concrete repair design and bid to be done as part of an on-call services agreement with a contractor. The details
 are still being evaluated. As noted before, the mechanical work is being held up at pump station 4 due to
 structural safety concerns. As the bidding is not possible to do through O&M team, a larger structural project
 concrete repair work scope is in now in discussion / planning stages.
- Plant water basket strainer We are still investigating a replacement unit, either the same as the current unit, or from a different Mfr. We have yet to evaluate the operating mode manually cleaned or auto-cleaned. Also looking at where effluent water is drawn into the system, evaluating the size of the suction piping, considering other suction location for system to improve water quality utilizing water from effluent wet well versus drawing from bottom of a manhole just after the secondary clarifiers. Will be listed under critical needs equipment under the SFR. Looking at the current manufacturer, Hellan, as well as another supplier, Eaton Products.
- The sluice gate supports for the inlet gates to primary clarifiers at the D-box. As noted previously, the supports have lifted away from the concrete and there is also cracked concrete under the supports Quotes for the repair are on hold, and the work may be done, when the influent headworks structural repairs are performed. This item is currently not listed under the 04M projected costs.
- Still looking at an alternative use for one of the existing primary clarifiers, especially the #1 PC, since
 the drive unit has extensive damage. Conversion to a mixed tank and floating aerator are being
 considered. This would allow for hydraulic flow into the tank, and not restrict flow at the D-box, which is
 currently a concern, as having the primary tanks off line in the warmer months eliminates many of the

- Pump Station #1 Two new pumps installed at Pump Station 1 by Aqualine Utility, assisted by W&C staff and safety rescue services provided for by O'Connor Safety. The work was completed on 11/9/18. While the new pump operation is good, the output flows are less than anticipated, leading to a consultation with the Manufacturer, and assessment of a possible force main restriction.
- Jim Sturgis visited the facility in early November to inspect the inside of aeration tank #3, since the tank was emptied out for repairs. He is also assisting with the ladder scope, various structural repairs/needs and AST project, and was on site for the Task Order "kick-off meeting on 11/7.
- Flood door repairs were made in late November. All area where rot existed for the sealing off of the doors was repaired with new steel installed/welded.
- Yard hydrant survey still a work in progress and evaluating which hydrants to be replaced as needed.
 Four new yard hydrants received and will be held in stock, until arrangements for contractor support set up to replace [targeting January if ground conditions are not frozen].
- Tecta New England roofing contractor in on November 15 to inspect the WWTF building roof. Infra-red scanning of the roof, some repairs completed, and out building roofs cleaned and inspected. A detailed report provided, with recommendations to address the stairwell roof leaks



Picture of Operations building roof – membrane had a number of tears that were repaired on 11/15/18

- The request for quotation to install new ladders was sent out in late September for all of the pump stations. Bids were received in mid-October and reviewed. The pricing that did come back was higher than anticipated. Currently the work is on hold, and the work under review.
- On-going co-ordination calls & project management for the Horizon Gap2 Energy grant work. Horizon
 Solutions obtained the materials and services for Odor control fan VFD, Engine block heater heat
 pump unit, and Aeration system piping modifications. To date, the heat pump has been installed and
 put into service. The VFD for the scrubber fan is installed, and additional electrical conduit piping work
 is being done.





Heat pump that is tied into block heater

VFD for scrubber fan

- Looking at selecting and installing a weather station on the Operations building roof to replace a failed
 unit, no longer at the facility. Presently a new manual collection type rain gauge was installed out in the
 yard by the secondary clarifiers.
- SPCC: Plan for monitoring fuel stored at the facility. Regular inspections of the temporary AST and fuel day tank, as well at container storage of waste oil.

Please see the attached summary of the Asset Management accounts for contract year (4)

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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 for the month of November.
- Ongoing Daily safety briefing meetings, review site safety policies with sub-contractors, safety tailgate topics.
- Pure Safety topic

 November Hazard Communication
- Continued working with Andy Rowe on pump station ladder standards & specifications for replacement and other safety related issues.
- Safety plan for roof inspection by contractor finalized for Operations Building roof.
- Key Points Corporate H&S updates
- O'Connor Safety on site at PS 1 for the pump replacement in early November. The confined rescue team was on standby for the 2 days, while work being performed in the lower pump room at the station.
- Jerome meter for H2S readings is out-of-service and a loaner unit is being used.
- Monthly staff safety meeting conducted on 11/29/18
 - Emergency Action Plan Updates
 - Safety Data Sheets updates
 - Why Work Safe video from W&C
 - Confined Space Entry Permit review & areas for improved documentation
 - Hunting Safety & Cold Weather Stress
 - October 2018 Lessons Learned, and safety observations discussed Near misses and incidents from other company projects.
- Replaced defective chain falls [3] and PM done on remaining hoists, based on recent inspection.
 There is one 2-ton electric hoist currently out for evaluation at the repair facility.
- Working on company required annual tasks list for 2018

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.
- Operational updates and process control discussions, especially with recent electrical issues and plant shutdowns, pump station operations, odor issues, dig-safes, etc.
- W&C "near-miss" incidents at all projects for October discussed.
- On-going training for various staff cyber security

Staffing related items:

- Continue involvement with Mass Maritime [MM] internship program/career fair for future interns. Contacted students for early 2019 co-op period [6 weeks – late January through March] W&C attended the Fall Career Fair at MM in October. Ryan Holman was selected for the Jan-Mar internship 2019 and will begin assignment on Jan 7, 2019.
- 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. Jim G and Jody S providing coverage
 when staff levels are lower due to sickness, vacation, or training.

9 COLLECTION SYSTEM

9.1 WET WELL CLEANING

The actual schedule for wet well cleaning: May 2018 to April 2019:

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

Frequency of	Pump Station									
cleaning	Α	1	3	4	5	6	9	D		
May, 2018		Х			*1	*1				
June, 2018					Х	X				
July, 2018					*2					
Aug., 2018					Х					
Sept. 2018				#3	#3		#3			
Oct.,2018	Х	Х	Х	Х	Х		Х			
Nov, 2018	#4	#4		#4	#4	#4				
Dec., 2018										
Jan., 2019										
Feb., 2019	_							_		
March 2019										
April 2019										

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

- *1 Inspected and needs to be cleaned in June
- *2 Inspected and needs to be cleaned in August
- *3 Inspected and needs to be cleaned in October
- #4 Wet wells were not inspected this month

9.2 COLLECTION SYSTEM MAINTENANCE

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

Berkley Road MH's and catch basins 58 Park Ave.

Douglas Ave – found unmapped line, easement

10 PROJECT MANAGEMENT & ADMINISTRATION



10.1 ON-GOING PROJECTS AND SUPPORT ITEMS

- Asset management checkbook for tracking of expenses. Review of account status between W&C and Hull Sewer Dept. is on-going. [04M]. The report information is available to the Sewer Department and located in the shared file location.
- On-going AST work: Assisted with the following:
 - Met with Petroleum Management Services to walk to the site for AST design bid.
 - In discussions for the chain wall platform that is currently being fabricated. Chain wall platform installation will be by COMM Tank, Inc.
 - Reviewing tank monitoring system and tie into SCADA and what the needs are to get this
 accomplished.
- Multiple engineering tasks are setup and being coordinated through engineering, there is also SRF funded projects being developed for construction including an interceptor lining project and gun rock area collection system improvements project. In addition to this SRF phase the O&M team has been working on a critical needs list to be an equipment / "goods" purchase only SRF funded project. O&M has identified and compiled a priority list of equipment that could be purchased to provided critical equipment replacements and critical spare needs at the WWTF.
- Peter Lyons [PL] continued to lead the paving program sewer inspectional work (CCTV and MH Inspections) to be completed in late fall 2018. National Water Main was selected to perform the work.
 PL is working on the sub-contractor agreement and insurance requirements. Discussed dumping requirements at landfill.
- Woodard & Curran was contacted by the Hull O&M staff to investigate problems with SCADA system UPS units. On 5/18/18 Hull O&M staff reported rapid toggling of the SCADA system UPS units into backup power mode while utility power was present. This caused the batteries to be drained and a loss of power to the SCADA control panels. Initially it was suspected that the LDP transformer was the cause, but one or more problem UPS units were not being fed from that transformer. It was discovered that switching from utility power to backup generator power resolved the issue. With additional voltage and harmonics monitoring done, the results indicated that the voltage harmonic distortion [THD] results are above the recommended allowable limits.

- Per Patrick Halpin, "the Voltage THD should be at or below 5% based on the facility's available short circuit current rating (Isc) ratio to its nominal current demand (IL). The voltage THD was observed and recorded operating greater than 5% most of the time with peaks at 7.8%. Harmonics can be a source of short term and long-term issues. While it is unclear the exact reason for the UPS failures, elevated harmonics may be a contributing factor"
- W&C made some recommendations to install a 150A active harmonic correction unit and estimated costs provided.
- The current on-call services for sewer jetting and cleaning and vactor truck services is still being
 worked on. However, Windriver Environmental will continue with providing the routine cleaning and
 jetting assignments. In the event that emergency services are needed, we have a list all of the
 contractors who provide services as part of our "Emergency Action Plan"
- Utility cloud is continuously being used for collection system related asset tracking. In November a Tie
 card scanning project was completed. Bill B. is working with the technology group to now upload all
 sewer tie cards in the Town to be easily accessible digitally through Utility Cloud. Once the uploading
 process is completed this tie card access will improve the capability and kick off additional Utility Card
 training for the Town and W&C Hull Staff.
- In discussions with Evoqua to rent the current equipment at PS 3 for the next year through 10/31/19.
 The rental fee would be the same, with the exception, that costs would be spread out over the 12-month period, to ensure that the equipment would stay at the current location.
- Participated in several support meetings to discuss engineering task orders, CZM grants, capital
 planning, effluent outfall pipe assessment, SRF funding, HVAC support for T&B efforts., resiliency
 upgrades & budget estimates. Discussed effluent room flooding and flood elevation design
 settings/levels. AST support on-going.
- Participated with Mike Burns of W&C for the Engineering task order effort for Hull on 11/7/18. This
 meeting was the kickoff for the various task orders that were recently authorized by the Town.