

DATE: February 3, 2020
TO: Matt Jordan, General Manager
FROM: Kenneth R. Herd, Chief Science and Technical Officer
SUBJECT: Water Quality Update – *Status Report*

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SUMMARY

The bi-monthly Board of Directors Water Quality Update summarizes member government (member) water quality reports, compliance with Exhibit D water quality parameters and related activities, and other water quality issues and research. This update includes data from November-December 2019.

RECOMMENDATION

Receive presentation on the status of the Regional Water Quality Study 2020-2021.

COST/FUNDING SOURCE

N/A

DISCUSSION

Tampa Bay Water monitors water quality for the regional system through sampling at member Points of Connection (POC), regulatory compliance sampling locations (identified in the Florida Department of Environmental Protection (FDEP)-approved Comprehensive Regional Water Quality Monitoring Plan), and online instruments. These data are reported through the Master Water Supply Contract Exhibit D process and regulatory compliance, and reports are provided to the members each month. **Tampa Bay Water is currently in compliance with all state and federal drinking water standards.**

Staff from Tampa Bay Water, the members, and local regulatory agencies in the region meet monthly as the Water Quality Work Group (WQWG) to discuss water quality issues of local, regional and national concern. These discussions include member customer complaints, regulatory compliance, and water quality monitoring and distribution system activities. Updates on federal and state rule making, research and water supplies are shared by the participants. Pinellas County Utilities also coordinates a separate forum with their consecutive water systems on a quarterly basis.

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EXHIBIT D WATER QUALITY COMPLIANCE

Water quality was a key part of the negotiations leading to the development of the agency's governing documents. The Interlocal Agreement and Master Water Supply Contract require Tampa Bay Water to deliver Quality Water to member government points of connection. Quality Water is defined as water that meets state and federal drinking water standards as well as additional parameters defined in Exhibit D, an attachment to the Master Water Supply Contract. These documents provided the funding and operational framework for the regional supplier to interconnect the members' previously stand-alone distribution systems. Each system was unique in age, layout, type of pipeline material used and treatments such as corrosion control, softening and fluoridation.

- The fundamental premise of the Master Water Supply Contract is to provide a common benefit at a common cost at defined delivery points.
- Regional compliance with Exhibit D water quality parameters establishes a common regional baseline for water quality which is important because Tampa Bay Water has no jurisdiction beyond the points of connection with the member government distribution systems.

Compliance with Exhibit D standards is based on a 12-month running annual average for sample data collected at each POC for 17 different parameters. Exhibit D standards were initially developed through expert input in 1998-1999 and were modified in 2004 to address additional treatment issues and concerns.

Exhibit D standards were met for all parameters and locations during this reporting period, except for turbidity at Cosme WTP Influent to St. Petersburg. Turbidity slightly exceeded the Exhibit D Running Annual Average (RAA) of less than 1.0 Nephelometric Turbidity Unit (NTU). Options to address turbidity were previously discussed with the Director of Water Resources and City of St. Petersburg water quality professional staff on June 18, 2019. The city noted this was not a high-priority concern. Based on discussions at the WQWG meeting on December 12, 2019, Tampa Bay Water staff will work with the City of St. Petersburg staff to develop a bench-scale study to address the matter.

Total Sulfides exceeded Exhibit D Running Annual Average (RAA) of less than 0.1 mg/L from groundwater Well Fields at Maytum WTP Influent to New Port Richey. This location, however, is satisfied with a monetary credit per the Master Water Supply Contract.

EVALUATION OF REGIONAL WATER QUALITY

The “**Evaluation of Exhibit D Water Quality**” report, which included recommendations for further study, was completed after incorporating two rounds of comments by member governments. To aid member government reviews, a comments-responses summary accompanied the earlier and final versions of the report. The final report, including recommendations, was approved by the Board on December 16, 2019. This study characterized current source water quality for the regional system, prioritized treatment locations, evaluated potential treatment approaches, and identified benefits and associated costs as highlighted below:

- Total organic carbon (TOC) and other water quality parameters could be lowered across the regional system by implementing treatment changes at various locations throughout the system. These changes would be expected to improve water quality for the entire region and provide a more consistent water quality at each point of connection.
- Adding water quality treatment for the regional system could help member governments manage water quality in their distribution systems by increasing disinfectant residual stability, reducing the potential for taste and odor issues and decreasing flushing volumes.
- Lower total organic carbon levels could reduce disinfection byproduct formation during free chlorine maintenance events, which are performed periodically by member governments.
- Preliminary estimated costs range from approximately \$125 million to \$210 million in capital costs and approximately \$5 million to \$13 million in annual operating costs to implement additional water quality treatment. The ranges depend on the desired level of total organic carbon reduction.
- These actions could result in a net savings of \$1-\$2 million per year collectively for the member governments for reduced flushing in their distribution systems.

Key Considerations

The report findings were based on assumptions about the regional water supply system and member government distribution systems. These assumptions need to be further tested and analyzed to refine water quality parameter levels and cost estimates.

Any consideration to changes in water quality parameters in Exhibit D would need to be completed after new treatment changes are constructed and operational across the system to ensure continued compliance.

Next Steps

A preliminary scope and schedule to continue treatment evaluation efforts, and an invitation for member governments to participate on the consultant selection committee for this next study, were presented to member government Utility Directors at a January 24, 2020 meeting. Water quality handouts for this meeting are appended to this report.

The preliminary scope would include supplemental characterization, bench- and pilot-scale treatment performance testing, conceptual designs, updated capital and O&M estimated costs, potential implementation approaches and recommendations for treatment projects. The objective is to lower total organic carbon (TOC), color, iron, sulfide, nitrate and calcium-hardness variability.

This scope will be finalized after member governments have an opportunity to comment and provide input. Based on member government comments received during review of the first study; the next study, hereinafter referred to as the “**Regional Water Quality Study 2020-2021**”, will assess how the selected treatment processes for total organic carbon, etc., will also serve as barriers for constituents

of emerging concern (CECs). In addition, the study will examine disposal options for waste streams from these evaluated treatment processes.

The preliminary project schedule is for consulting firm procurement to begin in February and end in June 2020. A full scope would be developed, and an advertisement posted in February; submittals by consultants would be due in March; the submittals would be reviewed and ranked in April and contract negotiations would be undertaken in May. A recommended firm, scope of work and cost would be presented to the Board for approval at the June 15, 2020 Board meeting.

Assuming approval in June, the technical work could be completed by December 2021. During this time, member governments would receive periodic status reports and there would be meetings to discuss technical findings and for member governments to provide input on direction throughout the study. Updates will also be provided to the Board through memos and Board meeting presentations.

Once the technical work is completed in December 2021, a three-month, deliberation period is envisioned from January to March 2022 for member governments to develop consensus recommendations on selection of different treatment projects and implementation timing. This would be followed by Board consideration and approval, which is projected for completion later in 2022.

The new study findings are scheduled to be available at the same time Master Water Plan project feasibility study findings will be available for Board consideration. This will allow all of these potential capital improvement projects to be simultaneously considered relative to future debt service obligations.

WATER QUALITY WORKING GROUP MEETINGS

Water Quality Working Group Meetings were held on December 12, 2019 and January 9, 2020. Minutes and attendee sign-in sheets are attached. Topics discussed at these meetings included monthly performance and status reviews. Tampa Bay Water discussed the reservoir, surface water sources and treatment plants and ground water sources and treatment. Members discussed bacteriological testing results, recorded customer water quality complaints and flushing volumes associated with distribution-system, water-quality issues.

Additional topics discussed at these meetings included: Exhibit D compliance status, Exhibit D water quality study update, TOC on-line monitoring pilot program status, updates on the production well evaluation program (PWEP), future use of total organic carbon constraints in OROP and collaborative water quality research with the WRF and an open discussion for all members to participate.

At the December 12, 2019 meeting, a considerable amount of the discussion was about the Exhibit D water quality study findings and recommendations that now included all member governments' final comments and input. Discussions also included member governments' ideas about the scope of the next study.

At the January 9, 2020 meeting, it was identified that the City of Tampa began taking water from Tampa Bay Water on January 6, 2020. The plan was to gradually increase supply over a three-week period up to 15-20 mgd.

At both meetings, Pasco County reported progress in reducing flushing volumes.

REGIONAL FREE CHLORINE MAINTENANCE

Nitrification in a distribution system is typically the driver for periodic free chlorine maintenance activities, especially when flushing activities become excessive. Nitrification occurs in a distribution system when there is an observed loss of disinfectant residual. This is usually accompanied by increases in Heterotrophic Plate Count (HPC) organisms and nitrite concentrations as well as decreases in pH, alkalinity and dissolved oxygen. Conditions that promote the development of nitrification include water age, warm water temperature, and unstable chloramine formation.

Chloramines are best formed, and are more stable, under conditions that include adequate free chlorine contact time prior to the addition of ammonia, the correct chlorine to ammonia ratio, and high pH conditions (minimum 7.8 Standard Units). Managing water age in a distribution system by unidirectional flushing is also important. Unless flushing is planned and targeted, it will result in shifting problems in a distribution network as opposed to eliminating or managing them.

The value of performing a regional system free chlorine maintenance had been discussed at WQWG meetings since December 2016. While members have historically expressed differing opinions on this issue, Utility Directors agreed that a regional free chlorine maintenance program could be beneficial. Tampa Bay Water was requested to develop a scope of work by Utility Directors at meetings on June 4 and July 23, 2018.

A scope of work request was finalized for consultants to evaluate how best to plan for and implement a regional free chlorine maintenance program. This scope was intended to identify the program advantages and disadvantages as well as any potential unintended consequences. Arcadis was selected to perform this evaluation in late 2018, however, a decision was made to delay this work after completing the initial Exhibit D water quality study.

A consultant “kick-off” meeting was held on January 28, 2020. Arcadis is scheduled to present the study scope and schedule, including requests for information and follow-up meetings with members at the WQWG meeting on February 13, 2020.

ADDITIONAL WATER QUALITY UPDATES

Mosaic Water Loss Incident

On August 28, 2016, the FDEP was notified by Mosaic of a Water Loss Incident at its New Wales Facility in Polk County. Mosaic reported that immediate actions were taken to investigate and mitigate environmental impacts. Mosaic continues to recover ground water and all groundwater data show no movement of contaminated water outside the capture zone of the onsite recovery system.

On September 22, 2016, Tampa Bay Water staff retrofitted an existing deep aquifer water level monitor well with water quality sampling equipment and began sampling for a series of relevant water quality parameters. Results from all sampling events showed no issues or water quality concerns. This well is located midway between the South-Central Hillsborough Wellfield and the incident location.

On October 24, 2016, FDEP entered a consent order with Mosaic. This consent order required Mosaic to expand both on-site and off-site monitoring. Six of Tampa Bay Water's monitoring wells located within a four-mile radius of the incident location were included in Mosaic's off-site monitoring.

Monitoring from Mosaic's on-site and off-site monitoring continually show the affected water to be successfully contained, with no evidence of off-site movement or threat to off-site ground water supplies. In addition, private drinking water wells tested and reported by Mosaic showed no impact. With all data showing acceptable results, FDEP ended the required monitoring in 4th Quarter, 2019.

Coordination and discussions between Mosaic and agency staff continues. The most recent meeting held with Mosaic and FDEP was on December 10, 2019. Following this meeting, Mosaic shared water quality data from NPDES outfalls discharging to the North and South Prongs of the Alafia River and groundwater quality data from their sentinel monitoring wells that show continued hydraulic containment. Relevant information will be reported to the Board as available.

Red Tide

Red Tide is an environmental condition where nuisance algae species undergo massive population level increases. The species of algae most commonly identified in Gulf of Mexico Red Tide events is *Karenia brevis*. Population increases are linked to excess nutrient loading in the nearshore Gulf waters. These algae produce toxins (brevetoxins) that can cause a variety of health effects. Monitoring near the Desalination Facility continues to show no evidence of the problematic algae. Existing treatment at the Desalination Facility (coagulation/flocculation and reverse osmosis) would effectively remove brevetoxins to non-detectable levels. As an additional measure, the desalination facility could be shut down in the event of a proximate bloom.

Red Tide observations in the Tampa Bay area are monitored by Tampa Bay Water staff including sampling and reporting performed by Mote Marine Laboratory, the University of South Florida, Florida Fish and Wildlife Conservation Commission and the Environmental Protection Commission of Hillsborough County. Based on these data reports, informed and timely decisions can be made by Tampa Bay Water if the raw seawater supply is threatened. No red tide-related threats to the Desalination Facility have been identified to date.

Research and Stakeholder Activities

Tampa Bay Water engages in drinking water quality and regulatory compliance-related research efforts with the Water Research Foundation and others to address utility treatment needs and/or regulatory requirements. Tampa Bay Water staff are currently participating in the following water quality projects and committees:

- AWWA / ANSI G300 Standard Committee – Source Water Protection
- National Science Foundation – Disinfection Byproducts Formation in Desalination Plants
- National Science Foundation – Microbial Degradation of Contaminants on GAC Media
- National Science Foundation – Regulated and Emerging Halogenated DBPs in Distribution Systems
- USEPA – Online Water Quality Monitoring Forum and Steering Committee
- Water Research Foundation (WRF) 4711 – Bromide/Iodide Occurrence Survey in Water Supplies
- WRF 4748 – Evaluation of Risk Management Systems for Managing Source Water Risks
- WRF 4907 – Leading Water Utility Innovation
- WRF 4920 – Decision Support Framework for Drinking Water Treatment Plants
- WRF 4953 – Blending Strategies for Drinking Water System Integration with Alternate Supplies
- WRF Leaders Innovation Forum for Technology (LIFT) – Drinking Water
- WaterSuite Users Group – Source Water Monitoring and Assessment (public/private utilities)

UPDATES FROM MEMBER GOVERNMENTS

Tampa Bay Water receives monthly updates from the Members on customer complaints, compliance, monitoring, and other relevant distribution system information. These data provide the Agency and its Members the baseline information needed to evaluate water quality issues and concerns related to the regional water sources and treatment practices.

Updates included in this report are based on information and data provided by members at the December 2019 and January 2020 WQWG meetings; attached Tables 1-3 include 2016-2019 data for total coliform rule compliance, customer complaints and distribution system flushing.

Table 1. Regional Total Coliform Rule Compliance (percent positive samples) provides a summary of Total Coliform Rule compliance data for members.

Table 2. Customer Water Quality Complaints received by Members (not normalized for population served) provides a summary of customer complaint data collected by members.

Table 3. Distribution System Flushed Water (reported in million gallons per month, not normalized for production) summarizes the reported quantities of water flushed for distribution system maintenance by the members.

No compliance issues were reported by the members or their consecutive systems for this reporting period. For customer complaint and system maintenance-flushing data, note that these data are not normalized for total population or production but provide a relative indicator of water quality and distribution system activity.

Hillsborough County – December 2019

- Total Coliform Rule
 - North: 3 positive out of 129 samples (2.33%)
 - South: 0 positive out of 180 samples (0%)

- Customer Complaints
 - North: 16, mostly pressure
 - South: 49, mostly odor and pressure
- System Flushing
 - North: 9.08 million gallons (MG)
 - South: 16.39 MG

County staff reported maintaining residuals and consistent water quality in the North. The County continues to observe an increase in low-pressure complaints in the South primarily during mornings.

Pasco County – December 2019

- Total Coliform Rule: 0 positive out of 150 samples (0%)
- Customer Complaints: 14, mostly odor and color
- System Flushing: 60.62 MG

Pasco County staff continues to report progress in maintaining disinfectant residuals and reducing flushing volumes. The county may conduct a free chlorine maintenance pilot study program.

Pinellas County – December 2019

- Total Coliform Rule: 1 positive out of 213 samples (0.47%)
- Customer Complaints: 34, increase is due to including customer inquiries in total
- System Flushing: 9 MG

The County reports good distribution water quality. In 2019, the county performed free chlorine maintenance from April 22 to May 9 and September 23 to October 12. A similar schedule is planned for 2020. Water supplies have and will continue to be coordinated with Tampa Bay Water staff to minimize potential total organic carbon (TOC)-related issues during these maintenance periods.

City of New Port Richey – December 2019

- Total Coliform Rule: 0 positive out of 41 samples (0%)
- Customer Complaints: 1 hardness
- System Flushing: 0.12 MG

No system water quality problems, distribution system challenges, or compliance issues were identified.

City of St. Petersburg – December 2019

- Total Coliform Rule: 0 positives out of 180 samples (0%)
- Customer Complaints: 30 mostly customer issues
- System Flushing: 5.7 MG

City of Tampa – December 2019

- Total Coliform Rule: 0 positive out of 240 samples (0.8%)
- Customer Complaints: 17, mostly color
- System Flushing: 11 MG

The City is having maintenance work done on their ozone facility. As a result, 15 to 20 MGD is being supplied from Tampa Bay Water at the Morris Bridge POC.

Table 1. Regional Total Coliform Rule Compliance (Percent Positive Samples)

[illegible][illegible][illegible][illegible]

**Table 2. Customer Water Quality Complaints by Member Government
(Data NOT normalized for population served)**

2016	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
St. Pete	36	32	29	19	13	24	25	29	39	41	70	67
Pinellas	40	48	54	37	43	53	31	42	46	30	29	19
Tampa	13	15	27	18	19	27	35	12	12	11	16	99
Pasco	20	20	26	20	21	20	16	17	ND	15	25	7
NWHC	22	29	35	35	27	39	85	61	36	33	25	29
SCHC	34	45	75	47	26	46	38	76	45	55	51	67
NPR	1	1	0	0	0	1	2	2	3	5	0	2

2017	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
St. Pete	64	51	31	35	20	ND	18	ND	28	25	25	22
Pinellas	18	25	31	57	42	38	39	29	50	46	20	30
Tampa	48	56	53	253	82	93	58	37	29	50	25	24
Pasco	13	28	14	22	20	15	14	28	10	17	10	8
NWHC	25	20	18	24	30	36	28	32	15	23	24	21
SCHC	56	58	85	62	101	71	69	51	53	101	63	37
NPR	0	2	1	3	3	2	0	2	4	1	1	ND

2018	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
St. Pete	13	22	27	26	37	32	32	36	16	28	20	27
Pinellas	18	17	ND	20	34	31	9	22	27	35	29	18
Tampa	76	23	27	45	39	24	26	38	27	56	42	33
Pasco	22	13	8	8	8	9	9	9	10	18	21	9
NWHC	23	34	32	19	29	25	23	19	27	21	27	25
SCHC	71	50	76	50	46	72	23	97	54	91	62	49
NPR	2	0	0	4	1	4	1	1	2	4	2	4

2019	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
St. Pete	35	30	33	32	30	26	36	31	22	42	29	30
Pinellas	23	26	22	32	33	32	27	30	32	55	40	34
Tampa	46	59	47	28	36	36	26	51	30	30	73	17
Pasco	17	8	8	5	8	16	7	5	16	22	7	14
NWHC	27	21	21	24	13	21	18	18	19	16	17	16
SCHC	37	57	67	71	70	122	101	45	62	67	50	49
NPR	4	1	0	6	2	2	1	4	0	3	3	1

**Table 3. Distribution System Flushed Water (Reported in MG per Month)
(Data NOT normalized for production)**

2016	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
St. Pete	47.9	42.4	40.9	40.6	45	37.9	47.4	38.8	32.7	47.3	45.8	49.9
Pinellas	13	18.2	9.5	ND	ND	ND	17	17	16.1	16.1	ND	13.9
Tampa	26.8	28.6	24.5	14.5	7.3	57.4	75	106	114	95	50.6	20.3
Pasco	38.3	39.1	32.9	47.4	48.8	49.6	49.6	47	57	70.1	72	70
NWHC	6.7	7.5	6.9	8.2	9.7	9.6	16.8	20.8	13.6	12.0	13.3	12.8
SCHC	12.5	12.4	12.0	12.4	7.1	9.9	8	10.6	8.8	6.1	7.9	19.8
NPR	0.78	0.78	0.75	0.78	0.78	0.72	0.78	0.78	0.78	0.78	0.78	0.78

2017	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
St. Pete	47.9	47.3	51.3	50.2	53.5	49.2	54.8	51.7	25.6	39.1	35.6	28
Pinellas	13	9.3	ND	ND	14.3	9.3	10	11.5	9.5	14.2	12.2	8.7
Tampa	6.9	8	8.7	6.5	94.3	9.1	1.5	2.9	2.2	8.2	3	2.14
Pasco	55.9	56	53.5	67	65.4	82.7	85.1	78	67	55.6	56.5	54.3
NWHC	11.4	10.1	12.5	9.3	9.5	11.8	12.5	12.5	10.9	16.9	10.9	12.3
SCHC	7.4	6.3	9.1	2.5	2.5	5.5	6.9	5.7	5.9	9	8	8.9
NPR	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	ND

2018	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
St. Pete	25.8	20.3	27.8	22.5	37.8	38.1	41.1	30.9	16.7	6.8	6.1	7.4
Pinellas	8.8	7.8	8.6	12.2	15	15.9	9.8	12.2	13	15.5	6	7.4
Tampa	4.4	4.7	3.9	6.7	2.9	5.2	16.9	4.8	1.9	3.2	5.5	15.9
Pasco	59.6	44.9	44.8	54.9	47.9	55.2	45.8	47	45.7	65.7	44.4	46.3
NWHC	13.7	12.4	ND	9.5	9.6	9.4	10.5	12.1	13.1	13.8	3.7	6.8
SCHC	9.8	10.6	ND	12.3	11.5	12.1	17.8	15.7	18.4	18.8	9.1	15.1
NPR	0.78	0.78	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.79	0.79	0.79

2019	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
St. Pete	10.3	9.7	11.7	7.2	9.7	10.3	13.7	9.4	2.7	2.1	3.5	5.7
Pinellas	7.0	7.1	8.7	9.8	12.9	9.5	12.5	7.1	16.2	18	8.1	9.0
Tampa	8.2	111	1.3	2.3	2.2	0.95	98.2	115	5	4.6	5.5	11
Pasco	43.4	32.3	39.1	31	36.1	47.1	67.7	77.8	70.9	73.6	60.3	60.6
NWHC	8.9	8.6	6.6	8.2	7.7	8.9	13.7	9.8	19.6	12.5	7.8	9.1
SCHC	10.1	9.6	11.5	18.1	10.2	10.4	17.5	18.6	14.7	17.9	21.5	16.3
NPR	ND	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	1.06	1.57	0.12

EXHIBIT D WATER QUALITY STUDY 2020-2021 - PRELIMINARY SCHEDULE -

1. Procurement [Feb – Jun 2020]

▪ Draft Scope to Member Governments	Feb 7
▪ Final Scope of Work to Procurement	Feb 21*
▪ Post Advertisement on DemandStar	Mar 3
▪ Selection Committee Pre-review Meeting	Mar 25*
▪ Submittals Due to Tampa Bay Water	Mar 31
▪ Distribute Submittals to Selection Committee	Apr 02
▪ Scores Due from Selection Committee	Apr 24*
▪ Selection Committee – Ranking Meeting	Apr 29*
▪ Notice of Intent / Draft Agenda Item	May 29
▪ Negotiate Contract / Board Approval	Jun 15*

* Key Member Government and Selection Committee dates

2. Execute Work [Jul 2020 – Dec 2021]⁺

	<u>Start</u>	<u>End</u>
▪ Supplemental Characterization Studies	Jul 2020	Dec 2020
▪ Bench-scale Treatment Performance Testing	Jul 2020	Mar 2021
▪ Pilot Treatment Performance Testing	Oct 2020	Sep 2021 ⁺⁺
▪ Develop Conceptual Designs	Apr 2021	Jun 2021
▪ Update Capital and O&M Costs	Jul 2021	Sep 2021
▪ Identify Potential Implementation Approaches	Sep 2021	Nov 2021
▪ Recommendations for Treatment Projects	Nov 2021	Dec 2021

⁺ Will add reports, member governments meetings and Board updates

⁺⁺ Longer duration at RSWTP possible

3. Member Governments Working Sessions

▪ Consensus Recommendations	Jan 2022 – Mar 2022
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4. Board Approval

▪ Presentations to Board	Apr 2022 – Jun 2022 ⁺
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⁺ Six months later than Hazen final report due to procurement requirements

EXHIBIT D WATER QUALITY STUDY 2020-2021 - PRELIMINARY SCOPE -

Supplemental Characterization Studies

- Review assumptions
- Verify residence times in member government distribution systems
- Investigate “dynamic” source water and operating conditions
- Collect additional data and update model

Bench-scale Treatment Performance Testing

- Confirm treatment technologies/performance (% removals, O&M, waste streams)
 - granular activated carbon (GAC) for total organic carbon (TOC)/color [1,2]
 - greensand and chlorine addition for iron [3]
 - ozone and chlorine for sulfide [4]
 - anion exchange resin for nitrate [4]
 - cation exchange resin for calcium hardness [4]
- Investigate removals of TOC only and TOC spiked with CECs (PFAS, etc.)

Pilot-scale Treatment Performance Testing

- Regional Surface Water Treatment Plant
- Select groundwater well fields
- Hardness removal and corrosion control

Develop Conceptual Designs

Update Capital and O&M Costs

Identify Potential Implementation Approaches

Recommendations for Treatment Projects

WQWG Meeting started 1:30 pm - Attendance list attached

1. HANDOUTS

- a) Member Government monthly data
- b) December 2019 WQWG Agenda Packet
- c) OCC Handout
- d) Hazen Evaluation of Exhibit D Water Quality
- e) Hazen Member Government Comments-Responses summary table

2. SYSTEM UPDATES – Given by Andrew Greenbaum OCC Portion of Mtg

- a) Reservoir – 15 BG – began draw down
- b) Desal –Started up in December 2019 – 8 MGD
- c) Regional SWTP – 60 MGD
- d) City of Tampa will begin taking water in January 2020 – 10-20 MGD expected

3. UPDATES FROM MEMBER GOVERNMENTS

Hillsborough County – no member present, report provided via email

- a) November 2019 TCR Reporting North Service Area 1 TCP out of 123 samples – 0.81%
- b) November 2019 TCR Reporting South Service Area 2 TCP out of 186 samples – 1.08%
- c) November 2019 Complaint Report North Service Area 17 complaints, mostly pressure
- d) November 2019 Complaint Report South Service Area 47 complaints, mostly pressure
- e) November 2019 Flushing Report North Service Area – 7.8 MG
- f) November 2019 Flushing Report South Service Area – 21.5 MG

City of New Port Richey – no member present, report provided via email

- a) November 2019 TCR Reporting – 0 TCP out of 41 samples 0%
- b) November 2019 Complaint Report – 1 – hardness
- c) November 2019 Flushing Report – 1.572 MG

Pinellas County

- a) November 2019 TCR Reporting – 0 TCP out of 210 samples – 0%

- b) November 2019 Complaint Report – 40 received mostly rusty water and customer issues
- c) November 2019 Flushing Report – 8.10 MG
- d) Flushing numbers were less in November as the residuals at one of the consecutive systems improved.

Pasco County

- a) November 2019 TCR Reporting – 0 TCP out of 150 samples – 0%
- b) November 2019 Complaint Report – 7 received; mostly odor
- c) November 2019 Flushing Report – 60.33 MG – a significant decrease from last month – 58.78 MGD of the total flushing comes from the auto-flushers and 1.55 MG comes from manual flushing
- d) Pasco attributes the flushing reduction to adjustments on auto-flushers (e.g., turning down run times and more control by operations staff.
- e) Pasco is exploring options for a free chlorine maintenance pilot event sometime in May or June of 2020.
- f) Pasco is also evaluating installing chlorine booster systems to lower the amount of flushing, much like the City of St. Petersburg.

City of St. Petersburg

- a) November 2019 TCR Reporting – 0 TCP out of 180 samples 0%
- b) November 2019 Complaint Report – 29 received; mostly customer issues
- c) November 2019 Flushing Report – 3.47 MG
- d) St. Pete is displaying good disinfection residuals throughout their system now that they have the ability to dose with bleach at their booster station. There is no need to flush as much.

City of Tampa

- a) November 2019 TCR Reporting – 2 TCP out of 246 samples – 0.8%
- b) November 2019 Complaint Report – 73 received; mostly color due to a pipe break
- c) November 2019 Flushing Report – 5.55 MG – a decrease from last month
- d) Tampa has increased water demands after pressure increased from 65 to 70 psi.
- e) Tampa has 20 dedicated sampling stations and 14 more are on order.
- f) Tampa is in the process of hiring two new distribution technicians.
- g) The Ozone Facility will be offline in January for inspection and maintenance.

4. EXHIBIT D UPDATE

Monthly Report

- a) Turbidity at COSMEINF Point-of-Connection (POC) was 1.82 NTU. The running annual average (RAA) was 1.23 NTU. This exceeds the Exhibit D limit of <1 NTU. Tampa Bay Water is working the City of St. Pete to resolve this occurrence.
- b) Total Sulfides at MAYTMINF was 1.16 mg/L. The RAA was 0.065 mg/L. This was greater than the Exhibit D limit of <0.1 mg/L but is addressed with monetary credits per the Master Water Supply contract.
- c) Total Sulfides at EWH2SEFF was 0.14 mg/L. The RAA was 0.065 mg/L. This did not exceed the Exhibit D limit of <0.1 mg/L.
- d) Ammonia at COSMEINF was 1.03 mg/L as N. The RAA was 0.544 mg/L. This did not exceed the Exhibit D limit of <1 mg/L.
- e) Alkalinity at 301REGHILLS was 91.5 mg/L. The RAA was 104 mg/L. This did not exceed the Exhibit D limit of >100 mg/L.

Evaluation of Exhibit D Water Quality Study

- a) Copies of the final Evaluation of Exhibit D Water Quality Report and final comments-responses table were distributed to WQWG members.
- b) The comments-responses table was prepared so all involved parties know of each other's comments, question and concerns as well as Tampa Bay Water responses.
- c) An update with recommendations is planned for presentation to the Tampa Bay Water Board of Directors in December 2019.
- d) WQWG discussion centered on how to proceed with the next steps regarding the Exhibit D Study.
- e) The first study was to characterize the source water quality, prioritize treatment locations and identify potential treatment approaches, benefits and associated costs.
- f) The second study will continue treatment evaluations based on work completed to date. This will include bench tests, pilots testing and cost refinement.
- g) If the project advances with Board Approval, a preliminary schedule indicates that studies can be completed by June 2021.
- h) Member government questions on whether contaminants of emerging concern, such as PFAs would be included in the next steps while looking at TOC removal technologies were discussed.

Regional Free Chlorine Maintenance Study

- a) Discussions on the importance of moving forward with the regional free chlorine maintenance study were addressed.

- b) All member governments in attendance at this meeting stressed the importance of moving forward with this study and having Tampa Bay Water work with the different member governments perform their free chlorine maintenance.
- c) All members agreed that nitrification is a real concern that needs to be addressed now.
- d) Members believe that Tampa Bay Water should take the lead in informing the public that periodic free chlorine maintenance is good management practice, just like the effort that was undertaken for the chloramine conversion.

OPEN DISCUSSION

Steve Fleischacker explained the reasoning for the new agenda format of dividing the meeting into two parts, using the first part of the meeting to discuss distribution system issues and discuss member government data results and issues from the previous month. The second part of the meeting is for discussing treatment concerns, e.g., TOC issues.

Steve feels there could be more participation from stakeholders if the meeting was set up in this revised format.

Bina Nayak relayed information to the group concerning tank cleanings. EPA researchers are looking for the sludge sediment from the tank cleanings. If any member governments are cleaning tanks this year, Bina will coordinate getting the sediment to the research group.

Next WQWG Meeting – January 9th at 1:30p at Cypress Creek Magnolia IEM Bldg.

WQWG Meeting
Magnolia Conference Room @Cypress Creek WTP
December 12, 2019

1:30 pm

<u>Name</u>	<u>Affiliation</u>
Jacob Coates	Pasco County Utilities
Kendra Phillips	Pasco County Utilities
Kevin Jenkins	Pasco County Utilities
DAVID HANSEN	PINELLASCO. Utilities
Royce R. Rarick	Pinellas
Bina Nayak	Pinellas.
Andrew Greenbaum	Tampa Bay Water
STEVE FLEISCHACKER	TAMPA BAY WATER
Walter Doolley	Tampa Bay Water
Bob McConnell	" " "
Raj Vaidya	CDM Smith
Shawn Jones	Tampa Bay Water
Jun Kim	Tampa Bay Water
Steve Foster	TBW
Jim Kramer	City of St. Petersburg
Waunda Barcus	City of St. Petersburg
Jim Kaplan	Pasco County Utilities

WQWG Meeting started 1:30 pm - Attendance list attached

1. HANDOUTS

- a) Member Government monthly data
- b) January 2020 WQWG Agenda Packet

2. SYSTEM UPDATES

- a) Reservoir – 15 BG – still at full capacity
- b) Desal – Started up in December 2019 – now running at 12 MGD
- c) Regional SWTP – 60 MGD
- d) Wellfields – 108 MGD

3. UPDATES FROM MEMBER GOVERNMENTS

Hillsborough County

- a) December 2019 TCR Reporting North Service Area 3 TCP out of 129 samples – 2.33%
- b) December 2019 TCR Reporting South Service Area 0 TCP out of 180 samples – 0%
- c) December 2019 Complaint Report North Service Area 16 complaints, mostly pressure
- d) December 2019 Complaint Report South Service Area 49 complaints, mostly pressure
- e) December 2019 Flushing Report North Service Area – 9.08 MG
- f) December 2019 Flushing Report South Service Area – 16.39 MG

City of New Port Richey

- a) December 2019 TCR Reporting – 0 TCP out of 41 samples 0%
- b) December 2019 Complaint Report – 1 – scaling
- c) December 2019 Flushing Report – 150,000 Gallons
- d) The City noted that a 0.3 MGD increase in water supply is anticipated due to permitting of a new large, apartment complex.
- e) The new fluoride system should be in operation by the end of the month
- f) The City noted their need to repair screen on their aerators, cost estimates were much higher than anticipated, and asked if others are experiencing high costs.

Pinellas County

- a) December 2019 TCR Reporting – 1 TCP out of 213 samples – 0.47%
- b) December 2019 Complaint Report – 34 received mostly rusty water and customer related issues

- c) December 2019 Flushing Report – 9 MG

Pasco County

- a) December 2019 TCR Reporting – 0 TCP out of 150 samples – 0%
- b) December 2019 Complaint Report – 14 received; mostly odor
- c) December 2019 Flushing Report – 60.62 MG – same as last month
- d) Pasco attributes the flushing improvements to operational flow changes that appear to be working as residuals are improving in some problem areas of the system.
- e) Pasco flushing, engineering and modeling departments are all working together to address distribution system water quality and reduce flushing volumes.
- f) Pasco's modeling and engineering team attended the WQWG meeting.

City of St. Petersburg – no member present

- a) Members had prior commitment, could not attend the meeting.
- b) The City of St. Petersburg will email the WQ update.

City of Tampa

- a) December 2019 TCR Reporting – 0 TCP out of 240 samples 0%
- b) December 2019 Complaint Report – 17 complaints, mostly odor
- c) December 2019 Flushing Report – 11 MG
- d) City of Tampa is having work done on their ozone facility, which impacts their water delivery.
- e) City of Tampa began taking supplemental supply from Tampa Bay Water on January 6, 2020.
- f) City of Tampa started at 5 MGD, expected to raise to 20 MGD over the next few weeks.
- g) Tampa Bay Water is providing the City a blended supply of regional and well field.
- h) Tampa Bay Water increased the frequency of collecting and analyzing water samples.
- i) Monthly water quality report was not available for WQWG meeting.
- j) The City of Tampa is short-staffed (person who creates monthly reports retired).
- k) The City of Tampa will email the WQ update.

4. EXHIBIT D UPDATE

Monthly Report

- a) Turbidity at COSMEINF Point-of-Connection (POC) was 2.19 NTU. The running annual average (RAA) was 1.33 NTU. This exceeds the Exhibit D limit of <1 NTU. Tampa Bay Water is working the City of St. Pete to resolve this occurrence.

- b) Total Sulfides at MAYTMINF was 1.15 mg/L. The RAA was 1.11 mg/L. This was greater than the Exhibit D limit of <0.1 mg/L but is addressed with monetary credits per the Master Water Supply contract.

Evaluation of Exhibit D Water Quality Study

- a) The Evaluation of Exhibit D Water Quality Study report with recommendations was presented to the Tampa Bay Water Board of Directors on December 16, 2019.
- b) The Board approved the study and recommendation to move forward.
- c) The second study will address assumptions and data gaps.
- d) It will include bench- and pilot-testing and cost refinement.
- e) A preliminary schedule in the report indicates this work could be one by June 2021.
- f) Utility Directors will be asked for input on a number of “next steps” key questions:
 - Should calcium hardness reductions be evaluated in light of identified costs?
 - Do Utility Directors want to assign delegates to attend progress meetings that to make study-related, path-forward decisions?
 - All member governments will be requested to review next scope of work.
 - Consultant selection for the next phase of work will be done using the Consultant’s Competitive Negotiations Act (CCNA) procurement process.
 - Do Utility Directors want to identify representatives for the procurement selection committee?

Regional Free Chlorine Maintenance Study

- a) All member governments in attendance at the December 12, 2019 meeting stressed the importance of moving forward with this study and having Tampa Bay Water work with the different member governments to perform free chlorine maintenance.
- b) Steve Fleischacker reported at the January 20, 2020 meeting that Tampa Bay Water senior management team agreed to move forward with the regional free chlorine maintenance study, noting completion of the water quality study and member government discussions from the December 2019 WQWG meeting (see above).
- c) Steve advised the meeting attendees that he would be contacting Arcadis, the consultant for this work, to resume the study.
- d) Steve will keep the WQWG informed of progress on this work.
- e) Steve was asked by Pasco County for a copy of the Arcadis scope of work. He will send it to Jake Cuarta.

TOC Constraints in OROP

- a) Data has been compiled and needs to be presented to Tampa Bay Water modelers for scheduling of production well runs.
- b) Current modeling runs are geared towards environmental “recovery” processes only.

Production Well Evaluation Program (PWEF)

- a) This program will evaluate and establish a maintenance program for production wells to improve and maintain water quality.

On-line TOC Monitoring at POCs

- a) The timing of installing TOC monitors needs to be evaluated in light of completing the first water quality study and beginning the second, more detailed evaluation.

OPEN DISCUSSION

City of Tampa noted that they are having trouble filling positions in the water quality department. Pasco related similar issues but once they changed the wording of a utility worker title to water quality technician, they had a much larger pool of applicants.

Discussion continued on the revised lead and copper rule that is still in the comment stage on the Federal Register. Concerns were expressed about the proposed 24-hour notification rule to customers and state agencies, changes related to lead service lines beyond the meter and new monitoring requirements for lead levels at schools and day care environments.

FSAWWA Best Tasting Drinking Water Contest will be held February 28th in Brooksville.

FSAWWA Water Loss Program has been approved and will offer free training for selected Utilities. One of the training sessions will be held in the Tampa area.

Next WQWG Meeting February 13th at 1:30p at Cypress Creek Magnolia IEM Bldg.

WQWG Meeting
Magnolia Conference Room @Cypress Creek WTP
January 9, 2020

1:30 pm

Name

Affiliation

Michael Stein

City of New Port Richey

Kendra Phillips

Pasco County

Ronnie McGee

Hillsborough County

max mcAmis

PASCO COUNTY

Kevin Jenkins

Pasco County

Ray Cleaver

R. Pasco County

Jake Carter

Pasco County

Wendy Tiff

Pinellas County

Evelyn Dooley

Tampa Bay Water

STEVE FLEISCHACKER

TAMPA BAY WATER

Dawn Lei

City of Tampa

Jim Kaplan

Pasco County

Paula Exner

WQA

MF

TBW